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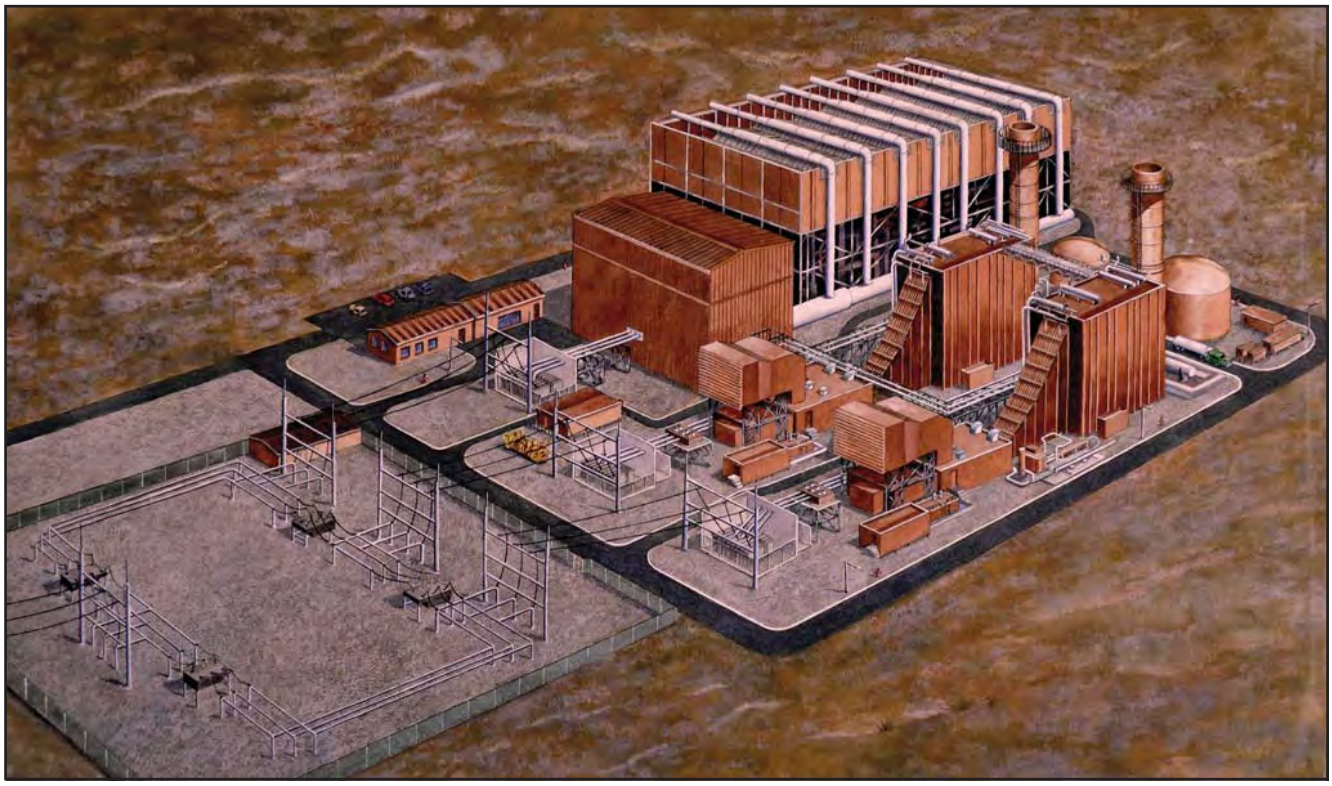
PALMDALE ENERGY PROJECT

Final Staff Assessment for Palmdale Energy Project (PEP)



CALIFORNIA
ENERGY COMMISSION
Edmund G. Brown, Jr., Governor

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PALMDALE ENERGY PROJECT (08-AFC-9C)
Petition to Amend the Final Commission Decision
FINAL STAFF ASSESSMENT
TABLE OF CONTENTS

PALMDALE ENERGY PROJECT (08-AFC-9C)

Petition to Amend the Final Commission Decision

EXECUTIVE SUMMARY

Testimony of Eric Veerkamp

INTRODUCTION

This Final Staff Assessment (FSA) contains the California Energy Commission staff's independent evaluation of the Palmdale Energy Project (PEP) Petition to Amend (PTA) (08-AFC-9C). The PSA examines engineering, environmental, public health and safety aspects of the PEP project, based on the information provided by the applicant (Palmdale Energy, LLC) and other sources available at the time the FSA was prepared. The PTA also requests the name change from PHPP to PEP. In accordance with direction provided by the Palmdale Amendment Committee, the Decision was used as a starting point for the PEP environmental analysis in this FSA. With respect to each topic area, staff makes a determination whether it is necessary to supplement the Commission's Decision, if so, a summary of the new information is provided, including resulting new or increased significant effects and new mitigation or alternatives and supporting factual information. If not, the conclusions of the Decision are relied upon. When issuing a license, the Energy Commission is the lead agency under the California Environmental Quality Act (CEQA), and its process is functionally equivalent to the preparation of an Environmental Impact Report (EIR). After a 30-day public comment period on the FSA, staff will provide its testimony to the Committee which will be used in preparing the Presiding Members Proposed Decision (PMPD)..

This FSA represents staff's independent assessment of the project's engineering design and its potential effects on the environment, the public's health and safety, and whether the project conforms with all applicable laws, ordinances, regulations and standards (LORS). The staff also recommends, where necessary, new measures, or modifications to existing measures, to mitigate potential significant adverse environmental effects and conditions of certification for construction, operation and eventual closure of the project, if approved by the Energy Commission.

This FSA is not the decision document for these proceedings, nor does it contain findings of the Energy Commission related to environmental impacts or the project's compliance with local, state, and federal LORS. The FSA has been prepared after incorporating comments received from the applicant, from intervenors, and from members of the public. In the evidentiary hearings, the Committee will consider the recommendations presented by staff, the petitioner, intervenors, governmental agencies, tribes, and the public prior to submitting its PMPD to the full Commission. Following a public hearing(s), the full Commission will make a final decision on the proposed modifications.

BACKGROUND

The PHPP was certified by the Energy Commission on August 10, 2011 (CEC 2011b). The PHPP was originally licensed as a nominal 570 megawatt (MW) hybrid facility utilizing combined-cycle and solar trough technologies located in the city of Palmdale, CA.; however, the facility was not constructed. Elements of the PHPP that are unchanged and approved in the PHPP Final Decision, and are part of the PEP, are described in this section. The project owner submitted a revised comprehensive PTA on July 17, 2015, also requesting to rename the project Palmdale Energy Project (PEP).

PROPOSED PROJECT LOCATION AND DESCRIPTION

The proposed site for the PEP is located in the northernmost portion of the city of Palmdale, approximately 60 miles north of downtown Los Angeles.

Construction of the proposed PEP would require permanent use of a 50-acre site for the power plant site, and an additional separate 20 acres for construction laydown and parking, located adjacent and north of the proposed power plant site. After completion of the project, the 20-acre parcel would be restored and re-vegetated, if necessary, and remain under the ownership of the city of Palmdale. The site is relatively flat with the main population base of the community of Palmdale approximately 4 miles south.

A complete description of the proposed modifications follows:

- Replacement of the General Electric gas turbines with new Siemens SGT6-5000Fs to meet pending need for “Flexible Resources” to support integration of renewable energy;
- A new steam turbine;
- A new auxiliary boiler;
- Elimination of the solar components of the approved project;
- Elimination of brine concentrator/crystallizer systems;
- Replacement of the wet cooling towers with an ACC;
- Reduction of the site from 333 acres to 50 acres;
- Reduction of the construction laydown and parking area from 50 acres to 20 acres;
- Reorientation of the power block with the HRSG stacks now on the east and the combustion turbine inlets to the west;
- Relocation of the site access road connection to East Avenue M easterly approximately 900 feet to the western edge of the site property border;
- Relocation of the point where the 230 kV transmission line turns south to the generating facility from East Avenue M to a point approximately 1,800 feet further west on East Avenue M;
- Addition of three 230 kV transmission line towers along the south side of East Avenue M north of the project site and extension of the generation tie-line westerly approximately 1,800 feet along the south side of East Avenue M;

- Addition of waste stream consisting of combustion turbine inlet evaporative cooler blow down, water treatment system reject, and plant drains;
- Reduction in the length of the approved sewer pipeline which will now interconnect with an existing city of Palmdale sewer pipeline along the south side of East Avenue M;
- Change in the water steam cycle chemistry control system from a phosphate based system to an all volatile system; and
- Possible change from a CO_2 based fire suppression system for some components to an FM200 based system.

PURPOSE OF THE PETITION

The purpose of the PTA is to (1) change the name of the project form the PHPP to the PEP; and (2) to update project technology and design. The PTA primarily proposes to eliminate the solar thermal component of the project, to change the combustion turbine generator technology, to change the cooling mechanism from water cooling to an Air Cooled Condenser (ACC), and to remove the Zero Liquid Discharge (ZLD) system, among other technical changes described in the previous section.

The proposed PEP is designed to operate as a flexible capacity resource and have the ability to start up to 2 times per day. The expected annual capacity factor is expected to be between 40 and 60 percent. Expected availability of the PEP is expected to be in the range of 90 to 95 percent. To evaluate worst case air emissions the applicant analyzed three different operating profiles when quantifying emission estimates for the proposed operation of the PEP. The operating profiles vary in the amount of operational hours up to 8,000 hours per year, as well as the number of start-up and shutdown events.

ENVIRONMENTAL JUSTICE

California law defines environmental justice as “the fair treatment of people of all races, cultures and income with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies” (Government Code Section 65040.12 and Public Resources Code Section 72000).

All Departments, Boards, Commissions, Conservancies and Special Programs of the Resources Agency must consider environmental justice in their decision-making process if their actions have an impact on the environment, environmental laws, or policies. Such actions that require environmental justice consideration may include:

- Adopting regulations;
- Enforcing environmental laws or regulations;
- Making discretionary decisions of taking actions that affect the environment;
- Providing funding for activities affecting the environment; and
- Interacting with the public on environmental issues.

In considering environmental justice in energy facility siting cases, staff uses a demographic screening analysis to determine whether a low-income and/or minority population exists within the potentially affected area of the proposed site. The demographic screening is based on information contained in two documents:

Environmental Justice: Guidance Under the National Environmental Policy Act (Council on Environmental Quality, December, 1997) and *Guidance for Incorporating Environmental Justice Concerns in EPA's Compliance Analyses* (U.S. Environmental Protection Agency, April, 1998). Due to the change in the sources and methods of collection used by the U.S. Census Bureau, the screening process relies on Year 2010 U.S. Census data to determine the number of minority populations and data from the 2005-2009 American Community Survey to calculate the population below-poverty-level.

Environmental Justice: Guidance Under the National Environmental Policy Act, defines minority individuals as members of the following groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. For purposes of environmental justice, a minority population is identified when one or more U.S. Census blocks in the six-mile radius has a minority population greater than fifty percent.

In addition to the demographic screening analysis, staff follows the steps recommended by the U.S. EPA's guidance documents which are outreach and involvement; and if warranted, a detailed examination of the distribution of impacts on segments of the population. Reference **Socioeconomics Figure 1** in the Socioeconomics section of this document.

SUMMARY OF ENVIRONMENTAL CONSEQUENCES AND MITIGATION

Below is a summary of environmental consequences of the amended project and mitigation proposed in this FSA. The summary table also includes the determination for each discipline whether the modified project would continue to comply with applicable LORS.

Executive Summary - Table 1
Environmental and Engineering Assessment and LORS Compliance

Technical Area	Complies with LORS	Impacts Mitigated	Additional Information Required
Air Quality/Greenhouse Gases	Yes	Yes	No
Biological Resources	Yes	Yes	No
Cultural Resources	Yes	Yes	No
Efficiency	Yes	Yes	No
Facility Design	Yes	Yes	No
Geological and Paleontological Resources	Yes	Yes	No
Hazardous Materials	Yes	Yes	No
Land Use	Yes	Yes	No
Noise and Vibration	Yes	Yes	No
Public Health	Yes	Yes	No
Reliability	Yes	Yes	No
Socioeconomics	Yes	Yes	No
Soil and Water Resources	Yes	Yes	No
Traffic and Transportation	Yes	Yes	No
Transmission Line Safety and Nuisance	Yes	Yes	No
Transmission System Engineering	Yes	Yes	No
Visual Resources	Yes	Yes	No
Waste Management	Yes	Yes	No
Worker Safety and Fire Protection	Yes	Yes	No
Alternatives	NA	NA	No

In accordance with CEQA Guidelines section 15162, staff concludes that supplementation to the 2011 Decision for the PHPP is necessary for Cultural Resources, and Air Quality. Supplementation is not necessary for Biological Resources, Hazardous Materials Management, Land Use, Noise and Vibration, Public Health, Socioeconomics, Soil and Water Resources, Traffic and Transportation, Transmission Line Safety and Nuisance, Visual Resources, Waste Management, Worker Safety and Fire Protection, Facility Design, Geology and Paleontology, Power Plant Efficiency, Power Plant Reliability, and Transmission System Engineering.

AIR QUALITY AND GREENHOUSE GASES

The PEP is considered a new project by the Antelope Valley Air Quality Management District (AVAQMD or District). The permits issued by the AVAQMD for the PHPP project are no longer valid. This PTA triggered a review under AVAQMD Rule 1306, Electric Generating Facilities, and the AVAQMD published a Preliminary Determination of Compliance (PDOC) on February 3, 2016, and a Revised PDOC on May 11, 2016. A Final Determination of Compliance (FDOC) was docketed on July 25, 2016, and a revised FDOC was docketed on August 24, 2016 The FDOC was docketed on July 25, 2016 that incorporates the petitioner's revised offset package and EPA's comments on the revised PDOC. A revised FDOC was submitted to the Energy Commission and filed to the docket on August 24, 2016. The revised FDOC includes a small correction to the

daily emissions based on the project's owner's proposed daily assumptions. No additional comments have been made by the U.S. EPA.

Staff has assessed both the potential for localized impacts and regional impacts for the amended project's construction and operation. Staff recommends mitigation and monitoring requirements in sufficient quantities to reduce the potential impacts of the proposed project to less than significant. Mitigation would need to be provided in the form of ERCs or other forms of mitigation to fully mitigate emissions of all nonattainment pollutants and their precursors.

BIOLOGICAL RESOURCES

Although supplementation is not necessary, changes to the conditions of certification in the PHPP Decision are needed as a result of the elimination of the solar component of the licensed project. With this project change, the amount of compensatory habitat required as mitigation for previously identified impacts to Swainson's hawk and Mohave ground squirrel habitat would be substantially reduced. Staff has updated Conditions of Certification **BIO-14**, **BIO-17**, and **BIO-20** to reflect the changes to the amounts of raven management fee, compensatory habitat, and financial security that would be required. In addition, elimination of the solar component would avoid previously identified impacts on avian species from collisions with the solar mirrors warranting deletion of Condition of Certification **BIO-24**. Staff considered applicant's request to eliminate **BIO-25** and still recommends that **BIO-25,** regarding project closure, is retained as written.

Like the licensed project, implementation of existing Conditions of Certification **BIO-1** through **BIO-23** and **BIO-25** would mitigate potential impacts that may occur during construction of the amended project to less than significant and would ensure these activities comply with applicable laws, ordinances, regulations, and standards LORS.

CULTURAL RESOURCES

New archaeological resources were identified in the project area of analysis ; however, staff recommends that these resources are not eligible for the California Register of Historical Resources and concludes that the PEP would not have direct, indirect or cumulative impacts to archaeological resources. Impacts to any buried, as-yet-unidentified archeological resources would be mitigated through the implementation of Conditions of Certification **CUL-1** through **CUL-8**.

EFFICIENCY

The PEP would create no significant impacts related to Power Plant Efficiency. The PEP's thermal efficiency would compare favorably with the efficiency of the currently-operating, similar combined-cycle electric generation power plants that provide rapid-response capability. The needed quantities of natural gas fuel for the amended project would not result in a significant impact on natural gas supplies and resources, and the project's source of natural gas fuel would be reliable.

FACILITY DESIGN

Revisions to the conditions of certification are minor and would not substantially affect Facility Design since the same LORS and design review and inspection process apply to

the PEP as those in the Decision. No further analysis is needed due to the following reasons. Staff concludes that the proposed PEP would comply with applicable engineering LORS, and that the proposed conditions of certification would continue to ensure compliance.

GEOLOGICAL AND PALEONTOLOGICAL RESOURCES

The potential adverse impacts to the PEP from seismic and geologic hazards during its design life would be less than significant provided Condition of Certification **GEO-1** is revised as proposed herein and **GEO-2** through **GEO-5** are implemented as originally adopted in the Decision. Staff proposes revisions to Condition of Certification **GEO-1** to ensure compliance with current design standards that protect the public health and safety from seismic and geologic hazards. These standards are found in the California Code of Regulations, Title 24, California Building Standards Code [California Building Code (2013)], adopted since licensing of the PHPP.

Staff concludes no new significant impacts to geologic or mineralogic resources would result from the PEP construction, operation, and closure, as there are no known viable geologic or mineralogical resources at the proposed PEP site. Potential impacts to paleontological resources due to construction activities would be mitigated through worker training and monitoring by qualified paleontologists, as required by Conditions of Certification, **PAL-1** through **PAL-8.** Staff has proposed revisions to these conditions to ensure consistency with current LORS and professional guidelines.

HAZARDOUS MATERIALS

The changes in the PTA would not create new significant environmental effects or substantial increases in the severity of previously identified significant effects. In fact, the changes proposed in the PTA would reduce any environmental impact to a level even less than the approved project. The PTA does not propose substantial changes which would require major revisions of the Hazardous Materials Management analysis in the Decision. The circumstances under which the PEP would be undertaken would not require major revisions of the Hazardous Materials Management analysis in the Decision.

Only two LORS applicable to Hazardous Materials Management have changed since the Energy Commission Decision was published in August 2011. One is already addressed in existing Condition of Certification **HAZ-9** (security) and the other is addressed in proposed new Condition **HAZ-10** (prohibition of gas blows). One engineering mitigation measure is proposed to be revised and this revision is addressed by slightly modifying Condition **HAZ-4**. One existing Condition is proposed for deletion (**HAZ-7**) due to the elimination of the solar component which resulted in heat transfer fluid no longer being proposed for use. Only minor changes are proposed for existing Conditions **HAZ-1** and **HAZ-2**.

LAND USE

Staff concludes that the PEP would have no new land use impacts and the mitigation approved for the PHPP would still be applicable and would not require any substantive changes beyond the minor clarification to the AIN and updated project name in **LAND-3**

and the addition of **LAND-4** addressing the need for a Franchise Agreement. Therefore, staff concludes that the findings of fact from the Decision would still apply to the PEP:

NOISE AND VIBRATION

Based on experience with similar power block equipment as those proposed for the PEP, staff believes vibration from the PEP would be undetectable by any likely receptor. Changes in the PTA would not create new significant environmental impacts or substantial increases in the severity of previously identified significant impacts, the PTA does not propose substantial changes which would require major revisions of the Noise and Vibration analysis contained in the Decision, and the circumstances under which the PEP would be undertaken would not require major revisions of the Noise and Vibration analysis contained in the Decision.

Existing Conditions of Certification **NOISE-1**, **NOISE-2**, **NOISE-3**, **NOISE-5**, **NOISE-6**, and **NOISE-7** and the revised Condition of Certification **NOISE-4** would be sufficient to reduce impacts from the PEP to a less than significant level directly, indirectly, and cumulatively and to ensure the project remains in compliance with applicable LORS relating to noise and vibration.

PUBLIC HEALTH

California Energy Commission staff has analyzed the potential human health risks associated with construction and operation of the renamed PEP as proposed in the PTA for the Decision for the PHPP. Staff's analysis of potential health impacts of the PEP was based on a conservative health protective methodology that accounts for impacts to the most sensitive individuals in a given population. Staff concludes that there would be no significant health impacts from the PEP's potential toxic air contaminant emissions. Staff also concludes that the proposed modification would not affect the PEP's ability to comply with applicable LORS.

RELIABILITY

Staff concludes that similar to the PHPP, the PEP would be built and would operate in a manner consistent with industry norms for reliable operation and would maintain a level of reliability which equals or exceeds reliability of similar operating electric generation facilities.

SOCIOECONOMICS

Staff has reviewed the Decision and PTA for potential environmental effects. The changes in the PTA would not create new significant workforce-related impacts on housing, schools or other community services, or substantial increases in the severity of previously identified significant effects. Staff concludes that changes in the PTA would not create new significant workforce-related impacts.

However, Palmdale Energy, LLC has purchased all rights, licenses, permits, options, etc. in existence to the PEP from the city of Palmdale. The change in project ownership requires that the California Education Code Section 17620 and California Government Code Section 65995-65998 are included in the assessment of the PTA as applicable LORS. In the Final Staff Assessment (FSA), staff concluded that the PHPP was exempt

from paying school impact fees because the project owner was the city of Palmdale. The change in project ownership from a public entity (city of Palmdale) to private entity (Palmdale Energy LLC) makes the PEP subject to school impact fees.

SOIL AND WATER

In accordance with the California Environmental Quality Act (CEQA) Guidelines §§ 15162 (Cal. Code Regs., tit. 14, § 15162), staff recommends that no supplementation of the 2011 Decision is currently needed for **Soil and Water Resources**. However, new information and changed circumstances require this revised analysis, even though the amendment would reduce impacts to soil and water resources.

Where needed, staff recommended changes to the conditions of certification in the 2011 Decision to account for the PHPP redesign. None of the proposed changes are recommended due to a finding of new potential significant adverse impacts to soil and water resources not considered in the approved PHPP. With implementation of the modified conditions of certification, PEP can be constructed and operated in accordance with all applicable LORS, and in a manner that both protects soil and water resources and ensures standards are met to safeguard the public health, safety, and general welfare.

TRAFFIC AND TRANSPORTATION

The traffic analysis in the Decision for the PHPP addressed the project's impacts on the local transportation system. The analysis included an assessment of impacts on the levels of service of the roads to be used by construction and operation vehicles; the frequency of trips and probable routes associated with the delivery of hazardous materials; and the effects of the project on flight operations at the United States Air Force Plant 42. The Decision found the PHPP in conformance with the applicable LORS related to traffic and transportation and determined that all potential adverse traffic impacts will be mitigated to less than significant.

TRANSMISSION SYSTEM ENGINEERING

The PTA the Decision for the PHPP (CEC 2011b) for facilities between the new generators and Southern California Edison (SCE) Vincent Substation including the step-up transformers, the project 230 kiloVolt (kV) switchyard, the 230 kV overhead transmission lines, and terminations is acceptable and would comply with all applicable laws, ordinances, regulations, and standards (LORS).

The interconnection with the SCE transmission grid would not require additional downstream transmission facilities (other than those proposed by the applicant) that require CEQA review. The PTA would not cause additional downstream transmission impacts other than those identified in the approved Decision. The Phase II Interconnection Study for the Queue Cluster 8 will determine if detail ground grid analysis would be needed for substations with ground grid duty concerns. Staff proposes no changes to the Conditions of Certification **TSE CONDITIONS OF CERTIFICATION 1-7**.

TRANSMISSION LINE SAFETY AND NUISANCE

Staff's assessment shows that the proposed design and operational plan would not result in any significant adverse environmental impacts nor affect the ability of the PEP to comply with applicable LORS given that the previously-approved conditions of certification would be retained.

VISUAL RESOURCES

Staff has reviewed the PTA for the 2011 Decision for the PHPP and has determined that the proposed changes to the licensed project would not create new significant visual impacts or increase the severity of previously identified significant visual impacts. Conditions of Certification **VIS-2** through **VIS-5** in the Decision would ensure that the amended PHPP would not have significant adverse impacts on visual resources and would ensure the amended project continues to comply with LORS.

WASTE MANAGEMENT

Although supplementation under 15162 is not necessary, changes to the conditions of certification in the Decision are needed as a result of the elimination of the solar component and wet cooling of the licensed project. A number of conditions of certification should be modified or deleted to incorporate changes associated with the PTA and reflect updates in regulatory requirements. Conditions of certification **WASTE-5**, **WASTE-6**, and **WASTE-10** were modified to reflect changes in the project owner's reporting requirements, and to refer to the PEP. Condition of Certification **WASTE-9** is no longer required; the city of Palmdale will now be responsible for waste conservation programs within the city's limits. The Therminol Heat Transfer Fluid and the cooling tower were eliminated from PEP; therefore Conditions of Certification **WASTE-11** and **WASTE-12** would no longer be required.

The amount of waste generated by the PEP would not significantly impact nonhazardous or hazardous landfill capacity. Additionally, implementation of the existing conditions of certification would mitigate to less than significant the impacts of PEP and would ensure PEP complies with the applicable waste management LORS.

WORKER SAFETY AND FIRE PROTECTION

The PEP amendment would eliminate the solar energy component, thus reducing the project site from 333 acres to 50 acres; it would remain located on the same parcel of land, and the workers would be subjected to a similar power plant work environment, while the risk of fire would be decreased due to the absence of solar heat transfer fluid at the project site. The impacts to the workers would remain the same or be lower than the risks posed by the original approved project and impacts to the local fire authority would be lower than for the approved project. Staff therefore has determined that the proposed amendments would not result in a significant impact to the public due to worker safety or fire protection practices at the project, and that the amended project would comply with all applicable LORS.

The changes in the PTA would not create new significant environmental effects or substantial increases in the severity of previously identified significant effects. In fact, the changes proposed in the PTA would reduce any environmental impact to a level even less than the approved project. Further, the PTA does not propose substantial changes

that would require major revisions of the Worker Safety and Fire Protection analysis in the Decision, and the circumstances under which the amended PEP would be undertaken would not require major revisions of the Worker Safety and Fire Protection analysis in the Decision.

ALTERNATIVES SUMMARY

Staff reviewed alternatives previously analyzed for the licensed PHPP design and related facilities, alternative technologies, and the “no project” alternative. In addition, staff reviewed the preferred resource alternatives of renewable generation technologies, which were previously analyzed, including solar, geothermal, biomass, wind, hydropower, and fuel cell. Staff also provided a discussion of preferred resources including energy efficiency and demand response programs, distributed generation, and energy storage, which were not considered in previous staff assessments of the PHPP. **Alternatives** previously found to be infeasible would continue to be found infeasible, and would not substantially reduce one or more significant effects of the proposed PEP. In addition, new information does not show alternatives which are considerably different from those analyzed in the PHPP FSA would substantially reduce one or more significant effects on the environment (CEC 2010).

EXECUTIVE SUMMARY
CUMULATIVE IMPACTS ATTACHMENT A

CUMULATIVE IMPACTS

Preparation of a cumulative impact analysis is required under CEQA. In the 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.

CEQA also states that both the severity of impacts and the likelihood of their occurrence are to be reflected in the discussion, “but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion of cumulative impacts shall be guided by standards of practicality and reasonableness, and shall focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact” (14 Cal. Code Regs., §15130(b)).

DEFINITION OF THE CUMULATIVE PROJECT SCENARIO

Cumulative impacts analysis is intended to identify past, present, and probable future actions that are closely related either in time or location to the project being considered, and consider how they have harmed or may harm the environment. Most of the projects listed in the cumulative projects tables (**Executive Summary - Table 1)** and corresponding figure (**Executive Summary - Cumulative Impacts Figure 1**) have, are, or will be required to undergo their own independent environmental reviews under CEQA.

Under CEQA, there are two acceptable and commonly used methodologies for establishing the cumulative impact setting or scenario: the “list approach” and the “projections approach.” The first approach would use a “list of past, present, and probable future projects producing related or cumulative impacts.” (14 Cal. Code Regs., §15130(b)(1)(A)). The second approach is to use a “summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact.” (14 Cal. Code Regs., §15130(b)(1)(B)). This FSA uses the “list approach” for purposes of state law to provide a tangible understanding and context for analyzing the potential cumulative effects of the proposed project.

In order to provide a basis for cumulative analysis for each discipline, this section provides information on other projects in both maps and tables. All projects used in the Cumulative Impacts Analysis for this PSA are provided in cumulative projects tables. **Executive Summary – Cumulative Impacts Figure 1,** presented at the end of this section, shows projects within 50 miles of the PEP site. However, within the desert region, the specific area of cumulative effect varies by resource. For this reason, each discipline has identified the geographic scope for the discipline's analysis of cumulative impacts, which may exceed the 50-mile buffer shown in **Figure 1**.

APPROACH TO CUMULATIVE IMPACT ANALYSIS

Staff developed the PEP Cumulative Project List by contacting planning staff with the cities of Palmdale and Lancaster. Staff also reviewed proposed project information from other agencies, including CALTRANS and the CEQANet database.

Executive Summary Table 1
PEP Cumulative Project List

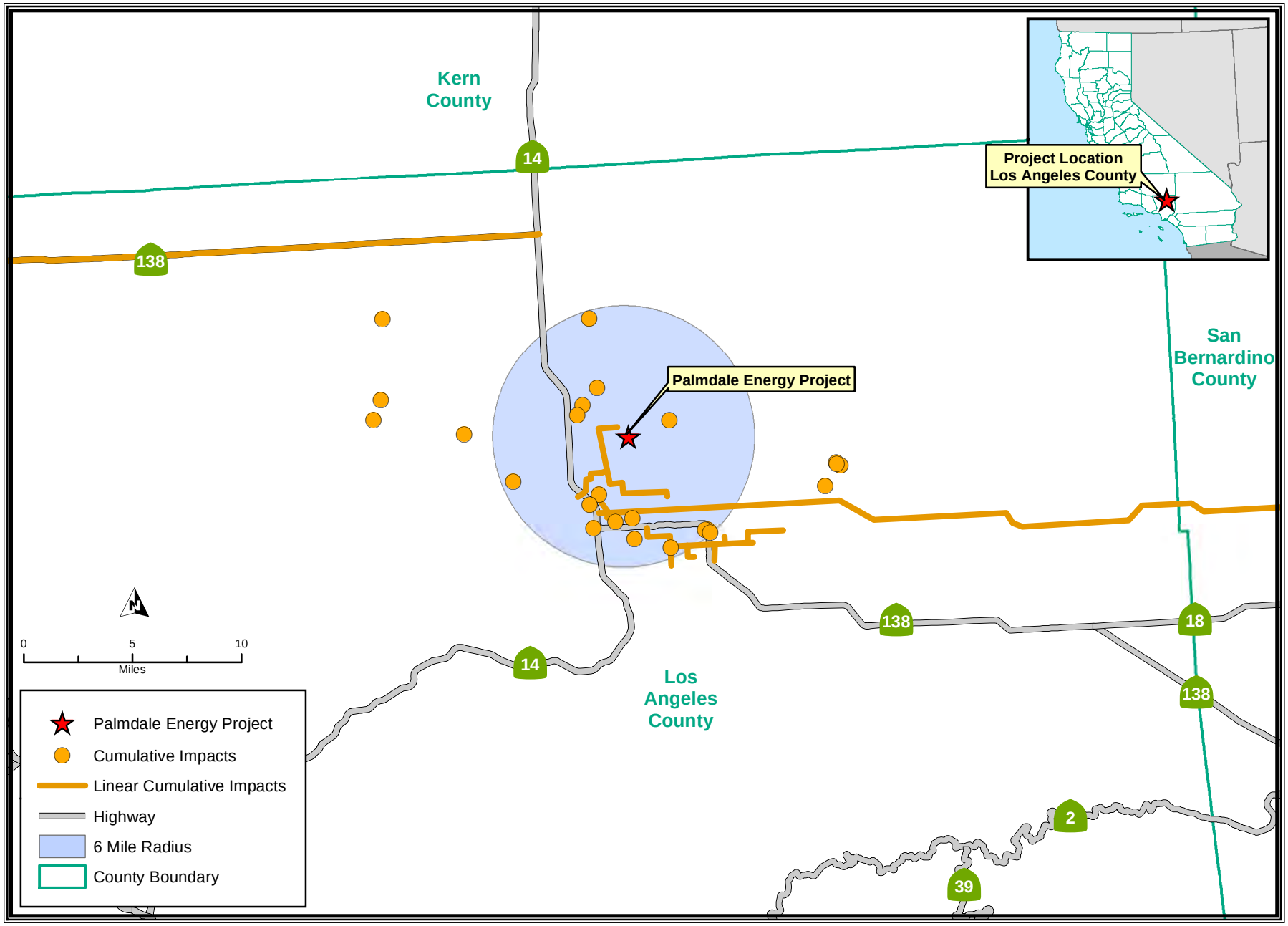
Label ID #	Project Name	Description	Location	Distance from Project (Miles)	Status
1	Recycled Water Project	The proposed Antelope Valley Recycled Water Backbone would link Lancaster pipelines to Palmdale's Water Reclamation Plant.	Sierra Highway, Ave M, Ave O, Ave P, Ave R, Rancho Vista Blvd, Palmdale	Various Locations	IS/MND
2	Site Plan Review No. 14-03	Construction of a 1-story, 28,878 sq. ft. DMV facility with 264 parking spaces.	8th Street West, Lancaster	2.5	MND
3	Kaiser Wind Turbine Project	Installation and operation of a 250-foot Toshiba U50 (750 kW) wind turbine. 1,500-foot trench would allow for the installation of a conduit to connect the wind turbine to the medical office building.	10th St West, 5th St. West, Ave. L, Ave. K-8, Lancaster	2.5	MND
4	Conditional Use Permit 14-12 (Penny Lane)	Construction of 75 affordable housing units totaling 68,866 sq. ft.	43401-43499 E Sahuayo Street, Lancaster	2.6	MND
5	CUP 14-017	Assisted living facility totaling 114,760 sq. ft. on 6-acres.	Northwest corner of Rancho Vista Blvd. and Division St. Palmdale	3.0	Completed
6	High Desert Corridor Project	Construct a new freeway/expressway connecting the City of Palmdale with the town of Apple Valley in San Bernardino County. HDCP is approximately 63 miles long. Construction estimated 2016 to 2040. Six construction phases each phase estimated 36 to 48 months.	SR-14 to SR-18, Los Angeles and San Bernardino counties	3.1	DEIR, Final EIR projected to be released Spring 2016
7	SPR 14-004	Request to construct pre-owned auto sales (three buildings totaling 51,103 sq. ft.).	Northeast corner of Technology Dr. and 5th St West, Palmdale	3.6	Approved

Label ID #	Project Name	Description	Location	Distance from Project (Miles)	Status
8	SPR 15-004	Proposed assisted care living facility within a 57,935 sq. ft. building.	12th Place East and East Ave. Q-2, Palmdale	3.8	Pending Approval
9	CUP 15-011	Request to establish use with alcohol sales and parking lot improvements.	100 feet south Avenue Q3, Palmdale	3.9	Pending Approval
10	SPR 15-005	Proposed 13,750 sq. ft. medical office building on 1.44-acres.	700 ft. south of Palmdale Blvd W of 5th St West, Palmdale	4.5	Approved
11	CUP 15-003	Request to develop 1.09-acres into church classrooms (1) bldg. at 2,075 sq. ft.	1328 East Ave R, Palmdale	4.7	Pending Approval
12	CUP 14-028	Proposed legalization of existing religious assembly use and proposed 6,817 sq. ft. expansion.	3030 East Ave. R-8, Palmdale	5.4	Pending Approval
13	47th Pavilion – Super Target Center	7,300 sq. ft. tire store.	Avenue R and 47th Street East, Palmdale	5.6	Completed
14	SPR 14-008	Request to develop a 1.4-acre parcel with a 4,152 sq. ft. retail/food use.	Ave R and 47th St E, Palmdale	5.6	Approved
15	Rancho Vista Boulevard and Town Center Drive	Walmart will be constructing a 40,000 sq. ft. market on the north side of Ranch Vista Boulevard, west of Town Center Drive.	North side of Ranch Vista Boulevard, west of Town Center Drive, Palmdale	5.7	Completed
16	Site Plan Review No. 15-03	Automobile recycling yard, including 5,580 sq. ft. of vendor shops, a 9,600 sq. ft. warehouse, and a 12,000 sq. ft. car crusher.	W Avenue H and Division Street, Lancaster	5.7	MND
17	Plaza Vallarta (Avenue R and 47th Street East)	7,200 sq. ft. auto parts store.	Avenue R and 47th Street East, north of Chase bank, Palmdale	5.8	Requires Final Approval Completed
18	Rottman Drilling Co.	Engine type: DIESEL IC ENGINE, PORTABLE PRIME Equipment: Year of Mfg. 2008, Rebuilt in 2014, Certified Tier 3, USEPA Family 8DDXL14.0VLD	46471 N Division Street, Lancaster	5.9	Approved
19	Blessed Junipero Serra Parish Expansion (CUP 14-13)	Expansion of a church totaling approximately 62,612 sq. ft.	60th Street West & Avenue M (Columbia Way), Lancaster	7.5	MND
20	SPR 14-006	Proposal to construct a ground mounted solar PV facility on 39-acres.	Southeast corner future alignment of Ave P and 100th E, Palmdale	9.3	Approved
21	SPR 15-001	Request to develop 25-acres into solar PV facility	Southwest corner of 110th East and Ave. Q, Palmdale	9.6	Approved

Label ID #	Project Name	Description	Location	Distance from Project (Miles)	Status
22	SPR 14-010	Request to develop 24-acres for solar from approved SPR 13-003 (160 aces)	Southwest corner of East Ave O and 110th St East, Palmdale	9.8	Approved
23	Northwest 138 Corridor Improvement Project	Corridor alternatives and related operational improvements such as improving sight distance and bringing non-standard roadway features up to current standards. Extends 36 miles along SR-138 from I-5 to SR-14 in Los Angeles County.	SR-138, 36 miles between I-5 and SR-14, Los Angeles County	10.1	Preparing DEIR. Circulation Spring 2016
24	Independence Solar and Big Horn Solar projects	Two PV solar facilities. Conditional Use Permit 15-07 is for construction and operation of a 5 MW PV facility and Conditional Use Permit 15-09 is for construction and operation of a 60 MW PV facility.		11.5	IS
25	Lancaster Energy Center	150 MW AC ground-mounted solar PV power facility. Project components would include access roads, solar modules, single-axis tracking or fixed-tilt systems, direct current (DC) to AC power inverters, medium voltage transformers, a medium voltage collection system, and interconnection switching stations.	Lancaster	11.7	DRAFT EIR
26	Del Sur Solar Project	Proposed 100 MW utility-scale solar generating facility on 725-acres. Solar electricity generated would be delivered by an approximately 2 to 4-mile underground gen-tie and communication line that would extend to two previously approved substations near the existing Southern California Edison Antelope Substation on West Avenue J, south of the proposed project.	Lancaster	12.5	DEIR June 2015
27	XpressWest	XpressWest is a proposed high-speed passenger railroad that would connect Las Vegas with Southern California.	I-15 corridor to Las Vegas	41.1	Obtaining additional required regulatory approvals

EXECUTIVE SUMMARY - FIGURE 1

Palmdale Energy Project - Cumulative Projects Map



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: California Energy Commission, Open Street Map

PALMDALE ENERGY PROJECT (08-AFC-9C)
Petition to Amend the Final Commission Decision
INTRODUCTION

Eric Veerkamp

On July 20, 2015, Palmdale Energy, LLC submitted a Revised Petition to Amend (PTA), to construct and operate the Palmdale Energy Project (PEP), a natural gas-fired combined-cycle generating facility in the city of Palmdale, Los Angeles County. On August 5, 2015, a Notice of Receipt (NOR) of the PTA was docketed initiating California Energy Commission staff's independent analysis of the proposed project to amend the 2011 Energy Commission Final Decision for the Palmdale Hybrid Power Project (PHPP) (Decision). The PTA also requested to change the name of the PHPP to the Palmdale Energy Project. The PTA requests elimination of the solar thermal trough element of the Decision as well as changing the gas turbine and steam turbine generators, adding an auxiliary boiler, and replacing the wet cooling tower with an air cooled condenser.

The proposed site for the PEP is located in the northernmost portion of the city of Palmdale, approximately 60 miles north of downtown Los Angeles. The site address is 950 East Avenue M.

AMENDMENT PROCESS

The purpose of the Energy Commission's amendment review process is to assess the impacts of the changes to the licensed project on environmental quality and public health and safety. The review process will also determine if the proposed modified project would remain in compliance with applicable laws, ordinances, regulations, and standards (LORS) (Cal. Code Regs., tit. 20, § 1769).

For an amendment to an existing power plant over which it has regulatory oversight, the Energy Commission is the lead state agency under the California Environmental Quality Act (CEQA). The Energy Commission's certified regulatory program provides the environmental analysis that satisfies CEQA requirements. In fulfilling this responsibility, staff provides an independent assessment of the amendment's engineering design, evaluates its potential effects on the environment and on public health and safety, and determines whether the project, if modified, would remain in conformance with the conditions of certification in the Decision and all applicable LORS. The analysis is guided by CEQA Guidelines section 15162, which provides that no new environmental impact analysis is necessary unless:

1. Substantial changes are proposed in the project which will require major revisions of the Decision due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

2. Substantial changes have occurred with respect to the circumstances under which the project is undertaken which will require major revisions of the previous Final Decision due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

3. New information of substantial importance which was not known, and could not have been known at the time of preparation of the previous Final Decision, shows:

    a. The project will have one or more significant effects not discussed in the previous Decision;

    b. Significant effects previously examined will be substantially more severe than shown in the previous Decision;

    c. Mitigation measures or alternatives previously found to be not feasible would now be feasible and would substantially reduce one or more significant effects of the project, but the project proponent declines to adopt the mitigation measure or alternative; or

    d. Mitigation measures or alternatives which are considerably different from those analyzed in the previous Final Decision would substantially reduce one or more significant effects on the environment, but the project proponent declines to adopt the mitigation measure or alternative.

Staff has included in each topic area of the Final Staff Assessment (FSA), a discussion of whether or not supplementation of the Decision is necessary under section 15162, including the factual information that supports staff's conclusion. If the Energy Commission Committee assigned to oversee this PTA proceeding concludes that no supplementation is required, the Committee will rely upon the environmental analysis and conclusions of the Decision and will not re-analyze them. Should the proposed revised project result in significant impacts that cannot be avoided or mitigated, the Committee will make a recommendation about whether to adopt a statement of overriding considerations for those impacts.

Although the Committee may choose not revisit the environmental analysis for some topic areas, the LORS analysis is not subject to section 15162 and must be updated to the extent necessary to analyze the compliance of the amended project with LORS.

PURPOSE OF THIS REPORT

This FSA is being published by the Energy Commission staff and is staff's independent analysis of the PTA for the PEP. This FSA is a staff document; it is neither a Committee document, nor a draft Decision. The FSA describes the following:

- the proposed modified project, PEP;
- the updated existing environment from the approved site;
- whether the modified facilities can be constructed and operated safely and reliably in accordance with applicable LORS;
- the potential direct, indirect, and cumulative impacts of the modified project;
- modified and/or new conditions of certification proposed by the project owner, staff, interested agencies, local organizations, tribes, and intervenors which may lessen or eliminate potentially significant adverse impacts of the modified project;

- project alternatives; and
- responses to public comments and project owner comments that were received by staff on the Preliminary Staff Assessment (PSA).

The analyses contained in this FSA are based upon information from: 1) the PTA and Supplements to the PTA provided by the project owner; 2) responses to staff data requests; 3) supplementary information from local, state, and federal agencies, interested organizations and individuals; 4) existing documents and publications including the record from the approved PHPP; 5) independent research; 6) comments at public workshops; and 7) other docketed communications. The analyses for most technical areas include discussions of proposed modifications to conditions of certification, and/or additional conditions of certification. Each condition of certification is followed by a proposed means of verification. All changes to conditions of certification in the original decision are shown in this document so the reader can easily identify the changes being proposed to the Decision. Furthermore, all changes to conditions of certification based on comments received on the PSA are highlighted for the benefit of the reader.

The FSA presents staff's final conclusions and recommendations about potential environmental impacts and conformity with LORS of the modified project, as well as modified and/or new conditions that apply to the design, construction, operation and closure of the facility.

This document is intended to be a complete review of the PEP and in many cases relies on analysis that was prepared during the licensing process for the approved PHPP project as baseline information. This information has been reviewed and updated to reflect current conditions and the setting that exists today.

ORGANIZATION OF THE FINAL STAFF ASSESSMENT

The sections in this FSA include an Executive Summary, Introduction, Project Description, and the Project Analysis. The Project Analysis contains an Environmental Assessment, Engineering Assessment, Alternatives and General Conditions of Certification. The Environmental Assessment contains the following chapters:

Air Quality
Biological Resources
Cultural Resource
Hazardous Materials Management
Land Use
Noise and Vibration
Public Health, Socioeconomics
Soil and Water Resources
Traffic and Transportation
Transmission Line Safety and Nuisance
Visual Resources
Waste Management
Worker Safety and Fire Protection

The Engineering Assessment contains the following sections:

Facility Design
Geology and Paleontology
Power Plant Efficiency
Power Plant Reliability
Transmission System Engineering

The Compliance Conditions of Certification and a Compendium of conditions of certification across all technical areas follow the Environmental Assessment and Engineering Assessment. Included in the Compliance Conditions of Certification are discussions of facility closure, project construction and operation, and compliance monitoring plans. Finally, there is a list of staff that assisted in preparing this report.

All of the sections under the Environmental Assessment, Engineering Assessment, and the General Conditions of Certification include a: Summary of Conclusions; Introduction; Summary of Decision; discussion of LORS; an Environmental Impact Analysis; and Conclusions and Recommendations. The Conditions of Certification for both construction and operation (if applicable) are shown in a Compendium of Conditions at the end of the document.

ENERGY COMMISSION REVIEW PROCESS

The Energy Commission has the exclusive authority to certify the construction and operation of thermal electric power plants 50 megawatts or larger. The Energy Commission certification is in lieu of any permit required by state, regional, or local agencies, and federal agencies to the extent permitted by federal law (Pub. Resources Code, §25500).

The Energy Commission's regulations require staff to independently review the PTA and assess whether the proposed changes to the project design, operation, and/or performance will have a significant adverse effect on the environment, will require a change or deletion of a condition of certification adopted by the Energy Commission in the Final Decision, or if the proposed changes will cause the project to no longer comply with applicable LORS. (Cal. Code Regs., tit. 20, § 1769(a)).

Staff conducts its environmental analysis through a CEQA equivalent process, thus no Environmental Impact Report is required because the Energy Commission's site certification program has been certified by the Secretary of the California Natural Resources Agency (Pub. Resources Code, §21080.5 and Cal. Code Regs., tit. 14, §15251 (k)). The Energy Commission is the CEQA lead agency and is subject to all portions of CEQA applicable to certified regulatory activities.

The staff prepares an FSA that presents for the applicant, intervenors, organizations, agencies, other interested parties, and members of the public, the staff's analysis, conclusions, and recommendations. Where it is appropriate, the FSA incorporates comments received from agencies, the public, and parties to the siting case and comments made at the workshops.

The public comment period that followed the publication of the PSA ended on April 22, 2016. The comment period is used to resolve issues between the parties and to narrow the scope of adjudicated issues in the evidentiary hearings. Staff conducted one workshop on April 20, 2016 to discuss its conclusions, proposed mitigation, and proposed verification measures. Based on the workshop dialogue and written comments received, staff refined its analysis, corrected known errors, and finalized conditions of certification to reflect any changes agreed to between the parties.

The FSA is only one piece of evidence that will be considered by the Committee in reaching a decision on whether or not to recommend that the full Energy Commission approve the PEP. At the public evidentiary hearings, all parties will be afforded an opportunity to present evidence, thereby creating a hearing record on which a decision on the project can be based. The hearing before the Committee also allows all parties to argue their positions on disputed matters, if any, and it provides a forum for the Committee to receive comments from the public and other governmental agencies.

Following the hearings, the Committee's recommendation to the full Energy Commission on whether or not to approve the proposed project will be contained in a document entitled the Presiding Member's Proposed Decision (PMPD). Following publication, the PMPD is circulated in order to receive written public comments. At the conclusion of the comment period, the Committee may prepare a revised PMPD. At the close of the comment period for the revised PMPD, the PMPD is submitted to the full Energy Commission for a decision.

A Compliance Monitoring Plan and General Conditions of Certification will be assembled from conditions contained in the Final Decision. Staff's implementation of the plan ensures that a certified facility is constructed, operated, and closed, in compliance with the conditions of certification adopted by the Energy Commission.

PUBLIC AND AGENCY COORDINATION

The Energy Commission amendment process includes a schedule that provides public comment and participation opportunities along with staff technical review and analysis. The Energy Commission seeks comments from, and works closely with, other regulatory agencies that administer LORS that may be applicable to the proposed project.

During the review process of the amendment, staff will continue to coordinate with local, state, and federal agencies that have an interest in the project. Staff expects to continue to work with the cities of Palmdale and Lancaster, the Sanitation Districts of Los Angeles County, the Los Angeles County Waterworks Districts, Los Angeles County, Los Angeles County Fire; California Independent System Operator; California Air Resources Board; Antelope Valley Air Quality Management District; San Joaquin Valley Air Pollution Control District; California Department of Fish and Wildlife; U.S. Fish and Wildlife Service; U.S. Army Corps of Engineers; and the Federal Environmental Protection Agency to identify and resolve issues of concern. In addition, as necessary, staff will coordinate the review and analysis of the project with any interveners and interested residents of the community.

Staff anticipates several public events that include: a prehearing conference, evidentiary hearings, a public hearing for the Presiding Member's Proposed Decision (PMPD), a committee conference on the PMPD and a Commission Business Meeting where the full commission will vote on the PMPD. Public agencies and interested parties will be active participants in this process.

OUTREACH EFFORTS

Staff sent notices regarding receipt of the PTA and Energy Commission events and reports related to the proposed project to interested persons, including all property owners within 1,000 feet of a project and 500 feet of a linear facility (such as generation-tie lines, gas lines and water lines). Notices have also been provided to local libraries, adjacent cities and counties, Native American communities, local elected representatives and other interested parties.

On August 15, 2015, the NOR for the PTA was mailed to the post-certification mailing list, along with updated interested parties. The Hearing Officer sent a public notice to appropriate parties on October 16, 2015, for a November 16, 2015, Informational Hearing and Site Visit. The Compliance Project Manager sent a public notice to appropriate parties on December 7, 2015, for a December 17, 2015, Data Response and Issue Resolution Workshop. A second Data Response and Issue Resolution Workshop was conducted on February 17, 2016; notice went out on February 1, 2016. Staff's ongoing public and agency coordination activities for this project are discussed under the "Public and Agency Coordination" heading in the **Executive Summary** section of the PSA.

The Energy Commission's outreach efforts are an ongoing process that, to date, has involved the following efforts:

LIBRARIES

On March 23, 2016, staff sent the PSA to various libraries within the project vicinity including the following:

> Beale Memorial, Barstow Branch Library, California City Branch Library[1], Palmdale City Library, Sylmar Branch Library, UCLA University Research Library, and Wanda Kirk Rosamond Library.

In addition to these local libraries, staff also sent the PSA to the following core libraries:

> Energy Commission's Library in Sacramento, the California State Library in Sacramento, as well as the main branch public libraries in Eureka, Fresno, San Diego, and San Francisco.

NOTIFICATION TO NATIVE AMERICAN COMMUNITIES

In May of 2015, staff contacted the Native American Heritage Commission (NAHC) to conduct a search of the Sacred Lands File (SLF) and to obtain a list of Native American tribes with traditional ties to the area. The NAHC responded on July 16th, 2015, that the search of the SLF was negative and provided a list of 6 tribes who may be interested in the project. Staff included an additional tribe (San Manuel Band of Mission Indians) not on the NAHC list, but nonetheless included by staff because of the close proximity of

[1] Los Angeles main library was not part of this mailing list; therefore it went to the UCLA Research Library instead.

their traditional area to the potential area of affect. Staff sent the 7 tribes letters on July 27, 2015, and emails on August 26, 2015. Follow-up phone calls were made to the tribes on September 3, 2015.

On October 22, 2015, the Fernandeño-Tataviam Band of Mission Indians docketed an email to Hearing Officer Ken Celli recommending that the PTA be processed as a new Application for Certification because of the substantial differences between the two projects. This group was not on the NAHC's contact list and thus was not sent an initial letter inviting them to consult regarding the PTA. In response to the letter, staff initiated consultation with the tribe and the tribe requested that Native American monitoring of all ground-disturbing activities be incorporated as a mitigation measure in the PTA.

PUBLIC ADVISER'S OFFICE

The public adviser helps the public participate in the Energy Commission's hearings and meetings. The Public Adviser assists the public by advising them how they can participate in the Energy Commission process; however, the office does not represent members of the public.

The Public Adviser's office outreach efforts include notifying elected officials, municipal offices, local organizations, and educational institutions about opportunities to be involved in the PEP. The Public Adviser's office also answers telephone and email inquiries and offers assistant and support to staff when requested.

ENVIRONMENTAL JUSTICE

Executive Order 12898, "Federal Actions to address Environmental Justice in Minority Populations and Low-Income Populations," focuses federal attention on the environment and human health conditions of minority communities and calls on federal agencies to achieve environmental justice as part of this mission. The order requires the U.S. Environmental Protection Agency (USEPA) and all other federal agencies (as well as state agencies receiving federal funds) to develop strategies to address this issue. The agencies are required to identify and address any disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and/or low-income populations.

California law defines environmental justice as "the fair treatment of people of all races, cultures and income with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies" (Gov. Code, § 65040.12; Pub. Resources Code, § 72000). The California Natural Resources Agency environmental justice policy directs all departments, boards, commissions, conservancies and special programs of the Resources Agency to consider environmental justice in their decision-making process if their actions have an impact on the environment, environmental laws, or policies.

Staff conducts an environmental justice screening analysis in accordance with the "Final Guidance for Incorporating Environmental Justice Concerns in USEPA's National Environmental Policy Act Compliance Analysis" dated April 1998. The purpose of the

screening analysis is to determine whether a minority or low-income population exists within the potentially affected area of the proposed site.

Staff's specific activities with respect to environmental justice for the PEP amendment are discussed in the **Executive Summary**.

RESPONSE TO PSA COMMENTS

PALMDALE ENERGY, LLC

Palmdale Energy, LLC provided staff a number of comments in their final comments on the PSA, dated April 27, 2016. Several comments were wording changes and requested revisions in the Project Description section, both to change the way the project was described, and also to make sure some facts and figures about the project were consistent with the technical sections. Staff has responded to these comments in the **Project Description** section.

Palmdale Energy, LLC also provided comments to staff across a number of technical areas; substantive comments were included for several technical areas with respect to either the conditions of certification or the analysis, including **Air Quality, Biological Resources, Cultural Resources, Soil and Water Resources, Traffic and Transportation**, and **Worker Safety and Fire Protection**. Remaining comments were more administrative in nature across several other technical areas, including **Land Use, Waste Management**, and **Facility Design**. Staff has responded to these comments in their respective technical sections.

CENTER FOR BIOLOGICAL DIVERSITY

In comments received on the PSA from the Center for Biological Diversity (CBD) Comments on the Preliminary Staff Assessment, dated April 22, 2016 (TN211217). The comments and the Energy Commission's responses are below. The general overriding comment was that the Energy Commissions treatment of the Petition to Amend was insufficient and did not give the changes being proposed to the Palmdale Hybrid Power Project the analysis they deserve; the contention being that the project is not a change to an existing power plant, but rather an entirely new power plant.

TREATMENT OF THIS APPLICATION AS AN AMENDMENT IS INSUFFICIENT

Comment:

In their comments, CBD state that, "The applicant has not applied for changes to an existing project but instead, an entirely different project." CBD further contends that there is nothing similar about the PHPP and the PEP, and that staff's attempt to treat the required CEQA review as an "amendment to an existing power plant" is not supportable. CBD also asserts that staff "do not even bother to analyze a majority of significant impacts, claiming no change from the PHPP."

Response to Comment:

Public Resources Code section 25500 provides that the Energy Commission has "the exclusive power to certify all sites and related facilities in the state, whether a new site and related facility or a change or addition to an existing facility." The Energy Commission certified this site, as well as the Palmdale Hybrid Power Project located on the site, on August 10, 2011, and continues retain jurisdiction over both.

Title 20, California Code of Regulations section 1769 governs post-certification amendments to the Final Commission Decision that allow for changes to a project's design, operation, and performance requirements. The regulations contemplate that a project owner may at some point change the project without having to file a new Application for Certification, and here the project owner has filed a Petition to Amend the Final Commission Decision under this section, seeking to change the facility's design, operation, and performance requirements in accordance with the regulations. There is no requirement that the project be processed as a new siting case, requiring a new Application for Certification, nor does CBD cite to such a requirement.

Moreover, CBD's assertion that Energy Commission staff "do not even bother to analyze a majority of significant impacts" simply ignores the analysis and conclusions of staff in the 19 separate technical areas. Staff have fully analyzed the potential of the proposed changes to the project's design, performance requirements, and operation to cause significant adverse environmental impacts, both direct and cumulative, and have identified adequate measures to mitigate those impacts to a level of less than significant.

ENVIRONMENTAL JUSTICE IS NOT ADDRESSED

Comment:

CBD states that environmental justice concerns, most notably that of air quality related impacts, are not addressed in any fashion. CBD asserts that the analysis in the Preliminary Staff Assessment concludes that the PEP would not have an impact to an environmental justice population despite the fact that it is located in the "backyard" of an environmental justice population.

Response to Comment:

Energy Commission staff's analysis has been performed in conformity with federal environmental justice guidelines and is consistent with the principles underlying environmental justice. The issue of environmental justice was thoroughly addressed in the original AFC proceeding, and the Energy Commission found in its Final Decision 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." Staff have found no change in circumstances, nor has CBD alleged any change in circumstances, to the previously identified environmental justice population or in the potential adverse impacts to that population. Moreover, all potential adverse impacts would be fully mitigated through implementation of the recommended Conditions of Certification. The project, as modified, will not cause or contribute to disproportionate socioeconomic impacts upon minority or low income groups

SUPPLEMENTAL ENVIRONMENTAL REVIEW IS NOT IN COMPLIANCE WITH CEQA

Comment:

CBD takes issue with the fact that Energy Commission staff has utilized CEQA Guidelines section 15162 in concluding that supplementation to the 2011 Decision for the PHPP was found to be necessary for two technical areas, and that supplementation was not necessary for 17 technical areas. CBD asserts that given the great increase in emissions known to be harmful to public and environmental health, staff's conclusions here are unsupportable.. CBD also infers that staff are attempting to "evade CEQA review simply by labeling this project 'an amendment.'

Response to Comment:

Staff has fully analyzed the potential of the proposed changes to the project's design, operation, and performance requirements to cause significant adverse environmental impacts, both direct and cumulative, and have identified adequate measures to mitigate those impacts to a level of less than significant. In those technical areas where the existing analysis was sufficient to account for the potential for any adverse environmental impacts, or any inconsistency with LORS, staff correctly concluded that the Committee could rely on that analysis while considering the changes to the project, as well as any changes to the proposed mitigation.

THE ISSUANCE OF THE PSA AT THIS TIME IS PREMATURE AND IT THUS FAILS TO PROVIDE THE PUBLIC INFORMATION NEEDED.

Comment:

CBD comments that even though Energy Commission staff agrees with the Antelope Valley Air Quality Management District's conclusion that additional information is needed in order to determine if adequate offsets are available to mitigate the PEP, staff confusingly agrees with "the majority" of the Preliminary Determination of Compliance. CBD further states that issuance of the PSA at this time is premature because of the "drastically greater air quality impacts…"

Response to Comment:

The PSA was a preliminary document. The purpose of the PSA was to provide the public with the preliminary findings and potential deficiencies prior to the publication of staff's final analysis, the FSA. Energy Commission staff works closely with the participating air district to ensure that any potential air quality impacts are mitigated in accordance with district rules and in accordance with Energy Commission conditions of certification. Specific responses concerning air quality can be found in the **Air Quality** section.

JAMES BROCKWAY COMMENTS

Comments

Were provided to staff in a letter, James Brockway Comments on Palmdale Energy Project Preliminary Staff Assessment dated April 10, 2016 (TN211352), concerned about the health impact and air quality concerns, specifically, what the minimum and maximum level of emissions would be and their impact on air quality. Staff's response to this comment is addressed in the **Air Quality** section of this document.

MARTIN FAMILY COMMENTS

Comment:

In a letter, Martin Family Comments on 08-AFC-9C, dated April 17, 2016 (TN211012), states that the proposed power plant is not needed, and that the fumes associated with the project will cause individuals to become ill, and in summary, that the project should not be allowed to move forward.

Response to Comment:

The Energy Commission responsibility as the licensing agency for power plants in the State of California that are over 50 Megawatts involving a thermal element is to assess the project's impacts to the environment and health and human safety, identify mitigation measures, and assure compliance with LORS: the Energy Commission does not assess need, which is outside the scope of Energy Commission review. Specific comments about the potential for health effects on the population associated with the PEP are addressed in both the **Public Health** and **Air Quality** sections of this document.

LAHONTAN REGIONAL WATER QUALITY CONTROL BOARD

The California Water Boards, Lahontan Region Comments on Preliminary Staff Assessment, dated April 20, 2016 (TN211353) letter, is concerned with ensuring that the PEP was developed in accordance with the Water Quality Control Plan for the Lahontan Region. The Plan contains water quality standards for both surface water and sub-surface waters within the region. These standards include designated beneficial uses as well as narrative and numerical objectives which must be maintained or attained to protect those uses. The specific comments and staff's response to those comments are contained in the **Soil and Water Resources** section of this document.

PALMDALE ENERGY PROJECT (08-AFC-9C)

Petition to Amend Final Commission Decision

PROJECT DESCRIPTION

Eric Veerkamp

INTRODUCTION

On July 20, 2015, Palmdale Energy, LLC submitted a Petition to Amend (PTA) to construct and operate the Palmdale Energy Project (PEP), a natural gas fired combined-cycle generating facility in the city of Palmdale, Los Angeles County. On August 5, 2015, a Notice of Receipt of the PTA was docketed initiating staff's independent analysis of the proposed project.

PURPOSE OF PROJECT

The PEP is being designed as an efficient, flexible, and reliable power generating facility, with the ability to provide daily fast start and fast ramping capabilities needed to provide the flexible capacity required to manage the integration of intermittent energy resources in California, and to meet the future electrical power needs of California while siting the facility within the boundaries of the city of Palmdale.

PROJECT LOCATION AND SITE DESCRIPTION

The proposed site for the PEP project is located approximately 60 miles north of downtown Los Angeles and in the northernmost portion of the city of Palmdale. The site address is 950 East Avenue M, located west of the northwest corner of US Plant 42 and east of the intersection of Sierra Highway and East Avenue M. **Project Description Figure 1** shows an overview of the project site approved previously as the Palmdale Hybrid Power Plant. **Project Description Figure 2** shows an overview of the project site and linears as currently proposed in the PTA. Finally, **Project Description Figure 3** provides a plot plan of the PEP power plant site.

Construction of the proposed PEP would require permanent use of a 50-acre site that is currently a vacant and undeveloped parcel owned by the city of Palmdale in an industrial area of the city (which is currently zoned industrial). The project in total is comprised of the 50-acre power plant site and an additional separate 20 acre portion of land for construction laydown and parking, located adjacent and north of the proposed power plant site. After completion of project construction, the 20-acre parcel would be restored and re-vegetated, if necessary, and remain under the ownership of the city of Palmdale. The site is relatively flat, with the main population base of the community of Palmdale approximately 4 miles south.

The project site is located immediately north and west of the combined facilities of Los Angeles/Palmdale Regional Airport and Air Force Plant 42. The Air Force Plant 42 site is over 6,600 acres and supports facilities for the production, engineering, final assembly, and flight testing of aircraft. The city limit line between Palmdale and Lancaster is East Avenue M, immediately north of the project site along East Avenue M.

BACKGROUND

The Palmdale Hybrid Power Project (PHPP) was certified by the Energy Commission on August 10, 2011. The PHPP was originally licensed as a nominal 570 megawatt (MW) hybrid facility utilizing combined-cycle and solar trough technologies located in the city of Palmdale, CA.; however, the facility was not constructed. Elements of the PHPP that are unchanged and approved in the PHPP Final Decision, and are part of the PEP, are described in this section. The project owner submitted a revised comprehensive PTA on July 17, 2015, also requesting to rename the project "Palmdale Energy Project."

Air emissions from the combustion of natural gas in the combustion turbine generators (CTGs) and duct burners of the heat recovery steam generators (HRSGs) would be controlled using best available control technology applied to their exhaust. Oxides of nitrogen (NOx) from the CTG's stack emissions would be controlled by dry low-NOx combustors followed by an aqueous ammonia selective catalytic reduction system (SCR) in the HRSGs. An oxidation catalyst located within each HRSG would also reduce carbon monoxide (CO) and volatile organic compounds.

ELECTRIC TRANSMISSION LINE

The approved generator tie-line would have been located on land either controlled by the city of Palmdale, land owned by the applicable utility, or on land the city intended to purchase, and would consist of a 35.6-mile long overhead generator tie-line with two segments. With the acquisition of the project by Palmdale Energy, LLC, the city will not be purchasing any land to accommodate the generator tie-line. Palmdale Energy, LLC will be obtaining rights-of-way and/or easements for the generator tie-line routes. The approved but not yet built Segment 1 would be 23.7 miles long and located within new and existing rights-of-way (ROW) as it extends from the on-site substation through the northeast corner of the site, along 10th St East and East Ave L. The generator tie-line would then continue over industrial and agricultural areas, over open spaces, and along new and existing road ROW, until it connects at the California Department of Water Resources (DWR) Pearblossom substation. The generator tie-line along Segment 1 would be a single circuit 230 kilovolt (kV) line supported on steel poles spaced approximately 750 feet apart, and between 100 feet and 135 feet in height. The majority of Segment 1, approximately 18.2 miles, would be located within the city of Palmdale, while the remaining 5.5 miles would be within unincorporated Los Angeles County.

Segment 2 is 11.9 miles long, and would be built along the existing Southern California Edison's (SCE) ROW, and would proceed from north of the DWR's Pearblossom Pumping Station southwest to SCE's Vincent Substation.

Segment 2 would be constructed for double-circuit transmission with conductors on both sides of the support poles. One set of conductors would be the approved 230 kV interconnection between Pearblossom and Vincent substations, the other would be the replacement for the 230 kV lines currently providing power to DWR's water pumping station via the Vincent Substation. The Segment 2 line would be designed, built, operated, and maintained by SCE, as the line is located within an existing SCE ROW. The approved Segment 2 is located in unincorporated Los Angeles County within an existing SCE ROW.

NATURAL GAS SUPPLY LINE

Natural gas will be delivered to the project through an as-yet-to-be constructed 8.7-mile, 20-24-inch diameter gas pipeline to serve the project in the same manner (route and design) as approved in the final license; south along Sierra Highway, east along Lockheed Way, south along 10th Street East, to East Avenue South along existing streets, and will share the same route as the proposed secondary-treated reclaimed water line.

WATER SUPPLY/ WATER SUPPLY LINE

Process water needs would be met by the use of reclaimed water supplied by either the Palmdale Water Reclamation Plant (PWRP) or the city of Lancaster Advanced Waste Water Treatment Plant. The project will likely interconnect to the existing reclaimed water pipeline located near the intersection of Sierra Highway and East Avenue M via a one-mile extension to the project. The pipeline will be installed primarily in existing street ROWs within the city of Palmdale. This petition does not modify the route of the reclaimed water supply line.

WASTEWATER DISCHARGE

The proposed PEP will have a smaller wastewater process stream than the previously approved project. As before, the wastewater will be collected and discharged off site into the city of Palmdale sewer system. Wastewater sources for processing include HRSG blow down, CTG evaporative cooler blow down, demineralization system wastewater, chemical feed area drains, general plant drains and sanitary wastewater. Since the issuance of the license, an 18-inch sewer line has been constructed along the south side of East Avenue M. The connection to the existing sewer would be where the sewer line intercepts the PEP site access road, approximately 0.25 mile north of the plant site.

PROPOSED PROJECT MODIFICATIONS

The PEP consists of a 700MW (nominal capacity of 654 MWs) two-on-one natural gas-fired combined cycle generating station. Primary equipment for the generating facility would include two Siemens SGT6-5000F natural gas-fired CTGs rated at 220 MWs each, two HRSG, one STG rated at 232 MWs, and one auxiliary boiler to provide sealing steam, allowing startup of the steam turbine shortly after the gas turbines. The proposed project also includes the use of an air cooled condenser (ACC), a turbine inlet evaporative cooler for the CTGs, an operations building and auxiliary equipment. The

tallest components of the project would be the two 160-foot tall, 22-foot diameter HRSG exhaust stacks.

The proposed PEP is designed to operate as a flexible capacity resource and have the ability to start up to 2 times per day. The expected annual capacity factor is expected to be between 40 and 60 percent. Expected availability of the PEP is expected to be in the range of 90 to 95 percent. To evaluate worst case air emissions the applicant analyzed three different operating profiles when quantifying emission estimates for the proposed operation of the PEP. The operating profiles vary in the amount of operational hours up to 8,000 hours per year, as well as the number of start-up and shutdown events.

A complete description of the proposed modifications follows:

- Replacement of the General Electric gas turbines with new Siemens SGT6-5000Fs to meet pending need for “Flexible Resources” to support integration of renewable energy;
- A new steam turbine;
- A new auxiliary boiler;
- Elimination of the solar components of the approved project;
- Elimination of brine concentrator/crystallizer systems;
- Replacement of the wet cooling towers with an ACC;
- Reduction of the site from 333 acres to 50 acres;
- Reduction of the construction laydown and parking area from 50 acres to 20 acres;
- Reorientation of the power block with the HRSG stacks now on the east and the combustion turbine inlets to the west;
- Relocation of the site access road approximately 900 feet further east on East Avenue M to the western edge of the site property line;
- Relocation of the point where the 230 kV transmission line turns south to the generating facility from East Avenue M to a point approximately 1,800 feet further west on East Avenue M;
- Addition of three 230 kV transmission line towers along the south side of East Avenue M north of the project site and extension of the generation tie-line westerly approximately 1,800 feet along the south side of East Avenue M;
- Addition of waste stream consisting of combustion turbine inlet evaporative cooler blow down, water treatment system reject, and plant drains;
- Reduction in the length of the approved project’s sewer pipeline which will now interconnect with an existing city of Palmdale sewer pipeline along the south side of East Avenue M;
- Change in the water steam cycle chemistry control system from a phosphate based system to an all volatile system; and
- Possible change from a CO_2 based fire suppression system for gas turbine components to an FM200 based system.

The proposed PEP would consume a maximum of about 400 acre-feet/year (AFY) of process water, a significant reduction of approximately 3,725 AFY, due to the fact that primary cooling needs will be met through the use of an ACC instead of wet cooling. In the event that neither of the above options is ready to serve the project, water is proposed to be trucked from the PWRP to the plant site until the connection is made.

PROJECT CONSTRUCTION AND OPERATION

If the PTA is approved by the Energy Commission, construction of the proposed PEP is likely to begin as early as the end of 2016. With construction planned to proceed over the course of a 25-month construction period, PEP would be operational around the first quarter of 2019. The construction workforce would average 371 workers over the entire construction period, and would peak during month 12 with up to 710 workers onsite, compared with an average monthly workforce of 367 and a peak workforce of 767 associated with the previously approved project. Construction costs are estimated to be between $700 and $800 million. The operation workforce is expected to require 23 full-time employees, as opposed to 36 full-time employees under the previously approved project.

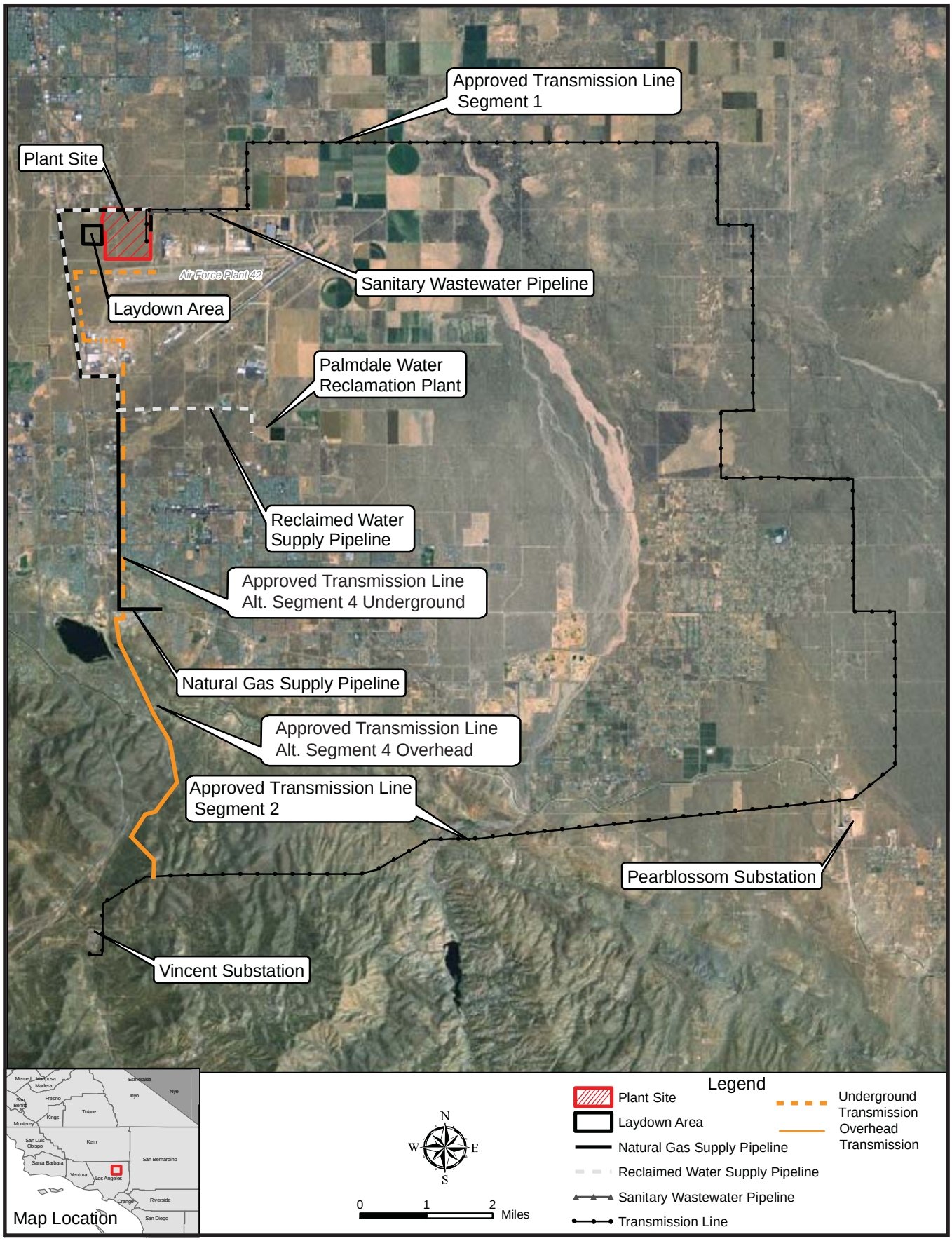
FACILITY CLOSURE

The proposed PEP would be designed for an operating life of 30 years. At an appropriate point beyond that, the project would cease operation and close down. At that time, it would be necessary to ensure that the closure occurs in a manner that protects public health and safety and the environment from adverse effects. 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. Where applicable, laws, ordinances, regulations, and standards (LORS) pertaining to facility closure are identified in the technical sections of this document. Facility closure will be consistent with LORS in effect at the time of closure.

Decommissioning activities would be designed to optimize the recycling of facility components. Unused chemicals would be returned to suppliers or sold to other uses. Equipment containing chemicals would be drained and shut down in a manner to assure public health and safety and protect the environment. Non-hazardous wastes would be collected and disposed of in licensed landfills or recycled at licensed waste collection facilities. Hazardous wastes would be disposed of according to applicable LORS. The site would be secured 24 hours per day during the decommissioning activities.

PROJECT DESCRIPTION - FIGURE 1

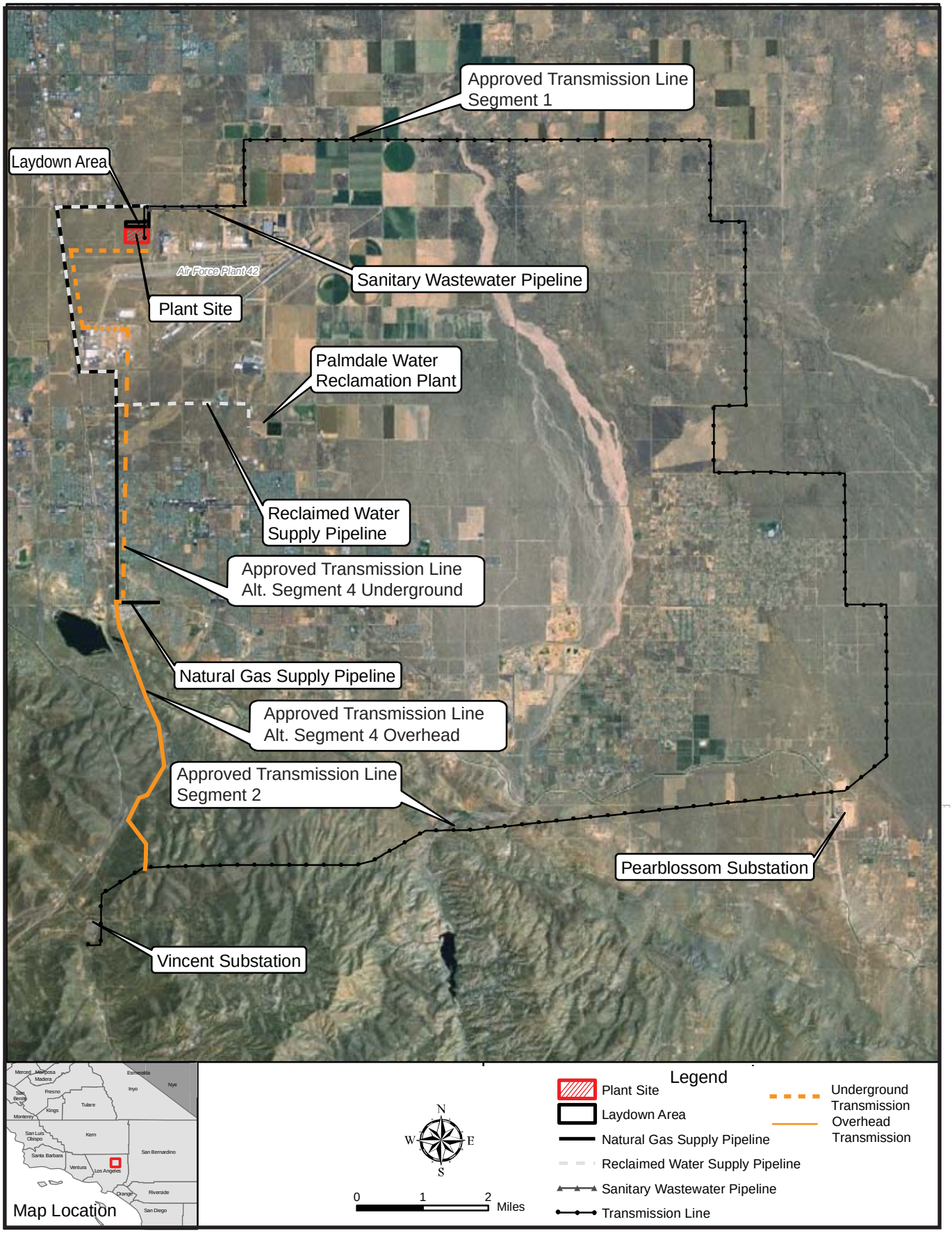
Palmdale Energy Project - Previously Approved Palmdale Hybrid Power Project



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: 2011 California Energy Commission Final Decision Palmdale Hybrid Power Project

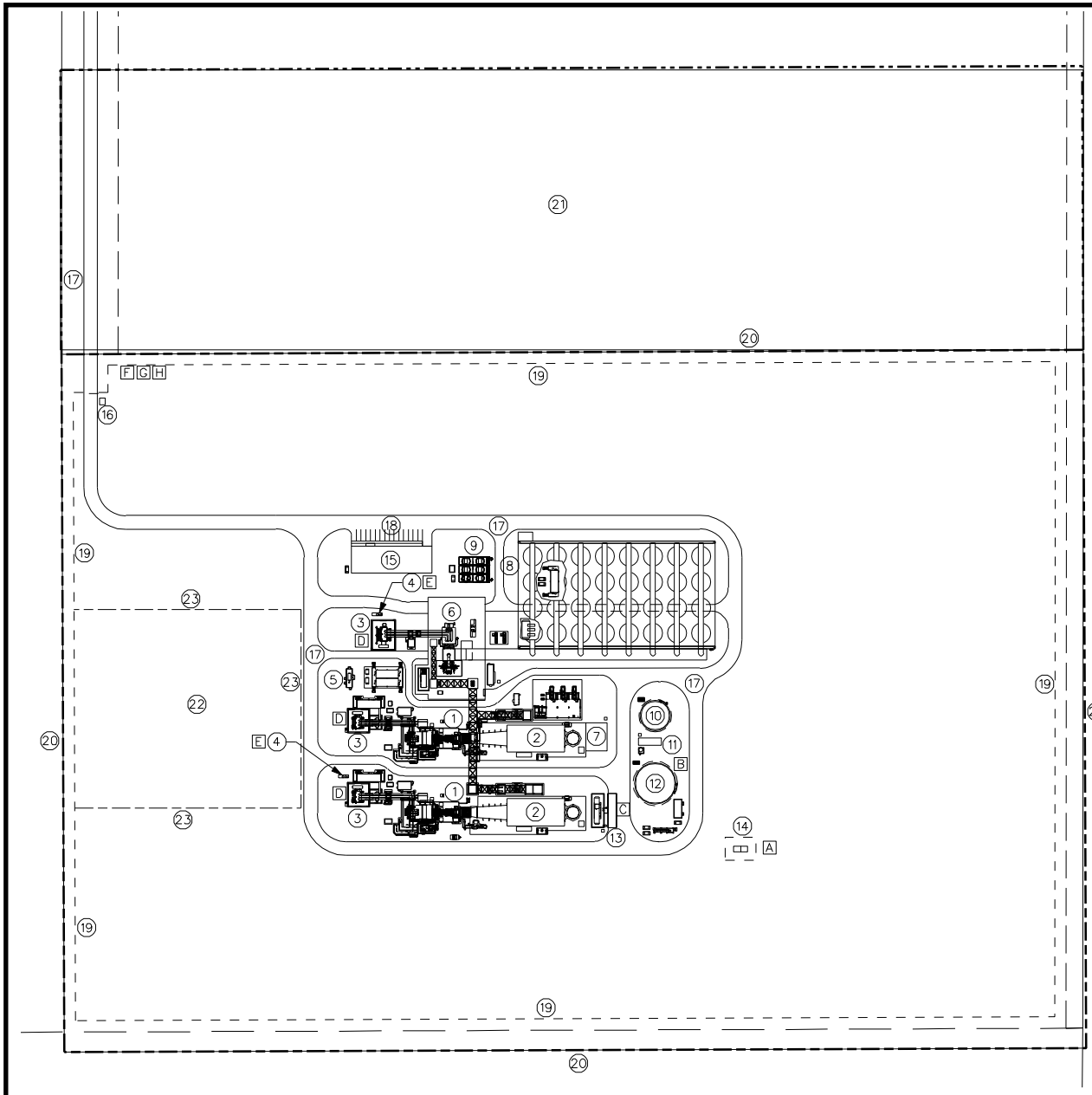
PROJECT DESCRIPTION - FIGURE 2
Palmdale Energy Project



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: 2011 California Energy Commission Final Decision Palmdale Hybrid Power Project

PROJECT DESCRIPTION - FIGURE 3

Palmdale Energy Project - Plot Plan



NOTES

1. THE EQUIPMENT SHOWN IS REPRESENTATIVE INFORMATION. THIS DESIGN IS SUBJECT TO CHANGE AT THE DISCRETION OF SIEMENS ENERGY, INC.
2. REFERENCE DRAWING GH99050101 FOR POWER ISLAND EQUIPMENT IDENTIFICATION.
3. REFERENCE DRAWING GH99060101 FOR FACILITY PLOT PLAN EQUIPMENT IDENTIFICATION.

LEGEND

1	UMB	GAS TURBINE ENCLOSURE
2	UHA	HEAT RECOVERY STEAM GENERATOR
3	BAT	GENERATOR STEP UP TRANSFORMER
4	UBH	OIL/WATER SEPERATOR
5	XKA	EMERGENCY DIESEL GENERATOR
6	MA/MKA	STEAM TURBINE & GENERATOR
7	UHB	AUXILIARY BOILER
8	URC	AIR COOLED CONDENSER
9	URB	CLOSED COOLING WATER FIN FAN COOLER
10	UGC	DEMIN. WATER STORAGE TANK
11	UGD	WATER TREATMENT MODULES
12	UGA/UGF	RAW/FIRE WATER STORAGE TANK
13	UYX	AMMONIA STORAGE/UNLOADING
14	EKD/EKE	FUEL GAS REGULATION/CONDITIONING/METERING
15	UCA/UST/UYC	ADMIN./CONTROL RM. WAREHOUSE BUILDING
16	UYE	GUARD HOUSE
17	UZA	ROAD
18	UZD	PARKING AREA
19	UZJ	FENCE & GATES
20		PROPERTY BOUNDARY
21		20 ACRE LAYDOWN AREA
22		SWITCHYARD (BY OTHERS)
23		SWITCHYARD FENCE (BY OTHERS)
24		EXISTING ROAD

TERMINAL POINTS

A	FUEL GAS SUPPLY
B	RAW WATER SUPPLY
C	AMMONIA SUPPLY
D	HV POWER
E	OILY WATER (MANUAL DISCHARGE)
F	POTABLE WATER
G	SANITARY SEWER
H	TEMPORARY CONSTRUCTION POWER

PLANT

0 10 25 50 75 100
SCALE IN METERS

0 25 50 125 250 500
SCALE IN FEET

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: Revised 2015 Petion Figure 2-3 Plot Plan

Environmental Assessment

PALMDALE ENERGY PROJECT (08-AFC-09C)
Petition to Amend Final Commission Decision
AIR QUALITY
Testimony of Nancy Fletcher

SUMMARY OF CONCLUSIONS

Staff concludes that the proposed modifications to the 2011 Energy Commission Final Decision (Decision) for the Palmdale Hybrid Power Plant (PHPP) (CEC 2011b), now known as the Palmdale Energy Project (PEP), complies with all applicable laws, ordinances, regulations and standards (LORS) and California Environmental Quality Act (CEQA) requirements.

Palmdale Energy LLC (project owner) filed a revised Petition to Amend (PTA) for the PHPP on July 20, 2015.The proposed modifications include the replacement of the General Electric 7FA turbines with Siemens SGT6-5000F turbines, replacement of the wet cooling tower with an air cooled condenser (ACC), elimination of the solar components, reduction of the site from 333 acres to 50 acres, and reorientation of the power block. In addition the PEP is proposing a change to the operating profile resulting in a change to the proposed project emissions and subsequent mitigation. In accordance with CEQA Guidelines section 15162 (Cal. Code Regs., tit. 14, § 15162), staff concludes that supplementation to the Decision is necessary for Air Quality. These proposed modifications to the project constitute a considerable change in fact and circumstance from the 2011 Decision requiring a comprehensive analysis of the project and air quality impacts to supplement the Decision.

The PEP is considered a new project by the Antelope Valley Air Quality Management District (AVAQMD) rules. The air quality determination of compliance issued by the AVAQMD for the PHPP project is no longer valid. The PTA triggered a review under AVAQMD Rule 1306, Electric Generating Facilities and the AVAQMD published a Preliminary Determination of Compliance (PDOC) on

February 3, 2016. The AVAQMD determined the PEP would comply with their applicable LORS; however United States Environmental Protection Agency (U.S. EPA) submitted significant comments on the PDOC (U.S. EPA 2016a). In the Preliminary Staff Assessment (PSA), Energy Commission staff discussed U.S. EPA comments and provided additional guidance. In addition, the AVAQMD received formal comments from the Center of Biological Diversity. No comments were received on the PDOC from the public or the California Air Resources Board (ARB).

In response to the comments and guidance received, the AVAQMD issued a revised PDOC filed to the docket on May 12, 2016, incorporating technical clarifications, changes to permit conditions and changes to emission offset requirements. Additional comments regarding the revised PDOC's use of inter-basin offsets from the San Joaquin Valley Air Pollution Control District (SJVAPCD) were submitted to the AVAQMD by the U.S. EPA on June 10, 2016. The project owner revised the proposed offset package in response to U.S. EPA comments. A Final Determination of Compliance (FDOC) was issued by the AVAQMD on July 22, 2016 that incorporates the project owner's revised offset package and EPA's comments on the revised PDOC. A revised

FDOC was submitted to the Energy Commission and filed to the docket on August 24, 2016. The revised FDOC includes a small correction to the daily emissions based on the project's owner's proposed daily assumptions. No additional comments have been made by the U.S. EPA.

Staff has assessed both the potential for localized impacts and regional impacts for the amended project's construction and operation. Staff recommends mitigation and monitoring requirements in sufficient quantities to reduce the potential impacts of the proposed project to less than significant. Mitigation would need to be provided in the form of ERCs or other forms of mitigation to fully mitigate emissions of all nonattainment pollutants and their precursors.

Global climate change and greenhouse gas (GHG) emissions from the amended project were also analyzed. The PEP would lead to greater system wide reductions in GHG emissions than its approved counterpart, as its increased flexibility (e.g., faster start-up time, ability to operate at lesser shares of full output and to change output by more megawatts (MW) per minute) would facilitate the integration of zero-carbon variable energy resources (solar and wind). Delete

The project would emit over 25,000 metric tonnes of carbon dioxide equivalent ($MTCO_2e$) emissions and therefore would be subject to mandatory state and federal GHG reporting requirements. A full discussion of the GHG emissions is included in Air Quality **Appendix Air-1**.

The PEP would be considered a base load facility as it is proposing to operate at more than a 60 percent annual capacity factor. Therefore the facility would be subject to the requirements of SB 1368 (Perata, Chapter 598, Statutes of 2006), the state's Emission Performance Standard. The proposed PEP would emit approximately 0.409 metric tonnes of carbon dioxide per megawatt hour ($MTCO_2/MWh$), which would meet the Emission Performance Standard of 0.500 $MTCO_2/MWh$.

If built, the PEP would be required to participate in California's greenhouse gas cap-and-trade program or any successor program. This cap-and-trade program is part of a broad effort by the State of California to reduce GHG emissions as required by California Global Warming Solutions Act of 2006 (AB 32), which is being implemented by the ARB. Market participants such as the PEP would be required to report their GHG emissions and to obtain GHG emissions allowances (and offsets) for those reported emissions by purchasing allowances from the capped market and offsets from outside the AB 32 program. Thus, the PEP, as a GHG cap-and-trade participant, would be consistent with California's landmark AB 32 program, which is a statewide program coordinated with a region-wide Western Climate Initiative program to reduce California's GHG emissions to 1990 levels by 2020.

INTRODUCTION

The PHPP, approved by the Energy Commission on August 10, 2011, was a nominal 570 MW hybrid of natural gas-fired combined-cycle generating equipment integrated with solar thermal generating equipment. The PHPP was never built. The revised PTA

requests approval to amend the Decision to modify the project from the approved hybrid project to a 645 MW natural gas-fired combined-cycle project with no solar component.

The proposed PEP would be located on 50 acres that was previously part of the 333 acre PHPP site. The site would be located at 950 East Avenue M, on an industrial site south of East Avenue M on the northern boundary of the city of Palmdale. This analysis evaluates the expected air quality impacts of the emissions of criteria air pollutants from the construction and operation of the proposed PEP.

The analysis in this section of the FSA focuses on the impacts of the proposed amended project's criteria air pollutant emissions, while the climate change/greenhouse gases emissions impact analysis is provided in Air Quality **Appendix Air-1**, and the air toxics emissions health impacts are analyzed separately in the **Public Health** section of the FSA. Criteria air pollutants are defined as those air contaminants for which the state and/or federal government has established an ambient air quality standard to protect public health. The criteria pollutants analyzed are nitrogen dioxide ($NO_{2)}$, sulfur dioxide $(SO)_2$, carbon monoxide (CO), ozone (O_3), respirable particulate matter//particulate matter less than 10 microns in diameter (PM10), and fine particulate matter/particulate matter less than 2.5 microns in diameter (PM2.5). In addition, volatile organic compound (VOC) emissions are analyzed because they are precursors to both O_3 and particulate matter. Because NO_2 and SO_2 readily react in the atmosphere to form other oxides of nitrogen and sulfur respectively, the terms nitrogen oxides (NOx) and sulfur oxides (SOx) are also used when discussing these two pollutants.

In carrying out this analysis, the Energy Commission staff evaluated the following major points:

- Whether the PEP is likely to conform with applicable federal, state, and AVAQMD air quality LORS (Title 20, California Code of Regulations, section 1742 (d));
- Whether the PEP is likely to cause significant air quality impacts, including new violations of ambient air quality standards, or make substantial contributions to existing violations of those standards (Title 20, California Code of Regulations, section 1744.5); and
- Whether the mitigation measures proposed for the facility modifications are adequate to lessen the potential impacts to a level of insignificance (Title 20, California Code of Regulations, section 1742 (b)).

SUMMARY OF THE DECISION

The approved PHPP consists of a hybrid facility comprised of a natural-gas fired combined-cycle integrated with solar thermal generating equipment. The combined-cycle equipment consisted of two natural-gas fired combustion turbine generators (CTGs) rated at 154 MW each, two heat recovery steam generators (HRSGs) and one steam turbine generator (STG) rated at 268 MW. The solar thermal equipment was to utilize arrays of parabolic collectors to heat a high-temperature working fluid that would be circulated through a dedicated steam boiler to generate steam. The combined-cycle equipment was to be integrated thermally with the solar equipment at the HRSGs and both would utilize the single STG.

The Energy Commission concluded with the implementation of the Conditions of Certification the PHPP would not result in any significant direct, indirect or cumulative impacts to air quality. The Commission also concluded the implementation of the conditions of certification and the mitigation measures described in the evidentiary record would ensure PHPP conforms with all applicable LORS relating to air quality.

The original decision included 20 staff conditions and 74 conditions proposed by the AVAQMD.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

The AVAQMD is the local agency responsible for stationary sources within the Antelope Valley. **Air Quality Table 1** includes a summary of the LORS applicable to the PEP. This table includes updates to the federal, state, and local LORS since the PHPP plant was licensed. Staff's analysis describes or evaluates PEP's compliance with these requirements. Additional analysis of PEP's compliance with these LORs in included in the **Compliance with LORS** section.

The AVAQMD reviewed the requested modification as a new project and issued a FDOC on July, 22 2016. A revised FDOC was issued on August 24, 2016. The FDOC determined that the project would comply with AVAQMD rules and regulations as long as a set of air quality conditions are included to ensure continuous compliance during the operation of the facility. The proposed conditions were evaluated by staff for consistency with the LORS included in **Air Quality Table 1**, which has been updated to reflect current LORS.

The conditions of certification in the original Decision and from any and all amendments, including this one, ensure that the facility would remain in compliance with all LORS. Compliance with LORS for the PEP would assume all staff recommended conditions of certification are implemented and mitigation measures are approved by local, state and federal air quality regulatory agencies.

Air Quality Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable LORS	Description
Federal	**U.S. Environmental Protection Agency**
Title 40 Code of Federal Regulations (CFR) Part 50 (National Primary and Secondary Ambient Air Quality Standards)	National Ambient Air Quality Standards (NAAQS) are set in this part. NAAQS define levels of air quality which are necessary to protect public health.
Title 40 CFR Part 51 (Requirements for Preparation Adoption and Submittal of Implementation Plans)	Requires new source review (NSR) facility permitting for construction or modification of specified stationary sources. NSR applies to sources of designated nonattainment pollutants. This requirement is addressed through AVAQMD Regulation XIII, Rule 1302.
Title 40 CFR Part 52 (Approval and Promulgation of Implementation Plans)	Prevention of Significant Deterioration (PSD)-Requires review and facility permitting for construction of new or modified major stationary sources of pollutants that occur at ambient concentrations that attain the NAAQS. PSD requirements apply on a pollutant specific basis for major stationary sources. Twenty-eight source categories are subject to PSD requirements for attainment pollutants if facility annual emissions exceed 100 tons per year. A PSD permit would be required. The PSD program in the Antelope Valley is administered by the U.S EPA.
Title 40 CFR Part 60, Subpart A (General Provisions)	Outlines general requirements for facilities subject to standards of performance including, notification, work practice, monitoring and testing requirements.
Title 40 CFR Part 60, Subpart Db (Standards of Performance for Industrial Commercial Institutional Steam generating Units)	Establishes new source performance standards (NSPS) for steam generating units with heat input rates between 100 and 250 million British thermal units per hour (MMBtu/hr).
Title 40 CFR Part 60, Subpart IIII (Standards of Performance for Stationary Compression Ignition Internal Combustion Engines)	Outlines requirements for both the fire pump and emergency engines.
Title 40 CFR Part 60, Subpart KKKK (Standards of Performance for Stationary Combustion Turbines)	Establishes NSPS for new combustion turbines and the associated HRSG and duct burners. NOx emissions are limited to 15 parts per million (ppm) at 15 percent oxygen (O_2) and fuel sulfur limit of 0.060 pounds (lbs) of SOx per MMBtu heat input.
Title 40 CFR Part 60, Subpart TTTT (Standards of Performance for Greenhouse Gas Emissions for electrical Generating Units)	Establishes standards of performance for carbon dioxide (CO_2). Affected base load electric generating units are subject to a gross energy output standard of 1,000 lbs of CO_2 per megawatt hour (MWh).
Title 40 CFR Part 63 (National Emission Standards for Hazardous Air Pollutants)	Establishes National Emission Standards for Hazardous Air Pollutants (NESHAPS). The proposed PEP would not exceed the major source thresholds for hazardous air pollutants (HAPs) (10 tons per year for any one pollutant or 25 tons per year for HAPs combined).
Title 40 CFR Part 63 Subpart ZZZZ (National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines)	Establishes NESHAPS for both major and area sources of HAP emissions. Establishes emission and operating limitations for applicable internal combustion engines.
Title 40 CFR Part 64 (Compliance Assurance Monitoring)	Compliance Assurance Monitoring (CAM) establishing monitoring requirements for facilities to monitor the operation and maintenance of emission control systems.
Title 40 CFR Part 68 (Chemical Accident Prevention Provisions)	The proposed project would be exempt from this requirement. The proposed project would be subject to California's Accidental release Prevention Program for aqueous ammonia storage and

Applicable LORS	Description
	use.
Title 40 CFR Part 70 (State Operating Permit Programs) 42 USC 7661-7661 (Permits)	The proposed project would be considered a federal major source and subject to the Title V Operating Permit Program. Title V permits consolidate federally enforceable operating limits. An application would be required within one year following the start of operation. The Title V program is within the jurisdiction of the AVAQMD with U.S. EPA oversight (AVAQMD Rule 3000).
Title 40 CFR Part 72 (Permits Regulation)	Electrical generating units greater than 25 megawatts (MW) are subject to the provisions involving NOx and SO_2 reductions. Requires a Title IV permit and compliance with acid rain provisions, implemented through the Title V program. This program is within the jurisdiction of the AVAQMD with U.S. EPA oversight.
State	**California Air Resources Board and Energy Commission**
California Health & Safety Code (H&SC) §40910-40930 (District Plans to Attain State Ambient Air Quality Standards)	State Ambient Air Quality Standards should be achieved and maintained. The permitting of the source needs to be consistent with the approved clean air plan. The AVAQMD NSR program needs to be consistent with regional air quality management plans.
H&SC §41700 (Nuisance Regulation)	Prohibits discharge of such quantities of air contaminants that cause injury, detriment, nuisance, or annoyance.
H&SC §44300-44384 (Air Toxic "Hot Spots" Information and Assessment)	Requires preparation and biennial updating of facility emission inventory of hazardous substances; health risk assessments. The AVAQMD requires participation in a district level inventory and reporting program.
California Public Resources Code §25523(a); 2300-2309 (CEC & ARB Memorandum of Understanding)	Requires that an Energy Commission Decision on a proposed amendment include requirements to assure protection of environmental quality.
Title 13 California Code of Regulations (CCR), §2449 (General Requirements for In-Use Off-Road Diesel Fueled Fleets)	In-Use Off-road Diesel Vehicle Regulation. Imposes idling limits of five minutes, requires a plan for emissions reductions for medium to large fleets, requires all vehicles with engines greater than 25 horsepower (HP) to be reported to the ARB and labeled, and restricts adding older vehicles into fleets.
Title 13 CCR, §2485	Prohibits idling longer than 5 minutes for diesel fueled commercial motor vehicles.
Title 17 CCR, §93115 Airborne Toxic Control Measure for Stationary Compression Ignition Engines.	Limits types of fuels allowed, establishes maximum emission rates and establishes recordkeeping requirements for stationary compression ignition engines, including diesel-fueled emergency generator and fire water pump engines.
Local	**Antelope Valley Air Quality Management District**
Regulation II – Permits	**Rule 212 –** Standards For Approving Permits. Establishes baseline criteria for approving permits by the AVAQMD for certain projects. **Rule 218 –** Stack Monitoring. Requires specified facilities to install and maintain stack monitoring systems. The proposed project would be required to install and maintain stack monitoring systems by permit condition. **Rule 225 –** Federal Operating Permit. Requires major facilities to obtain federal operating permits. The proposed project would be required to submit an application for a federal operating permit within twelve months of the commencement of operations. **Rule 226 –** Limitations on Potential to Emit. PEP would be considered a major source. PEP would comply with applicable requirements rather than limit the potential to emit. Therefore this rule is not applicable.
Regulation III – Fees	**Rule 301 –** Permit Fees. Application fees were paid to the AVAQMD.
Regulation IV – Prohibitions	**Rule 401 –** Visible Emissions. Limits visible emissions opacity to less than 20 percent (or Ringelmann No. 1). **Rule 402 –** Nuisance. Prohibits facility emissions that cause a

Applicable LORS	Description
	public nuisance. The proposed equipment is not expected to generate a public nuisance due to the application of best available control technology (BACT) and the location of the proposed project. No nuisance complaints are expected. **Rule 403 –** Fugitive Dust. Specifies requirements for controlling fugitive dust. The provisions apply to bulk storage, earthmoving, construction and demolitions, and man-made conditions resulting in wind erosion. **Rule 404 –** Particulate Matter –Concentration. Specifies standards for particulate matter emission concentrations based on exhaust flow rate. This rule is not applicable to emissions from the combustion of gaseous fuels in steam generators or combustion turbines. The auxiliary boiler and emergency engines would be applicable to this rule. **Rule 405 –** Solid Particulate Matter –Weight. Limits particulate matter emissions based on process weight. Process weight is defined as the weight of materials introduced into a specific process. The definition for process weight states liquid gaseous fuels and air are not to be considered as part of the process weight. Therefore this rule does not apply. **Rule 407 –** Liquid and Gaseous Contaminants. Limits CO and sulfur compounds calculated as sulfur dioxide (SO_2). **Rule 408 –** Circumvention. Prohibits hidden or secondary rule violations. The proposed project is not expected to violate Rule 408. No further analysis required. **Rule 409 –** Combustion Contaminants. Limits total particulate emissions on a density basis. **Rule 429 –** Start-Up and Shutdown Provisions for Oxides of Nitrogen. Limits start-up and shutdown intervals and establishes record-keeping provisions. **Rule 430 –** Breakdown Provisions. Requires the reporting of breakdowns and excess emissions. **Rule 431.1 and 431.2–** Sulfur Content in Fuels. Limits sulfur content in gaseous, liquid and solid fuels. **Rule 475 –** Electric Power Generating Equipment. Limits combustion contaminant (PM10) emissions from any equipment with a maximum rating of more than 10 MW used to produce electric power. Combustion contaminants are limited to 11 pounds per hour and 0.01 grains per standard cubic feet (gr/scf) calculated at 3 percent O_2 on a dry basis over 15 consecutive minutes. **Rule 476 –** Steam Generating Equipment. Limits NOx and particulate matter from steam boilers, including the auxiliary boiler, and specifies monitoring and recordkeeping for such equipment.
Regulation XI: Source Specific Standards	**Rule 1113 –** Architectural Coatings. Limits VOC content of applied architectural coatings. The proposed project would be required to use compliant coatings by permit condition. **Rule 1134 –** Emissions of Oxides of Nitrogen from Stationary Gas Turbines. Limits NOx emissions from combined-cycle turbines and specifies monitoring and recordkeeping for such equipment.. **Rule 1135 –** Emissions of Oxides of Nitrogen from Electric Power Generating Systems. This rule is only applicable to units existing in 1991 which are owned by specific utilities or their successors. Since PEP would be constructed after 1991 and is not owned by any entity listed in the rule, this rule is not applicable to PEP. **Rule 1146 –** Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters. This rule establishes NOx and CO emission limits and monitoring requirements This rule does not apply to

Applicable LORS	Description
	boilers used to generate electricity. **Rule 1171 –** Solvent Cleaning Operations. This rule limits VOC emissions from solvent cleaning operations and the storage and disposal of VOC-containing material.
Regulation XIII: New Source Review	**Rule 1300 –** General. Ensures that PSD requirements apply to all projects. The proposed project has submitted an application to the U.S. EPA for a PSD permit. **Rule 1302 –** Procedure. Requires certification of compliance with the Federal Clean Air Act (CAA), applicable implementation plans, and all applicable AVAQMD rules and regulations. The Authority to Construct (ATC) application package for the proposed project includes sufficient documentation to comply with Rule 1302(D)(5)(b)(iii). Permit conditions for the proposed project would require compliance with Rule 1302(D)(5)(b)(iv). **Rule 1303 –** Requirements. Requires BACT and offsets for selected large new sources. Permit conditions would limit the emissions from the proposed project to a level which has been defined as BACT for the proposed project, bringing the proposed project into compliance with Rule 1302(A). Prior to the commencement of construction the proposed project would be required to obtain sufficient offsets to comply with Rule 1303(B)(1). **Rule 1304 –** Emission Calculations. The purpose of Rule 1304 is to provide the procedures and formulas to calculate emission increases and decreases for new of modified facilities. These are used to determine the applicability of Rule 1303. **Rule 1305 –** Emissions Offsets. Provides the procedures and formulas to determine the eligibility, calculations and use of offsets required pursuant to the provisions of AVAQMD Rule 1303 (B). Fugitive Emissions, as defined in Rule 1301 (HH), must be included when calculating the base quantity of offsets as required by Rule 1305. **Rule 1306 –** Electric Generating Facilities. The AVAQMD will consider the PTA to be equivalent to an application pursuant to AVAQMD Rule 1302(B) during the Determination of Compliance review, and will apply all applicable provisions of AVAQMD Rule 1302 to the application. **Rule 1309 –** Emission Reduction Credits (ERCs). Establishes a system by which all ERCs are to the banked prior to use.
Regulation XXX: Federal Operating Permits	**Regulation XXX** –Federal Operating Permits. Contains requirements for sources which must have a federal operating permit and an acid rain permit.
Maximum Achievable control Technology Standards	H&SC §39658(b)(1) states that when U.S. EPA adopts a standard for a toxic air contaminant pursuant to §112 of the Federal Clean Air Act (42 USC §7412), such standard becomes the Airborne Toxic Control Measure (ATCM) for the toxic air contaminant. Once an ATCM has been adopted it becomes enforceable by the AVAQMD 120 days after adoption or implementation (H&SC §39666(d)). U.S. EPA has not to date adopted a Maximum Achievable Control Technology (MACT) standard that is applicable to the proposed project. Should U.S. EPA adopt an applicable MACT standard in the future, the AVAQMD will be required to enforce said MACT as an ATCM on the proposed project. MACT is also required for each major source of toxic air contaminants. However, PEP will not emit more than ten tons per year of any individual toxic air contaminant, and will not collectively emit more than 25 tons per year of all toxic air contaminants, so MACT is not required.

SETTING

The proposed project site is in the city of Palmdale, California, in Los Angeles County. The PEP site is in the Antelope Valley, which is part of the Mojave Desert Air Basin (MDAB). Antelope Valley is situated between the Tehachapi Mountains to the northwest and the San Gabriel Mountains to the south. Palmdale and Lancaster are the two principal cities in the Antelope Valley, with Lancaster to the north and the bulk of Palmdale to the south of the site.

The proposed site is generally flat, ranging in elevation from approximately 2,500 to 2,505 feet above sea level. The proposed power block would be located in a different place on the property and with a different configuration from the licensed project. The power block would be reoriented with the HRSG stack proposed on the east and the combustion turbine air inlets on the west.

The proposed site parcel is currently undeveloped. The surrounding land includes currently undeveloped parcels, light industry and aviation related activities. Air Force Plant 42 is a government-owned contractor-operated facility located to the south east of the proposed site. Lockheed Martin Aeronautics and Northrup Grunman both operate within or adjacent to U.S. Plant 42 near the Palmdale airport.

CLIMATE AND METEOROLOGY

The Antelope Valley is classified as high desert, transitioning between the hot Sonoran Desert to the south and the cold Great Basin Desert to the north. The surrounding mountains form a rain shadow on the Mojave Desert, meaning the mountains block the passage of weather systems that bring precipitation. Warm moist air rises and condenses on one side of the mountains, while dry air passes to the basin on the other side resulting in arid conditions. Characteristic of a desert climate, the Antelope Valley experiences extreme temperature variations, low precipitation, clear skies and gusty winds.

Winters are characterized as cold and wet while summers are very hot with little to no precipitation. January is on average the coolest month with an average temperature high of 58.5°F and an average low of 32.4°F. July is on average the warmest month with an average temperature high of 97.6°F and an average low of 65.3°F.The annual average rainfall is 7.61 inches with the majority of the rainfall occurring in the winter and early spring. February is on average the wettest month while June and July are the driest (WRCC: period of record 1/1/1903 to 1/20/2015). On average, Palmdale records 54.7 days per year below 32°F and 106 days per year above 90°F (WRCC: period of record 1903 to 2012).

The area experiences consistent winds with some seasonal variation. Based on data from 2005 through 2015, the annual prevailing wind direction for Palmdale is southwest with an annual average wind speed of 13.2 miles per hour. Winds originate from the south to the west approximately 60 percent of the time. Winds originate from the north to east approximately 20 percent of the time. Calm periods, where winds are less than 1.3 miles per hour, account for approximately 2.5 percent of the time.

The prevailing winds are the result of large scale circulation patterns. The surrounding mountain ranges provide channels for air masses to move through the Mojave Desert. Winds enter by way of the Tehachapi Pass from the California Central Valley and the Soledad Pass from the Los Angeles Basin. The highest wind speeds occur during spring afternoons due to increased heating of the land that far exceeds the heating of the ocean surface at that time of year. These high wind speeds are associated with southwesterly to westerly winds passing predominately through the Soledad Pass and to a lesser degree passing through the Tehachapi Pass. The development of the northeasterly Santa Ana winds during the late fall and winter result in hot air transported from the Mojave Basin into Southern California.

The most significant large-scale phenomena affecting air quality in the project area are the transport winds from the northwest and southwest. These winds are responsible for bringing ozone and other pollutants through the mountain passes from the Los Angeles Basin (Cajon and Soledad Passes) and the San Joaquin Valley (Tehachapi Pass). The Antelope Valley is therefore recognized as downwind from both the South Coast and San Joaquin Air Basins.

AMBIENT AIR QUALITY STANDARDS

The U.S. EPA and the ARB have both established allowable maximum ambient concentrations of criteria air pollutants. These are based upon public health impacts and are called ambient air quality standards (AAQS). The California Ambient Air Quality Standards (CAAQS), established by ARB, are typically lower (more stringent) than the federally established NAAQS.

Ambient air quality standards are designed to protect people who are most susceptible to respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and people engaged in strenuous work or exercise. The ambient air quality standards are also set to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

Current state and federal ambient air quality standards are listed in **Air Quality Table 2**. The averaging time for the various ambient air quality standards (the duration of time the measurements are taken and averaged) ranges from one hour to one year. The standards are read as a concentration, in ppm, parts per billion (ppb), or as a weighted mass of material per unit volume of air, in milligrams (mg or 10^{-3} g) or micrograms (µg or 10^{-6} g) of pollutant in a cubic meter (m^3) of ambient air, drawn over the applicable averaging period.

EXISTING AMBIENT AIR QUALITY

The U.S. EPA, ARB, and the AVAQMD have established air monitoring plans designed to obtain representative data on the ambient levels of pollutants. This data is used to classify an area as attainment, unclassified, or nonattainment, depending on whether or not the monitored ambient air quality data indicates compliance, insufficient data is available, or non-compliance with the ambient air quality standards, respectively. 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 nonattainment for an air contaminant if that contaminate standard is violated.

Air Quality Table 2
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Standard	California Standard
Ozone (O_3)	8 Hour	0.070 ppm (137 µg/m^3)[a]	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 ppm (10 mg/m^3)
	1 Hour	35 ppm (40 mg/m^3)	20 ppm (23 mg/m^3)
Nitrogen Dioxide (NO_2)	Annual	53 ppb (100 µg/m^3)	0.030 ppm (57 µg/m^3)
	1 Hour	100 ppb (188 µg/m^3)[b]	0.18 ppm (339 µg/m^3)
Sulfur Dioxide (SO_2)	24 Hour	—	0.04 ppm (105 µg/m^3)
	3 Hour	0.5 ppm (1300 µg/m^3)	—
	1 Hour	75 ppb (196 µg/m^3)[c]	0.25 ppm (655 µg/m^3)
Respirable Particulate Matter (PM10)	Annual	—	20 µg/m^3
	24 Hour	150 µg/m^3	50 µg/m^3
Fine Particulate Matter (PM2.5)	Annual	12 µg/m^3	12 µg/m^3
	24 Hour	35 µg/m^3 [b]	—
Sulfates (SO_4)	24 Hour	—	25 µg/m^3
Lead	30 Day Average	—	1.5 µg/m^3
	Rolling 3-Month Average	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.

Source: ARB 2015c, U.S. EPA 2015a and U.S. EPA 2015b.
Note: [a] Fourth- highest maximum 8 – hour concentration, averaged over 3 years.
[b] 98th percentile of daily maximum value, averaged over 3 years
[c] 99th percentile of daily maximum value, averaged over 3 years

Exceptional events that are out of human control and create very high pollutant concentrations such as wind storms and fires are generally excluded from attainment designations. In circumstances where there is not enough ambient data available to support designations as either attainment or nonattainment, the area can be designated as unclassified or unclassifiable. An unclassified area is normally treated the same as an attainment area for regulatory purposes. In addition, an area could be designated as attainment for one air contaminant and nonattainment for another, or attainment for the federal standard and nonattainment for the state standard for the same air contaminant.

The federal and state attainment status for specified pollutants in the AVAQMD is summarized in **Air Quality Table 3**. This area is designated as nonattainment with the federal and state ambient air quality standards for O_3, and the state PM10 standards. The area is designated as attainment or unclassified for the federal and state CO, NO_2, SO_2, and PM2.5 and unclassified for federal PM10. For convenience, staff includes **Air Quality Table 3**, which summarizes the area's attainment status for various applicable current state and federal air quality standards. The transport of ozone and ozone precursors into the Antelope Valley have been recognized by ARB as resulting in exceedances of both the NAAQS and CAAQS for ozone.

Air Quality Table 3
AVAQMD Attainment Status

Pollutant	Averaging Time	California Status	Federal Status
Ozone (O_3)	8 Hour	**Non-attainment**	**Non-attainment**
	1 Hour	**Non-attainment**	N/A
Carbon Monoxide (CO)	8 Hour	Attainment	Attainment
	1 Hour	Attainment	Attainment
Nitrogen Dioxide (NO_2)	Annual	N/A	Attainment
	1 Hour	Attainment	Unclassified
Sulfur Dioxide (SO_2)	Annual	N/A	Attainment
	24 Hour	Attainment	Attainment
	1 Hour	Attainment	Attainment
PM10	Annual	**Non-attainment**	N/A
	24 Hour	**Non-attainment**	Unclassified
PM2.5	Annual	Attainment	Attainment
	24 Hour	N/A	Attainment

Source: ARB 2015a, U.S. EPA 2015a, AVAQMD website
Notes: Unclassified means the area is treated as if it is in attainment.
N/A= no standard applies or not applicable.

The closest air quality monitoring site is the Lancaster station located at 43301 Division Street in Lancaster. The monitoring station is approximately 2.5 miles northwest of the proposed site and next to the Sierra Highway. The Lancaster station was established in 2001 and currently monitors CO, NO_2, O_3, PM10 and PM2.5. The station is surrounded by traveled roadways and the Southern Pacific Railway. The Lancaster station meets near road siting criteria. Data collected from this station provides a conservative estimate of background concentrations. The closest station monitoring SO_2 is located in Victorville, in the MDAB. The Victorville station is approximately 45 miles to the south east of the proposed project site. The Victorville site is expected to have higher levels of SO_2 due to the proximity of high SO_2 emissions from stationary sources neighboring the monitoring station. Therefore, the SO_2 data from the Victorville station provides a conservative estimated of background SO_2.

The maximum ambient background concentration is used in combination with the modeled pollutant concentrations from the project in order to assess potential impacts from the project. According to state and federal requirements, the background data used to evaluate the potential air quality impacts need to be representative but are not required to be collected at the project site. The Lancaster and Victorville monitoring station data are considered to be representative of the proposed site and were therefore used for background data selection. Monitoring data from these two stations were also used to establish background data for the PHPP.

CRITERIA POLLUTANTS

Air Quality Table 4 summarizes the existing ambient monitoring data for select criteria pollutants (nitrogen dioxide, ozone, particulate matter, carbon monoxide and sulfur dioxide) collected from 2010 to 2014 from the Lancaster monitoring station near the project site. **Air Quality Table 4** includes the maximum value reported by either agency. Data in this table marked in bold indicate that the most-stringent ambient air quality standard was exceeded during that period. Note that an exceedance is not necessarily

a violation of the standard, and that only persistent exceedances lead to designation of an area as nonattainment.

Air Quality Table 4
Criteria Pollutants Concentrations, 2010-2014 (ppm or µg/m^3)

Pollutant	Averaging Time	2010	2011	2012	2013	2014
NO_2 (ppm)	State 1 hour	0.056	0.058	0.049	0.048	0.052
NO_2 (ppm)	Federal 1 hour	0.053	0.050	0.046	0.044	0.040
NO_2 (ppm)	Annual	0.012	0.012	0.009	0.008	0.008
Ozone (ppm)	1 hour	**0.107**	**0.115**	**0.112**	**0.108**	**0.101**
Ozone (ppm)	8 hour	**0.096**	**0.100**	**0.096**	**0.094**	**0.088**
PM10 [a] (µg/m^3)	State 24 hour	**829**	49	43	**173.4**	**-**
PM10 (µg/m^3)	Federal 24 hour	43.6	81.9	47.0	47.9	131
PM10 (µg/m^3)	Annual	18.5	19.6	19.8	**21.8**	**24.3**
PM2.5[b] (µg/m^3)	24 hour	15.0	**50.0**	14.0	11	28
PM2.5 (µg/m^3)	Annual	5.9	7.1*	5.4*	5.8	7.2
CO (ppm)	1 hour	1.8	2.3	1.9	1.2	15.2
CO (ppm)	8 hour	1.2	1.3	1.4	1.9	10.6
SO_2 (ppm)	1 hour	0.052	0.013	0.006	0.004	0.005-
SO_2 (ppm)	Federal 1 hour	0.011	0.007	0.005	0.004	0.003
SO_2 (ppm)	24 hour	0.007	0.007	0.003	0.002	0.002

Source: ARB 2016a, EPA 2015c.
Note: [a] The state 24-hour PM10 concentrations were not finalized for 2014
Note: [b] The 24-hour PM2.5 concentrations are the 98th percentile highest daily 24-hour average PM2.5 concentrations during that year.

Nitrogen Dioxide (NO_2)

Nitrogen oxide includes nitric oxide (NO) and NO_2. NOx is formed from the reaction of nitrogen and oxygen during combustion. Approximately 75 to 90 percent of the NOx emitted from combustion sources is NO. NO is oxidized in the atmosphere to NO_2 through reactions with oxidants such as oxygen and ozone. NO and oxygen slowly react to form NO_2. NO and ozone reactions occur primarily during the nighttime without the presence of sunlight. Sunlight can cause NO_2 to disintegrate into NO and O. High ambient concentrations of NO_2 usually occur during the fall and winter when atmospheric conditions tend to trap ground-level emissions but lack significant photochemical activity due to less sunlight. NO_2 concentrations are more prevalent during midmorning than midday or afternoon. In the summer, NO is converted to NO_2, but the relatively high temperatures and windy conditions (atmospheric unstable conditions) generally disperse pollutants and also engage NO in reactions with VOCs to form ozone. The formation of NO_2 in the presence of ozone is according to the following reaction:

$$NO + O_3 \rightarrow NO_2 + O_2$$

Urban areas typically have high daytime ozone concentrations that drop substantially at night as the above reaction takes place, and ozone scavenges the available NO. If ozone is unavailable to oxidize the NO, less NO_2 will form because the reaction is "ozone-limited." This reaction explains why, in urban areas, ground-level ozone concentrations drop at night, while aloft and in downwind rural areas (without sources of fresh NO emissions), nighttime ozone concentrations can remain relatively high.

The U.S. EPA implemented a new 1-hour NO_2 standard of 0.1 ppm, which became effective on April 12, 2010. The new standard is expressed as a 3-year average of the 98th percentile of the daily maximum 1-hour concentration (i.e., the 8th highest of daily highest 1-hour concentrations). **Air Quality Table 4** includes the maximum 1-hour NO_2 concentrations at Lancaster. Data from 2010 to 2014 demonstrate that NO_2 concentrations measured at this station do not exceed either the federal or state standards. The AVAQMD is currently designated as attainment for the state standards and unclassified for the federal NO_2 standard.

Ozone

Ozone is a colorless gas found in two regions of the atmosphere. In the upper region, it protects the earth from harmful rays from the sun. In the lower region, ozone forms what is generally called smog. Ozone is not directly emitted from stationary or mobile sources. It is a secondary pollutant formed through complex chemical reactions between NOx and VOC in the presence of sunlight. Ozone formation is highest in the summer and fall when abundant sunshine and high temperatures trigger the necessary photochemical reactions, and lowest in the winter. The days with the highest ozone concentrations in this region commonly occur between May and October. The AVAQMD is classified as a nonattainment area with respect to both state and national ambient air quality standards for ozone. **Air Quality Table 4** displays the maximum 1-hour and 8-hour concentrations at the Lancaster monitoring station. The table indicates the monitoring data from the Lancaster station exceeded the federal and state ozone standards.

Respirable Particulate Matter (PM10)

PM10 is a mixture of small solid particles and liquid droplets with a size less than or equal to 10 microns diameter. PM10 can be emitted directly or it can be formed many miles downwind from emission sources when various precursor pollutants interact in the atmosphere. Gaseous emissions of pollutants like NOx, SOx and VOC from turbines, and ammonia from NOx control equipment, given the right meteorological conditions, can form particulate matter in the form of nitrates (NO_3), SO_4, and organic particles. These pollutants are known as secondary particulates, because they are not directly emitted but are formed through complex chemical reactions in the atmosphere.

Particulate matter nitrate (mainly ammonium nitrate) is formed in the atmosphere from the reaction of nitric acid and ammonia. Nitric acid originates from NOx emissions from combustion sources. The nitrate ion concentrations during the wintertime are a significant portion of the total PM10, and an even higher contributor to PM2.5, described more fully below. The nitrate ion is only a portion of the particulate matter nitrate, which can be in the form of ammonium nitrate (ammonium plus nitrate ions) or sodium nitrate.

As shown in **Air Quality Table 4**, the federal 24-hour PM10 standard of 150 micrograms per meters cubed ($\mu g/m^3$) has not been exceeded at the Lancaster station from 2010 through 2014. The 2010 through 2014 Lancaster monitoring data for the CAAQS 24-hour standard of 50 $\mu g/m^3$ was exceeded in 2010 and 2013. The data was taken from the ARB database that includes exceptional events. The large exceedences were not replicated in the U.S. EPA monitoring values database, but the area is still considered nonattainment for the state's annual and 24-hr PM10 standards.

Fine Particulate Matter (PM2.5)

PM2.5 refers to particles and droplets with a diameter less than or equal to 2.5 microns. PM2.5 is believed to pose a greater health risk than PM10 because it can lodge deeply into the lungs due to the small size. PM2.5 includes nitrates, sulfates, organic carbon and elemental carbon, which mainly result from combustion and atmospheric reactions. Almost all combustion-related particles, including those from wood smoke and cooking, are smaller than 2.5 microns. Nitrate and sulfate particles are formed through complex chemical reactions in the atmosphere. Particulate nitrate (mainly ammonium nitrate) is formed in the atmosphere from the reaction of nitric acid and ammonia. Nitric acid in turn originates from NOx emissions from combustion sources. The nitrate ion concentrations during the winter make up a large portion of the total PM2.5.

Air Quality Table 4 summarizes the ambient PM2.5 data collected from the Lancaster station. The national 24-hour average NAAQS is met if the 3-year average of the 98th percentile concentration is 35 µg/m^3 or lower. The 24-hour standard threshold was exceeded in 2011. All other values were below the threshold. The federal 24-hour standard for PM2.5 is met when the 3 year average of the annual 98th percentile of values at designated monitoring sites in an area is less than or equal to 35 µg/m^3. Therefore an exceedance on any given day will not result in a designation of nonattainment. AVAQMD is designated attainment for both federal and state PM2.5 standards.

Carbon Monoxide (CO)

Carbon monoxide is a product of incomplete combustion due to the insufficiency of oxygen content at the point of combustion. Mobile sources are the main sources of CO emissions. Ambient concentrations of CO are highly dependent on motor vehicle activity. CO is a local pollutant, with high concentrations usually found near the emission sources. The highest CO concentrations occur during rush hour traffic in the mornings and afternoons. Ambient CO concentrations attain the air quality standards due to two statewide programs: 1) the 1992 wintertime oxygenated gasoline program, and 2) Phase I and II of the reformulated gasoline program. New vehicles with oxygen sensors and fuel injection systems have also contributed to reduced CO emissions. **Air Quality Table 4** shows the maximum 1-hour and 8-hour CO concentrations from the Lancaster monitoring station. These values are well below respective ambient air quality standards.

Sulfur Dioxide

Sulfur dioxide is typically emitted as a result of the combustion of fuels containing sulfur. This proposed project would use natural gas, which contains very little sulfur and consequently has very low SO_2 emissions when burned. By contrast, fuels with high sulfur content, such as coal, emit very large amounts of SO_2 when burned. Sources of SO_2 emissions come from every economic sector and include a wide variety of fuels in gaseous, liquid and solid forms. The whole state is designated attainment for all state and federal SO_2 ambient air quality standards. **Air Quality Table 4** includes maximum 1-hour, federal 1-hour, and 24-hour SO_2 concentrations measured at the Victorville station.

Visibility

Visibility in the region of the project site depends upon the area's natural relative humidity and the intensity of both particulate and gaseous pollution in the atmosphere. The most straightforward characterization of visibility is probably the visual range (the greatest distance that a large dark object can be seen). However, in order to characterize visibility over a range of distances, it is more common to analyze the changes in visibility in terms of the change in light-extinction that occurs over each additional kilometer of distance In the case of a greater light-extinction, the visual range would decrease.

The AVAQMD is currently designated as unclassified for visibility reducing particles.

SUMMARY OF EXISTING AMBIENT AIR QUALITY

In summary, staff recommends using the background ambient air quality concentrations in **AIR QUALITY Table 5** as the baseline for the modeling and impacts analysis. The highest criteria pollutant concentrations from the last three years (2012-2014) of available data collected at the Lancaster station (for NO_2, PM10 and PM2.5) and the Victorville station (for SO_2) are used to determine the recommended background values. The highest criteria pollutant concentrations from 2011-2013 were used for CO due to suspect 2014 data. The 3-year average of the 98th percentile of the daily maximum during 2012-2014 is used for federal 1-hour NO_2 and 24-hour PM2.5 standards. Background concentrations in excess of the ambient air quality standards are shown in bold.

AIR QUALITY Table 5
Staff-Recommended Background Concentrations (µg/m^3)

Pollutant	Averaging Time	Recommended Background	Limiting Standard	Percent of Standard
NO_2	State 1-hour	98	339	29%
	Federal 1-hour	82	188	43%
	Annual	17	57	30%
PM10	24-hour	**173**	50	**347%**
	Annual	**24**	20	**122%**
PM2.5	24-hour	18	35	50%
	Annual	7	12	60%
CO	1-hour	2,634	23,000	11%
	8-hour	2,176	10,000	22%
SO_2	State 1-hour	16	655	2%
	Federal 1-hour	13	196	7%
	24 hour	8	105	7%

Source: ARB 2016a, U.S. EPA 2015c, and staff analysis.
Note: An exceedance is not necessarily a violation of the standard, and that only persistent exceedances lead to designation of an area as nonattainment.

The background concentrations for PM10 are above the most restrictive existing ambient air quality standards, while the background concentrations for the other pollutants are mostly well below the most restrictive existing ambient air quality standards.

The pollutant modeling analysis was limited to the pollutants listed in **Air Quality Table 5.** Therefore recommended background concentrations were not determined for the other criteria pollutants (ozone, lead, visibility, etc.).

PROJECT DESCRIPTION AND EMISSIONS

The PEP power block would consist of two 214 MW Siemens SGT6-5000F combustion turbines with inlet evaporative cooling and dry low NOx combustors, one 276 MW (nominal base load) Siemens steam turbine, and two HRSGs with 193.1 million British thermal units per hour (MMBtu/hr) duct burners.

The combined-cycle configuration includes each of the two CTGs exhausting to a dedicated HRSG. Both of the CTG/HRSG trains would feed into a common STG. The duct burners would be used to provide heat, enabling the HRSGs to produce more steam when needed to obtain peaking output. The duct burners would be limited to 1,500 hours of operation per year. The two CTGs and HRSG duct burners would be fired exclusively with natural gas.

PEP would utilize a 'Flex 30' fast start plant design. The Siemens Flex 30 would allow the CTGs to reach full load quickly. To achieve faster ramping rates, the plant incorporates a 'drum plus' design which utilizes a smaller pressure vessel resulting in shorter warm up times for the thick walled drum. Startup periods generally have higher emission rates. Reducing the time for startup periods can result in lower total emissions for startup events.

The PEP would employ dry cooling through an ACC to condense turbine exhaust steam inside air-cooled finned tubes. The ACC would consist of modules in parallel rows with finned tube bundles. Each module would use a fan to circulate the cooling air across a heat exchange area of the fin tubes. The cooling system would consist of the ACC and supporting equipment including a structure, steam ducting, pumps, tanks and related piping and instrumentation.

The PEP would include a 110 Mmbtu/hr natural gas fired auxiliary boiler. The auxiliary boiler would be used to provide steam when the main power block is offline and during startups to support the fast start design. During a combined-cycle start a seal is needed on the condenser for STG operation. The auxiliary boiler would provide steam to the STG to aid in the establishment of the condenser seal prior to CTG startup, resulting in the STG being able to accept steam from the HRSG more quickly. The auxiliary boiler would be equipped with a 9 ppm low NOx burner and flue gas recirculation (FGR).

The PEP proposes an emergency generator and fire pump. The emergency generator includes a 2,011 HP Tier 2 diesel engine. The emergency generator would be used for plant critical or essential auxiliary loads in the event the normal power source is interrupted. The equipment would be designed to enable the engine to be connected to the essential loads and switching devices within 10 seconds. The proposed 140 HP Tier 3 diesel fire pump engine would be used for emergency fire suppression. Both of the emergency engines would operate for periodic maintenance and testing and would fire exclusively on California ultra-low sulfur diesel fuel.

Construction, commissioning, and operation of the PEP would result in emissions of criteria pollutants. The facility would be considered a major facility by the AVAQMD since emissions would exceed the AVAQMD offset threshold amounts listed in AVAQMD Rule 1303 requirements. The facility would be considered a federal major source since annual emissions would exceed 100 tons per year for NOx, CO and PM10. The facility would require a federal operating permit and trigger Federal Prevention Significant Deterioration (PSD) requirements.

The PEP would result in an increase in annual emissions of NOx, VOCs, SOx, and CO over the approved PHPP project. The PEP proposal would result in a decrease in annual emissions of PM10 and PM2.5. The emission increases are attributed to the larger turbine, duct firing and increased startup and shutdown events. The decrease in particulate emissions is a result of the deletion of the solar component including annual maintenance, deletion of the cooling tower, and lower emissions from the turbines. Each section below contains a table with the expected PEP emissions and includes a comparison to the expected emissions from the licensed PHPP.

CONSTRUCTION

The construction phase for the PEP would no longer include emissions from the significant grading for the solar component. The construction emissions for the PEP power block and linear components would be similar to PHPP power block and linear components estimates. The same methodology was used to quantify emissions; however, emissions associated with the solar array were deleted and the construction equipment emission factors were updated to reflect 2017 values because construction would not occur prior to 2017.

Construction of the PEP is expected to last approximately 23 months (not including startup and commissioning). Construction would include two main phases. Phase 1 site preparations would require minimal grading activities, excavation of footings and foundations, and backfilling operations. The entire phase is only expected to last one and a half months. Phase 2 includes construction of the foundations and structures, and installation of major equipment and is expected to last for approximately 22 months. The 33 acre site is currently undeveloped; therefore, no demolition activities would be required for construction.

Construction emissions include fugitive dust and combustion emissions. Fugitive dust result from site preparation activities, travel on paved and unpaved surfaces, aggregate and soil loading and unloading operations and wind erosion of areas disturbed during construction activities. Combustion emissions result from the exhaust of construction equipment and other mobile source activity related to construction. Combustion emissions occur from the exhaust of diesel construction equipment used for site preparation and grading, water trucks used for dust suppression, diesel-powered welding machines, electric generators, air compressors and water pumps, pickup trucks and diesel trucks transporting workers and material around the construction site, exhaust from trucks delivering concrete, fuel and other construction supplies, automobiles used by workers to commute to the construction site.

Emissions were estimated from the construction of the reclaimed water pipeline, natural gas pipeline, sanitary wastewater line, potable water line, transmission line segment

one and transmission line segment two. Recent updates dated March 11, 2016, have been proposed to the emission estimates from the offsite linear components. The tables have been updated to reflect the emission decreases. Estimated daily construction emissions from the PEP are included in **Air Quality Table 6**.

AIR QUALITY Table 6
PEP Estimated Daily Construction Emissions (lbs/day)

Project Component	Total Emissions					
	NOx	**CO**	**VOC**	**SOx**	**PM10**	**PM2.5**
	Combined Cycle					
Onsite Exhaust	49.7	34.3	8.2	0.1	2.68	2.44
Onsite Fugitives					43.7	9.76
Onsite Total	49.7	34.3	8.2	0.1	46.4	12.2
Offsite	58.7	161.6	16.6	0.1	19.0	5.3
	Offsite Linears					
Reclaim Water Line	41.7	143.3	18.2	0.1	36.9	9.1
Natural Gas Pipeline	41.7	143.3	18.2	0.1	36.9	9.1
Sanitary Wastewater Line	10.6	45.3	5.4	0.012	8.6	2.1
Potable Water Line	10.6	45.3	5.4	0.012	8.6	2.1
T-line Segment 1	97.8	128.4	19.3	0.2	75.0	19..3
T-line Segment 2	107.5	167.9	20.8	0.2	288.3	67.6

Source: PHPP 2015u Appendix DR-7, CEC 2011b and staff analysis, CEC 2016m

Air Quality Table 7 compares the estimated construction emissions for the combined-cycle component of the PEP to the corresponding combined-cycle portion of the licensed PHPP. Significant emission decreases are due to the use of updated emission factors in the emission estimate calculations. The South Coast Air Quality Management District maintains a database for off-road mobile source emission factors used to estimate these emissions. The off-road emission factors are derived based on equipment category and average fleet make up. Changes were not made to the equipment categories; however the emission factors reflect the expected assumptions of newer engines with higher minimum U.S. EPA/ARB tier levels in 2017.

AIR QUALITY Table 7
Estimated Combined-Cycle Construction Emissions Comparison

Project Component	Total Emissions					
	NOx	CO	VOC	SOx	PM10	PM2.5
	Onsite Daily Construction (lbs/day)					
PEP Equipment	48.9	32.9	8.1	0.1	1.7	1.5
Licensed PHPP Equipment	104.9	252.7	20.1	0.1	5.1	6.8
PEP Motor Vehicles	0.9	1.4	0.1	<0.05	<0.05	<0.05
Licensed PHPP Motor Vehicles	0.9	1.4	0.1	<0.05	<0.05	<0.05
PEP Fugitive					44.6	10.6
Licensed PHPP Fugitive					50.5	9.5
	Maximum Onsite Daily Construction (lbs/day)					
PEP Total	49.7	34.3	8.2	0.1	46.4	12.2
Licensed PHPP Total	105.8	254.1	20.2	0.1	63.6	18.6
	Maximum Onsite Annual Construction (tons/year)					
PEP Total	5.7	4.3	1.0	<0.05	5.2	1.5
Licensed PHPP Total	12.3	32.0	2.4	<0.05	7.9	2.3

Source: PHPP 2015w, CEC 2010b, PHPP 2015c Appendix G, and PHPP 2015u Appendix DR-7

The revised starting date for construction for the PEP results in expected emission decreases over the estimated emission for the licensed PHPP. As discussed above the construction equipment used is expected to reflect federal and state emission requirements. In addition, the fleet of vehicles used in the offsite emission calculations is also expected to have reduced emission factors The PEP emission estimates for the offsite linears updated on March 11, 2016 would be expected to be lower than the licensed PHPP.

INITIAL COMMISSIONING

New electrical generation facilities must go through initial commissioning phases before becoming commercially available to generate electricity. The commissioning period begins when the turbines are prepared for first fire and ends upon successful completion of initial performance testing. Emissions of NOx, CO, and VOC during the commissioning period are typically higher than during normal operations due to the fact that the combustors may not be optimally tuned and the emission control systems may be only partially operational or not operational at all. The commissioning period is needed to ensure the facility's operation is fine-tuned to minimize emissions during normal operations.

Commissioning activities are expected to occur over approximately 1,278 operating hours total for both turbines. Commissioning activities per unit include 11 hours of first fire and synchronization checks (first fire), 73 hours of turbine final emission and combustion tuning, 130 hours of selective catalytic reduction (SCR) commissioning and 425 hours of tuning and testing.

The worst case scenario for hourly and daily emissions calculations assumes one turbine is undergoing first fire while the other turbine undergoes emission and combustion tuning. It was assumed the turbines would not undergo the same stage of commissioning at the same time until the final combined tuning and testing. The

emission rates for NOx, CO and VOCs during commissioning activities are included in **Air Quality Table 8** along with the corresponding emissions from each commissioning activity. During commissioning, SO_2, PM10 and PM2.5 emissions are expected to be no greater than full load operations.

Air Quality Table 8
PEP Maximum Initial Gas Turbine Commissioning Emissions

Commissioning Event	Maximum Hourly Emissions (lbs/hr)		
	NOx	CO	VOC
First Fire	122	4500	516
Emission and Combustion Tuning	132	796	90
SCR Commissioning	54	194	22
CC Tuning and Testing	29	123	16
	Total Commissioning Emissions (lbs)		
Emissions from Both Turbines	60,646	370,206	43,812

Source: PHPP 2015c Appendix 4.1A-9, and staff analysis

Air Quality Table 9 compares the total annual estimated commissioning emissions for the combined-cycle component of the PEP to the licensed PHPP. The estimated NOx emissions are lower than the licensed project and the CO and VOC commissioning emissions total estimates are higher. Emission estimates calculated during commissioning periods are based on estimates from each of the turbine vendors.

Air Quality Table 9
Maximum Initial Gas Turbine Commissioning Emissions

	Maximum Hourly Emissions (tons)		
	Nox	CO	VOC
PEP Total	30	135	22
Licensed PHPP Total	32	118	11

Source: PHPP 2015c Appendix 4.1A-9, and CEC 2010b

PROPOSED OPERATION

The project owner analyzed three different operating profiles when quantifying emission estimates for the proposed operation of the PEP. The operating profiles vary in the amount of annual 'steady state' gas turbines operational hours, start up and shutdown events and auxiliary boiler operations. Emissions rates for NOx, CO, and VOC are typically higher during startup/shutdown events. Emissions of SO_2 and particulate matter correlate to fuel consumption; therefore, their maximum emission rates are based on operational profiles with maximum fuel consumption. The operation of the turbines impacts the way the auxiliary boiler would operate. The auxiliary boiler would keep the steam turbine in a warm state to achieve faster start times. Differences in the turbine operation result in corresponding differences in the proposed auxiliary boiler operation.

Emission rates for criteria pollutants vary depending on the operational profile of the equipment. The turbine manufacturer provided emission rate estimates for 29 turbine

operational cases. The hourly daily and annual emissions are based on worst-case assumptions for each pollutant. Daily operational assumptions used to calculate NOx, CO and VOC emissions include 24 hours of operation with at least one cold or warm/hot state and one shutdown. Daily particulate matter and SO_2 emission calculations assume 24 hours of continuous operation. Annual emission calculations are dependent on the specific pollutant worst case dispatch scenarios discussed below.

- **Scenario 1**: Highest annual emissions of NOx, SO_2, PM10/PM2.5, and CO_2e (carbon dioxide equivalents). A total of 8,000 hours of operation per year per turbine, including up to 7,960 hours at base load with up to 35 warm starts, five cold starts and 40 shutdowns. This scenario includes 24-hour per day of turbine operation and 836 hours of auxiliary boiler operation.

- **Scenario 2**: Highest annual emissions of CO and VOC. A total of 4,320 hours of operation per year per turbine, including up to 3,625 hours at base load with up to 360 hot starts, 360 warm starts, five cold starts and 725 shutdowns. This scenario includes 24-hour per day of turbine operation and 4,884 hours of auxiliary boiler operation.

- **Scenario 3**: A total of 5,000 hours of operation per year per turbine, including up to 4,470 hours at base load with up to 180 hot starts, 360 warm starts, five cold starts and 545 shutdowns. This scenario includes 24-hour per day of turbine operation and 4,136 hours of auxiliary boiler operation.

All three emission scenarios include 1,500 hours per year per turbine, and up to 24 hours per day of duct burner operation, 50 hours of fire pump testing and 26 hours of emergency generator testing. Air Quality Table 10 summarizes the three operational scenarios evaluated.

AIR QUALITY Table 10
PEP Operating Scenario Summary (per Turbine)

	Scenario 1	Scenario 2	Scenario 3
Base Load Operation (hr)	7,960	3,625	4,470
Hot Start	---	360	180
Warm Start	35	360	360
Cold Start	5	5	5
Shutdowns	40	725	545
Total Operation Hours	8,000	4,320	5,000
Auxiliary Boiler (hr)	836	4,884	4,136
Duct Burning (hr)	1,500	1,500	1,500
Fire Pump Maintenance (hr)	50	50	50
Engine Maintenance (hr)	26	26	26

Source: PHPP 2015c

The emission scenarios were created as representative of worst case emission scenarios. The project owner is proposing to condition the project based on emissions and not restrict the project to any specific operations under the emissions cap. Hourly fuel use monitoring and source test requirements would establish tracking method to

ensure compliance with the established emission limits on a continuous basis. This is a reasonable approach that allows the plant operational and dispatch flexibility to respond to changing power market conditions without having to amend their license.

Emission Controls

The PEP proposes the exclusive use of pipeline-quality natural gas, dry low NO_X combustors and SCR to control emissions from the power block. The exclusive use of pipeline-quality natural gas would limit the formation of VOC, PM10, and SO_2 emissions. Natural gas contains very little noncombustible gas or solid residues and a small amount of reduced sulfur compounds, including mercaptan. Post-combustion NOx control in the form of a SCR system would be included for both CTGs to control NOx concentrations in the exhaust gas. The SCR system would use aqueous ammonia to reduce NOx emissions to no greater than 2.0 parts per million by volume, dry (ppmvd) adjusted to 15 percent oxygen. Ammonia slip would be limited to five ppmvd at 15 percent oxygen on a dry basis. Staged combustion of a pre-mixed fuel/air charge and an oxidizing catalyst would reduce CO and VOC emissions. CO emission concentrations would be limited to 2.0 ppmvd adjusted to 15 percent oxygen. VOC emission concentrations would be limited to 2.0 ppmvd with duct burning and 1.0 ppmvd without duct burning, both adjusted to 15 percent oxygen. Details on compliance with BACT requirements are included in the “Compliance with LORS” subsection.

A continuous emission monitoring system (CEMS) would be installed to monitor flue gas flow rate, NOx and CO concentration levels, and percentage of oxygen in the flue gas to assure adherence with the proposed emission limits for the CTG. The CEMS would generate reports of emissions data in accordance with permit requirements and send alarm signals to the control room in the plant when the level of emissions approaches or exceeds pre-selected limits.

The auxiliary boiler would be equipped with an ultra-low NOx burner, flue gas recirculation and exclusively use pipeline-quality natural gas for emission control to 9.0 ppmvd NOx corrected to 3 percent oxygen and averaged over an hour at all times including transient loads such as start-up and shutdown events. The exclusive use of pipeline-quality natural gas along with good combustion practices would limit CO emissions to 50 ppmvd corrected to 3 percent oxygen, VOC emissions to 0.66 pounds per hour, and PM10/2.5 emissions to 0.77 pounds per hour.

The project owner proposes the use pipeline quality natural gas, which contains 0.5 grains or less of total sulfur per 100 standard cubic feet of natural gas. Utilities can have higher allowable sulfur contents. Natural gas would be supplied to the Palmdale site by the Southern California Natural Gas Company (SoCalGas). SoCalGas does not make any warranties as to the nature, composition or properties of the natural gas redelivered to end-use customers due to varying sources of gas that are delivered into the system.

In 2013, the SoCalGas average maximum total sulfur was 0.16 grain per 100 standard cubic feet of natural gas at a single California border pipeline point. In 2012 and 2013, customers’ natural gas deliveries to SoCalGas’ California border interstate pipeline receipt points had a total sulfur content that was typically less than 0.1-grain sulfur per 100 standard cubic feet (scf). However, the pipeline natural gas has warning odorants

(sulfur compounds) that may be added at multiple locations. Supplemental odorization typically adds about 0.1 grains total sulfur per 100 scf.

The project owner originally proposed a SOx emission rate based on 0.2 grains per 100 standard cubic feet assuming a 100 percent conversion of total sulfur to SOx. It is typical to establish low total sulfur standards when averaged over longer periods of time. However, it is unclear if the natural gas fueled equipment would be able to meet the low SOx emission rate based on 0.2 grains per 100 standard cubic feet over a shorter time period, such as an hour, day or month.

The proposed SOx emission rate, based on 0.2 grains sulfur, from the natural gas fired CTGs and auxiliary boilers, was discussed during a workshop held at the Energy Commission on February 17, 2016. Staff expressed concerns about using the 0.2 grains rate for short term calculations. In addition the AVAQMD is proposing testing requirements to demonstrate compliance the proposed SOx emission rate. The project owner updated the short term SO_2 emissions from the turbine to reflect 0.75 grains per 100 standard cubic feet of natural gas. (CEC 2016m)

Due to the limited sulfur content in natural gas, the adjustment of short term SOx emission rates was not expected to result in significant emissions in SOx that would contribute to a violation of any SO_2 AAQS. In addition, the short term adjustments did not result in any change to mitigation since the proposed mitigation for SO_2 has been quantified on an annual basis.

Emissions from the PEP emergency engines would be controlled through the purchase of engines certified to meet U.S. EPA/ARB Tier requirements, the use of California ultra-low sulfur (15 ppm sulfur) diesel fuel and through operation restrictions. The proposed emergency generator would be powered by an engine certified to meet Tier 2 emission limits. The engine would be required to be maintained according to manufacturer's recommendations to produce minimum emissions. The Tier 2 engine would be limited to 26 hours of maintenance and testing operation per year and no more than 0.5 hours of maintenance and testing operation in any one day.

The proposed emergency fire pump engine would be required to be certified to meet Tier 3 requirements. The engine would also be restricted to the use of CARB certified diesel or equivalent. The engine would be required to be maintained according to manufacturer's recommendations to produce minimum emissions. In order to meet National Fire Protection Association testing requirements, the test periods for the fire pump would exceed the testing requirements for the emergency engine. The Tier 3 engine would be limited to 50 hours of maintenance and testing operation per year and no more than 1 hour of maintenance and testing operation per day. Both emergency engines would be limited to 200 total hours of operation each per year including emergency operation.

The emission limits achieved through the use of the various emission controls would be required in the conditions of certification and are used to demonstrate compliance with BACT requirements for the project. Additional discussion regarding BACT requirements is included in the "Compliance with LORS" subsection.

Project Operating Emissions

Air Quality Table 11 compares the total estimated operational emissions for the proposed PEP with the estimated operational emissions from the licensed PHPP. Subsequent **Air Quality Tables 12 – 18** and text provide the background information for the values summarized in **Air Quality Table 11**.

Air Quality Table 11
Estimated Operational Emissions Comparison

Project Component	Total Emissions				
	NOx	CO	VOC	SOx[a]	PM10/2.5
	Maximum Hourly Operations (lbs/hr)				
PEP Total	116	843	64	11	25
Licensed PHPP Total	106	453	35	4	50
	Maximum Daily Operations (lbs/day)				
PEP Total	1,141	2,179	472	272	568
Licensed PHPP Total	1,359	4,853	577	64	931
	Maximum Annual Operation (tons/year)				
PEP Total	139	351	52	11	81
Licensed PHPP Total	115	255	40	9	127

Source: PHPP 2015c, CEC 2010b, CEC 2016m
[a] SOx emission increase is due to a change in short term calculation and does not indicate an increase in actual SOx emissions.

Air Quality Table 12 includes a summary of the estimated annual emissions, including ammonia (NH_3) for the PEP for each of the operating scenarios presented by the project owner. The operating scenarios include base load operation, startup and shutdown events, and auxiliary boiler operation as summarized in **Air Quality Table 10**. The maximum value for each pollutant is bolded.

Air Quality Table 12
PEP Maximum Potential to Emit by Operational Scenario

	Annual Emissions (tons)					
	NOx	CO	VOC	SOx	PM10/2.5	NH_3
Operational Scenario 1	**138.75**	102.43	30.83	**11.39**	**81.0**	**125.32**
Operational Scenario 2	122.17	**351.02**	**51.63**	6.52	48.08	68.58
Operational Scenario 3	122.11	289.60	45.39	7.41	54.09	79.14

Source: PHPP 2015c Table 4.1-12

The emission rates for startup and shutdown events are summarized in **Air Quality Table 13.** The turbine startup events include three classifications: cold, warm and hot. The Air Quality conditions of certification include definitions of these classifications. A cold startup for a gas turbine occurs when the steam turbine rotor temperature is less than 485 degrees Fahrenheit. A warm start occurs when the steam turbine rotor temperature is greater than 485 degrees Fahrenheit but less than 685 degrees Fahrenheit. A hot start occurs when the steam rotor temperature is greater than 685 degrees Fahrenheit. All startup scenarios are based on 100 percent turbine load at the end of the start cycle. Shutdown assumes a 100 percent turbine load starting point. The emissions include a 20 percent additional margin for startup events and a 10 percent

additional margin for shutdown events. **Air Quality Table 13** also includes time allotments for the startup and shutdown events. The PEP Conditions of Certification limit the events to the times included in **Air Quality Table 13**.

Air Quality Table 13
PEP Startup and Shutdown Emissions Per Turbine

	Event Time (minute (hr))	Emissions (lbs/event)					
		NOx	CO	VOC	SOx	PM10/2.5	NH_3
Cold Startup	39 (0.65)	51.48	415.80	30.36	3.41	8.32	10.32
Warm Startup	35 (0.583)	46.8	378	27.6	3.06	7.56	8.59
Hot Startup	30 (0.5)	43.2	304.8	27.6	2.63	6.48	6.45
Shutdown	25 (0.417)	33.0	75.9	19.8	2.35	4.07	7.17

Source: PHPP 2015c

The manufacturer provided estimated exhaust emissions across the turbine operating profile in Attachment 4.1A-1 in Appendix 4 of the revised PTA. The data includes 29 separate cases ranging in temperature from 6 to 108 degrees Fahrenheit at loads ranging from 43 to 100 percent. The data also includes duct firing and no duct firing scenarios and was used to determine the worst case operating scenarios for the PEP. Case 2 was selected for the worst case steady state hourly emissions scenario. It assumes 23 degrees Fahrenheit at 100 percent load with duct firing. Case 1 includes the same operating parameters as Case 2; however it assumes no duct firing. Case 11 was selected to represent the most frequent annual operating condition expected. Case 11 assumes 100 percent load at 64 degrees Fahrenheit and does not include duct firing. Case 12 includes the same assumptions as Case 11; however Case 11 includes use of the duct burner. Emission estimates for each scenario are included below in **Air Quality Table 14**.

Air Quality Table 14
PEP Turbine Operation Emissions

	Case Number	Emissions (lbs/hr)					
		NOx	CO	VOC	SOx	PM10/2.5	NH_3
Worst Steady State Hour without (w/o) Duct Burning	1	17.10	10.40	3	1.40	9.8	15.80
Worst Steady State Hour	2	18.50	11.30	6.36	1.50	11.80	17.20
Steady State w/o Duct Burning	11	16.70	10.20	3.00	1.40	9.70	15.40
Steady State with Duct Burning	12	18.10	11.00	6.18	1.50	11.70	16.80

Source: PHPP 2015c – Attachment 4.1A-1
Note: Emission rates are based on US EPA test methods. The SOx emission rates used to calculate potential emissions are based on fuel sulfur content.

Air Quality Table 15 includes the estimated maximum hourly, daily and annual emissions from the power block during a non-commissioning year. The maximum hourly emissions for NOx, CO, VOCs and NH_3 are calculated based on cold start events for both turbines. As noted in **Air Quality Table 13** a cold start is expected to last 39 minutes (0.65 hours). The remaining 21 minutes (0.35 hours) of the hour assumes Case 1 conditions. Case 1 assumes a cold day with no duct burning which would represent a worst case hour since duct burning would not be available in the first hour of any start. The maximum hourly emissions from SOx, PM10/2.5 are based off Case 2 operation.

Maximum daily emissions for NOx, CO, VOCs, and NH_3 are calculated based on Case 2 operation, with one warm start, one hot start, and two shutdowns. This daily scenario includes 22.08 hours at full load with the duct burner on. The maximum daily emissions for PM10/2.5 and SO_2 are based on 24 hours of Case 2 operation with duct burning and do not include startup or shutdown event. Startup and shutdown emissions rates are lower for PM10/2.5 and SO_2 since the emissions are based on the total fuel use for these pollutants. The fuel use for the power block is greatest during Case 2 operations.

Maximum annual emissions for NOx, SOx, NH_3, and PM10/2.5 are calculated based on Operational Scenario 1. Maximum annual emissions of CO and VOC are based on Operational Scenario 2.

Air Quality Table 15
PEP Maximum Turbine/HRSG (Both Turbines Included)

	NOx	CO	VOC	SOx	PM10/2.5	NH_3
Maximum Hourly Emissions (lbs)	114.93	838.88	62.82	6.82	23.6	27.58
Maximum Daily Emissions (lbs)	1,129.07	2,168.28	235.25	270.24	566.4	825.6
Maximum Annual Emissions (tons)	138.25	341.08	51.64	11.36	80.67	124.68

Source: PHPP 2015c Table 4.1A-1A, B, C, CEC 2016m

Air Quality Table 16 includes the estimated emissions for the auxiliary boiler. The maximum daily emissions are based on 24 hour operation and the maximum annual emissions for the auxiliary boiler are based on Operational Scenario 2 with 4,884 hours of operation.

Air Quality Table 16
PEP Maximum Auxiliary Boiler Emissions

	NOx	CO	VOC	SOx	PM10/2.5
Maximum Hourly Emissions (lbs)	1.21	4.07	0.66	0.07	0.77
Maximum Daily Emissions (lbs)	29.04	97.68	15.84	1.58	18.48
Maximum Annual Emissions (tons)	2.95	9.94	1.61	0.16	1.88

Source: PHPP 2015c Table 4.1A-1A, B, C

Air Quality Table 17 includes the estimated emissions for the emergency generator and fire pump engines. The proposed 140 HP fire pump engine would be required to meet Tier 3 requirements. Emissions from the fire pump engine were calculated using Tier 3 emission requirements and assuming a maximum of 50 operational hours per year for maintenance and testing purposes. The fire pump engine daily emissions were calculated based on operating for one 60 minute testing period. The proposed 2,011 HP emergency generator would be required to meet Tier 2 emission standards. Emissions from the emergency generator engine were calculated using Tier 2 emissions requirements and assuming 26 operation hours per year. The emergency generator engine hourly emissions are calculated based on one test per day limited to a half hour of engine operation. The daily emissions assume operations for one 30-minute testing period. SOx emissions are calculated for both engines assume a fuel sulfur content of 15 ppm.

Air Quality Table 17
PEP Estimated Emergency Engine Emissions

	NOx	CO	VOC	SOx	PM10/2.5
	140 HP Fire Pump (Tier 3)				
Maximum Hourly Emissions (lbs)	0.068	1.142	0.062	0.0019	0.068
Maximum Daily Emissions (lbs)	0.068	1.142	0.062	0.0019	0.068
Maximum Annual Emissions (tons)	0.022	0.03	0.002	0.00005	0.002
	2011 HP Emergency Generator (Tier 2)				
Maximum Hourly Emissions (lbs)	8.38	1.485	0.421	0.011	0.2
Maximum Daily Emissions (lbs)	8.38	1.485	0.421	0.011	0.2
Maximum Annual Emissions (tons)	0.218	0.039	0.011	0.0003	0.005

Source: PHPP 2015c, Table 4.1-11

Air Quality Table 18 summarizes the total estimated emission from the PEP. The table includes emissions from the power block, auxiliary boiler and the emergency engines.

Air Quality Table 18
PEP Maximum Project Emissions

	NOx	CO	VOC	SOx	PM10/2.5	NH_3
Maximum Hourly Emissions (lbs)	116.14	842.95	63.79	3.08	24.57	27.58
Maximum Daily Emissions (lbs)	1140.73	2,179.05	472.30	72.14	568.21	825.60
Maximum Annual Emissions (tons)	138.99	351.09	51.64	11.39	81.01	125.32

Source: PHPP 2015c, Table 4.1-13 PHPP 2015u, CEC 2016m

ASSESSMENT OF IMPACT AND DISCUSSION OF MITIGATION

Potential impacts from the PEP result from the proposed construction, initial, commissioning, and normal operation phases, and cumulative effects. The cumulative impacts analysis assesses impacts that result from the proposed project's incremental effect combined with other emission sources. The project's incremental effect is viewed over time with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project. (Pub. Resources Code § 21083; Cal. Code Regs., tit. 14, §§ 15064(h), 15065I, 15130, and 15355). Additionally, cumulative impacts are assessed in terms of conformance with the AVAQMD's attainment or maintenance plans.

METHOD AND THRESHOLDS FOR DETERMINING SIGNIFICANCE

Staff characterizes air quality impacts as follows: All project emissions of nonattainment criteria pollutants and their precursors (NOx, VOC, PM10, and SOx) are considered significant and must be mitigated. As shown **Air Quality Table 3**, PM2.5 and CO are considered attainment pollutants in this region. For short-term construction activities, mitigation measures control construction equipment tailpipe emissions and fugitive dust emissions. For operating emissions, mitigation includes both the BACT and ERCs or other valid emission reductions to mitigate emissions of nonattainment criteria pollutants and their precursors.

The ambient air quality standards used by staff as the basis for characterizing project impacts are health-based standards established by the ARB and U.S. EPA. They are set at levels that contain a margin of safety to adequately protect the health of all people, including those most sensitive to adverse air quality impacts such as the elderly, persons with existing illnesses, children, and infants.

DIRECT/INDIRECT IMPACTS AND MITIGATION

Ambient air quality impacts occur when project emissions cause the ambient concentration of a pollutant to increase. The proposed project emits pollutants on a mass basis. Project-related emissions are the actual mass of emitted pollutants, which are dispersed in the atmosphere before reaching the ground. Impacts refer to the concentration of any pollutant that reaches the ground level. An impact analysis includes quantifying the emissions released from the proposed equipment and the use of an atmospheric dispersion model to determine the probable impact at ground level. The analysis focuses on the predicted change to the ground level impact due to the additional emissions from the proposed project.

Air dispersion models provide a means of predicting the location and ground level magnitude of the impacts of a new emissions source. These models consist of several complex series of mathematical equations, which are repeatedly calculated by a computer for many ambient conditions to provide theoretical maximum offsite pollutant concentrations for short-term (one-hour, three-hour, eight-hour, and 24-hour) and annual periods. The model results are generally described as maximum concentrations, often described as a unit of mass per volume of air, such as micrograms per cubic meter ($\mu g/m^3$).

The project owner conducted air dispersion modeling based on guidance presented in the *Guideline on Air Quality Models* (40 CFR Part 51, Appendix W) and the American Meteorological Society/Environmental Protection Agency Regulatory Model known as AERMOD (version 14134). The U.S. EPA designates AERMOD as a “preferred” model for refined modeling in all types of terrain. AERMOD considers emissions in the context of various ambient meteorological conditions, local terrain and nearby structures that could affect air flow.

The inputs for the air dispersion models include stack information (exhaust flow rate, temperature, and stack dimensions), specific turbine emission data and meteorological data, such as wind speed and atmospheric conditions, and site elevation. For this project, the meteorological data used as inputs to the model were measured at the Palmdale Airport which is the closest complete meteorological data source to the project site. The Palmdale Airport is equipped with an Automated Surface Observing System (ASOS) monitoring station located approximately 2.5 km east-southeast of the PEP. ASOS monitoring sites measure wind speed and direction, temperature, pressure, cloud height and cover. The terrain is relatively flat and there are no intervening terrain features between the ASOS and PEP site. The Palmdale ASOS data from 2010 through 2014 was selected as representative data by the project owner to be processed with AERMET as it fulfills both U.S. EPA siting and instrument criteria.

Project-related modeled concentrations are added to the highest background concentrations to determine the total impact of the project. This is a conservative

approach because it assumes the highest project impacts occur concurrently with the worst case background concentrations. Staff revised the background concentrations provided by the project owner where necessary to reflect the most recent worst case background values. Staff has provided the project owner modeled impacts with the appropriate background concentrations, and compares the results with the ambient air quality standards for each respective air contaminant to determine whether the project's emission impacts would cause a new exceedance of the ambient air quality standards or would contribute to an existing exceedance.

CONSTRUCTION IMPACTS AND MITIGATION

The PEP short-term construction ambient air quality impacts were estimated by the project owner. The following section discusses the project's short-term direct and cumulative construction ambient air quality impacts, as estimated by the project owner with revised background concentrations from staff. Staff considers the analyses to provide an adequately conservative prediction of project construction impacts and provides a discussion of appropriate mitigation.

Construction Impact Analysis

The project owner's construction emissions and impact analysis included in the revised PTA relied on the modeling analysis performed for the licensed PHPP. Due to significant project changes that could affect the impact analysis staff requested the emissions to be updated and remodeled to reflect the PEP (Palmdale Energy Project – PTA Data Requests – Set 1 (Nos. 1-63) TN 206472). Modeling was performed by the project owner (see Palmdale Energy LLC's Response to CEC Staff Data Request Set No.1 (1-63) TN 206797) using the AERMOD FASTALL option to optimize model runtime. Onsite construction exhaust emissions were modeled as 15 point sources separated by 100 meter intervals. Stack parameters are considered representative of construction equipment. Fugitive dust emissions were modeled as an area source 0.5 meters in height over the area inside the fence line. Construction activities were assumed to occur for 10 hours a day (7 am to 5 pm) consistent with the majority of the months of onsite construction activities which would generate exhaust and fugitive dust.

For the determination of construction NO_2 concentrations, the project owner used U.S. EPA Ambient Ratio Method (ARM) based on NO_2/NOx ratios of 0.80 for 1-hour averaging times and 0.75 for annual averaging time to determine worst-case near-field NO_2 impacts.

The modeled impacts are considered conservative as the project owner did not perform a refined modeling analysis. The fugitive sources were modeled as area sources which tend to result in larger impacts than modeling the sources as volume sources. In addition the modeled emissions are based on worst case assumptions of simultaneous construction activity. The modeled impacts are then added to the worst case background monitoring data to conservatively calculate the total impact. **Air Quality Table 19** provides the results of this modeling analysis.

Air Quality Table 19
Proposed PEP Maximum Onsite Construction Impacts, ($\mu g/m^3$)[a]

Pollutant	Averaging Period	Project Impact[a] ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total[b] Impact ($\mu g/m^3$)	Limiting Standard ($\mu g/m^3$)	Type of Standard	Percent of Standard
NO_2[c]	1 hour	26	98	124	339	CAAQS	37%
	1 hour NAAQS[d]	26	82	108	188	NAAQS	57%
	Annual	0.7	17	17.7	57	CAAQS	31%
PM10	24 hour	65	**173**	**238**	50	CAAQS	476%
	Annual	5.1	**24**	**29.1**	20	CAAQS	146%
PM2.5	24 hour[d]	14	18	32	35	NAAQS	91%
	Annual	1.3	7	8.3	12	CAAQS	69%
CO	1 hour	22	2,634	2,656	23,000	CAAQS	12%
	8 hour	9	2,176	2,185	10,000	CAAQS	22%
SO_2	1 hour	0.06	16	16.06	655	CAAQS	2%
	1 hour NAAQS	0.04	13	13.04	196	NAAQS	7%
	24 hour	0.01	8	8.01	105	CAAQS	8%

Source: PHPP 2015c and staff analysis
Notes:
[a] Onsite construction only
[b] Modeled concentration plus background values adjusted by staff
[c] NO_2 determined with U.S. EPA Ambient Ratio Method (ARM) based on NO_2/NOx ratio of 0.80 and 0.75 for 1-hour and annual averaging times respectively.
[d] The 24-hour PM2.5 and federal 1-hour NO_2 standards are based on 3-year average of 98th percentile daily maximum values

As can be seen from the modeling results provided in **Air Quality Table 19**, the construction impacts have the potential to worsen the existing violations of the annual PM10 ambient air quality standard and are, therefore, potentially significant. The background levels alone are greater than the CAAQS for both the 24 hour and annual standards. Staff reviewed the modeled impacts including the concentration isopleths modeled over the proposed site. The maximum impacts are inside the property and on the property boundary at the south-southeast property boundary. The impact tapers off sharply outside the property boundary. The property at this location borders other industrial uses and is not expected to be developed prior to construction.

The project owner's construction modeling analysis indicates that the maximum NO_2, PM2.5, CO, and SO_2 impacts would remain below the CAAQS and NAAQS. The NOx and VOC emissions from construction, when considering their potential secondary ozone formation added to the existing ozone "background," have the potential to contribute to existing exceedances of the ozone standard and are, therefore, potentially significant. Staff recommends mitigation for construction emissions of PM10, SOx, NOx, and VOC would be appropriate for reducing impacts to PM10 and ozone precursors.

Construction Mitigation

Staff recommends that construction PM10 and ozone precursor emission impacts be mitigated, including all required measures from the AVAQMD's rules and regulations, as well as other measures considered necessary by staff to fully mitigate the construction emissions.

Project owner's Proposed Mitigation

The project owner's construction emissions estimates as presented in **Air Quality Tables 6** and **7** were used to determine the construction modeling impact results shown in **Air Quality Table 19.** The ambient air quality impacts from constructing the PEP were revised to reflect the following:

- Deletion of the solar component;
- The construction equipment is assumed to be lower emitting reflecting 2017 emission requirements.

The project owner's proposed mitigation measures are similar to the mitigation measures of the licensed PHPP conditions of certification. The project owner proposes the following mitigation measures to reduce the exhaust emissions from the diesel heavy equipment and fugitive dust emissions during the construction of the PEP (data from Appendix DR-7 Construction Emission Air Quality Modeling Analysis):

- The project owner will have 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 provided on a periodic basis.
- Ensure periodic maintenance and inspections per the manufacturers specifications.
- Reduce idling time through equipment and construction scheduling.
- Use California ultra-low sulfur diesel fuels (<= 15 ppmw sulfur).
- All unpaved roads and disturbed areas in the Project Construction Laydown and Parking area will be watered as frequently as necessary to control fugitive dust. The frequency of watering will be on a minimum schedule of two times per day during the daily construction activity period. Water may be reduced or eliminated during periods of precipitation.
- The vehicle speed limit will be limited to 5 miles per hour on unpaved areas within the project construction site.
- The construction site entrances shall be posted with visible speed limit signs.
- All construction equipment vehicle tires will be inspected and washed as necessary to be cleaned free of dirt prior to entering paved roadways.
- Gravel ramps will be provided at the tire washing/cleaning station.
- Unpaved exits from the construction site will be graveled or treated to prevent 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 Storm Water Pollution Prevention Plan (SWPPP) to prevent run-off 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.
- At least the first 500 feet of any public roadway exiting from the construction site will be cleaned on a periodic bases (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.
- All soil storage piles and 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 having the potential to cause visible emissions will be provided with a cover, or the materials will be sufficiently wetted and loaded onto the trucks in a manner to provide at least one foot of freeboard.
- 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 shall remain in place until the soil is stabilized or permanently covered with vegetation.
- Disturbed areas, which are presently vegetated, will be re-vegetated as soon as practical.

In addition, the project owner is proposing minor updates to reflect the deletion of the solar component. The project owner is proposing to update **AQ-SC6** to specify mass grading construction hours would be limited to the time constraints.

Adequacy of the Proposed Mitigation

Staff generally concurs with the project owner's proposed mitigation measures, which are consistent with staff's mitigation recommendations from other siting cases. Staff is recommending to incorporate these mitigation measures with minor changes to clarify requirements where needed. The current mitigation requirements for the licensed PHPP contain additional fugitive mitigation measures that were required due to the scope of the construction phase. Staff is proposing to delete conditions that are no longer necessary for consistency with the calculation and feasible mitigation measures requested above. In addition, staff recommends incorporating off-road equipment mitigation measures beyond those proposed by the project owner to ensure emissions are reduced are impacts are minimized during the construction phase of the project.

Staff Proposed Mitigation

Staff is recommending minor clarifications to **AQ-SC1** and **AQ-SC2**. Specifically, staff is proposing to add language to specifying the Air Quality Construction Mitigation Manager (AQCMM), AQCMM Delegates, and the Air Quality Construction Mitigation Plan (AQCMP), must all be approved by the Energy Commission Compliance Project Manager (CPM) prior to the start of ground disturbance. The requirements in the licensed PHPP required submittals but did not specify these items needed approval prior to ground disturbance. These changes will ensure staff reviews the details of the proposals for adequacy prior to any ground disturbance.

Staff is proposing to add a new language to **AQ-SC2** clarifying the reporting requirements during construction and commissioning. This language clarifies monthly compliance reports would be required during construction and commissioning and would be required to be submitted within 30 days following the end of each calendar month.

Staff is proposing to revise **AQ-SC3** to reflect the revisions to the project and emission calculations. Staff is proposing to delete **AQ-SC3A** and the majority of **AQ-SC3B. AQ-SC3A** requires the main access road through the facility to the Main Services Complex to be paved prior to initiating construction and the delivery areas to be paved or treated with stabilizers prior to accepting deliveries. **AQ-SC3B** requires soil stabilizers for unpaved construction roads and operation and maintenance site roads. In addition, **AQ-SC3B** requires watering all other disturbed areas of the project as frequently as necessary to comply with the dust mitigation objectives. Staff is proposing to delete the requirement to use the soil stabilizer but maintain the watering requirement. These changes are reasonable because the construction area has significantly decreased in acreage and there is no longer the construction of the solar array; therefore the number of vehicles on the site is expected to be less. In addition, staff reviewed the proposed PEP construction estimates and a significant portion of the fugitive emissions estimates are due to the grading and excavation activities. For the PEP, the majority of these activities would occur only during the first two months of construction and the paving or using stabilizers on the unpaved roadways would not significantly impact the fugitive emissions. The changes are consistent with the project owner's proposed mitigation.

Staff is recommending additional changes to **AQ-SC3.** Staff is recommending updating the wording in **AQ-SC3I** to simplify the requirements. Staff is proposing to increase the minimum freeboard height from at least one foot to two feet, consistent with other project recommendations. Staff is also proposing the addition of **AQ-SC3O** requiring disturbed areas to be re-vegetated as soon as practical**.** The project owner originally proposed reducing the allowable on-site vehicle speeds from 10 to 5 miles per hour (mph) in **AQ-SC3C**. During the Preliminary Staff Assessment Workshop on April 20, 2016, the project owner retracted this request. Staff agreed to continue to recommend an onsite vehicle speed limit of 10 mph.

Staff is proposing to update **AQ-SC5**'s off-road engine mitigation requirements. Staff is recommending updating the base engine requirement from U.S. EPA/ARB nonroad diesel engine Tier 3 to Tier 4 or 4i. This recommendation would require the project owner to use the cleanest engines available and provides clear direction on the steps the project owner would take if a Tier 4 or 4i engine was not available. This could potentially reduce the PM10, diesel particulate emissions and NOx emission from the off-road equipment. Staff has determined that the use of oxidizing soot filters is a viable emissions control technology for all heavy diesel-powered construction equipment that does not use an ARB-certified low emission diesel engine. This is a standard requirement proposed by staff on all current projects.

The project owner originally proposed to update **AQ-SC6**, which limits major activities to the hours between one hour after sunrise and one hour before sunset from November 5 through February 15, and the hours between on hour after sunrise and thirty minutes before sunset from February 16 through November 4. The project owner is proposing to limit grading activities only to the time frames outlined above. Limiting activities based

on specific time periods is aimed to limit ozone formation during peak ozone formation hours. The ozone monitoring data available for the area generally shows peak ozone period during summertime. Staff has reviewed the proposed construction emissions of ozone precursors VOC, NOx for the PEP and does not expect limiting the constructions hours to specified times would result in a significant reduction in ozone precursor emissions since the majority of the emissions for VOC and NOx are attributed to offsite activities such as the offsite linear construction, vehicle emissions such as worker commute and hauling vehicles. Therefore, staff is recommending the deletion of existing **AQ-SC6**.

OPERATION IMPACTS AND MITIGATION

The following section discusses the project's direct and cumulative ambient air quality impacts, as estimated by the project owner and subsequently evaluated by staff. The project owner performed a project impact only screening assessment to determine the worst case operating scenarios, a refined direct impact modeling analysis including operations, startup and shutdown, fumigation, initial commissioning, and a cumulative impact analysis to determine the impact of the proposed project with nearby existing sources. Additionally, this section discusses the recommended mitigation measures.

Operational Modeling Analysis

The screening analysis was performed considering the PEP turbines could have varying operational characteristics and the auxiliary boiler would be utilized when the turbines are shutdown. A range of operating characteristics for the turbines with five years of hourly meteorological data was assessed using AERMOD. The varying operating characteristics included turbine loads, duct firing and evaporative cooling conditions for four ambient temperatures. The temperatures included a representative cold day at 23 degrees Fahrenheit, an average day at 64 degrees Fahrenheit, a hot day at 98 degrees Fahrenheit, and a maximum hot day at 108 degrees Fahrenheit. The operating scenario that resulted in the highest pollutant concentrations for averaging periods below 24 hours was used in the refined impact analysis.

Screening analyses were not performed for annual average concentrations. The annual refined analyses were based on 64 degree Fahrenheit stack parameters at 100 percent load without duct firing. This project owner considered this representative of the annual operations since duct firing would be limited to 1,500 hours per year.

With the exception of 24-hour PM10/2.5, the screening analysis indicated the worst-case scenario for all pollutants and averaging time would be Case 2, 100 percent load with duct firing and without evaporative cooling at 23 degrees Fahrenheit (^{o}F). Case 27, 43 percent load without duct firing at 64^{o}F, represented the worst case scenario for 24 hour PM10/2.5. However, Case 27 is not considered a realistic operating load for the simultaneous operation of the turbines. Facility operation would be expected to favor the use of a single turbine operating at a higher load than two turbines operating at very low loads. Therefore, Case 2 was also used to asses 24-hour PM10/2.5 averages since it produced the second highest emission concentrations.

In addition, the auxiliary boiler screening analysis indicated that boiler operation without turbine operation produced the maximum 8-hour CO impacts. The refined analysis assumed impacts during normal operation were based on continuous turbine operation

at the worst-case screening conditions with the appropriate auxiliary boiler operations. One hour of auxiliary boiler operation was used included in 1-hour and 3-hour averaging periods and two hours of auxiliary boiler operation was included for 8-hour and 24-hour averaging times.

Testing and maintenance of the fire pump and emergency generator would not occur during the same hour or during startup of the turbines. Appropriate conditions of certifications are proposed to ensure the timing would not overlap. The refined modeling analysis considered the operation of either the fire pump or emergency generator engines, but not the operation of both engines for the 1-hour averaging periods. The refined modeling results indicated the fire pump engine resulted in higher 1-hour CO impacts and the emergency generator engine resulted in higher NO_2 and SO_2 impacts. The engines were not included in the startup/shutdown analyses for 1- hour averaging times. For longer averaging periods of 3-hours, 8-hours and 24-hours only one testing event for both the emergency generator and fire pump were included per day. In addition the 1-hour NO_2 and SO_2 NAAQS modeling analysis modeled the engines at their annual average emission rates per U.S. EPA guidance.

The PEP expects facility startup and shutdown times of less than 45 minutes. The 1-hour startup/shutdown emission rates assumed the remaining time in the hour after startup or shutdown is completed would be operation at 100 percent load without duct firing. The refined modeling assessment included the following assumptions and conditions for normal operation and startup/shutdown scenarios:

- The auxiliary boiler operation is up to 24 hours per day during turbine non-operation days and 4,884 hours per year.
- Fire pump testing occurs up to 60 minutes per day, 52 hours per year.
- The emergency generator testing occurs up to 30 minutes per day, up to 26 hours per year.
- Evaporative fluid cooler operated 24 hours per day.
- Turbines can operate 24 hours per day with duct firing.
- Worst-case annual modeled emissions for NOx, PM10 and PM2.5: 6,460 hours base load, 1,500 hours of duct burner operation, 35 warm starts, 5 cold starts, 40 shutdowns = 8,000 hours (Operational Scenario 1), with stack characteristics for the most frequent annual operating condition (Case 11).
- Cold, warm, and hot start stack parameters are based on Case 27 at 43 percent load.
- Cold start is 39 minutes which is the worst case start plus 21 minutes of non-duct fired base load emissions for the 23^{o}F day. The auxiliary boiler is in operation until the end of the startup period.
- Based on the limited number of cold starts per year (no more than 52 are possible) compliance with the statistical form of the 1-hour NO_2 and SO_2 NAAQS was based on warm and/or hot start emissions in accordance with U.S. EPA requirements (startup conditions that occur infrequently, in this case less than 100 hours/year, do not need to be considered for these two NAAQS). Compliance with the CO NAAQS was based on cold start emissions/conditions based on the deterministic form of the

standard (highest of the annual second-high concentrations modeled over five years).

- For all the CAAQS, cold starts emissions/conditions were assessed based on the deterministic nature of all California state standards (maximum concentrations over the five years modeled for one (1) hour CO, NO_2 and SO_2 standards etc.
- CO 8-hour impacts calculated as one (1) cold start + one (1) hot start + two (2) shutdowns + four hours base load with duct burners. The auxiliary boiler has two hours of operations. Both the fire pump and emergency generator are assumed to be tested during the eight hour period.
- For any one hour time period, both turbines could be in cold, warm, hot startup or shutdown.
- Fire pump or the emergency generator will not be tested during one (1) hour turbine start cycle but is included in the eight (8) hour start case.
- Auxiliary boiler assumed to operate during the period of any type of start until the end of the start cycle.
- PM10 and PM2.5 24-hour modeled concentrations were based on both the worst-case screening condition (Case 27) as well as 24-hours of turbine full load operation (no start up or shutdowns) with duct burners on a 23 degree Fahrenheit day (Case 2) since Case 27 is not considered realistic[1]. The maximum of both cases is reported in the analyses. The auxiliary boiler was assumed to be in operation for two (2) hours for both particulate matter cases modeled. Both the fire pump and emergency generator were also assumed to be tested during this time frame.
- Short term impacts for SO_2 and PM10/2.5 did not consider start up emissions since startup emissions are less than normal operation.

The project owner used the AERMOD model with the five year representative meteorology to estimate the concentrations and location of the maximum ambient impacts for each pollutant and averaging period. The annual concentration of NO_2 were computed using the ARM and U.S EPA default values of 0.80 for 1-hour average NO_2/NOx ratio and 0.75 for the annual average NO_2/NOx ratio. For all refined modeling analyses of the 1-hour CAAQS NO_2 concentrations, base load operations produced higher concentrations than startup and shutdown events due to the inclusion of the routine emergency generator testing and associated impacts.

Air Quality Table 20 summarizes the maximum PEP modeled concentrations for each pollutant and averaging period. The table includes the maximum impacts for normal operating conditions and startup and shutdown events. NOx and CO emissions from the combustion turbine are usually higher during startup and shutdown events than during steady state operation as the combustion turbine emissions are higher during the short periods of unsteady state operation for startup and shutdown and the SCR and oxidation catalyst control systems are not functioning at their peak efficiency immediately upon startup or during shutdown. The project owner modeled the maximum

[1] Case 27 is based on a 43 percent load. It is highly unlikely both turbines would run simultaneously for a 24 hour period on low load. A facility operator would more likely operate one turbine at full load over two turbines at a low load for any extended time period.

emissions from the simultaneous startup/shutdown of the combustion turbines. Operation of the emergency engines was not included in the modeled startup and shutdown of the combustion turbine scenario. Although higher emissions from the combustion turbines are expected during startup and shutdown events, restricting routine operation of the engines during these periods results in lower overall impacts from startup and shutdown periods. This is due to higher modeled impacts from the diesel engines from routine testing than the combustion turbines from startup and shutdown events or normal operation. The predicted maximum short-term NOx and CO concentrations are summarized in **Air Quality Table 20. Air Quality Table 20** also compares these modeled concentrations to the applicable CAAQS and NAAQS.

Air Quality Table 20
Proposed PEP Operating Impacts

Pollutant	Averaging Period	Project Impact ($\mu g/m^3$)	Background ($\mu g/m^3$)[a]	Total Impact ($\mu g/m^3$)	Limiting Standard ($\mu g/m^3$)	Type of Standard	Percent of Standard
Normal Operating Conditions							
NO_2 [b]	1 hour	204.7	98	303	339	CAAQS	89%
	1 hour NAAQS	13.49	82	95	188	NAAQS	51%
	Annual	0.981	17	18	57	CAAQS	32%
PM10	24 hour	7.22 (6.34)[c]	**173**	**180 (179)**	50	CAAQS	360%
	Annual	0.75	**24**	**25**	20	CAAQS	124%
PM2.5	24 hour	4.74 (4.15)[c]	18	23 (22)	35	NAAQS	65%
	Annual	0.75	7	8	12	CAAQS	65%
CO	1 hour	123.8	2,634	2,758	23,000	CAAQS	12%
	8 hour	29.48	2,176	2,205	10,000	CAAQS	22%
SO_2	1 hour	1.51	16	18	655	CAAQS	3%
	1 hour NAAQS	1.34	13	14	196	NAAQS	7%
	24 hour	0.801	8	9	105	CAAQS	8%
Startup Shutdown Periods							
NO_2	1 hour	58.29	98	156	339	CAAQS	46%
	1 hour NAAQS[c]	49.1	82	131	188	NAAQS	70%
CO	1 hour	574.5	2,634	3,209	23,000	CAAQS	13%
	8 hour	88.58	2,176	2,265	10,000	CAAQS	23%

Source: PHPP 2015c Table 4.1 -27, staff analysis
[a] Background values are adjusted as presented in **Air Quality Table 5**
[b] NO_2 determined with U.S. EPA Ambient Ratio Method (ARM) based on NO_2/NOx ratio of 0.80 and 0.75 for 1-hour and annual averaging times respectively.
[c] PM10/2.5 24-hour worst case impacts are for Case 27. Impacts in parentheses are Case–2 - worst case 24-hour operations at 75 and 100 percent loads.

The modeling results included in **Air Quality Table 20** indicate that the PEP operational impacts would not exceed the AAQS for NO_2, PM2.5, CO or SO_2. Particulate matter emissions from routine operation could cause a significant impact because they would contribute to existing violations of PM10 ambient air quality standards. As seen in the table, background concentrations of PM10 alone exceed the CAAQS. In addition, SOx is identified as a particulate matter precursor. The operational emissions of SOx could contribute to secondary formation of particulate matter which would contribute to the existing exceedances of the particulate matter standards. Therefore the secondary impacts of SOx emission would be considered significant. Significant secondary impacts

could also occur for ozone because operational emissions of ozone precursors, NOx and VOC, could contribute to existing violations of these standards. The direct impacts of NO_2, CO, PM2.5, and SO_2 would not be significant because routine operation of the PEP would neither cause nor contribute to a violation of these standards. When considering the potential secondary formation of particulate matter and ozone, mitigation for emissions of PM10, SOx, NOx, and VOC would be appropriate for reducing project impacts.

All maximum impacts from the PEP modeling were located in the immediate vicinity of proposed project, either on the facility fence line or the downwash receptor grid. There are currently no receptors in the areas of maximum impacts.

The modeling results indicate that the project's maximum emission impacts would not cause any new significant ambient impacts associated with maximum short-term NO_2 and CO concentrations that could occur near the project site.

Fumigation Modeling Impact Analysis

There is the potential that higher short-term concentrations of pollutants may occur during fumigation conditions. During the early morning hours before sunrise, the air is usually very stable. During such stable meteorological conditions, emissions from elevated stacks rise through this stable layer and are dispersed. When the sun first rises, the air at ground level is heated, resulting in a vertical (both rising and sinking air) mixing of air for a few hundred feet or so. Emissions from a stack that enter this vertically mixed layer of air would also be vertically mixed, bringing some of those emissions down to the ground level. Later in the day, as the sun continues to heat the ground, this vertical mixing layer becomes higher and higher, and the emissions plume becomes better dispersed. The early morning pollution event, called fumigation, usually lasts approximately 30 to 90 minutes.

Fumigation conditions are short-duration events and are generally only compared to one-hour standards. Two types of fumigation are analyzed using the SCREEN3 model: inversion breakup and shoreline. Inversion breakup fumigation occurs under low-wind conditions when a rising morning mixing height caps a stack (i.e., is at or right above the stack height) limiting plume rise and mixing, which fumigates the air below. Shoreline fumigation occurs near a large water body shoreline when both a roughness boundary and more dominant thermal boundary cause turbulent dispersion to be much more enhanced near the ground, fumigating air below.

The project owner completed a fumigation analysis using U.S. EPA SCREEN3 model based on U.S. EPA guidance. The analysis considered the worst case stack parameters for 1-hr averaging times (case 2). Shoreline impacts were not included in the assessment due to the lack of any significant bodies of water located in the proximity of the proposed site.

An inversion breakup fumigation impact was predicted to occur at 18,448 meters from the turbine stacks and 2,419 meters from the auxiliary boiler stack. No inversion breakup fumigation impacts are predicted from the shorter fire pump and emergency generator stacks.

Air Quality Table 21 includes the total facility inversion breakup fumigation impacts determined for all sources at the turbine and auxiliary inversion breakup distances. All of the NO_2 impacts are calculated as total NOx without conversion to NO_2 assumptions. No further modeling refinement was necessary given the results.

Air Quality Table 21
Maximum Amended PEP Fumigation Impacts, (µg/m^3)

Pollutant	Averaging Period	Project Impact (µg/m^3)	Background (µg/m^3) [a]	Total Impact (µg/m^3)	Limiting Standard (µg/m^3)	Type of Standard	Percent of Standard
Inversion Breakup Fumigation							
NO_2	1 hour	4.8	152	156.8	339	CAAQS	46%
PM10	24 hour	0.9	42	42.9	50	CAAQS	86%
PM2.5	24 hour	0.9	21.3	22.2	35	NAAQS	63%
CO	1 hour	4.6	5,039	5,044	23,000	CAAQS	22%
	8 hour	2.6	4,352	4,355	10,000	CAAQS	44%
SO_2	1 hour	1.1	34	35.1	196	NAAQS	18%
	24 hour	0.3	8	8.3	105	CAAQS	8%

Source: PHPP 2015c Table 4.1-34
[a] Background values are adjusted, based on staff analysis as presented in **Air Quality Table 5**.

The maximum 1-hour fumigation impacts are less than the offsite SCREEN3 maximum predicted impacts for normal dispersion conditions and the maximum 1-hour AERMOD facility impacts. Since the maximum inversion breakup fumigation impacts for the turbines are lower than the maximum operating impacts no further analysis is necessary.

Initial Commissioning Short-Term Modeling Impact Analysis

Plant commissioning impacts would occur over a short-term period during the first year of plant operation. The project owner identified four phases and provided the estimated manufacturer's emission rates for all pollutants during each stage. Emission rates for NOx, CO and VOCs are expected to be higher during the commissioning activities because the emission control would not be fully operational and the equipment isn't fully tuned to optimal performance. Commissioning emissions of SO_2 and PM10/2.5 are expected to be below full load operations.

Air Quality Table 22 includes the emissions rates for each stage of combustion provided by the turbine vendor. The PM10/2.5 and SO_2 emission rates provided are for full load operation. The worst-case initial commissioning conditions for the short-term NO_2 and CO impacts occur prior to the installation of the oxidation and SCR catalysts. The commissioning modeling assumed each turbine would be in the commissioning activity that produced the maximum emissions, but each turbine would not be undergoing the same commissioning phase at the same time. For NO_2 and CO, one turbine would be in undergoing First Fire while the other turbine would be in the CGT Emissions and Combustion Tuning phase. Simultaneous operation of the boiler would not occur until the final phase of commissioning.

Air Quality Table 22
Maximum Hourly Emission Rates During Each Commissioning Phase

Commissioning Phase	Pounds per Hour (lb/hr)				
	NOx	CO	VOc	SOx	PM10/2.5
Phase 1: First Fire	122	4,500	516	1.4	9.8
Phase 2: GT Emissions and Combustion Tuning	132	796	90	1.4	9.8
Phase 3: SCR Commissioning	54	194	22	1.4	9.8
Phase 4: CC Tuning & Testing	29	123	16	1.4	9.8

Source: PHPP 2015c Table 4.1-12

The NO_2 1-hour and annual impacts were evaluated using the Ambient Ratio Method with the U.S EPA default values of 0.80 for the 1-hour average NO_2/NOx ratio and 0.75 for the annual average NO_2/NOx ratio. The federal 1-hour NO_2 standard is expressed as a 3-year average of the 98th percentile of the daily maximum 1-hour concentration. The commissioning period is only expected to occur during a short period in the first year of operation; however, the analysis includes a comparison to the federal 1-hour standard. **Air Quality Table 23** includes the air quality impacts results from the commissioning modeling analysis.

Air Quality Table 23
Maximum PEP Initial Commissioning Impacts

Pollutant	Averaging Period	Project Impact ($\mu g/m^3$)	Background ($\mu g/m^3$) [a]	Total Impact ($\mu g/m^3$)	Limiting Standard ($\mu g/m^3$)	Type of Standard	Percent of Standard
NO_2	1 hour	137.6	98	236	339	CAAQS	69%
	1 hour [b]	88.2	82	170	188	NAAQS	91%
CO	1 hour	3,959	2,634	6,593	23,000	CAAQS	29%
	8 hour	3,097	2,176	5,273	10,000	CAAQS	53%

Source: PHPP 2015c, and staff analysis
[a] Background values are adjusted, based on the staff analysis as presented in **Air Quality Table 5**.
[b] 1-hour value represents 5-year average of [9]8th percentile

The project owner's modeling analysis indicates that the project's maximum initial commissioning emission impacts are below the most stringent ambient air quality standards for NO_2 and CO.

Project owner's Proposed Mitigation

The project owner is proposing the NOx emission limit for commissioning be increased from 250 pounds per hour to 254 pounds per hour to reflect the assumptions (described above) in the updated commissioning modeling analysis.

Adequacy of the Proposed Mitigation

Staff concurs with the proposed update to former Condition of Certification **AQ-SC20**. In addition staff recommends renumbering Condition of Certification **AQ-SC20** to **AQ-SC10.**

Chemically Reactive Pollutant Impacts

The project's gaseous emissions of NOx, SOx, VOC, and ammonia can contribute to the formation of secondary pollutants: ozone and PM10/PM2.5.

Ozone Impacts

There are air dispersion models that can be used to quantify ozone impacts, but they are used for regional planning efforts where hundreds or even thousands of sources are input into the model to determine ozone impacts. Currently, there are no regulatory agency models approved for assessing single-source ozone impacts although guidance documents are becoming available. However, because of the known relationship of NOx and VOC emissions to ozone formation, it can be said that the emissions of NOx and VOC from the PEP project do have the potential (if left unmitigated) to contribute to higher ozone levels in the region. These impacts would be cumulatively significant because they would contribute to ongoing violations of the state and federal ozone ambient air quality standards.

PM2.5 Impacts

Secondary particulate formation, which is assumed to be 100 percent PM2.5, is the process of conversion from gaseous reactants to particulate products. The process of gas-to-particulate conversion, which occurs downwind from the point of emission, is complex and depends on many factors, including local humidity and the presence of air pollutants. The basic process assumes that the SOx and NOx emissions are converted into sulfuric acid and nitric acid first and then react with ambient ammonia to form sulfate and nitrate. The sulfuric acid reacts with ammonia much faster than nitric acid and converts completely and irreversibly to particulate form. Nitric acid reacts with ammonia to form both a particulate and a gas phase of ammonium nitrate. The particulate phase will tend to fall out; however, the gas phase can revert back to ammonia and nitric acid. Thus, under the right conditions, ammonium nitrate and nitric acid establish a balance of concentrations in the ambient air. There are two conditions that are of interest, described as *ammonia rich* and *ammonia limited*. The term ammonia rich indicates that there is more than enough ammonia to react with all the sulfuric acid and to establish a balance of nitric acid-ammonium nitrate. Further ammonia emissions in this case would not necessarily lead to increases in ambient PM2.5 concentrations. In the case of an ammonia limited environment, there is insufficient ammonia to establish a balance and thus additional ammonia would tend to increase PM2.5 concentrations.

U.S. EPA issued guidance on May 20th, 2014 that requires secondary PM2.5 impacts be addressed for sources seeking PSD permits. This guidance provides several methods, or tiers, that can be used to analyze secondary PM2.5 impacts; including refined air dispersion modeling methods.

Visibility Impacts

The AVAQMD PDOC/FDOC stated the project owner submitted an evaluation of the visual plume blight of project emissions on two Class I areas within 60 miles of the proposed project site. Visibility impacts were evaluated at the Cucamonga Wilderness Area and the San Gabriel Wilderness Area. Screening meteorological data were used

for the analysis with worst case annual emissions. VISCREEN was used to evaluate particulate matter and NO_2 plume blight impacts.

The AVAQMD PDOC/FDOC stated they reviewed the analysis and found the methods and finding acceptable. The findings indicated the PEP NO_2 and particulate matter emission influence were both well below the screening criteria.

The AVAQMD also stated in the PDOC the U.S. EPA has the authority over the PSD permitting for the PEP and were ultimately the agency responsible for reviewing and accepting the PSD Class I area Protection analysis.

The U.S. EPA commented on this section of the PDOC. The U.S. EPA clarified facilities subject to the federal nonattainment NSR program as major sources or modifications are required to be evaluated for visibility purposes. The U.S. EPA reviews the project under the PSD program and is only responsible for reviewing pollutants that trigger a PSD review. The AVAQMD is required to evaluate compliance with the applicable visibility protection requirements. The U.S EPA further clarified not all pollutants emitted from the Project trigger PSD review by U.S. EPA. The U.S. EPA recommended the AVAQMD revise their analysis to reflect these requirements.

The AVAQMD reworded the section in the FDOC to clarify that the visibility protection analysis is required because the project is subject to the Federal nonattainment NSR program as a major facility of Federal; nonattainment pollutants NOx and VOC and located within 60 miles of a Class I Area and removed the language referring to the PSD, therefore satisfying the U.S. EPA's comment.

Impacts on Soils, Vegetation, and Sensitive Species

The project owner evaluation potential impacts on soils, vegetation and sensitive species and found them to be insignificant. Please see the Biology Section for a complete discussion on the potential for impacts on soils, vegetation and sensitive species.

Operations Mitigation

Project owner's Proposed Mitigation

The project owner is proposing to mitigate the proposed project's NOx, VOC, SOx, and PM10 emissions through the use of BACT and ERCs. BACT includes limiting the ammonia slip emissions to 5 ppm. The equipment description, equipment operation, and emission control devices are provided in the Project Description and Emissions Section (above).

Emission Controls

The PEP proposes the use of emission control technology, and operating practices to meet the proposed BACT emission limits for the Siemens SGT6-5000F turbines, auxiliary boilers and emergency engines. The project owner is proposing the use of dry low NOx combustors and SCR to control NOx emissions from combustion turbines. An oxidation catalyst is proposed to reduce emissions of CO and VOCs from the combustion turbines and natural gas is proposed to meet SOx and PM10/2.5 BACT limits. The proposed BACT limits for the combustion turbines are summarized below:

- NOx: 2.0 ppmvd at 15 percent O_2 (one-hour average, excluding startup/shutdown)
- CO: 2.0 ppmvd at 15 percent O_2 (one-hour average, excluding startup/shutdown)
- VOC: 1.0 ppmvd at 15 percent O_2 (one-hour rolling average, excluding startup/shutdown and no duct burning)
- VOC: 2.0 ppmvd at 15 percent O_2 (one-hour rolling average, excluding startup/shutdown with duct burning)
- PM10/PM2.5: 11.8 lbs/hr
- SOx: 0.2 grains/100 scf fuel sulfur content (long term)
- NH_3: 5 ppmvd at 15 percent O_2

The project owner is proposing an ultra-low NOx burner, flue gas recirculation and good combustion practices to meet the proposed NOx BACT emission limit for the auxiliary boiler. The use of natural gas and good combustion practices are proposed to meet BACT emission limits for CO, VOCs and PM10/2.5. The use of natural gas is also proposed to meet the proposed BACT limit for SOx. The proposed BACT limits for the auxiliary boiler are summarized below:

- NOx: 9.0 ppmvd at 3 percent O2 (one-hour average)
- CO: 50 ppmvd at 3 percent O2 (one-hour average)
- VOC: 0.005 lb/MMBtu /15ppmvd at 3 percent O2 (one-hour average)
- PM10/PM2.5: 0.007 lbs/MMBtu
- SOx: 0.2 grains/100 scf fuel sulfur content (long term)

The project owner is proposing to meet all emission standards and requirements outlined in the CARB ATCM and NSPS Subpart IIII to meet BACT for the emergency engines.

Emission Offsets

The project owner is proposing mitigation in the form of offsets. AVAQMD Regulation XIII New Source Review requires offsets for non-attainment pollutants and their precursors for new major sources proposing emissions over specified thresholds. Currently, the AVAQMD is considered non-attainment for ozone and state PM10 standards. Air Quality Table 24 includes a comparison of the PEP emissions with the AVAQMD offset thresholds established in AVAQMD Rule 1303 Requirements.

Air Quality Table 24
Comparison of PEP Emissions and Offset Thresholds

	(tons/year)			
	NOx	**VOC**	**SOx**	**PM10**
Maximum Annual Potential to Emit	139	52	11	81
AVAQMD Offset Threshold	25	25	25	15

Source: PHPP 2016c Table 5

The AVAQMD is in attainment for CO and it is not considered a precursor pollutant for ozone or PM10 and therefore mitigation would not be required for CO. Although SOx is

considered a precursor for PM10, AVAQMD would not require offsets for SOx emissions because the total proposed PEP Potential to Emit is below the 25 ton per year threshold. However for purposes of CEQA, the Energy Commission requires facility emissions with potentially significant impacts to be mitigated, e.g., on at least a 1.0 to 1.0 offset ratio basis. Staff recommends SOx be mitigated as a precursor to PM10/2.5.

Ozone precursor pollutant offsets (NOx and VOCs) are of limited availability in the AVAQMD. Therefore the project owner is proposing to procure ERC credits from the Mojave Desert Air Quality Management District (MDAQMD) within the MDAB and from the SJVAPCD to the north of the AVAQMD. Inter-district trades entail the use of ERCs from other air districts within the MDAB. Inter-basin trade would involve the use of ERCs from other air districts outside the MDAB. AVAQMD Rule 1305 Emission Offsets, explicitly allows for the use of inter-district and inter-basin mitigation with approval of the AVAQMD Air Pollution Control Officer (APCO). The PEP would be a Major Facility located in a federal non-attainment area which would require the APCO's determination to be made in consultation with ARB and the U.S. EPA on a case-by-case basis.

The project owner originally proposed five strategies for obtaining ERCs to mitigate potential impacts from the PEP. All offsets and mitigation pursuant to CEQA and/or AVAQMD NSR would be acquired and implemented through the AVAQMD regulations with Energy Commission guidance. The proposed mitigation strategies included:

- Acquisition of existing ERCs from the AVAQMD emission bank.
- Acquisition of existing ERCs from other district banks within the MDAB.
- Acquisition of existing ERCs from other district banks outside the MDAB.
- Generation of PM10 ERCs from road paving.
- Inter-pollutant offsets (i.e., NOx for VOC and VOC for NOx).

The U.S. EPA commented on the PEP's proposed ERC package presented in the AVAQMD PDOC and revised PDOC. The project owner revised the ERC package and removed the confidential cover to allow sufficient agency and public review of the proposed offsets. The revised ERC package identifies the specific strategies and credits in consideration on a pollutant basis. The revised package includes the following strategies:

- Acquisition of existing NOx ERCs from the MDAQMD within the MDAB.
- Acquisition of existing VOC ERCs from the southern SJVAPCD outside the MDAB.
- Generation of PM10 ERCs from road paving to offset PM10 and SOx.

AVAQMD Rule 1305 Emission Offsets establishes offset ratios for pollutants depending on the attainment status of the facility location. The PEP would be located in a federal non-attainment area for ozone therefore triggering an offset ratio of 1.3 to 1.0 for VOC and NOx. The PM10 offset ratio requirement is 1.0 to 1.0 per Rule AVAQMD Rule 1305**.**

The project owner agreed to a distance ratio of 1.5 to 1 for all ERC transfers from the SJVAPCD. This 1.5 to 1 ratio would be applied to the maximum potential to emit in-lieu-of the 1.3 to 1.0 AVAQMD offset ratio. The 1.5 to 1 ratio corresponds to the distance ratio used by the SJVAPCD to determine offset requirements. **Air Quality Table 25** includes the revised offset proposal requirements and project owner proposed offsets for the PEP.

Air Quality Table 25
Emission Offset Requirements

	(tons/year)				
	NOx	**CO**	**VOc**	**SOx**	**PM10**
Maximum Annual Potential to Emit	138.99		51.65	11.39	81.01
Offset Ratio	1.3	---	1.5	--	1.0
Offsets Required	180.7	0	77.5	0	92.40[a]

Source: PHPP 2015c, PHPP2016c, PHPP 2016k, PHPP 2016jj, PHPP 2016kk, PHPP 2016gg, and staff analysis
[a] Includes both PM10 and SOx mitigation as normally required by the Energy Commission

The project owner is proposing to surrender ERCs in sufficient quantities to offset the project prior to the start of construction, per AVAQMD stated requirements. **Air Quality Table 25a** includes the project owner's identified ERC sources proposed to meet the offset requirements:

Air Quality Table 25a
Identified ERC Sources of Mitigation

Air District	Air Basin	Current Owner	ERC Certificate	NOx (tons/year)	VOC (tons/year)	PM10 (tons/year)
MDAQMD	MDAB	NRG – California South	102	240		
MDAQMD	MDAB	CalPortland Cement Co.	103	854		
SJVAPCD	SJAB	Vector Environmental	S-4039-1		124	
SJVAPCD	SJAB	Crimson Resource Management	S-3387-1		27[a]	
SJVAPCD	SJAB	Calpine	S-3261-1		10	
SJVAPCD	SJAB	Heck Cellars	S-3442		20	
AVAQMD	MDAB	NA (Road Paving)	TBD			>92.40
Total				1,094	182	>92.40

Source: CEC 2016aa, PHPP 2016gg and staff analysis
[a] This value reflects a reasonably available control technology (RACT) adjustment (see discussion below)

Road Paving

The project owner is proposing to pave roads in the vicinity of the proposed project to generate PM10 ERCs to mitigate project PM10 and SOx emissions. The project owner provided a paving emission reduction credits protocol to the docket March 2, 2016 (PHPP 2016k). It is attached in **Air Quality Appendix Air-2**. The project owner is proposing to use the calculations included in the MDAQMD Rule 1406, Generation of Emission Reduction Credits for Paving Unpaved Public Roads. MDAQMD Rule 1406 establishes procedures for voluntary paving of roads to obtain PM10 ERCs. The rule intends for the PM10 credits to be enforceable, permanent, quantifiable, real and

surplus. The protocol outlines the methods for data collection and analysis needed to perform the calculations.

Ten existing unpaved road segments have been identified as potential candidates for paving. **Air Quality Table 26** lists the identified road segments, corresponding intersections, jurisdiction, street type, segment length, 'right of way' requirements (ROW req.) in feet (ft), and the segment footprint. The 'right of way' refers to all areas of use including public and vehicular travel. It can include the paved street, sidewalk, curb, gutter median, etc.

Air Quality Table 26
Initial Identified Road Segments

Street Segment	From – To	Jurisdiction	Street Type[a]	Segment Length (mile)	ROW Req. (ft)	Segment Footprint (acre)
Ave. B	90th - 30th St W	L.A. County	CR	~ 6.0	40	29.1
Ave. S-2	96th -106th St E	L.A. County	CR	~ 1.0	40	4.85
110th Street E	Ave L – Ave M	City of Palmdale	SA	~ 1.0	92	11.15
40th Street W	Ave N – Ave N-8	L.A. County	CR	~ 0.5	40	1.94
Ave Q	90th - 110th St E	City of Palmdale	SA	~ 2.0	92	22.3
Ave. S-6	96th - 106th St E	L.A. County	CR	~ 1.0	40	4.85
Ave. T-10	87th – 96th St E	L.A. County	CR	~ 1.0	40	4.85
Ave. N-8	Bolz Ranch Rd – 30th St W	City of Palmdale	LI	~ 1.5	60	10.91
Ave. G	90th – 120th St E	L.A. County	CR	~ 3.0	40	9.70
Carson Mesa	El Sastre – Vincent View Rd	L.A. County	CR	~ 1.85	40	8.24

Source: PHPP 2016k
[a] CR = County Road, SA = Secondary Arterial, LI = Local Interior

From the ten roads listed in **Air Quality Table 26**, four were selected for potential paving activities. These four roadway segments are included in **Air Quality Table 27**. If additional paving activities are needed to generate more ERCs then additional roads from **Air Quality Table 26** would be selected.

MDAQMD Rule 1406 emission calculation equations are based on the U.S. EPA Compilation of Air Pollutant Emission Factors (AP-42) Chapter 13.2.2 Unpaved Roads. Dust emissions from unpaved roads depend on many parameters, including the number of vehicles that travel on the road, characteristics of the vehicles such as weight and characteristics of the road such as silt content. AP-42 contains separate equations for calculating emission factors for vehicles traveling on unpaved industrial roads (equation 1a) and public accessible roads (equation 1b). The project owner is proposing to use the equation for public roads dominated by light duty vehicles and adjusting the equation to reflect rainfall in the area.

The annual quantity of PM10 emissions emitted from each roadway segment would be calculated by using the emission factor calculated according to AP-42 Chapter 13.2.2 equation 1b and multiplying by the annual vehicle miles traveled (VMT) on the segment. The project owner would then determine the PM10 emissions from vehicles traveling on the roads once they are paved. MDAQMD Rule 1406 includes an equation to determine

the PM10 emission factor from vehicle travel after the roads are paved based on equation 2 in AP-42 13.2.1 for paved roads. The ERC would be the difference between the emissions from the unpaved roadway segments and the emissions from the paved roads.

In order to determine the emissions from each road segment the VMT would need to be determined. The project owner is proposing to use at least seven consecutive measurement periods for each of the four segments identified in **Air Quality Table 27**. Details for the measurement periods are as follows:

- Each measurement period or traffic count shall measure vehicular traffic over a minimum of 24 hours.
- Traffic counts shall be conducted on non-holiday weekdays and weekends.
- Separate traffic counts will be made for each segment. A segment is identified as a length of road between two cross streets. The counts will be made near the center point of each road segment.
- The VMT for each roadway segment shall be calculated by multiplying the time weighted average of seven separate traffic counts for that roadway segment by the roadway segment's length in miles to the nearest 0.1 mile.

Air Quality Table 27
Initial Identified Road Segments

Street Segment	From - To	Jurisdiction	Length (mile)	ROW Req. (ft)	Area (acre)	PEP[a] (mile)	Traffic Count (segments)
Ave. S-2	96th -106th St E	L.A. County	~ 1.0	40	4.85	10.25	5
40th Street W	Ave N – Ave N-8	L.A. County	~ 1.43	40	9.41	5.5	9
Ave. S-6	96th - 106th St E	L.A. County	~ 0.95	40	4.61	10.5	5
Ave. T-10	87th – 96th St E	L.A. County	~ 1.0	40	4.85	10.8	5

Source: PHPP 2016k
[a] Distance to PEP

The objective of the unpaved road sampling program is to inventory the PM emission from the roads. This is done by taking samples, analyzing silt fractions and moisture content and using the results in the appropriate equations.

Roadway segment silt content would be determined using collection and analysis methodologies specified in Appendices C.1 and C.2 of AP-42. The project owner is proposing the sampling frequency to be based on the length of the road segment. Sampling would be taken at every 0.5 mile intervals for each major road segment. If a road segment greater than 3 miles is needed then the composite sampling methods in Appendix C.1 would be used. The procedural for collecting samples from Appendix C.1 would be followed and the procedure for sample sizes from Appendix C.2 would also be followed.

A final applications package would need to be submitted to the AVAQMD to bank the emission reductions so they could be used as offsets. The project owner is proposing to

submit an application package including all required information in the MDAQMD Rule 1406 (B)(1)(b). This includes:

1. The contact information of the responsible official.

2. The contact information for a contact person if different than the responsible official.

3. Information identifying the facility or emission unit requiring the PM10 offsets.

4. Information identifying the source of the proposed paved emission reduction credit (PERC) including the PM10 attainment status.

5. Information sufficient to allow the calculations specified in this rule to be performed.

6. A statement from the project owner that the unpaved road(s) will be paved according to state or local government paving standards, as applicable.

7. A letter or agreement from the appropriate state or local government stating that each roadway segment:

   a) Has been inspected;

   b) Has been described as being gravel or non-gravel surfaced;

   c) Will be adopted into the state or local transportation network, if not already part of the network; and

   d) Will be maintained.

8. A statement from the project owner indicating that any necessary environmental review for the paving of each roadway segment required pursuant to the California Environmental Quality Act has been performed. The project owner shall provide a copy of such CEQA review upon AVAQMD request.

9. Fees in accordance with AVAQMD requirements.

PM2.5 and their precursors:

Since PM2.5 is an attainment pollutant for both the state and federal standards, PM2.5 offsets are not required for the PEP under AVAQMD Rule 1303. The AVAQMD did not require offsets for PM2.5 in their FDOC.

Adequacy of Proposed Mitigation

AVAQMD Rule 1302 Procedure requires projects requiring offsets under Rule 1303 Requirements send a copy of the AVAQMD preliminary decision and analysis to ARB, U.S. EPA and any Affected State. The agencies have thirty days from the date of publication of the notice to submit comments and recommendations regarding the preliminary decisions. The U.S. EPA originally made nine comments regarding the PDOC analysis. The U.S. EPA PDOC comments included:

- The AVAQMD needs to revise the class I area visibility review to ensure compliance with visibility protection requirements visibility analysis.
- The AVAQMD State Implementation Plan (SIP) approved rules are required to be used for the federal nonattainment review.
- The proposed conditions must be re-written to comply with Lowest Achievable Emission Rate (LAER) / BACT at all times.
- The proposed conditions should be revised to specify the emissions for startup, shutdown and malfunction are addressed in complying with the applicable limits.
- Inadequate information was provided for a complete offset package review.
- U.S. EPA cannot approve the proposed offset package per the AVAQMD rules.
- AVAQMD has not demonstrated that the offsets in the confidential offset package are consistent with federal law:
- There is no demonstration that available ERCs exist, and
- It is not clear if the ERCs are sufficient after surplus adjustments.
- AVAQMD SIP approved rules state that all inter-pollutant trading for offsets shall be subject to U.S. EPA review and approval. At this time U.S. EPA is not approving the use of inter-pollutant offsets.
- Offsets required for purposes of the federal nonattainment NSR program must be determined to be federally enforceable before the final nonattainment NSR permit is issued. AVAQMD must make its determination that the source will comply with the Clean Air Act and the basis for that determination, and make their analysis available for U.S. EPA review prior to the issuance of the FDOC.
- The AVAQMD has not demonstrated that a distance ratio of only 1 to 1 for ERC transfers from the SJVAPCD is justified.

The project owner revised the proposed offset package and provided additional information to the U.S. EPA to address these comments. The project owner identified the specific strategies on each pollutant and withdrew the proposal to use inter-pollutant trading for offsets subject to federal approval. The AVAQMD issued a revised PDOC addressing the U.S. EPA's original comments. Additional comments were submitted June 10, 2016 by the U.S. EPA, which include:

- The proposed use of inter-basin offsets relied on California Air Resources Board's *Ozone Transport: 2001 Review April 2001*. The U.S. EPA does not believe there is sufficient information to demonstrate that ERC's originating in the central and northern portions of the SJVAPCD can be relied upon for demonstrating compliance with offset requirements in the CAA.
- Additional information and quantification is needed prior to FDOC issuance to demonstrate if three proposed sources of VOC offsets originating in the SJVAPCD would still be considered surplus.

These additional comments are addressed in changes made to the proposed offset package and revisions are included in the FDOC as discussed below.

Emission Controls

The AVAQMD completed a detailed BACT evaluation for the PEP. The AVAQMD BACT evaluation concurred with the proposed BACT limits outlined above, but also included start up and shutdown events in the evaluation since startup and shutdown events are considered to be part of normal operations. The proposed fast start technology was included in the BACT analysis for start-up and shutdown events. The startup and shutdown emission rates included in **Air Quality Table 13** are considered BACT for NOx, CO and VOCs for the turbines by the AVAQMD. Emissions restrictions are being proposed for normal and startup and shutdown conditions to ensure BACT levels would be met. Staff concurs with the AVAQMD's determination that the project's proposed emission controls/emission levels for criteria pollutants and ammonia slip meet BACT requirements (see full BACT discussion in LORS).The U.S. EPA provided comments on the AVAQMD PDOC regarding proposed **AQT-4**, which establishes the BACT emission requirements for the proposed power block emission sources. The U.S. EPA noted that BACT/LAER is required at all times for the PEP emissions sources and it may not be appropriate to include malfunction in an exemption to the BACT requirements. In addition, the U.S. EPA noted **AQT-4** only included pound per hour emissions restrictions and the BACT/LAER determination requires compliance on a concentration basis. The revised **AQT-4** language in the FDOC addresses the U.S. EPA's comments. Staff concurs with the proposed language changes to **AQT-4**.

Emission Reduction Credits

Under Federal and California law, the AVAQMD is required to implement a NSR program that attains, or makes reasonable progress toward attaining, the AAQS within the AVAQMD. If the pollutant concentrations in ambient air exceed the standards, then the area is designated nonattainment, and offsets must be provided for major new sources or modifications to existing sources. The AVAQMD is required to develop an Air Quality Management Plan (also referred to as a State Implementation Plan/SIP), which identifies rules and other measures that must be adopted to attain or maintain compliance with the AAQS. These rules require U.S. EPA approval to be considered part of the SIP. Once a rule is SIP approved it is used for U.S. EPA review for projects with federal requirements.

AVAQMD Regulation XIII, New Source Review program regulation provides the requirements, such as how offset calculations must be done and thresholds over which emissions must be offset. It also defines which pollutants must be offset, what offset ratios must be used, and the criteria for what can be used as an emission reduction credit (ERC). If a project meets the requirements of the SIP approved rules, then the mitigation (i.e., ERC) can be considered effective since the program has been developed to ensure eventual attainment of the AAQS.

Staff concurs with the AVAQMD net emission analysis determination that the project would require mitigation. Staff recommends that mitigation be provided for emissions of pollutants and/or their precursors that are in non-attainment with state and federal ambient air quality standards or may cause an exceedance of any ambient air quality standard. As documented in **Air Quality Table 3**, the AVAQMD is non-attainment for O_3, and PM10. Precursors of O_3 and PM10 include VOC, SOx, and NOx. Staff normally recommends the mitigation of PM10, NOx, VOC, and SOx emissions in areas

designated as non-attainment for O_3 and PM10 standards on a minimum of a 1:0 to 1:0 offset ratio. These requirements are different from the AVAQMD requirements.

As discussed above, the U.S. EPA made comments on the proposed offset package to be used for federally enforceable mitigation (U.S. EPA 2016a and U.S. EPA 2016b) on the AVAQMD PDOC and revised PDOC. The U.S. EPA did not have adequate information on the original offset package to determine compliance with the federal requirements. The U.S. EPA expressed concern on the confidentiality of the package and the ability of the public to comment on the proposal during the public comment period. In response to comments, the project owner provided additional information regarding the ERC offset package and revisions without a confidential cover enabling both agencies and the public to review and comment on the proposed offset package. A final revision to the offset package eliminating a potential source of ERCs was submitted to the AVAQMD and filed to the Energy Commission docket on August 31, 2016. The U.S. EPA's comments on the revised PDOC noted that if the project owner surrendered allowances not identified in the revised PDOC additional EPA and public review would be required. The U.S. EPA noted that allowing the project owner to submit one offset proposal for review and another for compliance would circumvent the preconstruction review process and could result in enforcement action.

Ozone precursor pollutants, NOx and VOCs are of limited availability in the AVAQMD. Therefore the project owner is proposing to procure NOx and VOC offsets from both the MDAQMD and the SJVAPCD. Inter-district trade entails the use of ERCs from other air districts within the MDAB. Inter-basin trade involves the use of ERCs from other districts outside the MDAB. AVAQMD Rule 1305 Emission Offsets, explicitly allows for the use of inter-district and inter-basin with approval of the AVAQMD APCO. The PEP would be a Major Facility located in a federal non-attainment area and AVAQMD rules require inter-basin and inter-district APCOs determination to be made in consultation with ARB and the U.S. EPA on a case-by-case basis.

California Health & Safety Code section 40709.6 allows the use of both inter-district and inter-basin offsets. When the source of an emission reduction is located in a separate air basin, section40709.6 requires the source of the emission reduction to be in an upwind district classified as being in worse nonattainment than the downwind district where the credits would be applied. For both types of transfers, the district the stationary source using the credits is located in determines the type and quantity of the emission reduction to be credited, determines the impact of those emission reductions in mitigation of the emission increases in the same manner and extent for fully credited emission reductions from sources located within its boundaries, and adopts a rule and regulation to discount the emission reductions credited to the stationary source in the other district. The discount is required to be at least as much as emission reductions for offsets from comparable sources located within the district boundaries. The Governing Boards of the applicable air districts would also be required to approve by resolution any inter-basin transfer of ERCs pursuant to H&SC §40709.6(d).

The project owner proposed inter-basin offsets for VOCs from the SJVAPCD. The AVAQMD previously approved the use of inter-basin offsets for the PHPP and for a neighboring facility. The SJVAPCD is in the San Joaquin Valley Air Basin (SJVAB), which is classified as extreme nonattainment for federal ozone standards and nonattainment for state ozone standards. Pollutant transport from the SJVAB and the

impacts on the MDAB have been established and are addressed in the AVAQMD's Air Quality Attainment Plan. In the Ozone Transport 2001 Review, ARB identified ozone transport from both the South Coast Air Basin (SCAB) and SJVAB as having an overwhelming and significant impact on MDAB. Ozone State Implementation Plans (SIPS) include a "but for" attainment demonstration for AVAQMD. The demonstration indicated the AVAQMD would be in attainment "but for" ozone and ozone precursors originating from the SJVAB and SCAB.

The U.S. EPA commented on the use of inter-basin in the revised PDOC. The U.S. EPA commented that they agreed that there is some ozone transport form the SJVAB, they disagreed that transport from all the areas of the SJVAB equally contribute to violations in the MDAB. The U.S. EPA concluded there was not enough information in the revised PDOC to demonstrate that ERCs from the northern or central SJVAB can be relied upon for demonstrating compliance with the offset requirements under section 173 of the Clean Air Act. Therefore, the U.S. EPA limited their review to VOC offsets from the southern portion of the SJVAB and the proposed inter-district NOx offsets from the MDAB. Per the AVAQMD revised FDOC, the project owner submitted a revised offset package to the AVAQMD on July 7th, 2016 proposing only inter-basin VOC offsets located in the southern SJVAB.

The AVAQMD has not developed offset distance ratio guidance for either inter-district or inter-district ERCs. The project owner agreed to an offsets ratio of 1.5 to 1 for inter-basin mitigation obtained from the SJVAB. This 1.5 to 1.0 emission offset ratio is based off the distance ratio requirement used by the SJVAPCD. The SJVAPCD Rule 2201 requires offsets for ERCs located more than 15 miles from a new or modified emission unit to be adjusted using a 1.5 to 1.0 ratio. The project owner has proposed inter-basin offsets for VOCs from the SJVAB all located greater than 15 miles from the proposed PEP emission units. The 1.5 to 1.0 ratio for emission reduction credits that were generated in the SJVAPCD would take the place of the 1.3 to1 ratio that is already required by AVAQMD. The AVAQMD stated in the FDOC they concur with a 1.5 to 1.0 ratio to be applied to the proposed offsets originating in the SJVAB.

The U.S. EPA also commented demonstrations are needed to verify the proposed offsets are surplus as required by the Clean Air Act. AVAQMD Rule 1305(C)(4) requires proposed offsets to be surplus to Reasonably Achievable Control Technology (RACT) prior to use. The air districts have requirements to ensure that ERCs are surplus at the time ERCs are generated. The time an ERC is generated can differ from the time an ERC is used. When ERCs are used, they need to be evaluated again to determine if the ERCs would still be considered surplus. This is done through a RACT adjustment. The RACT adjustment is essentially a comparison between RACT at the time of ERC issuance and RACT at the time of ERC use. The AVAQMD evaluated each proposed ERC and compared the stringency of RACT in both the source air district and in the AVAQMD. In all cases except one certificate (S-3387-1 owned by Crimson Resource Management) RACT has not increased in stringency. In the cases that had no increase in stringency the ERC would still be considered surplus. Appendix C in the AVAQMD FDOC includes a supplementary RACT review to address the U.S. EPA's comments on the revised PDOC. The FDOC Appendix C includes an initial evaluation of certificate S-3387-1 to determine the adjustment needed. The offset value for certificate S-3387-1 listed in **Air Quality Table 25a** reflects AVAQMD preliminary RACT adjustment.

The Energy Commission requires mitigation for the emissions of pollutants and/or their precursors that cause significant impacts. The project owner is proposing to use excess PM10 emission reduction credits to mitigate SO_2. Since both pollutants are/were considered to be in federal attainment, the conditions of certification for the PHPP included the use of PM10 to mitigate SO_2 on a 1:0 to 1:0 basis. Staff will continue to recommend the use of PM10 to mitigate SO_2 emissions for the PEP at a 1:0 to 1:0 ratio.

The AVAQMD FDOC states Rule 1305 allows for the use of Area and Indirect Source offsets (e.g. road paving) on a case by case basis approved by the APCO. Currently AVAQMD Rule 1305 Emission Offsets is pending approval in the State Implementation Plan (SIP). The SIP approved version of AVAQMD Rule 1309 does not exclude the use of Area and Indirect Source offsets. The SIP pending version of AVAQMD Rule 1305 provides additional and more stringent requirements to ensure that offsets are real, permanent, quantifiable, enforceable and surplus.

When a rule is submitted into the SIP, the rule becomes federally enforceable. If subsequent changes are made to the rule then it needs to be approved by the U.S. EPA and resubmitted into the SIP. Federally applicable versions are needed for the nonattainment NSR evaluation. The AVAQMD is designated as attainment/unclassifiable for the PM10 and SO_2 NAAQS. Staff's interpretation is that offsets for pollutants that are in attainment with the federal NAAQS are not required to be approved by the U.S. EPA; therefore, the PM10 and SO_2 emission offset package does not need U.S. EPA approval or be evaluated under SIP approved rules. The AVAQMD is designated as nonattainment for the state CAAQS, and the mitigation is required to comply with the current AVAQMD rules and regulations. The AVAQMD applied the provisions of current AVAQMD Rule 1305 to approve/disapprove the proposed area and indirect source offsets.

The following AVAQMD Rule 1305 requirements for Area and Indirect Source ERCs (Rule 1305 (B)3(d)) include:

i. Area or Indirect Source ERCs are calculated and banked pursuant to the provisions of AVAQMD Rule 1309.

ii. The project owner demonstrates sufficient control over the Area or Indirect Sources to ensure the claimed reductions are real, enforceable, surplus, permanent and quantifiable; and

iii. The specific Area or Indirect Source ERCs are approved for use prior to the issuance of the New Source Review document and the issuance of any ATCs by the APCO in concurrence with ARB; and

iv. For a Federal Major Facility as defined in AVAQMD Rule 1310(C)(6) or Federal Major Modification, as defined in AVAQMD Rule 1310(C)(7), and which is located in a Federal nonattainment area the specific Area or Indirect Source ERCs are approved for use prior to the issuance of the New Source Review document and the issuance of any ATCs by U.S. EPA; and

v. Area or Indirect Source Actual Emission Reductions must comply with other provisions specified in AVAQMD Rule 1305.

The AVAQMD Rule 1309 establishes a system to bank reductions for emissions of air contaminants prior to the use offset future increases. The rule requires the amount of ERCs to be calculated and approved pursuant to Rule 1304. Rule 1309 requires the ERC to go through a public noticing period prior to issuance and sets standards for granting the ERCs. The requirements in AVAQMD 1309(D) include:

(1) The ERCs shall be real, enforceable, permanent, quantifiable and surplus.

(2) ERCs shall only be granted for emission reductions which are not otherwise required by federal, state or District law, rule, order, permit or requirement.

(3) The ERCs shall only be granted if the applicable changes to permits have occurred or other enforceable documents have been submitted.

(4) If the emission reduction originates from a previously unpermitted emission unit, no ERCs may be granted unless the historical emissions from that unit are included in the District's emissions inventory.

The AVAQMD FDOC concluded adequate existing unpaved roads are present within the AVAQMD to offset the proposed PEP PM10 emissions. The road paving protocol submitted by the project owner details the collection and sampling methods that would be used to quantify the road paving credits. The detailed protocol provides additional assurances the road paving credits would meet AVAQMD rule requirements. The AVAQMD has an "area source unpaved road emissions" inventory. The emission inventory currently does not reflect thousands of existing individual road segments that are paved or unpaved. The FDOC states when PM10 attainment planning requirements apply the AVAQMD will correct this.

The AVAQMD FDOC also states that control of each identified road segment can be sufficiently demonstrated through the PERC application process therefore demonstrating compliance with AVAQMD Rule 1305(B)3(d)(ii). The AVAQMD FDOC states the project owner has identified potential ERCs resulting from paving of existing unpaved roads in the Antelope Valley. The list includes specific roads provided by the project owner. Per the AVAQMD, this satisfies Rule 1305(B)3(d)(iii) requirements. AVAQMD Rule 1305(B)3(d)(iv) requires federal approval for facilities located in federal nonattainment areas. The AVAQMD interprets this on a pollutant-by-pollutant basis. Because the PEP is in attainment with federal PM10 NAAQS, EPA approval would not be required.

Staff has reviewed the revised road paving offset protocol (PHPP 2016k) for adequacy. The protocol details the collection and sampling methods that would be used to determine the silt content and VMT for the proposed road segments. Staff toured the segments proposed for paving. The selected segments are in populated areas close to residential homes. Localized emission reductions would benefit the surrounding populations of the proposed segments. Figures 1-4 in the revised road paving offset protocol includes satellite images of the four roadway segments selected for paving. Specific parameters have not yet been determined so staff cannot fully verify if adequate PM10 emissions would be generated to mitigate the project from the proposed segments; however, additional segments have been identified.

The AVAQMD is requiring that ERCs for the project be surrendered before any construction is started. The project owner has identified the specific ERC certificates proposed for use for federal nonattainment pollutants and precursors. In addition the project owner has provided a detailed protocol including the methodology that would be followed to generate PM10 credits from road paving. The AVAQMD FDOC states this approach complies with the AVAQMD Rules and Regulations. The AVAQMD is attainment for both federal and state AAQS for SO_2. PM10 is classified as state nonattainment in the AVAQMD. The state review process has different requirements than the federal review process. No objections to the proposed mitigation approach has been made by ARB for pollutants classified as nonattainment for state AAQS.

Staff is proposing to separate the offsets requirements for PM10 and SO_2 from the offset requirements from NOx and VOC in the conditions of certification. Staff is recommending adequate documentation to demonstrate the project owner has obtained the necessary ERCs to be provided to the CPM for approval 45 days prior to the start of construction (Condition of Certification AQ-SC9). Staff is proposing an additional 15 days over the 30 day requirement for the PHPP. The additional time would allow the CPM time to review the proposal for adequacy and allow the public time to review the docket and provide comments. Any changes to the revised Paved ERC Data Collection Protocol or listed ERC certificates would need to be approved by the CPM.

The AVAQMD stated in the PDOC that they support use of road paving to offset natural gas combustion particulate matter emissions and they also concluded that adequate existing unpaved roads exist within the AVAQMD boundaries to offset PEP. The project owner is proposing to follow the process outlined in Mojave Desert Air Quality Management District (MDAQMD) Rule 1406 in conjunction with AVAQMD Rule 1309. If offsets are legally challenged for the proposed PEP, the project owner should consider obtaining their emission reductions from other sources.

Staff Proposed Mitigation.

Staff is proposing to delete **AQ-SC7** to **AQ-SC16**. These requirements were recommended for the PHPP due to the proposed solar component and are therefore no longer needed. **AQ-SC7** was recommended for the licensed PHPP to minimize potential emissions and impacts associated with ongoing solar facility maintenance. **AQ-SC8** required a site operations dust plan requiring soil stabilization to reduce fugitive dust from ongoing operations. Ongoing fugitive dust was expected from the solar facility during normal operations; however, ongoing fugitive dust from the proposed PEP would be insignificant**AQ-SC9** to **AQ-SC16** were developed for the PHPP to address emission from ongoing operation of the solar array. These conditions are no longer considered necessary to mitigate potential project impacts; therefore, staff is proposing to delete them.

Staff is proposing to revise former conditions **AQ-SC18** and **AQ-SC19** to update the language to ensure adequate mitigation would be provided for the PEP. Due to renumbering, former condition **AQ-SC18** would be renumbered as **AQ-SC8**, and **AQ-SC19** would be renumbered as **AQ-SC9**. **AQ-SC8** would include the revised quantities of NOx and VOC mitigation required for the PEP. In addition, the specific ERC certificates evaluated by the U.S. EPA, AVAQMD and staff would be listed in the condition. Additional language clarifying any changes to the ERC list would need to be approved, consistent with U.S. EPA's comments. **AQ-SC9** would include the revised

quantity of PM10 mitigation required to offset both PM10 and SOx emissions. **AQ-SC9** would also specify the road paving would need to be completed per the revised Paved ERC Data Collection Protocol. The revised Paved ERC Data Collection Protocol is included as **Air Quality Appendix Air-2** to this analysis.

Staff is proposing the addition of a new condition **AQ-SC6** to clarify ongoing reporting requirements during operation. In addition, the AVAQMD is proposing multiple changes to the DOC conditions to reflect the current project and LORS requirements. Staff has reviewed these conditions and concurs with the proposed changes. Staff is recommending additional changes to the verification for consistency with reporting requirements.

CUMULATIVE IMPACTS

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.

This analysis is primarily concerned with criteria air pollutants. Such pollutants have impacts that are usually (though not always) cumulative by nature. Rarely will a modern power plant project cause a violation of a federal or state criteria pollutant standard. However, a new source of pollution may contribute to violations of criteria pollutant standards because of the existing background sources or foreseeable future projects. Air districts attempt to attain the criteria pollutant standards by adopting attainment plans, which comprise a multi-faceted programmatic approach to such attainment. Depending on the air district, these plans typically include requirements for air offsets and the use of best available control technology for new sources of emissions and restrictions of emissions from existing sources of air pollution.

Much of the preceding discussion relates to cumulative impacts. The "Existing Ambient Air Quality" subsection describes the air quality background in the AVAQMD. The "Construction Impacts and Mitigation" subsection discusses the project's contribution to the local existing background caused by project construction. The "Operation Impacts and Mitigation" subsection discusses the project's contribution to the local existing background caused by project operation. The following subsection and **Air Quality Appendix Air-1** includes three additional analyses:

- A summary of projections for criteria pollutants by the air district and the air district's programmatic efforts to abate such pollution;
- An analysis of the project's *localized cumulative impacts*, the project's direct operating emissions combined with other local major emission sources; and
- A discussion of greenhouse gas emissions and global climate change impacts (see **Air Quality Appendix Air-1**).

Summary of Projections

The AVAQMD has developed several plans to implement the federal Clean Air Act and state law as it addresses their contribution to cumulative air impacts of criteria pollutants in the Mojave Desert Air Basin. These plans evaluate the regional context of air pollution in the air basin, and provide the air district strategies for addressing these cumulative impacts and eventually achieving attainment with various federal and state health-based ambient air quality standards.

Many of the plans have been continued or updated since the PHPP was licensed. There are no specific differences between the PEP and the licensed PHPP in regards to compliance with the plans. The applicable air quality plans do not currently outline any new control measures applicable to the proposed project's operating emission sources. Therefore, compliance with the existing AVAQMD rules and regulations would ensure compliance with the air quality plans. The air quality plans are summarized as follows:

- AVAQMD 2004 0zone Attainment Plan (State and Federal) (April 20, 2004)
  Link: http://www.avaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=922
- AVAQMD Federal 8-Hour 0zone Attainment Plan (Western Mojave Desert Non-attainment Area) (May 20, 2008)
  Link: http://www.avaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=923
- AVAQMD List and Implementation Schedule for District Measures to Reduce PM Pursuant to H&SC §39614(d) (August 16, 2005)
  Link: http://www.avaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=919
- AVAQMD Smoke Management Plan(August 31, 2007)
  Link: http://www.avaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=2424
- AVAQMD 8-hour Reasonably Available Control Technology –State Implementation Plan Analysis (RACT SIP Analysis) (August, 2006)
  Link: http://www.avaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=920
- AVAQMD 8-hour Ozone Reasonably Available Control Technology (RACT) State Implementation Plan (SIP) Analysis –Supplemental Analysis (March 13, 2014)
  Link:http://www.avaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=4297
- AVAQMD 8-hour Reasonably Available Control Technology –State Implementation Plan Analysis (RACT SIP Analysis) (July, 2015)
  Link:http://www.avaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=4891
- AVAQMD Federal Negative Declaration (8 hr ozone Standard) for Fifty-One CTG Categories (September 17, 2006)
  Link: http://www.avaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=915
- AVAQMD Federal Negative Declaration (8 hr ozone Standard) for Three Source Categories (July 2, 2010)
  Link: http://www.avaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=3318
- AVAQMD Federal Negative Declaration (8 hr ozone Standard) for Twenty CTG Categories (June 15, 2015)
  Link: http://www.avaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=915

- AVAQMD California Environmental Quality Act (CEQA) and Federal Conformity Guidelines (August, 2011)
  Link: http://www.avaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=2908

The AVAQMD is included in the U.S. EPA ozone non-attainment designation for the Western Mojave Desert. In 2004, the AVAQMD adopted a plan addressing attainment of the federal 1-hour ozone standard. In 2005, U.S. EPA issued a final rule including 8-hour attainment designations. The U.S. EPA designated the Western Mojave Desert non-attainment area as non-attainment for the 8-hour ozone NAAQS on April 15, 2004. The AVAQMD is included in the Western Mojave Desert non-attainment area. The AVAQMD reviewed and updated all elements of the 2004 ozone plan resulting in the Federal 8-hour Attainment Plan. This document addresses all existing and forecast ozone precursor producing activities within the Antelope Valley through the year 2020. The document contains emission inventory information, reviews existing control measures, discusses additional controls and contains an attainment demonstration for attainment of the 8-hour ozone NAAQS standard by 2020. The localized cumulative analysis included below assesses the potential cumulative impact and compares it with the most stringent AAQS. The proposed PEP would be required to mitigate all ozone precursors to levels below significant.

The AVAQMD implementation schedule for measures to reduce particulate matter (PM) was adopted to meet the requirements of H&SC §39614 (SB 656, Sher). The bill was enacted by the Legislature to reduce public exposure to PM10 and PM2.5; it required ARB to develop a list of the most readily available, feasible and cost-effective control measures that could be used to reduce emissions of PM10 and PM2.5. It also required the districts to review the list and adopt implementation schedules for selected measures. In developing the lists the AVAQMD was required to prioritize measures based on the nature and severity of the particulate problem in their jurisdiction. The AVAQMD analysis identified rules already implemented by the AVAQMD, measures that had no affected sources, measures to be analyzed and potentially implemented and measures requiring further evaluation. The proposed PEP would be in compliance with this plan since it is required to meet all AVAQMD rules and regulations.

The Smoke Management Program describes the AVAQMD'S implementation method of implementing California Code of Regulations title, section 80100-80330 Smoke Management Guidelines for Agricultural and Prescribed Burning, and of ensuring compliance with AVAQMD Rule 444 – Open Outdoor Fires. These rules are part of the AVAQMD's strategies to achieving and maintaining all AAQS related to particulate matter. This proposed PEP does not include open burning activities subject to the requirements of this rule.

The 2006 RACT SIP Analysis, Supplemental 2014 RACT SIP Analysis, and the 2015 RACT SIP Analysis represent a current and complete RACT SIP analysis for the 1997 and 2008 8-hour ozone standards. The Federal CAA requires designated ozone non-attainment areas to implement RACT for all major sources of ozone precursors. This action involves the AVAQMD reviewing rules and updating them as necessary to meet RACT standards. The 2006 RACT SIP Analysis required the AVAQMD to update rules for aerospace coating and stationary combustion engines. The Supplemental 2014 RACT SIP Analysis provided additional analysis to the 2006 findings. The 2015 RACT SIP Analysis identified additional updates are needed for the following AVAQMD rules:

- Rule 462 - Organic Liquid Loading,
- Rule 1107 - Coating of Metal Parts and Products,
- Rule 1110.2- Emissions from Gaseous and Liquid Fueled Internal Combustion Engines,
- Rule 1145 - Plastic, Rubber, Glass Coatings,
- Rule 1146 - Emissions Of Oxides Of Nitrogen From Industrial, Institutional And Commercial Boilers, Steam Generators, And Process Heaters,
- Rule 1151 – Motor Vehicle and Mobile Equipment Coating Operations, and
- Rule 1171 – Solvent Cleaning Operations.

The AVAQMD will continue promulgating RACT rulemaking and will update the RACT SIP Analysis in response to current federal ozone standard revision. Some of the rules identified are relevant to the proposed PEP. The equipment for the proposed project is required to meet BACT/LAER standards which are generally more stringent than RACT requirements. Therefore the proposed PEP is expected to meet current RACT requirements and any RACT updates.

The U.S. EPA requires the AVAQMD to implement, adopt and maintain rules requiring certain sources of air pollution to implement RACT. The AVAQMD is required to promulgate rules in source categories that are covered by a Control Technique Guideline. If there are no sources in the AVAQMD covered by a Control Technique Guideline, then a rule is not required to be developed. However, the U.S. EPA requires the AVAQMD to file Federal Negative Declarations (FND) certifying the AVAQMD does not have any sources subject to the Control Technique Guidelines. The FNDs are approved by U.S. EPA and included in the AVAQMD SIP.

The CEQA and Federal Conformity Guidelines are intended to assist persons preparing environmental analysis or review documents for project within the jurisdiction of the AVAQMD background information and guidance on the preferred analysis approach. The document includes 2011 attainment designations, attainment plan summaries, air monitoring and meteorology site information, climate information, recommended impact discussions, significance threshold and determinations, and contact information. The project owner's application to the AVAQMD contained all required elements for review per AVAQMD and was therefore designated complete.

Localized Cumulative Impacts

The project contributions to localized cumulative impacts can be assessed through air dispersion modeling. The proposed PEP and projects that are not yet in operation and are reasonable foreseeable could cause additional impacts. Reasonably foreseeable projects include projects that have received construction permits but are not yet operational and those that are in the permitting process or can be reasonably expected to be in the permitting process in the near future.

For localized cumulative impacts, staff typically requires the inclusion of all reasonably foreseeable projects within a six-mile radius. Based on staff's modeling experience, beyond six miles there is no statistically significant concentration overlap for non-

reactive pollutant concentrations between two stationary emission sources. In addition projects with an associated emission increase of below 5 tons per year are considered insignificant and are not required to be included in the local cumulative analysis.

The AVAQMD requested a cumulative modeling analysis of nearby sources in the PEP vicinity. The potential cumulative localized impacts were modeled by the project owner for the PEP in conjunction with emission from existing facilities and reasonably foreseeable projects. The project owner included in the analysis emission sources from the following three categories:

- Projects that have been in operation for a sufficient time period, and whose emissions are included in the overall background air quality data.
- Projects that recently began operations and whose emissions may not be reflected in the ambient monitoring background data.
- Projects for which air pollution permits to construct have not been issued, but are reasonably foreseeable.

This approach is considered conservative because the Energy Commission does not typically require sources that have been in operation for a period of time to be included modeled in the cumulative analysis. Background concentrations taken from a local monitoring station are added to the modeled impacts. The local monitor normally captures the emissions from sources that are currently in operation. In addition, the background values used represent both stationary and non-stationary sources of emissions. The monitoring data used for background concentration is located close to significant modes of transportation including the Sierra Highway, Antelope Valley Freeway and the Southern Pacific Railway as well as local roadways. The background values used represent both stationary and non-stationary sources of emissions.

The AVAQMD provided an initial list of cumulative sources. The list was reviewed by the project owner and staff. Projects with emissions greater than 5 tons per year for SOx, CO, PM10, PM 2.5 and NOx were included. The list was supplemented with emissions sources from Lockheed Martin Aeronautics and Northrup Grumman, both within or adjacent to Plant 42 and will be referred to as Plant 42 sources. The only source with emissions exceeding the 5 ton per year threshold was a 550 HP Tier 3 diesel drilling engine owned by the Rottman Drilling Company.

The AVAQMD provided source information for over 250 Plant 42 emission sources. Many of these individual sources had very minimal emissions. The AVAQMD worked with the project owner to limit the included inventory sources to the larger sources. The final list included 29 individual sources. The emission inventory provided for Plant 42 sources included both emission information and stack information. The maximum hourly emissions were used to calculate emission from the 1, 3, 8, and 24 hour time periods. It was assumed all sources would be in simultaneous operation during these time periods. Annual emissions were based on the 2013 and 2014 actual emission inventories for the sources.

The AVAQMD provided both emission and stack information for the diesel drilling engine. The diesel engine is located about 6 miles north of the PEP. The AVAQMD included the potential to emit emissions for the diesel drilling engine. The 1-hour

emissions rates were set to the maximum emissions allowed for Tier 3 engines. The maximum Tier 3 hourly rates were used to determine the 1, 3, 8 and 24 hour averaging periods. The annual limits were based on the ton per year limits as provided by the AVAQMD.

Plant 42 source inventory included approximately 9 intermittent sources consisting of either emergency equipment or other sources operating less than 50 hours per years. These sources were not compared to the statistical form of the 1-hour NO_2 and SO_2 NAAQS. These sources were modeled for comparison with the 1-hour CAAQS. All other sources were assessed for the statistical forms of the 1-hour NO_2 and SO_2 NAAQS. For the longer averaging periods of 3, 8, and 24-hours, the sources were assumed to operate continuously.

The cumulative analysis used AERMOD following U.S. EPA guidance. The ozone limiting method (OLM) was used for the NAAQS and CAAQS 1-hour NO_2 analysis. The U.S. EPA default NO_2/NOx in-stack ratios of 0.5 for the PEP project sources and 0.2 for background sources in the cumulative inventory were used. Annual NO_2 impacts were evaluated using the ARM with a 0.75 NO_2/NOx ratio. Concurrent ozone data from the Lancaster monitoring station was used in the Tier 3 OLM analysis. Per U.S. EPA guidance, the 1-hour NO2 NAAQS analysis used the third highest seasonal value by hour, averaged over three years.

Air Quality Table 28 includes the cumulative modeling results. The results are added to the background monitoring values and compared to the CAAQS and NAAQS. All averaging periods complied with both the CAAQS and NAAQs with the exception of PM10). The PM10 backgrounds levels already exceed the CAAQS.

Air Quality Table 28
Proposed PEP Cumulative Impacts, ($\mu g/m^3$)[a]

Pollutant	Averaging Period	Project Impact ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	Limiting Standard ($\mu g/m^3$)	Type of Standard	Percent of Standard
NO_2	1 hour	208.7	98	307	339	CAAQS	90%
	1 hour NAAQS[c]	NA	NA	151	188	NAAQS	80%
	Annual	1.88	17	19	57	CAAQS	33%
PM10	24 hour	13.25	**173**	186	50	CAAQS	373%
	Annual	0.932	**24**	25	20	CAAQS	125%
PM2.5	24 hour	4.76	18	23	35	NAAQS	65%
	Annual	0.932	7	8	12	CAAQS	66%
CO	1 hour	1309.9	2,634	3,944	23,000	CAAQS	17%
	8 hour	502.3	2,176	2,678	10,000	CAAQS	27%
SO_2	1 hour	5.85	16	22	655	CAAQS	3%
	1 hour NAAQS	1.87	13	15	196	NAAQS	8%
	24 hour	0.801	8	9	105	CAAQS	8%

Source: PHPP 2015i, PHPP 2015c, and staff analysis.

Air Quality Table 28 indicates that NO_2, PM2.5, CO and SO_2 impacts would remain below the AAQS. Particulate matter emissions from the PEP would be cumulatively significant because they would contribute to existing violations of the PM10 ambient air

quality standards. The increase in the annual PM10 concentrations increment however is very small. The high background concentrations are already over the CAAQS standards. The project owner would be required to mitigate impacts through the use of BACT and emission offsets. Therefore, the cumulative operating impacts after mitigation would be considered to be less than significant.

Environmental Justice

Staff has considered the minority population surrounding the site and reviewed **Socioeconomics Figure 1** (see the **Socioeconomics** and **Executive Summary** sections of this document for further discussion of environmental justice), which shows the minority population within portions of the 6-mile buffer zone is greater than 50 percent, thus qualifying as an environmental justice population.

Staff is recommending CEQA mitigation measures to ensure the proposed Air Quality Conditions of Certification would include suitable mitigation to reduce the PEP's direct and cumulative Air Quality impacts to a less than significant level, including impacts to the environmental justice population. Therefore, there would be no Air Quality environmental justice issues related to the PEP and no minority or low-income populations would be significantly or adversely impacted.

COMPLIANCE WITH LORS

The AVAQMD issued a revised FDOC on August 24, 2016. The AVAQMD's FDOC conditions are presented in the conditions of certification below.

FEDERAL

Title 40 Code of Federal Regulations Subchapter C –Air Programs

40 CFR Part 50 National Primary and Secondary Ambient Air Quality Standards

40 Code of Federal Regulations (CFR) Part 50 National Primary and Secondary Ambient Air Quality Standards codifies the NAAQS. The project owner conducted dispersion modeling to determine if the proposed project would exceed and AAQS. The modeling analysis demonstrated the PEP would not cause a violation for any of the criteria attainment pollutants during normal operations (including startup and shutdown periods). Nonattainment pollutant emissions will be mitigated consistent with AVAQMD rules and regulations.

40 CFR Part 51 Requirements for Preparation, Adoption, and Submittal of Implementation Plans

40 CFR Part 51 Requirements for Preparation Adoption and Submittal of Implementation Plans requires NSR permitting for new stationary sources. NSR applies to sources of designated nonattainment pollutants. The NSR permitting is addressed through AVAQMD Regulation XIII. A Permit to Construct and Permit to Operate will be obtained by the project owner satisfying the requirements.

40 CFR Part 52 Approval and Promulgation of Implementation Plans

40 CFR Part establishes procedures for allowing new sources of air pollution to be constructed or existing sources to be to be modified in areas classified as attainment. Prevention of Significant Deterioration (PSD) requirements apply on a pollutant specific basis for major stationary sources. The PEP would be considered one of 28 source categories that are subject to PSD requirements for attainment pollutants if facility annual emissions exceed 100 tons per year. The PEP would exceed the 100 tons per year threshold for NOx and CO and is subject to the PSD analysis requirements. PEP would also be a major stationary source of GHG (exceeding 100,000 tons per year) which requires a PSD analysis for GHGs. The AVAQMD PSD program is administered by the U.S. EPA. The project owner has submitted a PSD application to the U.S. EPA Region IX.

Title 40 Code of Federal Regulations Part 60 Standards of Performance for New Stationary Sources

40 CFR Part 60 Subpart A –General Provisions

Any source subject to an applicable standard under 40 CFR Part 60 is also subject to the general provisions of Subpart A. Subpart A outlines general provisions for the proposed PEP including notification, work practice, monitoring and testing requirements.

40 CFR Part 60 Subpart Db –Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units

This subpart affects steam generating units with capacities greater than 100 million British thermal units per hour (MMBtu/hr).Subpart Db establishes new source performance standards for the auxiliary boiler based on the rating of 110 MMBtu/hr. The HRSG and associated duct burners are regulated under Subpart KKKK and are therefore exempt from Subpart Db requirements.

The auxiliary boiler would have a heat input capacity rated at 110 MMbtu/hr and would therefore be subject to Subpart Db requirements. Subpart Db establishes emission limits based on the heat release rate. The auxiliary boiler would be required to meet an emission standard of 0.20 pounds (lbs) per MMBtu NOx. The BACT derived NOx emission limit of 0.011 lb/MMBtu is considerably below the NOx Subpart Db requirement. The boiler would be fired exclusively on natural gas and therefore Subpart Db SO_2 and PM10 emission limits would not apply.

The auxiliary boiler is subject to Subpart Db monitoring requirements. The auxiliary boiler would be required to be equipped with either a CEMS or a predictive emissions monitoring system (PEMS) for NOx. Conditions of Certification **AQAB-10** and **AQAB-11** are included for the auxiliary boiler to address Subpart Db monitoring requirements. These conditions are included in the FDOC to ensure compliance with Subpart Db requirements.

40 CFR Part 60 Subpart IIII –Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

This subpart is applicable to owners and operators of stationary compression ignition internal combustion engines. The subpart outlines requirements for both the emergency fire pump and engine.

The PEP is proposing a model year 2016, 175 HP emergency fire pump with a displacement less than 30 liters per cylinder. The emergency fire pump would be required to meet emission limits of 2.6 grams per horsepower-hour (g/hp-hr) for CO, 3.0 g/hp-hr for non-methane hydrocarbons (NMHC or VOCs) and NOx combined, and 0.22 g/hp-hr for PM10. The proposed PEP Tier 3 emergency fire pump engine would meet the emission standards.

The PEP is proposing a model year 2016, 750 HP emergency generator engine. The emergency generator would be required to meet emission limits of 2.6 g/hp-hr for CO, 4.8 g/hp-hr for non-methane hydrocarbons (NMHC or VOCs) and NOx combined, and 0.15 g/hp-hr for PM10. The proposed PEP Tier 2 emergency generator engine would meet the emission standards.

Additional requirements include the use of a non-resettable hour meter, fuel standards met by using an ultra-low sulfur diesel fuel, operational requirements met by following manufacturer's procedures and recordkeeping provisions.

40 CFR Part 60 Subpart KKKK –Standards of Performance for Stationary Combustion Turbines

This subpart establishes NOx and SO_2 emission limits for new combustion turbines and the associated HRSG duct burners. New combustion turbines with a rated heat input greater than 850 MMBtu/hr are required to meet NOx emission limits of 15 ppm at 15 percent O_2. The fuel sulfur would be limited to 0.060 lbs SO_2 per MMBtu. Combustion turbines regulated under Subpart KKKK are exempt from Subpart GG.

The proposed PEP would meet the Subpart KKKK requirements with the use of BACT. The PEP would use SCR to reduce NOx emissions to 2.0 ppm and pipeline quality natural gas to meet SO_2 emission requirements. The combined-cycle turbine would monitor NOx emissions with a CEMS.

40 CFR Part 60 Subpart TTTT –Standards of Performance for Greenhouse Gas Emissions for Electrical Generating Units

On August 3, 2015, the U.S. EPA administrator promulgated New Source Performance Standards Subpart TTTT-Standards of Performance for Greenhouse Gas Emissions for Electrical Generating Units (Title 40, Code of Federal Regulations, Part 60.5508) (Subpart TTTT). The notice was published in the Federal Register on October 23, 2015 and had an immediate effective date. Subpart TTTT-Standards of Performance for Greenhouse Gas Emissions for Electrical Generating Units sets standards to limit emissions of CO_2 from new, modified and reconstructed power plants. Subpart TTTT-requirements are set under the authority of the Clean Air Act section 111(b) and are applicable to new fossil fuel-fired power plants commencing construction after January 8, 2014. Section 4.1.1 of the revised PTA stated the project is planning to operate as a

base load power plant with an expected facility capacity factor of 60-80%. The PEP combined-cycle would be subject to Subpart TTTT requirements.

According to Subpart TTTT, base load rating is defined as maximum amount of heat input an electrical generating unit (EGU) can combust at a steady state basis at ISO conditions. For stationary combustion turbines, base load rating includes the heat input from duct burners. Each EGU is subject to the standard if it burns more than 90% natural gas on a 12-month rolling basis and if the EGU supplies more than the design efficiency times the potential electric output as net-electric sales on a 3 year rolling average basis. An affected EGU supplying equal to or less than the design efficiency times the potential electric output as net electric sales on a 3 year rolling average basis is considered a non-base load unit and is subject to a heat input limit of 120 lbs CO_2/MMBtu. Each affected 'base load' EGU is subject to the gross energy output standard of 1,000 lbs of CO_2/MWh unless the Administrator approves the EGU being subject to a net energy output standard of 1,030 lbs CO_2/MWh.

In response to Data Request 17, the project owner provided calculations to demonstrate compliance with Subpart TTTT. A new Condition of Certification **AQT-27** would be included requiring the project owner to provide a compliance demonstration with Subpart TTTT requirements.

40 CFR Part 63 Subpart ZZZZ –National Emission Standards for Hazardous Air Pollutant for Stationary Reciprocating Internal Combustion Engines

This subpart is applicable to owners and operators of stationary compression ignition internal combustion engines. The subpart outlines requirements for both the emergency fire pump and generator engines. The emergency engines would comply with this subpart by complying with 40 CFR Subpart IIII.

40 CFR Part 64 - Compliance Assurance Monitoring (CAM)

The CAM rule applies to emission units with uncontrolled potential to emit levels greater than applicable major source thresholds. Emission control systems governed by Title V operating permits requiring continuous compliance are exempt from CAM. The proposed PEP will be required to have a CEMS for NOx and CO emissions. The NOx and CO CEMS qualify as continuous compliance determination methods and provide an exemption from this subpart for NOx and CO. The AVAQMD is classified as severe nonattainment for ozone. The PEP would be considered a federal major source of VOC emissions since the PEP emissions could exceed 25 tons per year of VOCs. The PEP VOC emissions are subject to BACT requirements. The VOC BACT limit is achieved with the assistance of the oxidation catalyst. The oxidation catalyst primarily controls CO emissions but it also controls the VOC emissions as discussed in the BACT section of the FDOC. To assure that the catalyst is operating as designed, the turbines are required to be source tested every three years for VOCs.

40 CFR 70, Operating Permits Program

The Operating Permits Program requires the issuance of a Title V permit identifying all applicable federal performance, operating, monitoring, recordkeeping, and reporting requirements. The PEP would be considered a major source and subject to the Title V

requirements. Title V permits consolidate the federally enforceable operating limits. An application would be required within one year following the start of operation.

40 CFR 72, Acid Rain Program

The acid rain program establishes emission standards for SO_2 and NOx through the use of market incentives, monitoring and reporting requirements, and can require SO_2 allowances to be acquired in order to offset the annual SO_2 emissions.

The PEP would comply with the monitoring requirements of the acid rain provisions with the use of gas meters in conjunction with natural gas default sulfur data as allowed by the Acid Rain regulations (Appendix D to 40 CFR Part 75). If additional SO_2 credits are needed, the project owner would obtain the credits from the SO_2 trading market. Compliance with this rule is expected.

STATE

The project owner would demonstrate that the amended project would comply with H&SC §41700, which restricts emissions that would cause nuisance or injury, with the issuance of the AVAQMD's Final Determination of Compliance and the Energy Commission's affirmative finding for the project.

The AVAQMD has evaluated compliance of the emergency generator and emergency diesel fire pump engines with ATCM requirements under Title 17 of the California Code of Regulations. The AVAQMD has determined that with the FDOC permit conditions the engines will comply with the ATCM requirements.

LOCAL

The project owner provided an air quality permit application to the AVAQMD. In response, the AVAQMD issued a FDOC concluding the project is expected to comply with all applicable AVAQMD rules and regulations.

The AVAQMD rules and regulations specify the emissions control and offset requirements for new sources such as the amended PEP. BACT would be implemented, and ERCs would be required based on the attainment status and permitted emission levels. ERCs would be required for NOx, VOCs, and PM10. Under AVAQMD rules, ERCs would not be required for CO, SOx, or PM2.5. Compliance with the AVAQMD's new source requirements would ensure that the amended project would be consistent with the strategies and future emissions anticipated under the AVAQMD's air quality attainment and maintenance plans.

The AVAQMD prepared a PDOC and published it on February 3, 2016 with the public notice period occurring from February 3, 2016 to March 7, 2016. A revised PDOC was then published on May 12, 2016. The FDOC was issued on July 25, 2016. A revised FDOC was docketed August 24, 2016. The DOC evaluates whether and under what conditions the amended project would comply with the AVAQMD's applicable rules and regulations, as described below.

Regulation II Permits

AVAQMD Rule 201 Permits Required

Any person building, altering or replacing any equipment, the use of which may cause the issuance of air contaminants or the use of which may eliminate or reduce or control the issuance of air contaminants, must first obtain authorization for such construction from the AVAQMD. A permit to construct (PTC) shall remain in effect until the permit to operate (PTO) for the equipment for which the application was filed is granted, denied, or canceled. Once approved by the Energy Commission, the project owner's revised PTA serves as an application for a PTC.

AVAQMD Rule 202 Temporary Permit to Operate

A person shall notify the AVAQMD before operating or using equipment granted a PTC. Upon such notification, the PTC shall serve as a temporary PTO for the equipment until the PTO is granted or denied. The equipment shall not be operated contrary to conditions specified in the PTC, and testing requirements must be satisfied. The Project would comply with this rule by applying for a PTO from the AVAQMD in a timely manner.

AVAQMD Rule 203 Permit to Operate

A person shall not operate or use any equipment, the use of which may cause the issuance of air contaminants, or the use of which may reduce or control the issuance of air contaminants, without first obtaining a written PTO from AVAQMD, or except as provided in Rule 202. The equipment shall not be operated contrary to the conditions specified in the permit to operate. The project would comply with this rule by obtaining a PTO from the AVAQMD in a timely manner and complying with the stated conditions.

AVAQMD Rule 212 Standards for Approving Permits

This rule establishes baseline criteria for approving permits. This rule includes noticing requirements and guidelines for obtaining decisions. In accordance with the rule criteria, the proposed PEP would comply with the requirements through the permit approval process and complying with the permits.

AVAQMD Rule 217 Provision for Sampling and Testing Facilities

The permittee may be required to provide and maintain such facilities as are necessary for sampling and testing. In the event of such requirements, the AVAQMD shall notify the project owner in writing of the required size, number and location of sampling ports; the size and location of the sampling platform; the access to the sampling platform, and the utilities for operating the sampling and testing equipment. The platform and access shall be constructed in accordance with the General Industry Safety Orders of the State of California. The project would provide such facilities for the combustion turbines and other equipment for which source testing is required.

AVAQMD Rule 218 Stack Monitoring

The PEP would be required to provide, install, and maintain CEMS for the proposed combustion turbines. The PEP would be required to provide necessary records and

other data to calculate air contaminant emissions or concentration as specified in Rule 218 Sections (F) and (G).

AVAQMD Rule 225 Federal Operating Permit

The PEP would be required to obtain a federal operating permit. The PEP would be required to submit an application for a federal operating permit within 12 months of the commencement of operation.

AVAQMD Rule 226 Limitations on Potential to Emit

The PEP is a major source and would comply with Regulation XXX requirements rather than limit its potential to emit. Thus, this rule is not applicable.

Regulation III Fees

AVAQMD Rule 301 Permit Fees

The PEP would be required to comply with all operating fees outlined in Rule 301 such as annual operating renewal fees and modification fees if applicable. Permit application fees were paid to the AVAQMD with the air permit application.

Regulation IV Prohibitions

AVAQMD Rule 401 Visible Emissions

A person shall not discharge into the atmosphere, from any single source of emissions whatsoever, any air contaminant for a period or periods aggregating more than three (3) minutes in any one hour which is as dark or darker in shade as that designated as No. 1 on the Ringelmann Chart, or of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke which is as dark or darker in shade as that designated as No. 1 on the Ringelmann Chart. The project emission sources would be equipped with BACT and combust clean fuels. During start up, visible emissions may exceed 20 percent opacity. However, emissions of this opacity are not expected to last three minutes or longer. In normal operating mode, visible emissions are not expected to exceed 20 percent opacity. With the combustion of clean fuels and application of best available control technology (BACT) compliance is expected.

AVAQMD Rule 402 Nuisance

A person shall not 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. Due to the application of BACT on each emission source and the distance from the emission sources to any potential receptors, compliance with this rule is expected.

AVAQMD Rule 403 Fugitive Dust

The purpose of this rule is to reduce the amount of PM10 emitted from significant man-made fugitive dust sources. The provisions of this rule apply to specified bulk storage, earthmoving, construction and demolition, and man-made conditions resulting in wind

erosion. The PEP construction would involve bulk storage of soils, earthmoving, construction and demolition, and manmade conditions that have the potential for fugitive dust emissions. Staff is proposing Conditions of Certification **AQ-SC2**, **AQ-SC3** and **AQ-SC4** to address potential fugitive emissions. Conditions of Certification **AQ-SC3** and **AQ-SC4** establish dust control strategies**.** Per Condition of Certification **AQ-SC2**, the project owner would be required to detail the steps and reporting requirements to ensure compliance with **AQ-SC3** and **AQ-SC4** The project operator would be required to follow a dust control strategy prepared for the PEP.

AVAQMD Rule 404 Particulate Matter Concentration

Rule 404 specifies concentration standards for discharges of particulate matter emissions. The rule limits particulate matter emissions based upon the exhaust flow rate. The provisions of this rule do not apply to emissions resulting from the combustion of liquid or gaseous fuels in steam generators or combustion turbines. The auxiliary boiler would comply with this rule by using only pipeline quality natural gas fuel. The emergency fire pump and emergency generator engines are subject to this rule and would comply by using only ultra-low sulfur diesel fuel.

AVAQMD Rule 405 Solid Particulate Matter -Weight

A person shall not discharge into the atmosphere from any source operation, particulate matter in excess of the weight limits shown in the rule. The particulate matter emissions limits are based on process weight. Process weight is defined as the weight of materials introduced into a specific process. The definition for process weight in AVAQMD Rule 102 Definition of Terms states liquid gaseous fuels and air are not to be considered as part of the process weight. This rule is typically applied to processes that handle bulk dry materials, and is not generally applied to combustion processes, as there is not “process weight” on which to base the emissions limit. Therefore, this rule does not apply to this facility.

AVAQMD Rule 407 Liquid and Gaseous Contaminants

A person shall not discharge into the atmosphere from any equipment: 1) CO exceeding 2,000 ppm by volume measured on a dry basis, averaged over 15 consecutive minutes; or 2) sulfur compounds which would exist as liquid or gas at standard conditions calculated as SO_2 and averaged over 15 consecutive minutes, exceeding 500 ppm by volume. The use of pipeline quality natural gas fuel and good combustion practice for the combustion turbines, duct burners, and auxiliary boiler would ensure compliance with this rule. CO emissions from the combustion turbines would meet the BACT requirement of 2.0 ppm, and the auxiliary boiler would meet the emission limit of 50 ppm. The total sulfur concentration from pipeline quality natural gas is less than 17 ppmv. Stationary internal combustion engines are exempt from this rule.

AVAQMD Rule 408 Circumvention

This rule prohibits hidden or secondary rule violations. The proposed project is not expected to violate Rule 408.

AVAQMD Rule 409 Combustion Contaminants

A person shall not discharge into the atmosphere from the burning of fuel, combustion contaminants exceeding 0.1 grain per cubic foot of gas calculated to 12 percent of CO_2

at standard conditions averaged over a minimum of 15 consecutive minutes. The use of pipeline natural gas fuel for the duct burners, auxiliary boiler ensures compliance with this rule. This rule does not apply to emissions from internal combustion engines, such as the combustion turbines, fire water pump or emergency generator engines.

AVAQMD Rule 429 Start-Up and Shutdown Provisions for Oxides of Nitrogen

The purpose of this rule is to limit startup and shutdown times with respect to NOx emissions. The rule provides an exemption for the turbines and boiler from Rule 1134 and 1146 NOx limits during scheduled shutdowns and scheduled start-ups following scheduled shutdowns. Rule 429 limits the time intervals from start-up and shutdown events and includes recordkeeping provisions.

AVAQMD Rule 430 Breakdown Provisions

The owner or operator shall notify the AVAQMD of any occurrence which constitutes a breakdown condition. The owner or operator shall demonstrate the nature and extent of the breakdown by providing to the AVAQMD signed contemporaneous operating logs and/or other relevant evidence which shows that:

The breakdown occurred and that the owner/operator can identify the cause of the breakdown; and the equipment was, at the time of the breakdown, being properly operated; and during the period of the breakdown, the owner/operator took all reasonable steps to minimize levels of emissions and to correct the condition that lead to the breakdown.

Such relevant evidence shall be submitted to the AVAQMD within 60 days of the date the breakdown was reported to the AVAQMD. The PEP would be required to make such notifications and reports, as may become necessary.

AVAQMD Rule 431.1 and 431.2, Sulfur Content of Gaseous Fuels, and Sulfur Content of Liquid Fuels

These rules limit the sulfur content in gaseous and liquid fuels. Rule 431.2 restricts the use of liquid fuels with a sulfur content greater than 0.05 percent by weight. The maximum allowable sulfur content in CARB diesel fuel is 0.0015 percent. The sole use of CARB diesel and pipeline-quality natural gas would keep the proposed PEP in compliance.

AVAQMD Rule 475 Electric Power Generating Equipment

A person shall not discharge into the atmosphere from any equipment having a maximum rating of more than 10 net MW used to produce electric power, combustion contaminants that exceed both 11lbs per hour and 0.01 gr per scf calculated at 3 percent O_2 on a dry basis averaged over 15 consecutive minutes or any other averaging time specified by the AVAQMD.

The emission rate of combustion contaminants (i.e., PM10, as defined in AVAQMD Rule 102) exceeds eleven pounds per hour from each combustion turbine with duct burning. The expected stack concentration is calculated to be below the 0.01 gr per dry standard

cubic feet (dscf) limit[2] at full fire with the duct burners on. Therefore the project is expected to comply with this rule.

AVAQMD Rule 476 Steam Generating Equipment

This rule applies to equipment with a heat input of at least 50 MMBtu per hour used to produce steam. The rule limits NOx emissions to 125 ppm and combustion contaminants to 0.01 gr per scf calculated at 3 percent O_2 on a dry basis averaged over 15 consecutive minutes. The auxiliary boiler proposed for this Project is rated at 110 MMBtu per hour. The proposed project would have specific permit conditions requiring compliance with these provisions.

Regulation IX Standards of Performance for New Stationary Sources

AVAQMD Rule 900 Standards of Performance for New Stationary Sources (NSPS)

Regulation IX includes by reference the following NSPS:

- Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units (40 CFR 60 Subpart Db),
- Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (40 CFR 60 Subpart IIII),
- Standards of Performance for Stationary Combustion Turbines (40 CFR 60 Subpart KKKK), and
- Standards of Performance for Greenhouse Gas Emissions For Electric Generating Units (40 CFR Subpart TTTT).

See the Federal Section for the specific analysis on each NSPS listed above.

Regulation X National Emission Standards for Hazardous Air Pollutants

AVAQMD Rule 1000 National Emission Standards for Hazardous Air Pollutants (NESHAP)

The proposed PEP will not be a major source of hazardous air pollutants (HAPs), and therefore the standards listed in Rule 1000 are not applicable.

Regulation XI Source Specific Standards

AVAQMD Rule 1113 Architectural Coatings

The purpose of this rule is to limit VOC emissions from architectural coatings. This rule specifies architectural coatings, storage, cleanup and labeling requirements. With limited exceptions, no person shall: 1) manufacture, blend or repackage for sale within the AVAQMD; 2) supply, sell or offer for sale within the AVAQMD; or 3) solicit for application or apply within the AVAQMD any architectural coating with a VOC content in

[2] No calculations of compliance were included in the PDOC or FDOC. Staff calculations approximate the stack concentration to be 0.002 gr/dscf at 3 percent O_2 at worst case conditions (case 2).

excess of the corresponding limit specified in the Table 1 of the rule. The proposed PEP would be required to comply with the requirements of this rule if architectural coatings are applied at the project during construction or subsequent maintenance activities.

AVAQMD Rule 1134 Emissions of Oxides of Nitrogen from Stationary Gas Turbines

The purpose of this rule is to limit NOx and CO from stationary gas turbines. The rule establishes RACT standards of 5 ppm NOx and 200 ppm CO at 15 percent O_2 for the turbines. The proposed BACT limits for the CTGS are below the established RACT standards in Rule 1134. This rule also established monitoring and recordkeeping requirements. The proposed PEP will be required to operate continuous monitoring systems for the gas turbines. Permit conditions will be including requiring compliance with these conditions.

AVAQMD Rule 1135 Emissions of Oxides of Nitrogen from Electric Power Generating Systems

This rule is applicable only to units existing on July 19, 1991, which are owned or operated by any one of the following: Southern California Edison, Los Angeles Department of Water and Power, City of Burbank, City of Glendale, and City of Pasadena, or any of their successors. The PEP will be constructed after 1991 and is not owned by any entity listed in the rule; therefore, this rule is not applicable to the PEP.

AVAQMD Rule 1146 Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters

This rule applies to boilers, steam generators, and process heaters of equal to or greater than 5 MMBtu per hour rated heat input capacity used in any industrial, institutional, or commercial operations with the exception of boilers used by electric utilities to generate electricity. The AVAQMD concluded the rule specifically exempts the proposed 110 MMBtu per hour auxiliary boiler.

AVAQMD Rule 1171 Solvent Cleaning Operations

This rule applies to all persons who use VOC-containing materials in solvent cleaning operations during the production, repair, maintenance, or servicing of parts, products, tools, machinery, equipment, or general work areas, and to all persons who store and dispose of VOC-containing materials used in solvent cleaning. The Project would be required to comply with the requirements of this rule if solvent cleaning occurs at the facility during construction or subsequent maintenance activities during operation.

Regulation XIII New Source Review

AVAQMD Rule 1300 General

This rule ensures that PSD requirements apply to all projects. The proposed project owner has submitted an application to the U.S. EPA for a PSD permit.

AVAQMD Rule 1302 Procedures

This rule is applicable all new or modified facilities and establishes procedures for analysis. Rule 1302 requires certification of compliance with the Federal Clean Air Act,

applicable to implementation plans, and all applicable AVAQMD rules and regulations. The Authority to Construct (ATC) application package generally includes sufficient documentation to comply with Rule 1302(D)(5)(b)(iii). Permit conditions for the proposed PEP would require compliance with Rule 1302.

AVAQMD Rule 1303 Requirements

This rule establishes both BACT and offset requirements. BACT is required for new or modified facilities which emit or have the potential to emit 25 pounds per day or more of any nonattainment air pollutant. The AVAQMD performed a complete BACT/ LAER) analysis for the proposed PEP in the PDOC and FDOC.

BACT

The BACT definition in AVAQMD Rule 1301 is similar to the definition of LAER under the federal nonattainment NSR regulations. BACT under AVAQMD rules and regulations is more stringent than the federal requirements for the use of BACT for attainment pollutants under the PSD regulations. Therefore BACT under AVAQMD rules is referred to as LAER.

The proposed project site is classified as state nonattainment for ozone and PM10 and federal nonattainment for ozone. Based on the maximum emissions calculated for the facility each emission unit would be subject to BACT/LAER. The AVAQMD reviewed the proposed BACT for the facility operations and found that it would meet AVAQMD requirements. The proposed BACT is included in **Air Quality Table 29**.

Air Quality Table 29
AVAQMD BACT Requirements

Pollutant	Proposed BACT Emission Level	Proposed BACT System
Turbine		
NOx	2.0 ppm	DLN combustor with SCR
CO	2.0 ppm	Oxidation Catalyst
VOC	2.0 ppm with Duct Burner 1 ppm without Duct Burner	Oxidation Catalyst
SOx	0.20 gr S/100scf	Natural Gas
PM10/2.5	11.8 lbs/hr	Natural Gas
NH_3	5.0 ppm	NH3 Reagent/SCR systems
Auxiliary Boiler		
NOx	9.0 ppm	ULNB/FGR/GCPs
CO	50 ppm	Natural Gas/GCPs
VOC	0.005 lb/MMBtu/15ppm	Natural Gas/GCPs
SOx	0.20 gr S/100 scf	Natural Gas
PM10/2.5	0.007 lb/MMbtu	Natural Gas/GCPs

Source: PHPP 2015c Table 4.1-17
DLN = dry low NOx
ULNB = ultra-low NOx burner
FGR = Flue gas recirculation
GCPs= Good combustion practices

The AVAQMD extended the BACT review to transient operations for the turbine such as startup and shutdown events. Transient operations were not evaluated for the auxiliary

boiler because mass emissions form the boiler operation during transient events would be less than the emission rates during full capacity operation.

The AVAQMD reviewed the BACT/LAER proposed for the combustion turbines and determined LAER during startup and shutdown conditions, summarized in **Air Quality Table 30**.

Air Quality Table 30
LAER Turbine Startup and Shutdown Events

Event	Pounds (lbs)/Event (per turbine)		
	NOx	CO	VOC
Hot Startup	44	305	28
Warm Startup	47	378	28
Cold Startup	52	416	31
Shutdown	33	76	20

Source: PHPP 2016c

BACT/LAER for PM10 and SO_2 during startup and shutdown events is not included because emissions rated for these pollutants are based on fuel use and are not impacted by transient operations. BACT/LAER for PM10 and SO_2 would continue to be the use of natural gas with a sulfur content up to 0.2 grains per 100 dscf on an annual average.

BACT for the proposed emergency engines would be conformance with CARB ATCM standards and use of CARB ultra-low diesel fuel. The fire pump emergency engine would be required to meet Tier 3 emission standards and the emergency engine would be required to meet Tier 2 emission standards.

Offsets

Rule 1303 requires any new or modified AVAQMD major facility to offset emissions. Offsets for nonattainment pollutants are required based on the potential to emit over the specified offset threshold. Per Rule 1303, emissions of PM10, NOx, and VOC exceed the applicable thresholds and offsets would be required. The amount, type and eligibility of such offsets were determined pursuant to the provisions of AVAQMD Rules 1304 and 1305.

AVAQMD Rule 1304 Emissions Calculations

The purpose of Rule 1304 is to provide the procedures and formulas to calculate emission increases and decreases for new of modified facilities. These are used to determine the applicability of Rule 1303, determine the Potential to Emit for new or modified emission units and calculate emission decreases used to determine ERCs pursuant to the provisions of AVAQMD Rule 1309.

AVAQMD Rule 1305 Emissions Offsets

The purpose of Rule 1305 is to provide the procedures and formulas to determine the eligibility of, calculate the amount of, and determine the use of offsets required pursuant to the provisions of AVAQMD Rule 1303. Rule 1305 includes procedures for the use of inter-district and inter-basin offsets. Rule 1305 includes provisions requiring that if inter-

basin and inter-district offsets are used they must be approved the APCO. The approval and would need to be made in consultation with the ARB and U.S. EPA on a case-by-case basis.

AVAQMD Rule 1306 Electric Energy Generating Facilities

The AVAQMD considered the revised PTA to be equivalent to an application pursuant to AVAQMD Rule 1302(B) during the Determination of Compliance review, and applied all applicable provisions of AVAQMD Rule 1302 to the application. The proposed project will not receive an ATC without the Energy Commission's approval of the revised PTA.

AVAQMD Rule 1309 Emissions Reduction Credit

The purpose of Rule 1309 is to implement the provisions of Division 26, Part 3, Chapter 6 of the H&SC requiring the establishment of a system by which all reductions in the emission of air contaminants (which are to be used to offset certain future increases in emissions) shall be banked prior to use to offset increases in emissions. This rule applies to the banking and use of all ERCs within the AVAQMD. The proposed offset package includes the generation of PM10 ERCs from road paving activities. The ERCs would have to be banked prior to use according to Rule 1309 and the revised Paved ERC Data Collection Protocol. The revised Paved ERC Data Collection Protocol was approved by the AVAQMD on May 16, 2016 and is included as Air Quality Appendix Air-2.

AVAQMD Rule 1310 Federal Major Facilities and Federal Major Modifications

The provisions of this Rule apply to: Any Federal Major Modification; Any Presumptive Federal Major Modification; or Any Federal Major Facility which requests a Plant Wide Applicability Limit pursuant to the rule.

The PEP is a new source, not a modification, and does not plan to request a Plant Wide Applicability Limit. Thus, this rule is not applicable.

Regulation XIV Toxics and Other Non-Criteria Pollutants

AVAQMD Rule 1401 New Source Review for Toxic Air Contaminants

The AVAQMD shall analyze the application and Comprehensive Emission Inventory Report for the emission units, determine what rules are applicable, calculate prioritization scores for carcinogenic effects, non-carcinogenic acute and chronic effects, require the preparation of a Health Risk Assessment (HRA), if needed, and then analyze the HRA to calculate the risk to the exposed population. Requirements for the installation of Best Available Control Technology for Toxics can be imposed if the calculated risk exceeds the standards in the rule. If the calculated risk is considered significant, the permit will be denied. Compliance with Rule 1401 and a HRA are provided in the Public Health section of this Final Staff Assessment (FSA).

Regulation XVII Prevention of Significant Deterioration

Regulation XVII would implement the federal PSD program, upon delegation by the U.S. EPA to the local air district. Because delegation has not occurred, the PSD permit for

PEP will be processed by the U.S. EPA and not the local air district under Regulation XVII. The project owner has submitted a PSD application to the U.S. EPA.

Regulation XXX Federal Operating Permit

Regulation XXX contains requirements for sources which must have a federal operating permit and an acid rain permit. The proposed project will be required to submit applications for a federal operating permit and an acid rain permit. The federal operating permit application is required to be submitted within one year after the PEP commences operation. An acid rain permit application is required by 40 CFR Part 72 to be submitted at least 24 months prior to the date when the affected unit commences commercial operation.

RESPONSE TO PSA COMMENTS

Please note that responses to comments on the GHG assessment would normally be included in the Air Quality Appendix Air-1 for GHG emissions. However, no comments were received regarding the GHG assessment.

PROJECT OWNER COMMENTS

PALMDALE ENERGY LLC'S FINAL COMENTS ON THE PRELIMINARY STAFF ASSESSMENT, DATED APRIL 27, 2016, (PHPP 2016KK)

Comment 1:

Pages 4.1-56 through 4.1-57, Offset Package. Staff quoted the U.S. EPA comment letter on the AVAQMD PDOC. The comments largely reflected the fact that the proposed offset package was submitted under confidentiality and the U.S. EPA could not complete the review. Since the comments were filed Palmdale energy, LLC has worked with the AVAQMD and U.S. EPA to provide a detailed analysis of the proposed offsets proposed for use for the PEP.

The SIP approved version of the offset rule is Rule 1309 and only requires approval from both the upwind and downwind Governing Board.

Response to Comment:

The proposed offset package and subsequent review was modified since this comment was submitted. The offset package was resubmitted by the project owner without confidential cover. In addition, the offset package was revised by the project owner to ensure adequate information was provided for the AVAQMD, U.S. EPA and staff to review. Additional changes to the proposed offset package were made in response to the U.S. EPA comments on the AVAQMD PDOC and revised PDOC. The AVAQMD revised PDOC, FDOC and revised FDOC included a review of the offset package per applicable AVAQMD Rules and Regulations. The FDOC and revised FDOC were submitted to the U.S. EPA and ARB for review. No additional comments have been received from the U.S. EPA or ARB.

Comment 2:

Pages 4.1-57 through 4.1-58, Offset Ratios. In its PSA, staff reiterates USEPA comments on the PDOC relating to the offset ratios. Palmdale Energy, LLC is not proposing any different offset ratios for the PEP than those that were adopted in the Final Decision for the Approved Project. The use of ERCs from the SJVAPCD to mitigate the facility NOx and VOC emissions contribution to existing violations of ozone air quality standards would comply with LORS.

On December 17, 2013, the AVAQMD adopted a resolution to approve the transfer of certain offsets credited and registered within the MDAQMD and the SJVAPCD to the AVAQMD for potential use as offsetting emissions reductions. The approved ERCs include 150 tons of NOx from the MDAQMD and 60 tons of VOCs from the SJVAPCD.

For any ERCs proposed for acquisition from the SJVAPCD, PEP will provide information covering sufficient emission reductions are in good standing in the SJVAPCD emission reduction credit registry. This information is provided under a separate confidential submittal.

The AVAQMD will independently verify that the issuance of emission reduction credits by SJVAPCD meets USEPA criteria of being real, quantifiable, permanent, surplus and enforceable. The above noted mitigation strategies were approved for implementation on the previously proposed project, and they are again, proposed for implementation on the current project.

To clarify, Palmdale Energy, LLC is no longer proposing the use of inter-pollutant offsets. Palmdale Energy, LLC and Staff had discussions at the PSA Workshop relating to the offset ratios, and staff explained that it wanted to modify the previously approved condition and distance based offset ratios through modification of AQ-SC18. Palmdale Energy, LLC does not agree that there has been any change in circumstances or changes in LORS that would authorize Staff to modify the mitigation approved in the Final Decision. However, in an attempt to compromise with staff, Palmdale Energy, LLC will agree to an offset ratio of 1.5 to one for all ERCs obtained within SJVAPCD regardless of the distance from AVAQMD's western boundary, provided that staff does not modify the approved offset ratio of 1.3 to one for all other ERCs if obtained within the MDAB.

Response to Comment:

The proposed offset package and subsequent review was modified since this comment was submitted. The offset package was resubmitted by the project owner without confidential cover. In addition, the offset package was revised by the project owner to ensure adequate information was provided for the AVAQMD, U.S. EPA, and staff to review. Additional changes to the proposed offset package were made in response to the U.S. EPA comments on the AVAQMD PDOC and revised PDOC. The AVAQMD revised PDOC, FDOC and revised FDOC included a review of the offset package per applicable AVAQMD Rules and Regulations. The FDOC and revised FDOC were submitted to the U.S. EPA and ARB for review. No additional comments have been received from the U.S. EPA or ARB. The proposed ERC package included specific ERC certificates proposed for use. The package included only inter-basin ERC certificates

from the southern portion of the SJVAPCD. The ratio proposed for inter-basin transfers for VOC ERCs from the southern portion of the SJVAPCD is 1.5 to 1. Staff is not proposing to change to the 1.3 to 1 ratio proposed for the inter-district transfer of NOx credits from the MDAB.

Comment 3:

Pages 4.1-58 through 4.1-59, Inter-Basin Transfers. Staff identified a concern in the PSA relating to the ability of offsets from SJVAPCD to qualify for transfer to the AVAQMD for offsetting the PEP. The proposed VOC ERCs to be transferred from SJVAPCD to the AVAQMD for use as project mitigation have been clearly analyzed by the SJVAPCD as real, quantifiable, permanent, enforceable, and surplus. As stated earlier, a detailed listing of the proposed VOC ERCs from the SJVAPCD is provided. These proposed VOC ERCs have already been RACT adjusted pursuant to SJVAPCD rules. In addition, the proposed transfer has been approved by both districts pursuant to current district rules. The AVAQMD approval took into account the requirements imposed on transport couplets in the relevant sections of the H&SC. Furthermore, if the VOCs are transferred to the AVAQMD for project application as mitigation, these ERCs would be permanently removed from the SJVAPCD and would no longer be available for credit against future VOC emissions increases in the SJVAPCD. The SIP equivalency issue within the SJVAPCD only impacts NOx ERCs, and is not associated with the VOC ERCs that have been banked. The Applicant is NOT proposing to use or transfer NOx ERCs from the SJVAPCD to the AVAQMD for use as project mitigation. Therefore, NOx equivalency under NSR is not impacted.

Response to Comment:

The proposed offset package and subsequent review was modified since this comment was submitted. The offset package was resubmitted by the project owner. The project owner is not proposing any inter-basin transfers of NOx offsets. The proposed ERCs were reviewed by the AVAQMD. A determination was made that one of the proposed VOC certificates would require a RACT adjustment. The AVAQMD included the RACT review and preliminary analysis in the FDOC.

Comment 4:

Page 4.1-59-4.1-60, Inter-pollutant Offsets. To clarify and alleviate staff's and U.S. EPA's concern, no inter-pollutant offsets will be proposed for use for the PEP.

Response to Comment: The proposed offset package and subsequent review was modified since this comment was submitted. The offset package was resubmitted by the project owner, and inter-pollutant offsets for federally enforceable offset requirements are no longer being proposed.

Comment 5:

Page 4.1-88, **AQ-SC3**. Staff modified Item C of Condition of Certification **AQ-SC3** to reduce the speed limit on unpaved roads from 10 mph to 5 mph. This may have been based on an error in the Revised Petition To Amend. However, since there is no new impact associated with fugitive dust to justify a change to the mitigation, Palmdale

Energy, LLC requests the modification be deleted. Staff agreed to delete the modification at the PSA Workshop.

Response to Comment:

The project owner originally proposed reducing the allowable on-site vehicle speeds from 10 to 5 mph in Air Quality Staff Condition **AQ-SC3**. The assumed vehicle speeds for construction equipment in the construction emission worksheets are generally below 5 mph. U.S. EPA methodologies used to calculate fugitive emissions can be over predictive for vehicles traveling at lower speeds. In addition, the project owner would be required have a fugitive dust plan requiring mitigation such as watering to control fugitive emissions. The watering is expected to control potential fugitive emissions from construction vehicles. In addition, the construction equipment is not expected to frequently move at speeds greater than 5 mph. During the Preliminary Staff Assessment Workshop on April 20, 2016, the project owner retracted this request. Staff agreed to not recommending a change to the allowable on-site vehicle speed.

Comment 6:

Page 4.1-90 and 91, **AQ-SC5**. Staff has modified Condition of Certification AQ-SC5 to require the use of Tier 4 equipment instead of Tier 3 equipment. Palmdale Energy, LLC has concerns that the requirement to use Tier 4 or 4i engines is excessively aggressive in light of the potential situation that the current equipment population in the project area may not reflect a significant amount of equipment types and sizes that actually meet or are certified as Tier 4 or 4i. This requirement could cause them significant economic impacts in the areas of hiring construction contractors who may or may not have Tier 4 or 4i equipment, thus requiring rental of Tier 4 or 4i from outlets well outside the project region and incurring significant costs to transport them to the site. At the PSA Workshop staff explained that they were currently working with projects under construction (Pio Pico and Carlsbad) where the project owner was not having difficulty finding Tier 4 equipment. Staff explained that the process is not burdensome, and only required reporting the good faith effort in monthly compliance report. Furthermore, staff explained that the process does not require burdensome paperwork seeking approval of every piece of equipment that does not meet Tier 4 requirements prior to its use. With that understanding, Palmdale Energy, LLC agreed to withdraw its objection to Condition of Certification **AQ-SC5**.

Response to Comment:

Comment noted. Staff continues to recommend the modification of Condition of Certification **AQ-SC5**. This condition as currently proposed, provides a reasonably straightforward process for using lower tier engines when cleaner engines are not available.

Comment 7:

Page 4.1-96, **AQ-SC10**. Palmdale Energy, LLC requests the NOx emission limit for commissioning be increased from 250 pounds per hour to 254 pounds per hour to reflect the updated commissioning modeling analysis, which shows that there are no

significant impacts with an emission rate of 254 pounds per hour. Staff agreed to the modification at the PSA Workshop.

Response to Comment:

AQ-SC10 has been updated to reflect the proposed change.

Comment 8:

Page 4.1-96, **AQ-SC18**. Palmdale Energy, LLC requests no modification be made to the distance offset ratios. At the PSA Workshop, staff relied on other Districts rules that it suggested were implemented to encourage the use of offsets that are closer to the project. First, the PEP is located within the MDAB. The MDAB is regulated by the AVAQMD and the MDAQMD, which are divided by political, and not geographical, boundaries. Both of these districts' rules specify that the maximum offset ratio of 1.3 for NOx and VOCs in federal nonattainment areas be used for any ERC derived anywhere within the MDAB. Further, each district acknowledges the other's rules which specify the 1.3 offset ratio for any ERC derived from either district. Therefore, Palmdale Energy, LLC requests staff rely on the AVAQMD rules that govern the PEP site, and not on other Districts' rules.

Response to Comment:

Staff was considering an adjustment to the offset ratio proposed for inter-district NOx offsets from the MDAQMD. The review was based on the large distances between the proposed offset source and the proposed PEP site. Staff conducted a review and did not find specific studies conducted in either the MDAQMD or AVAQMD to support a change in the ratio. Staff recommends an offset ration of 1.3 to 1 for inter-district offsets from MDAQMD. In addition, staff continues to support the use of offsets originating as close to the proposed facility as feasible.

PUBLIC COMMENTS

MARTIN FAMILY COMMENTS ON 08-AFC-9C, DATED APRIL 12, 2016 (PUB 2016A)

Comment 1:

We do not need any more pollution floating around the Antelope Valley. This proposed power plant is not needed. Especially since it will be close to schools where children are outside running and playing breathing in those fumes that will be emitted. Also there are many homes within walking distance. It will be another Porter Ranch debacle where people are ill from gas emissions, homes penetrated with gas fumes and serving no need. Automobiles require smog checks regularly and this company wishes to put more gas emissions to pollute our air -_there is no justice to this insane project? Stop it now.

Response to Comment:

The project would be required to provide mitigation in sufficient quantities to reduce the potential impacts of the proposed project to less than significant. Mitigation would need to be provided in the form of ERCs or other forms of mitigation to fully mitigate

emissions of all nonattainment pollutants and their precursors. The analysis provides emissions from the construction, commissioning, and operational phases of the proposed project. **Air Quality Table 11** includes a comparison the proposed emissions from the PEP to the potential emissions from the approved PHPP. These are maximum levels of potential emissions. The project would be required to operate in compliance with these limits.

JAMES BROCKWAY COMMENTS ON PALMDALE ENERGY PROJECT PRELIMINARY STAFF ASSESSMENT, DATED APRIL 27, 2016, (PHPP 2016Y)

Comment 1:

The distance of my home is about 3 miles northeast from proposed location of PEP. The prevailing winds are from the southwest to northeast at the average of 13 MPH (annual average). I am concerned about the health impact and air quality. I am currently on medical oxygen for treatment of Pulmonary Fibrosis. The emission will cover the area where I reside. My concern is what will be the min and max level of emissions and impacts on air quality (PHPP 2016y).

Response to Comment:

The potential emissions from the proposed projects have been quantified and are included in the **Air Quality Analysis**. The analysis provides emissions from the construction, commissioning, and operational phases of the proposed project. **Air Quality Table 11** includes a comparison the proposed emissions from the PEP to the potential emissions from the approved PHPP. These are maximum levels of emissions. The project would be required to operate in compliance with these limits. The project owner was also required to provide an impact analysis. This analysis was used to demonstrate the project would be in compliance with all AAQS. The impact analysis results indicated the project had the potential to exceed the 24 hour and annual AAQS for PM10. Air monitors in the region, indicate the ambient background level of PM10 is already above the standard regardless of the projects contribution. The project would be required to mitigate all potential impacts to levels considered less than significant. The proposed conditions of certification would ensure the project operates in compliance with all LORS.

CENTER FOR BIOLOGICAL DIVERSITY COMMENTS ON PRELIMINARY STAFF ASSESSMENT, DATED APRIL 25, 2016, (PHPP 2016AA)

Following is staff's response to comments on air quality. Please see other sections for additional response to these comments.

Comment 1:

Environmental Justice is Not Addressed. There major environmental justice concern – air quality impacts- are not addressed in any fashion. The only analysis regarding air quality is as follows: "Staff is continuing the development of CEQA mitigation measures to ensure the proposed Air Quality Conditions of Certification would include suitable

mitigation to reduce the PEP's direct and cumulative Air Quality impacts to a less than significant level, including impacts to the environmental justice population. Therefore, there would be no Air Quality environmental justice issues related to the PEP and no minority or low income populations would be significantly or adversely impacted." (PSA at p. 4.1-69.)

At the same time, in reference to pollutants including ozone and PM10 those known to be highly hazardous to human health especially for those in vulnerable populations, the PSA concludes: "Currently, the proposed emission controls and emission levels, along with the project owner proposed and staff recommended emission offset package, has not demonstrated the project would be fully mitigated to impacts to less than significant as required by CEQA." (PSA at p. 4.1-63.)

Clearly, a genuine analysis of the health impacts on environmental justice communities has not been completed and the PSA should be redrafted once this has been accomplished.

Response to Comment:

The PSA noted several deficiencies at the time it was published based on an in-depth air quality analysis performed by staff on the application to amend the PHPP and the PDOC published by the AVAQMD. The PDOC and PSA were both preliminary documents. The purpose is to provide a public forum to present preliminary findings and potential deficiencies prior to the publication of final documents. Environmental justice was addressed in the PSA (PSA page 4.1-69). Staff noted proposed mitigation at the time of the PSA had potential inadequacies as did the U.S. EPA. Therefore, staff held a public workshop to address the potential deficiencies. The project owner, AVAQMD, U.S. EPA and staff continued to develop a revised offset package that would ensure compliance with all LORS. The project owner provided additional information on the proposed offset without confidential cover. A revised PDOC was submitted by the AVAQMD on May 12, 2016. The U.S. EPA provided additional comments on the revised PDOC. The AVAQMD addressed these comments in the FDOC and revised FDOC.

Energy Commission staff's analysis has been performed in conformity with federal environmental justice guidelines and is consistent with the principles underlying environmental justice. The issue of environmental justice was thoroughly addressed in the original AFC proceeding, and the Energy Commission found in its Final Decision 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." Staff have found no change in circumstances, nor has CBD alleged any change in circumstances, to the previously identified environmental justice population or in the potential adverse impacts to that population. Moreover, all potential adverse impacts would be fully mitigated through implementation of the recommended Conditions of Certification. The project, as modified, will not cause or contribute to disproportionate socioeconomic impacts upon minority or low income groups

Comment 2:

The Issuance of the PSA at this time is premature and it thus fails to provide the public needed information. The Center appreciates that the staff had indicated that the

AVAQMD needs to issue a new PDOC in line with the EPA's comments regarding the complete insufficiency of the proposed PDOC and agreed with the staff conclusion that "Staff has determined that additional information is needed to determine if adequate offsets are available to mitigate the PEP after the proposed offset is adjusted. Currently, the proposed emission controls and emission levels, along with the project owner proposed and staff recommended emission offset package, has not demonstrated the project would be fully mitigated to impacts to less than significant as required by CEQA." (PSA at p. 4.1-63.)

At the same time, the staff concludes, "Staff agrees with the majority of the District proposed District Permit Conditions to be included in the Air Quality Conditions of Certification but recommends some additional clarification and language changes." (PSA 4.1-54)

Given the staff's acknowledgment that the PDOC needs to be reissued, despite its unexplained statement that it also apparently concurs with "the majority" of the PDOC, issuance of the PSA at this time is premature. Since there is not currently a PDOC that complies with the law, the staff cannot and has not offered accurate or adequate information as to air quality impact of this project as this is reliance upon AVAQMD analysis and PDOC conditions. Because this is bigger plant with 23% more capacity and now entirely gas fired there is no question that there will be drastically greater air quality impacts and the PSA documents an unsettling increase in emission:

"When considering the potential secondary formation of particulate matter and ozone, mitigation for emissions of PM10, SOx, NOx, and VOC would be appropriate for reducing project impacts." (PSA at p. 4-1.43)

"Staff recommends mitigation for construction emissions of PM10, SOx, NOx, and VOC would be appropriate for reducing impacts to PM10 and ozone precursors." (PSA at p. 4-1.35)

"The PEP would result in an increase in annual emissions of NOx, VOCs, SOx, and CO over the approved PHPP project." (PSA at p. 4-1.21)

The PSA, therefore, provides insufficient and inadequate information or analysis as to the potentially greatest environmental impact of this project and should be redrafted after an updated PDOC is issued so that the public is not deprived of its opportunity to comment on the documented air quality impacts and permit conditions.

Response to Comment:

The PSA noted several deficiencies at the time of publication based on an in depth air quality analysis performed by staff on the application to amend the PHPP and the PDOC published by the AVAQMD. The PDOC and PSA were both preliminary documents. The purpose of these documents is to provide a public forum to present preliminary findings and potential deficiencies prior to the publication of final documents. Staff indicated in the PSA that the offset determination needed additional information to determine if adequate offsets are available to mitigate the PEP after the proposed offset is adjusted. In addition, staff stated it agrees with the majority of the AVAQMD proposed AVAQMD Permit Conditions to be included in the Air Quality Conditions of Certification

but recommends some additional clarification and language changes. The two statements are not contradictory. Staff agreed with AVAQMD that project offsets would be required. The details of the offset package review were included in the AVAQMD analysis. Staff noted deficiencies in the offset package. However, staff agreed with the majority of the 68 proposed permit conditions in the PDOC regarding operation, monitoring, recordkeeping, etc. which would be included in staff's final recommendation. The AVAQMD has addressed comments on the proposed offset package in the FDOC and revised FDOC.

In addition staff provided a detailed assessment of the proposed air quality impacts of this project. Please review the construction impacts and mitigation, operational impacts and mitigation, commissioning impacts, and cumulative impacts sections of the PSA and FSA. The impacts analysis is based on modeling that is separate from the AVAQMD revised FDOC.

The PSA included an assessment of the potential emissions from the construction, commissioning, and operation of the proposed PEP. These potential emissions were compared to the approved potential emissions from PHPP. Since the PHPP was never constructed, there is no baseline of actual emissions. An analysis is in the FSA to determine if the proposed changes would comply with federal, state, and local LORS.

The AVAQMD PDOC was published on February 3, 2016 and noticed for public review. The PSA also had a public review period. Staff held a public workshop to discuss the PSA and any comments received. The AVAQMD submitted a revised PDOC on May 12, 2016. The revised PDOC was noticed for public review. No public comments were received. The U.S. EPA provided additional comments on the revised PDOC. The AVAQMD addressed these comments in the revised FDOC. Staff has reviewed all the documents and comments and has completed the development of mitigation for recommendation to the committee in the FSA. These documents are available to the public for review.

CONCLUSIONS AND RECOMMENDATIONS

The existing conditions of certification from the PHPP Decision need to be updated before they can be considered sufficient to mitigate the potential impacts of the modified project. These proposed project changes constitute considerable changes in facts and circumstances from the previous Energy Commission Decision requiring a comprehensive analysis of the project and air quality impacts.

Staff is proposing to update the conditions of certification approved for PHPP to reflect current and appropriate requirements for the PEP. Due to the change in timing of the construction of the proposed project, potential emissions were updated to reflect the availability and requirements for the use of cleaner equipment. The conditions of certification therefore need to be updated to ensure this equipment is used for the PEP. Staff reviewed the staff recommended Conditions of Certification (identified as the **AQ-SCXX** series) and is proposing appropriate changes to reflect the emission updates.

In addition, staff is proposing to delete several conditions that were included to address the solar component of the PHPP. The solar component of the PHPP included

additional construction and ongoing operational maintenance. Since the solar component is no longer proposed the conditions designed to mitigate the solar component of the project are no longer necessary. Staff recommends deleting **AQ-SC6** through **AQ-SC16**.

Staff is proposing additional language in the conditions of certification to clarify reporting and monitoring requirements during the construction and commissioning periods. The additional language proposed in **AQ-SC2** provides detail on the monthly compliance reports that would be required to demonstrate compliance with the staff recommended conditions of certification. **AQ-SC6** would be a new condition that clarifies the reporting requirements during operation. Staff is proposing to revise former conditions **AQ-SC18** and **AQ-SC19** for the PHPP based on comments from the U.S. EPA and staff analysis in order for the proposed PEP to comply with applicable LORS. The proposed language for these conditions is based on additional determinations to ensure federal and state compliance with the proposed offset package. The changes provide the public the opportunity to comment on the proposed mitigation package for the PEP. These conditions are being proposed as **AQ-SC8** and **AQ-SC9**

Staff is also proposing the addition of an administrative **AQ-SC11**. This condition would allow the CPM to make insignificant changes to the Air Quality Conditions of Certification when appropriate. Condition of Certification **AQ-SC11** establishes appropriate guidelines on what would be considered a significant change. This condition is compatible with many air district rules and regulations which already have established mechanisms approved by ARB and U.S. EPA to make minor changes that do not involve significant change to existing monitoring, reporting or recordkeeping requirement or require a case by case determination of any emission limitation. This would allow the CPM to approve administrative changes (such as typographical errors, facility name or owner) and other minor changes. The condition requires the project owner to apply for the change and the CPM to approve the change before the change would become effective.

The AVAQMD provided 72 permit conditions to replace the existing AVAQMD permit conditions listed in the PHPP Decision. These updates are included in the Proposed Conditions of Certification Section. The AVAQMD revised PDOC submitted on August 24, 2016 stated the included conditions would ensure the PEP complied with all rules and regulations. The revised FDOC were sent to the U.S. EPA for review and no additional comments have been received. Staff has reviewed the conditions and is recommending the modification of the PHPP Air Quality Conditions of Certification to include a total of 83 permit conditions to ensure the modified project complies with LORS.

PROPOSED CONDITIONS OF CERTIFICATION

The conditions of certification for **Air Quality** are located in the Conditions of Certification Compendium at the back of this Final Staff Assessment

PALMDALE ENERGY PROJECT (08-AFC-9C)
Petition to Amend the Final Commission Decision
BIOLOGICAL RESOURCES

Testimony of Tia Mia Taylor and Eric Knight

SUMMARY OF CONCLUSIONS

The proposed changes to the Palmdale Hybrid Power Project (PHPP) would not create new significant impacts on biological resources and previously identified significant impacts would be reduced in severity. Therefore, staff concludes that supplementing the California Energy Commission Final Decision (Decision) (CEC 2011b) for the PHPP is not necessary in accordance with section 15162 of the CEQA Guidelines (Cal. Code Regs., tit. 14, § 15162). The Committee may rely upon the environmental analysis and conclusions of the Decision with regards to biological resources and does not need to re-analyze them.

Although supplementation is not necessary, changes to the conditions of certification in the PHPP Decision are needed as a result of eliminating the solar component of the licensed project. With this project change, the amount of compensatory habitat required as mitigation for previously-identified impacts to Swainson's hawk and Mohave ground squirrel habitats would be substantially reduced. Staff has updated Conditions of Certification **BIO-14**, **BIO-17**, and **BIO-20** to reflect the changes to the amounts of raven management fee, compensatory habitat, and financial security that would be required. In addition, elimination of the solar component would avoid previously identified impacts on avian species from collisions with the solar mirrors warranting deletion of Condition of Certification **BIO-24**. Staff considered the project owner's request to eliminate **BIO-25** and still recommends that **BIO-25** be retained as it appears in the Decision.

Staff concludes that with the implementation of Conditions of Certification **BIO-1** through **BIO-23** and **BIO-25**, the now re-named Palmdale Energy Project (PEP) would comply with all applicable laws, ordinances, regulations, and standards (LORS) and the effects on biological resources would be less than significant.

INTRODUCTION

Staff reviewed the PHPP Decision and the Revised Petition to Amend (PTA) (PHPP 2015c-2015j) to determine if the proposed project changes to the PHPP would cause new significant impacts on biological resources, or increase the severity of previously identified impacts, and whether the modified project would comply with LORS.

The proposed project modifications include the elimination of the solar components of the approved project, reduction of the project footprint from 333 acres to 50 acres, reduction of the construction laydown area from 50 to 20 acres, and an 1,800-foot long extension of the 230 kilovolt (kV) transmission line and three additional transmission line towers along East Avenue M near the project site.

SUMMARY OF THE COMMISSION DECISION

The Decision included 24 conditions of certification to mitigate impacts to biological resources, including impacts to native vegetation, special-status plants and wildlife and state waters, and to ensure compliance with applicable LORS. Of note, the Decision presented the following conclusions:

1. The project's potential significant impacts on the desert tortoise, Mohave ground squirrel, burrowing owl, arroyo toad, Swainson's hawk, Joshua tree woodland, and other common and special-status animal and plant species would be reduced to less than significant through impact avoidance and minimization measures included in the conditions of certification.

2. The habitat mitigation strategy of 2:1 ratio for the power plant site and 3:1 ratio for the linear facilities is adequate to compensate for the permanent loss of habitat for Mohave ground squirrel, Swainson's hawk, and desert tortoise caused by construction and operation of the project.

3. The acquisition and maintenance of the Mohave ground squirrel habitat may qualify for all or part of the mitigation for the loss of Swainson's hawk habitat provided that there is a minimum of 2:1 ratio for the Joshua tree woodland associated with loss of project site habitat. Otherwise, adequate compensation acres for the Swainson's hawk habitat would be at a ratio of 2:1 for the project site, transmission line, and agricultural lands. These lands will have to be purchased by the project owner in addition to the Mohave ground squirrel compensation acres.

4. Alternative Route 4, the partially undergrounded 12.8-mile transmission line described in the record, is the preferred alternative of the alternative transmission line routes considered by staff.

5. The measures specified in the conditions of certification will adequately mitigate the potential direct, indirect, and cumulative adverse effects of the PHPP upon biological resources to below a level of significance.

6. With the implementation of the mitigation measures, the project will conform to all applicable laws, ordinances, regulations, and standards governing biological resources.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS COMPLIANCE

Since the approval of the PHPP in August 2011, none of the applicable LORS have changed and the PEP would not require the analysis of any new LORS that were not applicable to the approved project. The PEP would continue to comply with the applicable LORS identified for the approved project with the implementation of the conditions of certification.

ENVIRONMENTAL IMPACT ANALYSIS

Staff has determined that the proposed PEP would have no new impacts to biological resources, impacts to biological resources are substantially reduced in comparison to the original project, and the conditions of certification for the original project would still be applicable (except for BIO-24 which can be eliminated) with adjustments to the raven management fee, compensatory habitat, and financial security required. Staff concludes that no supplementation to the 2011 Commission Decision is necessary for biological resources and the findings of fact are still applicable to the PEP.

VEGETATION AND WILDLIFE

Staff used both ArcGIS analysis and the California Natural Diversity Database (CNDDB), including RareFind5 and BIOS, to verify the potential for occurrence of special-status species within a 10 mile-radius of the PEP site. Since the modified power plant site is within the boundaries of the original licensed site, all the species that were listed in the Decision are still applicable to the new site. Staff did not find any new species with suitable habitat on or near the project site.

There was a change to the listing status of Southern mountain (Sierra Madre) yellow-legged frog (*Rana muscosa)* since the adoption of the Decision. While it still remains listed as federally-endangered, it is now also listed as state-endangered.

Also, it is important to note that the California Native Plant Species (CNPS) and the Global and State Ranks for special-status plant species have been updated, with the CNPS ranking system being renamed as the California Rare Plant Ranks. This new ranking system resulted in slight changes to the status of several plant species. However, this change in the definition and ranking system does not result in additional impacts to special-status plant species or change the conclusions reached in the Decision.

CONSTRUCTION IMPACTS TO VEGETATION AND WILDLIFE

The primary modifications proposed in the PTA relevant to the biological resources analysis are reduction of the power plant site from 333 acres to 50 acres, and reduction of the construction laydown and parking area from 50 acres to 20 acres.

These proposed modifications substantially reduce the severity of the project's impacts on sensitive vegetation communities. Although the PTA specified the reduction in acres of the power plant site and laydown area it did not supply the changes in the loss of vegetation communities within the modified site. Staff used ArcGIS to map the areas for the licensed and PEP site, and to calculate acreage totals for the vegetation communities within the modified site (See **Biological Resources Figure 1** below). The licensed power plant site was composed of three vegetation communities: Joshua tree woodland, Mojave creosote bush scrub, and rabbitbrush scrub. The proposed change in the site footprint would eliminate the permanent loss of rabbitbrush scrub (33 acres) and significantly reduce the permanent loss of Mojave creosote bush scrub and Joshua tree woodland. **Biological Resources Table 1** below provides the acres of each vegetation community by project component that would be lost permanently as a result of the PEP. Staff has estimated that there will be a permanent loss of 32 acres of Mojave creosote bush scrub and 18 acres of Joshua tree woodland within the PEP site, compared to

116.55 acres and 183.15 acres respectively, for the licensed site. The proposed smaller laydown area would result in a permanent loss of 20 acres of Joshua tree woodland instead of 50 acres of rabbitbrush scrub under the licensed project. This loss is considered to be permanent because Joshua tree woodland is a special status vegetation community that is highly sensitive to any disturbance, resists relocation, and re-establishment would be very difficult.

The three additional transmission poles that would be installed to support the 1,800-foot long extension of the transmission line along East Avenue M would result in an additional permanent loss of approximately 0.25 acre of Joshua tree woodland habitat.

Biological Resources Table 1
Direct Permanent Surface Disturbance per Affected Vegetation Community and Project Component

Location/Project Component	Vegetation Communities/Cover Types			
	Mojave Creosote Bush Scrub	Joshua Tree Woodland	Agricultural Land	Total Acres
Power Plant Site	32	18	0	50
Construction Laydown Area	0	20	0	20
Transmission Line Segment 1	11.96	2.2	10.22	24.38
Transmission Line Segment 2	7.66	3.14	0	10.80
Revised PTA Transmission Line	0	0.25	0	0.25
Total Acres	51.62	43.59	10.22	105.43

The reduction in the loss of Mojave creosote bush scrub and Joshua tree woodland would reduce the amount of compensatory habitat the project owner would need to acquire for impacts to Swainson's hawk and Mohave ground squirrel. Staff used the current vegetation impact acreages, the information provided in Table 5.1-1 in the revised PTA, and the same compensation ratios identified in the Decision to calculate the new required habitat compensation acreage for both the Swainson's hawk and Mohave ground squirrel. The compensation acreages for the Swainson's hawk and Mohave ground squirrel are based upon the permanent loss of Mojave creosote bush scrub and Joshua tree woodland with the addition of Agricultural Land for the Swainson's hawk. The new proposed laydown area will impact 20 acres of Joshua tree woodland and compensation acres will need to be provided for this impact for both the Swainson's hawk and Mohave ground squirrel. Also, staff has corrected inadvertent errors which were overlooked in the Decision when estimating the required total habitat compensation acreages. Complete calculations can be found in **Biological Resources Appendix 1**.

Staff found errors in the Decision's sum of the compensatory habitat acres for the Swainson's hawk. The acreage total in the Decision accounted for the project site and the Joshua tree woodland along the transmission line segments at a 2:1 ratio, when it should have also accounted for the Mojave creosote bush scrub along both

transmission line segments and the agricultural lands along segment 1. Although the applicant did not find Swainson's hawks during the 2009 surveys, the PHPP Decision found that the transmission line routes included suitable habitat for Swainson's hawk and that there was a 2009 siting by California Department of Fish and Wildlife (CDFW) of a juvenile Swainson's hawk along the transmission line and a mating pair within 5 miles. Also, it was clearly stated in the Decision that all impacts to the project site and agricultural lands were to be mitigated at a 2:1 ratio (page 7.1-15). The new mitigation requirement for the loss of 50 acres of Mojave creosote bush scrub and Joshua tree woodland on the project site would be 100 acres. In addition, since the proposed project's laydown area will now consist of Joshua tree woodland, an additional 20 acres will need to be mitigated. The mitigation requirement (2:1) for the combined project and laydown site totals 140 acres. Adding the 25.25 acres of Mojave creosote bush scrub and Joshua tree woodland and 10.22 acres of agricultural land along the transmission line at 2:1, would result in the project owner having to acquire a total of 211 acres of compensatory Swainson's hawk habitat.

For Mohave ground squirrel, the Decision established a 2:1 mitigation ratio for the power plant site and a 3:1 mitigation ratio for Mohave ground squirrel habitat along the transmission line segments. There was an addition error in the Decision for the transmission line: the total for Mojave creosote bush scrub and Joshua tree woodland should have been 24.96 acres rather than 21.84 acres (see **Biological Resources Table 1**). With the 0.25 acre of Joshua tree woodland impacted by the proposed extension of the transmission line, the new total of Mohave ground squirrel habitat acres impacted within the transmission line route would be 25.25. At 3:1, the required compensatory habitat would be 75.75 acres for the transmission line. The project owner would need to acquire a new total of 216 acres of compensatory Mohave ground squirrel habitat.

Based on the calculations described above and the information provided by the project owner on page 5.1-3-5 in the PTA, staff updated the required Swainson's hawk and the Mohave ground squirrel compensation acreages and financial security estimates in the Decision (see **Biological Resources Table 2 and Table 3** below). The total estimated cost in each table is the amount of financial security that the project owner is expected to provide to guarantee that an adequate level of funding is available to implement the compensation requirements for both the Swainson's hawk and Mohave ground squirrel.

Biological Resources Table 2
Swainson's Hawk Compensation Cost Estimate[1]

	Task	Cost per area	Cost
1.	Land Acquisition 105.50 acres at 2:1 ratio = 211 acres	$10,000 per acre[2]	$2,110,000.00
2.	Level 1 Environmental Site Assessment (ESA)	$3000 per parcel[3]	$10,560.00
3.	Appraisal	$5000 per parcel	$17,600.00
4.	Initial site work - clean-up, enhancement, restoration	$250 per acre[4]	$52,750.00
5.	Closing and Escrow Costs – 1 transaction includes landowner to 3rd party and 3rd party to agency	$5000 per transaction	$15,000.00
6.	Biological survey for determining mitigation value of land (habitat based with species specific augmentation)	$5000 per parcel	$17,600.00
7.	3rd party administrative costs - includes staff time to work with agencies and landowners; develop management plan; oversee land transaction; organizational reporting and due diligence; review of acquisition documents; assembling acres to acquire….	10% of land acquisition cost (#1)	$211,000.00
8.	Agency costs to review and determine accepting land donation - includes 2 physical inspections; review and approval of the Level 1 ESA assessment; review of all title documents; drafting deed and deed restrictions; issue escrow instructions; mapping the parcels….	15% of land acquisition costs (#1) × 0.17(17% of the 15% for overhead)	$53,805.00
	SUBTOTAL *- Acquisition & Initial Site Work*		$2,488,315.00
9.	Long-term Management and Maintenance (LTMM) Fund - includes land management; enforcement and defense of easement or title [short and long term]; monitoring….	$1450 per acre[5]	$305,950.00
	SUBTOTAL *- Acquisition, Initial Site Work, & LTMM*		***$2,794,265.00***
	National Fish and Wildlife Foundation (NFWF) Fees		
10.	Establish the project specific account	n/a (presumes establishment of Mohave ground squirrel account for project)	
11.	NFWF management fee for acquisition & initial site work	3% of SUBTOTAL	$83,827.95
12.	NFWF Management fee for LTMM Fund	1% of LTMM Fund	$3,059.50
13.	Call for and Process Pre-Proposal Modified RFP	n/a (presumes establishment of Mohave ground squirrel account for project)	
	TOTAL *for deposit in REAT-NFWF Project Specific Account*		***$2,881,152.45***

1. Estimates prepared in consultation with CDFW. All costs are best estimates as of fall 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation. 2. Based on mean of data provided by CDFW for land acquisition in Los Angeles County. If the agencies, developer, or 3rd party has better, credible information on land costs in the specific area where project-specific mitigation lands are likely to be purchased, that data overrides this general estimate. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation. 3. For the purposes of determining costs, an average parcel is 60 acres (based on input from CDFW). 4. Based on information from CDFW.

5. Estimate for purposes of calculating general costs. The actual long term management and maintenance costs will be determined using a Property Assessment Report (PAR) tailored to the specific acquisition.

Biological Resources Table 3
Mohave Ground Squirrel Compensation Cost Estimate[1]

	Task	Cost per area	Cost
1.	Land Acquisition (total of 216 acres) 2:1 ratio on power plant site 3:1 on transmission line	$10,000 per acre[2]	$2,160,000.00
2.	Level 1 Environmental Site Assessment	$3000 per parcel[3]	$10,800.00
3.	Appraisal	$5000 per parcel	$18,000.00
4.	Initial site work - clean-up, enhancement, restoration	$250 per acre[4]	$54,000.00
5.	Closing and Escrow Costs – 1 transaction includes landowner to 3rd party and 3rd party to agency	$5000 per transaction	$15,000.00
6.	Biological survey for determining mitigation value of land (habitat based with species specific augmentation)	$5000 per parcel	$18,000.00
7.	3rd party administrative costs - includes staff time to work with agencies and landowners; develop management plan; oversee land transaction; organizational reporting and due diligence; review of acquisition documents; assembling acres to acquire….	10% of land acquisition cost (#1)	$216,000.00
8.	Agency costs to review and determine accepting land donation - includes 2 physical inspections; review and approval of the Level 1 ESA assessment; review of all title documents; drafting deed and deed restrictions; issue escrow instructions; mapping the parcels….	15% of land acquisition costs (#1) × 0.17 (17% of the 15% for overhead)	$55,080.00
	SUBTOTAL *- Acquisition & Initial Site Work*		***$2,546,880.00***
9.	Long-term Management and Maintenance (LTMM) Fund - includes land management; enforcement and defense of easement or title [short and long term]; monitoring….	$1450 per acre[5]	$313,200.00
	SUBTOTAL *- Acquisition, Initial Site Work, & LTMM*		***$2,860,080.00***
	NFWF Fees		
10.	Establish the project specific account	$12,000	$12,000.00
11.	NFWF management fee for acquisition & initial site work	3% of SUBTOTAL	$85,802.40
12.	NFWF Management fee for LTMM Fund	1% of LTMM Fund	$28,600.80
13.	Call for and Process Pre-Proposal Modified RFP	$30,000	$30,000.00
	TOTAL *for deposit in REAT-NFWF Project Specific Account*		***$3,016,483.20***

1. Estimates prepared in consultation with CDFW. All costs are best estimates as of fall 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.
2. Based on mean of data provided by CDFW for land acquisition in Los Angeles County. If the agencies, developer, or 3rd party has better, credible information on land costs in the specific area where project-specific mitigation lands are likely to be purchased, that data overrides this general estimate. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.
3. For the purposes of determining costs, an average parcel is 60 acres (based on input from CDFW).
4. Based on information from CDFW.
5. Estimate for purposes of calculating general costs. The actual long term management and maintenance costs will be determined using a Property Assessment Report (PAR) tailored to the specific acquisition.

With the reduction in impacts to native vegetation, staff has also updated impact acreage and raven management fee amounts specified in Condition of Certification **BIO-14**. To mitigate for the regional effects of ravens on desert tortoise, the project owner is required to provide a onetime fee in the amount of $105.00 per acre of native vegetation impacted to the Renewable Energy Action Team (REAT) Account held by the National Fish and Wildlife Foundation (NFWF). The PHPP would have resulted in the loss of 448 acres of native vegetation[1]. The new total of disturbed native vegetation under the PEP would be 135.50 acres (50 acres at the power plant site, 20 acres at the laydown area, and 65.50 acres along the modified transmission line route).

OPERATION IMPACTS

The Decision found collisions by birds with the solar troughs as a potentially significant impact of the PHPP. The proposed elimination of the solar component would eliminate this potentially significant impact; therefore, staff recommends deletion of Condition of Certification **BIO-24** (Avian and Bat Protection Plan / Monitoring Bird and Bat Impacts from Solar Technology).

The height of the project's two exhaust stacks would increase, from 145 feet tall to 160 feet tall. The Decision concluded that the original project's stacks did not pose a significant collision threat and that determination still stands. The project site is not in a high-risk area for collision. Furthermore, the height threshold of structures that pose a great risk to migratory birds is 500 feet (Kerlinger 2000), and avian mortality decreases significantly for structures that are shorter than 350 feet (Longcore et al 2008). Even with the increase of 15 feet, the stack height does not fall within the range of concern. Therefore, the PEP would not pose a significant collision threat to resident or migratory birds.

CUMULATIVE IMPACTS

The Decision found that while good quality habitat occurs on the site and numerous wildlife species utilize the area, the site is isolated from adjacent natural lands. In addition, while habitat loss is occurring on a regional level, the project site does not have the potential to play a significant role in the conservation of sensitive plants and wildlife in the Antelope Valley. With the exception of Swainson's hawk, which was observed foraging on the site, desert tortoise and Mohave ground squirrel have a low potential to occur on the project site. Construction of the transmission line could remove important foraging habitat for wildlife and result in short term impacts to desert washes. However, these impacts would be minimal compared to the large-scale loss of habitat occurring in the region. The Commission found with the implementation of the conditions of certification, the PHPP's significant adverse impacts on biological resources would be mitigated to insignificant levels and thus, the project's contribution to direct and indirect cumulative biological impacts would be reduced to insignificant levels. The PEP's contribution to cumulative impacts would be substantially less than

[1] The Decision incorrectly notes that the PHPP would impact 458.5 acres of native vegetation (Table 4, page 7.1-28). This is the total identified in Condition of Certification BIO-14. It appears that this acreage amount was calculated by subtracting out the 2.82 acres of Urban and Disturbed Lands along segment 1 of the transmission line from the total amount of native and non-native vegetation that would be disturbed by the PHPP (see Biological Resources Table 2 in the Decision). However, this total included a second non-native vegetation type, the 10.22 acres of agricultural land also along segment 1 of the transmission line. Thus, the total identified in BIO-14 should have been 448 acres.

the PHPP's, with the reduction in the loss of Swainson's hawk and Mohave ground squirrel habitat as a result of the elimination of the solar component of the licensed project. Thus, cumulative impacts would remain less than significant.

CLOSURE IMPACTS

The project owner has requested that **BIO-25** be eliminated for the proposed PEP. Staff considered this request and still recommends that **BIO-25** is retained. Although, the amended project's footprint has been reduced and the impact on biological resources would decrease, the project still impacts sensitive vegetation communities that can be difficult to re-establish. **BIO-25** will not only make sure that the amended project is in compliance with several LORS, but also ensure that the impacts to biological resources due to facility closure are assessed and habitat restoration with sufficient funding would be carried out if necessary.

RESPONSE TO PSA COMMENTS

PROJECT OWNER COMMENTS

Comment:

Palmdale Energy, LLC Initial Comments on the Preliminary Staff Assessment, Docketed on April 14, 2016 (TN 211045). The project owner requested clarification on the logic behind staff's recalculation of required mitigation acreages for Swainson's hawk and Mohave ground squirrel habitats, as specified in Conditions of Certification **BIO-17** and **BIO-20**, respectively. In addition, the project owner asked for the reasoning behind staff's addition of language in **BIO-17** that stipulated Swainson's hawk mitigation lands would need to be acquired within 15 miles of known Swainson's hawk nesting sites.

Response to Comment:

Staff discussed and addressed these concerns during the PSA Workshop on April 20, 2016. A complete recording of Biology staff's response can be accessed on the Energy Commission's Palmdale Energy Project webpage at: http://www.energy.ca.gov/sitingcases/palmdale/index.html, (TN 211234; Time 1:57:00). Staff explained that the mitigation acreages for the Swainson's hawk and Mohave ground squirrel considered two main habitats that supported both species; Joshua tree woodland and Mojave creosote bush scrub. There was a specific formula for the mitigation ratios for both species identified in the Commission Decision. The Swainson's hawk mitigation formula consisted of a 2:1 ratio for the project site, laydown area, transmission line segments, and agricultural land. The Mohave ground squirrel mitigation formula consisted of a 2:1 ratio for the project site, laydown area, and a 3:1 ratio for the transmission line segments. Staff noted that the original licensed laydown area was comprised of Rabbitbrush scrub, whereas the PTA proposes the laydown area within Joshua tree woodland habitat. Since Joshua tree woodland habitat is a highly sensitive special status vegetation community, staff is considering the laydown to be a permanent impact. The calculations for the Swainson's hawk and Mohave ground squirrel contained in the Biology section of the PTA lacked the inclusion of the laydown area as a permanent impact. Staff also found a mistake in the addition of the transmission line segments when referencing the Biological Resources Table 2 in the Commission Decision, changing the acres from 21.84 used in the PTA to 25 acres.

Furthermore, the Commission Decision states on page 7.1-15 that 10.22 acres of agricultural land was to be mitigated for at a 2:1 ratio, and the PTA did not include this as well. The project owner stated that this explanation was very helpful.
Staff's reasoning for including the stipulation in BIO-17 that Mohave ground squirrel mitigation land counted towards Swainson's hawk mitigation land requirements would need to be within 15 miles of known nesting sites was the discovery of this language on page 4.2-3 of the original FSA published in December 2010. Staff stated that Swainson's hawks are known to nest in agricultural land sometimes and do not venture far from these nests because there is an abundance of food. While, it is ideal that the lands are located close to current nests, as this would indicate the presence of the species and quality of the habitat for them, staff will be flexible. Staff and the project owner agreed on the project owner making a good faith effort to purchase land near known Swainson's hawk nesting sites and proposing language to this effect.
Although, the project owner did not mention this in their docketed comments, a concern related to BIO-10 about whether staff would require the laydown area to be restored to Joshua tree woodland habitat as well as mitigated for as a permanent impact was voiced. The project owner asked if they could revegetate the laydown area to a lower standard, and if this along with the mitigation of the laydown area as a permanent impact would be acceptable. Staff agreed and said this would be acceptable.

Comment:

Palmdale Energy, LLC Final Comments on the Preliminary Staff Assessment, Docketed on April 27, 2016 (TN 211264). In response to the discussion that occurred at the PSA Workshop on April 20, 2016, the project owner stated their satisfaction with staff's explanation of the logic behind the recalculation of mitigation acres required for Swainson's hawk and Mohave ground squirrel, and their agreement with the modified acreages specified in Conditions of Certification **BIO-17** and **BIO-20**. The project owner proposed language for **BIO-17** that would allow flexibility in the requirement that Swainson's hawk mitigation lands be within 15 miles of known nesting sites. In addition, the project owner requested modifications to **BIO-10** that would relieve the project owner of the requirement to re-vegetate and restore the laydown/parking area after construction is completed.

Response to Comment:

Staff finds the alternative language suggested by the project owner for **BIO-17** to be acceptable and has incorporated the language into the proposed condition of certification. During the PSA Workshop, the project owner and staff discussed the construction laydown/parking area with respect to the mitigation required for the Swainson's hawk and Mohave ground squirrel. Staff pointed out that the laydown/parking area was originally located in an area covered in rabbitbrush scrub vegetation, but is now being proposed in an area comprised entirely of 20 acres of Joshua tree woodland habitat.

Joshua tree woodland habitat is supportive of both Swainson's hawk and Mohave ground squirrel and this habitat was identified in the Commission Decision as one of the vegetation communities used to calculate mitigation acreages required for these two species. Since Joshua tree woodland habitat is extremely sensitive to disturbance, very difficult to re-establish, and a protected special status habitat, staff determined that the laydown/parking area should be considered a permanent impact. The project owner

agreed with this, although they expressed concern that they might be held responsible for acquiring Joshua tree woodland habitat mitigation land and also for restoring the laydown/parking area to its original condition of Joshua tree woodland habitat.

To avoid "double mitigation," the project owner stated that they considered two solutions to be acceptable: The first would be to purchase compensation acres for the Swainson's hawk and Mohave ground squirrel that accounted for the permanent loss of Joshua tree woodland acres in the laydown/parking area, and then re-vegetate the laydown/parking area to a lower standard, or the second solution would be to re-vegetate to a high standard and then not have to purchase as many Joshua tree woodland mitigation acres. Staff stated that it would be better to go with the first solution.

However, in the docketed final response comments, the project owner has proposed to alter the language of **BIO-10** to transfer the responsibility of re-vegetating the laydown/parking area to the city of Palmdale. Staff understands this to mean that project owner does not want to restore the laydown/parking area at all. Turning this responsibility over to the city of Palmdale to restore it, "in the condition specified by the City of Palmdale," is too vague and does not specify what condition that would be or the time period in which this would happen. Furthermore, Biology staff has collaborated with Soil and Water staff as well as the Lahontan Regional Water Quality Control Board and all agree that leaving the laydown/parking area unrestored and not re-vegetating it after construction is complete would be a water and air quality concern due to high risk of soil erosion.

Thus, Biology staff does not agree with the project owner's suggested language change to **BIO-10**, nor does staff agree that the project owner should be relieved of the responsibility to re-vegetate the laydown/parking area. Staff recommends that the project owner be held accountable to restore the laydown/parking area with native plant species specified in **BIO-10**, which do not include Joshua trees just native grasses and subshrubs, to prevent soil erosion.

AGENCY COMMENTS

California Water Boards - Lahontan Regional Water Quality Control Board Comments on Preliminary Staff Assessment, Docketed on May 4, 2016 (TN 211353). Biology staff collaborated with Soil and Water staff in order to respond to the letter received from the California Regional Water Quality Control Board, Lahontan Region (Water Board). Staff also jointly participated in a phone conference with the Water Board staff on June 15, 2016 in order to better understand and address their concerns.

Comment:

The Water Board made two comments related to the **Biological Resources** section of the PSA. The first comment was a request to make sure that the 20-acre laydown/parking area is re-vegetated in order to prevent soil erosion.

Response to Comment:

Biology staff responded that the project owner is required to restore the laydown/parking area after construction with native grass and subshrub species as specified in Condition of Certification **BIO-10**.Biology staff agreed with the Water Board that this is necessary

in order to help prevent soil erosion and avoid water and air quality issues related to erosion.

Comment:

The Water Board's second comment related to biological resources was the concern that impacts to waters of the state from the transmission line had been properly assessed and mitigated for in the PSA.

Response to Comment:

Biology staff pointed out that the project owner does not propose any changes to the previously licensed transmission line route, with the exception of the 1,800-foot long extension along East Avenue M that is not near any state waters. Biology staff confirmed by reviewing the Decision for the PHPP that impacts to waters of the state have been considered and will be mitigated.

Within the project vicinity a total of 43 jurisdictional features were identified of which 12 were identified by the U.S. Army Corps of Engineers (USACE) to be waters of the United States. No state or federal jurisdictional waters are in the power plant site. Although the transmission line will span state jurisdictional waters, the towers have been sited to avoid them. Vehicle passage and maintenance of access roads will result in 0.08 acre of temporary impacts to state jurisdictional waters that will be mitigated by Condition of Certification **BIO-23**.

This condition, which meets the terms of the CDFW Streambed Alteration Agreement program, requires the project owner to avoid use of the crossings during periods of ponded or flowing water, to install railroad flat cars to provide access over drainages if needed, and to implement best management practices to minimize the potential for off-site sediment transport. In addition, the original PHPP Decision stated that the USACE would not regulate the project as long as work is conducted outside of the ordinary high water mark for areas designated as waters of the United States. **BIO-23** requires the project owner to avoid impacts to all waters of the United States; however if there are any permanent impacts, **BIO-23** requires restoration and compensation.

The Commission found that implementation of **BIO-23** would mitigate any impacts to jurisdictional waters to less than significant. Biology staff also supplied the Water Board staff with a copy of the USACE Jurisdictional Determination if they wanted to reference it.

Staff received no other comments from the project owner, and no comments from the public, interveners, or agencies in the area of **Biological Resources.**

CONCLUSIONS AND RECOMMENDATIONS

The proposed changes to the Decision for the PHPP would not create new significant impacts on biological resources and previously identified significant impacts would be reduced in severity. Therefore, staff concludes that supplementation of the Decision is not necessary in accordance with section 15162 of the CEQA Guidelines. The Committee may rely upon the environmental analysis and conclusions of the Decision with regards to biological resources and does not need to re-analyze them.

Although supplementation is not necessary, changes to the conditions of certification in the PHPP Decision are needed as a result of the elimination of the solar component of the licensed project. With this project change, there would be a significant reduction in the loss of habitat for common and special-status plant and animal species. The loss of Mojave creosote bush scrub and Joshua tree woodland, identified in the Commission Decision as habitat used to determine the compensation acreage for the Mohave ground squirrel and Swainson's hawk, would be reduced to 32 and 18 acres, respectively. These impact acreages were used to calculate that the project owner would need to provide 216 acres of compensatory habitat for the Mohave ground squirrel and 211 acres for the Swainson's hawk to mitigate for the loss of their habitats, compared to 675 acres and 670 acres, respectively for the licensed project. The extension of the transmission line was evaluated and besides including the additional 0.25 acre in the compensation acreages for the Mohave ground squirrel and Swainson's hawk, there are no further considerations needed as the project owner does not propose any other changes to the transmission line routes approved in the Decision. Staff has updated Conditions of Certification **BIO-14**, **BIO-17**, and **BIO-20** to reflect these changes adjusting the amounts of raven management fee, compensatory habitat, and financial security that would be required. In addition, elimination of the solar component would avoid previously identified impacts on avian species from collisions with the solar mirrors. This would remove the possibility of avian and bat deaths due to solar technology, warranting deletion of Condition of Certification **BIO-24**. Staff considered the project owner's request to eliminate **BIO-25** and recommends that **BIO-25** be retained as it appears in the Decision.

Like the licensed project, implementation of Conditions of Certification **BIO-1** through **BIO-23** and **BIO-25** would mitigate potential impacts that may occur during construction of the PEP to less than significant and would ensure these activities comply with applicable LORS.

CONDITIONS OF CERTIFICATION

The proposed conditions of certification for **Biological Resources** are located in the Conditions of Certification Compendium at the back of this Final Staff Assessment.

REFERENCES

Kerlinger, P. 2000. Avian mortality at communication towers: A review of recent literature, research, and methodology. U.S. Fish and Wildlife Service, Washington, D.C.

Longcore, T., C. Rich, and S. A. Gauthreaux. 2008. Height, guy wires, and steady-burning lights increase hazard of communication towers to nocturnal migrants: a review and meta-analysis. Auk 125(2): 485-492

PHPP 2015c - Galati Blek LLP/Scott A. Galati (TN 205394-1). Revised Petition to Amend (RPTA), dated July 17, 2015. Submitted to CEC/Eric Veerkamp on July 17, 2015 and docketed on July 20, 2015

PHPP 2015d - Galati Blek LLP (TN 205394-2). Revised Petition to Amend (RPTA) Sections 2&3 Figures. Submitted to CEC/Eric Veerkamp on July 17, 2015 and docketed on July 20, 2015

PHPP 2015e - Galati Blek LLP (TN 205394-3). Revised Petition to Amend (RPTA) Sections 4&6 Figures. Submitted to CEC/Eric Veerkamp on July 17, 2015 and docketed on July 20, 2015

PHPP 2015f - Galati Blek LLP (TN 205450). Revised Petition to Amend (RPTA) Figure 2-7b Revised. Submitted to CEC/Docket Unit on July 21, 2015 and docketed on July 21, 2015

PHPP 2015g - Galati Blek LLP (TN 205520). Revised Petition to Amend (RPTA) Appendices. Submitted to CEC/Docket Unit on July 27, 2015

PHPP 2015h - SNC Lavalin Inc. (TN 206025). Preliminary Drainage, Erosion, and Sediment Control Plan, dated August 27, 2015. Submitted to CEC/Docket Unit on September 9, 2015

PHPP 2015i - Palmdale Energy, LLC (TN 206335). Cumulative Air Quality Impact Analysis (Supplemental Filing), dated October 2015. Submitted to CEC/Docket Unit on October 13, 2015

PHPP 2015j - DayZen LLC/Marie Fleming (TN 206386). Palmdale Energy LLC's Supplemental Cumulative Air Quality Impact Analysis Report – Air Quality Modeling Files Palmdale Energy Project, dated October 16, 2015. Submitted to CEC/Docket Unit on October 16, 2015

BIOLOGICAL RESOURCES APPENDIX 1: CORRECT CALCULATIONS FOR COMPENSATION ACREAGES

a. Mojave Ground Squirrel

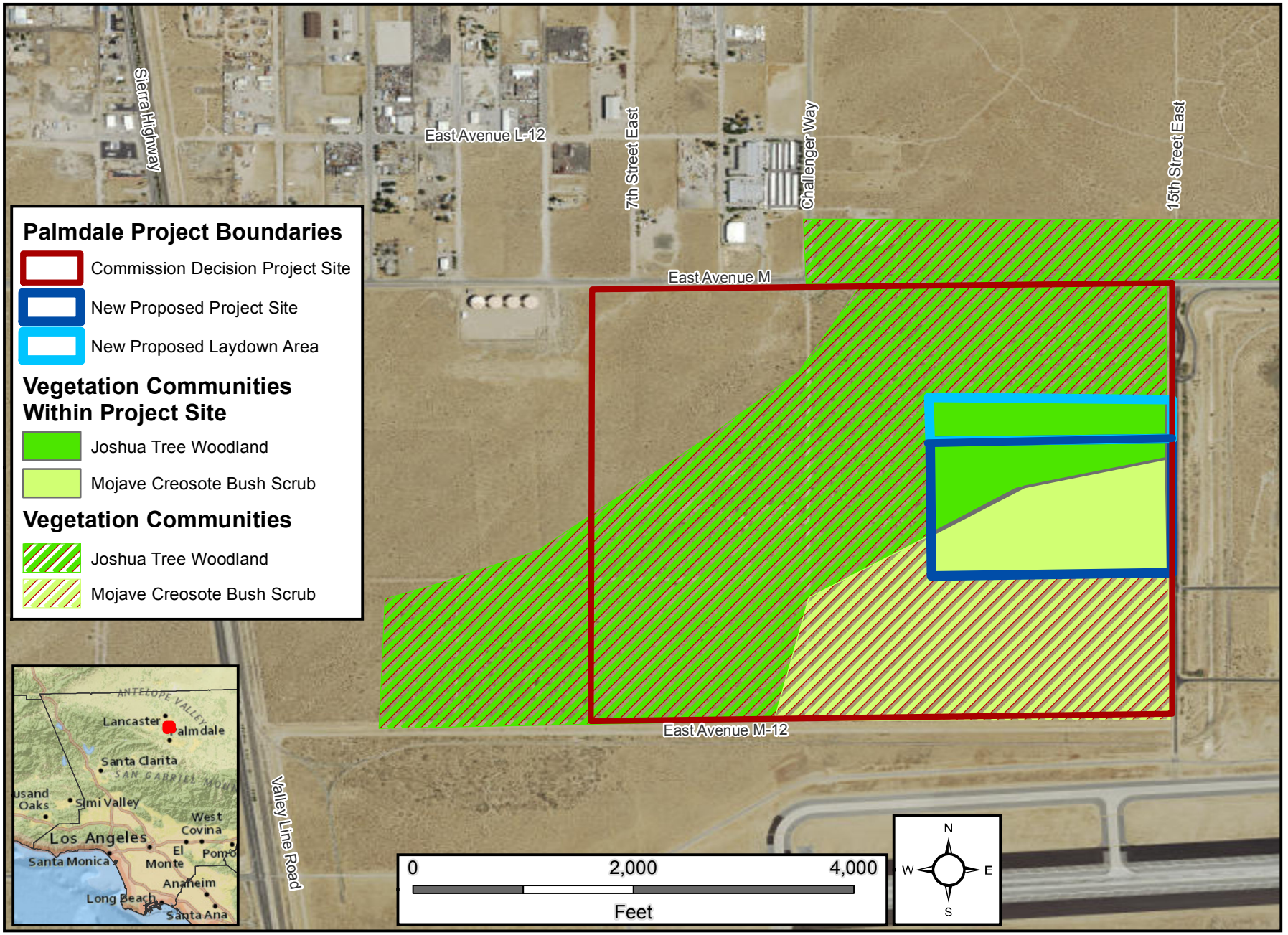
Commission Decision (CD) previously required 665 acres.
2*(116.55 + 183.15) + 3*(Transmission Line Segments)
The calculation mistake was in the addition of the TLS acres which previously was 21.84 and should have been 25.
TLS = 11.96+7.66+2.2+3.14= 24.96 = 25 acres
With correct calculations the CD should have required 675 acres.
The TLS acreage in the proposed amendment has increased by .25 acres as discussed above and the plant site has reduced to 50 acres.
Also, the laydown area for the new proposed project is a permanent loss of 20 Joshua tree woodland acres and will need to be mitigated at a 2:1 ratio.
Therefore, the new acreage required for the Mojave ground squirrel is
2*(50) + 2*(20) + 3*(25) + 3(.25) = 175.75 = **216 acres**

b. Swainson's Hawk

Commission Decision previously required 610 acres.
2*(116.55 + 183.15) + 2*(TLS) + 2*(Agricultural Land)
The transmission line segments should have been included in addition to the Agricultural acres. The inclusion of the transmission line segments at the 2:1 ratio would have totaled 50 acres. The addition of the Agricultural land would have added 20.44 acres. All together 670 acres would have been required for the licensed project.
Also, the laydown area for the new proposed project is a permanent loss of 20 Joshua tree woodland acres and will need to be mitigated at a 2:1 ratio.
Therefore, the new acreage required for the Swainson's hawk is
2*(50) + 2*(20) + 2*(25) + 2*(.25) + 2*(10.22) = 210.94 = **211 acres**

BIOLOGICAL RESOURCES - FIGURE 1

Palmdale Energy Project - Overlap of Vegetation Communities within Project Boundary



BIOLOGICAL RESOURCES

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: ESRI Imagery, Palmdale AFC Figure 2-2, Amec Figure 6-A Habitat Communities

BY TIA MIA TAYLOR

PALMDALE ENERGY PROJECT (08-AFC-9C)
Petition to Amend the Final Commission Decision
CULTURAL RESOURCES

Testimony of Matthew Braun and Melissa Mourkas

SUMMARY OF CONCLUSIONS

New archaeological resources were identified in the project area of analysis (PAA); however, staff recommends that these resources are not eligible for the California Register of Historical Resources (CRHR) and concludes that the Palmdale Energy Project (PEP) would not have direct, indirect or cumulative impacts to archaeological resources. Impacts to any buried, as-yet-unidentified archeological resources would be mitigated through implementation of Conditions of Certification **CUL-1** through **CUL-8**.

Staff identified three CRHR-eligible built environment resources which were not identified in previous cultural resources technical reports or past staff analyses for the Palmdale Hybrid Power Plant (PHPP). Staff concludes that there will not be direct, indirect, or cumulative impacts to these known built environment resources with the implementation of staff's proposed modifications to Condition of Certification **CUL-6**.

Staff did not identify any ethnographic resources within the PEP PAA. Therefore, there will not be an impact to any ethnographic resources, and any impacts to any buried, as-yet-unidentified ethnographic resources will be mitigated through the implementation of Conditions of Certification **CUL-1** through **CUL-8**.

Staff concludes that the findings of fact from the 2011 California Energy Commission Decision (Decision) (CEC 2011b) should be supplemented to account for the three newly identified CRHR-eligible built environment resources. In accordance with the California Environmental Quality Act (CEQA) Guidelines section 15162, staff concludes that supplementation to the Decision is necessary and the Committee should therefore update the number of potentially CRHR-eligible cultural resources potentially subject to impacts on page 7.3-20 of the Decision based on the following environmental analysis. The modified project would continue to comply with applicable laws, ordinances, regulations, and standards (LORS) related to cultural resources.

INTRODUCTION

The proposed modifications to the licensed project that have relevance to the historical resources impact analysis include:

- elimination of the solar field and consequent reduction in the project footprint from 333 acres to 50 acres plus a 20-acre construction laydown area;
- addition of three transmission towers on East Avenue M;
- relocation of the transmission line at the site access road;
- additional ¼ mile of sanitary wastewater line; and
- elevated fill under the power block area (15 acres).

The reduction of acreage will not substantially decrease the impact to cultural resources because there still remains potential to encounter buried, as-yet unknown cultural resources in the project area. Similarly, ground-disturbing activities related to the transmission line, wastewater line, and grading/fill have the potential to encounter buried, as-yet unknown cultural resources in the project area.

SUMMARY OF THE DECISION

The Decision for the licensed project found that cultural resources were identified near the proposed PHPP site, assessed potential impacts to these cultural resources, assessed the potential for the discovery of unidentified, buried cultural resources based on a 2-phased geo-archaeological literature review, and found with Conditions of Certification **CUL-1** through **CUL-8**, any significant impacts to historical resources eligible for listing on the CRHR would be mitigated to a less than significant level. The Decision assumed that any potential for cumulative impacts from nearby projects would be mitigated to less than significant or avoided by implementation of the lead agency's mitigation measures within the CEQA review process. (CEC 2011b:p.7.3-19-20).

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS COMPLIANCE

Some local LORS have changed since the original license was issued. There appear to be no changes to the city of Palmdale's LORS since the Final Decision in 2011 (CEC 2011b).

The County of Los Angeles adopted an historic preservation ordinance, which went into effect on October 1, 2015. The ordinance enables the county government to designate and protect historic landmarks in unincorporated territory countywide, including county-owned structures, and does not require owner consent. It also allows for the designation of local historic districts (see LORS table below). This ordinance is applicable to the project as the proposed linear routes traverse unincorporated areas of Los Angeles County. Staff includes it here to recognize the potential for impacts that may affect resources outside of the Palmdale city limits, but within the vicinity of the project or its linears. The changes proposed in the Petition to Amend (PTA) would not cause the project to be out of compliance with LORS.

Cultural Resources Table 1 summarizes local LORS that have changed since the issuance of the original license.

CULTURAL RESOURCES Table 1
Laws, Ordinances, Regulations, and Standards

Applicable Law	Description
Los Angeles County Code 22.44.1570 - Archaeological/Paleontological/Historic Cultural Resources. Ord. 2014-0055 § 11, 2014.[1]	The intent of these provisions is to protect and preserve archaeological, historic, and paleontological resources from destruction, and avoid impacts to such resources where feasible. Where avoidance is not feasible, impacts to resources shall be minimized to the maximum extent feasible.
Los Angeles County General Plan 2035, adopted on October 6, 2015.	Chapter 9 Conservation and Natural Resources Element, Section VIII: Historic, Cultural and Paleontological Resources. Eleven built environment resources are identified in unincorporated areas of the county. Los Angeles County Historical Landmarks and Records Commission reviews and recommends cultural heritage resources in the unincorporated areas for inclusion in the State Historic Resources Inventory. The county's Historic Preservation Ordinance seeks to preserve, conserve and protect buildings, objects, landscapes and other artifacts of historical and cultural significance. Goal C/NR 14: outlines the policies related to protect historic, cultural and paleontological resources.
Los Angeles County Historic Preservation Ordinance- Part 28 of Chapter 22.52. Ord. 2015-0033 § 3, 2015[2]	The ordinance enables the county government to designate and protect historic landmarks in unincorporated territory countywide, including county-owned structures, and does not require owner consent to designation. It also allows for the designation of local historic districts.

ENVIRONMENTAL IMPACT ANALYSIS

NATIVE AMERICAN CONSULTATION

In May of 2015, staff contacted the Native American Heritage Commission (NAHC) to conduct a search of the Sacred Lands File (SLF) and to obtain a list of Native American tribes with traditional ties to the area. The NAHC responded on July 16th, 2015 that the search of the SLF was negative and provided a list of six tribes who may be interested in the project. Staff included an additional tribe (San Manuel Band of Mission Indians) not on the NAHC list because of the close proximity of the Project Area of Analysis PAA to their traditional area. The prehistoric and ethnographic PAA "is minimally defined as the project site footprint, plus a buffer of 200 feet, and the project linear facilities routes, plus 50 feet to either side of the routes. Staff has used the minimum specifications for its archaeological project area of analysis for the proposed PEP, plus the maximum depth that would be reached by all foundation excavations and by all pipeline installation trenches" (CEC 2010b: 4.3-305).

Staff sent letters to the 7 tribes on July 27, 2015, and emails on August 26, 2015.

[1] https://www.municode.com/library/ca/los_angeles_county/codes/code_of_ordinances?nodeId=TIT22PLZO_DIV1PLZO_CH22.44SUDI_PT10SAMOMOLOIMPR_ADDEST_22.44.1570ARPAHICURE

[2] https://www.municode.com/library/ca/los_angeles_county/codes/code_of_ordinances?nodeId=TIT22PLZO_DIV1PLZO_CH22.52GERE_PT28HIPROR

Follow-up phone calls were made to the tribes on September 3, 2015. As of publication of the PSA, none of these tribes provided comment or input regarding the project. A table of the tribes contacted for the PEP is included below (**Cultural Resources Table 2**).

On October 22, 2015 the Fernandeño-Tataviam Band of Mission Indians docketed an email to Hearing Officer Ken Celli recommending that the amendment be processed as a new application because of the substantial differences between the two projects. This group was not on the NAHC's contact list and thus was not sent an initial letter inviting them to consult regarding the PTA. In response to the October 22, 2015 letter, staff initiated consultation with the tribe by email October 28, 2015 and by letter November 4, 2015. The tribe requested that Native American monitoring of all ground-disturbing activities be incorporated as a mitigation measure for the PEP. Prior to the April 20, 2016 Preliminary Staff Assessment (PSA) workshop, staff received an email stating that the tribe was withdrawing from consultation and no longer was interested in the project. As such, staff removed the revision to Condition of Certification **CUL-6** that was published in the PSA to require a Native American monitor in all areas requiring archaeological monitoring of earth-moving activities. Ground-disturbance will require a Native American monitor when a Native American artifact is discovered.

Cultural Resources Table 2
Native American Tribes Contacted by Energy Commission Staff

TRIBE	CULTURAL AFFILIATION
Kitanemuk & Yowlumne Tejon Indians	Kitanemuk & Yowlumne Tejon
San Fernando Band of Mission Indians	Gabrielino
Gabrieleno/Tongva San Gabriel Band of Mission Indians	Gabrieleno
Gabrielino-Tongva Tribe	Gabrielino
Gabrielino Band of Mission Indians	Gabrielino
Gabrielino/Tongva Nation	Gabrielino
San Manuel Band of Mission Indians	Serrano
Fernando Tataviam Band of Mission Indians	Fernando Tataviam

Socioeconomics Figure 1 indicates that an environmental justice population exists within a six-mile buffer of the proposed project area (see the **Socioeconomics** section of this PSA for a discussion of methods and composition of the environmental justice population). Relevant to cultural resources, staff reviewed the ethnographic and historic literature to determine whether any Native American populations use or reside in the project area. Staff concluded that because there are no current hunting or gathering areas in the project vicinity, Native Americans are not considered an environmental justice population for this project.

CULTURAL RESOURCES INVENTORY

Archaeological Resources Investigations Conducted Within a One-Mile Radius of the Power Plant Site and ¼ Mile of Linear Facilities

Staff issued Data Request 31 on October 30, 2015 to obtain updated information regarding cultural resources in and near the PEP area. On February 11, 2016, under confidential cover, the petitioner docketed partial literature search results (AECOM

2016) and submitted additional results to staff on May 24, 2016. A total of 23 investigations within the record search area were conducted within the PAA (see **Cultural Resources Table 3)**, identifying at least 136 cultural resources. Thirty-eight of these cultural resources were not previously identified in cultural resource technical reports or staff analyses for the PHPP (see **Cultural Resources Table 4**). Four sites were recorded and submitted to the South Central Coastal Information Center (SCCIC) sometime in or after 2011, after the most recent record search by the petitioner, conducted on June 26, 2008, and thus were not and could not have been known with the exercise of due diligence at the time the Final Decision was certified.

Cultural Resources Table 3
Archaeological Resource Investigations within the Record Search Area Not Previously Identified in PHPP Reports

SCCIC Report Number (LA-)	Title	Author	Date	Proximity to PAA	Resources Identified
296	Tower Location and Access Road Inspection Victorville to Rinaldi 500kV Transmission Line Part III	Greenwood	1978	Within	2
1583	Archaeological Evaluation of Tentative Tract No. 44327 (sites LAN-761, 762, 1113) Indian Falls Estates, Chatsworth, Los Angeles County, CA	Love	1986	Within	3
2588	Archaeological Reconnaissance Report of a 1 Acre Parcel on the Southwest Corner of 8th Street East and Ave L-4 in Lancaster, CA	Campbell	1992	Outside	0
3327	Letter Report: Phase I Cultural Resource Survey of the Proposed Temporary Administration Building at the Air Route Traffic Control Center in Palmdale	Romani	1995	Within	0
3705	An Archaeological Reconnaissance of Southern California Edison Company's Vincent Transmission, From Bakersfield to Glendale, California	Coleman, Jones, and King	1969	Outside	12
5155	A Cultural Resources Reconnaissance for the Proposed Avenue S Road Widening, Located in Palmdale, Los Angeles County, California	Brown and Ferraro	1999	Within	6

SCCIC Report Number (LA-)	Title	Author	Date	Proximity to PAA	Resources Identified
5229	A Preliminary Archaeological Investigation of the Proposed Site for the Palmdale International Airport, Los Angeles County, California	Robinson	1973	Within	0
5864	Phase 1 Field Survey Results for Sprint PCS Facility LA54XC262A (Tom Tom), Located on 100th Street, Palmdale, Los Angeles County, California	Bonner	2001	Outside	0
7843	Cultural and Paleontological Resource Mitigation, Avenue S Widening, City of Palmdale, Los Angeles County, California	Goodwin and Reynolds	2002	Within	6
9143	A Cultural Resources Investigation of a One Acre Parcel in East Lancaster, California	Robinson	2008	Outside	0
9374	Archaeological Survey of Fiber Optic Cable from Pole 1008475H to the Ice House (Boeing) Palmdale, Los Angeles County, California	Ahmet	2008	Within	0
9418	Cultural Resources Survey of Three Wells in the City of Palmdale, Los Angeles County, California	Bholat and Chandler	2008	Outside	0
9457	A Phase 1 Cultural Resources Survey of the Strategic Realty Investors, Inc. property at Avenue P and 10th Street East, APNs 3022-022-005 and -023, approximately 17.5 acres in Palmdale, Los Angeles County, California	McKenna	2007	Within	0
9679	Cultural Resource and Paleontological Assessment, North Los Angeles/Kern County, Regional Recycled Water Master Plan, Los Angeles/Kern counties, California	Loftus and Turner	2008	Within	9
9705	Cultural Resources Inventory of the Southern California Edison Company Tehachapi Renewable Transmission Project, Kern, Los Angeles and San Bernardino counties, California. ARR# 05-01-01046	Anonymous	2007	Outside	46

SCCIC Report Number (LA-)	Title	Author	Date	Proximity to PAA	Resources Identified
9729	Spatial Distribution of Prehistoric Archaeological Sites in Littlerock Canyon: Implications for Ecosystem Management	Powell and Hildebrandt	1996	Outside	N/A
9730	Cultural Resources Overview of the Littlerock Watershed, Angeles National Forest, California	Earle, McKeehan, and Mason	1995	Outside	N/A
9753	Supplemental Cultural and Paleontological Resources Assessment, Segment 2 Section 4 of the Tehachapi Renewable Transmission Project, Variance for Modifying Available Work Space at Wire and Guard Pole Sites 105-117, Los Angeles County, California	Harper and Gust	2009	Outside	5
9754	Supplemental Cultural Resources Assessment, Segment, Segment 2, Section 4, Tehachapi Renewable Transmission Project, Variance for the Construction Tower 115, Los Angeles County, California	Glover and Gust	2009	Outside	0
9755	Supplemental Archaeological and Paleontological Resources Assessment, Sagebrush 220kV Transmission Line Modification (Segment 2, Tehachapi Renewable Transmission Project), Los Angeles County, California	Gust, Harper and Glover	2009	Outside	0
10144	Second Addendum: Archaeological Survey Report for Southern California Edison Company, the 66kV Antelope Bus Split Project, Los Angeles County, CA	DeGiovine and Wilson	2008	Within	5
10175	Confidential Cultural Resources Specialist Report for the Tehachapi Transmission Project	Unknown	2009	Outside	63
10246	Cultural Resources Records Search and Site Visit Results for T-Mobile USA. Candidate SV12210A (Palmdale), 42035 20th Street E., Palmdale, Los Angeles County, California	Bonner	2009	Outside	4

SCCIC Report Number (LA-)	Title	Author	Date	Proximity to PAA	Resources Identified
10470	Archaeological Monitoring Report – Southern California Edison Station Fire Emergency Transmission Line Road Maintenance Project, Angeles National Forest, Los Angeles County, California ARR# 05-01-1154	Schmidt	2010	Outside	48
10498	Archaeological Survey and Historic Study Report for the Acquisition of Right-of-Way Along the Avenue P-8 Corridor in the City of Palmdale, Los Angeles County, California	Sylvia	2002	Within	5
10518	Searching for Utopia: Results of Archaeological and Historical Investigations at the Llano del Rio Colony (CA-LAN-2677H) near Pearblossom, Los Angeles County, California	Van Bueren and Hupp	2000	Within	1
10623	Final – Historic Property Management Plan, Building 150, Air Force Plant 42, Palmdale, California 2010-2015	Peyton	2010	Within	1
10634	Preliminary Archaeological Survey Report for 98 linear miles of the East Branch Extension of the California Aqueduct for the DWR East Branch Enlargement Project, Los Angeles and San Bernardino counties, California	Bray	2010	Outside	99
10642	Preliminary Historical/Archaeological Resources Study, Antelope Valley Line Positive Train Control Project Southern California Regional Rail Authority, Lancaster to Glendale, Los Angeles County, California	Tang	2010	Outside	14
10710	Cultural Resources Records Search and Site Visit Results for AT&T Mobility, LLC Candidate LAC586 (Vincent), 34500-1/4 Rough Road, Palmdale, Los Angeles County, California	Bonner	2010	Outside	0
10813	Expansion Area Amendment to the Redevelopment Plans for the Merged Project Area	Lajoie and Barker	2011	Within	317
11026	Totem Pole Ranch	Sutton	2011	Within	1

SCCIC Report Number (LA-)	Title	Author	Date	Proximity to PAA	Resources Identified
11034	Final Environmental Assessment (FEA) North Valley Regional Water Infrastructure Section Recycled Water 1 (RW1) Pipeline Project, City of Lancaster, Los Angeles County, California	Magness	2009	Outside	8
11035	Continued Consultation Regarding the North Valley Regional Water Infrastructure Recycled Water 1 Pipeline (RW1) Project, Lancaster, Los Angeles County, California	Unknown	2010	Outside	2
11135	Historical/Archaeological Resources Survey Report, City of Palmdale Recycled Water Master Plan Supplement, Los Angeles County, California	Tang and Hogan	2011	Within	101
11453	Archaeological Survey for the Southern California Edison Company: Nineteen deteriorated power poles on the Petan 12kV, Force 12kV, Moonglow 12kV, and High Lake 12kV circuits in Los Angeles County, California	Orfila	2011	Outside	11
11455	Archaeological Survey for the Southern California Edison Company: Thirty-nine (39) deteriorated power poles near Lancaster, Los Angeles County, California	Orfila	2011	Within	0
11523	Verizon Wireless Challenger, Palmdale, California	Martorana	2011	Outside	5
11654	Cultural Resource Records Search and Site Survey, AT&T Site NL0466-02, jones-R 906 East Avenue “R”, Palmdale, Los Angeles County, California 93550	Loftus	2011	Outside	1
11868	Cultural Resources Survey Letter Report for the Variance for Extra Disturbance Areas, Segment 5, Tehachapi Renewable Transmission Project, Los Angeles County, California	Bischoff	2011	Within	0

SCCIC Report Number (LA-)	Title	Author	Date	Proximity to PAA	Resources Identified
11869	Cultural Resources Survey for the M76-T5 Access Roads, Segment 5 Tehachapi Renewable Transmission Project, Los Angeles County, CA	Holm	2010	Within	0
11870	Letter Report: Cultural Resources Survey for the CT-68X Three Additional Staging/Stockpile Areas TEWS Request, Segment 5, Tehachapi Renewable Transmission Project, Los Angeles County, CA	Tejada	2011	Within	0
11871	Letter Report: Cultural Resources Survey for the Vincent Additional Wire Setup Site Variance Request, Segment 5, Tehachapi Renewable Transmission Project, Los Angeles County, CA	Tejada	2011	Outside	0
11872	Cultural Resources Survey and Paleontological Resources Assessment Letter Report for the Vincent Temporary Power Line Variance, Segment 6, Tehachapi Renewable Transmission Project, Los Angeles County, California	Bischoff	2011	Outside	11
11875	TRTP Isolated Historic Refuse Deposit – Determination of Eligibility (Non-eligible Property), PL-SCE-SEG5-01H	Jackson and Becker	2011	Within	13
11876	TRTP Isolated Historic Refuse Deposit – Determination of Eligibility (Non-eligible Property) PL-SCE-SEG5-04H	Jackson and Becker	2011	Outside	14
11889	Phase 1 Cultural Resources Assessment, Pearblossom Solar Project, Los Angeles County, California	Ehringer and Bray	2012	Within	5
11986	Archaeological Survey and National Register of Historic Places and California Register of Historical Resources Evaluation of Vincent North and Vincent South Contractor Show-Up and Materials Yard, Southern California Edison Tehachapi Renewable Transmission Project, Los Angeles County, California	Becker, Schneider, Panich, and Holson	2010	Outside	9

SCCIC Report Number (LA-)	Title	Author	Date	Proximity to PAA	Resources Identified
11987	TRTP Negative Archaeological Survey Report, Tehachapi Renewable Transmission Project, Cultural Resources Survey Report with Negative Findings, Segment 9 Vincent Substation Expansion and Foreston Drive Realignment, Los Angeles County, California	Schneider	2010	Outside	13
12095	Los Angeles County Waterworks District No. 40 Regional Recycled Water Project Phase 2	Bray	2012	Within	9
12527	Supplemental Archaeological Survey Report #1, Tehachapi Renewable Transmission Project Segment 5, Los Angeles County, California	Panich, Cimino and Holson	2010	Outside	23
12528	Supplemental Archaeological Survey Report #2, Tehachapi Renewable Transmission Project Segment 5, Los Angeles County, California	Schneider and Holson	2010	Outside	130
12548	Supplemental Archaeological Survey Report, Tehachapi Renewable Transmission Project Segment 6, Los Angeles County, California	Greenber et al.	2011	Outside	18
12612	Section 106 Review: Upgrade Fire Suppression System at Building 150, US Air Force Plant 42: Palmdale, California	Tokarsky	2013	Outside	1
12670	Cultural Resources Assessment for the Emsierra Project, Lancaster, Los Angeles County, California (BCR Consulting Project No. TRF1415)	Brunzell	2014	Outside	1
12783	Historical/Archaeological Resources Survey Report SEPV Palmdale East Project (Pre-Application No. 13-002) City of Palmdale, Los Angeles County, California	Tang and Hogan	2013	Outside	1
12807	Cultural Resources Survey for the Vincent Station Siding Extension and Second Platform Project, Acton, California, Los Angeles County	Tennesen	2014	Outside	2

Archaeological Resources in the Record Search Area Not Previously Identified

Of the 38 archaeological resources in the petitioner's literature search that were not previously identified, 9 are located either in an area of potential direct impact or in close enough proximity that a direct impact could occur; i.e., within the prehistoric and ethnographic PAA. The 9 potentially-impacted resources are shown in bold text in **Cultural Resources Table 4** below.

Cultural Resources Table 4
Archaeological Resources in the Record Search Area Not Previously Identified in PHPP Reports

Primary Number (P-19-)	Site Components	Date Recorded/Updated	CRHR Eligibility	Location relative to PEP project area
001219	Unknown	Unknown	Unknown	~800' east of natural gas pipeline
001427	Lithic scatter	8/23/1988	Potentially eligible	~1,000' northwest of transmission line
002549	Trash scatter	7/29/2011	Recommended not eligible	~1,000' northwest of transmission line
002561	Trash scatter	8/28/2010	Recommended not eligible	~2,000' northwest of transmission line
002709	Trash scatter	10/7/1996	Not evaluated	~200' east of natural gas and reclaimed water pipeline
002714	**Trash scatter**	**10/7/1996**	**Recommended not eligible (Earth Tech 1997: 5-6)**	**In transmission line corridor**
002775	Holding pond, concrete tank, and irrigation ditch segments	8/2/2002	Potentially eligible	~1,000' west of transmission line
002907	Trash scatter	10/1/2010	Recommended not eligible	~1,000' northwest of transmission line
002908	Trash scatter	8/30/2010	Recommended not eligible	~1,000' northwest of transmission line
003116	Trash scatter and borrow pits	8/28/2010	Recommended not eligible	~500' west of transmission line
003124	Sparse lithic scatter	7/8/2010	Recommended not eligible	~800' west of transmission line
003185	Trash scatter	8/9/2004	Recommended not eligible	~500' south of transmission line
003308	**Trash scatter**	**12/13/2011**	**Recommended not eligible (DPR)**	**Less than 100' west of transmission**

Primary Number (P-19-)	Site Components	Date Recorded/Updated	CRHR Eligibility	Location relative to PEP project area
				line
003458	**Trash scatter**	**12/13/2011**	**Recommended not eligible (DPR)**	**In transmission line corridor**
003536	Trash scatter	10/2/2010	Recommended not eligible	~2,000' northwest of transmission line
003731	Bedrock milling station	9/15/2010	Not evaluated	~2,000' southwest of transmission line
003924	Rock circles/clusters, quarry, lithic scatter	4/21/2004	Unknown	~1,000' south of transmission line
003938	Trash scatter	7/21/2009	Not recommended eligible	~1,000' west of transmission line
004078	Trash scatter	5/22/2010	Unknown	~1,000' east of transmission line
004136	Unknown	Unknown	Unknown	~1,000' north of transmission line
004194	**Cement and brick foundation with trash scatter**	**/5/20/2016**	**Recommended not eligible**	**Adjacent to transmission line**
004283	**Trash scatter**	**/5/20/2016**	**Recommended not eligible**	**Less than 100' south of reclaimed water pipeline**
004284	Structure foundation and trash scatter	1/27/2011	Recommended not eligible	~100' south of transmission line
004285	Structure foundation	1/27/2011	Recommended not eligible	~100' southwest of transmission line
004286	**Trash scatter**	**/5/20/2016**	**Recommended not eligible**	**In reclaimed water pipeline and natural gas pipeline corridor**
004287	**Trash scatter**	**5/20/2016**	**Recommended not eligible**	**In reclaimed water pipeline and natural gas pipeline corridor**
004309	Trash scatter with cobble/mortar basin and hearth	9/5/2012	Recommended not eligible	~200' north of transmission line
004310	Trash scatter	9/5/2012	Recommended not eligible	~200'southeast of transmission line
004323	**Trash scatter**	**5/6/2013**	**Recommended not eligible (DPR)**	**Adjacent to transmission line**
004335	Trash scatter	4/4/2011	Recommended not eligible	~500' northwest of transmission line

Primary Number (P-19-)	Site Components	Date Recorded/Updated	CRHR Eligibility	Location relative to PEP project area
100003	**Isolated quartzite flake**	**1/21/1978**	**Not eligible**	**In transmission line corridor**
100024	Isolated projectile point	5/3/1993	Not eligible	~1,000' west of project area
100025	Isolated scraper	5/3/1993	Not eligible	~1,500' west of project area
100325	Two isolated chert flakes	9/22/1999	Not eligible	In transmission line corridor
100576	Isolated glass insulator	2/2/2006	Not eligible	~1,000' northwest of transmission line
100758	Isolated Agate flake and core	8/7/2009	Not eligible	~1,000' northwest of transmission line
100901	Unofficial chart scraper	6/26/1985	Not eligible	~500' north of transmission line
101014	Two cans	2/24/2011	Not eligible	~500'west of transmission line

Of the 9 sites in the area of potential direct impact, five have been previously recommended not eligible, P-19-002714, P-19-003308, P-19-003458, P-19-004323, and P-19-100003. Staff agrees with these recommendations because none of the sites appear to be associated with events that have made a significant contribution to the broad patterns of California history, associated with the lives of important persons of the past, associated with a distinctive type, period or method of construction or creative individual, or have potential to yield important information. Thus any impacts to these sites by the PEP would not be significant.

The remaining four sites, P-19-04194/CA-LAN-4194, P-19-004283/CA-LAN-4283, P-19-004286/CA-LAN-4286, and P-19-004287/CA-LAN-4287 were not evaluated for the CRHR, and were the subject of a Data Request included with publication of the PSA. These four cultural resource sites were originally recorded and submitted to the SCCIC sometime in or after 2011, after the most recent record search by the petitioner on June 26, 2008, and thus were not and could not have been known with the exercise of due diligence at the time the Final Decision was certified.

A plan to test these sites for CRHR eligibility was developed by the petitioner and approved by staff in May 2016. The petitioner conducted the work on May 19 and 20, 2016 implementing the research design and methodology spelled out in the testing plan. None of the four sites were found to meet any of the criteria for listing on the CRHR or retain sufficient integrity.

Site P-19-004194/CA-LAN-4194 is an historic site initially recorded in 2011. The site was likely a residence and extant remains consist of a cement and brick foundation, and associated debris. Debris includes two glass fragments, dispersed concrete rubble, approximately six brick fragments, two pieces of metal rebar, and one modern faunal rib bone. The structure appears as early as 1953 on aerial imagery and again on 1959, 1965, 1971, 1974, and 1994 imagery, but is not present on the next available year's

imagery, 2005. A portion of the site is within a paved street and another portion is on private land, impeding full recordation of the site. The 2016 update found the site to be mostly destroyed since 2011, most likely due to grading for use of the area as a parking lot. The northern portion of the site has been further disturbed from the construction of a sidewalk and right-turn lane. Shovel scrapes identified only two of the originally recorded six foundation segments. A shovel test pit (STP) was placed south of the most intact foundation segment and two glass fragments were identified in the 10-20 cm level while the remainder of the STP was sterile. Research regarding the occupants of the residence found that David and Dora Hudson owned the property in 1977, and were the likely residents of the house from 1977 until about 1993, and the house was demolished shortly thereafter (Foglia and Downs 2016: 28-31). Based on, 1) the lack of a connection of the site to the history of Palmdale or California or any notable people, 2) the fact that there are no pictures of the house to determine if it embodies the distinctive characteristics of a type, period, region, or method of construction or represents the work of a master or possess high artistic values, and 3) a lack of diagnostic artifacts and subsurface deposits which could provide additional information about the site, CA-LAN-4194 is recommended as not eligible for listing in the CRHR under criteria 1-4.

Site P-19-004283/CA-LAN-4283 is an historic site initially recorded in 2011. The site consists of historic debris, including about 70 glass fragments, over 20 metal can fragments, five whiteware fragments, three yellow melamine bowl fragments, two battery fragments, one red tile, one metal button/pin, one bullet casing, and unknown metal fragments. The diagnostic marks on some of the glass and can fragments suggest a date of late 1950s to the early 1960s. The age of the site and the type of artifacts present suggest the site is an opportunistic dump site. The site is heavily disturbed from the paved road, nearby buildings, and a man-made berm. No STPs were placed at this site and historic research did not indicate the presence of a structure or other resource at the site in the past (Foglia and Downs 2016: 32-34). Based on, 1) the lack of a connection of the site to the history of Palmdale or California or any notable people, 2) the fact that the site does not embody the distinctive characteristics of a type, period, region, or method of construction or represent the work of a master or possess high artistic values, and 3) the lack of diagnostic artifacts which could provide additional information about the site, CA-LAN-4283 is recommended as not eligible for listing in the CRHR under criteria 1-4.

Site P-19-004286/CA-LAN-4286 is an historic site initially recorded in 2011. The site consists of historic debris, including over 120 glass fragments, over 65 metal cans (both complete and fragments), 10 poured concrete chunks, four metal jar lids, three battery fragments, one deodorant jar, one clear jar, one model airplane wing, one bullet casing, one salt and pepper shaker lid, one piece of wire, one nail, four unidentifiable metal pieces, and one unidentified ceramic piece. Modern trash was also present, but the majority of artifacts appeared historic. The diagnostic marks on some of the artifacts suggest the site dates from the 1940s to the 1960s. The site may be related to CA-LAN-3703, a large dump site across 10th street or to CA-LAN-4287 located to the south. The site's integrity was compromised due to modern trash, the paved road, nearby buildings, and a ditch. No STPs were placed at this site and historic research did not indicate the presence of a structure or other resource at this site in the past (Foglia and Downs 2016: 34-37). Based on, 1) the lack of a connection of the site to the history of Palmdale or California or any notable people, 2) the fact that the site does not embody the

distinctive characteristics of a type, period, region, or method of construction or represent the work of a master or possess high artistic values, and 3) the lack of diagnostic artifacts and a substantial subsurface deposit which could provide additional information about the site, CA-LAN-4286 is recommended as not eligible for listing in the CRHR under criteria 1-4.

Site P-19-004287/CA-LAN-4287 is an historic site initially recorded in 2011. The site consists of 2 loci of historic debris, including several types of cans numbering about 300, over 1,000 glass fragments, about 220 terracotta tile or pipe fragments, over 100 plastic fragments, about 40 bottle caps, about 20 concrete chunks, 20 nuts/bolts, 10 whiteware fragments, 40 pieces of foil, 20 pieces of wood, 10 tires, eight rubber-soled shoes, five wire hangers, five pieces of wire mesh, four springs, three brownware dishes, three tobacco cans, three green tiles, three nails, two batteries, two juice cans, two *Tivela* shells, two mason jars, two baby doll parts, two ashtrays, one car battery, one light bulb, one lamp, one coffee mug, one beer can, one cream bowl, one wooden hairbrush, and other household items. Based on the age and nature of the artifacts the site was likely a household dumping ground for nearby residents from the late 1950s to the 1970s. Four STPs were placed at this site, and historic trash was found up to 20 cm below the ground surface in three of the STPs. The site's integrity has been impacted due to modern trash, the paved road, nearby buildings, and a ditch. Historic research did not indicate the presence of a structure (Foglia and Downs 2016: 37-43). Based on, 1) the lack of a connection of the site to the history of Palmdale or California or any notable people, 2) the fact that the site does not embody the distinctive characteristics of a type, period, region, or method of construction or represent the work of a master or possess high artistic values, and 3) the lack of diagnostic artifacts and absence of a subsurface deposit which could provide additional information about the site, CA-LAN-4287 is recommended as not eligible for listing in the CRHR under criteria 1-4.

Additionally, staff performed a review of the relevant ethnographic literature in an effort to identify any potential ethnographic resources in or near the PEP PAA. The sources consulted did not mention or indicate any ethnographic areas or resources in the vicinity of the PAA (Bean and Smith 1978a; Bean and Smith 1978b; Jurmain and McCawley 2009; King and Blackburn 19789; Kroeber 1976; Miller 1991).

Built Environment Historic Resources in the Project Area of Analysis

The PAA for the PEP is defined as a one-mile radius surrounding the proposed project site's reduced footprint. The PAA for the PEP linears is defined as one-half mile radius from the centerline of the linear corridor. This is consistent with the licensed project.

In addition to reviewing the literature search results provided by the petitioner (discussed below), staff investigated the one-mile PAA radius for the proposed PEP PTA by examining local and national historic register listings to determine if any historic built environment resources have been identified since the Final Decision in 2011. The city of Palmdale has not identified any new built environment historic resources since publication of the 1993 General Plan or the 1998 Avenue S Corridor Area Plan. The city of Lancaster has not identified any new historic built environment resources since the publication of the 2009 General Plan. The County of Los Angeles recently recognized two historic sites in the area, both of which are listed on the CRHR; however, both of

these historic sites are located well outside of the PAA for the linears of the PEP and would not be impacted by the project.

Newly Identified Built Environment Historical Resources within the One-Mile PEP Site PAA

The petitioner provided literature search results as requested in Cultural Resources staff's Data Request Number 31 (CEC 2015c; AECOM 2016). As a result of reviewing the records provided in the literature search, staff identified an additional built environment historical resource within the PAA. Building 210, located on the adjacent Air Force Plant 42, was recommended eligible for the CRHR (Earth Tech 1996). The resource is listed on the CRHR and is identified by its Primary Number P-19-190782. It is not known why it was not considered during the initial licensing proceeding. It is possible the report was not on file at the SCCIC at the time of the original literature search for the licensed project. Building 210 is discussed in more detail below.

Newly Identified Built Environment Historical Resources within the ½ Mile Linears PAA.

Within the linears PAA, the California Aqueduct and Pearblossom Pumping Plant (PPP) have been recommended eligible for the NRHP/CRHR. The evaluation of PPP (Brewster 2012) was completed for the Pearblossom Solar Project. This evaluation would not have been on file at SCCIC at the time of the original literature search for the licensed project (2007-2009). The California Aqueduct and its ancillary facilities were determined eligible for the NRHP/CRHR by the State Historic Preservation Officer (SHPO) in 2012 (Ehringer and Bray 2012: 22). This also would not have been known at the time of the original literature search for the licensed project and its status is not yet reflected on the Directory of Properties in the Historic Property Data File for Los Angeles County.

Air Force Plant 42 Building 210 (P-19-190782)

Built in 1954, Building 210 is significant for its association with the SR-71 Blackbird strategic reconnaissance aircraft built by the United States. Building 210 is the only final assembly site for all 32 of the SR-71 aircraft. The SR-71 Blackbird is significant for its contribution to the successful conclusion of the Cold War. The period of significance for Building 210 is 1964 to 1969. The evaluation by Earth Tech (Earth Tech 1996) recommended the building as eligible for NRHP under Criterion A for its association with a critical Cold War-era program. It is listed on the CRHR.

The California Aqueduct (P-19-004154)

The California Aqueduct is a component of the State Water Project constructed in the initial phase from 1960 to 1974. The regional portion of the aqueduct system traversing the Palmdale area is currently known as the East Branch Aqueduct (EBA). EBA contains the previously named Mojave and Santa Ana divisions of the California Aqueduct. The EBA conveys water from the Tehachapi Afterbay in Kern County to Lake Perris in Riverside County. Construction of the EBA occurred between 1967 and 1972. The period of significance for the California Aqueduct as a whole is 1960 to 1974. The California Aqueduct attributes found to be character-defining features include:

- the aqueduct's engineered design related to topography and natural features;
- the trapezoidal shape;
- the concrete lining; and,
- the ancillary infrastructure such as pumping plants, power plants, siphons, canal check structures, reservoirs and dams (Ehringer and Bray 2012, p. 22).

Pearblossom Pumping Plant (P-19-190056, LA-11889)

Located near Pearblossom, California, the PPP was completed in 1972. The original facility had three pumping units, a service bay, two administration buildings and a 230-kV switchyard. It was designed to be expanded over time. The PPP is located just to the south of a major transmission line corridor, with six existing transmission lines crossing east to west over the aqueduct. One of these lines serves the switchyard at the plant. Brewster (Brewster 2012) recommended the PPP as eligible as a contributor to the California Aqueduct under NRHP/CRHR Criteria A/1 and C/3[3]. The 2012 SHPO determination that the entire California Aqueduct is eligible as an historical resource for listing on the NRHP/CRHR included ancillary facilities as character-defining features and contributing elements.

DIRECT AND INDIRECT IMPACTS

Staff concludes that there will not be any significant impacts to the newly identified archaeological sites CA-LAN-4194, CA-LAN-4283, CA-LAN-4286, and CA-LAN-4287 because staff recommends that these sites are not eligible for listing in the CRHR and therefore are not historical resources. Conditions of Certification **CUL-1** through **CUL-8** would reduce any impacts to buried, as-yet unknown historical resources to a less than significant level.

Staff concludes that, like Air Force Plant Building 150, the PEP would not have an adverse impact on Building 210 under CEQA. There would be no direct or indirect impacts to the building's workmanship, design, materials, location and association. The building's integrity of setting and feeling would not be impacted by its proximity to PEP and its linears because it is already sited within an industrial setting.

The proposed transmission line would span the California Aqueduct, having the potential to impact the aqueduct, the Pearblossom Pumping Plant, or other ancillary facilities considered to be character-defining features. It is reasonable to assume that construction could avoid direct impacts to the facilities by assuring placement of poles for lines that span the resources in such a way that would not impact the facilities on the ground. However, in the event that a significant impact was to occur, the mitigation provided in the original Condition of Certification **CUL-6** for the Palmdale Ditch has been updated to include the California Aqueduct. Condition of Certification **CUL-6** provides a

[3] Criterion A/1 applies to a site that is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage. Criterion C/3 refers to a site that embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of a creative individual; or, possesses high artistic values.

means to mitigate any unanticipated and unavoidable construction-related impacts to a less than significant level.

Condition of Certification **CUL-6** was included in the Final Decision to provide mitigation in the event that avoidance of the resource (Palmdale Ditch) was not possible in the placement of the transmission poles. The Commission found in its Final Decision that, "if impacts cannot be avoided and are significant, Condition of Certification **CUL-6** provides a means to mitigate such impacts to a less-than-significant level" (CEC 2011b:p7.3-16). The mitigation required Historic American Engineering Record (HAER) recordation[4] as a means to reduce the impact to less than significant.

Similarly, avoidance of the California Aqueduct would be the most feasible and reasonable approach to placement of transmission line poles. In the unlikely event that avoidance is not feasible and the resource could be impacted by the construction of the transmission line, implementation of Condition of Certification **CUL-6** would mitigate the impacts to a less-than-significant level. Although HAER recordation is not a complete substitute for preserving the resource itself, it embodies a "fair approximation of the burden of historical preservation borne by the particular historical resource in question" (Aikens 2012). In some ways, the public will have more access to the resource upon completion of documentation and its availability at the Library of Congress. Thus, the resource's historical significance will also be more readily available to the public than through the mere existence of the resource.

The addition of a seventh transmission line to the existing corridor to service the PEP would not have an indirect impact upon either the aqueduct's or the pumping plant's historic integrity (settings, feelings or associations), as transmission lines have been part of the setting from the time of construction.

CUMULATIVE IMPACTS

There will not be any direct or indirect impacts to known CRHR-eligible archaeological resources; therefore staff also concludes that the PEP would not contribute to any significant cumulative impacts to known archaeological resources.

Staff reviewed potential projects in the vicinity of the PEP and Air Force Plant 42 for the potential for cumulative impacts on Building 210 and finds that the only project with the potential for cumulative impacts is the transmission line associated with PEP itself. Staff concludes that the PEP and its transmission line would not have significant cumulative impacts on the integrity of Air Force Plant 42's Building 210. The addition of three transmission poles to what was previously proposed along Avenue M does not alter the design, workmanship, materials, setting, feeling, association or location of Building 210.

[4] The Department of the Interior, through the Heritage Documentation Programs of the National Park Service, has developed methods for documenting and recording historic buildings, engineering structures and landscapes. These are known as Historic American Building Survey/Historic American Engineering Record/Historic American Landscape Survey (HABS/HAER/HALS) documentation. HABS/HAER/HALS provides for complete recordation of a historic resource through the use of large format photography, as-built or historical drawings and thorough evaluation of the resource. This is often done when a historical resource is slated for demolition or removal, or significant alteration is proposed to the extent that the loss of integrity would render the resource no longer eligible for listing on a historic register.

Staff reviewed potential projects in the vicinity of the California Aqueduct's PPP for the potential for cumulative impacts on the resource. Other than the PEP's transmission line, the nearest identified future project is the High Desert Corridor Project, a 63-mile freeway project. The route for the proposed freeway is nearly 5 miles from the PPP and the aqueduct and does not have the potential to impact the resource. Staff concludes that the PEP and its linears would not combine with other projects to have cumulative impacts on the resource.

RESPONSE TO PSA COMMENTS

PROJECT OWNER

Comment:

In comments on the PSA, the Project Owner proposed deleting not well defined language, "including but not limited to damage to topography and natural features" in **CUL-6** regarding the California Aqueduct, the Pearblossom Pumping Station and other ancillary facilities.

Response to Comment:

Staff added clarifying language to make the condition better defined. This revision is included in the revised **CUL-6** language.

Comment:

In comments on the PSA, the Project Owner suggested deleting language staff added at the request of a tribe in **CUL-6** which would have required full-time Native American monitoring of all ground disturbances.

Response to Comment:
The tribe requesting full-time Native American monitoring terminated consultation with staff and therefore staff is keeping the original **CUL-6** language from the Decision.

Staff received no other comments from the public, interveners, or agencies in the area of **Cultural Resources**.

CONCLUSIONS AND RECOMMENDATIONS

Staff concludes that the modified project will continue to comply with all LORS. Staff concludes that any new significant impacts on identified built environment resources can be mitigated to less than significant with staff's proposed changes to Condition of Certification **CUL-6**. Staff concludes that the four newly identified archaeological resources CA-LAN-4194, CA-LAN-4283, CA-LAN-4286, and CA-LAN-4287 are not eligible for listing in the CRHR and are not historical resources, and therefore there will not be any significant impacts to these sites. Staff concludes that Native Americans are not considered an environmental justice population for this project; therefore, there are no cultural resources environmental justice impacts. Implementation of Conditions of Certification **CUL-1** through **CUL-8** would reduce any impacts to buried, as-yet unknown historical resources to a less than significant level.

PROPOSED CONDITIONS OF CERTIFICATION

The conditions of certification for **Cultural Resources** are located in the Conditions of Certification Compendium at the back of this Final Staff Assessment.

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REFERENCES

The TN 000000 in a reference below indicates the transaction number under which the item is catalogued in the Energy Commission's Docket Unit. The transaction number allows for quicker location and retrieval of individual items docketed for a case or used for ease of reference and retrieval of exhibits cited in briefs and used at Evidentiary Hearings.

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Petitioner

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PHPP 2015b - Galati Blek LLP/Scott A. Galati (TN 204459). Petition to Amend, dated April 30, 2015. Submitted to Eric Veerkamp/CEC/Docket Unit on April 30, 2015.

PHPP 2015c - Galati Blek LLP/Scott A. Galati (TN 205394-1). Revised Petition to Amend (RPTA), dated July 17, 2015. Submitted to CEC/Eric Veerkamp on July 17, 2015 and docketed on July 20, 2015.

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PHPP 2015e - Galati-Blek LLP (TN 205394-3). Revised Petition to Amend (RPTA) Sections 4&6 Figures. Submitted to CEC/Eric Veerkamp on July 17, 2015 and docketed on July 20, 2015.

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CEC 2015b - California Energy Commission/Harriet Kallemyn (TN). Order Approving Transfer of Ownership from the City of Palmdale to Palmdale LLC, dated June 10, 2015. Submitted to CEC/Docket Unit on June 12, 2015.

CEC 2015c - California Energy Commission (TN 206472). Palmdale Energy Project (Formerly Palmdale Hybrid Power Plant. Docket Number: 08-AFC-09C. Petition to Amend Data Requests - Set 1 (Nos. 1-63) 10/31/2015.

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PALMDALE ENERGY PROJECT (08-AFC-9C)
Petition to Amend the Final Commission Decision
HAZARDOUS MATERIALS MANAGEMENT
Testimony of Alvin Greenberg, Ph.D.

SUMMARY OF CONCLUSIONS

The Petition to Amend (PTA) the 2011 California Energy Commission (Energy Commission) Final Decision (Decision) for the Palmdale Hybrid Power Project (PHPP; PHPP 2015d) changes the name of the approved project to the Palmdale Energy Project (PEP) and would eliminate the solar energy component, thus reducing the project site from 333 acres to 50 acres. It would remain located on the same parcel of land and use and transport similar amounts of hazardous materials to the project site. The risk to the public from an accidental or intentional release of hazardous materials would remain the same or be lower than the risks posed by the original approved project. Staff therefore has determined that the proposed amendments would not result in a significant risk to the public from hazardous materials management.

In accordance with California Environmental Quality Act (CEQA) Guidelines section 15162 (Cal. Code Regs., tit. 14, § 15162), staff concludes that no supplementation to the 2011 Commission Decision is necessary for Hazardous Materials Management. The Committee may rely upon the environmental analysis and conclusions of the 2011 Commission Decision with regards to Hazardous Materials Management and does not need to re-analyze them.

INTRODUCTION

Staff has reviewed the 2011 Commission Decision and analyzed the changes to the licensed PHPP, which include eliminating the solar energy component, reconfiguring the two on one combined cycle power block configuration to incorporate new gas turbine technology, and replacing the wet cooling tower with an air-cooled condenser.

SUMMARY OF THE DECISION

In the Decision (CEC 2011b), the Commission found that the use of hazardous materials during construction and operation, including aqueous ammonia and natural gas, would not pose a significant risk of adverse impacts to the off-site public. This conclusion was based on compliance with appropriate administrative, engineering, and regulatory requirements, including the Conditions of Certification adopted in the Decision, for the transportation, storage, and use of aqueous ammonia and other hazardous materials proposed for use at the PHPP. Furthermore, the Commission found that the probability of a flight accident at Air Force Plant 42 was very low and that the location of the accident would more than likely occur within Safety Zones 1 or 2 (at the end of the runway), not at the location of the PHPP (the side zone).

The Commission also found that, with the implementation of the conditions of certification, the PHPP would comply with all applicable LORS related to Hazardous Materials Management and that, therefore, the use of hazardous materials by the PHPP would not result in any significant direct, indirect, or cumulative adverse public health and safety impacts.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

Two LORS applicable to the project have changed since the Decision was published in August 14, 2011. Staff therefore recommends that the following LORS be added to Table 1:

Hazardous Materials Management Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable LORS	Description
Federal	
Executive Order 13650 Improving Chemical Safety and Security Aug 1, 2013	This Order directs the federal government to improve safety and reduce risks to workers and communities posed by facilities that use and store hazardous chemicals. A multi-federal agency Working Group will work with states to identify means by which this can be accomplished.
NFPA 56 (adopted 2012)	NFPA 56 is the Standard for Fire and Explosion Prevention During Cleaning and Purging of Flammable Gas Piping Systems.

ENVIRONMENTAL IMPACT ANALYSIS

Staff has reviewed the petition for potential environmental effects and consistency with applicable LORS and has concluded that no supplementation to the 2011 Commission Decision is necessary for Hazardous Materials Management, that the Committee may rely upon the environmental analysis and conclusions of the 2011 Commission Decision with regards to hazardous materials management, and does not need to reanalyze them due to the following:

- The changes in the PTA would not create new significant environmental effects or substantial increases in the severity of previously identified significant effects. In fact, the changes proposed in the PTA would reduce any environmental impact from hazardous materials to a level even less than the approved project.
- The PTA does not propose substantial changes which would require major revisions of the Hazardous Materials Management analysis in the Decision.
- The circumstances under which the PEP would be undertaken would not require major revisions of the Hazardous Materials Management analysis in the Decision.

Staff's conclusion is supported by the following key factual information:

- Only two LORS applicable to Hazardous Materials Management have changed since the Energy Commission Decision was published in August 2011. One is addressed in revisions to existing Condition of Certification **HAZ-9** (security) and the other is addressed in proposed new Condition **HAZ-10** (prohibition of gas blows).
- One engineering mitigation measure is proposed to be revised and this revision is addressed by slightly modifying Condition **HAZ-4**.
- One existing Condition is proposed for deletion (**HAZ-7**) due to the elimination of the solar component which resulted in heat transfer fluid (HTF) no longer proposed for use.
- Only minor changes are proposed for existing Conditions **HAZ-1** and **HAZ-2**.
- The environmental and public health impacts of hazardous materials transported, stored, and used at the PEP would be the same or less than those described in the December 2010 FSA (CEC 2010b) and the August 2011 Final Decision (CEC 2011b), that is, less than significant with the mitigation described in the Decision.
- Because of power block configuration and equipment changes proposed in the PTA and the time-lapse that has occurred since the project was originally licensed, the project owner provided a new table of chemicals that would be used during operations (see Appendix B below). Staff has reviewed each of the chemicals and amounts listed in the new table and determined that any risk and potential impacts to the public from the transport, use, and storage of hazardous materials at the PEP would be less than those for the originally licensed project. Among the significant changes in hazardous materials proposed for use at the PEP that would reduce the risk of fire, explosion, or health impacts to the public, staff notes that in addition to the deletion of the highly combustible HTF, the project owner proposes to eliminate the use of 93 percent sulfuric acid and compressed hydrogen gas.
- A revised Offsite-Consequence Analysis (OCA) for the aqueous ammonia storage tank was required because the new location for that tank renders the previous OCA inaccurate. Therefore, staff could not make a determination of potential risk to off-site receptors due to a release or spill until a revised OCA was prepared. Staff requested a revised OCA in Data Request #32 (CEC 2015n) and the project owner supplied one in its Data Response docketed January 14, 2016 (DayZen 2016). Staff determined that although the OCA modeling was properly performed, staff disagreed with the appropriateness of the air dispersion model used to estimate the airborne concentration of ammonia. Staff no longer uses the SLAB model for buoyant plumes (which would include ammonia coming from a spill of aqueous ammonia) as staff believes that SLAB is more useful for dense gas dispersion. Instead, Staff recommends the use of the ALOHA Model. Staff found that its benchmark (threshold) airborne ammonia concentration of 75 ppm would exist far beyond the fence line during any scenario it assessed where the tank, piping, valves, flanges, or pumps failed and resulted in a spill of aqueous ammonia into the secondary containment area.

  Staff believes that rather than debate the utility of the different air dispersion models, it would be more fruitful to engineer the problem so that no offsite airborne

concentration would exceed 75 ppm under any atmospheric circumstances. The Petitioner has stated that it no longer wishes to construct a sub-surface sump where aqueous ammonia from a tank failure would flow into through a 4 sq. ft. grate (as described in the original approved project's Application for Certification and in staff's Final Staff Assessment [CEC 2010b; page 364]). Instead, the Petitioner has proposed the use of hollow plastic balls that would float on the surface of spilled aqueous ammonia inside the secondary containment area which would work to reduce the surface area of an ammonia spill and thus also prevent ammonia vapors to exceed 75 ppm beyond the fence line. The Energy Commission has approved this approach in lieu of a subsurface sump for other licensed power plants and staff agrees.

- In regards to the spill scenario during transfer, the planned bermed tanker truck pad would be sloped to direct aqueous ammonia to flow to a grated area and into a subsurface sump. That would also reduce the surface area and result in the 75 ppm level not reaching beyond the fence line. Towards this, staff is proposing that existing Condition of Certification **HAZ-4** be revised to include a requirement for the use of plastic balls in the secondary containment area that surrounds the aqueous ammonia storage tank.
- The number and identity of hazardous materials proposed for use at the modified PEP (PHPP 2015d) will be less than that of the Approved Project and will therefore present a lower risk of release and impact. The elimination of the solar array eliminates the use of HTF and therefore a Process Safety Management Plan is not required. These revisions are reflected in revised Conditions **HAZ-1** (Appendix B) and **HAZ-2** and the deletion of **HAZ-7**.
- The number of aqueous ammonia tanker truck trips to the modified PEP will be the same or less than the number of trips for the Approved Project and therefore the transportation risks to the public will remain less than significant.
- Because the PEP will be much smaller and will remain located within the footprint of the Approved Project, the risk of an airplane crash occurring on the project site from take-offs and landings at Air Force Plant 42 remains less than significant.
- **HAZ-4** is revised to reflect the correct updated tank standard and to remove the reference to the ANSI and API standards.
- Due to the revisions to the site proposed in the PTA that eliminated the solar array and greatly reduced the size of the facility footprint, and the increased infrastructure perimeter security requirements required by the U.S. Department of Homeland Security (DHS 2013) and the North American Electrical Reliability Corporation in 2014, Condition **HAZ-9** is modified slightly to reflect the removal of the solar field and to require full perimeter closed circuit TV (CCTV) as well as either guards on-site 24/7 or staff on-site 24/7 with perimeter breach detection.
- Staff recommends the adoption of new Condition **HAZ-10** that would require adherence to 2012 NFPA Standard 56 that addresses fire and explosion prevention during cleaning and purging of gas piping systems.

- Staff analyzed the potential for the existence of cumulative impacts due to projects proposed to be constructed currently or in the foreseeable future for both the Approved Project (CEC 2010b) and for the PEP (in this FSA). Staff's generic cumulative impacts analysis addresses only the potential for cumulative impacts during the construction phase. Since the number and type of hazardous materials proposed for use during construction of the PEP would be few and not pose a significant risk of impacts off-site, hazardous material management cumulative impacts assessed the potential for cumulative impacts during operations by looking at those proposed projects' potential use and off-site impacts of hazardous materials. A significant cumulative hazardous materials impact is defined as the simultaneous uncontrolled release of hazardous materials from multiple locations in a form (particulates, gas, or liquid) that could cause a significant impact where the release of one hazardous material alone would not cause a significant impact. Staff believes that while cumulative impacts are theoretically possible, they are not probable because of the many safeguards implemented to both prevent and control an accidental release. The chances of one accidental release occurring are remote. The chance of two or more occurring simultaneously, with resulting airborne plumes commingling to create a significant impact, are even more remote. A review of the potential new locations in the area of the PEP that might contain hazardous materials found that only a proposed automobile recycling yard 5.7 miles away could potentially release hazardous materials into the surrounding area. Staff determined that the distance is too great for an impact to occur at a location that could possibly be impacted by a simultaneous release from the PEP and thus no significant cumulative risk exists. Although it is assumed that Air Force Base-42 (located along the southern fence line of the proposed PEP) would store and use various hazardous materials, due to the classified nature of the facility staff was unable to determine the identity, amount, and location of the hazardous materials used and stored on that site.

Socioeconomics staff has determined that the population in a six mile radius from the PEP site constitutes an environmental justice population as defined by "Environmental Justice: Guidance under the National Environmental Policy Act." This determination requires further scrutiny for purposes of an environmental justice analysis. Staff has determined that this population would not be adversely affected by Hazardous Materials Management (which includes the transportation to the facility, storage at the facility, and use at the facility) related to the construction, operation, or closure of PEP provided all existing and proposed new and revised conditions of certification for Hazardous Materials Management are implemented as recommended for protection of the public safety and welfare in general.

RESPONSE TO PSA COMMENTS

Staff received no comments from the public, interveners, agencies, or the applicant in the area of **Hazardous Materials Management**.

CONCLUSIONS AND RECOMMENDATIONS

Staff concludes that the proposed amendment will not have any additional significant hazardous materials impacts as the mitigation for the original Approved Project will provide adequate mitigation for the proposed PEP.

CONDITIONS OF CERTIFICATION

The conditions of certification for **Hazmat** are located in the Conditions of Certification Compendium at the back of this Final Staff Assessment

REFERENCES

CEC 2010b – California Energy Commission (TN 59309). Palmdale Hybrid Power Project Final Staff Assessment, date submitted to CEC/Docket Unit Dec. 22, 2010, docketed Dec. 22, 2015

CEC 2011b - California Energy Commission (TN 61876). Palmdale Hybrid Power Project Final Commission Decision, date submitted to CEC/Docket Unit August 15, 2011, docketed August 15, 2011

CEC 2015n - California Energy Commission/Eric Veerkamp (TN 206472). Petition to Amend Data Requests – Set 1 (Nos. 1-63), dated October 30, 2015. Submitted to Galati Blek, LLP, Scott Galati/CEC/Docket Unit on October 30, 2015

DayZen 2016 – DayZen LLC (TN 207318). Palmdale Energy LLC's Supplemental Response to Data Request 32, Off-site Ammonia Consequence Analysis. Submitted on January 14, 2016. Docketed on January 14, 2016.

DHS 2013 – National Infrastructure Protection Plan: Partnering for Critical Infrastructure Security and Resilience. U.S. Department of Homeland Security

NERC 2011 - Security Guideline for the Electricity Sector: Physical Security. North American Electric Reliability Corporation

PHPP 2015d - Galati Blek LLP (TN 205394-2). Revised Petition to Amend (RPTA) Sections 2&3 Figures. Submitted to CEC/Eric Veerkamp on July 17, 2015 and docketed on July 20, 2015

Hazardous Materials Appendix B
Hazardous Materials Proposed for Use at the PEP

Material	CAS No.	Application	Hazardous Characteristics	Maximum Quantity On Site	Federal Reportable Quantity
Acetylene	74-86-2	Welding gas	Health: moderate toxicity Physical: toxic	800 cubic feet	NA
Aqueous Ammonia <20% solution	7664-41-7	NO_X Emissions Control	Health: high toxicity Physical: corrosive, irritant	30,000 gallons	100 pounds
Boiler Water Treatment Chemicals; may include: Carbohydrazide Diethylhydroxylamine Sodium bisulfite Sodium metabisulfite Sodium sulfite Morpholine, Cyclohexamine, Diethylaminoethanol Aminomethylpropanol Methoxypropylamine	Various 497-18-7 3710-84-7 7631-90-5 7681-57-4 7757-83-7 110-91-8 108-91-8 100-37-8 124-68-5 5332-73-0	Oxygen scavenger and neutralizing amine for boiler water treatment.	Health: low to moderate toxicity Physical: varies by ingredient, may be flammable, combustible, and/or corrosive	660 gallons	NA except for Sodium bisulfite: 5,000 pounds
Calcium Oxide (Lime)	1305-78-8	pH Adjustment	Health: low toxicity	4,000 pounds	NA
Carbon Dioxide/ FM200 agent	124-38-9	Fire suppression	Health: low toxicity Physical: non-flammable gas	24 tons	NA
Diesel Fuel	68476-34-6	Emergency Diesel generator fuel, fire-water pump engine	Health: low toxicity Physical: combustible liquid	2,180 gallons (generator), 300 gallons (fire-water pump engine)	NA
Hydraulic Fluid	None		Health: low to moderate toxicity Physical: Class IIIB combustible liquid	500 gallons in equipment, 110 gallons in storage	NA
Lubrication Oil	64742-65-0	Lubricate rotating equipment	Health: low toxicity	21,000 gallons in equipment, 440 gallons in storage	NA
Mineral Insulation Oil	8042-47-5		Health: low toxicity	65,000 gallons	NA

Material	CAS No.	Application	Hazardous Characteristics	Maximum Quantity On Site	Federal Reportable Quantity
NALCO Tri-Act 1800 Cyclohexlyamine (5 – 10%) Monoehtonolamine (10 – 30%) Methoxyproplyamnie (10 – 30%)	108-91-8 141-43-5 5332-73-0	Water Treatment Chemical	Health: high toxicity Physical: corrosive, Class II combustible liquid	Plastic Totes, 2 x 400 gallons	NA
NALCO Elimin-Ox Carbohydazide (5 – 10%)	497-18-7	Water Treatment Chemical	Health: moderate toxicity Physical: sensitizer	Plastic Totes, 2 x 400 gallons	NA
NALCO Permacare ® PC-7408 Sodium Bisulfite	7631-90-5	Water Treatment Chemical	Health: low toxicity Physical: irritant	Plastic Totes, 2 x 400 gallons	5,000 pounds
Natural Gas (methane)	74-82-8	Fuel for the CTGs	Health: low toxicity Physical: flammable gas	400 pounds in equipment and piping	NA
Oxygen	7782-44-7	Welding gas	Health: low toxicity Physical: oxidizer	800 cubic feet	NA
Sodium Hydroxide (50%)	1310-73-2	pH control	Health: high toxicity Physical: corrosive	7,500 gallons	1,000 pounds
Sodium Hypochlorite (12.5%)	7681-52-9	biocide	Health: high toxicity Physical: poison-b, corrosive	2,500 gallons	100 pounds
Caustic Soda (50% wt)		Water Treatment		220 gallons	
Inhibitor (Hypersperse or equivalent)		Water Treatment		220 gallons	
PermaClean PC77		Water Treatment		220 gallons	
PermaClean PC98		Water Treatment		220 gallons	
PermaClean PC11		Water Treatment		220 gallons	
Perma Treat PC-191T		Water Treatment		220 gallons	
Hydrochloric Acid (33%)		Water Treatment		220 gallons	

PALMDALE ENERGY PROJECT (08-AFC-9C)
Petition to Amend the Final Commission Decision
LAND USE
Testimony of Steven Kerr

SUMMARY OF CONCLUSIONS

Staff concludes that the proposed amendment would have no new land use impacts and the mitigation for the original project would still be applicable and would not require any substantive changes beyond the minor clarification to the Los Angeles County Assessor's Identification Number (AIN) in Condition of Certification **LAND-3** and the addition of **LAND-4** recommended below. Staff also concludes that the findings of fact from the 2011 California Energy Commission Decision (Decision) (CEC 2011b) for the Palmdale Hybrid Power Project (PHPP) would still apply to the amended Palmdale Energy Project (PEP). Therefore, in accordance with California Environmental Quality Act (CEQA) Guidelines section 15162, staff concludes that no supplementation to the Decision is necessary for Land Use. The Committee may rely upon the environmental analysis and conclusions of the Commission Decision with regards to land use and does not need to re-analyze them.

INTRODUCTION

Staff reviewed the Decision and analyzed the changes to the PHPP, which include eliminating the solar energy component and reconfiguring the two-on-one combined-cycle power block configuration to incorporate new gas turbine technology, and replacing wet cooling with an air cooled condenser. The petition also requests that the PHPP name be changed to PEP.

SUMMARY OF THE DECISION

The list below provides a short summary of the licensed PHPP Commission Decision with regards to the Land Use technical area. Based on the evidence presented in the original proceeding, the Energy Commission made the following findings and conclusions:

- The existing zoning of the PHPP site and vicinity is compatible with the proposed use.
- The PHPP will not result in a significant conversion of Farmland to non-agricultural use or conflict with existing agricultural zoning or Williamson Act contracts.
- The PHPP will not disrupt or divide the physical arrangement of an established community.
- Condition of Certification **LAND-1** will reduce disruption of agricultural activities due to construction of the transmission lines below significance.

- With implementation of Conditions of Certification **LAND-2 and LAND-3,** the PHPP is consistent with the city of Palmdale and the County of Los Angeles' existing land use plans and zoning ordinances.
- The PHPP will not preclude or unduly restrict existing or planned land uses.
- The PHPP's road paving proposal for air quality mitigation has no significant land use-related impacts.
- The PHPP's cumulative land use impacts will be less than significant (CEC 2011b, pg. 8.1-8).

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

No LORS applicable to the PHPP have changed since the Commission Decision was published in August 2011. Additionally, the PEP would not trigger new LORS that may not have been applicable to the original project. The PEP would remain in compliance with applicable LORS.

ENVIRONMENTAL IMPACT ANALYSIS

Staff concludes that no supplementation to the 2011 Commission Decision is necessary for Land Use; the Committee may rely upon the environmental analysis and conclusions of the 2011 Commission Decision with regards to land use and does not need to re-analyze them due to the following:

- The changes in the Petition to Amend (PTA) would not create new significant environmental effects or substantial increases in the severity of previously identified significant effects.
- The PTA does not propose substantial changes which would require major revisions of the Land Use analysis in the 2011 Commission Decision.
- The circumstances under which the PEP would be undertaken would not require major revisions of the Land Use analysis in the 2011 Commission Decision.

Staff's conclusion is supported by the following key factual information:

- No LORS applicable to land use have changed since the Decision was published in August 2011.
- The city of Palmdale General Plan designation of Industrial (IND) and zoning of M-2 General Industrial remain the same for the project site.
- Utility facilities are a permitted use in the M-2 zone subject to site plan review, which is required by existing Condition of Certification **LAND-2**.
- Beyond the immediate vicinity of the modified project site, the project modifications proposed by the amendment do not include modifications to any of the previously approved linear routes.

- With implementation of existing Conditions of Certification **LAND-2** and **LAND-3,** the PEP would be consistent with the city of Palmdale and the County of Los Angeles' existing land use plans and zoning ordinances.
- Existing Conditions of Certification **LAND-1**, **LAND-2**, and **LAND-3** would remain applicable and feasible and the project proponent, Palmdale Energy, has not requested any changes to the conditions.

The PEP plant site is located in the northernmost area of the city of Palmdale south of East Avenue M. With the elimination of the solar energy component, the project site would be reduced from 333 acres to 50 acres. The 50-acre site was formerly part of a 613.4-acre city-owned property bounded by Sierra Highway to the west, East Avenue M (Columbia Way) to the north, and U.S. Air Force Plant 42 on the south and east. Prior to the submittal of the PTA, the city of Palmdale approved a parcel split to create a new parcel encompassing the 50 acres for the PEP site. The new Los Angeles County AIN for the site is 3126-022-927 (LAC 2015).

In February 2009, the city of Palmdale approved a general plan amendment, zone change, and tentative parcel map for the entire 613.4-acre city-owned property, which the PEP site is a part of. As a result, according to city of Palmdale's Resolution PC-2009-008, the entire city-owned site is intended for the PEP and for other future industrial uses. Part of the resolution and ordinance states that the proposed discretionary actions are in the public's best interests as they would result in the development of the PEP and the generation of electricity. (CEC 2011b, p. 8.1-1) The city of Palmdale General Plan designation of IND and zoning of M-2 General Industrial remain the same for the project site. Utility facilities are a permitted use in the M-2 zone subject to site plan review (Palmdale 1994, Ch. 6, pg. 6-44). Existing Condition of Certification **LAND-2** requires the project owner to submit a Site Plan Review to the city of Palmdale for review and comment, and to the Compliance Project Manager (CPM) for review and approval. Existing land uses immediately adjacent to the PEP site include:

- North: Undeveloped land owned by the city of Palmdale and industrial uses;
- East: Air Force Plant 42 (Plant 42);
- South: Undeveloped land owned by the city of Palmdale and Plant 42; and
- West: Undeveloped land owned by the city of Palmdale and water storage tanks.

The proposed interconnection point for the PEP with the Southern California Edison (SCE) electrical transmission system is at SCE's existing Vincent Substation south of Palmdale. The PEP proposes a minor modification to one of the approved generation tie-line routes by extending westerly approximately 1,800 feet along the south side of East Avenue M to accommodate the change in switchyard location. Beyond the immediate vicinity of the modified project site, the project modifications proposed by the amendment do not include modifications to any of the approved linear routes. Additionally, the petition does not propose any changes to the natural gas pipeline or route contained in the Commission Decision for the licensed PHPP.

The transmission line and natural gas pipeline within the jurisdiction of the city of Palmdale was also licensed by the Energy Commission with the requirement to comply with Condition of Certification **LAND-2**. In addition, the Energy Commission adopted Condition of Certification **LAND-3**, as requested by Los Angeles County Department of Parks and Recreation. This condition of certification requires a trail easement that would avoid conflicts with the county's connector trail and the county's Antelope Valley Trails Master Plan.

The PEP would have no new land use impacts and would not result in a change or deletion of the Conditions of Certification **LAND-1**, **LAND-2**, and **LAND-3** adopted in the Commission Decision in the licensed PHPP proceeding.

Staff recommends a minor edit to Condition of Certification **LAND-3** for clarification purposes only, as shown below, because two digits in one of the ten-digit AINs referenced in the condition were missing as approved in the Commission Decision. Staff also updated the project name where referenced in **LAND-3**.

CUMULATIVE IMPACTS

A cumulative impact is created as a result of the combination of the project 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. (CEC 2011b, p. 8.1-8)

The construction and operation of the PEP would be consistent with adopted local plans and ordinances and would represent a land use consistent with adjacent commercial and industrial developments. No reasonably foreseeable development projects within approximately one mile of the project site were identified in staff's development of the updated cumulative project list. The power plant would not make a significant contribution to regional impacts related to new development and growth; and potential cumulative impacts associated with the transmission line would be mitigated with implementation of Condition of Certification **LAND-2.** The project's impacts in combination with the impacts of past, present, and reasonably foreseeable projects in the area would not be cumulatively considerable.

RESPONSE TO PSA COMMENTS

AGENCY COMMENTS

Comment:

In a comment letter docketed on April 22, 2016 (LAC 2016), the Los Angeles County Department of Public Works (LACDPW) (TN 211187), stated that any use of the county road right of way would require compliance with Title 16 of the Los Angeles County Code, including provisions relating to grant of a franchise by the county of Los Angeles Board of Supervisors and permit approvals for encroachments. In addition, the proposed transmission lines would need to fit within the boundaries of the road right of way and not interfere with the county's current or future use of the right of way for road purposes. The LACDPW stated that they were in contact with the project owner and

working with them to address their concerns and incorporate compliance with these requirements in to the recommended final project conditions.

Response to Comment:

The project owner's Status Report 8 (PHPP 2016) stated they had prepared a map showing potential transmission line crossings that would be subject to a Franchise Agreement and sent the map to LACPDW for their review. Additionally, the project owner submitted the proposed condition of certification language for LACDPW review. LACDPW approved the condition of certification language and therefore, the project owner requested that Energy Commission staff include the proposed condition in the Final Staff Assessment. Therefore, per the LACDPW's comment and the project owner's request, staff has included the addition of Condition of Certification **LAND-4** in the "Proposed Conditions of Certification" subsection below.

Staff received no other comments from the project owner, public, interveners, or agencies in the area of **Land Use**.

CONCLUSIONS AND RECOMMENDATIONS

Staff concludes that the PEP would have no new land use impacts and the mitigation for the original project would still be applicable and would not require any substantive changes beyond the minor clarification to the AIN and updated project name in **LAND-3** and the addition of **LAND-4** listed below. Therefore, staff also concludes that the findings of fact from the licensed PHPP Commission Decision would still apply to the PEP.

1. The existing zoning of the site and vicinity is compatible with the proposed use.

2. The PEP will not result in a significant conversion of Farmland to non-agricultural use or conflict with existing agricultural zoning or Williamson Act contracts.

3. The PEP will not disrupt or divide the physical arrangement of an established community.

4. Condition of Certification **LAND-1** will reduce disruption of agricultural activities due to construction of the transmission lines below significance.

5. With implementation of Conditions of Certification **LAND-2**, **LAND-3,** and **LAND-4** the PEP is consistent with the city of Palmdale and the County of Los Angeles' existing land use plans and zoning ordinances.

6. The PEP will not preclude or unduly restrict existing or planned land uses.

7. The PEP's road paving proposal, which remains unchanged, would have no significant land use-related impacts. (See the **TRAFFIC AND TRANSPORTATION** section of this analysis for information on impacts to local roads.)

8. The PEP's cumulative land use impacts would be less than significant.

Socioeconomics Figure 1 shows the presence of an environmental justice population living in the project's six-mile buffer. Staff has not identified any significant adverse direct or cumulative land use impacts resulting from the construction or operation of the proposed project, including impacts to the environmental justice population. Therefore, there are no land use environmental justice impacts resulting from this project.

CONDITIONS OF CERTIFICATION

The conditions of certification for **Land Use** are located in the Conditions of Certification Compendium at the back of this Final Staff Assessment

REFERENCES

CEC 2010b – California Energy Commission (TN 59309). Palmdale Hybrid Power Project Final Staff Assessment, date submitted to CEC/Docket Unit Dec. 22, 2010, docketed Dec. 22, 2015

CEC 2011b – California Energy Commission (TN 61876). Palmdale Hybrid Power Project Final Commission Decision, date submitted to CEC/Docket Unit August 15, 2011, docketed August 15, 2011

PALMDALE 1994 – City of Palmdale Zoning Ordinance. Adopted December 14, 1994. Accessed on November 23, 2015: http://www.cityofpalmdale.org/Your-City-Hall/City-Codes-and-Ordinances/Zoning-Ordinance

PHPP 2015a – Galati Blek LLP/Scott A. Galati (TN 205394-1). Revised Petition to Amend (RPTA), dated July 17, 2015. Submitted to CEC/Eric Veerkamp on July 17, 2015 and docketed on July 20, 2015

PHPP 2016 – Palmdale Energy LLC's Status Report 8 (TN 212308). Submitted to CEC/Docket Unit July 15, 2016.

LAC 2015 – Los Angeles County Office of the Assessor, Property Assessment Information System, accessed November 30, 2015, http://maps.assessor.lacounty.gov/mapping/viewer.asp

LAC 2016 – County of Los Angeles Department of Public Works (TN 211187). Los Angeles County Department of Public Works comments on the PSA re use of road right of way. Dated April 21, 2016, date submitted to CEC/Docket Unit April 22, 2016.

PALMDALE ENERGY PROJECT (08-AFC-9C)
Petition to Amend the Final Commission Decision
NOISE AND VIBRATION
Testimony of Shahab Khoshmashrab

SUMMARY OF CONCLUSIONS

Existing Conditions of Certification **NOISE-1**, **NOISE-2**, **NOISE-3**, **NOISE-5**, **NOISE-6**, and **NOISE-7** and the revised Condition of Certification **NOISE-4** below would be sufficient to reduce impacts from the amended project to a less than significant level and to ensure the proposed project would remain in compliance with applicable laws, ordinances, regulations, and standards (LORS) relating to noise and vibration. Therefore, in accordance with the California Environmental Quality Act (CEQA) Guidelines section 15162 (Cal. Code Regs., tit. 14, § 15162), staff concludes that no supplementation to the 2011 Energy Commission Final Decision (Decision) for the Palmdale Hybrid Power Project (PHPP) (CEC 2011b) is necessary for Noise and Vibration. The Committee may rely upon the analysis and conclusions of the decision with regards to Noise and Vibration and does not need to re-analyze them.

INTRODUCTION

Staff has reviewed the Decision and analyzed the proposed changes to the Palmdale Energy Project (PEP) in the Petition to Amend (PTA), which include eliminating the solar energy component, reconfiguring the two-on-one combined-cycle power block configuration to incorporate new gas turbine technology, and replacing the wet cooling tower with an air-cooled condenser, as well as the name change. The following analysis evaluates the portions of the PEP that may affect the Noise and Vibration analysis, findings, conclusions, and conditions of certification contained in the Decision.

SUMMARY OF THE DECISION

The Decision found that the noise associated with the project's construction activities would be temporary in nature, limited in duration, and mitigated to the extent feasible, and therefore it would not result in a significant impact to the surrounding community. The Decision also found that project operation would not significantly increase the ambient noise level at the nearest sensitive noise receptor, labeled R2.

The Decision concluded that implementation of the staff's proposed Noise and Vibration conditions of certification would ensure that noise impacts would not cause any significant direct, indirect, or cumulative impacts and that the project would comply with the applicable LORS relating to noise and vibration.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

LORS applicable to the project have not changed since the Decision was published in 2011. Additionally, the PEP would not trigger new LORS that may not have been applicable to the PHPP.

ENVIRONMENTAL IMPACT ANALYSIS

The noise-sensitive receptor previously identified and analyzed in the Decision (R2) remains the most noise-sensitive receptor and there are no new noise-sensitive receptors in the project area since the issuance of the Decision.

CONSTRUCTION IMPACTS

The construction period would be shortened due to the elimination of the solar energy portion of the project, and thus, noise impacts of project construction on the surrounding community and on the project's construction workers would be below the already less-than-significant impacts identified in the Decision.

The construction equipment and methods of construction would be similar to the PHPP, and thus, as described in the Decision, vibration from construction would not be perceived by any likely receptor.

OPERATIONAL IMPACTS

In order to evaluate whether the PEP would result in different operational noise impacts than the PHPP, the applicant remodeled the project's operational noise levels. **Noise Table 1** below summarizes the result of this new model and staff's comparison of the PEP and PHPP to the measured ambient noise levels for the four quietest hours of the night for the nearest noise-sensitive property, R2, the worst scenario. As seen in this table, the PEP's noise level would be no more than 2 dBA higher than the PHPP's.

Noise Table 1
Comparison of PEP and PHPP Operational Noise Levels to Nighttime Ambient Noise Level (dBA)

Receptor	PEP (L_{eq})	PHPP (L_{eq})	Increase (PEP – PHPP)	Nighttime Ambient (L_{90})	Ambient Plus PEP	Increase in Ambient as Result of PEP
R2	42	40	2	39	44	5

The PEP's noise plus the ambient would result in 44 dBA. Since this would result in no more than a 5 dBA increase in the nighttime ambient level (see **Noise Table 1**, last column), it does not represent a significant adverse noise impact.

The PEP's level of 42 dBA L_{eq} complies with both the city of Palmdale General Plan Noise Element and the city of Lancaster General Plan Noise Element guideline of 65 dBA CNEL, or roughly 58 dBA L_{eq}.

Consistent with the above table, staff has revised the Decision's noise threshold of 40 dBA at R2 to 42 dBA; see Condition of Certification **NOISE-4** below. Staff proposes no other changes to the Noise and Vibration conditions of certification contained in the Decision.

Due to the potential for the above slight increase in its operational noise, the PEP may cause a slight increase in the noise levels that would be periodically perceived by the power plant workers, but Condition of Certification **NOISE-5** contained in the Decision would ensure that the effect is reduced to less than significant.

Based on experience with numerous previous projects employing similar power block equipment as those proposed for the PEP, and similar to the PHPP, staff believes vibration from the PEP would be undetectable by any likely receptor.

No further analysis is needed due to the following reasons:

- The changes in the PTA would not create new significant environmental impacts or substantial increases in the severity of previously identified significant impacts;
- The PTA does not propose substantial changes which would require major revisions of the Noise and Vibration analysis contained in the Decision; and
- The circumstances under which the PEP would be undertaken would not require major revisions of the Noise and Vibration analysis contained in the Decision.

CUMULTATIVE IMPACTS

A cumulative impact is created as a result of the combination of the project under consideration together with other existing or reasonably foreseeable projects causing related impacts. No reasonably foreseeable development projects within approximately one mile of the project site were identified in the staff's updated cumulative project list. Thus, similar to the PHPP, the construction and operation of the PEP would not result in cumulative noise and vibration impacts.

RESPONSE TO PSA COMMENTS

Staff received no PSA comments from the project owner, the public, interveners, or agencies in the area of **Noise and Vibration**.

CONCLUSIONS AND RECOMMENDATIONS

Existing Conditions of Certification **NOISE-1**, **NOISE-2**, **NOISE-3**, **NOISE-5**, **NOISE-6**, and **NOISE-7** and the revised Condition of Certification **NOISE-4** below would be sufficient to reduce impacts from the PEP to a less than significant level directly, indirectly, and cumulatively and to ensure the project remains in compliance with applicable LORS relating to noise and vibration.

CONDITIONS OF CERTIFICATION

The proposed conditions of certification for **Noise & Vibration** are located in the Conditions of Certification Compendium at the back of this Final Staff Assessment.

REFERENCES

CEC 2011b – California Energy Commission (TN 61876). Palmdale Hybrid Power Project Final Commission Decision, date submitted to CEC/Docket Unit August 15, 2011, docketed August 15, 2011

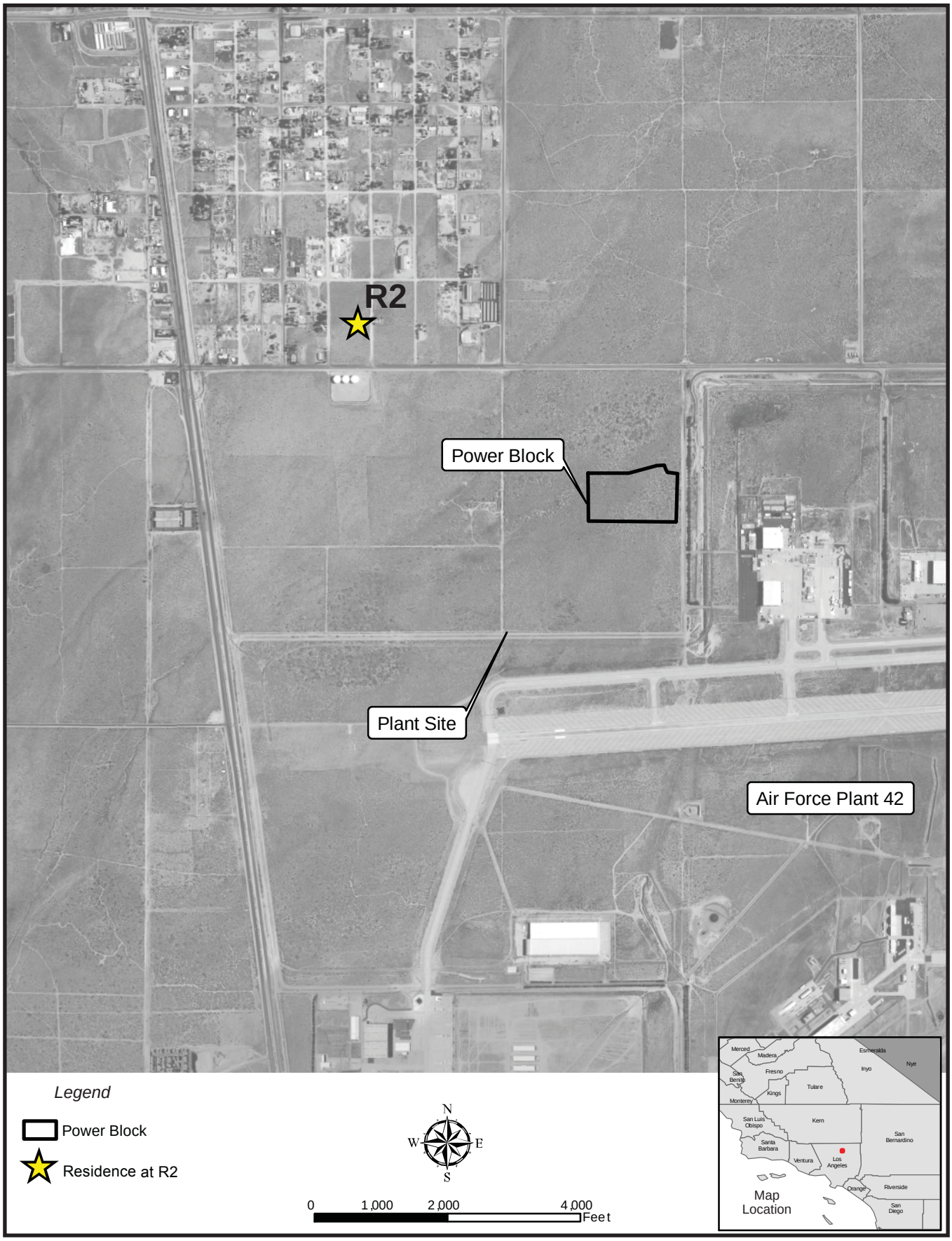
PHPP 2015a – Galati Blek LLP/Scott A. Galati (TN 205394-1). Revised Petition to Amend (RPTA), dated July 17, 2015. Submitted to CEC/Eric Veerkamp on July 17, 2015 and docketed on July 20, 2015

NOISE COMPLAINT RESOLUTION FORM

Palmdale Energy Project (08-AFC-9C)
NOISE COMPLAINT LOG NUMBER _____ Complainant's name and address: Phone number: _____
Date complaint received: _____ Time complaint received: _____
Nature of noise complaint:
Definition of problem after investigation by plant personnel: Date complainant first contacted: _____
Initial noise levels at 3 feet from noise source _____ dBA Date: _____ Initial noise levels at complainant's property: _____ dBA Date: _____ Final noise levels at 3 feet from noise source: _____ dBA Date: _____ Final noise levels at complainant's property: _____ dBA Date: _____
Description of corrective measures taken: Complainant's signature: _____ Date: _____
Approximate installed cost of corrective measures: $ _____ Date installation completed: _____ Date first letter sent to complainant: _____ (copy attached) Date final letter sent to complainant: _____ (copy attached)
This information is certified to be correct: Plant Manager's Signature: _____

Attach additional pages and supporting documentation, as required.

Noise and Vibration Figure 2
Palmdale Energy Project - Noise Measurement Location



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: AFC Figure 5.8-2

PALMDALE ENERGY PROJECT (08-AFC-9C)
Petition to Amend the Final Commission Decision
PUBLIC HEALTH

Testimony of Huei-An (Ann) Chu, Ph. D. and Alvin Greenberg, Ph. D

SUMMARY OF CONCLUSIONS

California Energy Commission staff has analyzed the potential human health risks associated with construction and operation of the renamed Palmdale Energy Project (PEP) as proposed in the Petition to Amend (PTA) for the 2011 Final Decision (Decision) for the Palmdale Hybrid Power Project (PHPP). Staff's analysis of potential health impacts of the PEP was based on a conservative health protective methodology that accounts for impacts to the most sensitive individuals in a given population. Staff concludes that there would be no significant health impacts from the PEP's potential toxic air contaminant (TAC) emissions. Staff also concludes that the proposed modification would not affect the PEP's ability to comply with applicable health laws, ordinances, regulations, and standards (LORS).In addition to the proposed project modifications, the health risk assessment (HRA) methodology has been changed since the 2011 Final Decision. First, California Environmental Protection Agency (Cal/EPA) Office of Environmental Health Hazard Assessment (OEHHA) updated its 2015 Air Toxics Hot Spots Program Risk Assessment Guidelines. Then, to incorporate OEHHA's 2015 Guidelines, the California Air Resources Board (ARB) developed the latest version of the Hotspots Analysis Reporting Program Version 2 (HARP2) in 2015. These proposed project changes and HRA methodology updates constitute a considerable change in fact and circumstance from the 2011 Final Decision requiring supplementation in accordance with the California Environmental Quality Act (CEQA) Guidelines section 15162 (Cal. Code Regs., tit. 14, § 15162).Staff also recommends approval of the project owner's request to delete Condition of Certification **PUBLIC HEALTH-1** since dry cooling would be utilized.

INTRODUCTION

The purpose of this Public Health analysis is to determine whether or not the potential toxic air pollutants from the Commission-permitted PHPP, as modified into the PEP, would have the potential for significant health impacts during construction and operation. The project was approved in 2011 with one Public Health Condition of Certification.

On July 20th, 2015, Palmdale Energy, LLC filed the PTA and supplemental information to modify the PHPP by eliminating the solar energy component and reconfiguring the two-on-one combined-cycle power block configuration to incorporate new gas turbine technology, along with a request to re-name the project to the PEP.

The project modifications proposed by this amendment related to Public Health include (PHPP 2015c, Section 1.4):

- Replacement of the General Electric gas turbines with new Siemens SGT6-5000Fs.
- Elimination of the solar components of the Approved PHPP.

- Elimination of Brine Concentrator/Crystallizer systems.
- Replacement of the wet cooling tower with an Air Cooled Condenser (ACC).
- Reduction of the site size from 333 acres to 50 acres.
- Reduction of the construction laydown and parking area from 50 acres to 20 acres.
- Reorientation of the power block with the heat recovery steam generators (HRSG) stacks now to the east and the combustion turbine inlets to the west.
- Relocation of the site access road approximately 900 feet further east on East Avenue M to the western edge of the site property line.

The scope of these changes requires staff to conduct a comprehensive analysis of the project in relation to the elements of the project that are proposed to be changed. For example, the turbine technology is different, the orientation and location of the power block and stack are different, the operating profile is different and the receptor area is different. The reduction in facility acreage from 333 acres to 50 acres means that there are an additional 283 acres adjacent to the PEP project boundary that need to be evaluated for public health impacts because this area is no longer contained within the project boundary. Acreage within a project's boundary is not considered "ambient air" because the general public does not have access. In addition, the power block would be located on a different portion of the property with the gas turbine's stack now on the east rather than the west and closer to the project boundary.

On October 30, 2015, staff issued Data Request Set No. 1, which requested the applicant to conduct additional impact analyses due to the scope of these changes. The applicant provided their analysis in their response dated November 30, 2015.

SUMMARY OF THE DECISION

The Energy Commission made the following findings and conclusions for the PHPP (CEC 2011b):

1. Construction and normal operation of the project will result in the routine release of criteria and noncriteria pollutants that have the potential to adversely impact public health.

2. Release of non-criteria pollutants from the PHPP will not have acute or chronic adverse public health effects or cause a significant increase in cancer risk.

3. Emissions from the construction, operation, and closure of the natural gas burning PHPP will not have a significant impact on the public health of the surrounding population.

4. The project owner will implement a Cooling Water Management Plan in accordance with applicable LORS and guidelines to minimize the potential for growth of Legionella bacteria and other micro-organisms in cooling tower emissions.

5. Emissions from road paving to be performed to offset the project PM10 emissions do not pose a significant health risk for the relatively short period involved.

6. PHPP will not contribute to cumulative impacts to public health in the area.

The Energy Commission concluded that project emissions of noncriteria pollutants do not pose a significant direct, indirect, or cumulative adverse public health risk and that the project would comply with the applicable LORS The Commission also proposed Condition of Certification **PUBLIC HEALTH-1** to ensure minimizing the potential for growth of Legionella bacteria and other micro-organisms in the wet cooling towers.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

No LORS applicable to the project have changed since the Commission Decision was published in August, 2011. But since the project owner would replace the wet cooling tower with an ACC (PHPP 2015c, Section 1.4), California Code of Regulations, Title 22, Section 60306 is removed from Public Health Table 1.

Public Health Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable LORS	Description
Federal	
Clean Air Act section 112 (Title 42, U.S. Code section 7412)	The National Emissions Standards for Hazardous Air Pollutants (NESHAP) 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 Code of Regulations, Title 22, Section 60306~~	~~Requires that whenever a cooling system uses recycled water in conjunction with an air conditioning facility and a cooling tower that creates a mist that could come into contact with employees or members of the public, a drift eliminator shall be used and chlorine, or other, biocides shall be used to treat the cooling system recirculating water to minimize the growth of Legionella and other micro-organisms.~~

Applicable LORS	Description
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	
Antelope Valley Air Quality Management District (AVAQMD) Rule 212	This rule requires notification for projects with a predicted cancer risk greater than or equal to one-in-one-million.
AVAQMD Rule 402	This rule prohibits the discharge of air contaminants or other materials that can cause nuisance or injury.
AVAQMD Regulation X	This regulation notifies sources of the requirements, enforceability, and practices for the California ATCM and Federal MACT standards for control of California TACs and Federal HAP emissions, respectively. It assigns a prioritization score for toxics and requires the preparation of a health risk assessment (HRA) by high risk facilities.
AVAQMD Rule 1000	This rule implements the Federal NESHAP promulgated under 40 CFR Part 61.
AVAQMD Rule 1401 (New Source Review for Toxic Air Contaminants, TACs)	This rule discusses the requirements for new source review for air toxics. It establishes risk thresholds for new or modified sources of TAC emissions, which are limits for maximum individual cancer risk, cancer burden, and non-carcinogenic acute and chronic hazard indices for new or modified sources of TAC emissions.
AVAQMD CEQA and Federal Conformity Guidelines	This rule provides significance thresholds under CEQA for exposure of sensitive receptors to cancer and noncancer public health risk impacts.

ENVIRONMENTAL IMPACT ANALYSIS

Characteristics of the natural environment, such as meteorology and terrain, affect the project's potential for impacts on public health. An emission plume from a facility would affect elevated areas before lower terrain areas because of reduced opportunity for atmospheric mixing. Consequently, areas of elevated terrain can often be subjected to increased pollutant impacts compared to lower-level areas. Also, the land use around a project site can influence impacts due to population distribution and density, which, in turn, can affect public exposure to project emissions. Additional factors affecting potential public health impacts include existing air quality and environmental site

contamination. Because the change in acreage and proximity to the project boundary, it was necessary to update the analysis.

SETTING

The address of the PEP is 950 E Ave M, Palmdale, CA 93550. It is located in the northernmost areas of the City of Palmdale, south of East Avenue M, within the AVAQMD. The 50-acre power plant site is currently vacant and undeveloped land, located in an industrial area of the City of Palmdale. The site is largely flat, with elevations ranging from approximately 2,500 feet to 2,505 feet above sea level (PHPP 2015c, Section 2.3 and 2.4). The setting has not changed from the setting of the approved project.

The amended project is proposed as a natural gas-fired, combined-cycle, air-cooled, nominal 645-megawatt (MW) electrical generating facility (PHPP 2015c, Section 2.2). It would be composed of two Siemens SGT6-5000F natural gas-fired combustion turbine generators equipped with dry low NOx combustors and evaporative inlet air coolers, two HRSGs equipped with duct burners, and one steam turbine generator (PHPP 2015c, Section 2.2 and 2.5.2).The maximum number operating hours decreased from 8,760 hours per year of hybrid natural gas/solar operation for PHPP to approximately 8,000 operating hours per year of natural gas operation for PEP, with different assumptions regarding the number of cold, warm and hot starts per month.

Sensitive receptors, such as infants, the aged, and people with specific illnesses or diseases, are the subpopulations which are more sensitive to the effects of toxic substance exposure. According to Appendix 4.1D of the PTA, approximately 6,702 residents live within a six-mile radius of PEP (PHPP 2015c, Table 4.1D-1), and sensitive receptors within a six-mile radius of the project site include (PHPP 2015c, Table 4.1D-2):

- 2 daycare centers
- 45 schools
- 4 health facilities
- 1 detention center

According to the information provided by the project owner (PHPP 2015c, Table 4.1-37 and Table 4.1D-2. PHPP 2015u, Table 38-1) and by checking on the Google map, staff found that the nearest daycare center is approximately 4 miles northwest from the site, the nearest school is approximately 2 miles north from the site, and the nearest health facility is approximately 5.49 miles southeast from the site (PHPP 2015c, Section 4.1.7.1).

As discussed above, the changes in source-receptor relationship requires an updated analysis which is presented in a later portion of this section.

METEOROLOGY AND CLIMATE

Meteorological conditions, including wind speed, wind direction, and atmospheric stability, affect the extent to which pollutants are dispersed into the air and the direction

of pollutant transport. This, in turn, affects the level of public exposure to emitted pollutants along with associated health risks. When wind speeds are low and the atmosphere is stable, for example, dispersion is reduced, and localized exposures may be increased.

Atmospheric stability is one characteristic related to turbulence, or the ability of the atmosphere to disperse pollutants from convective air movement. Mixing heights (the height marking the region within which the air is well mixed below the height) are lower during mornings because of temperature inversions. These heights increase during warm afternoons. Staff's **AIR QUALITY** section presents a more detailed description of meteorological data for the area.

The climate of the project site, located in Mojave Desert Air Basin (MDAB), is characterized as high desert, with very hot summers and mild winters. Clear skies, extreme temperature changes, low precipitation, and strong seasonal winds are common features of the Mojave Desert climate. Please refer to the **AIR QUALITY** section for more details. The metrological data used for this analysis covered the years 2010 to 2014 while the approved project used observations made during earlier years.

EXISTING PUBLIC HEALTH CONCERNS

By examining average toxic concentration levels from representative air monitoring sites, together with cancer risk factors specific to each carcinogenic contaminant, a lifetime cancer risk can be calculated to provide a background risk level for inhalation of ambient air. This analysis is prepared to identify the current status of respiratory diseases (including asthma), cancer, and childhood mortality rates in the population located within the same county or air basin of the proposed project site. Such assessment of existing health concerns provides staff with a basis to evaluate the significance of any additional health impacts from PEP and assess the need for further mitigation.

The public health information below is the most current one available and is updated from the previous analysis because the methodology has changed (OEHHA 2015).

Cancer

When examining such risk estimates, staff considers it important to note that the overall lifetime risk of developing cancer for the average male in the United States is about 1 in 2, or 500,000 in 1 million and about 1 in 3, or 333,333 in 1 million for the average female (American Cancer Society 2014).

From 2007 to 2011, the cancer incidence rates in California were 49.92 in 1 million for males and 39.63 for females. Also, from 2007 to 2011, the cancer death rates for California were 18.68 in 1 million for males and 13.73 in 1 million for females (American Cancer Society, Cancer Facts & Figures 2015).

By examining the State Cancer Profiles presented by the National Cancer Institute, staff found that the trend of cancer death rates in Los Angeles County had been falling between 2008 and 2012. These rates (of 15.13 per 1,000,000, combined male/female) were somewhat lower than the statewide average of 15.51 per 1,000,000 (National Cancer Institute 2016).

According to the County Health Status Profiles 2015, the death rate due to ALL cancers, from 2011-2013, is 14.12 in 1 million for Los Angeles County, slightly lower than the cancer death rate (15.09 in 1 million) for California (CDPH 2015).

Lung Cancer

As for lung and bronchus cancers, from 2007 to 2011 the cancer incidence rates in California were 5.8 in 1 million for males and 4.31 for females. Also, from 2007 to 2011, the cancer death rates for California were 4.55 in 1 million for males and 3.15 in 1 million for females (American Cancer Society, Cancer Facts & Figures 2015).

According to the County Health Status Profiles 2015, the death rate due to lung cancers, from 2011-2013, is 2.98 in 1 million for Los Angeles County, slightly lower than the death rate (3.36 in 1 million) for California (CDPH 2015).

From a publication of the Los Angeles County Department of Public Health (LACDPH 2011), here are some data highlights for 2011 regarding lung cancer:

- Of cancer deaths, lung cancer was the most common one (2,908 deaths; mortality rate 3.1 per 1,000,000 population).
- Mortality rate due to lung cancer are higher in the Antelope Valley (110 deaths; mortality rate 3.8 per 1,000,000 population).

A review of the above data show that while deaths due to lung cancer are slightly higher in the Antelope Valley area than in LA County as a whole, they remain below the national average. Of course, this data is not adjusted for other environmental, life style, or genetic causation and thus smoking, the single most preventable cause of lung cancer, is not factored out of the results.

Asthma

The asthma diagnosis rates in Los Angeles County are lower than the average rates in California for both adults (age 18 and over) and children (ages 1-17). The percentage of adults diagnosed with asthma was reported as 6.6 percent in 2005- 2007, compared to 7.7 percent for the general California population. Rates for children for the same 2005-2007 period were reported as 9.3 percent in Los Angeles County compared to 10.1 percent for the state in general (Wolstein et al., 2010).

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

Staff conducts its public health analysis by evaluating the information and data provided in the PTA by the project owner. Staff also relies upon the expertise and guidelines of the Cal/EPA's OEHHA in order to: (1) identify contaminants that cause cancer or other noncancer health effects, and (2) identify the toxicity, cancer potency factors and non-cancer Reference Exposure Levels (RELs) of these contaminants. Staff relies upon the expertise of the ARB) and local air districts to conduct ambient air monitoring of TACs and on the California Department of Public Health to evaluate pollutant impacts in specific communities. It is not within the purview or the expertise of the Energy Commission staff to duplicate the expertise and statutory responsibility of these agencies. The HRA process addresses three categories of health impacts: (1) acute (short-term) health effects, (2) chronic (long-term) noncancer effects, and (3) cancer risk

(also long-term). This approach is consistent with the previous analysis, except newer health impact guidance is used when appropriate.

Acute Noncancer Health Effects

Acute health effects are those that result from short-term (one-hour) exposure to relatively high concentrations of pollutants. Such effects are temporary in nature and include symptoms such as irritation of the eyes, skin, and respiratory tract.

Chronic Noncancer Health Effects

Chronic noncancer health effects are those that result from long-term exposure to lower concentrations of pollutants. Long-term exposure is defined as more than 12 percent of a lifetime, or about eight years (OEHHA 2003, p. 6-5). Chronic noncancer health effects include diseases such as reduced lung function and heart disease.

Reference Exposure Levels (RELs)

The analysis for both acute and chronic noncancer health effects compares the maximum project contaminant levels to safe levels known as Reference Exposure Levels, or RELs. These are amounts of toxic substances to which even sensitive individuals could be exposed without suffering any adverse health effects (OEHHA 2003, p. 6-2). These exposure levels are specifically designed to protect the most sensitive individuals in the population, such as infants, the aged, and people with specific illnesses or diseases which make them more sensitive to the effects of toxic substance exposure. The RELs are based on the most sensitive adverse health effect reported in the medical and toxicological literature and include specific margins of safety. The margins of safety account for uncertainties associated with inconclusive scientific and technical information available at the time of standard setting. They are therefore meant to provide a reasonable degree of protection against hazards that research has not yet identified.

Concurrent exposure to multiple toxic substances would result in health effects that are equal to, less than, or greater than effects resulting from exposure to the individual chemicals. Only a small fraction of the thousands of potential combinations of chemicals have been tested for the health effects of combined exposures. In conformity with California Air Pollution Control Officers Association guidelines, the HRA assumes that the effects of each substance are additive for a given organ system (OEHHA 2003, pp. 1-5, 8-12). Other possible mechanisms due to multiple exposures include those cases where the actions would be synergistic or antagonistic (where the effects are greater or less than the sum, respectively). For these types of exposures, the health risk assessment could underestimate or overestimate the risks.

Cancer Risks

For carcinogenic substances, the health assessment considers the risk of developing cancer and assumes that continuous exposure to the carcinogen would occur over a 70-year lifetime[1]. The risk that is calculated is not meant to project the actual expected

[1] In 2015 Guidance, OEHHA recommends that an exposure duration (residency time) of 30 years be used to estimate individual cancer risk for the MEIR. In addition, for the maximally exposed individual worker

incidence of cancer, but rather a theoretical upper-bound estimate based on the worst-case assumptions.

Cancer Potency Factors

Cancer risk is expressed in terms of chances per million of developing cancer. It is a function of the maximum expected pollutant concentration, the probability that a particular pollutant would cause cancer (called potency factors), and the length of the exposure period. Cancer risks for individual carcinogens are added together to yield a total cancer risk for each potential source. The conservative nature of the screening assumptions used means that the actual cancer risks from project emissions would be considerably lower than estimated.

As previously noted, the screening analysis is performed to assess the worst-case risks to public health associated with the proposed project. If the screening analysis were to predict a risk below significance levels, no further analysis would be necessary and the source would be considered acceptable with regard to carcinogenic effects. If, however, the risk were to be above the significance level, then further analysis using more realistic site-specific assumptions would be performed to obtain a more accurate estimate.

Significance Criteria

Energy Commission staff assesses the maximum cancer impacts from specific carcinogenic exposures by first estimating the potential impacts on the maximally exposed individual. This is a person hypothetically exposed to project emissions at a location where the highest ambient impacts were calculated using the worst-case assumptions. Since the individual's exposure would produce the maximum impacts possible around the source, staff uses this risk estimate as a marker for acceptability of the project's carcinogenic impacts. This approach is consistent with the previous analysis.

Acute and Chronic Noncancer Health Risks

Non-criteria pollutants are evaluated for short-term (acute) and long-term (chronic) noncancer health effects, and the noted cancer impacts from long-term exposures. The significance of project-related impacts is determined separately for each of the three health effects categories. Staff assesses the noncancer health effects by calculating a hazard index. A hazard index is a ratio obtained by comparing exposure from facility emissions to the safe exposure level (i.e. REL) for that pollutant. A ratio of less than 1.0 suggests that the worst-case exposure would be below the limit for safe levels and would thus be insignificant with regard to health effects.

The hazard indices for all toxic substances with the same type of health effect are added together to yield a Total Hazard Index for the source. The Total Hazard Index is calculated separately for acute effects and chronic effects. A Total Hazard Index of less than 1.0 would indicate that cumulative worst-case exposures would be not lead to significant noncancer health effects. In such cases, noncancer health impacts from

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(MEIW), OEHHA now recommends using an exposure duration of 25 years to estimate individual cancer risk for off-site workers (OEHHA 2015, Table 8.5).

project emissions would be considered unlikely even for sensitive members of the population. Staff would therefore conclude that there would be no significant noncancer project-related public health impacts. This assessment approach is consistent with risk management guidelines of both California OEHHA and U.S. EPA.

Cancer Risk

Staff relies upon regulations implementing the provisions of Proposition 65, the Safe Drinking Water and Toxic Enforcement Act of 1986, (Health & Safety Code, §§25249.5 et seq.) for guidance in establishing significance levels for carcinogenic exposures. Title 22, California Code of Regulations, section 12703(b) states that "the risk level which represents no significant risk shall be one which is calculated to result in one or less excess cancer cases within an exposed population of 100,000, assuming lifetime exposure." This risk level is equivalent to a cancer risk of 10 in 1 million, which is also written as 10×10^{-6}. In other words, under state regulations, an incremental cancer risk greater than 10 in 1 million from a project should be regarded as suggesting a potentially significant carcinogenic impact on public health. The 10 in 1 million risk level is also used by the Air Toxics "Hot Spots" (AB 2588) program as the public notification threshold for air toxic emissions from existing sources.

An important distinction between staff's and the Proposition 65 risk characterization approach is that the Proposition 65 significance level applies separately to each cancer-causing substance, whereas staff determines significance based on the total risk from all the cancer-causing pollutants to which the individual might be exposed in the given case. Thus, the manner in which the significance level is applied by staff is more conservative (health-protective) than the manner applied by Proposition 65. The significant risk level of 10 in 1 million is also consistent with the level of significance adopted by many California air districts. In general, these air districts would not approve a project with a cancer risk estimate of more than 10 in 1 million.

As noted earlier, the initial risk analysis for a project is typically performed at a screening level, which is designed to overstate actual risks, so that health protection could be ensured. Staff's analysis also addresses potential impacts on all segments of the population, including the young, the elderly, people with existing medical conditions that would render them more sensitive to the adverse effects of toxic air contaminants and any minority or low-income populations that are likely to be disproportionately affected by impacts. To accomplish this goal, staff uses the most current acceptable public health exposure levels (both acute and chronic) set to protect the public from the effects of air toxics being analyzed. When a screening analysis shows the cancer risks to be above the significance level, refined assumptions would be applied for likely a lower, more realistic, risk estimate. If, after using refined assumptions, the project's risk is still found to exceed the significance level of 10 in 1 million, staff would recommend appropriate measures to reduce the risk to less than significant levels. If, after all feasible risk reduction measures have been considered and a refined analysis still identifies a cancer risk of greater than 10 in 1 million, staff would deem such a risk to be significant and would not recommend project approval.

PROPOSED PROJECT'S CONSTRUCTION IMPACTS AND MITIGATION MEASURES

The construction period for PEP would be approximately 25 months (PHPP 2015c, Section 2.5.7). The potential construction risks are normally associated with exposure to fugitive dust and combustion emissions (i.e. diesel exhaust). The scope and duration of the PEP construction would be less, but the project configuration changes warrant new analyses.

Fugitive Dust

Fugitive dust is defined as dust particles that are introduced into the air through certain activities such as soil cultivation, vehicles operating on open fields, or dirt roadways. Fugitive dust emissions during construction of the proposed project could occur from:

- dust entrained during site preparation and grading/excavation at the construction site;
- dust entrained during onsite movement of construction vehicles on unpaved surfaces;
- fugitive dust emitted from an onsite concrete batch plant; and
- wind erosion of areas disturbed during construction activities.

The effects of fugitive dust on public health are covered in the **AIR QUALITY** section which includes staff's recommended mitigation measures, including **AQ-SC3** (Construction Fugitive Dust Control) and **AQ-SC4** (Dust Plume Response Requirement) to prevent fugitive dust plumes from leaving the project boundary. As long as the dust plumes are kept from leaving the project site, there would be no significant concern of fugitive dust adversely affecting public health.

Diesel Exhaust

Emissions of combustion byproducts during construction would result from:

- exhaust from diesel construction equipment used for site preparation, grading, excavation, trenching, and construction of onsite structures;
- exhaust from water trucks used to control construction dust emissions;
- exhaust from portable welding machines, small generators, and compressors;
- exhaust from diesel trucks used to transport workers and deliver concrete, fuel, and construction supplies to construction areas; and
- exhaust from vehicles used by construction workers to commute to and from the project areas.

Construction Health Risk Assessment (HRA) for Diesel Exhaust

The primary air toxic pollutant of concern from construction activities is diesel particulate matter (DPM). Diesel exhaust is a complex mixture of thousands of gases and fine particles and contains over 40 substances listed by the U.S. EPA as hazardous air pollutants (HAPs) and by ARB as toxic air contaminants. The DPM is primarily composed of aggregates of spherical carbon particles coated with organic and inorganic

substances. Diesel exhaust deserves particular attention mainly because of its ability to induce serious non-cancer effects and its status as a likely human carcinogen.

Diesel exhaust is also characterized by ARB as “particulate matter from diesel-fueled engines.” The impacts from human exposure would include both short- and long-term health effects. Short-term effects can include increased coughing, labored breathing, chest tightness, wheezing, and eye and nasal irritation. Effects from long-term exposure can include increased coughing, chronic bronchitis, reductions in lung function, and inflammation of the lung. Epidemiological studies strongly suggest a causal relationship between occupational diesel exhaust exposure and lung cancer. Diesel exhaust is listed by the U.S.EPA as “likely to be carcinogenic to humans” (U.S. EPA 2003).

Based on a number of health effects studies, the Scientific Review Panel on Toxic Air Contaminants in 1998 recommended a chronic REL for diesel exhaust particulate matter of five micrograms per cubic meter of air ($\mu g/m^3$) and a cancer unit risk factor of $3x10^{-4}$ $(\mu g/m^3)^{-1}$. However, SRP did not recommend a specific value for an acute REL since available data in support of a value was deemed insufficient. Therefore, there is no acute REL for diesel particulate matter, and it was not possible to conduct an assessment for its acute health effects. In 1998, ARB listed particulate emissions from diesel-fueled engines as a toxic air contaminant and approved the panel’s recommendations regarding health effects (OEHHA 2009, Appendix A). In 2000, ARB developed a “Risk Reduction Plan to Reduce Particulate Matter Emissions From Diesel-Fueled Engines and Vehicles” and has been developing regulations to reduce diesel particulate matter emissions since that time.

A screening HRA for diesel particulate matter was conducted according to OEHHA’s 2015 Air Toxics Hot Spots Program Risk Assessment Guideline (OEHHA 2015) to assess the potential impacts associated with diesel emissions during the construction activities at PEP. This HRA was based on the annual average emissions of DPM, assumed to occur each year for two years of continuous exposure[2]. The Hotspots Analysis Reporting Program Version 2 (HARP2) model (Version 15197, July 2015) was used to evaluate construction-related public health impacts at the Point of Maximum Impact (PMI), Maximally Exposed Individual Resident (MEIR), Maximally Exposed Individual Worker (MEIW) and the highest values at sensitive receptors. The results are listed in the upper portion of **Public Health Table 2**.

The results of the revised assessment shows the excess cancer risk at the PMI, MEIR, MEIW, and the highest value at a sensitive receptor are 6.81 in a million, 0.0375 in a million, 0.0469 in a million and 0.0318 in a million, respectively, all less than the Energy Commission staff’s significant impact threshold of 10 in a million. The predicted chronic health index at the PMI, MEIR and MEIW are 0.003981, 0.000022, and 0.000027, respectively. The chronic hazard indices for diesel exhaust during construction activities are all lower than the significance level of 1.0. This means that there would be no chronic non-cancer impacts expected from construction activities.

HARP2 was used by both staff and the project owner for construction HRA. However, the risk values calculated by staff and the project owner are different because different

[2] The construction period of PEP is expected to last 25 months.

methodologies were used. Staff does not agree with the project owner's HRA assuming an exposure duration of 70 years and using "Population-wide" as receptor type. All risk values were then adjusted for the construction period of 2 years. The project owner used direct interpolation (i.e. all risk values were multiplied by 2/70) for adjustment. For example, as for PMI (MIR in PTA Table 37-1), it was calculated as: MIR = 2.0892 $x10^{-5}$ x (2/70) =0. 597 $x10^{-6}$ (PHPP 2015u, Table 37-1). However, the new OEHHA guideline, which staff used, takes into account the increased sensitivity to carcinogens during early-in-life exposure (OEHHA 2015, Table 8.3). This new methodology is used to reflect the fact that exposure varies among different age groups and exposure occurring in early life has a higher weighting factor, so the simple adjustment used by the project owner is not the correct way to calculate the risk of shorter period. Also, HARP2 offers "User Define (Tier 2)" to calculate exposure for a shorter period. Therefore, staff calculated all risk values by using HARP2 "Individual Resident" receptor type and "User Define (Tier 2)" of 2 years for exposure period (OEHHA 2015).

Based on the results of the project owner's and staff's analyses, and considering the following two additional factors: (1) the potential exposure of DPM would be sporadic and limited in duration and (2) the predicted incremental increase in cancer risk at the MEIR and MEIW and chronic health index at the PMI, MEIR, and MEIW are less than the significance thresholds of ten in one million and 1.0, respectively, staff concludes that impacts associated with the DPM from anticipated PEP construction activities would be less than significant.

Public Health Table 2
Results of Staff's Analysis and the Project Owner's Analysis for Construction Hazard/Risk from DPMs

	Staff's Analysis [g]			Project Owner's Analysis [h]		
Receptor Type	Cancer Risk (per million)	Chronic HI[f]	Acute HI[f]	Cancer Risk (per million)	Chronic HI	Acute HI
PMI[a]	6.81	0.003981	NA	0.597	0.00398	NA
MEIR[b]	0.0375	0.000022	NA	0.00328	0.000022	NA
MEIW[c]	0.0469	0.000027	NA	0.00411	0.000027	NA
Nearest School[d]	0.0318	0.000019	NA	0.0028	0.000019	NA
Nearest Health Facility[d]	0.0219	0.000013	NA	0.00191	0.000013	NA
Nearest Daycare[d]	0.0091	0.000005	NA	0.0008	0.000005	NA
Significance Level[e]	10	1		10	1	

Note:
[a] PMI= Point of Maximum Impact (located approximately 0.64 miles southeast of the project for cancer risk).
[b] MEIR = maximally exposed individual (MEI) of residential receptors (located at a residence approximately 3.13 miles south of the project) for cancer.
[c] MEIW = MEI of worker (located approximately 0.24 miles north of the project).
[d] Sensitive Receptor: the nearest school is approximately 2 miles north from the site, the nearest health facility is approximately 5.49 miles southeast from the site, and the nearest daycare is approximately 3.87 miles northwest from the site.
[e] The significance level is a level that does not necessarily mean that adverse impacts are expected, but rather that further analysis and refinement of the exposure assessment is warranted.
[f] HI = Hazard Index
[g] Staff calculated all risk values by using HARP2 "Individual Resident" receptor type and "User Define (Tier 2)" of 2 years for exposure period (OEHHA 2015).
[h] The project owner assumed an exposure duration of 70 years and used "Population-wide" as receptor type. All risk values were then adjusted for the construction period of 2 years. The project owner used direct interpolation (i.e. all risk values were multiplied by 2/70) for adjustment. For example, as for PMI (MIR in Table 37-1), it was calculated as: MIR = 2.0892 $x10^{-5}$ x (2/70) = 0. 597 $x10^{-6}$ (PHPP 2015u, Table 37-1).

Conditions of Certification **AQ-SC5** (Diesel-Fueled Engine Control) in the **AIR QUALITY** section would ensure that cancer-related impacts of diesel exhaust emissions for the public and off-site workers are mitigated during construction to a point where they are not considered significant. The potential levels of criteria pollutants from operation of construction-related equipment are discussed in staff's **AIR QUALITY** section along with mitigation measures and related conditions of certification. The pollutants of most concern in this regard are particulate matter (PM), carbon monoxide (CO), sulfur dioxide (SO_2), and nitrogen dioxide (NO_2).

PROPOSED PROJECT'S OPERATIONAL IMPACTS AND MITIGATION MEASURES

Pollutants that could potentially be emitted during operation are listed in **Public Health Table 3,** including both criteria and non-criteria pollutants. These pollutants include certain volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs). Criteria pollutant emissions and impacts are examined in staff's **AIR QUALITY** analysis. Since the facility would use dry cooling, there would be no emissions of toxic metals or VOCs from cooling tower mist or drift and no health risk from the potential presence of the Legionella bacterium responsible for Legionnaires' disease.

Tables 4.1-40 of the PTA (PHPP 2015c) list the specific non-criteria pollutants that would be emitted as combustion byproducts from the PEP natural-gas-fired turbines and auxiliary boiler. The emission factors for these pollutants were obtained from the U.S. EPA AP-42 emission factors.

The health risk from exposure to each project-related pollutant is assessed using the "worst case" emission rates and impacts. Maximum hourly emissions are used to calculate acute (one-hour) noncancer health effects, while estimates of maximum emissions on an annual basis are used to calculate cancer and other chronic (long-term) health effects.

Hazard Identification

Numerous health effects have been linked to exposure to TACs, including development of asthma, heart disease, Sudden Infant Death Syndrome, respiratory infections in children, lung cancer, and breast cancer (OEHHA, 2003). According to the PEP PTA, the toxic air contaminants emitted from the natural gas-fired turbines, auxiliary boiler, fire pump and emergency generator set include acetaldehyde, acrolein, ammonia, benzene, 1,3-butadiene, ethyl benzene, formaldehyde, napthalene, polycyclic aromatics, propylene oxide, toluene, xylene, and diesel particulate matter. **Public Health Table 3** and **Public Health Table 4** list each such pollutant.

Exposure Assessment

Public Health Table 4 shows the exposure routes of TACs and how they would contribute to the total risk obtained from the risk analysis. The applicable exposure pathways for the toxic emissions include inhalation, home-grown produce, dermal (through the skin) absorption, soil ingestion, and mother's milk. This method of assessing health effects is consistent with OEHHA's Air Toxics Hot Spots Program Risk Assessment Guidelines (OEHHA 2003) referred to earlier.

The next step in the assessment process is to estimate ambient concentrations using a screening air dispersion model and assuming conditions that would result in maximum impacts. The project owner used the U.S.EPA-recommended air dispersion model, AERMOD, along with five years (2010–2014) of compatible meteorological data from Palmdale Air Force Plant 42 Complex (aka Palmdale Airport) Automated Surface Observing System (PHPP 2015c, Section 4.1.5.5).

Public Health Table 3
The Main Pollutants Emitted from the Proposed Project

Criteria Pollutants	Non-criteria Pollutants (Toxic Pollutants)
Carbon monoxide (CO)	Acetaldehyde
Oxides of nitrogen (NO_x)	Acrolein
Particulate matter (PM10 and PM2.5)	Ammonia
Oxides of sulfur (SO_x)	Benzene
Volatile Organic Compounds (VOCs)	1,3-Butadiene
Lead	Ethyl Benzene
	Formaldehyde
	Hexane
	Naphthalene
	Polycyclic Aromatic Hydrocarbons (PAHs)
	Propylene
	Propylene oxide
	Toluene
	Xylene
	Diesel Particulate Matter

Source: PHPP 2015c, Table 4.1-40

Public Health Table 4
Types of Health Impacts and Exposure Routes Attributed to Toxic Emissions

Substance	Oral Cancer	Oral Noncancer	Inhalation Cancer	Noncancer (Chronic)	Noncancer (Acute)
Acetaldehyde			✔	✔	✔
Acrolein				✔	✔
Ammonia				✔	✔
Benzene			✔	✔	✔
1,3-Butadiene			✔	✔	
Ethyl Benzene			✔	✔	
Formaldehyde			✔	✔	✔
Napthalene		✔	✔	✔	
Polycyclic Aromatic Hydrocarbons (PAHs)	✔		✔		
Propylene Oxide			✔	✔	✔
Toluene				✔	✔
Xylene				✔	✔
Diesel Particulate Matter			✔	✔	

Source: OEHHA / ARB 2015

Dose-Response Assessment

Public Health Table 5 lists the toxicity values used to quantify the cancer and noncancer health risks from the project's combustion-related pollutants. The listed toxicity values for cancer potency factors and RELs are published in the OEHHA's Guidelines (OEHHA 2003) and OEHHA/ARB Consolidation Table of OEHHA/ARB Approved Risk Assessment Health Values (ARB 2015). RELs are used to calculate short-term and long-term noncancer health effects, while the cancer potency factors are used to calculate the lifetime risk of developing cancer.

Public Health Table 5
Toxicity Values Used to Characterize Health Risks

Toxic Air Contaminant	Inhalation Cancer Potency Factor $(mg/kg\text{-}d)^{-1}$	Chronic Inhalation REL $(\mu g/m^3)$	Acute Inhalation REL $(\mu g/m^3)$
Acetaldehyde	0.010	140	470 (1-hr) 300 (8-hr)
Acrolein	—	0.35	2.5 (1-hr) 0.7 (8-hr)
Ammonia	—	200	3,200
Benzene	0.10	60	1,300
1,3-Butadiene	0.60	20	—
Ethyl Benzene	0.0087	2,000	—
Formaldehyde	0.021	9	55 (1-hr) 9 (8-hr)
Hexane	—	7000	—
Napthalene	0.12	9.0	—
Polycyclic Aromatic Hydrocarbons (PAHs)	3.9	—	—
Propylene Oxide	0.013	3	3100
Toluene	—	300	37,000
Xylene	—	700	22,000

Sources: ARB 2015

Characterization of Risks from TACs

As described above, the last step in an HRA is to integrate the health effects and public exposure information, provide quantitative estimates of health risks resulting from project emissions, and then characterize potential health risks by comparing worst-case exposure to safe standards based on known health effects.

The project owner's HRA was prepared using the ARB's Hotspots Analysis and Reporting Program Version 2 (HARP2, version 15197). Emissions of non-criteria pollutants from the project were analyzed using emission factors, as noted previously, obtained mainly from the U.S. EPA AP-42 emission factors. Air dispersion modeling combined the emissions with site-specific terrain and meteorological conditions to analyze the worst-case short-term and long-term concentrations in air for use in the HRA. Ambient concentrations were used in conjunction with cancer unit risk factors and RELs to estimate the cancer and noncancer risks from operations. In the following sub-sections, staff reviews and summarizes the work of the project owner, and evaluates the adequacy of the project owner's analysis by conducting an independent HRA.

To evaluate and supplement the project owner's analysis, staff conducted an additional analysis of cancer risks and acute and chronic hazards due to combustion-related emissions from the proposed PEP. Results are shown in **Public Health Table 6**. The analysis was conducted for the general population, sensitive receptors, nearby residences and off-site workers. The sensitive receptors, as previously noted, are subgroups that would be at greater risk from exposure to emitted air toxics, and include the very young, the elderly, and those with existing illnesses.

On March 6, 2015 OEHHA approved a revision to the Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (OEHHA 2015). OEHHA developed age sensitivity factors to take into account the increased sensitivity to carcinogens during early-in-life exposure (OEHHA 2015, Table 8.3). This new methodology is used to reflect the fact that exposure varies among different age groups and exposure occurring in early life has a higher weighting factor.

Health risks potentially associated with ambient concentrations of carcinogenic pollutants were calculated in terms of excess lifetime cancer risks. The total cancer risk at any specific location is found by summing the contributions from the individual carcinogens. Health risks from non-cancer health effects were calculated in terms of hazard index as a ratio of ambient concentration of TACs to RELs for that pollutant.

The following is a summary of the most important elements of staff's heath risk assessment for the proposed PEP:

- the analysis was conducted using the latest version of ARB/OEHHA HARP2[3], which incorporates methodology presented in OEHHA's 2015 Guidance;
- emissions are based upon concurrent operation of two natural-gas-fired turbines, one auxiliary boiler, one diesel-fueled fire pump, and one diesel-fueled emergency generator (PHPP 2015c , Table 4.1-5);
- exposure pathways included inhalation, soil ingestion, dermal absorption, home grown produce, and mother's milk;
- the local meteorological data, local topography, grid, residence and sensitive receptors, source elevations, and site-specific and building-specific input parameters used in the HARP2 model were obtained from the PTA and modeling files provided by the project owner;
- the emission factors and toxicity values used in staff's analysis of cancer risk and hazard were obtained from the PTA. The toxicity values are listed in **Public Health Table 5**;
- cancer risk was determined using the derived (OEHHA) risk assessment method, and staff applied the Age Sensitivity Factors recommended on OEHHA 2015 Guideline on the calculation of the cancer risk at the PMI.

Cancer Risk at the Point of Maximum Impact (PMI)

The most significant result of HRA is the numerical cancer risk for the maximally exposed individual (MEI) which is the individual located at the PMI and risks to the

[3] HARP2 can be downloaded from ARB's HARP website. http://www.arb.ca.gov/toxics/harp/harp.htm

MEIR. As previously noted, human health risks associated with emissions from the proposed project are unlikely to be higher at any other location than at the PMI. Therefore, if there is no significant impact associated with concentrations at the PMI location, it can be reasonably assumed that there would not be significant impacts in any other location in the project area.

The cancer risk to the MEI at the PMI is referred to as the Maximum Incremental Cancer Risk (MICR). However, the PMI (and thus the MICR) is not necessarily associated with actual exposure because in many cases, the PMI is in an uninhabited area. Therefore, the MICR is generally higher than the maximum residential cancer risk. MICR is based on 24 hours per day, 365 days per year, 30-year lifetime exposure. As shown in **Public Health Table 6**, total worst-case individual cancer risk was calculated by staff to be 2.475[4] in one million at the PMI. The PMI is approximately 0.51 miles southeast of the proposed PEP site. As **Public Health Table 6** shows, the cancer risk value at PMI is below the significance level, ten in one million, indicating that no significant adverse cancer risk is expected.

Chronic and Acute Hazard Index (HI)

The screening HRA for the project included emissions from all sources and resulted in a maximum chronic Hazard Index (HI) of 0.0109 and a maximum acute HI of 0.0272. As **Public Health Table 6** shows, both acute and chronic hazard indices are less than 1.0, indicating that no short- or long-term adverse health effects are expected.

Project-Related Impacts at Area Residences

Staff's specific interest in the risk to the MEIR is because this risk most closely represents the maximum project-related lifetime cancer risk. Residential risk is presently assumed by the regulatory agencies to result from exposure lasting 24 hours per day, 365 days per year, over a 30-year lifetime. Residential risks were presented in terms of MEIR and health HI at residential receptors in **Public Health Table 6**. The cancer risk for the MEIR is 0.0355, which is below the significance level. The maximum resident chronic HI and acute HI are 0.00072 and 0.0106, respectively. They are both less than 1.0, indicating that no short- or long-term adverse health effects are expected at these residents.

Risk to Workers

The cancer risk to potentially exposed workers was presented by the project owner in terms of risk to the maximally exposed individual worker or MEIW at PMI and is summarized in **Public Health Table 6**. Workplace risk is presently calculated by regulatory agencies using exposures of eight hours per day, 245 days per year, over a 25-year period. As shown in **Public Health Table 6**, the cancer risk for workers at

MEIW (i.e. 0.0075 in 1 million) is below the significance level. All risks are below their significance levels.

[4] The worst-case individual cancer calculated by staff is slightly lower than the one calculated by the project owner (i.e.3.824). This result is because staff used 30 years and the project owner used 70 years as the exposure duration (residency time).

Risk to Sensitive Receptors

The highest cancer risk at the nearest school is 0.0348 in one million, the chronic HI is 0.00028 and the acute HI is 0.0047. The highest cancer risk at the nearest health facility is 0.0133 in one million, the chronic HI is 0.00012 and the acute HI is 0.0025. The highest cancer risk at the nearest daycare is 0.0072 in one million, the chronic HI is 0.00005 and the acute HI is 0.0029. All risks are below their significance levels.

In **Public Health Table 6**, it is notable that the cancer and noncancer risks from PEP operation would be below their respective significance levels. This means that no health impacts would occur within all segments of the surrounding population. Therefore, staff concludes there is no need for conditions of certification to protect public health during facility operation.a

Public Health Table 6
Results of Staff's Analysis and the Project Owner's Analysis
Of Operation Hazard/Risk from Air Toxics

	Staff's Analysis			Project Owner's Analysis		
Receptor Type	Cancer Risk (per million)	Chronic HI[f]	Acute HI[f]	Cancer Risk (per million)	Chronic HI	Acute HI
PMI[a]	2.475[g]	0.0109	0.0272	3.824[h]	0.0109	0.0242
MEIR[b]	0.0355	0.00027	0.0106	0.0547	0.00027	0.0106
MEIW[c]	0.0075	0.00064	0.0216	0.0521	0.00064	0.0216
Nearest School[d]	0.0348	0.00028	0.0074	0.0538	0.00028	0.0074
Nearest Health Facility[d]	0.0133	0.00012	0.0025	0.0206	0.00012	0.0024
Nearest Daycare[d]	0.0072	0.00005	0.0029	0.0112	0.00005	0.0029
Significance Level[e]	10	1	1	10	1	1

Note:
[a] PMI= Point of Maximum Impact (located approximately 0.51 miles southeast of the project for cancer risk).
[b] MEIR = maximally exposed individual (MEI) of residential receptors (located at a residence approximately 1.2 miles north of the project) for cancer. Location of the residence of the highest risk with a 30-year residential scenario.
[c] MEIW = MEI of worker (located approximately 0.24 miles north of the project). Occupational exposure patterns assuming standard work schedule, i.e. exposure of eight hours/day, five days/week, 49 weeks/year for 25 years.
[d] Sensitive Receptor: the nearest school is approximately 2 miles north from the site, the nearest health facility is approximately 5.49 miles southeast from the site, and the nearest daycare is approximately 3.87 miles northwest from the site.
[e] The significance level is a level that does not necessarily mean that adverse impacts are expected, but rather that further analysis and refinement of the exposure assessment is warranted.
[f] HI = Hazard Index
[g] The exposure duration was assumed to be 30 years according to the newest OEHHA Guidance (OEHHA 2015).
[h] The exposure duration was assumed to be 70 years by the project owner.

Cancer Burden

Cancer burden is defined as the estimated increase in the occurrence of cancer cases in a population resulting from exposure to carcinogenic air contaminants. In other word, it is a hypothetical upper-bound estimate of the additional number of cancer cases that could be associated with toxic air emissions from the project. Cancer burden is calculated as the maximum product of any potential carcinogenic risk greater than 1 in one million, and the number of individuals at that risk level. Therefore, if a predicted derived adjusted cancer risk is greater than 1 in one million, the cancer burden is calculated for each census block receptor.

Based on AVAQMD Rule 1401 (PHPP 2015c), Table 4.1-43, a cancer burden greater than 0.5 excess cancer cases in areas with an incremental increase greater than 1 in one million individuals is considered significant. OEHHA required a 70-yr exposure duration to estimated cancer burden or provide an estimate of population-wide risk (OEHHA 2015, page 8-1). The project owner conduct an estimate of the PEP's cancer burden by using HARP2, and the result is 0.0012, much less than the Rule 1401 threshold value of 0.5 (PHPP 2015c, Table 4.1-44 and Appendix 4.1D).

CUMULATIVE IMPACTS AND MITIGATION

A project would result in a significant adverse cumulative impact if 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., tit. 14, § 15130). As for cumulative impacts for cumulative hazards and health risks, if the implementation of the proposed project, as well as the past, present, and probable future projects, would not cumulatively contribute to regional hazards, then it could be considered a less than cumulatively considerable impact.

The geographic scope of analysis for cumulative effects to public health is a six-mile buffer zone around the project site. This is the same six-mile buffer zone for localized significant cumulative air quality impacts described and evaluated in the **AIR QUALITY** section of this FSA.

Cumulative impacts of the amended project and other projects within a 6-mile buffer zone were not quantitatively evaluated in the PTA. The project owner listed two AVAQMD-identified neighboring facilities: Lockheed Martin and Northrop Grumman. Each of these facilities is well over 2 miles from the project site. AVAQMD used a prioritization score method to evaluate their health risk impacts. The facility prioritization score for the two facilities are 9.927 and 4.088 respectively. AVAQMD ranked these facilities as intermediate priority, not requiring a detailed HRA. In addition, neither of these facilities meets the federal emissions threshold definition for a major source of HAPs, i.e., 10 tpy of a single HAP, or 25 tpy total of all HAPs. Based on the priority scores of these two stationary sources, and the distances of each from the project site, the background health risk impacts would not be significant in the area neighboring the proposed power plant site. In addition, the cancer risks and non-cancer health impacts estimated for the PEP using conservative assumptions are below significance with minimal predicted impacts to offsite receptors (PHPP 2015c, Section 4.1.7.3).

Staff also considered the potential impacts due to construction and operation of the PEP with new projects or new "reasonably foreseeable probable future projects" in the area since the original project was approved, and none of them fall within the 6-mile buffer zone. Therefore, staff concludes that there would not be any cumulatively significant impacts associated with public health risks.

The maximum cancer risk and non-cancer hazard index (both acute and chronic) for operations emissions from the PEP estimated independently by the project owner, staff, and the AVAQMD are all below levels of corresponding significance. While air quality cumulative impacts could occur with sources within a six-mile radius, cumulative public

health impacts are usually not significant unless the emitting sources are extremely close to each other, within a few blocks, not miles. All noted above, only two stationary sources are identified around two miles from PEP. Staff, therefore, concludes that the PEP, even when combined with these projects, would not contribute to cumulative impacts in the area of public health.

In conclusion, staff does not consider the incremental risk estimate from PEP's operation as suggesting a potentially significant contribution to the area's overall or cumulative cancer risk that includes the respective risks from the background pollutants from all existing area sources.

LEGIONELLA IN COOLING TOWERS

Staff issued Data Request # 63 (CEC 2015n) requesting the justification for the Petitioner's desire to delete Condition **PUBLIC HEALTH-1** which requires the preparation and implementation of a Cooling Water Management Plan to prevent the growth of *Legionella* bacteria in any cooling tower. This Data Request was made by Worker Safety/Fire Protection staff because the potential for *Legionella* growth could impact both the off-site public and the on-site workers. The project owner provided a response (PHPP 2015a) that it was its opinion that the enclosed evaporative cooler used as combustion turbine (CT) inlet air chillers would not foster an environment conducive to the growth of *Legionella* bacteria and that furthermore, due to the enclosure, workers would not be exposed to any short-term standing water within the coolers.

At the December 17, 2015 Staff Data Response Workshop, staff made a Workshop Query for the Petitioner to provide more detail about the CT inlet evaporative coolers, including a diagram of the inside of the coolers. The Petitioner responded with a Response to Workshop Question #WSQ-2 (PHPP 2016b) explaining that the inlet evaporative coolers would be located inside the CT filter house (and thus not accessible to workers during CT operation), workers are not normally present in the area where the cooler sump is located unless for maintenance, the CT filter houses would be located 30 feet above the ground, mist eliminators remove water droplets that would flow down into a basin which then drains into the sump, and CT manufactures do not recommend the addition of chemicals to the inlet evaporative cooler water because these chemical could cause damage to the CT internal parts. This diagram was docketed February 18, 2016 (PHPP 2016i).

Staff found no evidence in the scientific and technical literature of *Legionella* bacteria having been detected in CT inlet evaporative coolers. Staff could also not find any evidence that CT inlet evaporative coolers have ever been tested for the presence of *Legionella* bacteria. Given this inability to find either positive or negative findings, staff searched further and found two scientific/technical published article that were the nearest to being on-point to the issue at hand. One was from the ASHRAE Journal (American Society of Heating, Refrigeration, and Air-Conditioning Engineers; January 1995) that stated that it believed the temperature of the water of evaporative coolers in general (not necessarily CT inlet evaporative coolers) does not foster the growth of the *Legionella* bacteria and the other a report by New Buildings Institute (Assessment of Market-Ready Evaporative Technologies for HVAC Applications (August 25, 2006; prepared for Southern California Edison) stated that it could find "no published evidence

of *Legionella* being clearly linked to an evaporative cooler" (again, not necessarily CT inlet evaporative coolers).

COMPLIANCE WITH LORS

Staff has conducted a HRA for the PEP and found no potentially significant adverse impacts for any receptors, including sensitive receptors. In arriving at this conclusion, staff notes that its analysis complies with all directives and guidelines from the Cal/EPA Office of Environmental Health Hazard Assessment and the California Air Resources Board. Staff's assessment is biased towards protection of public health and takes into account the most sensitive individuals in the population. Using extremely conservative (health-protective) exposure and toxicity assumptions, staff's analysis demonstrates that members of the public potentially exposed to toxic air contaminant emissions of this project, including sensitive receptors such as the elderly, infants, and people with pre-existing medical conditions, would not experience any acute or chronic significant health risk or any significant cancer risk as a result of that exposure.

Staff incorporated every conservative assumption called for by state and federal agencies responsible for establishing methods for analyzing public health impacts. The results of that analysis indicate that there would be no direct or cumulative significant public health impact on any population in the area. Therefore staff concludes that construction and operation of the PEP would comply with all applicable LORS regarding long-term and short-term project impacts in the area of public health.

Additionally, staff reviewed **Socioeconomics Figure 1**, which shows the environmental justice population (see the **SOCIOECONOMICS** and **EXECUTIVE SUMMARY** sections of this FSA for further discussion of environmental justice) is greater than 50 percent within a six-mile buffer of the PEP site. Because no members of the public would potentially be exposed to toxic air contaminant emissions of this project at significant levels, no one would experience any acute or chronic cancer or non-cancer effects of health significance during construction and operation. Given such lack of impacts, there would be no case of disproportionate public health impacts within the identified environmental justice population.

RESPONSE TO PSA COMMENTS

PUBLIC COMMENTS

Comment:

(Martin Family, TN 211012): We do not need any more pollution floating around the Antelope Valley. This proposed power plant is not needed. Especially since it will be close to schools where children are outside running and playing breathing in those fumes that will be emitted. Also there are many homes within walking distance. It will be another Porter Ranch debacle where people are ill from gas emissions, homes penetrated with gas fumes and serving no need. Automobiles require smog checks regularly and this company wishes to put more gas emissions to pollute our air -_there is no justice to this insane project? Stop it now.

Response to Comment:

According to the results of health risk assessment (HRA) for PEP, all risk numbers are below significance thresholds, including the Point of Maximum Impact (PMI), the MEIR and the receptor at nearest school (Please see **Public Health Table 6** for more details). Therefore, staff concludes that no significant adverse health impacts from toxic air emissions (TACs) are expected at any location. For a discussion of other pollutants, please see the **Air Quality** portion of this analysis.

Comment:

(James Brockway, TN 211352): The distance of my home is about 3 miles northeast from proposed location of PEP. The prevailing winds are from the southwest to northeast at the average of 13 MPH (annual average). I am concerned about the health impact and air quality. I am currently on medical oxygen for treatment of Pulmonary Fibrosis. The emission will cover the area where I reside. My concern is what will be the min and max level of emissions and impacts on air quality (PHPP 2016y).

Response to Comment:

According to the results of health risk assessment (HRA) for PEP, all risk numbers are below the thresholds, including the Point of Maximum Impact (PMI) and the points of sensitive receptors (Please see **Public Health Table 6** for more details). Therefore, staff concludes that no significant adverse health impacts from toxic air emissions (TACs) are expected at any location. For a discussion of other pollutants, please see the **Air Quality** portion of this analysis.

Comment:

(Center for Biological Diversity, TN 211217): Supplemental environmental review is not in compliance with CEQA. Given the great increase in emissions known to be harmful to public and environmental health, the staff's conclusions here are entirely unsupportable. Pursuant to CEQA, all significant impacts of this application for a totally new project need to be fully analyzed and the Commission cannot evade CEQA review simply by labeling this project "an amendment." (PHPP 2016aa)

Response to Comment:

Staff did conduct a comprehensive public health analysis according to CEQA using the most recent OEHHA/ARB HRA guidelines, methodology and HARP2. All significant public health impacts were fully analyzed.

Staff received no other comments from the project owner, the public, interveners, or agencies in the area of **Public Health.**

CONCLUSIONS AND RECOMMENDATIONS

Staff has analyzed the potential public health risks associated with construction and operation of the PEP using a conservative methodology that accounts for impacts on the most sensitive individuals in any given population. Staff concludes that there would be no significant health impacts from the project's air emissions. According to the results of staff's HRA, both construction and operating emissions from the PEP would

not contribute significantly or cumulatively to morbidity or mortality in any age or ethnic group residing in the project area.

CONDITIONS OF CERTIFICATION

The conditions of certification for **Public Health** are located in the Conditions of Certification Compendium at the back of this Final Staff Assessment.

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PHPP 2015u - DayZen LLC/Marie Fleming (TN 206797). Response to CEC Staff Data Request Set No. 1 (1-63), dated November 2015. Submitted to CEC/Docket Unit on November 30, 2015

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PHPP 2016i - DayZen LLC/Marie Fleming (TN 210410).Response to WSQ-2 Typical Filter House Evaporative Cooler Assembly Diagram. Submitted to CEC/Docket Unit on February 18, 2016

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PALMDALE ENERGY PROJECT (08-AFC-9C)
Petition to Amend the Final Commission Decision
SOCIOECONOMICS
Testimony of Ellen LeFevre

SUMMARY OF CONCLUSIONS

Staff has reviewed the Decision and analyzed the changes to the licensed PHPP, which include eliminating the solar energy component and reconfiguring the two–on-one combined-cycle power block configuration to incorporate new gas turbine technology. In accordance with California Environmental Quality Act (CEQA) Guidelines section 15162 (Cal. Code Regs., tit. 14, § 15162), staff concludes that no supplementation to the 2011 California Energy Commission Final Decision (Decision) for the Palmdale Hybrid Power Project (PHPP) is necessary. The Committee may rely upon the environmental analysis and conclusions of the Decision with regards to socioeconomics and does not need to re-analyze them. Although supplementation is not necessary, school impact fees now apply to the project because of the ownership change from the city of Palmdale to the privately-owned Palmdale Energy LLC. Therefore, staff has proposed Condition of Certification **SOCIO-1** to ensure the amended project complies with applicable laws, ordinances, regulations, and standards (LORS), as required by Title 20, California Code of Regulations section 1769.

SUMMARY OF THE DECISION

The list below provides a short summary of the Decision with regards to the Socioeconomics technical area. Based on the evidence presented in the original proceeding, the Energy Commission made the following findings and conclusions:

- The PHPP will draw primarily upon the local labor force from Los Angeles, Riverside and Kern counties for the construction and the operation workforce.
- The PHPP will not cause an influx of a significant number of construction or operation workers into the local area.
- The PHPP is not likely to have a significant adverse effect upon local employment, housing, schools, medical resources, or fire and police protection.
- The PHPP will have a construction payroll of approximately $106 million.
- The PHPP will result in local direct, indirect, and induced benefits – both fiscal and non-fiscal.
- The PHPP will likely result in generation of secondary jobs and income and increased revenue from sales taxes due to construction activities;
- Construction and operation of the PHPP will not result in any direct, indirect, or cumulative adverse socioeconomic impacts.
- Paving the roads identified in the record will not result in substantial growth inducing impacts.
- Road paving will not result in any significant impacts to socioeconomics.

- The analysis of record has been performed in conformity with federal environmental justice guidelines.
- Minority populations exist within a six mile radius of the site; however, the PHPP will not cause or contribute to disproportionate socioeconomic impacts upon minority or low income groups.
- Siting of the PHPP, and the analysis thereof, are consistent with the principles underlying environmental justice.
- The PHPP's contribution to cumulative impacts, in conjunction with the impacts from other reasonably foreseeable projects, is adequately addressed the Decision.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS COMPLIANCE

Socioeconomics Table 1 contains the updated socioeconomics LORS applicable to the PTA. Since the PTA proposes to eliminate the solar energy component, the California Revenue and Taxation Code Section 70-74.7, which is listed in the Decision as an applicable LORS, would no longer apply to the project.

Socioeconomics Table 1
Applicable Laws, Ordinances, Regulations, and Standards (LORS)

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 65995-65998	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.

Palmdale Energy, LLC has purchased all rights, licenses, permits, options, etc. in existence to the PEP from the city of Palmdale. The change in project ownership requires that the California Education Code Section 17620 and California Government Code Section 65995-65998 are included in the assessment of the PTA as applicable LORS. In the Final Staff Assessment, staff concluded that the PHPP was exempt from paying school impact fees because the project owner was the city of Palmdale. The change in project ownership from a public entity (city of Palmdale) to private entity (Palmdale Energy LLC) makes the project subject to school impact fees.

School fees are applied to new construction or reconstruction of existing building for industrial use (Cal. Education Code § 17620 (a) (2), Cal. Gov. Code § 65995 (d)). The fees are assessed on the area of covered and enclosed space and are calculated prior to the issuance of building permits during plan review.

The project is in the Lancaster Elementary School District (LESD) and Antelope Valley Union High School District (AVUHSD). The rate for new commercial or industrial development for LESD is $0.40 per square foot of covered and enclosed, non-residential space (CEC 2015g). The rate for new commercial or industrial development for the AVUHSD is $0.14 per square foot of covered and enclosed, non-residential space (CEC 2015h). These fees are set by the individual school districts. The PEP project modification estimates 33,000 square feet of covered and enclosed space (PHPP 2015c, pg. 2-28). Based on the PEP estimate, approximately $13,200 in school fees would be assessed for LESD and approximately $4,620 in school fees would be assessed for AVUHSD. Therefore, staff proposes Condition of Certification **SOCIO-1** to ensure payment of the school impact fees and the amended project's compliance with applicable state LORS.

ENVIRONMENTAL IMPACT ANALYSIS

After review of the Decision and PTA for potential environmental effects, staff concludes that the Committee may rely upon the environmental analysis and conclusions of the Decision with regards to socioeconomics and does not need to re-analyze them due to the following:

- The changes in the PTA would not create new significant socioeconomic effects or a substantial increase in the severity of previously identified significant effects.
- Substantial changes in the circumstances under which the PEP would be undertaken with respect to socioeconomics have not occurred which would involve new significant socioeconomic effects or a substantial increase in the severity of previously identified significant effects.
- There is not new information of substantial importance that would show that the PEP would have new significant socioeconomic effects or significant effects substantially more severe than previously examined in the Decision.

Staff's conclusion is supported by the following key factual information:

- The construction workforce is reduced from a peak of 767 workers to a peak of 710 workers. The average number of construction workers will remain almost the same, changing from 367 workers to 371 workers.
- The operations staff is reduced from 36 employees to 23 employees.
- The construction period is reduced from 27 months to 25 months.
- The project site would be reduced from 333 acres to 50 acres.

The PEP plant site is located in the northernmost areas of the city of Palmdale south of East Avenue M. With the elimination of the solar energy component, the project site would be reduced from 333 acres to 50 acres. The 50-acre site was formerly part of a 613.4-acre city-owned property.

During project construction, the “local workforce” residing within a two hour commute includes:

- Los Angeles-Long Beach-Glendale Metropolitan Division (Los Angeles County MD)
- Bakersfield Metropolitan Statistical Area (Kern County MSA)
- Riverside-San Bernardino-Ontario Metropolitan Statistical Area (Riverside County MSA)

During project operation the “local workforce” residing within a one-hour commute of the project includes Los Angeles County MD, Kern County MSA, and Riverside County MSA.

The PTA proposes a modification to the construction schedule and workforce. The PEP project construction is anticipated to last 25 months, from May 2017 (Quarter 2) until May 2019 (Quarter 2) with commercial operation anticipated in June 2019 (PHPP 2015u p. 38). The construction workforce would average 371 workers and peak in month 11 (April 2017) with 710 workers (PHPP 2016f). The number of construction workers would be reduced from the licensed PHPP’s peak of 767 workers in month 12. There would be almost no change in the average number of construction workers, changing from 367 workers to 371 workers. The length of construction would be reduced from 27 months to 25 months.

The PTA proposes a modification to the number of operational employees. The PEP project would require 23 full time employees compared to the 36 previously analyzed for the licensed PHPP.

The capital costs for the PEP would be approximately $723 million, of which approximately $21 million would be for construction materials and supplies and approximately $132 million would be for construction payroll. The estimated property taxes would be approximately $5-$6 million. (PHPP 2015c, p. 6.2-2) (LA County Auditor 2015)

CUMULTATIVE 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., tit. 14, § 15130). 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. An increased demand for labor could result in an influx of non-local workers and their dependents, resulting in a strain on housing, schools, or other community services.

Staff considers the following projects in the **Socioeconomics Table 2** part of the cumulative setting for socioeconomics.

Socioeconomics Table 2
Cumulative Projects

Project Name	Description	Location	Distance from Project (Miles)	Status
High Desert Corridor Project	Construct a new freeway/expressway connecting the City of Palmdale with the town of Apple Valley in San Bernardino County. HDCP is approximately 63 miles long. Construction estimated 2016 to 2040. Six construction phases each phase estimated 36 to 48 months.	SR-14 to SR-18, Los Angeles and San Bernardino counties	3.1	Draft Environmental Impact Report (EIR), Final EIR projected to be released Spring 2016
SPR 14-006	Proposal to construct a ground mounted solar photovoltaic (PV) facility on 39-acres.	Southeast corner future alignment of Ave P and 100th E, Palmdale	9.3	Approved
SPR 15-001	Request to develop 25-acres into solar PV facility	Southwest corner of 110th East and Ave. Q, Palmdale	9.6	Approved
SPR 14-010	Request to develop 24-acres for solar from approved SPR 13-003 (160 aces)	Southwest corner of East Ave O and 110th St East, Palmdale	9.8	Approved
Northwest 138 Corridor Improvement Project	Corridor alternatives and related operational improvements such as improving sight distance and bringing non-standard roadway features up to current standards. Extends 36 miles along SR-138 from I-5 to SR-14 in Los Angeles County.	SR-138, 36 miles between I-5 and SR-14, Los Angeles County	10.1	Preparing Draft EIR. Circulation Spring 2016
Independence Solar and Big Horn Solar projects	Two PV solar facilities. Conditional Use Permit 15-07 is for construction and operation of a 5 MW PV facility and Conditional Use Permit 15-09 is for construction and operation of a 60 MW PV facility.		11.5	IS
Lancaster Energy Center	150 MW alternating current (AC) ground-mounted solar PV power facility. Project components would include access roads, solar modules, single-axis tracking or fixed-tilt systems, direct current (DC) to AC power inverters, medium voltage transformers, a medium voltage collection system, and interconnection switching stations.	Lancaster	11.7	DRAFT EIR

Project Name	Description	Location	Distance from Project (Miles)	Status
Del Sur Solar Project	Proposed 100 MW utility-scale solar generating facility on 725-acres. Solar electricity generated would be delivered by an approximately 2 to 4-mile underground gen-tie and communication line that would extend to two previously approved substations near the existing Southern California Edison Antelope Substation on West Avenue J, south of the proposed project.	Lancaster	12.5	Draft EIR June 2015
XpressWest	XpressWest is a proposed high-speed passenger railroad that would connect Las Vegas with Southern California.	I-15 corridor to Las Vegas	41.1	Obtaining additional required regulatory approvals

Despite proposed development of solar and transportation projects near the city of Palmdale, there is no shortage of skilled construction labor in the Los Angeles, Kern, and Riverside County MSAs. As shown in **Socioeconomics Table 3**, the labor supply in the Los Angeles County MD and surrounding MSAs is more than sufficient to accommodate the labor needs for construction of the PEP and the other planned future projects identified in **Socioeconomics Table 2** in the cumulative study area. With available skilled construction labor within commuting distance of the PEP site and the other projects, there would not be an influx of non-local workers and their dependents that could have a significant cumulative impact on area housing, schools, or other community services.

Socioeconomics Table 3
Table Labor Supply for Selected Metropolitan Statistical Areas/Metropolitan Division

Total Labor for Selected MSAs/MD (Construction Workforce)	Total Workforce for 2012	Total Projected Workforce for 2022	Growth from 2012	Percent Growth from 2012 (%)
Los Angeles-Long Beach-Glendale Metropolitan Division (Los Angeles County)	131,140	155,910	24,770	18.9
Bakersfield Metropolitan Statistical Area (Kern County)	17,460	20,060	2,600	14.9
Riverside-San Bernardino-Ontario Metropolitan Statistical Area (Riverside and San Bernardino counties)	69,760	94,840	25,080	36.0
TOTALS	218,360	270,810	52,450	24.0

Notes: Total workforce includes only the crafts specifically needed for the PEP. **Source:** CA EDD 2015.

Socioeconomics Figure 1 shows the presence of an environmental justice population living within a six-mile radius of the project site. Staff has not identified any significant adverse direct or cumulative socioeconomic impacts resulting from the construction or operation of the proposed project, including impacts to the environmental justice population. Therefore, the proposed project would not affect any population including the Environmental Justice population as shown in **Socioeconomics Figure 1.**

RESPONSE TO PSA COMMENTS

Staff received no comments on the PSA from the project owner, the public, interveners, or agencies, in the area of **Socioeconomics**.

CONCLUSIONS AND RECOMMENDATIONS

Staff concludes that the proposed amendment would have no new socioeconomic impacts. With the change in ownership to Palmdale Energy, the addition of Condition of Certification **SOCIO-1** would ensure project compliance with applicable state LORS. Staff also concludes that the following findings of fact from the licensed PHPP Commission Decision would still apply to the PEP:

1. The PEP will draw primarily upon the local labor force from Los Angeles, Riverside, and Kern counties for the construction and the operation workforce;

2. The PEP will not cause an influx of a significant number of construction or operation workers into the local area;

3. The PEP is not likely to have a significant adverse effect upon local employment, housing, schools, medical resources, or fire and police protection;

4. The PEP will have a construction payroll of approximately $132 million;

5. The PEP will result in local direct, indirect, and induced benefits – both fiscal and non-fiscal;

6. The PEP 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 PEP will not result in any direct, indirect, or cumulative adverse socioeconomic impacts;

8. Paving the roads identified in the record will not result in substantial growth inducing impacts;

9. Road paving will not result in any significant impacts to socioeconomics;

10. The analysis of record has been performed in conformity with federal environmental justice guidelines;

11. Minority populations exist within a six mile radius of the site; however, the PEP will not cause or contribute to disproportionate socioeconomic impacts upon minority or low income groups;

12. Siting of the PEP, and the analysis thereof, are consistent with the principles underlying environmental justice; and

13. The PEP'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 the Decision.

CONDITIONS OF CERTIFICATION

The conditions of certification for **Socioeconomics** are located in the Conditions of Certification Compendium at the back of this Final Staff Assessment

REFERENCES

CA EDD 2015 – Employment Development Department, State of California, Labor Market Information, *Projections of Employment by Industry and Occupation, 2010-2020 Occupational Employment Projections for Los Angeles-Long Beach-Glendale Metropolitan Division (Los Angeles County), Riverside-San Bernardino-Ontario Metropolitan Statistical Area (Riverside and San Bernardino Counties)*, and *Bakersfield Metropolitan Statistical Area (Kern County),* December 2014 and February 2015, <http://www.labormarketinfo.edd.ca.gov/data/employment-projections.html#Proj>.

CEC 2010b – California Energy Commission (TN 59309). Palmdale Hybrid Power Project Final Staff Assessment, date submitted to CEC/Docket Unit Dec. 22, 2010, docketed Dec. 22, 2015

CEC 2011a - California Energy Commission (TN 61158). Palmdale Hybrid Power Project Presiding Members Proposed Decision, date submitted to CEC/Docket Unit June 16, 2011, docketed June 16, 2011

CEC 2015g - California Energy Commission/Ellen LeFevre (TN 206088). Report of Conversation between Ellen LeFevre, Planner I, CEC and Penny Baker, Administrative Secretary III, Lancaster School District Re: Lancaster School District School Impact Fee for Proposed PHPP PTA, dated August 28, 2015. Submitted to CEC/Docket Unit on September 14, 2015

CEC 2015h - California Energy Commission/Ellen LeFevre (TN 206089). Report of Conversation between Ellen LeFevre, Planner I, CEC and Heather Landreth, Accounting Technician, Antelope Valley Union High School District Re: Antelope Valley Union High School District School Impact Fee for Proposed PHPP PTA, dated August 10, 2015. Submitted to CEC/Docket Unit on September 14, 2015

CEC 2015l - California Energy Commission/Eric Veerkamp (TN 206378). Email Re: Responses to Informal Questions, dated October 15, 2015. Submitted to CEC/Docket Unit on October 16, 2015

LA County Auditor 2015 – Los Angeles County Department of Auditor-Controller, Tax Rate Area Lookup, 2014/2015, <http://onlineapps.auditor.lacounty.gov/tra/>.

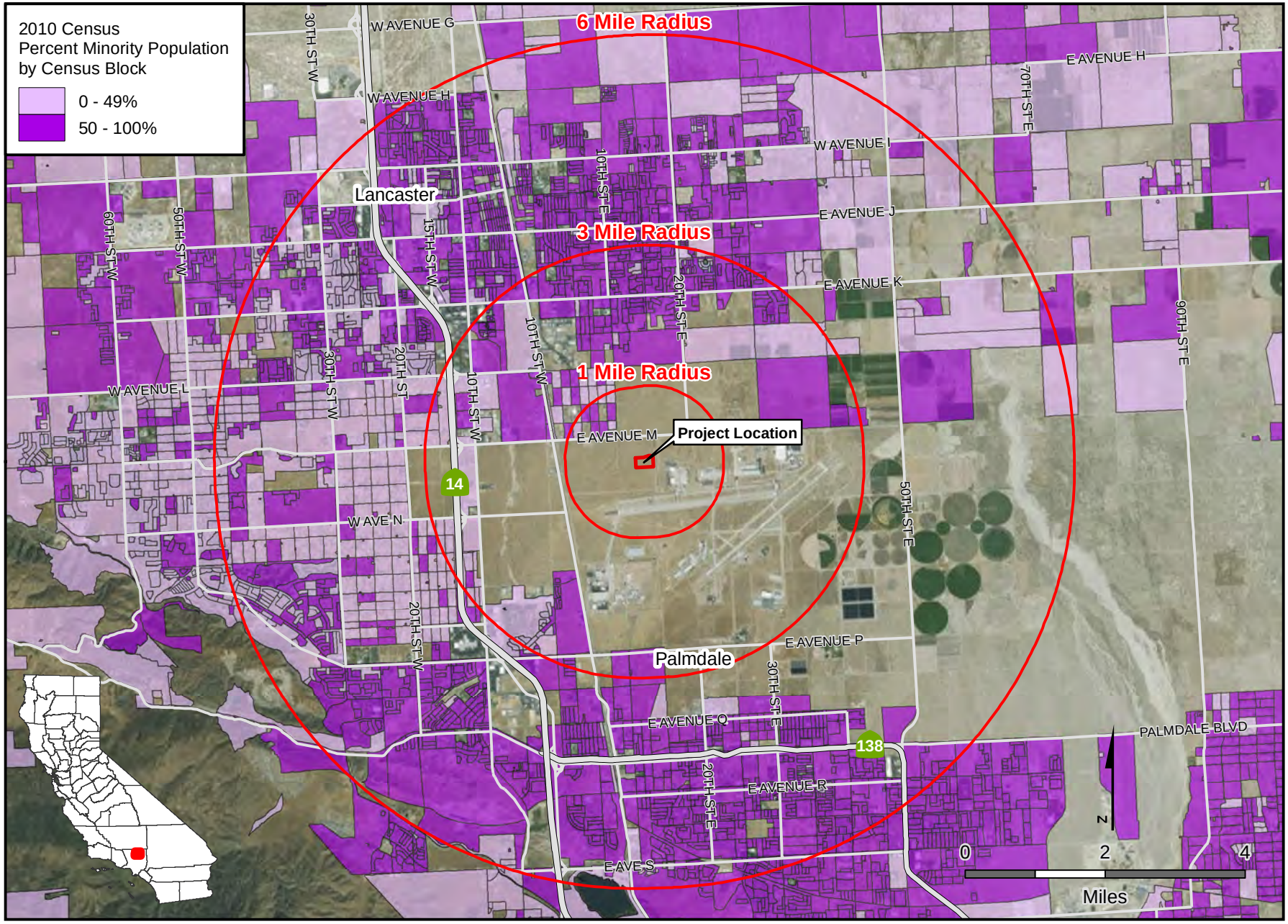
PHPP 2015c - Galati Blek LLP/Scott A. Galati (TN 205394-1). Revised Petition to Amend (RPTA), dated July 17, 2015. Submitted to CEC/Eric Veerkamp on July 17, 2015 and docketed on July 20, 2015

PHPP 2015u - DayZen LLC/Marie Fleming (TN 206797). Response to CEC Staff Data Request Set No. 1 (1-63), dated November 2015. Submitted to CEC/Docket Unit on November 30, 2015

PHPP 2016f – DayZen LLC/Marie Fleming (TN 210185). Palmdale Energy, LLC's Supplemental Response to California Energy Commission Staff Data Request 46. Submitted to CEC/Docket Unit on February 5, 2016

SOCIOECONOMICS - FIGURE 1

Palmdale Energy Project - Census 2010 Minority Population by Census Block



SOCIOECONOMICS

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: Census 2010 PL 94-171 Data

PALMDALE ENERGY PROJECT (08-AFC-9C)

Petition to Amend the Final Commission Decision

SOIL AND WATER RESOURCES

Testimony of Christopher Dennis, P.G., C.Hg.

SUMMARY OF CONCLUSIONS

The proposed Palmdale Energy Project (PEP) is a Petition to Amend (PTA) the previously approved Palmdale Hybrid Power Project (PHPP). In accordance with the California Environmental Quality Act (CEQA) Guidelines §§ 15162 (Cal. Code Regs, tit. 14, § 15162), California Energy Commission staff (staff) recommends that no supplementation of the 2011 Decision is currently needed for **Soil and Water Resources**. Although approval of the amendment would reduce impacts to soil and water resources, new information and changed circumstances, necessitate this revised analysis.

Where needed, staff recommended changes to the conditions of certification in the 2011 Decision to account for the PHPP redesign. Staff found no new potential significant adverse impacts to soil and water resources not considered in the approved PHPP. With implementation of the modified conditions of certification, PEP can be constructed and operated in accordance with all applicable laws, ordinances, regulations, and standards (LORS), and in a manner that both protects soil and water resources and ensures standards are met to safeguard the public health, safety, and general welfare.

INTRODUCTION

On August 10, 2011, the Energy Commission approved the 570-megawatt hybrid natural gas and solar thermal PHPP for construction and operation (CEC 2011b), but the project was never built. On July 20, 2015, Palmdale Energy, LLC (petitioner and new owner) filed a PTA for the licensed PHPP (PHPP 2015c). The PTA is herein referred to as PEP.

This section discusses the compliance of PEP with existing LORS and potential impacts of PEP on soil and water resources. The objective of this analysis is to ensure PEP LORS compliance and ensure that there would be no significant adverse impacts to soil and water resources during PEP construction and operation. As needed, monitoring and mitigation measures are recommended in revisions to the conditions of certification.

The proposed PEP contains several modifications to the licensed PHPP design. All proposed modifications are described in the Project Description section of this Final Staff Assessment (FSA). The most notable modifications related to soil and water resources are:

- The need to obtain a reliable potable water supply in a newly adjudicated groundwater basin where use of in-basin supplies are restricted to existing users as defined by the recent adjudication.

- Substantial reduction in the power plant footprint by elimination of the solar trough field.
- Elimination of the zero liquid discharge (ZLD) system.
- Redesign of PHPP into a combined-cycle air-cooled power plant.

Aspects of PEP that are different from the licensed PHPP have been identified and examined for potential adverse impacts.

SUMMARY OF THE PHPP COMMISSION DECISION

The 2011 PHPP Decision found the following:

- There are no unmitigated potential direct, indirect and cumulative significant adverse impacts to potential soil and water resources from the construction and operation of the project.
- The project would comply with all applicable LORS with implementation of the conditions of certification set forth in the Decision.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS COMPLIANCE

The following table of federal, state, and local environmental LORS apply to the PEP, LORS, updated since the licensing of PHPP in 2011 that would apply to PEP, are included.

Soil and Water Table 1
Laws, Ordinances, Regulations, and Standards

Federal LORS	
Clean Water Act (33 U.S.C. 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. The CWA also establishes protection of wetlands through section 401 and protection of navigable waters of the U.S. from discharges of dredge and fill material through section 404. Navigable waters can include perennial and ephemeral drainages, streams, washes, ponds, pools, and wetlands. If a discharge would impact navigable waters, then the impacts need to be quantified and mitigated. Section 401 is administered by the states, and in California, through the State Water Resources Control Board/Regional Water Quality Control Boards (SWRCB/RWQCBs). The RWQCB maintains the quality of the State's water by protecting the function and value of its use. Section 404 is administered and enforced by the U.S. EPA and Army Corps of Engineers (ACOE). Individual permit decisions and jurisdiction determinations are made by the ACOE.

State LORS	
California Constitution, Article X, Section 2	The California Constitution 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.
California Water Code Section 1210, 1211, 1212	Section 1210 states that a wastewater treatment plant holds exclusive right to the water discharged to the water treatment and collection system. However, section 1210 does not mean that the wastewater treatment plant holds the exclusive right to effluent leaving the treatment plant, because downstream rights may develop that are dependent on that effluent. Section 1211 requires a permit from the SWRCB prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater, but only if the treated water is discharged to a watercourse and instream or riparian habitat could be adversely affected. Section 1212 requires discharge flows to be maintained when the flow to a watercourse is intended to maintain or enhance instream beneficial uses (such as fishery, wildlife, or recreation).
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 (WDRs) 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. Although Water Code 13000 et seq. is applicable in its entirety, the following specific sections are included as examples of applicable sections.
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	This section 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 Water Code Section 13523	If a RWQCB determines that it is necessary to protect public health, safety, or welfare, the RWQCB may prescribe water reclamation requirements for water which is or proposed to be used as recycled water.
California Water Code 13550	This section states that the use of potable domestic water for non-potable uses, including, but not limited to, industrial and irrigation uses, is a waste or an unreasonable use of the water within the meaning of Section 2 of Article X of the California Constitution if recycled water is available which meets all of the following conditions: 1. The source of recycled water is of adequate quality for the proposed use and is available for this use. 2. The recycled water may be furnished for these uses at a reasonable cost to the user. 3. After concurrence with the State Department of Health Services, the use of recycled water from the proposed source would not be detrimental to public health. 4. The use of recycled water for the proposed use would not adversely affect downstream water rights, would not degrade water quality, and is determined not to be injurious to plantlife, fish, and wildlife.

California Water Code Section 13551	This section requires that water resources of the State be put to the highest possible beneficial use, and that waste or unreasonable use or unreasonable method of use of water be prevented. This section also requires the conservation of water in a manner that is reasonable and for a beneficial use that is in the interest of the people and for the public welfare.
California Water Code Section 13552.6	This section specifically identifies the use of potable domestic water for industrial cooling towers as a waste or unreasonable use of water if suitable recycled water is available. The availability of recycled water is determined by the SWRCB based on criteria listed in Section 13550 of the Water Code.
California Water Code Section 13552.8	States that any public agency may require the use of recycled water in cooling towers if recycled water is available, meets the requirements set forth in Section 13550, that there would be no adverse impacts to any existing water right and that if public exposure to cooling tower mist is possible, appropriate mitigation or control is provided.
Water Recycling Act of 1991 (Water Code 13575 et. seq.)	The Water Recycling Act states that retail water suppliers, recycled water producers, and wholesalers should promote the substitution of recycled water for potable and imported water in order to maximize the appropriate cost-effective use of recycled water in California.
California Code of Regulations, Title 17, Division 1, Chapter 5, Group 4, Articles 1 and 2	These articles address the requirements for backflow prevention and cross connections of potable and non-potable water lines.
California Code of Regulations, Title 22, Division 4, Chapter 3, Article 1	This article specifies the use of recycled water for dust control must be disinfected to at least a secondary-23 level. This article also requires that recycled water used for industrial or commercial cooling or air conditioning that involves the use of a cooling tower, evaporative condenser, spraying or any mechanism that creates mist shall be disinfected tertiary recycled water.
California Code of Regulations, Title 23, Division 3, Chapter 15	This chapter applies to waste discharges to land and requires the RWQCB issue WDRs specifying conditions for protection of water quality as applicable.
Regional Water Quality Control Board Waste Discharge and Waste Reclamation Permits	Requires obtaining a new or modifying an existing WDRs Permit and a Wastewater Reclamation Permit to reuse effluent from wastewater treatment plants for industrial cooling.
State Water Resources Control Board Order No. 2010-0014-DWQ	The SWRCB regulates storm water discharges associated with construction affecting areas greater than or equal to 1 acre to protect state waters. Under Order 2009-0009-DWQ, 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 Order No. 2014-0057-DWQ	The SWRCB regulates storm water discharges associated with several types of facilities, including steam electric generating facilities. Under Order, Order No. 2014-0057-DWQ, the SWRCB has issued a NPDES General Permit for storm water discharges associated with industrial activity. Projects can qualify under this permit if specific criteria are met and an acceptable 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.
Local LORS	
County of Los Angeles Sanitation Districts No.14 and No. 20 – Wastewater Ordinance	This ordinance establishes the requirements for industrial wastewater sewer construction and use, the imposition of fees and charges, the implementation of federal and state pollution control regulations and other methods to control and regulate the discharge of wastewater.

Los Angeles County Code Title 12 Environmental Protection, Chapter 12.80 Storm Water and Runoff Pollution Control	This code is intended to protect the health and safety of the residents of the county by protecting the beneficial uses, marine habitats, and ecosystems of receiving waters within the county from pollutants carried by storm water and non-storm water discharges and to enhance and protect the water quality of the receiving waters of the county and the United States.
Los Angeles County Code Title 11 Health and Safety, Chapter 11.38, Part 2 Water and Wells	Ordinances in Part 2 of Title 11, Chapter 11.38 provide requirements for protection of water quality for domestic water supplies.
Los Angeles County Code Title 11 Health and Safety, Chapter 11.38, Part 3 Sanitation, Sewage Disposal and Industrial Waste	Ordinances in Part 3 of Title 11, Chapter 11.38 specify requirements for sewage and industrial waste disposal systems.
City of Palmdale Storm Water Management Plan Ordinance	Requires a storm water management plan for grading activities occurring between October 1 and April 15
City of Palmdale Water-Efficient Landscape Ordinance	As a condition of approval for any development proposal, landscape plans must be submitted to the City Planning Department. The landscape plan must be scored according to water efficiency criteria and must achieve a minimum score in order to be approved.
City of Palmdale Floodplain Management Ordinance	A floodplain development permit must be obtained before construction or development begins within a Special Flood Hazard Area.
City of Palmdale Building Code	The City of Palmdale requires a grading permit for earth moving activities exceeding 3 feet in depth or 20 cubic yards in volume.
State and Local 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 clearly outlined the state policy with regards to water use by power plants, stating that the Energy Commission would approve the use of fresh water for cooling purposes only where alternative water supply sources and alternative cooling technologies are shown to be "environmentally undesirable" or "economically unsound."
SWRCB Res. 2009-0011 (Recycled Water Policy)	This policy supports and promotes the use of recycled water as a means to achieve sustainable local water supplies and reduction of greenhouse gases. This policy encourages the beneficial use of recycled water over disposal of recycled water. This policy states the following recycled water use goals: • "Increase the use of recycled water over 2002 levels by at least one million acre-feet per year (AF/y) by 2020 and by at least two million AF/y by 2030; • Increase the use of storm water over use in 2007 by at least 500,000 AF/y by 2020 and by at least one million AF/y by 2030; • Increase the amount of water conserved in urban and industrial uses by comparison to 2007 by at least 20 percent by 2020; and • Included in these goals is the substitution of as much recycled water for potable water as possible by 2030."
State Water Resources Control Board (SWRCB) Statement of Policy with Respect to Maintaining High Quality Waters in CA / 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 unreasonably 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.
SWRCB Res. No. 75-58	The principal policy of the SWRCB that addresses 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 cooling if other sources or other methods of cooling would be environmentally undesirable or economically unsound.
State Water Resources Control Board (SWRCB) Res. 77-1	SWRCB Resolution 77-1 encourages and promotes recycled water use for non-potable purposes and use of recycled water to supplement existing surface and groundwater supplies.
SWRCB Res. No. 2005-0006	Adopts the concept of sustainability as a core value for SWRCB programs and directs its incorporation in all future policies, guidelines, and regulatory actions.
County of Los Angeles Sanitation District No.14 and No. 20 – Requirements for Recycled Water Users	The Recycled Water Users Handbook, by the Sanitation Districts of Los Angeles County (2008), identifies the process to obtain permission to use recycled water, operational requirements, and best management practices, requirements for site inspection and site access, corrective action, notification, and record keeping. These requirements apply to all users of tertiary recycled water distributed by Districts No. 14 or No. 20 directly or through an intermediary.
Los Angeles County General Plan	The General Plan describes the policies, goals, and implementation measures for water resources, flood and erosion control, and storm water protection within the county.

CONSTRUCTION STORM WATER

The State Water Resources Control Board's (SWRCB) National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities Order No. 2009-0009-DWG, NPDES No. CAS000002, was modified since PHPP was approved in 2011. The SWRCB Order modifying the General Permit is 2010-0014-DWQ. The updated General Permit now includes specific requirements for construction of Linear Underground/Overhead Projects (LUPs), such as the gen-tie line. Staff recommends updating Condition of Certification **SOIL&WATER-2** to account for this update.

ENVIRONMENTAL IMPACT ANALYSIS

The PEP site is located on the northwest side of the Los Angeles-Palmdale Regional Airport/Air Force Plant 42, adjacent to East Avenue M – Columbia Way (PHPP 2015c). The site is undeveloped and vegetated with low desert scrub and Joshua trees. The project owner proposes reducing the licensed PHPP footprint from 333 acres to 50 acres. The construction laydown and parking area would be reduced from 50 acres to 20 acres. Mass grading would be reduced by 283 acres, because the solar field is no longer part of the PEP design. Pipelines and extensive transmission (gen-tie) lines would still be required for the PEP. PEP construction water supply demand would be reduced from about 807 acre-feet (af) to less than 100 af (PPHP 2015u). During the December 17, 2015 Data Response and Issues Resolution Workshop, the project owner stated that PEP maximum operation water supply demand would be reduced from the maximum PHPP licensed recycled water volume of 4,121 acre feet per year (afy) to 400 afy (PPHP 2015u). This 400 afy volume is an 80 afy increase from what is presented in the PEP PTA.

Conditions at the PEP site are similar to those previously analyzed and documented in the 2011 Decision, and the thresholds for significance are essentially the same as those

in the 2011 Decision (CEC 2011b). What has changed since the Decision is adjudication of the Antelope Valley Groundwater Basin (AVGB) in which the PEP site is located (Antelope Valley Groundwater Cases, JCCP No. 4408, Calif. Super., Los Angeles Co.). The AVGB is in severe overdraft and future use of groundwater from the basin is restricted. PEP was not part of the AVGB adjudication and, therefore, cannot receive a dedicated water supply through a typical water service agreement with the local water district. The adjudication affects the process by which PEP would obtain a reliable potable water supply for drinking and sanitation during project operation.

SOIL EROSION AND WATER QUALITY

The power plant footprint and volume of soil grading required to build PEP is substantially less than would be required for PHPP. Construction of the gen-tie line from PEP to the Southern California Edison Vincent substation would use essentially the same route as for PHPP, with the exception of the 1,800 foot extension along East Avenue M. Construction of PEP and the gen-tie line would not affect waters of the United States.

Soil resources and water quality would be protected from significant adverse impacts using best management practices (BMPs) as required under existing conditions of certification and LORS, and as discussed in the April 20, 2016 Preliminary Staff Assessment comment letter by Lahontan Regional Water Quality Control Board (RWQCB) (RWQCB 2016). The RWQCB recommends using a low impact development approach to slow and filter runoff and maximize groundwater recharge. This would include: (1) keeping vegetation clearing and grading to a minimum to maintain natural drainage paths and landscape features; (2) managing runoff as close to the source as possible; and (3) maintaining vegetated areas for storm water management and onsite filtration.

These BMPs would be incorporated into PEP grading plans, a Drainage Erosion and Sediment Control Plan (PHPP 2015h), and a Construction Storm Water Pollution Prevention Plan as required by the existing conditions of certification (**SOIL&WATER-1** and **-2**) and LORS. Staff has also modified **SOIL&WATER-2** to require compliance with the updated General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities Order No. 2009-0009-DWQ, as Modified by 2010-0014-DWQ, NPDES No. CAS000002. Updated Order No. 2009-0009-DWQ also contains requirements to protect water quality and minimize soil erosion during construction of LUPs, such as the gen-tie line. No additional mitigation would be necessary for protection of soil and water quality related to soil erosion and storm water discharges.

In addition, Condition of Certification **BIO-10** would require the 20-acre project laydown area to be restored and re-vegetated with native grass and subshrub species. Re-vegetation of the laydown area would minimize soil erosion and reduce potential water and air quality impacts as recommended by the RWQCB (RWQCB 2016).

WATER DEMAND

PEP proposes to use recycled water supplied by the city of Palmdale for project construction and industrial processes after the plant is built. Potable water would be supplied by the Los Angeles County Waterworks District 40 (District 40) [1] for drinking and sanitation use during plant operation. Substantial recycled water use reductions in PEP, compared to PHPP, are the result of the power plant redesign, reduced footprint, and reduced volume of grading. A comparison of the water demand between PHPP and PEP for construction and operation is presented below in **Soil and Water Table 2**.

Soil and Water Table 2
Summary of Water Demand between PHPP and PEP

Water Use	Estimated Water Demand		Water Supplier	Water Supply Type
	PHPP	PEP		
Construction (total)	807 af	<100 af	City of Palmdale	Recycled
Hydrostatic Testing (total)	3.7 af	<3.7 af	City of Palmdale	Recycled
Operation -Drinking & Sanitation (maximum annual)	3.6 af	3.6 af	District 40	Potable
Operation - Industrial Processes (maximum annual)	4,121 af	400 af	City of Palmdale	Recycled

Sources: COP 2008a; PHPP 2015c; PHPP 2015u.

Operation of PEP would include two cooling systems: 1) a steam cycle heat rejection system (e.g., air-cooled condenser), and 2) lube oil cooling systems (equipment cooling). Replacement of the PHPP wet cooling tower with an air-cooled condenser substantially reduces operation water demand. Operation drinking and sanitation water demand is essentially the same between PEP and PHPP.

WATER SUPPLY

California Water Code §§ 10910-10915 (Senate Bill 610) requires completion of a Water Supply Assessment (WSA) which is intended to inform CEQA decision-makers about proposed project water supplies and their sustainability. Typically, entities responsible for providing water service are responsible for completing the WSA. In this case, the responsible entities are District 40 for the potable water supply and the city of Palmdale for the recycled water supply.

Staff contacted District 40 to request they complete a WSA for service of potable water for domestic use. District 40 stated they would not complete a WSA for the project because the adjudication of the AVGB has resulted in no local supply available for the

[1] Los Angeles County Waterworks District No. 40, Antelope Valley, is a special District operated by the Los Angeles County Department of Public Works, Waterworks Division and governed by the Los Angeles County Board of Supervisors.

project and the Will-Serve letter issued on October 23, 2007 for PHPP is no longer valid (CEC ROC 2016)[2]. Staff was informed that a program was developed to obtain new supplies of water that could be used for new projects in the adjudicated basin and that PEP would have to participate in this program to obtain a water supply. PEP would have to enter into an agreement for the new water supply program before they could receive a new Will-Serve letter.

Staff understands why the responsible agency would not complete a WSA given the adjudication and restrictions on use of dedicated local supplies for existing users in the basin. In the Potable Water Supply section below, staff presents our current understanding of the new water supply program and analyzes how it may affect availability and reliability of the potable water supply for PEP.

Staff also met with the recycled water supply retailer for PEP, which would be the city of Palmdale (instead of District 40 as originally licensed) to determine if they would complete a water supply assessment. Staff was told that a WSA for the recycled water supply has essentially been competed in the *Recycled Water Facilities Master Plan* by the Palmdale Recycled Water Authority (RWGMP, 2015). In an abundance of caution, staff provides an independent assessment of the recycled water supply below.

The reliability of water supplies is assessed considering three water supply scenarios: normal water year, single-dry water year, and multiple-dry water years. These scenarios are defined as follows Palmdale Water District Urban Water Management Plan (PWD UWMP 2010):

- Normal Year: A year in the historical sequence that most closely represents median runoff levels and patterns. The supply quantities for this condition are derived from historical average yields.
- Single-Dry Year: The year with the minimum useable supply. The supply quantities for this condition are derived from the minimum historical annual yield.
- Multiple-Dry Years: Three consecutive years with the minimum cumulative useable supply. Water systems are more vulnerable to these droughts of longer duration because they deplete water storage reserves in local and state reservoirs and in groundwater basins. The supply quantities for this condition are derived from historical three-year running minimum average yields.

Potable Water Supply

Similar to PHPP, the project owner proposes to use 3.6 afy of potable water provided by the Los Angeles County Waterworks District No. 40 (District 40) for drinking and

[2] The October 23, 2007 Will-Serve letter (PHPP 2008a) submitted in the PHPP Application for Certification (AFC) states that it is only valid for one (1) calendar year from the date the District Engineer signed the letter. While the Will-Serve letter was not signed by the District Engineer, raising questions about its validity, the fact that AVGB became an adjudicated water basin is the main reason the Will-Serve letter is not valid. The adjudication has resulted in no water being available for PEP or any currently unserved projects, and District 40 now requires developers to sign a new water supply agreement before issuing a Will-Serve letter.

sanitation (see **Soil and Water Table 1**). PEP has not proposed a backup potable water supply.

The AVGB, in which PEP is located, became adjudicated December 15, 2015 (Antelope Valley Groundwater Cases, JCCP No. 4408, Calif. Super and Los Angeles Co.). PEP was not part of the adjudication and has no water right in the basin. District 40 currently does not have sufficient potable water to supply PEP, other than on a temporary basis. Therefore, District 40 has to acquire and import additional water supplies and rely on banked groundwater during dry years to meet demands associated with the level of growth projected for the District 40 service area.

To acquire additional new water supplies, District 40 entered into a Memorandum of Understanding (MOU) with Antelope Valley East Kern (AVEK) water agency (regional water wholesaler and State Water Project [SWP] contractor), to implement a New Water Supply Entitlement Acquisition program (CEC ROC 2016; District 40 UWMP (final draft) 2016; LACDPW 2013). The program is for new developments and allows District 40 to acquire new water from AVEK through acquisition of new permanent water rights and/or new SWP Table A supply entitlements. The acquisition program is part of the 2015 District 40 UWMP (final draft)[3] and has the following requirements:

- Developers may secure entitlements by entering into an agreement with the District 40 to purchase a permanent water supply.
- The volume of new water supply needed to serve a project is determined by District 40 on review of water demand calculations submitted by developers.
- The developers must pay a $10,000 per acre-foot deposit prior to obtaining a Will-Serve letter from District 40.

After receipt of the deposit, District 40 then transfers it to AVEK to acquire the new water supply, which would be allocated to District 40 (CEC ROC 2016). PEP would be required to pay $36,000 for the proposed 3.6 afy of potable water. The water secured by AVEK would be surplus SWP Table A water or other supplies, if available. The MOU also includes a provision requiring completion of CEQA analysis for transfer of any new water supply for District 40.

In the 2015 UWMP (final draft), District 40 accounted for water supply to new development in the AVGB (District 40 UWMP (final draft) 2016). Although the UWMP is in final draft form and has not been officially adopted at the time of this analysis, it provides useful information for understanding availability of supplies for existing users combined with the cumulative effects of projects like PEP that are not included in the UWMP water demand analysis. The UWMP shows that District 40 existing and committed potable water demands and existing supplies are approximately equal under single dry-year and multiple dry-year planning scenarios (District 40 UWMP 2016). **Soil and Water Table 3**, below, summarizes the District 40 water supply and demand under

[3] The District 40 Urban Water Management Plan (final draft) is subject to change until the District 40 Final Urban Water Management Plan is posted to the Department of Water Resources webpage http://www.water.ca.gov/urbanwatermanagement/uwmp2015.cfm.

the normal year, single dry-year, and multiple dry-year planning scenarios (District 40 UWMP (final draft) 2016). This table includes demand from as-yet to be built projects, such as PEP, that would be required to participate in the New Water Supply Entitlement Acquisition program.

Soil and Water Table 3
District 40 Normal Year, Single Dry-Year, and Multiple- Dry-Years Water Supply and Demand

Water Year (afy)		2020	2025	2030	2035
Normal Year	Supply	110,090	121,590	132,990	144,390
	Demand	96,500	108,000	119,400	130,800
	Difference	13,600	13,580	13,590	13,570
Single Dry-Year	Supply	96,500	108,000	119,400	130,800
	Demand	96,500	108,000	119,400	130,800
	Difference	0	0	0	0
Multiple Dry-Year	Supply	96,500	108,000	119,400	130,800
	Demand	96,500	108,000	119,400	130,800
	Difference	0	0	0	0

Source: District 40 UWMP (final draft) 2016.

The District 40 water demand remains constant under all planning scenarios. When there is a SWP water shortage, AVEK distributes and apportions its SWP water first to each county based on the running average of taxes paid to AVEK by entities within each county (AVEK UWMP 2016). Then within each county, AVEK allocates the SWP water to customers based on the annual average percentage of SWP received in the two water years prior to the SWP water year shortage. AVEK allocates water to each area or district based upon the amounts paid into the agency. Entities within Los Angeles County have the highest running average taxes paid to AVEK and District 40 has the highest percentage of SWP received. Therefore, District 40 will be given highest priority during SWP water shortages. Since PEP is in the District 40 service area, this could enhance the availability and reliability of supply for PEP. However, since AVEK will fill customer orders for SWP water for consumptive and agricultural uses first before orders for banking or storage purposes; this could limit the availability of surplus supplies for banking and use for projects such as PEP.

Soil and Water Tables 4 through 6 show the supplies that will be used to meet demand in the various water years**.** The difference between the supplies in the Normal Water Year Supply in **Table 4** and the dry year scenarios in **Tables 5** and **6** is the use of groundwater from banked supplies to meet demand and reduction in purchased or imported AVEK water and new supply from the developer fees. If there is a Table A water shortage, AVEK states that the difference will be made up by increased groundwater pumping (including banked supplies or return flows), use of recycled water, and/or reductions in demand by the retail agencies (AVEK UWMP 2016).

Soil and Water Table 4
District 40 Normal Year Water Supply

Water Supply (afy)	2020	2025	2030	2035
Purchased or Imported Water (AVEK)	61,000	61,000	61,000	61,000
Groundwater[1]	36,790	36,790	36,790	36,790
New Supply from Developer Fee: Purchased Water or Imported Water	4,100	12,900	21,600	30,300
Recycled Water	8,200	10,900	13,600	16,300
Total	110,090	121,590	132,990	144,390

Source: District 40 UWMP (final draft), 2016.
1. The groundwater adjudication judgment provides safe yield rights to District 40 of 13,000 acre-feet and 39 percent of return flows based on the District 40 share of AVEK SWP water supply (39 percent of 61,000 acre-feet or 23,790 acre-feet) for a total of 36,790 acre-feet. For purposes of the water supply projections, District 40 assumes this right will be applicable for all water year types and, if not, groundwater banked in previous years will be used (District 40 UWMP (final draft), 2016).

Soil and Water Table 5
District 40 Single Dry-Year Water Supply

Water Supply (afy)	2020	2025	2030	2035
Purchased or Imported Water (AVEK)	4,800	4,800	4,800	4,800
Groundwater	36,790	36,790	36,790	36,790
New Supply from Developer Fee: Purchased Water or Imported Water	320	1,015	1,700	2,385
Groundwater from Banked Supplies	46,390	54,495	62,510	70,525
Recycled Water	8,200	10,900	13,600	16,300
Total	96,500	108,000	119,400	130,800

Source: District 40 UWMP (final draft) 2016.

Soil and Water Table 6
District 40 Multiple Dry-Year Water Supply

Water Supply (afy)	2020	2025	2030	2035
Purchased or Imported Water (AVEK)	24,500	24,500	24,500	24,500
Groundwater	36,790	36,790	36,790	36,790
New Supply from Developer Fee: Purchased Water or Imported Water	1,700	5,300	8,900	12,400
Groundwater from Banked Supplies	25,310	30,510	35,610	40,810
Recycled Water	8,200	10,900	13,600	16,300
Total	96,500	108,000	119,400	130,800

Source: District 40 UWMP (final draft) 2016.

The 'New Supply from the Developer Fee could be reduced as shown in **Soil and Water Tables 4** and **6**. However, as also shown in the tables, demand would be met by use of banked groundwater supply. The banked groundwater shown in the tables was purchased by District 40 for use during future dry years when supply from the SWP and groundwater will not meet demand (District 40 UWMP (final draft) 2016).

In addition, District 40 has assured PEP that there would not be any service interruption from the time the acquisition fee is paid to the time AVEK secures a permanent water supply (CEC ROC 2016). To ensure uninterrupted service to projects, such as PEP, District 40 would temporarily draw from water set aside for specific planned projects as listed in the 2015 District 40 UWMP (final draft). Water set aside for these planned projects ranges from 9,920 acre feet to 14,490 acre-feet over a planning period from 2015 to 2035 (District 40 UWMP (final draft) 2016). This water would be used until AVEK acquires a permanent supply of SWP Table A water. Staff points out that the amount available from the New Water Supply Entitlement Acquisition program is somewhat speculative since it depends on the availability of surplus supplies, primarily from the SWP, for acquisition. However, with the current drought, surpluses are not as readily apparent or available.

In recent cases such as Mariposa Energy Project and Tracy Power Plant, the current drought resulted in curtailment of freshwater supplies from the Sacramento - San Joaquin Delta. This had immediate impacts on operation even though these projects only needed limited amounts of water for operation, similar to PEP. As a consequence, expedited Energy Commission license amendments were required so each project could obtain a backup supply. The High Desert Power Plant, located in the adjacent adjudicated Mojave River Groundwater Basin, also relies on SWP for supply. It is currently undergoing a lengthy amendment process to identify alternate supplies because of the lack of a reliable supply from SWP. Staff experience with these cases shows that there are increasing demands on all supplies statewide and there may be an over-reliance on availability of, and surplus supplies from, the SWP. Continued reliance on the SWP and other surface water supplies for surplus may not be sustainable if demands continue to increase and supplies are more constrained. Staff understands the estimates of water that would be available from the developer fee are a best estimate by the responsible agency. Staff cautions that, at some point during the project life, the reliability of the water supply could be compromised, in which case, a project amendment would be needed so that the project could obtain a backup supply.

The demand of PEP on the potable water supply could also be exacerbated by the possible need to use it as a backup to the recycled water supply used for project operation. It is staff's experience with numerous other power plants that use recycled water that there are outages, planned or emergency, that result in the need to use other supplies for backup. The project owner has proposed use of stored water for short-term outages and a different local recycled water supply for long term backup. The project owner has also proposed two options to connect to the recycled water supply. Based on staff's current understanding of the planned recycled water infrastructure to be developed in the region, one of the options to connect to recycled water may not allow for use of the additional local recycled water supply as backup. In this case, it is not clear what the project owner would do to provide a backup. If use of potable water was necessary, that use of potable water could place an additional demand on the system that is currently not planned for or addressed. The Recycled Water Supply and Water Delivery sections below provide detail and analysis of the proposed backup supply and methods of connection/delivery to the project.

The amount of the potable water supply would not cause a significant adverse environmental impact or adversely affect current or future users of potable water. Further, the New Water Supply Entitlement Acquisition program is specifically designed to obtain supplies for projects to be built in the adjudicated AVGB and not impact other users. The program is not a guarantee, however, that PEP would receive potable water supply for the life of operation. Therefore there remains a question of reliability given the speculation that sufficient permanent supplies for the New Water Supply Entitlement Acquisition program can be obtained and sustain PEP and other new projects. The project owner has not proposed a backup for potable water use. That said, preliminary information from the District 40 UWMP (final draft) demonstrates the District 40 and AVEK have significant water supply in storage and a reasonable plan for managing supplies during dry years, which allows them to assure delivery of the proposed supply.

To demonstrate PEP can obtain a potable water supply in accordance with the local requirements and not impact other users, staff proposes to modify condition of certification **SOIL&WATER-4** to require as a pre-requisite to construction: (1) an executed Developer Water Supply Acquisition Agreement between PEP and District 40, and (2) a Will-Serve letter issued by District 40 for the PEP potable water supply. These should be provided prior to approval to construct the project to ensure the parties are committed to obtaining a supply for project operation.

Recycled Water Supply

Similar to PHPP, the project owner proposes to use recycled water for construction and industrial supply (see **Soil and Water Table 2**). The wholesale source of recycled water would be either the Los Angeles County Sanitation District's (LACSD) Palmdale Water Reclamation Plant (PWRP) or Antelope Wastewater Treatment Plant (AWWTP) depending on the delivery option chosen. The recycled water supply retailer for PEP would be the city of Palmdale instead of District 40 as originally licensed.

Similar to PHPP, in addition to the reserve volume of recycled water provided by onsite tank storage, PEP would have a backup water source in the event of a more extended outage in the PWRP supply system. This backup source would also be recycled water using a planned regional recycled water backbone system, linking the PWRP with the AWWTP, which would allow the AWWTP to provide recycled water to PEP. Staff notes that the option chosen for delivery would affect the availability of the backup supply. If the option to construct a pipeline extending from the AWWTP is chosen, the project would not have access to a recycled water backup from the PWRP. In this case, it is unclear how a backup supply would be obtained. Further descriptions of water delivery methods are analyzed below.

Several reports and plans have been prepared in the past five years that present information and analysis of the availability of both potable and recycled water supply and demand in the project area. Staff has reviewed these documents to further analyze how much recycled water would be available to the project and whether it would impact other uses.

Tertiary treated recycled water is available from both the PWRP and AWWTP. The current and estimated future volumes of recycled water available from each of these treatment plants are summarized below in **Soil and Water Table 7**.

Soil and Water Table 7
Current and Projected Recycled Water Supply

Recycled Water Source	Current and Projected Supply (afy)				
	2015	2020	2025	2030	2035
Palmdale Water Reclamation Plant	11,000 to 15,000	12,000 to 16,500	12,000 to 18,000	13,000 to 19,500	13,000 to 21,000
Antelope Wastewater Treatment Plant*	11,000 to 11,300	10,800 to 12,000	12,000 to 12,300	13,000 to 13,800	13,000 to 15,300
Total	22,000 to 26,300	24,000 to 28,500	24,000 to 30,300	26,000 to 33,300	26,000 to 37,300

Sources: RWGMP 2015; SNMP 2014; AV IRWMP 2013.
Note:
* AWWTP projected recycled water supply excludes water used for environmental maintenance.

The recycled water produced from each of these treatment plants is available for wholesale purchase and resale. Access to the recycled water supply is controlled by contract with LACSD. Purchasers of this recycled water include the Palmdale Recycle Water Authority and the city of Palmdale. The city of Palmdale, which would supply recycled water to PEP, has an agreement with LACSD to purchase up to 2,000 afy. PEP and the city of Palmdale have made an agreement of intent to allow PEP to purchase up to 400 afy of recycled water for a period of not less than 23 years, beginning in 2018 and with the option for two I0-year extensions beyond the initial 23 year period (PHPP 2015u). Staff concludes this would be adequate to ensure delivery for the life of the project.

Recycled water supplies are often referred to as a drought-proof supply because supplies are generally constant year round and less affected by droughts. In their regional planning documents, both the Palmdale Water District (PWD) and District 40 expect their recycled water supply to remain constant during single-dry and multiple-dry years (PWD UWMP 2010; IRUWMP 2011). Both water retailers receive their recycled water supply from the same wholesaler (LACSDs) that supplies recycled water to the city of Palmdale.

Based on the PWD and District 40 regional planning documents, staff concludes that the recycled water supply from PWRP and AWWTP would be unaffected during normal, single-dry and multiple-dry years. This, in turn, means the supply to the city of Palmdale for delivery would be unaffected.

Soil and Water Table 8 summarizes the local water districts, agencies, and associations projected demands on recycled water produced at PWRP and AWWTP (RWGMP 2015; SNMP 2014; AV IRWMP 2013; IRUWMP 2010). The project with one of the greatest projected recycled water demand is PHPP, with a projected average

demand ranging from 3,400 to 3,600 afy.[4] The PEP demand significantly reduces projected demand with its proposed 400 afy. Therefore, the projected demand from a project at the PHPP/PEP site would be over-estimated by the local water agencies (shown in the table below) if PEP is built and operated.

As the recycled water pipeline infrastructure is completed, demand is expected to increase as shown in **Soil and Water Table 8**. Demand is not expected to change during drought conditions. The region typically receives little rain, and with implementation of demand management measures, water demands for irrigation are not expected to increase during a single-dry year or multiple-dry year conditions (PWD UWMP 2010).

Soil and Water Table 8
Existing and Projected Recycled Water Demand

Existing Recycled Water Use	Projected Demand (afy)				
	2015	2020	2025	2030	2035
Harrington Farm	168	168	168	168	168
City of Palmdale	157	157	157	157	157
Potential Recycled Water Use	**Projected Demand (afy)**				
	2015	2020	2025	2030	2035
Palmdale Hybrid Power Project	3,400 to 3,600	3,400 to 3,600	3,400 to 3,600	3,400 to 3,600	3,400 to 3,600
eSolar Power Plant	80	80	80	80	80
North LA/Kern County Regional Recycled Water Project Customers	700 to 7,121	1,800 to 8,673	3,600 to 10,225	4,700 to 11,777	7,100 to 13,330
Palmdale Recycled Water Authority Recycled Water Project	80	1,000	1,000	1,000	1,000
Palmdale Water District Groundwater Recharge Project	---	---	---	3,000 to 5,000	5,000 to 6,000
Total	4,585 to 11,206	6,605 to 13,678	8,405 to 15,230	9,505 to 16,776	11,905 to 18,335

Sources: RWGMP 2015; SNMP 2014; AV IRWMP 2013; IRUWMP 2010.
Note: The 2010 PWD UWMP recycled water demand projection was the lowest of all projections by several hundred to several thousand-acre feet per year and was not used in the table.

The projected difference between total recycled water supply and demand is presented below in **Soil and Water Table 9**.

[4] PHPP licensed maximum recycled water demand is 4,121 afy for cooling water, boiler water makeup, maintenance, landscaping and mirror washing. An average demand of 3,400 to 3,600 afy was a reasonable estimate of annual actual demand on recycled water supplies by the licensed PHPP.

Soil and Water Table 9
Existing and Projected Recycled Water Supply versus Demand

Recycled Water	Projected (afy)				
	2015	2020	2025	2030	2035
Supply	22,000 to 26,300	24,000 to 28,500	24,000 to 30,300	26,000 to 33,300	26,000 to 37,300
Demand	4,585 to 11,206	6,605 to 13,678	8,405 to 15,230	9,505 to 16,776	11,905 to 18,335
Difference	15,094 to 17,415	14,822 to 17,395	15,070 to 15,595	16,495 to 16,524	14,095 to 18,965

Projected recycled water supply far exceeds demand. To increase demand, the recycled water distribution system is expanding and will reach more areas in the cities of Palmdale and Lancaster. In addition, rights to groundwater in the AVGB have been adjudicated and future access to freshwater supplies is expected to diminish. Demand for recycled water is expected to increase. At the same time, population is expected to grow and therefore the supply of recycled water would increase. Both the PWRP and AWWTRP have capacity for tertiary treatment of this increased supply.

If the amendment to the Decision is approved and PEP is built, approximately 3,721 afy of additional recycled water would be available due to the reduced PEP water demand over PHPP. In addition, the LACSDs' PWRP and AWWTP produce much more recycled water than can be used. At PWRP, recycled water storage reservoirs and conveyance facilities have been constructed and are in use, but excess water is still produced.

Excess recycled water from the PWRP is disposed of through agriculture operations (Antelope Valley Farms) located near the treatment plant (RWGMP 2015). AWWTP also disposes of excess water through farming operations (SNMP 2014). It is important to note that as the recycled water is used for municipal and industrial purposes and groundwater recharge, the LACSD anticipates reducing the amount of water that it provides for agriculture. Until these alternative municipal and industrial uses are developed, the excess recycled water must continue to be disposed of through agricultural irrigation.

Based on this information, staff concludes there is significant excess supply for the foreseeable future and the project demand would not impact other users. In addition, the reduced demand of the project for recycled water would make a significant volume available for other future uses. Staff concludes there is sufficient recycled water supply to meet demand during normal, single-dry, and multiple-dry water years and meet the recycled water requirement of PEP over the project life.

Staff proposes modification to Conditions of Certification **SOIL&WATER-3** and **SOIL&WATER-4** to account for the upgrades to the LACSD recycled water treatment plants to tertiary-treated recycled water and to identify the new recycled water supplier (the city of Palmdale). PEP would contract with the appropriate agency for recycled

water delivery. Compliance with Condition of Certification **SOIL&WATER-5** for connection to the water supplies and metering of water use would still be required. Staff also proposes modifications to refer to the project owner and provide clarification.

WATER DELIVERY

The LACSD is the recycled water wholesaler (which would supply recycled water to the city of Palmdale for retail sales to PEP). The recycled water supply pipeline from either LACSD's PWRP or AWWTP to PEP is not complete. A distribution pipeline from one or both of these treatment plants to PEP is planned. A pipeline connection between the two treatment plants is also planned. The pipeline to PEP from either PWRP or AWWTP is expected to be complete by the 18th month of PEP construction (PHPP, 2015u).

To ensure recycled water supply to PEP during construction, the project owner has identified two options for recycled water delivery:

- Trucking water from the PWRP to PEP similar to PHPP.
- Trucking water from the recycled water distribution pipeline terminus at Sierra Highway and East Avenue M to PEP, which has been completed since PHPP was licensed. This option would make recycled water available closer to the project site.

The recycled water supply pipeline for delivery during project operation would connect to PEP by one of two routes:

- Construction of a 7.4-mile distribution pipeline. This pipeline would connect the PWRP and AWWTP at the existing pipeline terminus at Sierra Highway and East Avenue M similar to PHPP. From the existing pipeline terminus, the pipeline would extend along East Avenue M to PEP. If this option were chosen, there the proposed backup supply described by the project owner would be available.
- Construction of a 1.15-mile pipeline extending the existing pipeline from the pipeline terminus at Sierra Highway and East Avenue M to PEP from the AWWTP, which was not considered in PHPP. Construction of this option would be much shorter than the option above, which was previously considered in PHPP. If this option is chosen there does not appear to be access to backup supply proposed by the project owner.

During PEP construction, drinking water would come from bottled water. During PEP operation, PEP would obtain drinking and sanitation water from service waterlines provided by District 40.

Staff continues to recommend the project owner be required to comply with Condition of Certification **SOIL&WATER-5** to ensure reporting of potable and recycled water use form project construction and operation. If recycled water is trucked to PEP, staff recommends requiring daily logs to record the number of trucks delivering recycled water to PEP and the volume of water delivered by each truck. Staff has proposed a modification to Condition of Certification **SOIL&WATER-5** to include this requirement.

WASTEWATER MANAGEMENT

Construction

Similar to PHPP, portable sanitation facilities would be used during PEP construction. These would be managed by a contractor that would ensure appropriate offsite disposal of waste.

Hydrostatic testing would still be required for construction similar to PHPP. The project owner should continue to be required to comply with Condition of Certification **SOIL&WATER-6** to ensure discharge of hydrostatic test waters do not result in water quality or other environmental impacts.

Operation

For operation, the PEP redesign eliminated the PHPP ZLD system for industrial wastewater. Because a ZLD would no longer be required, staff recommends deleting Condition of Certification **SOIL&WATER-7**, which contains requirements related to operation of the ZLD.

Instead of processing wastewater through a ZLD, PEP proposes discharging sanitary and industrial wastewater off site into the city of Palmdale sewer system. The wastewater would be discharged through a newly constructed 18-inch sewer pipeline that runs along the south side of East Avenue M. PEP proposes connecting to this sewer pipeline at a point adjacent to the proposed PEP access road, approximately 0.25 miles north of the plant site. PEP wastewater would be recycled at the PWRP.

The estimated average volume of PEP wastewater that would be produced and disposed of through the sewer system is 220 afy (PHPP 2015u). LACSD has provided a Will-Serve letter for accepting the proposed volume and quality of wastewater.

Condition of Certification **SOIL&WATER-8** requires the project owner to recycle and reuse all process wastewater streams to the extent practicable. To ensure the project owner complies with the requirements of LACSD disposal of sanitary and operation wastewater to the sewer and the necessary connections, staff recommends applying Condition of Certification **SOIL&WATER-9.**

CUMULATIVE IMPACTS AND MITIGATION

Staff discusses cumulative impacts on the water supply in the analysis above. There are no other new cumulative impacts that were not considered in the 2011 Final Commission Decision.

RESPONSE TO PSA AGENCY COMMENTS

Comment:

The Lahontan Regional Water Quality Control Board (RWQCB). The California Regional Water Quality Control Board, Lahontan Region, comments on the PSA dated May 4, 2016 ()TN 211353) requested that the 20-acre project laydown area be restored and re-vegetated after construction of PEP is complete (RWQCB 2016).

Response to Comment:

On June 15, 2016, staff contacted the RWQCB to better understand their concerns. The RWQCB stated that re-vegetation of the laydown area is necessary to help minimize soil erosion and avoid water and air quality impacts. Staff explained to the RWQCB that Condition of Certification **BIO-10** would require the laydown area to be re-vegetated with native grass and subshrub species.

Staff received no other comments from the project owner, the public, interveners, or agencies in the area of **Soil and Water.**

CONDITIONS OF CERTIFICATION

The conditions of certification for Soil and Water are located in the Conditions of Certification Compendium at the back of this Final Staff Assessment.

REFERENCES

AVEK UWMP 2016. 2015 Urban Water Management Plan, Antelope Valley-East Kern Water Agency, June 2016.

AV IRWMP 2013 - Antelope Valley Integrated Regional Wastewater Management Plan (Final) 2013 Update.

CEC 2011b - California Energy Commission (TN 61876). Palmdale Hybrid Power Project Final Commission Decision, date submitted to CEC/Docket Unit August 15, 2011, docketed August 15, 2011.

CEC 2015a - California Energy Commission/Christopher Dennis (TN 206219). Letter to Palmdale Water District Re: Water Supply Assessment (WSA) for Palmdale Hybrid Power Project Petition to Amend, dated September 25, 2015. Submitted to Palmdale Water District/CEC/Docket Unit on September 28, 2015.

CEC 2015b - California Energy Commission/Christopher Dennis (TN 206232). Letter to Mr. Adam Ariki, General Manager, Los Angeles County Waterworks Districts Re: Water Supply Assessment (WSA) for Palmdale Hybrid Power Project Petition to Amend, dated September 30, 2015. Submitted to Adam Ariki, Los Angeles County Waterworks Districts/CEC/Docket Unit on September 29, 2015.

CEC 2015c - California Energy Commission/Eric Veerkamp (TN 206472). Petition to Amend, Data Requests Set 1 (Nos. 1-63), dated October 30, 2015. Submitted to Galati Blek, LLP, Scott Galati/CEC/Docket Unit on October 30, 2015.

CEC 2016f - California Energy Commission/Christopher Dennis (TN 210452). Record of Conversation between CEC/Christopher Dennis and Sami Kabar, Los Angeles County Department of Public Works Re: Potable Water Supply Assessment, dated February 10, 2016. Submitted to CEC/Docket Unit on February 18, 2016.

CEC ROC 2016 - California Energy Commission/Christopher Dennis (TN 213085). Record of Conversation between CEC/Christopher Dennis and Kirk Allen, Los Angeles County Department of Public Works Re: Potable Water Supply Assessment, dated July 6, 2016. Submitted to CEC/Docket Unit on August 4, 2016.

District 40 UWMP - (final draft), 2016. 2015 Urban Water Management Plan, Los Angeles County Waterworks, District 40, August 2016.

IRUWMP 2011. 2010 - Integrated Regional Urban Water Management Plan for the Antelope Valley, Los Angeles County LACWD District No. 40 and Quartz Hill Water District, June 2011.

LACDPW 2013 - Memorandum of Understanding between Antelope Valley-East Kern Water Agency and Los Angeles County Waterworks District No.40, Antelope Valley for New Water Supplies, effective August 13, 2013.

PHPP 2008a - City of Palmdale/Stephen H. Williams, City Manager (TN 47383). Application for Certification, dated July 30, 2008. Submitted to Melissa Jones/CEC/Docket Unit on July 30, 2008.

PHPP 2015c - Galati Blek LLP/Scott A. Galati (TN 205394-1). Revised Petition to Amend (RPTA), dated July 17, 2015. Submitted to CEC/Eric Veerkamp on July 17, 2015 and docketed on July 20, 2015.

PHPP 2015h - SNC Lavalin Inc. (TN 206025). Preliminary Drainage, Erosion, and Sediment Control Plan, dated August 27, 2015. Submitted to CEC/Docket Unit on September 9, 2015.

PHPP 2015u - DayZen LLC/Marie Fleming (TN 206797). Response to CEC Staff Data Request Set No. 1 (1-63), dated November 2015. Submitted to CEC/Docket Unit on November 30, 2015.

RWGMP 2015 - Recycled Water Facilities Master Plan, Palmdale Recycled Water Authority, January 2015.

RWQCB 2016 - Jeffery Fitzsimmons/Lahonton RWQCB (TN 211353), Comments on the Preliminary Staff Assessment for Palmdale Energy Project Decision, Palmdale, Los Angeles County dated, April 20, 2016. Submitted to CEC/Docket Unit on April 20, 2016

SNMP 2014 - Salt and Nutrient Management Plan for the Antelope Valley, Los Angeles County, Department of Public Works Waterworks District No. 40 and the Los Angeles County, Sanitation Districts Nos. 14 and 20, May 2014.

PWD UWMP 2011- 2010 Urban Water Management Plan, Palmdale Water District,

PALMDALE ENERGY PROJECT (08-AFC-9C)
Petition to Amend the Final Commission Decision
TRAFFIC AND TRANSPORTATION
Testimony of James Adams and Eric Knight

SUMMARY OF CONCLUSIONS

Staff concludes that the Petition to Amend (PTA) the 2011 California Energy Commission Final Decision (Decision) for the Palmdale Hybrid Power Project (PHPP) would not create new significant impacts or increase the severity of previously identified significant impacts. Therefore, in accordance with the California Environmental Quality Act (CEQA) Guidelines section 15162, staff concludes that supplementation of the Decision is not required. Conditions of Certification **TRANS-1** through **TRANS-7** in the Commission Decision would ensure that the amended PHPP would not have significant adverse impacts on traffic and transportation, and would ensure the amended project continues to comply with applicable laws, ordinances, regulations, and standards (LORS). With the elimination of the solar component of the project and the avoidance of glare impacts on airport operations, Conditions of Certification **TRANS-8** and **TRANS-9** are unnecessary and can be deleted.

INTRODUCTION

Staff reviewed the PTA (Palmdale Energy, LLC 2015a) and the Decision (CEC 2011b) to determine whether the proposed changes to the licensed PHPP would cause new significant impacts or increase the severity of previously identified significant impacts. The changes to the PHPP include eliminating the solar energy component and reconfiguring the two-on-one combined-cycle power block configuration to incorporate new gas turbine technology and replacing the wet cooling tower with an air-cooled condenser.[1]

SUMMARY OF DECISION

The traffic analysis in the Decision for the PHPP addressed the project's impacts on the local transportation system. The analysis included an assessment of impacts on the levels of service (LOS) of the roads to be used by construction and operation vehicles; the frequency of trips and probable routes associated with the delivery of hazardous materials; and the effects of the project on flight operations at the United States (U.S.) Air Force Plant 42. The Decision found the PHPP in conformance with the applicable LORS related to traffic and transportation and determined that all potential adverse traffic impacts will be mitigated to less than significant with implementation of the following conditions of certification:

[1] The petition also requests that the project's name be changed to Palmdale Energy Project (PEP).

- **TRANS-1:** Implementation of a traffic control plan;
- **TRANS-2:** Obtain Determinations of No Hazard to Navigable Airspace from the Federal Aviation Administration (FAA);
- **TRANS-3:** Compliance with Caltrans and local jurisdictions' limitations on vehicle size and weight limits on roadways and highways;
- **TRANS-4:** Initiation of actions to ensure pilots are aware of the project location and potential hazards to aviation;
- **TRANS-5:** Repair roadways damaged during construction to pre-project construction condition;
- **TRANS-6:** Provide emergency vehicle access that complies with the City of Palmdale General Plan Circulation Element and Los County Fire Department requirements;
- **TRANS-7:** Compliance with hazardous material transportation permit and license requirements;
- **TRANS-8:** Implement all reasonable measures to minimize hazards associated with glint and glare from solar equipment on U.S. Air Force Plant 42;
- **TRANS-9:** Develop and implement a process for documenting, investigating, evaluating, and resolving all project-related glare complaints by U.S. Air Force Plant 42.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS) COMPLIANCE

No traffic-related LORS applicable to the project have changed since the Decision was published in August 2011. Additionally, the proposed amendment would not trigger new LORS that may not have been applicable to the original project. The proposed changes to the project would not cause the project to be out of compliance with LORS.

ENVIRONMENTAL IMPACT ANALYSIS

The 50-acre PEP site is located within the city of Palmdale in the Antelope Valley region of Southern California. The site is readily accessible via the Antelope Valley Freeway (State Route 14 or SR-14). The site is located approximately 1 mile east of the Antelope Valley Freeway along Avenue M (Columbia Way). Other regional and local roadways serving the site include SR-138 and SR-58, East Avenue M, and Sierra Highway. The PEP site is located adjacent to and northwest of U.S. Air Force Plant 42. A more complete discussion of the regional and local transportation system can be found in the Decision.

IMPACTS TO ROADWAYS

Staff used the traffic data from the licensed PHPP as the baseline for determining if the PEP would cause new significant impacts on roadways, or increase the severity of previously identified significant impacts. The PEP would use the same road segments

and intersections that were analyzed for the PHPP. The City of Lancaster General Plan, Plan for Physical Mobility, and the City of Palmdale General Plan, Circulation Element, were used to obtain 2011 traffic levels on roadways and intersections near the project site. The cities of Palmdale and Lancaster have not completed new traffic analyses as part of any general plan updates since the PHPP was licensed (COL 2015a, COP 2015a). Traffic levels in the area are similar to the conditions assessed for the PHPP.

Construction Phase Traffic

The total duration of construction of the PEP would be 25 months, compared to 27 months for the licensed PHPP. During construction, the PEP would require an average construction workforce of approximately 339 daily construction workers with a peak workforce of 706 workers. The licensed PHPP assumed an average of approximately 367 daily construction workers with a peak workforce of 767 workers. Although the solar component would not be constructed, the PTA indicates that the assumptions made for daily truck trips for the licensed PHPP would remain valid for the PEP. Construction of the PHPP was estimated to generate an average of approximately 15 one-way truck trips per day with a peak of approximately 50 truck trips per day.

Similar to the PHPP, secondary-treated reclaimed water for dust suppression would be trucked to the site from the Palmdale Water Reclamation Plant (PWRP) until completion of the project's water supply pipeline, which is anticipated in month 18 of the construction schedule. During this time, there would be an average of 6 water delivery trucks per day with a peak of 25 trucks per day. This is a 50 percent reduction in the number of peak trips estimated for the PHPP because the PEP site is smaller and would require less grading (Palmdale Energy LLC, 2015b). Thus, the PEP would result in slightly less vehicle trips than the PHPP during construction.

As in shown in **Traffic and Transportation Table 1** below (adapted from the Decision), some intersections in the project area operate at unacceptable LOS without the addition of project-related traffic. The minimum acceptable LOS during peak hour traffic is LOS D. With the addition of peak construction-related traffic, the LOS of three additional intersection segments would deteriorate to E or F during the AM and PM peak hours.

Traffic and Transportation Table 1
Intersection Level of Service 2011
Existing Conditions and 2011 Peak Hour Construction

Intersection	Direction	AM Peak Hour		PM Peak Hour	
		Existing	Peak Workforce	Existing	Peak Workforce
SR-14 SB/ E. Ave. M	East/ North	F	F	F	F
SR-14 SB/ E. Ave. M	West/ South	B	F	F	F
SR-14 NB/ E. Ave. M	West/ South	F	F	F	F
SR-14 NB/ E. Ave. M	East/ North	F	F	C	F
Sierra Highway/ E. Ave. M	East/ West	D	D	D	D/E

Source: Final Commission Decision for the licensed PHPP

To mitigate the PHPP's impacts on local roads to a less than significant level, the Commission required Condition of Certification **TRANS-1**. This condition requires construction workers to avoid using SR-14 on- and off-ramps at East Avenue M and the

intersection of Sierra Highway and East Avenue M during peak traffic periods, and limits deliveries of heavy equipment and building materials to off-peak periods (9:30 AM to 3:30 PM). Condition of Certification **TRANS-1** would mitigate the PEP's impacts on LOS to a less than significant level.

In addition to **TRANS-1**, the Commission required a number of conditions of certification (**TRANS-3**, **TRANS-5**, **TRANS-6**, and **TRANS-7**) to ensure the project's traffic impacts would be less than significant as they relate to hazards associated with overweight and oversized trucks, damaged roadways, emergency vehicle access, and hazardous materials deliveries. These issues are unchanged with the PEP, and staff concludes that no supplementation is necessary, and the Committee can rely on the analysis of these issues in the PHPP Decision.

Operations Phase Traffic

The PHPP would have required an operations staff of approximately 36 employees working 24 hours, seven days per week, and would have generated an estimated 2-3 truck trips per day. The Commission found the minimal amount of operations-related traffic would have a less than significant impact on the LOS of area roadways. While the PEP would only employ 23 operations workers, the amount of truck traffic during operations could increase. If the reclaimed water supply pipeline is not completed by the anticipated commercial operation date, the project owner proposes to truck tertiary-treated reclaimed water to the PEP. The peak delivery would be 47 trucks per day or approximately 3 trucks per hour. The average delivery would be 16 trucks per day or approximately 1 truck per hour. The size of the water trucks would be 10,000 gallons (Palmdale Energy LLC, 2015b). The preferred route for delivery of tertiary-treated recycled water from the PWRP to the PEP site would be north on 30th St. to Ave P, west on Ave. P to the Sierra Highway, North on Sierra Highway to Ave. M, and east on Ave. M to the PEP access road. This is a distance of approximately 7 miles. The preferred route from the PEP to the PWRP would be east on Ave M. to 50th St., south on 50th St. to Ave. N., west on Ave N to 40th St, south on 40th street to Ave P, and west on Ave. to P to 30th Street. This is a distance of approximately 10 miles. These are the most direct routes to/from the PEP site and the PWRP. One to three trucks per hour during the interim period before completion of the water supply pipeline would not have a significant impact on traffic and transportation.

AIRPORTS

The PEP site is located adjacent to U.S. Air Force Plant 42. Runways (RY) 7/25 and 4/22 are located approximately 3,000 feet south and 10,000 feet south of the site, respectively. As discussed in the Decision, arrival and departure air traffic using RY 7/25 would not fly over the site given the current traffic pattern. A departure from RY 4/22 could fly near the western part of the site but pilots could fly further west until reaching the end of the runway or further outbound before turning north towards Edwards Air Force Base. Most of the aircraft at Plant 42 use RY 7/25 and are engaged in practice landings and take-offs, commonly referred to as "touch-and-goes" (CEC 2011b). The Decision discusses four issues related to the PHPP's effects on Plant 42 operations: structure heights, thermal exhaust plumes, visible water vapor plumes, and glint and glare. Each of these issues is discussed below for the amended project.

As discussed in the Decision, given the proximity of the project site to Plant 42 and its two long runways, any structure over 30 feet tall would penetrate Plant 42's navigable airspace. According to PTA Appendix 2-A, Equipment Dimensions, there are several PEP structures that would exceed the 30-foot above ground level (AGL) threshold. These include the combustion turbine inlet air filters (68 feet tall), the heat recovery steam generator (HRSG) structures (96 feet tall), the air-cooled condenser (135 feet tall), and the HRSG stacks (160 feet tall). In addition, construction cranes could be 200 feet tall.

Condition of Certification **TRANS-2** requires the project owner to notify the FAA of all project structures exceeding a height of 30 feet AGL. PTA Appendix 6E contains FAA's Determinations of No Hazard for the PEP's two 160-foot tall HRSG stacks. The Commission found that the project structures exceeding the 30-foot threshold will not be a hazard to air navigation at Plant 42 because most aircraft do not fly over the project site, and those aircraft in the traffic pattern are flying at least at 1,500 feet AGL, which would be well above any project structure (CEC 2011b, page 8.2-18). Staff has updated **TRANS-2** to reflect the proposed changes in project structures including the construction cranes.

THERMAL PLUMES

Similar to the licensed PHPP, the PEP would emit thermal exhaust plumes from two HRSG stacks. Instead of using a wet cooling tower, the PEP would use an air-cooled condenser (ACC) for heat rejection. ACC's emit thermal plumes, but unlike wet cooling towers, do not emit visible water vapor plumes. The PHPP's turbine and cooling tower plumes were predicted to be at or exceed 4.3 meters per second (m/s) (the threshold at which aircraft can experience moderate to severe turbulence) up to about 990 feet and 875 feet AGL, respectively. The project owner's plume velocity analysis for the PEP's turbines predicts the 4.3 m/s thermal plumes reaching 714 to 1,296 feet AGL under different ambient conditions (Palmdale Energy, LLC 2015a, Appendix 6-F). The project owner did not include the ACC in its thermal plume analysis.

Energy Commission Air Quality staff modeled plume velocity for the project's HRSG stack and the ACC. Staff found that thermal plume vertical velocity for the HRSG stack exceeded 4.3 m/s up to an altitude of approximately 1,245 feet AGL. The worst case ACC plume average velocity is calculated to drop below 4.3 m/s at a height of approximately 1,222 feet AGL. See **Appendix TT-1** of this section for more information.

For the PHPP, the Commission found that aircraft using Plant 42 would not be affected by the project's thermal plumes because arriving or departing aircraft would not fly over the HRSGs and cooling tower and aircraft in the traffic pattern would be flying at least at 1,500 feet AGL. While the results of the project owner's analysis and staff's analysis show an increase in the thermal plume heights compared to the original project, the PEP's plumes would still be below 1,500 feet AGL. Based on current information, the conclusion in the Decision of no significant impact on U.S. Air Force Plant 42 operations from thermal plumes would be unchanged.

The FAA's Aeronautical Information Manual advises pilots that flight hazards exist around exhaust plumes, and recommends, when possible, that pilots should steer clear of exhaust plumes by flying on the upwind side of exhaust stacks or cooling towers

(FAA 2014). In order to enhance aviation safety, staff proposes Condition of Certification **TRANS-4** which requires the project owner to work with the FAA and the U.S Air Force Plant 42 Commander to notify all pilots using this airport and airspace above the PEP site of potential plume hazards. These requirements would include, but not be limited to: the project owner working with the FAA in issuing a Notice to Airmen (NOTAM) of the identified plume hazard; working with the Plant 42 Commander to add a remark about the plume hazard to the Airport Traffic Information System and the Airport Facility Directory; and updating the Los Angeles Sectional Chart and other applicable airspace publications used by pilots to indicate that pilots should avoid direct overflight of the PEP below 1,500 feet AGL.

The effects on aviation safety of visible plumes from the PHPP's previously approved wet cooling tower and glare from the licensed project's solar field were also addressed in the Commission Decision. Significant impacts from glare were identified and the Commission required Conditions of Certification **TRANS-8** and **TRANS-9** to reduce these impacts to less than significant. Because the PEP would not use wet cooling and would not include the solar component, these issues are avoided and **TRANS-8** and **TRANS-9** can be deleted.

CUMULATIVE IMPACTS

A cumulative impact is created as a result of the combination of the project 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 PEP would be most likely to combine with other nearby projects to result in cumulative traffic impacts during the construction phases, which would generate much more traffic than the operations phase, when minimal traffic would be generated. Because of this, staff evaluated cumulative traffic impacts for the construction time period of the PEP and one other project in the vicinity. There are no other projects in the vicinity that could combine with the PEP to cause cumulative aviation impacts on U.S. Air Force Plant 42. Based on all current information available at this time, the following information outlines the status of one major project within the licensed PHPP area that could combine with the PEP to produce cumulative traffic impacts. The following projects were evaluated in staff's analysis for the licensed PHPP. Project status has been updated for this analysis of the PEP.

As previously considered for the licensed PHPP, staff has considered an ongoing proposal to construct a new 50-mile east/west freeway/expressway/light rail that would connect SR-14 with Interstate (I-15). The High Desert Corridor (HDC) preferred alternative would connect the cities of Palmdale, Lancaster, Adelanto, Victorville and the town of Apple Valley. The recently released Final Environmental Impact Report/Impact Statement notes construction is assumed to start in 2017 and be completed in late 2020 (Caltrans 2016). The preferred route is E Avenue P south of E. Avenue M where the PEP site is located. City of Palmdale staff advised that construction of the HDC would not begin until 2030 (City of Palmdale 2016). Based on current information, there would be no overlap between PEP and HDC construction and therefore no cumulative impact.

It is assumed that all future cumulative projects would include mitigation similar to that for licensed PHPP (i.e. the development of a construction traffic control plan) and would require approval from the cities of Palmdale and Lancaster or Caltrans, as well as other affected jurisdictions and agencies. The incremental effect of the PEP would not be cumulatively considerable when combined with the effects of past, present and reasonably foreseeable projects.

Staff has determined that all significant direct or cumulative impacts specific to traffic and transportation resulting from project construction or operation would either be less than significant or be reduced to a less-than-significant level. Therefore, the proposed project would not cause significant traffic and transportation impacts to the environmental justice population depicted in **Socioeconomics Figure 1**.

RESPONSE TO PSA COMMENTS

PROJECT OWNER COMMENTS

Comment:

A comment was raised in Palmdale Energy LLC's Final Comments on the Preliminary Staff Assessment, docketed April 27, 2016, (TN 211264) concerned about Condition of Certification **TRANS-2**, which deleted some of the original project structures and added new equipment that would require FAA determinations pursuant to Part 77.9. Proposed new language for **TRANS-2** refers to requirements for obtaining a Determination of No Hazard to Navigable Airspace from FAA pursuant to Title 14, CFR, Part 77, Section 77.9 (e) (1). Section (e) (1) states:

> (e) You do not need to file notice for construction or alteration of:
>
> *(1)* Any object that will be shielded by existing structures of a permanent and substantial nature, or by natural terrain. or topographic features of equal or greater height, and will be located in the congested area of a city, town, or settlement where the shielded structure will not adversely affect safety in air navigation:

Response to Comment:

Staff has reviewed the section and concludes that it is not applicable because none of the criteria in item (1) are relevant. There are no existing structures, natural terrain, topographic features, or a congested area of a city, town, or settlement where the shielded structure will not adversely affect safety in air navigation. The PEP is an unoccupied site in a rural area of Palmdale. Given the close proximity of U.S. Air Force Plant 42, any new structure over 30 feet tall AGL would require submittal of the 7460-1 form to the FAA. The proposed change to **TRANS-2** is not appropriate.

Comment:

The project owner suggested some minor revisions to the **Verification** for **TRANS-4** which staff believes are appropriate.

Response to Comment:
The changes are incorporated in the **TRANS-4** condition language.

Staff received no other comments from the project owner, the public, interveners, or agencies in the area of **Traffic and Transportation**.

CONCLUSIONS AND RECOMMENDATIONS

Staff has analyzed whether the changes to the licensed PHPP would create new significant impacts on traffic and transportation, or increase the severity of previously identified significant impacts. Staff concludes that the PEP would not create any new significant impacts or substantially increase the severity of previously identified significant impacts on the regional and local traffic and transportation system. Therefore, in accordance with CEQA Guidelines section 15162, staff concludes that supplementation of the Commission Decision regarding traffic and transportation is not required.

The mitigation for the licensed PHPP would still be applicable and would not require any changes beyond the minor modifications to Conditions of Certification **TRANS-1** and **TRANS-2** for clarification purposes and to reflect the PEP's different design. The revisions to **TRANS-4** reflect changes in aviation publications to notify pilots of the presence of the PEP and new verification language adopted for recent power plant amendment proceedings. Staff has also made minor editorial changes to **TRANS-5**.

Because the solar component would not be built, staff recommends deleting Conditions of Certification **TRANS-8** and **TRANS-9**.

Conditions of Certification **TRANS-1** through **TRANS-7** in the Commission Decision (as modified by staff) would ensure that the PEP would not have significant impacts on traffic and transportation, and would ensure the amended project continues to comply with applicable LORS.

CONDITIONS OF CERTIFICATION

The conditions of certification for Traffic and Transportation are located in the Conditions of Certification Compendium at the back of this Final Staff Assessment

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APPENDIX TT-1: PLUME VELOCITY ANALYSIS

Nancy Fletcher

INTRODUCTION

The following analysis assesses exhaust stack plume vertical velocities of the proposed PEP, CTGs, HRSGs, and ACC exhaust plumes. Staff completed calculations to determine the worst-case vertical plume velocities at different heights above the ground based on the project owner's proposed facility design, with staff corrections to some of the operational data. The purpose of this appendix is to provide documentation of the method used to estimate worst-case vertical plume velocity estimates to assist evaluation of the project's impacts on aviation safety in the vicinity of the PEP.

SUMMARY OF THE DECISION

On August 10, 2011, the Energy Commission approved the Palmdale Hybrid Power Plant (PHPP), a 570 MW (nominal output) hybrid of a natural gas-fired combined-cycle generating equipment integrated with solar thermal generating equipment. The Final Commission Decision (CEC 2011b) for the PHPP evaluated the potential for thermal plumes to be generated from the two HRSG stacks and a ten-cell cooling tower. The Final Commission Decision concluded the turbine and cooling tower could generate thermal plumes with velocities exceeding the 4.3 m/s threshold up to a height of 990 feet above ground level for the HRGS and 875 feet above ground level for the cooling tower.

PROJECT DESCRIPTION

The proposed PEP would be a natural-gas-fired, combined-cycle, air-cooled electrical generating facility located in the city of Palmdale in the Antelope Valley. The PEP power block would consist of two 214 MW Siemens SGT6-5000F combustion turbines with inlet evaporative cooling and dry low NOx combustors, one 276 MW (nominal base load) Siemens steam turbine, and two heat recovery steam generators (HRSGs) with duct burners. The PEP would employ dry cooling through an air cooled condenser (ACC). The PEP would also include a 110 MMbtu/hr natural gas fired auxiliary boiler, two emergency engines and other ancillary equipment.

PLUME VELOCITY CALCULATION METHOD

SPILLANE APPROACH

Staff uses a calculation approach from a technical paper (Best 2003) to estimate the worst-case plume vertical velocities for vertical turbulence from plumes such as the PEP stacks and cooling system. The calculation approach, known as the "Spillane approach", is based on calm wind conditions to assess average plume vertical velocity as a function of height. Calm wind conditions are considered the worst-case wind conditions for worst case plume rise and velocities. The Spillane approach uses the

following equations to determine vertical velocity for single stacks during dead calm wind (i.e., wind speed = 0) conditions:

(1) $(V*a)^3 = (V*a)_o^3 + 0.12*F_o*[(z-z_v)^2-(6.25D-z_v)^2]$

(2) $(V*a)_o = V_{exit}*D/2*(T_a/T_s)^{0.5}$

(3) $F_o = g*V_{exit}*D^2*(1-T_a/T_s)/4$

(4) $Z_v = 6.25D*[1-(T_a/T_s)^{0.5}]$

Where: V = vertical velocity (meters per second [m/s]), plume-average velocity

a = plume top-hat radius (m, increases at a linear rate of $a = 0.16*(z- z_v)$

F_o= initial stack buoyancy flux m^4/s^3

z = height above stack exit (m)

z_v= virtual source height (m)

V_{exit}= initial stack velocity (m/s)

D = stack diameter (m)

T_a= ambient temperature (K)

T_s= stack temperature (K)

g = acceleration of gravity (9.8 m/s^2)

Individual plumes can be broken into three stages. The first stage describes plume conditions close to the stack exit where the plume momentum remains relatively unaffected by ambient and plume buoyancy conditions. This momentum rise stage describes the plume as it travels to a height of 6.25D. In the second stage, the plume responds to differences between ambient and plume buoyancy conditions. Cooler and less turbulent ambient air interacts with the plume and impacts the plume's vertical velocity. The dilution of the stack exhaust is sensitive to ambient wind speed. Therefore the calm wind conditions are considered to be conservative and yield worst case conditions. In the third stage, the plume rise is largely impacted by the buoyancy of the plume and continues until turbulence within and outside the plume equalizes. This generally takes place at large heights and distances form the stack where the plume vertical velocity is close to zero.

Equation (1) is solved for V at any given height above stack exit that is above the momentum rise stage for single stacks (where z > 6.25D) and at the end of the plume merged stage for multiple plumes. This solution provides the plume-average velocity for the area of the plume at a given height above stack exit; the peak plume velocity would be two times higher than the plume-average velocity predicted by this equation. The stack buoyancy flux (Equation 3) is a prominent part of Equation (1). The calm condition calculation basis represents the worst-case conditions, and the vertical velocities will decrease substantially as wind speeds increase.

For multiple stack plumes, where the stacks are equivalent as is the case for PEP, the multiple stack plume velocity during calm winds is calculated by staff in a simplified fashion, presented in the Best Paper as follows:

(5) $V_m = V_{sp} * N^{0.25}$

Where: V_m = multiple stack combined plume vertical velocity (m/s)

V_{sp} = single plume vertical velocity (m/s), calculated using Equation (1)

N = number of stacks

This simplified multiple stack plume velocity calculation method predicts somewhat lower velocity values than the full Spillane approach methodology for multiple plumes as given in data results presented in the Best paper (Best 2003). However, for a long linear set of plumes, such as the ACC grid designed for the PEP, it is very unlikely that all plumes can merge fully to allow this velocity given the stack separation and the height/atmospheric conditions needed for them to fully merge. Therefore the use of this approach will likely over predict the combined plume velocities in this case.

MITRE EXHAUST PLUME ANALYZER

On September 24, 2015, the FAA released a guidance memorandum (FAA 2015) recommending that thermal plumes be evaluated for air traffic safety. FAA determined that the overall risk associated with thermal plumes in causing a disruption of flight is low. However, it determined that such plumes in the vicinity of airports may pose a unique hazard to aircraft in critical phases of flight (such as take-off and landing). In this memorandum a new computer model, different than the analysis technique used by staff and identified above as the Spillane Approach, is used to evaluate vertical plumes for hazards to light aircraft. It was prepared under FAA funding and available for use in evaluating exhaust plume impacts.

This new model, the MITRE Corporation's Exhaust Plume Analyzer (MITRE 2012), was identified by the FAA as a potentially effective tool to assess the impact that exhaust plumes may impose on flight operations in the vicinity of airports (FAA 2015). The Exhaust Plume Analyzer was developed to evaluate aviation risks from large thermal stacks, such as turbine exhaust stacks. The model provides output in the form of graphical risk probability isopleths ranging from 10^{-2} to 10^{-7} risk probabilities for both severe turbulence and upset conditions for four different aircraft sizes. However, at this time the Exhaust Plume Analyzer model cannot be used to provide reasonable risk predictions on variable exhaust temperature thermal plume sources, such as cooling towers and air cooled condensers.

The FAA has not provided guidance on how to evaluate the risk probability isopleth output of the Exhaust Plume Analyzer model, but states in their memorandum that they intend to update their guidance on near-airport land use, including evaluation of thermal exhaust plumes, in fiscal year 2016. However, MITRE Corporation is suggesting that a probability of severe turbulence at an occurrence level of greater than 1×10^{-7} (they call this a Target Safety Level) should be considered potentially significant. This is equivalent to one occurrence of severe aircraft turbulence in 10 million flights. For the

past 50 years, the MITRE Corporation has provided air traffic safety guidance to FAA, and their recommended Target Safety Level is based on this experience (MITRE 2016).

Additionally, the MITRE model has a probability of occurrence plot limitation. While it provides output for predict plumes up to a maximum height of 3,500 feet above ground, the meteorological data that is used by the model is currently limited to a maximum height of 3,000 feet. Outputs corresponding to the higher altitudes simply reuse the 3,000 foot meteorological data. The model was developed with the assumption that a plume would not rise higher than 3,000-3,500 feet above ground level, and therefore the modeling output was terminated at that height. There is uncertainty if there will be any effort to expand the data set and model to work properly at altitudes above 3,000 feet above ground level at this point. The results obtained by staff using the Spillane approach suggest that this limitation would not apply to the PEP.

At this time staff does not believe the MITRE model should be used for final work products until the significance threshold is verified by the FAA and the model capabilities are enhanced to include other thermal plume sources such as cooling towers and air-cooled condensers.

STAFF ANALYSIS

This appendix uses the Spillane approach method to be consistent with staff assessments done for other projects and because the Spillane approach is described in the FAA materials as providing similar risk assessments for light aircraft. As stated above, staff will consider using the new MITRE method to the extent that it is applicable after conducting further review of the FAA methodology and once FAA develops guidance on how to evaluate the output of the Exhaust Plume Analyzer.

EQUIPMENT DESIGN AND OPERATING PARAMETERS

SIEMENS SGT6-5000F COMBUSTION GAS TURBINE DESIGN AND OPERATING PARAMETERS

The design and operating parameter data for the two 214 MW Siemens SGT6-5000F combustion gas turbine stacks are provided in **Plume Velocity Table 1**. Operating scenarios from four temperatures across the range of operation were selected for evaluation from the manufacturer performance estimate data sheet provided by the project owner in the Petition to Amend (PTA) Appendix 4.1A. Operating parameters chosen to compute worst-case vertical plume velocities include ambient temperatures of 23, 64, 98 and 108 degree Fahrenheit (ºF) at maximum turbine loads without duct burning[2]. The exhaust operating parameters provided in **Plume Velocity Table 1** correspond to full load operation for the corresponding ambient conditions.

[2] Turbine data provided by the vendor indicate a lower stack potential temperature and volumetric flow for cases including duct burning therefore yielding lower potential plume velocities at specified heights.

Plume Velocity Table 1
Siemens CTG Exhaust Parameters

Parameter	Siemens SGT6-5000F			
Stack Height	160 ft. (48.77 meters)			
Stack Diameter	22 ft. (6.71 meters)			
Number of Stacks (#)	2			
CTG Load (%)	100			
Case Number (#)	1	11	16	21
Ambient Temperature (°F)	23	64	98	108
Evaporative Cooling	No	Yes	Yes	Yes
Exhaust Temperature (°F)	195	215	221	223
Exhaust Flow Rate (ACFM)	1,337,241	1,334,691	1,346,870	1,344,061
Exhaust Velocity (ft/sec)/(m/s)	58.6/17.87	58.5/17.84	59.1/18.00	58.9/17.96
Stack Buoyance Flux (m^4/s^3)	518	394	327	309

Source: PHPP 2015g, Staff analysis

AIR-COOLED CONDENSER DESIGN AND OPERATING PARAMETERS

Plume Velocity Table 2 includes/approximates the design and operating parameter data for the ACC for the combined-cycle power block. The ACC stack parameter data submitted by the project owner (PHPP 2016dd) was provided by Siemens and the ACC manufacturer.

Plume Velocity Table 2
ACC Operating and Exhaust Parameters

Parameter	Air Cooled Condenser		
Number of Cells (total)	32		
Cell Height (ft)	130 ft. (39.62 meters)		
Cell Diameter (ft)	36.09 ft. (11 meters)		
Case Number (#)	1	2	3
Ambient Temperature (°F)	23	64	98
Number of Cells in Operation	10	16	32
Outlet Air Temperature (°F)	146.1	145.2	140.1
Exhaust Flow Rate (ACFM)	195,175	321,609	664,699
Exhaust Velocity (ft/sec)/(m/s)	3.2/0.97	5.2/1.60	10.8/3.30

Source: PEP 201X, Staff analysis

PLUME VELOCITY CALCULATION RESULTS

Using the Spillane approach, the plume average vertical velocities at different heights above ground were determined by staff for calm conditions for the proposed CTGs/HRSGs and ACC. As explained in the **Transportation and Traffic** section, a plume average vertical velocity of 4.3 m/s has been determined by staff to be the critical velocity of concern to light aircraft. This is based on the Australian Civil Aviation Safety

Authority (CASA) advisory circular (CASA 2003). Vertical velocities below this level are not of concern to light aircraft.

When two plumes merge, the vertical velocity is expected to decrease slower than plumes that have not merged. Therefore the height at which the vertical velocity decreases below the critical plume velocity of 4.3 m/s could occur at a higher height for merged plumes than plumes that are not merged. Plumes begin to merge when the sum of the radius of one plume and an adjacent plume equals the distance between the two stacks. Plumes are considered fully merged at the height the when the sum of the plume radii is equal to twice the distance between the stacks. Staff evaluated the potential for plume merging using a stack-to-stack distance for the CTGs/HRSGs of approximately 130 feet or 40 meters

Staff calculated plume average vertical velocities for the four operating cases outlined in **Plume Velocity Table 1** for the CTGs and HRSGs. The worst-case predicted plume velocities occur at 100 percent load without duct firing or evaporative cooling at the 23°F ambient temperature scenario. Staff's calculated worst-case plume average velocity values are provided in **Plume Velocity Table 3**. Height above ground is determined by adding the physical stack height to z, the height above stack exit.

The Siemens SGT6-5000F gas turbine plume average velocity is calculated to drop below 4.3 m/s at a height of approximately 820 feet above ground for the single turbine plume (N=1). The plume diameter at this height would be around 62 meters, which would be larger than the distance between the two Siemens SGT6-5000F gas turbine stacks (approximately 40 meters). Therefore the merging of the adjacent turbine plumes should be considered. In the case of two plumes fully merging (N=2), the average velocity is calculated to drop below 4.3 m/s at the height of 1,245 feet above ground.

Plume Velocity Table 3
Siemens Turbine Plume Size (m) and Vertical Plume Velocities (m/s)

Height Above Ground Level (Feet)	Plume Diameter (m) [a]	Number of Merged Stacks	Plume Velocity (m/s)
300	11.76	1.00	8.82
400	21.51	1.00	6.47
500	31.27	1.00	5.54
600	41.02	1.20	5.24
700	50.77	1.45	5.08
800	60.53	1.70	4.96
900	70.28	1.94	4.87
1,000	80.04	2.00	4.69
1,100	89.79	2.00	4.51
1,200	99.54	2.00	4.36
1,300	109.30	2.00	4.22
1,400	119.05	2.00	4.10
1,500	128.80	2.00	3.99
1,600	138.56	2.00	3.90
1,700	148.31	2.00	3.81
1,800	158.07	2.00	3.73
1,900	167.82	2.00	3.65
2,000	177.57	2.00	3.59

Notes:
a – The separation between the two stacks would be about 130 ft (40 m) and the plumes will begin to merge when the plume diameter is the same as the separation and is assumed to be fully merged when the plume diameter is twice the stack separation.

Staff calculated plume average vertical velocities for all three operating cases shown in **Plume Velocity Table 2** for the combined-cycle's air-cooled condenser and determined that the worst-case height at which the plume velocities would drop below 4.3 m/s would occur at the 98°F ambient temperature condition. This result was based on the assumption all cells of the ACC were in operation at the 98°F ambient temperature condition and the plumes from all cells in operation would be fully merged. Staff's calculated worst-case plume average velocity values are provided in **Plume Velocity Table 4**. The combined-cycle air-cooled condenser plume average velocity is calculated to drop below 4.3 m/s at a height of approximately 1,222 feet above ground.

Plume Velocity Table 4
Combined-Cycle Air-Cooled Condenser Vertical Plume Velocities (m/s)

Height Above Ground Level (Feet)	Plume Velocity (m/s)
400	5.19
500	5.54
600	5.38
700	5.17
800	4.96
900	4.77
1,000	4.60
1,100	4.45
1,200	4.32
1,300	4.20
1,400	4.10
1,500	4.00
1,600	3.91
1,700	3.83
1,800	3.75
1,900	3.68
2,000	3.61

It should be noted that additional thermal plume merging between the gas turbine and the air-cooled condenser could occur and increase the plume heights where vertical velocities of 4.3 m/s are exceeded under worst case conditions. The model used for this analysis is not able to add different kinds of thermal plumes together. However, the approach is still conservative given the conservatism built in the model.

In addition, the ACC thermal plume analysis submitted by the project owner followed a different set of assumptions. For cases involving more than two stacks such as the ACC, plume merging can become more complex. The 32 individual cells of the ACC would be arranged in four rows of eight cells (4 x 8 matrix). The analysis provided by the project owner conservatively used an effective stack diameter calculated based on the number of cells in operation for each case. The calculated effective stack diameter represents a single merged cell that is then used with the Spillane methodology. The results provided by the project owner were replicated by staff. Per the project owner's analysis methodology the plume would not be expected to exceed a vertical velocity of 4.3 m/s under worst case conditions, however the single plume would retain the peak vertical velocity at higher altitudes. Both the staff analysis provided above and the project owner analysis result in the predicted vertical velocity from the ACC to be less than the combined cycle.

WIND SPEED STATISTICS

The **Air Quality** section of this document uses meteorological data from Palmdale Air Force Plant 42 Automated Surface Observing System (ASOS) located approximately 2.5 km east-southeast of the PEP site. The wind roses and wind frequency distribution data collected from the ASOS monitoring station are considered to be representative for the project site location. The project owner provides the calm wind speed statistics from the ASOS monitoring station from ground-level meteorological data collected for 2010 through 2014 (PHPP 2015g). Calm winds for the purposes of the reported monitoring station statistics are those hours with average wind speeds below 0.5 m/s. Calm or very low wind speeds can also occur for shorter periods of time within each of the monitored average hourly conditions. However, the shortest time resolution for the available meteorological data is one hour. The annual wind rose data shows calm/low wind speed conditions averaging an hour or longer is 3.82 percent in the site area, or about 335 hours per year.

CONCLUSIONS

The worst case calm wind condition vertical plume average velocities from the proposed Siemens SGT6-5000F combined-cycle turbine stacks are predicted to drop below 4.3 m/s at the height of 1,245 feet assuming two plumes fully merged. The worst case air-cooled condenser plume average velocity is calculated to drop below 4.3 m/s at a height of approximately 1,222 feet. Thus, the thermal plume from the proposed combined-cycle turbines would cause greatest risk to light aircraft.

Also, there is the potential for additional thermal plume merging between the gas turbine stacks and the ACC. This merging could potentially increase the plume heights where vertical velocities of 4.3 m/s are exceeded under worst case conditions. Calm/low wind speed conditions (wind speeds less than 0.5 m/s) conducive to the formation of worst-case thermal plume velocities would occur on average approximately 3.82 percent of the time.

PROPOSED CONDITIONS OF CERTIFICATION

The conditions of certification for **Traffic and Transportation** are located in the Conditions of Certification Compendium at the back of this Final Staff Assessment.

REFERENCES

BEST, P. et al. 2003. Aviation Safety and Buoyant Plumes. Presented at the Clean Air Conference, Newcastle, New South Wales, Australia. By Peter Best, Lena Jackson, Mark Kanowski of Katestone Environmental, Toowong, Queensland, Australia and Kevin Spillane of Bendigo, Victoria, Australia.

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FAA 2015 – Federal Aviation Administration Memorandum – Technical Guidance and Assessment Tool for Evaluation of Thermal Plume Impact on Airport Operations (September 24, 2015).

MITRE 2012 – Expanded Model for Determining the Effects of Vertical Plumes on Aviation Safety, Gouldley, Hopper and Schwalbe, MITRE Product MP 120461, September 2012.

MITRE 2016 – Center for Advanced Aviation System Development [http://www.mitre.org/centers/center-for-advanced-aviation-system-development/who-we-are], website accessed 2-23-2016.

PHPP 2015g – Galati Blek LLP (TN 205520). Revised Petition to Amend (RPTA) Appendices. Submitted to CEC/Docket Unit on July 27, 2015

PHPP 2016dd – Marie Fleming Day/Zen LLC, Palmdale Energy LLC's Air Cooled Condensers Plume Analysis (TN 211662). Submitted to CEC/Docket Unit on May 27, 2016.

PALMDALE ENERGY PROJECT (08-AFC-9C)
Petition to Amend the Final Commission Decision
TRANSMISSION LINE SAFETY AND NUISANCE
Testimony of Obed Odoemelam, Ph.D.

SUMMARY OF CONCLUSIONS

The Petition to Amend (PTA) the Palmdale Hybrid Power Project (PHPP) proposes project modifications that would not change existing **Transmission Line Safety and Nuisance (TLSN)** Conditions of Certification. These certification requirements were intended in the Commission's Final 2011 Decision to ensure that any transmission line safety and nuisance impacts would be less than significant. Therefore, in accordance with the California Environmental Quality Act (CEQA) Guidelines section 15162 (Cal. Code Regs., tit. 14, § 15162), staff concludes that no supplementation to the 2011 Decision is necessary for **TLSN**. The Committee may rely upon the environmental analysis and conclusions of the 2011 Commission Decision with regards to **TLSN** and does not need to re-analyze them. Staff's assessment shows that the proposed design and operational plan would not affect the ability of the amended PHPP (renamed Palmdale Energy Project (PEP)) to comply with applicable laws, ordinances, regulations, and standards (LORS) given that the previously-approved conditions of certification would be retained.

INTRODUCTION

The safety and nuisance impacts from operating transmission lines depend on compliance with specific nuisance and safety LORS. Compliance is ensured by maintaining these impacts within levels considered appropriate by the California Utilities Commission. The owner of the Commission-permitted PHPP established the adequacy of their proposed design and operational plan before the California Energy Commission (Energy Commission) which approved the proposal and specified the five conditions of certification necessary. The project owner is proposing the same compliance measures for PEP. Staff has reviewed the related Energy Commission Decision along with the owner's amendment request documents to determine whether or not the proposed modification would affect the ability of PEP to comply with applicable LORS.

SUMMARY OF THE DECISION

In its 2011 Decision (CEC 2011b), the Energy Commission found the design, routing and operational plan for PHPP transmission line adequate to ensure operation without adverse safety and nuisance impacts. To ensure implementation of the necessary mitigation measures, the Decision included staff's proposed **TLSN** Conditions of Certification **TLSN-1** through **TLSN-5**.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

There have been no changes to the transmission line-related LORS of concern to staff since the Energy Commission's Decision was published in August 10, 2011 regarding PHPP.

ENVIRONMENTAL IMPACT ANALYSIS

As more fully described in the **Project Description and Transmission System Engineering** sections, the proposed PEP is a facility without the solar thermal generating component proposed for the Commission-approved PHPP. Two alternative routes were approved for PHPP's tie-line; the applicant's proposed line route, and staff's Alternative Route 4. The only proposed modification to the already approved transmission scheme relates to the point of connection between the facility's proposed 230-kV tie-line and the area's electric power grid to which PEP would be connected at SCE's existing Vincent Substation south of Palmdale. The proposed route modification would involve using an additional 1,800 feet of transmission conductor that would run from the facility's switchyard to a point further west on Avenue M than proposed for PHPP. This new line segment would be located on three transmission poles.

The applicant has provided the design of the proposed support tower design as necessary for compliance with the National Electrical Safety Code (NESC), CPUC's General Order 95 (GO-95) and other applicable safety requirements.

COMPLIANCE WITH LORS

As discussed in staff's analysis for the approved PHPP, current CPUC policy on minimizing the field and non-field impacts of any line is to design and operate the line according to the guidelines of the main area utility lines to which the line would be connected. The utility in this case is the Southern California Edison (SCE). Since the proposed PEP line would be designed according to the respective requirements of GO-95, GO-52, GO-128, GO-131-D, and Title 8, Section 2700 et seq. of the California Code of Regulations, and operated and maintained according to current SCE guidelines, staff considers the proposed design and operational plan to be in compliance with the applicable LORS.

RESPONSE TO PSA COMMENTS

Staff received no PSA comments from the project owner, the public, interveners, agencies, in the area of **Transmission Line Safety and Nuisance**.

CONCLUSIONS AND RECOMMENDATIONS

The project owner proposes to implement the same design, operational and routing plan approved in the Commission's 2011 Decision on PHPP along with the five implementing conditions of certification. Since the related mitigation requirements would be adequate to minimize the safety and nuisance impacts of specific concern to staff, we conclude that the proposed modification would not affect PEP's ability to comply with the applicable transmission line safety and nuisance LORS.

CONDITIONS OF CERTIFICATION

The conditions of certification for TLSN are located in the
Conditions of Certification Compendium at the back of this Final Staff Assessment

REFERENCES

PHPP 2015c – Galati Blek LLP (TN 205394-1) Revised Petition to Amend (RPTA) dated July 17, 2015. Submitted to CEC/Eric Veerkamp on July and docketed on July 20, 2015

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PALMDALE ENERGY PROJECT (08-AFC-9C)
Petition to Amend the Final Commission Decision
VISUAL RESOURCES STAFF ANALYSIS

Prepared by: Mark R. Hamblin

SUMMARY OF CONCLUSIONS

Staff has reviewed the Petition to Amend (PT) the 2011 California Energy Commission Final Decision (Decision) for the Palmdale Hybrid Power Project (PHPP) and has determined that the proposed changes to the licensed project would not create new significant visual impacts or increase the severity of previously identified significant visual impacts. Therefore, in accordance with the California Environmental Quality Act (CEQA) Guidelines section 15162, staff concludes that supplementation of the Commission Decision is not required. Staff also concludes that the amended project would remain in compliance with all applicable visual resources-related laws, ordinances, regulations, and standards (LORS).

Conditions of Certification **VIS-2** through **VIS-5** in the Decision would ensure that the amended PHPP would not have significant adverse impacts on visual resources and would ensure the amended project continues to comply with LORS.

INTRODUCTION

Staff reviewed the PTA (Palmdale Energy, LLC 2015a) and the Commission Decision (CEC 2011b) to determine whether the proposed changes to the licensed PHPP would cause new significant impacts or increase the severity of previously identified significant impacts. The current project owner's (Palmdale Energy, LLC) proposed redesign of the licensed project includes the following visual resources-related changes:

- Elimination of 250 acres of parabolic solar-thermal collectors with associated heat transfer equipment;
- A redesign of the power block; the heat recovery steam generator (HRSG) exhaust stacks are moved to the east and the combustion turbine inlets to the west;
- An increase in HRSG exhaust stack height from 145 feet to 160 feet;
- Replacing the evaporative cooling tower with a 135-foot tall air-cooled condenser (ACC);
- The addition of three 230-kV transmission line towers along the south side of East Avenue M north of the new 50 acre project site; and
- An extension of the generation tie-line west approximately 1,800 feet along the south side of East Avenue M.

Due to the facility redesign, the project owner has requested deleting Condition of Certification **VIS-1** pertaining to screening of the construction laydown area.

SUMMARY OF THE DECISION

The PHPP as licensed consisted of a hybrid of natural gas-fired combined-cycle generating equipment integrated with solar thermal generating equipment to be developed on an approximately 333-acre site. The most visible features of the gas-fired portion of the PHPP included two 145-foot tall HRSG stacks, one 59-foot tall ten-cell cooling tower, two 70-foot tall inlet air filters, and a 70-foot tall steam turbine generator (STG) enclosure. The solar portion consisted of a 250-acre solar field of parabolic solar-thermal collectors and associated heat transfer equipment arranged in rows.

The Decision analyzed visual impacts from four Key Observation Points (KOPs) and determined that impacts would be less than significant with implementation of Conditions of Certification **VIS-1** through **VIS-4**.

The four KOPs were:

- KOP 1 – Looking west toward the PHPP site from East Avenue M;
- KOP 2 – Looking south from 30th Street toward East Avenue M and the PHPP site;
- KOP 3 – Looking north from Pearlblossom Highway toward the transmission line crossing of the highway; and
- KOP 4 – Looking east toward the PHPP site near the intersection of Sierra Highway and East Avenue M.

The PHPP Final Decision found the proposed project in conformance with the applicable laws related to visual resources with Conditions of Certification **VIS-1** and **VIS-5**.

The PHPP license includes the following visual resources conditions of certification:

- **VIS-1**: Construction Screening
- **VIS-2**: Surface Treatment Of Project Structures And Buildings
- **VIS-3**:Construction Lighting
- **VIS-4**: Permanent Exterior Lighting
- **VIS-5**: Landscaping

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS COMPLIANCE

Visual Resources Table 1 lists the visual resources-related LORS identified in the Commission Decision. Staff identified no new relevant federal, state, or local LORS pertaining to aesthetics and scenic resources. The amended project would remain in compliance with these LORS.

Visual Resources Table 1
Applicable Laws, Ordinances, Regulations, and Standards (LORS)

County of Los Angeles General Plan Chapter VI – Scenic Resources	The county plan recognizes that the coastline, mountain vistas, and other scenic feature of the region are a significant resource for county residents and businesses.
City of Palmdale General Plan Environmental Resources Policy ER 1.2.2 Implementation Program G	The plan designates several roadways, including the Pearlblossom Highway, as designated scenic highways.
City of Palmdale Municipal Code Section 1.4.04	The municipal code requires protection and preservation of vegetation, particularly Joshua trees.

ENVIRONMENTAL IMPACT ANALYSIS

Staff has considered whether the proposed changes to the licensed project would create new significant visual impacts or increase the severity of previously identified impacts. The most significant changes to the licensed project are the elimination of the 250-acre solar field, which reduces the site footprint from 333 acres to 50 acres, and the replacement of the 59-foot tall wet cooling tower and associated visible water vapor plumes with a 135-foot tall ACC. The increased HRSG stack height (from 145 feet to 160 feet) and the 1,800-foot-long extension of the transmission line along East Avenue M would add negligibly to the visual effects of the project.

Staff's analysis of the PEP is organized around three topics: impacts on visual quality from project structures, impacts from visible plumes, and impacts from light and glare.

IMPACTS ON VISUAL QUALITY FROM PROJECT STRUCTURES

The Commission found the visual impacts of the PHPP structures as seen from KOPs 1 through 4 to be less than significant with implementation of Condition of Certification **VIS-2** (Surface Treatment of Project Structures and Buildings). To represent the amended project, the project owner provided PTA Figure 6.5-1, which depicts the PEP, as it would be seen from KOP 4, the only KOP analyzed in the Decision that is not dominated by the solar array and from where the power block can be clearly viewed. Staff has included this figure and Visual Resources Figure 6B from Decision at the end of this section of the Staff Assessment to compare the amended project's effects to the licensed project's effects. Although the PEP would include a new structure of considerable height – the ACC – it would eliminate the visual effects of the 250-acre solar mirror field. The new power block would appear similar, but would be rotated 180 degrees. The overall reduced visual effects of the amended project's structures would also be less than significant with implementation of **VIS-2**.

With the reduction of the original facility site from 333 acres to 50 acres, the new north boundary of the facility site would not border on East Avenue M. The north boundary of the facility site is approximately 1,600 feet south of East Avenue M. The new 20-acre construction laydown is approximately 1,000 feet south of East Avenue M.

The land between East Avenue M and the construction laydown area is undeveloped, and consists of native and non-native plant communities that include creosote bush scrub, saltbush scrub, and Joshua tree woodland. These plant communities disrupt and/or limit surface level viewing by motorists on East Avenue M. Therefore, the requirement in Condition of Certification **VIS-1** to screen construction activities and equipment on the project site from the views of motorists on East Avenue M is no longer necessary.

The project owner has proposed deletion of **VIS-1**; staff concurs with this request.

IMPACTS FROM VISIBLE WATER VAPOR PLUMES

The PTA replaces the evaporative cooling tower with an ACC unit. An ACC uses air instead of water to cool superheated steam exiting the steam turbine. The use of an ACC eliminates the formation of visible plumes.

IMPACTS FROM LIGHT AND GLARE

The PTA eliminates 250 acres of parabolic solar-thermal collectors with associated heat transfer equipment. The elimination of parabolic solar-thermal collectors avoids specular reflection causing glare onto offsite properties and roads. The removal of the solar field would also reduce the number of light fixtures that could potentially adversely affected nighttime views. The PEP's impacts from light and glare would be substantially less than the PHPP.

RESPONSE TO PSA COMMENTS

Staff received no comments from the project owner, the public, interveners, agencies, in the area of **Visual Resources**.

CONCLUSIONS AND RECOMMENDATIONS

Staff concludes that the proposed changes to the PHPP would not create new significant visual impacts or increase the severity of previously identified significant visual impacts. Because of the changes to the site, Condition of Certification **VIS-1** is no longer necessary and can be deleted. Therefore, in accordance with CEQA Guidelines section 15162, staff concludes that supplementation of the Decision is not required. Staff also concludes that the amended project would remain in compliance with all applicable visual resources-related LORS.

Remaining Conditions of Certification **VIS-2** through **VIS-5** in the Decision would ensure that the PEP would not have significant adverse impacts on visual resources and would comply with LORS.

CONDITIONS OF CERTIFICATION

The proposed conditions of certification for **Visual Resources** are located in the Conditions of Certification Compendium at the back of this Final Staff Assessment.

REFERENCES

California Energy Commission. Palmdale Hybrid Power Project Commission Decision. Dated August 10, 2011. Docketed August 15, 2011.

Palmdale Energy LLC. Petition to Amend the License for the Palmdale Hybrid Power Project, Palmdale, California. Dated July 17, 2015. Docketed July 20, 2015.

VISUAL RESOURCES - FIGURE 6B
Palmdale Hybrid Power Project - View from KOP-4 Looking East Toward PHPP Site Near East M Avenue With Project Structures and 20th Percentile Plume - Simulated Condition

VISUAL RESOURCES

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: PSA Supplemental Figure 5.15-5c

VISUAL RESOURCES

FIGURE 6.5-1 GRAPHICAL DEPICTION OF MODIFIED PROJECT ON VISUAL SIMULATION KOP-4

PALMDALE ENERGY PROJECT (08-AFC-9C)
REVISED PETITION FOR AMENDMENT JULY 2015

PALMDALE ENERGY PROJECT (08-AFC-9C)

Petition to Amend the Final Commission Decision

WASTE MANAGEMENT

Testimony of Ellen Townsend-Hough

SUMMARY OF CONCLUSIONS

The proposed changes to the PHPP would not create new significant impacts related to waste management. Previously identified impacts would be reduced in severity. Therefore, staff concludes that supplementation to the Decision (CEC 2011b) for the PHPP is not necessary in accordance with Section 15162 of the CEQA Guidelines (Cal. Code Regs., tit. 14, § 15162). The Committee may rely upon the environmental analysis and conclusions of the Commission Decision with regards to waste management and does not need to re-analyze them.

Although supplementation under 15162 is not necessary, changes to the conditions of certification in the Decision are needed as a result of the elimination of the solar component and wet cooling of the licensed project. A number of conditions of certification should be modified or deleted to incorporate changes associated with the PTA and reflect updates in regulatory requirements. Conditions of certification **WASTE-5**, **WASTE-6**, and **WASTE-10** were modified to reflect changes in the project owner's reporting requirements, and/or remove reference to PHPP. Condition of Certification **WASTE-9** would no longer be required; the city of Palmdale would be responsible for waste conservation programs within the city's limits and **WASTE-6** would ensure compliance with their requirements. The Therminol Heat Transfer Fluid and the cooling tower were eliminated from PEP; therefore Conditions of Certification **WASTE-11** and **WASTE-12** would no longer be required.

The amount of waste generated by the PEP would be significantly less than the currently licensed PHPP and would not significantly impact nonhazardous or hazardous landfill capacity. Additionally, implementation of the existing conditions of certification would mitigate to less than significant the impacts of PEP and would ensure PEP complies with the applicable waste management laws, ordinances, regulations, and standards (LORS).

INTRODUCTION

Staff reviewed the Petition to Amend (PTA) and the California Energy Commission Final Decision (Decision) (CEC 2011b) to determine whether the proposed changes to the licensed Palmdale Hybrid Power Project PHPP would cause new significant impacts or increase the severity of previously identified significant impacts. The changes to the PHPP include eliminating the solar energy component and reconfiguring the two-on-one combined-cycle power block configuration to incorporate new gas turbine technology. [1]

[1] The petition also requests that the project's name be changed to Palmdale Energy Project.

SUMMARY OF THE DECISION

The Decision did not find any immitigable impacts to waste management. The Decision required conditions **WASTE-1** through **WASTE-14** to account for the different types of wastes that would be generated during the construction and operation of the proposed project and must be managed appropriately to minimize the potential for adverse human and environmental impacts.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

New and updated LORS that would apply to PEP since the licensing of PHPP in 2011 are briefly described below.

Waste Management Table 1
Laws, Ordinances, Regulations, And Standards

2013 CALGREEN Code Division 5.1 - Non Residential Mandatory Measures: Material Conservation and Resource Efficiency-Section 5.408	Construction waste management - recycle and/or salvage for reuse a minimum of 50 percent of the nonhazardous construction and demolition waste (C&D) or meet a local C&D ordinance, whichever is more stringent.
2013 CALGREEN Code Division 5.1 Section 5.408.1.1	Construction waste management plan. Where a local jurisdiction does not have a C&D waste management ordinance that is more stringent, submit a construction waste management plan that: (1) identifies C&D waste material to be diverted from disposal to be recycled, reused, or salvaged; (2) determines if C&D waste can be sorted on site; (3) identifies diversion facilities; and (4) specifies the amount of C&D waste material diverted by weight or volume.

Management of wastes generated during construction and operation of the PEP would not result in any significant adverse impacts and would comply with applicable waste management laws, ordinances, regulations, and standards if the measures proposed in the PTA and staff's proposed conditions of certification are implemented.

Construction and demolition (C&D) waste can be a significant portion of a jurisdiction's waste stream, and diverting it from landfills can help jurisdictions achieve and maintain their diversion goals established by AB939. Effective January 1, 2014, CALGreen mandates permitted non-residential building construction, demolition and certain additions and alteration projects recycle and/or salvage for reuse a minimum 50 percent of the nonhazardous C&D debris generated during the project (CALGreen Sections 5.408, 301.1.1, and 301.3). To comply with this new law, Condition of Certification **WASTE-6** has been modified to require the project owner provide Construction Waste Management Plans (CWMP) to the Compliance Project Manager (CPM) and the city of Palmdale Building and Safety Department.

ENVIRONMENTAL IMPACT ANALYSIS

On August 15, 2011, the city of Palmdale received a Final Decision from the California Energy Commission to construct and operate a nominal 570 megawatt (MW) hybrid natural gas-fired combined-cycle, called PHPP, integrated with solar thermal generating equipment; however, the project was never built. The PTA filed April 30, 2015 proposes to eliminate the solar energy component, reduce the size of the project site, add an Air Cooled Condenser (ACC) and make a number of other changes. **Waste Management Table 2** provides a limited comparison of the licensed PHPP project to the proposed PEP PTA (PHPP 2015b page 2-2). For a complete description of the PTA refer to the PEP **Project Description**.

Waste Management Table 2
Licensed vs. Amended Palmdale Features Potentially Impacting Waste Management

Feature	Licensed PHPP	PEP
Power Production	Solar parabolic trough collectors and two on one combined cycle power block	Eliminate solar and 260,000 gallons of Therminol
	2 GE gas turbines, 2 heat recovery steam generators, 1 steam generator	2 Siemens SGT6-5000Fs gas turbines, 2 heat recovery steam generators, 1 steam generator
Project footprint	333 acres	50 acres
Area of temporary construction laydown and parking	50 acres	20 acres
Construction Water	807 acre-feet	<100 acre-feet
Cooling	Wet cooling tower	ACC, Elimination of cooling tower sludge
Operational Water	4,125 acre feet per year (AFY)	320 AFY
Wastewater pipeline	One-mile sanitary wastewater pipeline	1/4-mile sanitary wastewater pipeline
Wastewater	Brine Concentrator/Crystallizer system for waste water treatment	Waste streams consisting of combustion turbine evaporative cooler blowdown, water treatment system reject, and plant drains will be discharged to the sewer system

Sources: CEC 2011b, PHPP 2015F, PHPP 2015G

The project includes a number of previously approved linears:

- an 8.7-mile Southern California Gas Company natural gas pipeline;
- an 1-mile potable water pipeline connecting to the Los Angeles County Waterworks District No. 40 potable water pipeline

- Construction of a 7.4-mile distribution pipeline. This pipeline would connect the Palmdale Water Reclamation Plant and the City of Lancaster Advanced Waste Water Treatment Plant at the existing pipeline terminus at Sierra Highway and East Avenue M,
- a 0.25-mile pipeline connecting to a city of Palmdale sewer pipeline, the approved project included a 1-mile pipeline connection, and

A new feature, the PEP also includes:

- a 1,800-feet extension to the approved 35.6-mile generation tie-line (PHPP 2015b).

For all wastes, the applicant would be required to recycle and/or dispose of hazardous and nonhazardous wastes at facilities licensed or otherwise approved to accept the wastes. Because hazardous wastes would be produced during both project construction and operation, the PEP project would be required to obtain a hazardous waste generator identification number from United States Environmental Protection Agency (EPA). The PEP 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.

The city of Palmdale Building and Safety Department would receive all information related to construction waste and not Los Angeles County; therefore Condition of Certification **WASTE-9** would be eliminated. The PTA would eliminate the solar parabolic troughs and the cooling tower from the project. The elimination of the solar generation technology would eliminate 260,000 gallons of the Therminol heat transfer fluid (HTF). Therefore, Condition of Certification **WASTE-11** requiring hazardous waste classification of HTF contaminated soil would no longer be required**.** With the addition of an ACC and elimination of wet cooling and its sludge, Condition of Certification **WASTE-12** requiring the testing of cooling tower sludge would also be eliminated.

SITE CONDITIONS

Staff used an environmental site assessment prepared by the Project Owner to identify whether there are any site conditions which may pose a hazard to the environment, construction workers or to the general public, and evaluate whether any mitigation should be required to ensure no significant impacts to any of these receptors. The original PHPP Phase I Environmental Site Assessment (ESA), in conformance with the general scope and limitations of the American Society Testing and Materials Standard (ASTM) Practice E 1527-05, was completed by the ENSR Corporation for the city of Palmdale in May 2008, for the 377-acre project site (PHPP 2008a). An updated Phase I ESA was performed in conformance with the general scope and limitations of ASTM Standard Practice E 1527-13 for ESAs. The ESA was completed in June 2015 and 109 acres of vacant desert was evaluated. The Phase I ESA concluded that there were no observations of underground storage tanks, potable water wells, monitoring wells, clarifiers, septic tanks, leach fields, or illicit dumping (PHPP 2015V). There are no buildings or structures on the site, thus curbing potential concern about asbestos-containing materials, or lead-paint.

The USAF Plant 42 located adjacent to the site was identified as having twenty nine potentially contaminated areas of concern. The area of concern closest to the PEP site is 590 feet due east and the area was remediated and closed by the Department of Toxic Substances Control (DTSC) in 2004 (PHPP 2015V).

Past agricultural land use can result in remnant concentrations of potentially hazardous pesticides and other agricultural chemicals. Portions of the gen-tie alignment would traverse properties where there has been agricultural activity. Condition of Certification **WASTE-1** would require evaluation of potentially contaminated sites for the entire length of the transmission route where construction would occur. **WASTE-1** would also require a Phase I ESA and Health Risk Assessment, as appropriate, of those areas that have not been evaluated in the Phase I ESA. **WASTE-2** would require the project owner to test for residual legacy pesticides/herbicides[2] on currently or historically farmed land in agricultural areas where transmission line construction would occur. **WASTE-3** would require an environmental professional be available for consultation in the event contaminated soil is encountered. **WASTE-4** requires that an environmental professional inspect the site and determine what is required to characterize the nature and extent of contamination, if found on site, and report to CPM and the DTSC with findings and recommended actions. **WASTE-5** would require that any additional work be conducted under the oversight of DTSC, with review and approval from the CPM.

CONSTRUCTION WASTE

Site preparation and construction of the proposed project and its associated facilities is expected to last approximately 25 months (PEP 2015c page 2-31) and generate both nonhazardous 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 as described in modified Condition of Certification **WASTE-6**. **WASTE-6** was modified to require that the Construction Waste Management Plan be submitted to the city of Palmdale's Building and Safety Department and the Compliance Project Manager. Condition of Certification **WASTE-9** would be eliminated because the city of Palmdale would be the responsible local agency for receiving all construction waste information not the County of Los Angeles. Please see the **Soil and Water Resources** section of this document for more information on the management of project construction wastewater.

Nonhazardous Wastes

Nonhazardous waste streams from construction may include packing paper, cardboard, wood, glass, and plastics. These would be generated from packing materials, waste construction lumber, insulation materials, and empty containers. PHPP construction which included the solar project expected to produce 43 cubic yards per week of these wastes (CEC 2010b). Due to elimination of the solar field, staff would expect PEP to produce significantly less nonhazardous construction waste than PHPP. Non-recyclable items (such as insulation, other plastics, food waste, paint containers, and packing materials) would be disposed at a Class III landfill. Waste would be recycled where practical (PHPP 2008a). A Construction Waste Management Plan would be submitted

[2] Legacy pollutants are chemicals often used or produced by industry which remain long after they were introduced. Examples are organochlorine, DDT, dieldrin, and toxaphene.

in compliance with a modified **WASTE-6** and would be submitted to the city of Palmdale and the CPM. The Plan would comply with Section 5.408.1.1 of the 2013 California Green Building Standards Code.

Hazardous Wastes

During construction, anticipated hazardous wastes include waste paint, spent construction solvents, waste cleaners, waste oil, oily rags, waste batteries, and HRSG cleaning waste. Empty hazardous material containers would be returned to the vendor or regularly disposed at a permitted Class I hazardous waste facility; solvents, used oils, paint, oily rags, and adhesives would be recycled and spent batteries would be disposed at a recycling facility (CEC 2010a). Due to elimination of the solar field, staff would expect PEP to produce significantly less hazardous construction waste than PHPP.

Should any construction waste management-related enforcement action be taken or initiated by a regulatory agency, the project owner would be required by Condition of Certification **WASTE-7** to notify the CPM. Along with the notification, the project owner must describe how the violation will be corrected and include a timeline for completion of the correction. In the event that construction excavation, grading, or trenching activities for the proposed project encounter potentially contaminated soils, specific waste handling, disposal, or other precautions may be necessary pursuant to hazardous waste management LORS (CEC 2010b).

The project owner would be required to obtain a unique hazardous waste generator identification number for the site prior to starting construction, pursuant to Condition of Certification **WASTE-8**. Wastes would be accumulated on site for less than 90 days and then properly manifested, transported to, and disposed of at a permitted hazardous waste management facility by licensed hazardous waste collection and disposal companies.

OPERATION WASTE

The proposed PEP project would generate both non-hazardous and hazardous wastes in solid and liquid forms under normal operating conditions. Due to elimination of the solar field, staff would expect PEP to produce significantly less operation waste than PHPP. Before operations can begin, the project owner would be required to develop and implement an Operations Waste Management Plan as required in the proposed Condition of Certification **WASTE-10**.

Nonhazardous Solid Wastes

PEP will produce facility operation and maintenance waste. These wastes will include rags, turbine air filters, broken and rusted metal and machine parts, defective or broken electrical materials, empty containers, typical refuse generated by workers and small office operations, and miscellaneous solid wastes (PHPP 2008a). The PTA includes an ACC as part of the new design and a zero liquid discharge (ZLD) system would not be needed for wastewater processing. Operation wastewater would now be disposed in the city sewer system. Therefore, the two tons per year of sludge that would have been generated by a ZLD system would no longer occur. Condition of Certification **WASTE-12** requiring the testing of ZLD sludge should be eliminated.

Hazardous Wastes

The project owner/operator would be considered the generator of hazardous wastes at the site during facility operations. The hazardous waste generated would consist of hydraulic fluids, oils, grease, oily filters, oily rags, batteries, fluorescent bulbs, and spent catalysts (PHPP 2008a). The project owner's unique hazardous waste generator identification number would be obtained prior to construction in accordance with proposed Condition of Certification **WASTE-8**, and would be retained and used for hazardous waste generated during facility operation.

Condition of Certification **WASTE-11,** which requires a DTSC consultation for onsite storage and treatment of HTF-contaminated soils, should be deleted to reflect that the project would not have a Land Treatment Unit or onsite soil treatment.

Spills and unauthorized releases of hazardous materials or hazardous wastes may generate contaminated soils or cleanup materials that may also require management and disposal as hazardous waste. To ensure proper cleanup and management of any contaminated soils or waste materials generated from hazardous materials spills, staff proposes retaining Condition of Certification **WASTE-13,** requiring the project owner/operator to document, clean up, and properly manage and dispose of wastes from any hazardous materials spills or releases in accordance with all applicable federal, state, and local requirements (CEC 2010b).

The amounts of hazardous wastes generated during the operation of the PEP project would be limited, with source reduction and recycling of wastes implemented whenever possible. The hazardous wastes would be temporarily stored on site, transported off site by licensed hazardous waste haulers, and recycled or disposed of at authorized disposal facilities in accordance with established standards applicable to generators of hazardous waste (Title 22, CCR, §66262.10 et seq.). Should any operations waste management-related enforcement action is taken or initiated by a regulatory agency, the project owner would be required by Condition of Certification **WASTE-7** to notify the CPM when advised of any such action and provide information on how the violation(s) causing the enforcement action would be corrected (CEC 2010b).

IMPACT ON EXISTING WASTE DISPOSAL FACILITIES

Nonhazardous Solid Wastes

During construction and operation of PHPP it was estimated that , approximately 43 cubic yards per week of nonhazardous solid waste (including scrap wood, concrete, steel, glass, plastic, paper, aluminum, and food) would be generated and recycled or disposed of in a Class III landfill (PHPP 2008a). Due to elimination of the solar field, staff would expect PEP to produce significantly less nonhazardous waste than PHPP. Comparing PEP to other projects of similar size, the project could produce as much 50 cubic yards per year of nonhazardous waste during operation.[3]

CalRecycle Solid Waste Information System lists 10 solid waste (Class III) waste disposal facilities in Los Angeles County that could potentially take the non-hazardous construction and operation wastes generated by the PEP project. The combined

[3] Project size compared to waste estimates for Colusa, and Sutter Energy Projects.

remaining capacity for the landfill facilities is approximately 118.8 million cubic yards.[4] The Antelope Valley Public Landfill, the landfill nearest to the project, has 15 million tons of remaining capacity (Los Angeles County 2015). The total amount of nonhazardous waste generated from project construction and operation would contribute much less than 1 percent of the available landfill capacity. Staff finds that disposal of the solid wastes generated by the PEP project could occur without significantly impacting the capacity or remaining life of any of these facilities.

Hazardous Wastes

Hazardous wastes generated during construction and operation would be recycled to the extent possible and practical. Any wastes that cannot be recycled would be transported off-site to a permitted Class I landfill. Based on previous licensed projects PEP could produce as much as 6.75 tons of hazardous waste during construction and one ton per year during operation. Two hazardous waste (Class I) disposal facilities are currently accepting waste and could be used to manage PEP wastes: the Clean Harbors Buttonwillow Landfill in Kern County and the Chemical Waste Management Kettleman Hills Landfill in Kings County. In total, there is a combined excess of 15.5 million cubic yards of remaining hazardous waste disposal capacity at these landfills.

Given the availability of recycling facilities for high volume hazardous wastes such as used oil and solvents, along with the remaining capacity available at Class I disposal facilities, staff concludes that the volume of hazardous waste from the PEP project requiring off-site disposal would be minimal and would therefore not significantly impact the capacity or remaining life of the Class I waste facilities.

The wastes generated by the changes proposed in the PTA would incrementally increase the volumes of waste requiring off-site management and disposal at local landfills, but the increase would be significantly less than the PHPP. The PEP project's proposed waste management methods and mitigation measures (implementation of source reduction, waste minimization and recycling), along with the proposed Conditions of Certification discussed below (including compliance with the city of Palmdale's Construction Waste Management Plan requirements, would ensure that wastes generated by the proposed project would not result in a significant impact to local waste management and disposal facilities.

CUMULATIVE IMPACTS AND MITIGATION

In general, cumulative impacts consist of impacts that are created as a result of the proposed project in combination with impacts from other closely related past, present, or reasonably foreseeable future projects. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over time (Cal. Code Regs., tit. 14, §15355.).

The **Land Use Section Cumulative Impacts Table** lists 26 projects that include transportation, energy, commercial and residential projects. The wastes generated by these projects and the proposed PEP would incrementally increase the volumes of

[4] http://www.calrecycle.ca.gov/SWFacilities/Directory/SearchList/List?COUNTY=Los+Angeles&FAC=Disposal&OPSTATUS=Active&REGSTATUS=Permitted

waste requiring offsite management and disposal at local or regional landfills, but the increase would be significantly less than the PHPP.

The projects vary in size, and there is no data detailing the amount of waste that would be generated from the various projects; however, all residential, commercial and industrial projects would have to comply with Cal Recycle, Mandatory Commercial Recycling, Title 14, Division 7, Chapter 9.1.[5] and Title 24 (CALGreen). The implementation of these regulations would reduce solid waste disposal in the city of Palmdale and Los Angeles County. All of the projects listed would be required to recycle 50 to 75 percent of the waste generated from their project, thus minimizing the amount of waste generated from construction and demolition of new and current projects. The 2014 Los Angeles County – Countywide Integrated Waste Management Plan reports, in Appendix E8, that the Antelope Valley Landfill has 15 million tons of remaining capacity. The amended PEP's contribution would be much less than one percent of the county's waste generation.

Staff has concluded that the PEP project's proposed waste management methods and mitigation measures (implementation of source reduction, waste minimization and recycling), along with staff's proposed conditions of certification , would ensure that wastes generated by the proposed project would not result in a significant cumulative impact to local waste management and disposal facilities.

In the **Socioeconomics** section of this staff assessment, staff presents census information that shows that there are minority populations within one mile and six miles of the project. Staff concludes the population in the six-mile project buffer constitutes an environmental justice population, as defined by Environmental Justice: Guidance Under the National Environmental Policy Act (**Socioeconomics** Section). Since staff has added conditions of certification that would reduce the risk associated with hazardous waste to a less than significant level, staff concludes that there would be no significant impact from construction or operation of the power plant on minority populations. Therefore, there are no environmental justice issues for Waste Management.

RESPONSE TO PSA COMMENTS

Project Owner Comments

Comment:

In its comments on the PSA, Palmdale Energy, LLC's Final Comments on the Preliminary Staff Assessment, dated April 27, 2016 (TN211264), the Project Owner noted that Condition of Certification WASTE-14 was inadvertently omitted from the PSA.

Response to Comment:

Staff concurs and has added the WASTE-14 text to the FSA verbatim, this revision is noted in the document in **bold and underlined**.

[5] Regulatory requirements; Businesses and public entities that generate four or more cubic yards of solid waste per week, and multifamily residential dwellings that have five units or more, take action to reuse, recycle, compost or otherwise divert commercial solid waste from disposal.

Staff received no other comments from the project owner and no comments from the public, interveners, or agencies in the area of **Waste Management.**

CONCLUSIONS AND RECOMMENDATIONS

Staff concludes that supplementation to the California Energy Commission Final Decision (CEC 2011b) for the PHPP is not necessary in accordance with Section 15162 of the CEQA Guidelines (Cal. Code Regs., tit. 14, § 15162).

Management of the waste generated during construction, and operation of PEP would not result in any significant adverse impacts and would comply with applicable waste management laws, ordinances, regulations, and standards. As with the PHPP Decision, the amount of waste generated by the PEP would not significantly impact nonhazardous or hazardous landfill capacity. The implementation of the current and modified conditions of certification for PEP would mitigate impacts to below significance for the construction and operation of the project.

A number of conditions of certification should be modified or deleted to address changes associated with the PTA and reflect updates in regulatory requirements. Conditions of certification **WASTE-5**, **WASTE-6**, and **WASTE-10** were modified to reflect changes in the project owner's reporting requirements, and/or remove reference to PHPP. Condition of certification **WASTE-9** has been deleted as per the PEP July 20, 2015 PTA, TN205394; the city of Palmdale will be responsible for waste conservation programs within the city's limits and **WASTE-6** would ensure compliance. The Therminol Heat Transfer Fluid and the cooling tower were eliminated from PEP; therefore Conditions of Certification **WASTE-11** and **WASTE-12** have also been deleted as per the July 20, 2015 PTA, TN205394. Proposed changes to conditions of certification are provided below. **WASTE-14** was included in the PHPP Decision and was inadvertently left of the PEP PSA.

As with the licensed PHPP, the PEP as amended would be consistent with the applicable waste management laws, ordinances, regulations, and standards (LORS) if staff's proposed modification to conditions of certification is implemented.

CONDITIONS OF CERTIFICATION

The proposed conditions of certification for **Waste Management** are located in the Conditions of Certification Compendium at the back of this Final Staff Assessment.

REFERENCES

PETITIONER

PHPP 2008a - City of Palmdale/Stephen H. Williams, City Manager (TN 47383). Application for Certification, dated July 30, 2008. Submitted to Melissa Jones/CEC/Docket Unit on July 30, 2008

PHPP 2015a - Galati Blek LLP/Scott A. Galati and Thomas Cameron (TN 204458). Petition for Ownership Transfer and Declaration of Thomas Cameron in Support of Petition for Ownership Transfer, dated April 30, 2015. Submitted to CEC/Docket Unit on April 30, 2015

PHPP 2015b - Galati Blek LLP/Scott A. Galati (TN 204459). Petition to Amend, dated April 30, 2015. Submitted to Eric Veerkamp/CEC/Docket Unit on April 30, 2015

PHPP 2015c - Galati Blek LLP/Scott A. Galati (TN 205394-1). Revised Petition to Amend (RPTA), dated July 17, 2015. Submitted to CEC/Eric Veerkamp on July 17, 2015 and docketed on July 20, 2015

PHPP 2015d - Galati Blek LLP (TN 205394-2). Revised Petition to Amend (RPTA) Sections 2&3 Figures. Submitted to CEC/Eric Veerkamp on July 17, 2015 and docketed on July 20, 2015

PHPP 2015e - Galati Blek LLP (TN 205394-3). Revised Petition to Amend (RPTA) Sections 4&6 Figures. Submitted to CEC/Eric Veerkamp on July 17, 2015 and docketed on July 20, 2015

PHPP 2015f - Galati Blek LLP (TN 205450). Revised Petition to Amend (RPTA) Figure 2-7b Revised. Submitted to CEC/Docket Unit on July 21, 2015 and docketed on July 21, 2015

PHPP 2015g - Galati Blek LLP (TN 205520). Revised Petition to Amend (RPTA) Appendices. Submitted to CEC/Docket Unit on July 27, 2015

PHPP 2015u - DayZen LLC/Marie Fleming (TN 206797). Response to CEC Staff Data Request Set No. 1 (1-63), dated November 2015. Submitted to CEC/Docket Unit on November 30, 2015

PHPP 2015v - DayZen LLC/Marie Fleming (TN 206914). Response to CEC Staff Data Request Set No. 2 (64), dated December 2015. Submitted to CEC/Docket Unit on December 10, 2015

CALIFORNIA ENERGY COMMISSION

CEC 2010a - California Energy Commission/Terrence O'Brien (TN 57033). Memorandum of Understanding between the California Energy Commission and West Coast Code Consultants (WC3) for Design Review, Plan Check, and Construction Inspection of the City of Palmdale Hybrid Power Project. Submitted to CEC/Docket Unit on June 7, 2010

CEC 2010b - California Energy Commission (TN 59309). Palmdale Hybrid Power Project Final Staff Assessment, date submitted to CEC/Docket Unit Dec. 22, 2010, docketed Dec. 22, 2015

CEC 2011a - California Energy Commission (TN 61158). Palmdale Hybrid Power Project Presiding Members Proposed Decision, date submitted to CEC/Docket Unit June 16, 2011, docketed June 16, 2011

CEC 2011b - California Energy Commission (TN 61876). Palmdale Hybrid Power Project Final Commission Decision, date submitted to CEC/Docket Unit August 15, 2011, docketed August 15, 2011

CEC 2015b - California Energy Commission/Harriet Kallemyn (TN). Order Approving Transfer of Ownership from the City of Palmdale to Palmdale LLC, dated June 10, 2015. Submitted to CEC/Docket Unit on June 12, 2015

CEC 2015n - California Energy Commission/Eric Veerkamp (TN 206472). Petition to Amend Data Requests – Set 1 (Nos. 1-63), dated October 30, 2015. Submitted to Galati Blek, LLP, Scott Galati/CEC/Docket Unit on October 30, 2015

CEC 2015o - California Energy Commission/Eric W. Veerkamp (TN 206506). Petition to Amend Issues Identification and Scoping Report, dated November 3, 2015. Submitted to Commissioners Karen Douglas and Janea A. Scott/CEC/Docket Unit on November 3, 2015

CEC 2015s - California Energy Commission/Eric Veerkamp (TN 206777). Petition to Amend Data Request – Set 2 (No. 64), dated November 25, 2015. Submitted to Scott A. Galati, DayZen, LLC/CEC/Docket Unit on November 25, 2015

OTHERS

Los Angeles County 2015- County of Los Angeles Department of Public Works. Los Angeles County Countywide Integrated Waste Management Plan. Dated December 2015.

PALMDALE ENERGY PROJECT (08-AFC-9C)

Petition to Amend the Final Commission Decision

WORKER SAFETY/FIRE PROTECTION

Testimony of Alvin Greenberg, Ph.D.

SUMMARY OF CONCLUSIONS

The Petition to Amend (PTA) the 2011 California Energy Commission Final Decision (Decision)(CEC 2011b) for the Palmdale Hybrid Power Project (PHPP)(PHPP 2015d) changes the name of the Approved Project to the Palmdale Energy Project (PEP) and would eliminate the solar energy component, thus reducing the project site from 333 acres to 50 acres. It would remain located on the same parcel of land and the workers would be subjected to a similar power plant work environment while the risk of fire would be decreased due to the absence of solar heat transfer fluid at the project site. The impacts to the workers would remain the same or be lower than the risks posed by the original approved project and impacts to the local fire authority would be lower than for the approved project. Staff therefore has determined that the proposed amendments would not result in a significant impact to the public due to worker safety or fire protection practices at the project, and that the amended project would comply with all applicable laws, ordinances, regulations, and standards (LORS).

In accordance with California Environmental Quality Act (CEQA) Guidelines section 15162 (Cal. Code Regs., tit. 14, § 15162), staff concludes that no supplementation to the Decision is necessary for Worker Safety and Fire Protection. The Committee may rely upon the environmental analysis and conclusions of the Decision with regards to Worker Safety and Fire Protection and does not need to re-analyze them.

INTRODUCTION

Staff has reviewed the Decision and analyzed the proposed changes to the licensed Palmdale Hybrid Power Project (PHPP 2015d), which include eliminating the solar energy component and reconfiguring the two-on-one combined-cycle power block configuration to incorporate new gas turbine technology.

SUMMARY OF THE DECISION

In its 2011 Final Decision (CEC 2011b), the Commission found that the project owner will implement comprehensive Safety and Health Programs for both the construction and the operation phases of the project in order to protect workers; that the PHPP will include on-site fire protection and suppression systems; that the Los Angeles County Fire Department (LACFD) will provide fire protection and emergency response services to the project; and that existing fire and emergency service resources are adequate to meet project needs. The Commission also found that the PHPP will not result in direct or cumulative adverse impacts to the LACFD's emergency response capabilities.

The Commission found that as a Conclusion of Law, with the implementation of the Conditions of Certification, the PHPP would comply with all LORS related to worker safety and fire protection and that, therefore, the PHPP would not result in any

significant direct, indirect, or cumulative adverse worker safety and health impacts or impacts on the LACFD.

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS AND STANDARDS

Only one LORS applicable to the project has changed since the Commission Decision was published in August, 2011.

Worker Safety and Fire Protection Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable LORS	Description
Local (or locally enforced)	
2014 Los Angeles County Fire Code	The fire code contains general provisions for fire safety, including requirements for proper storage and handling of hazardous materials and listing of the information needed by emergency response personnel. Enforced by the Los Angeles County Fire Department (LACFD). The Los Angeles County Fire Code (Title 32) is based on the 2013 California Fire Code with amendments approved by Los Angeles County.

ENVIRONMENTAL IMPACT ANALYSIS

Staff has reviewed the petition for potential environmental effects and consistency with applicable LORS and has concluded that no supplementation to the 2011 Commission Decision is necessary for Worker Safety and Fire Protection, that the Committee may rely upon the environmental analysis and conclusions of the 2011 Commission Decision with regards to worker safety and fire protection, and does not need to reanalyze them due to the following:

- The changes in the PTA would not create new significant environmental effects or substantial increases in the severity of previously identified significant effects. In fact, the changes proposed in the PTA would reduce any environmental impact to a level even less than the approved project.
- The PTA does not propose substantial changes which would require major revisions of the Worker Safety and Fire Protection analysis in the Decision.
- The circumstances under which the PEP would be undertaken would not require major revisions of the Worker Safety and Fire Protection analysis in the Decision.

Staff's conclusion is supported by the following key factual information:

Only two LORS applicable to Worker Safety and Fire Protection have changed since the Decision was published in August 2011. One is simply an update of the fire code adopted and implemented by the local Fire Authority (the Los Angeles County Fire Department) and the other is addressing the need to enforce industry standard *NFPA 850* (listed in the existing LORS Table) by adding a newly-proposed Condition of Certification **WORKER SAFETY-11**.

- The worker safety and fire protection impacts of the PEP would be the same or less than those described in the Decision (CEC 2011b), that is, less than significant with the mitigation described in the Decision.
- Staff requested a detailed preliminary Operations Fire Prevention Plan that includes a Standard Operating Procedure (SOP) for the investigation and assessment of problems and/or failures of the fire suppression and detection systems and procedures to notify the LACFD and the Compliance Project Manager (CPM) of certain system failures or activations (Data Request #61; CEC 2015n). The project owner provided a response on February 5, 2016 (PHPP 2016a) that included a preliminary Fire Protection Plan and a preliminary outline of a SOP for addressing afire system impairment. Staff has reviewed these preliminary documents and finds that the petitioner has demonstrated an understanding for the need and utility of such plans and that these preliminary plans are adequate. Staff acknowledges that these preliminary plans will ultimately be revised and finalized upon completion of construction and will be reviewed and approved by the CPM as per existing Condition **WORKER SAFETY-2**.
- Staff also requested a clear description of the use of different sources of water for firefighting in Data Request #62 (CEC 2015n). The project owner provided a response on January 22, 2016 (PHPP 2015z). Staff finds that the explanation is clear in that potable water from LA County Waterworks District #40 will be used as a backup source and that adequate back-flow prevention devices would ensure the protection of the backup potable water supply from being infiltrated by the primary firefighting water supply from the reclaimed water storage tank.
- Because the PEP will be much smaller and will not use Therminol heat transfer fluid, a highly combustible material (and highly flammable at operating temperatures and pressures), the risk of a fire is less than that of the Approved Project and thus remains less than significant.
- Staff recommends the adoption of new condition **WORKER SAFETY-10** that would require the reporting to the CPM within 24 hours of any incidence of heat illness (heat stress, exhaustion, stroke, or prostration) occurring in any worker on-site and the reporting to the CPM the incidence of any confirmed case of Valley Fever in any worker on the site within 24 hours of receipt of medical diagnosis.
- Staff also proposes to clarify the enforceability of the fire protection best practices documented in industry standard *NFPA 850: Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations.* The project owner stated in the original application for certification that the project would be built to the NFPA 850 standard and staff concurred with this assessment in the Final Staff Analysis (CEC 2010b, page 4.14-18)) and the Decision contains such language as well (CEC 2011b, page 6.4-2). For power plants permitted by the Energy Commission, the Chief Building Official (CBO) is instructed through the Energy Commission's Delegate CBO manual to apply NFPA 850 during the construction process of the project. This measure has ensured that past projects have been built to the NFPA 850 standard. However, staff believes that because NFPA 850 is written as a set of "recommended" practices rather than "required" ones, the potential for confusion exists about whether conformance to NFPA 850 is indeed required. Staff therefore proposes Condition of Certification **WORKER**

SAFETY-11 which would require the project's compliance with NFPA 850, giving NFPA 850 the effectiveness and clear enforceability of a building code in its application to PEP. In any situations where both NFPA 850 and the Los Angeles County Fire Code have application, the more restrictive shall apply. This proposed condition of certification would clarify for all stakeholders the responsibilities of the project owner as they relate to NFPA 850.

- Staff also recommends the deletion of Condition of Certification **WORKER SAFETY-9** as there is no longer a solar component using Therminol heat transfer fluid.
- Staff analyzed the potential for the existence of cumulative impacts for the PHPP (CEC 2010b) and for the PEP. A significant cumulative fire protection impact is defined as the simultaneous emergency at multiple locations that would require the concurrent response for rescue, firefighting, hazardous materials spill control, and/or EMS response. Existing locations that would likely need emergency response, or locations where such facilities might likely be built, were both considered. A review of the potential locations in the area of the PEP that might be in need of more than the usual response from the LACFD found several proposed solar farms using photovoltaic cells within a 20-mile radius of the PEP. Staff consulted with the LACFD (LACFD 2015) about the potential for a cumulative impact and determined that no additional resources would be needed by the LACFD to respond to all projects. Therefore, no significant cumulative impact exists.

RESPONSE TO PSA COMMENTS

PROJECT OWNER COMMENTS

Comment:

The project owner commented in Palmdale Energy, LLC's Final Comments on the Preliminary Staff Assessment, docketed April 27, 2016 (TN211264), regarding the wording of **WORKER SAFETY-2** (found on page 4.12-5 of the PSA), the first bullet in Condition of Certification **WORKER SAFETY-2** refers to the solar array and therefore the words beneath and around the solar array should be removed.

Response to Comment:

Staff agreed to the modification at the PSA Workshop and the words, which are no longer applicable, have been removed from the FSA.

Staff received no other comments from the project owner, the public, interveners, agencies, in the area of **Worker Safety and Fire Protection**.

CONCLUSIONS AND RECOMMENDATIONS

Staff concludes that the PEP will not have any additional significant impacts on worker safety or fire protection at the proposed project site nor on the public in the community as the mitigation for the original project will mitigate for the proposed amended project as well.

Staff's proposed new condition **WORKER SAFETY-10** would require the reporting to the CPM within 24 hours of any incidence of heat illness (heat stress, exhaustion, stroke, or prostration) occurring in any worker on-site and the reporting to the CPM the incidence of any confirmed case of Valley Fever in any worker on the site within 24 hours of receipt of medical diagnosis. Staff's proposes new condition **WORKER SAFETY-11** would ensure that the project facility is built to comply with the NFPA 850 standards by allowing the CBO to enforce all of the applicable provisions.

Staff concludes that with the implementation of the existing conditions of certification and the newly proposed **WORKER SAFETY-10** and **11**, the proposed amendment would not have any adverse significant worker or public impacts due to worker safety or fire protection practices and that the PEP would comply with all LORS.

CONDITIONS OF CERTIFICATION

The proposed conditions of certification for **WORKER SAFETY** are located in the Conditions of Certification Compendium at the back of this Final Staff Assessment.

REFERENCES

CEC 2010b – California Energy Commission (TN 59309). Palmdale Hybrid Power Project Final Staff Assessment, date submitted to CEC/Docket Unit Dec. 22, 2010, docketed Dec. 22, 2015

CEC 2011b - California Energy Commission (TN 61876). Palmdale Hybrid Power Project Final Commission Decision, date submitted to CEC/Docket Unit August 15, 2011, docketed August 15, 2011

CEC 2015n - California Energy Commission/Eric Veerkamp (TN 206472). Petition to Amend Data Requests – Set 1 (Nos. 1-63), dated October 30, 2015. Submitted to Galati Blek, LLP, Scott Galati/CEC/Docket Unit on October 30, 2015

PHPP 2015z - DayZen LLC/Marie Fleming (TN 208550). Data Request 62. Submitted to CEC/Docket Unit on January 22, 2016.

PHPP 2016a - DayZen LLC/Marie Fleming (TN 210130). Preliminary Fire Protection Plan, dated February 2016. Submitted to CEC/Docket Unit on February 2, 2016

PHPP 2016b – DayZen LLC/Marie Fleming (TN 210166). Responses to Workshop Queries (1-8), dated February 2016. Submitted to CEC/Docket Unit on February 5, 2016

LACFD 2015 – Los Angeles County Fire Department, personal communication with Assistant Fire Chief Gerald Cosey, Division 5, December 10.

PHPP 2015d - Galati Blek LLP (TN 205394-2). Revised Petition to Amend (RPTA) Sections 2&3 Figures. Submitted to CEC/Eric Veerkamp on July 17, 2015 and docketed on July 20, 2015

Engineering Assessment

PALMDALE ENERGY PROJECT (08-AFC-9C)
Petition to Amend the Final Commission Decision
FACILITY DESIGN

Testimony of Edward Brady and Shahab Khoshmashrab

SUMMARY OF CONCLUSIONS

Similar to the conclusions in the 2011 Energy Commission Final Decision (Decision) for the Palmdale Hybrid Power Project (PHPP) (CEC 2011b), the Palmdale Energy Project (PEP) would comply with the applicable laws, ordinances, regulations, and standards (LORS) related to Facility Design. Therefore, in accordance with the California Environmental Quality Act (CEQA) Guidelines section 15162 (Cal. Code Regs., tit. 14, § 15162), staff concludes that no supplementation to the Decision is necessary for Facility Design. The Committee may rely upon the analysis and conclusions of the decision with regards to Facility Design and does not need to re-analyze them.

INTRODUCTION

Staff has reviewed the decision and analyzed the PEP, which includes eliminating the solar energy component, reconfiguring the two-on-one combined-cycle power block configuration to incorporate new gas turbine technology, and replacing the wet cooling tower with an air-cooled condenser (ACC). The following analysis evaluates the portions of the modified project that may affect the Facility Design analysis, findings, conclusions, and conditions of certification contained in the Decision.

SUMMARY OF THE DECISION

The Decision adopted the staff's conditions of certification that establish a design review and construction inspection process to ensure compliance with applicable engineering LORS and to confirm the PEP will be built in a manner to ensure human health and safety. In addition, those conditions of certification specify the roles, qualifications, and responsibilities of engineering personnel who will oversee project design and construction. They further require project design approval and construction inspection by the Energy Commission's delegate Chief Building Official (CBO) to ensure compliance with those conditions of certification and the LORS.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

LORS applicable to the project have not changed since the Decision was published in 2011 except the change in the applicable version of the California Building Standards Code (CBSC), from 2007 to 2013. The proposed amendment would not trigger new LORS that may not have been applicable to the original project.

PALMDALE ENERGY PROJECT (08-AFC-9C)
Petition to Amend the Final Commission Decision
GEOLOGY AND PALEONTOLOGY
Testimony of Christopher Dennis, P.G., C.Hg.

SUMMARY OF CONCLUSIONS

Staff concludes that the proposed amendment would have no new impacts to **Geology and Paleontology** and would not require any substantive changes beyond the updates to the laws, ordinances, regulations, and standards (LORS) referenced in the conditions of certification, as discussed below. Staff also concludes that the findings of fact from the 2011 California Energy Commission Decision (Decision) (CEC 2011b) for the Palmdale Hybrid Power Project (PHPP) would still apply to the amended Palmdale Energy Project (PEP). Therefore, in accordance with California Environmental Quality Act (CEQA) Guidelines section 15162, staff concludes that no supplementation to the Decision is necessary for Geology and Paleontology, and the Committee may rely on the environmental analysis and conclusions in the Commission Decision without additional analysis.

The potential adverse impacts to the PEP from seismic and geologic hazards during its design life would be less than significant provided Condition of Certification **GEO-1** is revised, as proposed herein, and **GEO-2** through **GEO-5** are implemented as originally adopted in the Decision. Staff proposes revisions to Condition of Certification **GEO-1** to ensure compliance with current design standards that protect the public health and safety from seismic and geologic hazards. These standards are found in the California Code of Regulations, Title 24, California Building Standards Code [California Building Code (2013)], adopted since licensing of the PHPP.

Staff concludes no new significant impacts to geologic or mineralogic resources would result from the PEP construction, operation, and closure, as there are no known viable geologic or mineralogical resources at the proposed PEP site. Potential impacts to paleontological resources due to construction activities would be mitigated through worker training and monitoring by qualified paleontologists, as required by Conditions of Certification, **PAL-1** through **PAL-8.** Staff has proposed revisions to **PAL-1** and **PAL-3** through **PAL-8** to ensure consistency with current LORS and professional guidelines.

INTRODUCTION

On August 10, 2011, the Energy Commission approved the 570-megawatt hybrid natural gas and solar thermal PHPP for construction and operation, but it was never built. On July 20, 2015, Palmdale Energy, LLC filed a Petition to Amend (PTA) the licensed PHPP. The most notable modifications proposed for the PEP are the redesign of PHPP to an air–cooled, combined-cycle-power plant and the elimination of the solar thermal component resulting in a much smaller site footprint. All proposed modifications are described in the **PROJECT DESCRIPTION** section of this Final Staff Assessment

This analysis considers potential impacts to geology and paleontology through the construction and operation of the PEP. Aspects of the PEP that are new or substantially different from the licensed project have been identified and examined for potential

impacts. The previously approved conditions of certification in the August 2011 Decision were modified where necessary to mitigate potential impacts from the PEP. The conditions of certification were also updated to incorporate changes in LORS and current professional standards.

SUMMARY OF THE PHPP COMMISSION DECISION

The 2011 Decision found the following:

- There are no unmitigated potential direct, indirect and cumulative significant adverse impacts to project facilities from geologic hazards during the PHPP's design life;
- There are no unmitigated potential direct, indirect and cumulative significant adverse impacts to potential geologic and paleontologic resources from the construction, operation, and closure of the PHPP; and
- The PHPP will comply with all applicable LORS with implementation of the Conditions of Certification set forth in the Decision.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS COMPLIANCE

New and updated LORS that would apply to PEP since the licensing of the PHPP in August 2011 are briefly described below.

Geology and Paleontology Table 1
Laws, Ordinances, Regulations, and Standards

Applicable LORS	Description
State	
California Building Code (2013)	The California Building Code (2013) includes a series of standards that are to be used as the basis for design and construction of buildings in California. The purposes of the standards are to establish minimum requirements to safeguard the public health, safety, and general welfare, and provide safety to life and property, and emergency responders. These standards include safeguards from geologic hazards such as seismic shaking, liquefaction, and slope failure.
Standards	
Society for Vertebrate Paleontology (SVP), 2010	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 developed by the SVP, a national organization of professional scientists. The measures were adopted in October 1995, and revised in 2010 following adoption of the Paleontological Resources Preservation Act of 2009.

Staff has modified Condition of Certification **GEO-1** to require the project owner to comply with the requirements of the most recent version of California Building Code in effect at the time the project is going to construction.

Staff has modified Condition of Certification **PAL-1** and **PAL-3** through **PAL-8** to require adherence to the updated procedures and standards for assessing and mitigating impacts to paleontologic resources.

ENVIRONMENTAL IMPACT ANALYSIS

The power plant site is located on the northwest side of the Los Angeles-Palmdale Regional Airport/Air Force Plant 42, adjacent to East Avenue M – Columbia Way. The site is undeveloped and vegetated with low desert scrub and Joshua trees. The power plant footprint would be reduced from 333 acres to 50 acres. The construction laydown and parking area would be reduced from 50 acres to 20 acres. Mass grading would be reduced by 283 acres because the solar field is no longer part of the PEP.

The southeast corner of the power block would be approximately at level grade. The northwest corner would require approximately six feet of excavation relative to existing grade. Onsite stormwater would be collected in an infiltration pond, approximately 17 feet deep, on the north side of the power block. The switchyard would be constructed west of the power block.

Extensive pipelines and generator-tie (gen-tie) lines would be required for the PEP (PHPP, 2015c; PHPP, 2015u). A description of the proposed PEP pipeline routes are

essentially the same as the routes licensed in PHPP. The alternate natural gas and gen-tie line licensed in the PHPP is not proposed in the PEP PTA.

The subsurface conditions and associated geologic hazards at the proposed site are expected to be similar to those previously analyzed and documented in the Decision. The potential geologic hazards and the thresholds for significance are also essentially the same as documented in the Decision. There are no significant geologic resources present in the project area and the potential to encounter paleontological resources remains the same.

GEOLOGIC HAZARDS

The PEP site is located in an active geologic area in eastern Los Angeles County, California. At least 52 major faults are located between 5.5 and 50 miles of the site. The site is subject to intense levels of earthquake-related ground shaking, but the potential for earthquake ground rupture at the site is low. The effects of strong ground shaking must be mitigated, to the extent practical, through structural designs required by the California Building Code (2013). The California Building Code (2013), which is the current standard adopted subsequent to licensing of the PHPP, requires that structures be designed to resist seismic stresses from ground acceleration and related geologic hazards. Staff recommends **GEO-1** be revised to update the requirements for project design to ensure compliance with the current standard. The project owner should still be required to comply with Conditions of Certification **GEO-2** through **GEO-5** to ensure appropriate fault investigations are conducted and where necessary considered in project design to ensure there is no impact to the public health and safety from failure of underground and overhead linears.

Staff concludes there are no other changes to geologic hazards associated with seismic shaking (faulting) liquefaction, lateral spreading, hydrocompaction, dynamic compaction, expansive soils, landslides, and flooding sections of the Decision caused by the proposed amendment changes. No additional mitigation is considered necessary.

GEOLOGIC AND PALEONTOLOGIC RESOURCES

Similar to the PHPP staff analysis, staff's opinion is unchanged that the likelihood of encountering paleontologic resources is moderate at the project site and along most of the project transmission and pipeline routes. Staff is also of the opinion that there is a high likelihood of encountering paleontologic resources along the gen-tie lines between Pearblossom substation and Vincent substation.

Staff has proposed changes to paleontological conditions of certification **PAL-1** through **PAL-8** to ensure consistency with current LORS and professional guidelines. Staff concludes there are no other changes to geologic and paleontologic resource sections of the Decision caused by the proposed amendment changes. No additional mitigation is considered necessary.

CUMULATIVE IMPACTS AND MITIGATION

There are no changes to the cumulative impacts caused by the proposed amendment. As a result, no additional mitigation is considered necessary.

RESPONSE TO PSA COMMENTS

Staff received no comments from the project owner, the public, interveners, agencies, or tribes, in the area of **Geology and Paleontology**.

CONCLUSIONS AND RECOMMENDATIONS

The project would be able to comply with applicable LORS provided that the conditions of certification, as revised, are adopted and enforced. The potential adverse impacts to the PEP from seismic and geologic hazards during its design life would be less than significant provided Condition of Certification **GEO-1** is revised as proposed herein, and **GEO-2** through **GEO-5** are implemented as originally adopted in the Decision. Staff proposes revisions to Condition of Certification **GEO-1** to ensure compliance with current design standards that protect the public health and safety from seismic and geologic hazards. These standards are found in the California Building Code (2013), adopted since licensing of PHPP.

Staff concludes no new significant impacts to geologic or mineralogic resources would result from the PEP construction, operation, and closure, as there are no known viable geologic or mineralogical resources at the proposed PEP site. Potential impacts to paleontological resources due to construction activities would be mitigated through worker training and monitoring by qualified paleontologists, as required by Conditions of Certification, **PAL-1** through **PAL-8.** Staff has proposed revisions to these conditions to ensure consistency with current LORS and professional guidelines.

CONITIONS OF CERTIFICATION

The conditions of certification for **GEOLOGY AND PALEONTOLOGY** are located in the Conditions of Certification Compendium at the back of this Final Staff Assessment.

REFERENCES

CBC, 2013 - California Building Code, 2013, California Code of Regulations, Title 24. 2007, California Building Standards Code, Part 2, California Building Code (2013).

CEC 2011b - California Energy Commission (TN 61876). Palmdale Hybrid Power Project Final Commission Decision, August 10, 2011, docketed August 15, 2011.

PHPP, 2015c - Galati Blek LLP/Scott A. Galati (TN 205394-1). Revised Petition to Amend (RPTA), dated July 17, 2015. Submitted to CEC/Eric Veerkamp on July 17, 2015 and docketed on July 20, 2015.

PHPP, 2015u - DayZen LLC/Marie Fleming (TN 206797). Response to CEC Staff Data Request Set No. 1 (1-63), dated November 2015. Submitted to CEC/Docket Unit on November 30, 2015

SVP, 2010 - Society of Vertebrate Paleontology, Impact Mitigation Guidelines Revision Committee Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources (2010).

PALMDALE ENERGY PROJECT (08-AFC-9C)

Petition to Amend the Final Commission Decision

POWER PLANT EFFICIENCY

Testimony of Shahab Khoshmashrab

SUMMARY OF CONCLUSIONS

Similar to the conclusions in the PHPP 2011 Energy Commission Final Decision (CEC2011b) (Decision), the Palmdale Energy Project (PEP) would create no significant impacts related to power plant efficiency. Therefore, in accordance with the California Environmental Quality Act (CEQA) Guidelines section 15162 (Cal. Code Regs., tit. 14, § 15162), staff concludes that no supplementation to the Decision is necessary for Power Plant Efficiency. The Committee may rely upon the analysis and conclusions of the Decision with regards to Power Plant Efficiency and does not need to re-analyze them.

The PEP's thermal efficiency would compare favorably with the efficiency of the currently-operating, similar combined-cycle electric generation power plants that provide rapid-response capability. The needed quantities of natural gas fuel for the amended project would not result in a significant impact on natural gas supplies and resources, and the project's source of natural gas fuel would be reliable.

INTRODUCTION

Staff has reviewed the Decision and analyzed the modifications proposed for the PEP (PHPP2015a) which include eliminating the solar energy component, reconfiguring the two-on-one combined-cycle power block configuration to incorporate new gas turbine technology, and replacing the wet cooling tower with an air-cooled condenser (ACC). The following analysis evaluates the portions of the modified project that may affect the Power Plant Efficiency analysis, findings, conclusions, and conditions of certification contained in the Decision.

SUMMARY OF THE DECISION

The Decision found that the PHPP's maximum nominal efficiency of 59 percent, with its solar energy component on, compared favorably with the efficiency of typical combined-cycle power plants without a solar energy component. The Decision also found that the PHPP's maximum nominal efficiency of 53 percent, with its solar component off, was comparable to the efficiency of combined-cycle power plants that do not include a solar energy component. The Decision concluded that the needed quantities of natural gas fuel for the project will create a less-than-significant impact on natural gas supplies and resources and found the source of natural gas fuel for the project to be reliable.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

No federal, state, or local laws, ordinances, regulations, or standards (LORS) apply to power plant efficiency.

ENVIRONMENTAL IMPACT ANALYSIS

The Petition to Amend (PTA) requests to substitute the approved rapid-response (fast response flexible ramping capability) two-on-one combined-cycle configuration using two General Electric 7FA Combustion Turbine Generators (CTGs) and a cooling tower with a rapid-response two-on-one combined cycle configuration using two Siemens SCC6-5000F CTGs and an ACC. The amended project's maximum combined-cycle efficiency would be able to reach as high as 56 percent nominally (PHPP 2015a, § 3.1.3). Compared to the 53 percent maximum efficiency of the PHPP with the solar system off; this is an improvement.

The PTA also proposes to eliminate the solar energy component associated with the PHPP. The PHPP would have utilized parabolic solar thermal collector technology (CEC 2011b, p. 5.2-2). This system could replace the equivalent of approximately 50 megawatts of duct firing (or about nine percent of the total project output) (CEC 2011b, p. 5.2-2), and thus, enhance the project's overall efficiency from 53 percent to 59 percent by reducing the consumption of natural gas. The PHPP's ability to reach 59 percent efficiency would be limited to the times when solar heat reaches its peak, in summer afternoons. Thus, on an annual basis, the PHPP's average efficiency would not likely be higher than its median figure of 56 percent, which is also the PEP's expected efficiency. It would therefore be unlikely that the PEP would consume significantly more natural gas annually than the PHPP, and similar to the PHPP, the PEP would not create a significant impact on natural gas supplies and resources.

The PEP's thermal efficiency would compare favorably to the efficiency of the currently-operating, similar combined-cycle electric generation power plants that provide rapid-response capability.

Consistent with the PHPP, natural gas fuel would be delivered to the PEP via a new Southern California Gas (SoCalGas) pipeline (PHPP 2015a, § 2.2). SoCalGas' natural gas comes from resources in the Southwest, Canada, and the Rocky Mountains. This represents a resource of considerable capacity and offers access to adequate supplies of natural gas. Therefore, the source of natural gas fuel for the amended project would be reliable.

No further analysis is needed due to the following reasons:

- The changes in the amendment would not create new significant environmental impacts or substantial increases in the severity of previously identified significant impacts;
- The amendment does not propose substantial changes which would require major revisions of the Power Plant Efficiency analysis contained in the Decision; and
- The circumstances under which the amended project would be undertaken would not require major revisions of the Power Plant Efficiency analysis contained in the Decision.

RESPONSE TO PSA COMMENTS

Staff received no PSA comments from the project owner, the public, interveners, or agencies, in the area of **Power Plant Efficiency**.

CONCLUSIONS AND RECOMMENDATIONS

Similar to the conclusions in the Decision, the PEP would create no significant impacts related to power plant efficiency. The PEP's thermal efficiency would compare favorably with the efficiency of the currently-operating, similar combined-cycle electric generation power plants that provide rapid-response capability. The needed quantities of natural gas fuel for the amended project would not result in a significant impact on natural gas supplies and resources, and the project's source of natural gas fuel would be reliable.

CONDITIONS OF CERTIFICATION

The Decision included no conditions of certification for Power Plant Efficiency and staff believes no such conditions are warranted by the proposed amendment, and none are proposed.

REFERENCES

CEC 2011b – California Energy Commission (TN 61876). Palmdale Hybrid Power Project Final Commission Decision, date submitted to CEC/Docket Unit August 15, 2011, docketed August 15, 2011

PHPP 2015a – Galati Blek LLP/Scott A. Galati (TN 205394-1). Revised Petition to Amend (RPTA), dated July 17, 2015. Submitted to CEC/Eric Veerkamp on July 17, 2015 and docketed on July 20, 2015

PALMDALE ENERGY PROJECT (08-AFC-9C)
Petition to Amend the Final Commission Decision
POWER PLANT RELIABILITY
Testimony of Shahab Khoshmashrab

SUMMARY OF CONCLUSIONS

Similar to the conclusions in the 2011 California Energy Commission Final Decision (Decision) for the Palmdale Hybrid Power Project (PHPP), the Palmdale Energy Project (PEP)[1] would be built and would operate in a manner consistent with industry norms for reliable operation and would maintain a level of reliability which equals or exceeds reliability of similar operating electric generation facilities. Also similar to the PHPP, the amended project would create no significant impacts related to power plant reliability. Therefore, in accordance with the California Environmental Quality Act (CEQA) Guidelines section 15162 (Cal. Code Regs., tit. 14, § 15162), staff concludes that no supplementation to the Decision is necessary for **Power Plant Reliability**. The Committee may rely upon the analysis and conclusions of the Decision with regards to **Power Plant Reliability** and does not need to re-analyze them.

INTRODUCTION

Staff has reviewed the Decision (CEC 2011b) and analyzed the changes to the licensed PHPP (PHPP 2015a), which include eliminating the solar energy component, reconfiguring the two-on-one combined-cycle power block configuration to incorporate new gas turbine technology, and replacing the wet cooling tower with an air-cooled condenser. . The following analysis evaluates the portions of the modified project that may affect the **Power Plant Reliability** analysis, findings, and conclusions contained in the Decision.

SUMMARY OF THE DECISION

The Decision found that the PHPP's plant maintenance program and redundant equipment list, the sources of the project's natural gas fuel and cooling water supplies, and the project's ability to withstand natural disasters by complying with the **Facility Design** conditions of certification will result in an adequate level of reliability; a level of reliability which equals or exceeds reliability of similar operating electric generation facilities.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

No federal, state, or local/county LORS apply to power plant reliability.

[1] The petition also requests that the PHPP name be changed to Palmdale Energy Project.

ENVIRONMENTAL IMPACT ANALYSIS

Similar to the PHPP, the PEP would include two combustion turbine generators (CTGs), each coupled with one heat recovery stream generator (HRSG). This arrangement provides inherent reliability compared to a power plant with only one set of CTG and HRSG. Failure of a non-redundant component of one CTG/HRSG train cannot disable the other train, thereby allowing the power plant to continue to generate electricity, though at reduced output. While the functioning train's CTG is operating, its HRSG could produce enough steam to run the STG at partial load. The PEP's ancillary systems would also include adequate redundancy to ensure their continued operation if equipment fails (PHPP 2015a, Table 3.1-1).

The proposed amendment describes the PEP's plant maintenance program and the sources of natural gas fuel and cooling water supplies (PHPP 2015a, §§ 2.2, 3.1.2.5.2), which are the same as the PHPP. Also, similar to the PHPP, the PEP would be able to withstand natural disasters and comply with the latest seismic design criteria by complying with the conditions of certification described in the **Facility Design** section of this analysis, and would include a quality assurance and quality control program for project design, construction, procurement, and operation (PEP 2015a, § 3.1.2.5).

Therefore, the PEP would be able to demonstrate a similar level of plant availability and reliability as the PHPP. No further analysis is needed due to the following reasons.

- The changes to the PEP 0would not create new significant environmental impacts or substantial increases in the severity of previously identified significant impacts.
- The PEP does not propose substantial changes which would require major revisions of the **Power Plant Reliability** analysis contained in the Decision.
- The circumstances under which the PEP would be undertaken would not require major revisions of the **Power Plant Reliability** analysis contained in the Decision.

RESPONSE TO PSA COMMENTS

Staff received no PSA comments from the project owner, the public, interveners, or agencies, in the area of **Power Plant Reliability**.

CONCLUSIONS AND RECOMMENDATIONS

Staff concludes that similar to the PHPP, the PEP would be built and would operate in a manner consistent with industry norms for reliable operation and would maintain a level of reliability which equals or exceeds reliability of similar operating electric generation facilities.

CONDITIONS OF CERTIFICATION

The decision included no conditions of certification for **Power Plant Reliability** and staff believes no such conditions are warranted by the proposed amendment, and none are proposed.

REFERENCES

CEC 2011b – California Energy Commission (TN 61876). Palmdale Hybrid Power Project Final Commission Decision, date submitted to CEC/Docket Unit August 15, 2011, docketed August 15, 2011

PHPP 2015a – Galati Blek LLP/Scott A. Galati (TN 205394-1). Revised Petition to Amend (RPTA), dated July 17, 2015. Submitted to CEC/Eric Veerkamp on July 17, 2015 and docketed on July 20, 2015

PALMDALE ENERGY PROJECT (08-AFC-9C)
Petition to Amend the Final Commission Decision
TRANSMISSION SYSTEM ENGINEERING STAFF ANALYSIS
Testimony of Laiping Ng and Mark Hesters

SUMMARY OF CONCLUSIONS

The proposed Palmdale Energy Project (PEP) Petition to Amend (PTA) the 2011 California Energy Commission Final Decision (Decision) for the Palmdale Hybrid Power Project (PHPP) (CEC 2011b) for facilities between the new generators and Southern California Edison (SCE) Vincent Substation including the step-up transformers, the project 230 kilovolt (kV) switchyard, the 230 kV overhead transmission lines, and terminations are acceptable and would comply with all applicable laws, ordinances, regulations, and standards (LORS). Therefore, in accordance with the California Environmental Quality Act (CEQA) Guidelines section 15162 (Cal. Code Regs., tit. 14, § 15162), staff concludes that no supplementation to the Decision is necessary for Transmission System Engineering (TSE). The interconnection with the SCE transmission grid would not require additional downstream transmission facilities (other than those proposed by the applicant) that require CEQA review.

INTRODUCTION

The PEP proposes to eliminate the solar components and replace the approved generators with two Siemens SGT6-5000F Combustion Turbine Generators and one steam turbine generator. The expected peak generation output with the duct burners in-service would be approximately 700 megawatt (MW), 130 MW more than the approved PHPP.

The PEP also proposes to extend the generator tie-line westerly for approximately 1,800 feet. The generator tie-line would be built with 1272 kcmil Aluminum conductor steel-reinforced (ACSR) bundled conductors. Three poles would be added to support the extension section of the generator tie-line. The balance of the approved original generator tie-line routes will remain unchanged. Power would be distributed to the SCE transmission system through the SCE Vincent Substation.

SUMMARY OF THE DECISION

As stated in the Decision for the 570 MW PHPP, two 230 kV generator tie-line routes were approved. The 35.6 mile long applicant-proposed route would connect the PHPP from the project site to the SCE Vincent Substation via a 1590 ACSR bundled overhead conductor. The Decision also approved an alternative generator tie-line route of 12.8 mile long which includes a 6.75 mile long underground transmission cable and a 6.05 mile long overhead conductor. The alternative route would also connect to the Vincent Substation. Power would be distributed to the SCE system for the Vincent Substation (CEC 2011b). With the exception of the 1,800 feet of additional gen-tie line along East Avenue M, the Palmdale PTA proposed no changes to either of the approved generator tie-line routes.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

The LORS from the original Energy Commission decision still apply. No update is required.

TRANSMISSION SYSTEM ANALYSIS

The PEP would be a natural gas-fired combined-cycle power generating facility consisting of two combustion turbine generators (CTG) each rated at 305 Mega Volt Amps (MVA)with a power factor of 0.85 and one steam turbine generator (STG) rated at 314 MVA with a power factor of 0.85. Each CTG is expected to generate at 220 MW and the STG is expected to generate at approximately 276.2 MW under average ambient conditions and with the duct burners in-service. The auxiliary load is approximately 17.5 MW. The total output of the Palmdale PTA would be approximately 700 MW.

The CTG unit 11 and unit 12 would each be connected through their own dedicated 10,000-ampere generator circuit breaker through a short 10,000-ampere isolated phase bus duct to the low side of its dedicated 180/240/300MVA generator step-up (18/230 kV) transformer. The steam turbine generator would be directly connected to the low side of its dedicated 228/304/380 MVA generator step-up (20/230 kV) transformer via a short 11,000-ampere isolated phase bus duct.

The high sides of the generator transformers would each be connected through their dedicated 3,000-ampere breakers to the PEP switchyard. A bundled 230 kV overhead generator tie-line would connect the project switchyard to the SCE Vincent Substation. Power would be distributed to the SCE transmission system from the Vincent Substation (PHPP 2016o, section 2.5, PHPP 2016n, Figure A01, Figure 3-1b, PHPP 2016q, PHPP 2016r).

SWITCHYARDS AND INTERCONNECTION FACILITIES

The PEP project switchyard would use a ring-bus configuration. It would consist of four 3,000-ampere 230 kV circuit breakers. The switchyard would be connected to the SCE Vincent Substation via a 230 kV generator tie-line, 35.6 mile long plus 1,800 feet extension at the project site. This bundled 1272 kcmil ACSR generator tie-line conductor would be constructed in two segments (segment 1 and segment 2).

Segment 1

The PEP proposes to extend the approved PHPP generator tie-line Segment 1,1,800 feet westerly.

Segment 2

The PEP proposes no changes to Segment 2 except for the change to bundled 1272 kcmil ACSR overhead conductor.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

For the interconnection of a proposed generating unit or transmission facility to the grid, the interconnecting utility (SCE in this case) and the control area operator California Independent System Operator (California ISO) are responsible for ensuring grid reliability. These entities determine the transmission system impacts of the proposed project, and any mitigation measures needed to ensure system conformance with performance levels required by utility reliability criteria, the North American Electric Reliability Council's (NERC) planning standards, the Western Electricity Coordinating Council (WECC) reliability criteria, and California ISO reliability criteria. The Phase I and Phase II Interconnection Studies are used to determine the impacts of the proposed project on the transmission grid. Staff relies on these studies and any review conducted by the California ISO to determine the project's effect 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.

The PEP proposes to increase generation by 130 MW from the approved PHPP. The new generation interconnection study is included in the California ISO Queue Cluster 8 Phase I Interconnection Study Report (Phase I Interconnection Study).

SCOPE OF PHASE I INTERCONNECTION STUDY REPORT

The Phase I Interconnection study base cases were based on 2020 on-peak reliability cases and 2020 off-peak reliability cases and included all generation projects in Queue Cluster 8 (including the Palmdale PTA), transmission upgrades identified through the generation interconnection process, transmission upgrades identified through the California ISO Transmission Plan, and Special Protection Systems. Details of the study assumptions, new generation projects, and system upgrades are described in Section A and Section B of the Phase I Interconnection Study Report.

The Phase I Interconnection Study includes Power Flow study, Short Circuit Duty study, Transient Stability Evaluation, Post-Transient Voltages Stability study, and Deliverability Assessment. The Power Flow study assessed the Queue Cluster 8 generation projects' impact on thermal loading of the transmission lines and equipment. Short Circuit Duty study was conducted to determine if the Queue Cluster 8 generation projects would overstress existing SCE substation facilities, adjacent utility substations, and the other 66 kV, 115 kV, 230 kV and 500 kV busses within the study area. Transient Stability Analysis was conducted to determine whether the generation projects would create instability in the system following certain selected outages. Post-Transient Voltage Stability Analysis was conducted to determine whether the generation projects would create voltage deviations in the system following lines and equipment outages. Deliverability Assessment comprises of on-peak and off-peak deliverability assessments (PHPP 2016o Section B, C, D, E, Appendix A).

QUEUE CLUSTER 8 PHASE I INTERCONNECTION STUDY RESULTS

Power Flow Study Results and Mitigation Measures

The Power Flow Study indicated that the PEP project will not cause thermal overloads under normal conditions (Category P0) and single contingency conditions (Category P1). No mitigation is required (PHPP 2016o Appendix A Section D).

Short Circuit Analysis and mitigation Measures

With the inclusion of all the projects in the Queue Cluster 8, Short Circuit Analysis identified increased short circuit duties during the three-phase-to-ground faults and the single-phase-to-ground faults. Circuit breaker locations and increased fault duties are listed in Table H.1 and Table H.2 of the Phase I Interconnection Study. An operation study will be conducted to determine if any specific breaker upgrades will be required.

In addition, interconnecting the Queue Cluster 8 generation projects would increase 27 SCE substation ground grid duties. For these concerns, the Phase II interconnection study is required to determine if a detailed ground grid analysis would be needed for these substations.

The Short Circuit Duty study was based on the generation data provided by the applicant. Generator tie-line data was based on 13.7 mile long and using the 1272 kcmil ACSR double bundled conductor. The PEP proposes to use the approved 35.6 mile-long generator tie-line plus the 1,800 feet extension. This discrepancy may cause some differences in the Short Circuit duty results. Also, the study estimated 5.43 MW losses on the generator tie-line based on the 13.7 mile long line. The generator tie-line losses for the 35.6 miles plus the 1,800 foot extension would be larger than the losses for the 13.7 mile interconnection. The applicant will be required to validate interconnection values in the Phase II Interconnection study (PHPP 2016l Appendix A).

Transient Stability and Post-Transient Voltage Study Results and Mitigation Measures

The Transient Stability indicated that the addition of the PEP project would not cause any adverse impacts to the SCE system, assuming that all Queue Cluster 8 generation projects, including PEP, would provide 0.95 power factor at the point of interconnections (PHPP 2016o Section D.2).

Post-Transient Voltage Stability Analysis was conducted to evaluate mainly the 500/220 kV system performance after the addition of Queue Cluster 8 generation projects and all the transmission upgrades. The study result shows that the system performance is acceptable and in accordance with the NERC/WECC planning criteria (PHPP 2016o Section D.3).

Deliverability Assessment Result

The Deliverability Assessment identified no deliverability constraints under peak and off-peak conditions with the inclusion of the PEP (PHPP 2016l Section H).

RESPONSES TO PSA COMMENTS

Staff received no PSA comments from the project owner, the public, interveners, or agencies, in the area of **Transmission System Engineering.**

CONCLUSIONS AND RECOMMENDATIONS

The proposed PEP facilities between the new generators and SCE Vincent Substation including the step-up transformers, the project 230 kV switchyard, the 230 kV overhead transmission lines, and terminations are acceptable and would comply with all applicable LORS. Therefore, in accordance with theCEQA Guidelines section 15162 (Cal. Code Regs., tit. 14, § 15162), staff concludes that no supplementation to the Decision is necessary for TSE. The interconnection with the SCE transmission grid would not require additional downstream transmission facilities (other than those proposed by the applicant) that require CEQA review.

The PEP would not cause additional downstream transmission impacts other than those identified in the approved PHPP.

The Phase II Interconnection Study for the Queue Cluster 8 will determine if detailed ground grid analysis would be needed for substations with ground grid duty concerns.

Staff proposed no changes to TSE **Conditions of Certification 1-7**. The PEP would comply with LORS.

CONDITIONS OF CERTIFICATION

The conditions of certification for TSE are located in the
Conditions of Certification Compendium at the back of this Final Staff Assessment

REFERENCES

AECOM 2009l – AECOM/ S. Head (tn: 52528). Supplemental Responses from July Committee Conference. Dated 7/22/09. Submitted to CEC/Docket Unit on 7/23/09.

CALIFORNIA ISO 1998a – California ISO tariff scheduling protocol posted April 1998, Amendments 1,4,5,6, and 7 incorporated

CALIFORNIA ISO 1998b – California ISO dispatch protocol posted April 1998

CALIFORNIA ISO 2002a – California ISO Grid Planning Standards, February 2002

CALIFORNIA ISO 2003a - California ISO, FERC Electric Tariff, First Replacement Vol. No. 1, March 11, 2003.

CALIFORNIA ISO 2010a – California ISO Interconnection Facilities Study. Dated 11/23/09. Submitted to CEC/Docket Unit on 1/7/10.

CEC 2009v – CEC/ F. Miller (tn: 53631). Response to Committee Order. Dated 10/14/09. Submitted to CEC/Docket Unit on 10/14/09.

CEC 2010b – California Energy Commission (TN 59309). Palmdale Hybrid Power Project Final Staff Assessment, date submitted to CEC/Docket Unit Dec. 22, 2010, docketed Dec. 22, 2015

CEC 2011a – California Energy Commission (TN 61158). Palmdale Hybrid Power Project Presiding Members Proposed Decision, date submitted to CEC/Docket Unit June 16, 2011, docketed June 16, 2011

CEC 2011b – California Energy Commission (TN 61876). Palmdale Hybrid Power Project Final Commission Decision, date submitted to CEC/Docket Unit August 15, 2011, docketed August 15, 2011

COP 2008a – City of Palmdale/ S. Williams (tn: 47383). Application for Certification for the Palmdale Hybrid Power Project. Dated on 07/30/08. Submitted to CEC/ Docket Unit on 08/04/08.

DWR 2009a – Department of Water Resources/ R. Buckingham (tn: 51776). DWR Comments on PHPP Transmission Upgrades. Dated on 6/1/09. Submitted to CEC/ Docket Unit on 6/2/09.

NERC (North American Electric Reliability Council) 2006. Reliability Standards for the Bulk Electric Systems of North America, May 2 2006

PHPP 2015c - Galati Blek LLP, Scott A. Galati (TN 205394-1). Revised Petition to Amend (RPTA), dated July 17, 2015. Submitted to CEC/Eric Veerkamp on July 17, 2015 and docketed on July 20, 2015

PHPP 2015d - Galati Blek LLP (TN 205394-2). Revised Petition to Amend (RPTA) Sections 2&3 Figures. Submitted to CEC/Eric Veerkamp on July 17, 2015 and docketed on July 20, 2015

PHPP 2015u - DayZen LLC, Marie Fleming (TN 206797). Response to CEC Staff Data Request Set No. 1 (1-63), dated November 2015. Submitted to CEC/Docket Unit on November 30, 2015

PHPP 2016l – DayZen LLC, Scott A. Galati (TN 210591). Repeated Application for Confidential Designation Palmdale Energy Project CAISO Cluster 8 Phase I Interconnection Study – Addendum # 1, dated March 2, 2016. Submitted to Robert Oglesby, CEC/Docket Unit on March 2, 2016

PHPP 2016m – DayZen LLC, Marie Fleming (TN 210594). Revised Supplemental Response to California Energy Commission Staff Data Request 55 and 58, dated February 26, 2016. Submitted to CEC/Docket Unit on March 2, 2016

PHPP 2016n – DayZen LLC (TN 210610). Revised Transmission System Engineering Drawings. Submitted to CEC/Docket Unit on March 4, 2016

PHPP 2016o – Dayzen LLC, Scott A. Galati (TN 210359). Application for Confidential Designation Palmdale Energy Project CAISO Cluster 8 Phase I Interconnection Study, dated February 11, 2016. Submitted to Robert Oglesby/CEC/Docket Unit on February 17, 2016

PHPP 2016q – DayZen LLC, Marie Fleming (TN 210783). Revised One-Line Drawing No. A01 Revision E. Submitted to CEC/Docket Unit on March 18, 2016

PHPP 2016r – DayZen LLC, Marie Fleming (TN 210797). Revised Supplemental Response to California Energy Commission Staff Data Request 55, dated March 21, 2016. Submitted to CEC/Docket Unit on March 21, 2016

SCE 2009a – Sothern California Edison/ M. Alvarez (tn: 52185). SCE Letter in Response to CEC June 10th Requesting Additional Information for Proposed Project. Dated 6/29/09. Submitted to CEC/ Docket Unit on 6/29/09.

SCE 2009b - Southern California Edison/ J. Kelly (tn: 54366). SCE Letter to Mayor Ledford. Dated 11/19/09. Submitted to CEC/ Docket Unit on 12/7/09.

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Alternatives

PALMDALE ENERGY PROJECT (08-AFC-9C)
Petition to Amend the Final Commission Decision
ALTERNATIVES

John Hope and David Vidaver

SUMMARY OF CONCLUSIONS

Staff reviewed alternatives previously analyzed for the licensed Palmdale Hybrid Power Project (PHPP) design and related facilities, alternative technologies, and the "no project" alternative. In addition, staff reviewed the preferred resource alternatives of renewable generation technologies, which were previously analyzed, including solar, geothermal, biomass, wind, hydropower, and fuel cell. Staff also provided a discussion of preferred resources including energy efficiency and demand response programs, distributed generation, and energy storage, which were not considered in previous staff assessments of the PHPP. Alternatives previously found to be infeasible would continue to be found infeasible, and would not substantially reduce one or more significant effects of the proposed Palmdale Energy Project (PEP). In addition, new information does not show alternatives which are considerably different from those analyzed in the PHPP Final Staff Assessment would substantially reduce one or more significant effects on the environment (CEC 2010).

In accordance with California Environmental Quality Act (CEQA) Guidelines section 15162 (Cal. Code Regs., tit. 14, § 15162), staff concludes that no supplementation to the 2011 California Energy Commission's Final Decision (Decision) for the PHPP is necessary for Alternatives. The Committee may rely upon the environmental analysis and conclusions of the Decision with regards to Alternatives and does not need to re-analyze them.

INTRODUCTION

The PEP proposes to change the approved PHPP primarily by removing the solar thermal component of the plant, and utilizing dry cooling instead of wet cooling. The proposed PEP would increase the available net output from 570 megawatts (MW) to 645 MW, using combined-cycle units similar to the approved project, but the interconnect agreement would limit net output to 570 MW. The PEP would replace previously proposed General Electric gas turbines with Siemens gas turbines. The PEP footprint would decrease the project site from 333 to 50 acres. Generator tie-lines connecting to the adjacent substation would add 1,800 feet and three poles along Avenue M to connect with the new location for the switchyard.

SUMMARY OF DECISION

The list below provides a short summary of the licensed PHPP Decision with regards to project alternatives. Based on the evidence presented in the original proceeding, the Energy Commission made the following findings and conclusions:

1. The record contains an acceptable analysis of a reasonable range of alternatives to the project as proposed;

2. The evidentiary record contains an adequate review of alternative project sites, linears, fuels, technologies, and the "no project" alternative;

3. The proposed use of a recycled water supply is consistent with State Water Resources Control Board Resolution 75-58, and the Energy Commission's 2003 Integrated Energy Policy Report (IEPR) water policy;

4. Alternative fuels and technologies are not capable of meeting project objectives;

5. No site alternative is capable of meeting the stated project objectives;

6. The "no project" alternative would not avoid or substantially lessen potentially significant environmental impacts;

7. The "no project" alternative is not environmentally superior to the PHPP; and

8. If all Conditions of Certification contained in this Decision are implemented, construction and operation of the PHPP will not create any significant direct, indirect, or cumulative adverse environmental impacts.

ANALYSIS

Pursuant to Section 15126.6(f)(2)(C), where a previous document has sufficiently analyzed a range of reasonable alternative locations and environmental impacts for projects with the same basic purpose, the lead agency should review the previous document. The lead agency may rely on the previous document to help it assess the feasibility of potential project alternatives to the extent the circumstances remain substantially the same as they relate to the alternative In addition to the alternatives analyzed in the Decision, staff considered an energy storage alternative because the city of Lancaster commented that "energy storage technology could be a cost-effective, non-polluting alternative to the proposed project."

ALTERNATIVE SITES EVALUATION

The Decision analyzed three alternative locations for the PHPP: Alternative Site 1, Alternative Site 2, and Alternative Site 3. The Decision concluded that none of the alternative sites would avoid or substantially lessen any significant effects of the PHPP. Staff's review of the alternative discussion for the PHPP concludes that it is still current and applicable to the PEP.

Alternative Site 1 was eliminated from further consideration during the screening process because it was not large enough to support the 250-acre solar array field. Although Alternative Site 1 could accommodate the 50-acre proposed amendment, it still would not avoid or substantially lessen any significant effects of the PEP.

Although the land acquisition process for the PEP would be simpler compared to the PHPP, Alternative Site 2 was eliminated from further consideration during the screening

process because of erosion and engineering issues and because it would not substantially lessen or eliminate environmental effects at the proposed site. These issues at Alternative Site 2 would hold true for the PEP.

Alternative Site 3 was eliminated from further consideration during the screening process because it would have created greater environmental impacts to biological resources, visual resources, and traffic due to the site's remote location and lack of existing infrastructure in the area. These issues at Alternative Site 3 would hold true for the PEP.

GENERATION TECHNOLOGY ALTERNATIVES

In addition to alternative locations, the Decision evaluated whether alternative generation technologies would have met the project's stated objectives at the time, which included:

- provide an efficient, reliable, and environmentally sound power generating facility to meet future electrical power needs of the rapidly growing city of Palmdale and surrounding area, as well as provide additional generating capacity for the region and California;
- locate the facility within the boundaries of the city of Palmdale and under city ownership and control. The city can, thereby, increase its level of assurance that residential, commercial, and industrial power needs in the city can be met, while at the same time supplying power to the regional grid;
- use solar technology to generate a portion of the facility's power output and thereby support the State of California's goal of increasing the percentage of renewable energy in the state's electricity mix;
- integrate the solar component of the project and its combined-cycle component in a way that maximizes the synergies between the two technologies to increase project efficiency; and
- site the facility in a location zoned and planned for industrial use in an industrial area and with ready access both to adequate supplies of non-potable water to meet the facility's process water needs and to a natural gas pipeline that can supply the project without requiring significant modifications to the regional gas supply system.

Staff has evaluated whether alternative generation technologies would meet the stated objectives for the proposed PEP which include:

- Provide an efficient, flexible, reliable and environmentally sound power generating facility to meet future electrical power needs of California;
- Provide daily fast start and fast ramping capabilities needed to provide flexible capacity that is required manage the integration of intermittent resources;
- Locate the facility within the boundaries of the city of Palmdale to provide economic development and tax revenue to the city and surrounding areas;
- Site the facility in a location zoned and planned for industrial use in an industrial area and with ready access both to adequate supplies of non-potable water to meet the

facility's process water needs and to a natural gas pipeline that can supply the project without requiring significant modifications to the regional gas supply system;

- Design the PEP to minimize water usage as much as practical;
- Utilize the existing California Independent System Operator Large Generator Interconnection Agreement.

The alternative generation technologies evaluated for the PHPP were those that do not burn fossil fuels and included wind generation, biomass, geothermal, hydropower, fuel cell, and solar. Staff evaluated an additional alternative generation technology (i.e., energy storage) for the PEP which is provided below. Wind generation was eliminated from further consideration because Palmdale is not considered a productive resource area for development of commercial wind energy, and wind generation does not provide a reliable source of power generation for supplying consistent electrical energy. Biomass was eliminated from further consideration as a practical alternative because the greater Palmdale area lacks sufficient feedstock. Geothermal was eliminated from further consideration because there are no viable geothermal resources in the Palmdale area. Hydropower was eliminated from further consideration because neither the water resources nor the topographic conditions are present in the Palmdale region. Fuel cell technology was eliminated from further consideration because it has not been proven to work on a commercial scale. Lastly, solar energy as a sole source technology was eliminated from further consideration due to requiring significantly greater land area compared to the proposed PEP thereby resulting in a greater loss of habitat for desert tortoise and other species of concern, increased area of soil erosion, and difficulty in acquiring sufficient land with appropriate conditions. As concluded for each alternative generation technology previously evaluated for the PHPP, these alternative generation technologies would also not meet the new objectives identified for the PEP.

NO PROJECT ALTERNATIVE

CEQA requires an evaluation of the "no project" alternative "… 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(e)(1).) The "no project" analysis assumes: (a) that baseline environmental conditions would not change because the proposed project would not be installed; and (b) that the events or actions reasonably expected to occur in the foreseeable future would occur if the project were not approved. (Cal. Code Regs.. tit. 14, § 15126.6(e)(2).)

This analysis for the proposed PEP considers what would be reasonably expected to occur in the foreseeable future if the project was denied, based on current plans and consistent with available infrastructure and community services. For the purposes of this analysis, the no project alternative is considered to be the construction and operation of the previously approved PHPP in the Decision.

Based on previous conclusions made for environmental impacts of the PHPP summarized in the Decision, the proposed PEP would reduce environmental impacts in all resource areas with the exclusion of potential increased air quality impacts. Therefore, staff reached the conclusion that although the no project alternative (construction and operation of the previously approved PHPP) would meet the new

project objectives for the PEP, the no project alternative would result in overall greater environmental impacts as compared to the proposed PEP.

ENERGY STORAGE TECHNOLOGY ALTERNATIVE

The city of Lancaster provided a comment regarding project alternatives in the Lancaster Issue Identification Report, docketed on November 10, 2015 (TN# 206570) which states the assessment of the PEP should include an analysis of feasible, non-fossil fuel alternatives. Specifically, the comment states "energy storage technology could be a cost-effective, non-polluting alternative to the proposed project." In response to this comment, staff researched energy storage and reviewed technical papers related to the current state of energy storage technology and its costs. The following discussion summarizes staff's findings.

Preferred Resources

Staff's assessment of the approved PHPP did not consider preferred resources other than renewable generation as alternatives to the project. This is in contrast to more recent staff assessments of natural gas-fired generation projects, which have explicitly considered not only renewable generation, but also demand-side resources and storage as alternatives to their development.

California's 'loading order" requires that the state, in meeting its energy needs, "invest first in energy efficiency and demand-side resources, followed by renewable resources, and only then in clean conventional electricity supply." The California Public Utilities Commission (CPUC) imposes the loading order on the procurement activities of the state's investor-owned utilities by statute (Pub. Utilities Code, § 454.5, subd. (b)(9)(C)), requiring that all cost-effective demand-side and renewable resources that can be feasibly and reliably developed be procured before natural gas-fired generation. The loading order recognizes, however, that the development of natural gas-fired generation will be required to meet the state's energy needs due, in part, to the inability to develop sufficient quantities of preferred resources. The CPUC has also found that, even when and where preferred resources are available, the development of new natural gas-fired generation may still be necessary to ensure reliable service. The roles that natural gas-fired generation plays in a low-carbon electricity system are well-documented; this dispatchable natural gas-fired generation may be required to be in specific transmission-constrained areas, have specific operating characteristics, or both.

As a condition of approving a utility contract with a new natural gas-fired generation resource (or the recovery of costs in rates of developing new utility-owned natural gas-fired generation), the CPUC requires that the investment be consistent with the loading order. The first step in ensuring that this is the case occurs in the CPUC's biennial Long-term Procurement Planning (LTPP) proceeding, where the amount of new, natural-gas fired generation capacity needed to ensure reliability over a ten-year planning horizon is determined. Estimates of preferred resource (energy efficiency and demand response programs, distributed and central station renewable generation, and storage) development over the planning horizon are used to determine the residual need for natural gas-fired generation capacity. As noted above, consistency with the loading order requires that the all cost-effective preferred resources that can be feasibly and reliably developed are assumed by the CPUC to be deployed, minimizing the

amount of natural gas-fired generation that is needed. The second step in ensuring the consistency of utility procurement with the loading order takes place when the CPUC rules upon the utility's application to recover the costs associated with the procurement of specific resources in rates. Should the utility be found to have not procured all cost-effective preferred resources that were submitted (or could have been submitted) into its Request for Offers (RFO), the procurement is likely to be found to violate the loading order and the application rejected.

Should the Energy Commission find that preferred resources, in quantities above those assumed by the CPUC to be available for development, are alternatives to a natural gas-fired generation project, it would effectively be usurping the CPUC's responsibility to determine the extent to which demand-side programs, renewable generation, and storage can be safely relied upon to meet the state's energy needs and ensure reliable operation of the state's electricity system. The Energy Commission provides inputs to the CPUC in the LTPP proceeding, producing the demand forecast and estimates of energy efficiency savings and distributed (self-) generation over the ten-year planning horizon. These inputs are shaped by stakeholder participation in the Energy Commission's IEPR proceeding. Stakeholder participation in the LTPP proceeding provides an opportunity to influence CPUC findings regarding the availability of other cost-effective preferred resources; this opportunity is provided again when utilities apply for the recovery of costs incurred when contracting with a natural gas-fired project. The Energy Commission's power plant siting process is not a forum in which to re-litigate findings in the IEPR and LTPP proceedings.

Most merchant natural gas-fired generation projects that submit applications for certification to the Energy Commission do not have a long-term contract with a utility that has been approved by the CPUC. In these instances there has been no determination that the project is consistent with the loading order. Denying certification of projects because they have not secured such a contract, however, or delaying certification until a contract is approved, is not in the public interest.

Energy Commission certification of fossil generation without a long-term contract does not result in the development of more fossil generation than that needed to reliably operate the system, as only those projects with approved contracts, i.e., found to be consistent with the loading order, are built.

The CPUC does not require Energy Commission certification for a generation project to participate in a utility RFOs, nor does the Energy Commission require a utility contract for a project to be considered for certification. Requiring the sequencing of these processes would not only lengthen the time needed to bring projects on line and thus potentially threaten system reliability, it would reduce the number of projects that could compete in utility RFOs for new natural gas-fired generation capacity. This could lead to non-competitive solicitations, unnecessarily raising ratepayer costs.

Energy Storage

Multi-hour energy storage is expected to play a major role in the integration of the large quantities of solar generation that are anticipated over the next 20 years as California moves towards a low-carbon electricity system. Surplus generation during mid-day hours will be stored for several hours before being injected in the grid during early

evening hours near, at, or after sundown when residential and commercial loads remain at peak or near-peak levels.

The CPUC has established a target for energy storage development: 1,325 MWs under contract with the state's three major investor owned utilities (IOU's) by 2020 and planned to be on-line by 2024. This total is allocated across both the three utilities and three points of interconnection: the transmission level (700 MWs), the distribution level (425 MWs), and behind the customer meter (200 MWs) (D.13-10-040) (CPUC 2013a).

The recent RFO conducted by Southern California Edison (SCE) yielded proposed contracts with 261.6 MWs of storage. A total of 100 MWs would be located "in front of the meter" at the site of the Alamitos Generating Station, and the remainder would be behind the customer meter. This total exceeds the 200 MWs that the three IOUs are jointly required to procure in the first round of storage RFO.

Energy Storage Is Not an Alternative to the PEP

While energy storage can provide many of the capacity-related reliability services that are currently provided by natural gas-fired generation, the 1,325 MWs targeted by the CPUC is only a small share of the storage that is expected to be needed in the long-run to integrate variable energy resources on the scale anticipated in California's future low-carbon electricity system. As such, new natural gas-fired generation remains necessary for system reliability (e.g., D.13-02-015 in the 2012 LTPP proceeding required the procurement of 1,000 MWs of such generation by SCE) (CPUC 2013b). Moreover, to serve as a replacement for natural gas-fired generation, energy storage would presently need to be interconnected on the utility-side of the meter and controlled by the independent system operator. For planning purposes, the CPUC assumes that only 730 MWs of the 1,325 MWs targeted will provide such dispatchable capacity, and even less will do so while providing more than 2 hours of storage, a likely threshold for providing reliability services (CPUC 2015).

Energy storage that is able to provide reliability services is presently more costly than natural gas-fired generation (Lazard 2015). While the details of the bids into the SCE RFO are confidential, the utility was required to procure least-cost resources subject to the constraint that at least 500 MWs are procured from preferred resources. SCE's procurement of exactly 500 MWs of such resources indicates that additional storage would have been more expensive than natural gas-fired generation.

Finally, while the introduction of energy storage can reduce GHG emissions, this assumes the routine availability of surplus renewable generation during hours in which energy can be injected into storage, which is not expected to be the case for several years. In the interim, energy storage is likely to have an adverse effect on GHG emissions levels due to "round-trip inefficiency" (the losses incurred in the course of storing and re-injecting electricity produced by natural gas-fired generators).

RESPONSE TO PSA COMMENTS

Staff received no comments on the PSA from the project owner, the public, interveners, or agencies, in the area of **Alternatives**.

CONCLUSIONS AND RECOMMENDATIONS

Staff reviewed alternatives previously analyzed for the PHPP design and related facilities, alternative technologies, and the “no project” alternative. In addition, staff analyzed an additional project alternative for the PEP using alternative technology (i.e., energy storage). For the reasons discussed above, staff does not believe that alternative technologies present feasible alternatives to the proposed PEP. Neither an all-solar alternative, nor retention of solar at the PEP, nor a rooftop solar alternative would be alternatives that would achieve the stated objectives of the project. Similarly, staff believes energy storage technology, for reasons discussed above, cannot replace the proposed gas-fired plant with current technology and at current costs.

Alternatives previously found to be infeasible would not now be feasible, and would not substantially reduce one or more significant effects of the PHPP based on new information of substantial importance which was not known in 2011. Similarly, new information does not show alternatives which are considerably different from those analyzed in the previous staff assessment for the PHPP would substantially reduce one or more significant effects on the environment.

In accordance with CEQA Guidelines section 15162 (Cal. Code Regs., tit. 14, § 15162), staff concludes that no supplementation to the 2011 Commission Decision is necessary for Alternatives. The Committee may rely upon the environmental analysis and conclusions of the Decision with regards to Alternatives and does not need to re-analyze them due to the following:

- The changes in the Petition to Amend (PTA) would not create new significant environmental effects or substantial increases in the severity of previously identified significant effects;
- The PTA does not propose substantial changes which would require major revisions of the Alternatives analysis in the Decision; and
- The circumstances under which the PEP would be undertaken would not require major revisions of the Alternatives analysis in the Decision.

Staff’s conclusion is supported by the fact that the previous staff assessment for the PHPP contains an acceptable analysis of a reasonable range of alternatives to the project and contains an adequate review of alternative project sites, linear facilities, fuels, technologies, and the “no project” alternative.

REFERENCES

CEC 2010 - California Energy Commission (tn: 59309), *Palmdale Hybrid Power Project, Final Staff Assessment,* December 22, 2010.

CPUC 2013a - California Public Utilities Commission , State of California, *Decision Adopting Energy Storage Procurement Framework and Design Program; Rulemaking 10-12-007, Filed December 16, 2010; Decision 13-10-040, Date of Issuance October 21, 2013. Table 2*, posted October 21, 2013, <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M079/K533/79533378.PDF>, accessed on December 4, 2015.

CPUC 2013b - California Public Utilities Commission, State of California, *Decision Authorizing Long-Term Procurement for Local Capacity Requirements; Rulemaking 12-03-014, Filed March 22, 2012; Decision 13-02-015 (Track 1 Decision), Date of Issuance February 13, 2013. Pages 2, 7, and 128*, posted February 13, 2013, <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M050/K374/50374520.PDF>, accessed on December 4, 2015.

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Lazard 2015 - *Levelized Cost of Storage Analysis – Version 1.0*, posted November 14, 2015, <https://www.lazard.com/perspective/levelized-cost-of-storage-analysis-10/>. accessed on December 4, 2015.

PALMDALE ENERGY PROJECT CONDITIONS OF CERTIFICATION COMPENDIUM WITH COMPLIANCE CONDITIONS AND MONITORING PLAN (Showing Edits)

PALMDALE ENERGY PROJECT (08-AFC-9C)
Petition to Amend the Final Commission Decision
COMPLIANCE CONDITIONS AND MONITORING PLAN
Eric Veerkamp

INTRODUCTION

The Palmdale Energy Project (PEP) Compliance Conditions of Certification, including a Compliance Monitoring Plan (Compliance Plan), are established as required by Public Resources Code section 25532. The Compliance Plan provides a means for assuring that the facility is constructed, operated, and closed in compliance with public health and safety and environmental law; all other applicable laws, ordinances, regulations, and standards (LORS); and the conditions adopted by the California Energy Commission (Energy Commission) and specified in the Energy Commission's Decision on the project's Application for Certification (AFC), or otherwise required by law.

The Compliance Plan is composed of elements that:

- Set forth the duties and responsibilities of the compliance project manager (CPM), the project owner or operator, delegate agencies, and others;
- Set forth the requirements for handling confidential records and maintaining the compliance record;
- State procedures for settling disputes and making post-certification changes;
- State the requirements for periodic compliance reports and other administrative procedures that are necessary to verify the compliance status for all Energy Commission-approved conditions of certification;
- Establish contingency planning, facility non-operation protocols, and closure requirements; and
- Establish a tracking method for the technical area conditions of certification that contain measures required to mitigate potentially adverse project impacts associated with construction, operation, and closure below a level of significance; each technical condition of certification also includes one or more verification provisions that describe the means of assuring that the condition has been satisfied.

This section has been updated to reflect current definitions, clarify roles and responsibilities, changes in amendment processing. The Compliance Conditions of Certification have been updated based on lessons learned from previous cases.

KEY PROJECT EVENT DEFINITIONS

The following terms and definitions help determine when various conditions of certification are implemented.

PROJECT CERTIFICATION

Project certification occurs on the day the Energy Commission files its decision after adopting it at a publically noticed Business Meeting or hearing. At that time, all Energy Commission conditions of certification become binding on the project owner and the proposed facility. Also at that time, the project enters the compliance phase. It retains the same docket number it had during its siting review, but the letter "C" is added at the end (for example, 08-AFC-9C) to differentiate the compliance phase activities from those of the certification proceeding.

SITE ASSESSMENT AND PRE-CONSTRUCTION ACTIVITIES

The below-listed site assessment and pre-construction activities may be initiated or completed prior to the start of construction, subject to the CPM's approval of the specific site assessment or pre-construction activities.

Site assessment and pre-construction activities include the following, but only to the extent the activities are minimally disruptive to soil and vegetation and will not affect listed or special-status species or other sensitive resources:

1. the installation of environmental monitoring equipment;

2. a minimally invasive 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 minimally invasive work to provide safe access to the site for any of the purposes specified in 1 through 4, above.

SITE MOBILIZATION AND CONSTRUCTION

When a condition of certification requires the project owner to take an action or obtain CPM approval prior to the start of construction, or within a period of time relative to the start of construction, that action must be taken, or approval must be obtained, prior to any site mobilization or construction activities, as defined below.

Site mobilization and construction activities are those necessary to provide site access for construction mobilization and facility installation, including both temporary and permanent equipment and structures, as determined by the CPM.

Site mobilization and construction activities include, but are not limited to:

1. ground disturbance activities like grading, boring, trenching, leveling, mechanical clearing, grubbing, and scraping;

2. site preparation activities, such as access roads, temporary fencing, trailer and utility installation, construction equipment installation and storage, equipment and supply laydown areas, borrow and fill sites, temporary parking facilities, chemical spraying, controlled burns; and

3. permanent installation activities for all facility and linear structures, including access roads, fencing, utilities, parking facilities, equipment storage, mitigation and landscaping activities, and other installations, as applicable.

COMMISSIONING

Commissioning activities test the functionality of the installed components and systems to ensure the facility operates safely and reliably. Commissioning provides a multistage, integrated, and disciplined approach to testing, calibrating, and proving all of the project's systems, software, and networks. For compliance monitoring purposes, examples of commissioning activities include interface connection and utility pre-testing, "cold" and "hot" electrical testing, system pressurization and optimization tests, grid synchronization, and combustion turbine "first fire" and tuning.

START OF COMMERCIAL OPERATION

For compliance monitoring purposes, "commercial operation or "operation" begins once commissioning activities are complete, the certificate of occupancy has been issued, and the power plant has reached reliable steady-state electrical production. At the start of commercial operation, plant control is usually transferred from the construction manager to the plant operations manager. Operation activities can include a steady state of electrical production, or, for "peaker plants," a seasonal or on-demand operational regime to meet peak load demands.

NON-OPERATION AND CLOSURE

Non-operation is time-limited and can encompass part or all of a facility. Non-operation can be a planned event, usually for equipment maintenance or repair, or unplanned, usually the result of unanticipated events or emergencies.

Closure is a facility shutdown with no intent to restart operation. It may also be the cumulative result of unsuccessful efforts to re-start over an increasingly lengthy period of non-operation, condemned by inadequate means and/or lack of a viable plan. Facility closures can occur due to a variety of factors, including, but not limited to, irreparable damage and/or functional or economic obsolescence.

ROLES AND RESPONSIBILITIES

Provided below is a generalized description of the compliance roles and responsibilities for Energy Commission staff (staff) and the project owner for the construction and operation of the PEP project.

COMPLIANCE PROJECT MANAGER RESPONSIBILITIES

The CPM's compliance monitoring and project oversight responsibilities include:

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

2. Resolving complaints;

3. Processing post-certification project amendments for changes to the project description, conditions of certification and ownership or operational control, and requests for extension of the deadline for the start of construction (see COM-10 for instructions on filing a Petition to Amend or to extend a construction start date);

4. Documenting and tracking compliance filings; and

5. Ensuring that the compliance files are maintained and accessible.

The CPM is the primary contact person for the Energy Commission during project pre-construction, construction, operation, emergency response, and closure. The CPM will consult with the appropriate responsible parties when handling compliance issues, disputes, complaints and amendments.

All project compliance submittals are submitted to the CPM for processing. Where a submittal requires CPM approval, required by a condition of certification requires CPM approval, the approval will involve appropriate Energy Commission technical staff and management. All submittals must include searchable electronic versions (.pdf, MS Word, or equivalent files).

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. These meetings are used to assist the Energy Commission and the project owner's technical staff in the status review of all required pre-construction or pre-operation conditions of certification, and facilitate staff taking proper action if outstanding conditions remain. In addition, these meetings shall ensure, to the extent possible, that the Energy Commission's conditions of certification do not delay the construction and operation of the plant due to last minute unforeseen issues or a compliance oversight. Pre-construction meetings held before the Energy Commission approves a project must be publicly noticed unless they are confined to administrative issues and processes.

ENERGY COMMISSION RECORD

The Energy Commission maintains the following documents and information as public record, in either the Compliance file or Dockets Unit files, for the life of the project (or other period as specified):

- All documents demonstrating compliance with any legal requirements relating to the construction, operation, and closure of the facility;
- All Monthly and Annual Compliance Reports (MCRs, ACRs) and other required Periodic Compliance Reports (PCRs) filed by the project owner;
- All project-related formal complaints of alleged noncompliance filed with the Energy Commission; and
- All petitions for project or condition of certification changes and the resulting staff or Energy Commission action.

Chief Building Official Delegation and Agency Cooperation

Under the California Building Code standards, while monitoring project construction and operation, staff acts as, and has the authority of, the Chief Building Official (CBO). Staff may delegate some CBO responsibility to either an independent third-party contractor or a local building official. However, staff retains CBO authority when selecting a delegate CBO (DCBO), including the interpretation and enforcement of state and local codes, and the use of discretion, as necessary, in implementing the various codes and standards.

The DCBO will be responsible for facilitating compliance with all appropriate codes, standards, and Energy Commission requirements. The DCBO will conduct on-site (including linear facilities) reviews and inspections at intervals necessary to fulfill these responsibilities. The project owner will pay all DCBO fees necessary to cover the costs of these reviews and inspections.

PROJECT OWNER RESPONSIBILITIES

The project owner is responsible for ensuring that all conditions of certification and applicable LORS in the PEP amended Decision are satisfied. The project owner will submit all compliance submittals to the CPM for processing unless the conditions specify another recipient. The Compliance Conditions regarding post-certification changes specify measures that the project owner must take when modifying the project's design, operation, or performance requirements, or to transfer ownership or operational control. Failure to comply with any of the conditions of certification or applicable LORS may result in a non-compliance report, an administrative fine, certification revocation, or any combination thereof, as appropriate. A summary of the Compliance Conditions of Certification are included as Compliance Table 1 at the end of this Compliance Plan.

COMPLIANCE ENFORCEMENT

The Energy Commission's legal authority to enforce the terms and conditions of its Decision are specified in Public Resources Code sections 25534 and 25900. The Energy Commission may amend or revoke a project certification and may impose a civil penalty for any significant failure to comply with the terms or conditions of the Decision. The Energy Commission's actions and fine assessments would take into account the specific circumstances of the incident(s).

PERIODIC COMPLIANCE REPORTING

Many of the conditions of certification require submittals in the MCRs and ACRs. All compliance submittals assist the CPM in tracking project activities and monitoring compliance with the terms and conditions of the PEP Decision. During construction, the project owner or an authorized agent will submit compliance reports on a monthly basis. During operation, compliance reports are submitted annually; though reports regarding compliance with various technical area conditions of certification may be required more often (e.g. AIR QUALITY). Further detail regarding the MCR/ACR content and the requirements for an accompanying compliance matrix are described below.

Request for Investigation

Title 20 California Code of Regulations section 1230 through 1231.5 sets forth the formal process for any person to request the Energy Commission investigate an alleged violation of a commission regulation, order or condition of certification. The California Office of Administrative Law provides on-line access to the California Code of Regulations at http://www.oal.ca.gov/.

The steps of the Request for Investigation include the filing, with the executive director, of information regarding the alleged violation, an investigation and a response. Based on the information and the results of the executive director's investigation, the executive director may then bring a complaint against the alleged violator or take other action.

Request for Informal Investigation

While the commission has a formal request for investigation process under section 1230, such a process does not preclude any person with a concern related to a licensed power plant from contacting the CPM. The CPM can work to resolve concerns taking appropriate actions such as contacting the project owner for information, working with other agencies, setting up meetings with stakeholders and recommending the executive director initiate a complaint.

POST-CERTIFICATION CHANGES TO THE ENERGY COMMISSION DECISION

The project owner must petition the Energy Commission pursuant to Title 20, California Code of Regulations, section 1769, to modify the design, operation, or performance requirements of the project and/or the linear facilities, or to transfer ownership or operational control of the facility.

A project owner is required to submit a five thousand ($5,000) dollar fee for every PTA to a previously certified facility, pursuant to Public Resources Code section 25806(e). If the amendment's actual processing costs exceed $5,000.00, the total PTA reimbursement fees owed by a project owner will not exceed the maximum filing fee for an AFC, which is seven hundred fifty thousand dollars ($750,000), adjusted annually. Implementation of a project modification without first securing Energy Commission approval may result in an enforcement action, including civil penalties, in accordance with Public Resources Code, section 25534.

Below is a summary of the criteria for determining the type of approval process required, reflecting the provisions of Title 20, California Code of Regulations, section 1769, at the time this compliance plan was drafted. If the Energy Commission modifies this regulation, the language in effect at the time of the requested change shall apply. Upon request, the CPM can provide sample formats of these submittals.

AMENDMENT

The project owner shall submit a PTA to the Energy Commission Decision, pursuant to Title 20, California Code of Regulations, section 1769 (a), when proposing modifications to the design, operation, or performance requirements of the project and/or the linear facilities. If a proposed modification results in an added, changed, or deleted condition of certification, or makes changes causing noncompliance with any applicable LORS, the petition will be processed as a formal amendment to the Decision, triggering public notification of the proposal, public review of the staff's analysis, and consideration of approval by the full Energy Commission.

CHANGE OF OWNERSHIP AND/OR OPERATIONAL CONTROL

The project owner is required to file a petition pursuant to section 1769 (b) for approval of any changes in ownership or operational control. This process requires public notice and approval by the Energy Commission, but does not require submittal of an amendment processing fee.

STAFF-APPROVED PROJECT MODIFICATION

Modifications that do not result in additions, deletions, or changes to the conditions of certification, that are compliant with the applicable LORS, and that will not have significant environmental impacts, may be authorized by staff pursuant to section 1769 (a)(2). Once the CPM files a Notice of Determination of 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 there is a valid objection to the staff's determination, the petition must be processed as a formal amendment to the Decision and must be considered for approval by the full Energy Commission at a publically noticed Business Meeting or hearing.

VERIFICATION CHANGE

Pursuant to section 1770(d), a verification to a condition of certification may be modified by staff, after giving notice to the project owner, if the change does not conflict with any condition of certification.

EMERGENCY RESPONSE CONTINGENCY PLANNING AND INCIDENT REPORTING

To protect public health and safety and environmental quality, the conditions of certification include contingency planning and incident reporting requirements to ensure compliance with necessary health and safety practices. A well-drafted contingency plan avoids or limits potential hazards and impacts resulting from serious incidents involving personal injury, hazardous spills, flood, fire, explosions or other catastrophic events and ensures a comprehensive timely response. All such incidents must be reported immediately to the CPM and documented. These requirements are designed to build from "lessons learned," limit the hazards and impacts, anticipate and prevent recurrence, and provide for the safe and secure shutdown and re-start of the facility.

FACILITY CLOSURE

The Energy Commission cannot reasonably foresee all potential circumstances in existence when a facility permanently closes. Therefore, the closure conditions provided herein strive for the flexibility to address circumstances that may exist at some future time. Most importantly, facility closure must be consistent with all applicable Energy Commission conditions of certification and the LORS in effect at that time.

Prior to submittal of the facility's Final Closure Plan to the Energy Commission, the project owner and the CPM will hold a meeting to discuss the specific contents of the plan. In the event that significant issues are associated with the plan's approval, the CPM will hold one or more workshops and/or the Energy Commission may hold public hearings as part of its approval procedure.

With the exception of measures to eliminate any immediate threats to public health and safety or to the environment, facility closure activities cannot be initiated until the Energy Commission approves the Final Closure Plan and Cost Estimate, and the project owner complies with any requirements the Energy Commission may incorporate as conditions of approval of the Final Closure Plan.

COMPLIANCE CONDITIONS OF CERTIFICATION

For the PEP project, staff proposes the **Compliance** Conditions of Certification below. Changes from the 2011 Commission Decision are shown in ~~strikethrough~~ for deleted text and **bold underline** for new text.

The language of **COM-1** through **COM-9** have been updated to reflect not only new formatting, but new definitions and compliance enforcement policies. The new **COM-10** has been updated with Compliance Plan information pertaining to Amendments, Staff-Approved Project Modification, Ownership changes, and Verification Changes, and replaces the previous **COM-14**. **COM-11, previously COM-10,** has been updated to incorporate a number of administrative changes to reporting complaints, notices and citations. **COM-12** (Emergency Response Site Contingency Plan), is a new condition requiring a Contingency Plan for emergency response for a number of foreseeable emergency events. **COM-13** (Incident-Reporting Requirements) is also a new condition requiring the project owner to notify the CPM within one hour of any serious event, as defined by the condition, occur. **COM-14** (Non-Operation and Repair/Restoration Plan) and **COM-15** (Facility Closure Planning) replace previous Compliance Plan information pertaining to Facility Closure, unplanned temporary and unplanned permanent. The summary table of conditions and the Compliance Report and Resolution Form at the end of this section, have also been updated.

COM-1 Unrestricted Access ~~(COMPLIANCE-1)~~

~~The~~ **The project owner shall ensure that the** CPM, responsible Staff, and ~~delegated~~ **delegate** agencies ~~or consultants shall be guaranteed and granted~~ are granted unrestricted access to the ~~power plant~~ **facility** site, related

facilities, project-related staff, and the records maintained on-site~~,~~ for the purpose of conducting **facility** audits, surveys, inspections, or general **or closure-related** 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**, whether such visits are by the CPM in person or through representatives from** Staff**, delegated agencies, or consultants**.

COM-2 Compliance Record~~(COMPLIANCE-2)~~

The project owner shall maintain **electronic copies of all** project files **and submittals** on-site**,** or at an alternative site approved by the CPM**,** for the **operational** life **and closure** 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~~. **The files shall also contain at least:**

1. **the facility's Application for Certification;**
2. **all amendment petitions, staff approvals and Energy Commission orders;**
3. **all site-related environmental impact and survey documentation;**
4. **all appraisals, assessments, and studies for the project;**
5. **all finalized original and amended design plans and "as-built" drawings for the entire project;**
6. **all citations, warnings, violations, or corrective actions applicable to the project, and**
7. **the most current versions of any plans, manuals, and training documentation required by the conditions of certification or applicable LORS.**

Staff and delegate agencies shall, upon request to the project owner, be given unrestricted access to the files maintained pursuant to this condition.

COM-3 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 **the** start of construction may require the project owner to file submittals during the ~~certification~~ **amendment** process, particularly if construction is planned to commence shortly after certification.

A cover letter from the project owner or **an** 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, **cite** the appropriate condition~~(s)~~ of certification ~~by condition~~ number(s), and **give** 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 condition(s) of certification applicable.**

All reports and plans required by the project's conditions of certification shall be submitted in a searchable electronic format (.pdf, MS Word or Excel, etc.) and include standard formatting elements such as a table of contents identifying by title and page number each section, table, graphic, exhibit, or addendum. All report and/or plan graphics and maps shall be adequately scaled and shall include a key with descriptive labels, directional headings, a distance scale, and the most recent revision date.

The project owner is responsible for the **content and** delivery of all verification submittals to the CPM and notification that ~~whether such condition was~~ **the actions required by the verification were** satisfied by ~~work performed by~~ the project owner or an agent of the project owner. ~~All hardcopy submittals shall be~~ **All submittals shall be accompanied by an electronic copy on an electronic storage medium, or by e-mail, as agreed upon by the CPM. If hard copy submittals are required, they should be** addressed as follows:

~~Chris Davis,~~ **[Insert Name], Compliance Project Manager**
(~~08~~Palmdale **Energy Project (0**8-AFC-9**C**)
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.~~

COM-4 Pre-Construction Matrix and Tasks Prior to Start of Construction ~~(COMPLIANCE-4)~~

Prior to ~~commencing~~ construction, **the project owner shall submit to the CPM** a compliance matrix ~~addressing~~ **including** only those conditions that must be fulfilled before the start of construction~~ shall be submitted by the project owner to the CPM. This~~**The** matrix ~~will~~**shall** be included with the project owner's first compliance submittal or prior to the first pre-construction meeting, whichever comes first~~. It will~~**, and shall** be submitted in ~~the same~~ **a** format ~~as~~ **similar to** the ~~compliance matrix described~~ **description** below.

~~Construction~~ **Site mobilization and construction activities** shall not ~~commence~~ **start** until the **following have occurred:**

1. **The project owner has submitted the** pre-construction matrix ~~is submitted,~~ **and** all **compliance verifications pertaining to** pre-construction conditions ~~have been complied with,~~ **of certification;** and ~~the~~

2. **The** CPM has issued ~~a~~ **an authorization-to-construct** letter to the project owner ~~authorizing construction. Various lead times~~**.**

The deadlines for ~~submittal of~~ **submitting various** compliance ~~verification documents~~ **verifications** to the CPM ~~for conditions of certification are established to~~ allow **staff** sufficient ~~staff~~ time to review and comment **on,** and, if necessary, **also** allow the project owner to revise the submittal in a timely manner. ~~This will~~ **These procedures help** ensure that project construction ~~may proceed~~ **proceeds** according to schedule. Failure to submit **required** compliance documents ~~within~~ **by** the specified ~~lead-time~~ **deadlines** may result in ~~delays in authorization~~ **delayed authorizations** to commence various stages of **the** project ~~development~~.

If the project owner anticipates ~~commencing project construction as soon as the project is certified~~ **site mobilization immediately following** PTA approval, it may be necessary for the project owner to file compliance submittals prior to project certification. ~~Compliance submittals should~~ **In these instances, compliance verifications can** be ~~completed~~ **submitted** in advance ~~where~~ **of** the ~~necessary lead time for a~~ required ~~compliance event extends beyond~~ **deadlines and** the ~~date~~ anticipated ~~for~~ **authorizations to** start ~~of~~ construction. The project owner must understand that ~~the submittal of~~ **submitting** compliance ~~documents~~ **verifications** prior to ~~project certification~~ **these authorizations** is at the owner's own risk. Any approval by Staff ~~is~~

prior to project certification 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~~**, or amendment thereto, and early staff** compliance ~~with the terms and conditions of~~ **approvals do not imply that** 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.~~ **will certify the project for actual construction and operation.**

COM-5 Compliance Matrix~~(COMPLIANCE-5)~~

~~A~~ **The project owner shall submit a** compliance matrix ~~shall be submitted by the project owner~~ to the CPM ~~along~~ with each ~~monthly~~ **MCR** and ~~annual compliance report.~~ **ACR.** 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~~ **shall** identify:

1. ~~The~~**the** technical area~~:~~ **(e.g., biological resources, facility design, etc.);**
2. ~~The~~**the** condition number;
3. ~~A~~**a** brief description of the verification action or submittal required by the condition;
4. ~~The~~**the** date the submittal is required (e.g., 60 days prior to construction, after final inspection, etc.);
5. ~~The~~**the** expected or actual submittal date;
6. ~~The~~**the** date a submittal or action was approved by the Chief Building Official (CBO), CPM, or delegate agency, if applicable;~~ and~~
7. ~~The~~**the** compliance status of each condition~~,~~ **(**e.g., “not started,” “in progress” or “completed” (include the date~~).~~ **); and**
8. ~~If~~ **if** the condition was amended, the **updated language and the** date ~~of~~ the amendment **was proposed or approved**.

~~Satisfied conditions shall be placed at~~**The CPM can provide a template for** the ~~end of the~~**compliance** matrix~~.~~ **upon request.**

COM-6 Monthly Compliance Report ~~(COMPLIANCE-6)~~

The first ~~Monthly Compliance Report~~ **MCR** is due one month following the ~~Energy Commission business meeting date upon which the project was approved,~~ **docketing of the project's Decision** unless otherwise agreed to by the CPM. The first ~~Monthly Compliance Report~~ **MCR** shall include the AFC number and an initial list of dates for each of the events identified on the Key Events List ~~Form~~**. (The Key Events List form is** found at the end of this ~~section of the Decision.~~ **Compliance Plan.)**

During pre-construction ~~and~~**,** construction ~~of the project~~**, or closure**~~,~~ the project owner or authorized agent shall submit an ~~original and an~~ electronic searchable version of the ~~Monthly Compliance Report~~ **MCR to the CPM** within **ten (**10 ~~working~~**) business** days after the end of each reporting month. ~~Monthly Compliance Reports~~ **MCRs shall be submitted each month until construction is complete and the final certificate of occupancy is issued by the DCBO. MCRs** shall be clearly identified for the month being reported. The ~~reports~~ **MCR** shall contain, at a minimum:

~~A~~**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;

~~Documents~~**2. documents** required by specific conditions to be submitted along with the ~~Monthly Compliance Report.~~ **MCR.** Each of these items ~~must~~ **shall** be identified in the transmittal letter, as well as the conditions they satisfy**,** and submitted as attachments to the ~~Monthly Compliance Report~~ **MCR**;

~~An~~**3. an** initial, and thereafter updated, compliance matrix showing the status of all conditions of certification;

~~A~~**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;

~~A~~**5. a** list of any submittal deadlines that were missed, accompanied by an explanation and an estimate of when the information will be provided;

~~A~~**6. a** cumulative listing of any approved changes to conditions of certification;

~~A~~**7. a** listing of any filings submitted to, ~~or~~ **and** permits issued by, other governmental agencies during the month;

~~A~~**8. a** projection of project compliance activities scheduled during the next **(2)** two months~~. The~~**; 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;

~~A~~**9. a** listing of the month's additions to the on-site compliance file; and

A**10. a** listing of **incidents,** complaints, notices of violation, official warnings, and citations received during the month**; a list of any incidents that occurred during the month,** a description of the resolution of the resolved actions**, taken to date to resolve the issues;** and the status of any unresolved actions **noted in the previous MCRs**.

All sections, exhibits, or addendums shall be separated by tabbed dividers or as acceptable by the CPM.

COM-7 Periodic and Annual Compliance Reports Report (COMPLIANCE-7)

After construction is complete, the project owner shall **must** submit Annual Compliance Reports instead of Monthly Compliance Reports. The **searchable electronic ACRs to the CPM, as well as other PCRs required by the various technical disciplines. ACRs shall be completed** for each year of commercial operation and are due to the CPM each year at **on** a date agreed to by the CPM. Annual Compliance Reports shall **Other PCRs (e.g. quarterly reports or decommissioning reports to monitor closure compliance), may** be submitted over the life of the project unless otherwise specified by the CPM. **The searchable electronic copies may be filed on an electronic storage medium or by e-mail, subject to CPM approval.** Each Annual Compliance Report shall **ACR must** include the AFC number, identify the reporting period, and shall contain the following:

1. An **an** updated compliance matrix showing **which shows** 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 **a** summary of the current project operating status and an explanation of any significant changes to facility operations during the year;

3. Documents**documents** required by specific conditions to be submitted along with the Annual Compliance Report. Each**ACR; each** of these items must**shall** be identified in the transmittal letter with the condition**conditions** it satisfies, and submitted as **an** attachments to the Annual Compliance Report**ACR**;

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

5. An**an** explanation for any submittal deadlines that were missed, accompanied by an estimate of when the information will be provided;

6. A **a** listing of filings submitted to, or permits issued by, other governmental agencies during the year;

7. A **a** projection of project compliance activities scheduled during the next year;

8. A **a** listing of the year's additions to the on-site compliance file;

9. ~~An~~ **an** evaluation of the ~~on-site contingency plan for unplanned facility closure~~Site c**Contingency Plan**, including ~~any suggestions necessary for bringing the plan up to date [see Compliance Conditions for Facility Closure addressed later in this section];~~**amendments** and **plan updates; and**

10. ~~A~~ **a** listing of complaints**, incidents**, notices of violation, official warnings, and citations received during the year, a description of **how** the ~~resolution of any~~**issues were** resolved ~~matters~~, and the status of any unresolved ~~matters~~**complaints**.

COM-8 Confidential Information ~~(COMPLIANCE-8)~~

Any information that the project owner ~~deems~~**designates as** 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).

COM-9 Annual Energy Facility Compliance Fee ~~(COMPLIANCE-9)~~

Pursuant to the provisions of ~~Section~~**section** 25806 (b) of the Public Resources Code, the project owner is required to pay an ~~annual~~ compliance fee which is adjusted annually~~, which is adjusted annually~~. The initial payment is due on the date the Energy Commission ~~adopts~~ **files its** final ~~decision~~**Decision**. All subsequent payments are due by July 1 of each year in which the facility retains its certification. ~~The payment instrument shall be made payable to the California Energy Commission and mailed to: Accounting Office MS-02, California Energy Commission, 1516 9th St., Sacramento, CA 95814.~~

COM-10 Amendments and **Staff-Approved Project Modifications. The project owner shall petition the Energy Commission, pursuant to Title 20, California Code of Regulations, section 1769, to modify the design, operation, or performance requirements of the project or linear facilities, or to transfer ownership or operational control of the facility. Section 1769 details the required contents for a Petition to Amend an Energy Commission Decision.**

A project owner is required to submit a five thousand ($5,000) dollar fee for every Petition to Amend a previously certified facility, pursuant to Public Resources Code section 25806(e). If the actual amendment processing costs exceed $5,000.00, the total Petition to Amend reimbursement fees owed by a project owner will not exceed seven hundred fifty thousand dollars ($750,000), adjusted annually.

COM-11 Reporting of Complaints, Notices, and Citations ~~(COMPLIANCE-10)~~

Prior to the start of construction **or closure**, the project owner ~~must~~**shall** send a letter to property owners ~~living~~ within one **(1)** 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~~**must** include automatic answering with date and time stamp recording. ~~All recorded complaints shall be responded to within 24 hours. The telephone number shall be posted at the project site and made easily visible to passersby during construction and operation. The telephone number shall be provided to 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 respond to all recorded complaints within 24 hours or the next business day. The project site shall post the telephone number on-site and make it easily visible to passersby during construction, operation, and closure. The project owner shall provide the contact information to the CPM and promptly report any disruption to the contact system or telephone number change to the CPM, who will provide it to any persons contacting him or her with a complaint.**

Within five (5) days of receipt, the project owner shall report and provide copies to the CPM**,** of all ~~complaint forms,~~ **complaints, (**including**, but not limited to,** 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~~**NOISE AND VIBRATION Conditions** of ~~certification.~~**Certification.** All other complaints shall be recorded on the complaint form (Attachment A~~).~~**) at the end of this Compliance Plan. Additionally, the project owner must include in the next subsequent MCR, ACR or PCR, copies of all complaints, notices, warnings, citations and fines, a description of how the issues were resolved, and the status of any unresolved or ongoing matters.**

~~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-11)

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 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.~~

COM-12 Emergency Response Site Contingency Plan. No less than 60 days prior to the start of construction (or other CPM-approved date), the project owner shall submit for CPM review and approval, an Emergency Response Site Contingency Plan (Contingency Plan). Subsequently, no less than 60 days prior to the start of commercial operation, the project owner shall update (as necessary) and resubmit the Contingency Plan for CPM review and approval. The Contingency Plan shall evidence a facility's coordinated emergency response and recovery preparedness for a series of reasonably foreseeable emergency events. The CPM may require Contingency Plan updating over the life of the facility. Contingency Plan elements include, but are not limited to:

1. **A site-specific list and direct contact information for persons, agencies, and responders to be notified for an unanticipated event;**

2. **A detailed and labeled facility map, including all fences and gates, the windsock location (if applicable), the on- and off-site assembly areas, and the main roads and highways near the site;**

3. **A detailed and labeled map of population centers, sensitive receptors, and the nearest emergency response facilities;**

4. **A description of the on-site, first response and backup emergency alert and communication systems, site-specific emergency response protocols, and procedures for maintaining the facility's contingency response capabilities, including a detailed map of interior and exterior evacuation routes, and the planned location(s) of all permanent safety equipment;**

5. **An organizational chart including the name, contact information, and first aid/emergency response certification(s) and renewal date(s) for all personnel regularly on-site;**

6. **A brief description of reasonably foreseeable, site-specific incidents and accident sequences (on- and off-site), including response procedures and protocols and site security measures to maintain twenty-four-hour site security;**

7. **Procedures for maintaining contingency response capabilities; and**

8. **The procedures and implementation sequence for the safe and secure shutdown of all non-critical equipment and removal of hazardous materials and waste (see also specific conditions of certification for the technical areas of Public Health, Waste Management, Hazardous Materials Management, and Worker Safety).**

COM-13 Incident-Reporting Requirements. The project owner shall notify the CPM, by telephone and e-mail, within one (1) hour after it is safe and feasible, upon identification of any incident at the power plant or appurtenant facilities that results or could result in any of the following:

1. **A reduction in the maximum output capability of a generating unit of at least ten (10) MW or five (5) percent, whichever is greater, that lasts for fifteen (15) minutes or longer (or such values as trigger CAISO no prior notice outage reporting requirements under any subsequent modifications to CAISO tariff 9.3.10.3.1); facility's ability to respond to dispatch (excluding forced outages cause by protective equipment or other typically encountered shutdown events);**

2. **Potential health impacts to the surrounding population or any release that could result in an off-site odor issue;**

3. **Notification to or response by any off-site emergency response, federal, state or local agency regarding a fire, hazardous materials release, on-site injury, or any physical or cyber security incident.**

The notice shall describe the circumstances, status, and expected duration of the incident. If warranted, as soon as it is safe and feasible, the project owner shall implement the safe shutdown of any non-critical equipment and removal of any hazardous materials and waste that pose a threat to public health and safety and to environmental quality (also, see specific conditions of certification for the technical areas of Hazardous Materials Management and Waste Management). Within one (1) week of the incident, the project owner shall submit to the CPM a detailed incident report, which includes, as appropriate, the following information:

4. **A brief description of the incident, including its date, time, and location;**

5. **A description of the cause of the incident, or likely causes if it is still under investigation;**

6. **The location of any off-site impacts;**

7. **Description of any resultant impacts;**

8. **A description of emergency response actions associated with the incident;**

9. **Identification of responding agencies;**

10. **Identification of emergency notifications made to federal, state, and/or local agencies;**

11. **Identification of any hazardous materials released and an estimate of the quantity released;**

12. **A description of any injuries, fatalities, or property damage that occurred as a result of the incident;**

13. **Fines or violations assessed or being processed by other agencies;**

14. **Name, phone number, and e-mail address of the appropriate facility contact person having knowledge of the event; and**

15. **Corrective actions to prevent a recurrence of the incident.**

The project owner shall maintain all incident report records for the life of the project, including closure. After the submittal of the initial report for any incident, the project owner shall submit to the CPM copies of incident reports within 24 hours of a request.

COM-14 Non-Operation and Repair/Restoration Plans. If the facility ceases operation temporarily (excluding planned maintenance), for longer than one (1) week (or other CPM-approved date), but less than three (3) months (or other CPM-approved date), the project owner shall notify the CPM, interested agencies, and nearby property owners. Notice of planned non-operation shall be given at least two (2) weeks prior to the scheduled date. Notice of unplanned non-operation shall be provided no later than one (1) week after non-operation begins.

For any non-operation, a Repair/Restoration Plan for conducting the activities necessary to restore the facility to availability and reliable and/or improved performance shall be submitted to the CPM within one (1) week after notice of non-operation is given. If non-operation is due to an unplanned incident, temporary repairs and/or corrective actions may be undertaken before the Repair/Restoration Plan is submitted. The Repair/Restoration Plan shall include:

1. **Identification of operational and non-operational components of the plant;**

2. **A detailed description of the repair and inspection or restoration activities;**

3. **A proposed schedule for completing the repair and inspection or restoration activities;**

4. **An assessment of whether or not the proposed activities would require changing, adding, and/or deleting any conditions of certification, and/or would cause noncompliance with any applicable LORS; and**

5. **Planned activities during non-operation, including any measures to ensure continued compliance with all conditions of certification and LORS.**

Written monthly updates (or other CPM-approved intervals) to the CPM for non-operational periods, until operation resumes, shall include:

1. **Progress relative to the schedule;**

2. **Developments that delayed or advanced progress or that may delay or advance future progress;**

3. **Any public, agency, or media comments or complaints; and**

4. **Projected date for the resumption of operation.**

During non-operation, all applicable conditions of certification and reporting requirements remain in effect. If, after one (1) year from the date of the project owner's last report of productive Repair/Restoration Plan work, the facility does not resume operation or does not provide a plan to resume operation, the Executive Director may assign suspended status to the facility and recommend commencement of permanent closure activities. Within 90 days of the Executive Director's determination, the project owner shall do one of the following:

1. **If the facility has a closure plan, the project owner shall update it and submit it for Energy Commission review and approval; or**

2. **If the facility does not have a closure plan, the project owner shall develop one consistent with the requirements in this Compliance Plan and submit it for Energy Commission review and approval.**

COM-15: Facility Closure Planning.

To ensure that a facility's eventual permanent closure and long-term maintenance do not pose a threat to public health and safety and/or to environmental quality, the project owner shall coordinate with the Energy Commission to plan and prepare for eventual permanent closure.

A. Provisional Closure Plan

To assure satisfactory long-term site maintenance and adequate closure for "the whole of a project," the project owner shall include within the first ACR a Provisional Closure Plan for CPM review and approval. The CPM may require Provisional Closure Plan updates to reflect project-modifications approved by the Energy Commission. The Provisional Closure Plan shall consider applicable final closure plan requirements, including interim and long-term maintenance costs and reflect that qualified personnel will carry out permanent closure and long-term maintenance activities.

The Provisional Closure Plan shall reflect the most current regulatory standards, best management practices, and applicable LORS, and provide for a phased closure process and include but not be limited to:

1. **Comprehensive scope of work;**
2. **Dismantling and demolition;**
3. **Recycling and site clean-up;**
4. **Mitigation and monitoring direct, indirect, and cumulative impacts;**
5. **Site remediation and/or restoration;**
6. **Interim and long-term operation monitoring and maintenance, including long-term equipment replacement costs; and**
7. **Contingencies.**

B. Final Closure Plan and Cost Estimate

No less than one (1) year (or other CPM-approved date) prior to initiating a permanent facility closure, the project owner shall submit for Energy Commission review and approval, a Final Closure Plan and Cost Estimate, which includes any long-term, site maintenance and monitoring. Final Closure Plan and Cost Estimate contents include, but are not limited to:

1. **A statement of specific Final Closure Plan objectives;**
2. **A statement of qualifications and resumes of the technical experts proposed to conduct the closure activities, with detailed descriptions of previous power plant closure experience;**
3. **Identification of any facility-related installations or maintenance agreements not part of the Energy Commission certification, designation of who is responsible for these, and an explanation of what will be done with them after closure;**
4. **A comprehensive scope of work and itemized budget for permanent plant closure and long-term site maintenance activities, with a description and explanation of methods to be used, broken down by phases, including, but not limited to:**
   a. **dismantling and demolition;**
   b. **recycling and site clean-up;**
   c. **impact mitigation and monitoring;**

d. **site remediation and/or restoration, including ongoing testing or monitoring protocols;**

e. **exterior maintenance, including paint, landscaping and fencing;**

f. **site security and lighting; and**

g. **any contingencies.**

5. **A Final Cost Estimate for all closure activities, by phases, including long-term site monitoring and maintenance costs, and long-term equipment replacement;**

6. **A schedule projecting all phases of closure activities for the power plant site and all appurtenances constructed as part of the Energy Commission-certified project;**

7. **An electronic submittal package of all relevant plans, drawings, risk assessments, and maintenance schedules and/or reports, including an above- and below-ground infrastructure inventory map and registered engineer's or DCBO's assessment of demolishing the facility; additionally, for any facility that permanently ceased operation prior to submitting a Final Closure Plan and Cost Estimate and for which only minimal or no maintenance has been done since, a comprehensive condition report focused on identifying potential hazards;**

8. **All information additionally required by the facility's conditions of certification applicable to plant closure;**

9. **An equipment disposition plan, including:**

   a. **recycling and disposal methods for equipment and materials; and**

   b. **identification and justification for any equipment and materials that will remain on-site after closure;**

10. **A site disposition plan, including but not limited to:**

    a. **proposed rehabilitation, restoration, and/or remediation procedures, as required by the conditions of certification and applicable LORS, and long-term site maintenance activities.**

11. **Identification and assessment of all potential direct, indirect, and cumulative impacts and proposal of mitigation measures to reduce significant adverse impacts to a less-than-significant level; potential impacts to be considered shall include, but not be limited to:**

    a. **traffic;**

b. noise and vibration;

c. soil erosion;

d. air quality degradation;

e. solid waste;

f. hazardous materials;

g. waste water discharges; and

h. contaminated soil.

12. Identification of all current conditions of certification, LORS, federal, state, regional, and local planning efforts applicable to the facility, and proposed strategies for achieving and maintaining compliance during closure;

13. Updated mailing list and Listserv of all responsible agencies, potentially interested parties, and property owners within one (1) mile of the facility;

14. Identification of alternatives to plant closure and assessment of the feasibility and environmental impacts of these; and

15. Description of and schedule for security measures and safe shutdown of all non-critical equipment and removal of hazardous materials and waste (see conditions of certification for Public Health, Waste Management, Hazardous Materials Management, and Worker Safety).

If the Energy Commission-approved Final Closure Plan and Cost Estimate are not initiated within one (1) year of its approval date, it shall be updated and re-submitted to the Energy Commission for supplementary review and approval. If a project owner initiates but then suspends closure activities, and the suspension continues for longer than one (1) year, the Energy Commission may initiate correction actions against the project owner to complete facility closure. The project owner remains liable for all costs of contingency planning and closure.

Prior to submittal of the ~~proposed facility closure plan,~~ **facility's Final Closure Plan to the Energy Commission, the project owner and the CPM will hold** a meeting ~~shall be held between the project owner and the Energy Commission CPM for the purpose of discussing~~**to discuss** the specific contents of the plan. In the event that ~~there are~~ significant issues **are** associated with the ~~proposed facility closure plan's approval, or the desires of local officials or interested parties are inconsistent with the plan~~**plan's**

approval, the CPM will 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-12)~~

~~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, shall 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 shall 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-13)

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 the Energy Commission Decision: Amendments, Ownership Changes, Staff Approved Project Modifications and Verification Changes (COMPLIANCE-14)

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.

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 you with a sample petition to use as a template.

Change of Ownership

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 you with 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). This process usually requires minimal time to complete, and it requires a 14-day public review of the Notice of Petition to Amend that includes staff's intention to approve the proposed project modification unless substantive objections are filed. These requests must also be submitted in the form of a "petition to amend" as described above.

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.

NONCOMPLIANCE COMPLAINT PROCEDURES

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.

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. 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.

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 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, the project owner shall 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.~~

~~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; 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;~~

Compliance Table 1:
Summary of Compliance Conditions of Certification

KEY EVENTS LIST

PROJECT: _____

DOCKET #: _____

COMPLIANCE PROJECT MANAGER: _____

EVENT DESCRIPTION	DATE
Certification Date	
Obtain Site Control	
On-line Date	
POWER PLANT SITE ACTIVITIES	
Start Site Assessment/Pre-construction	
Start Site Mobilization/Construction	
Begin Pouring Major Foundation Concrete	
Begin Installation of Major Equipment	
Completion of Installation of Major Equipment	
First Combustion of Turbine	
Obtain Building Occupation Permit	
Start Commercial Operation	
Complete All Construction	
TRANSMISSION LINE ACTIVITIES	
Start Transmission Line Construction	
Complete Transmission Line Construction	
Synchronization with Grid and Interconnection	
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

~~PROJECT NAME:~~ ~~AFC~~**Condition Number**~~:~~	**Subject**	
COM-1	**Unrestricted Access**	**The project owner shall grant Staff and delegate agencies or consultants unrestricted access to the power plant site.**~~COMPLAINT LOG NUMBER~~ ~~Complainant's name and address:~~ ~~Phone number:~~
COM-2	**Compliance Record**	**The project owner shall maintain project files on-site.** Staff **and delegate agencies shall be given unrestricted access to the files.**
COM-3	Compliance Verification Submittals	~~Date and time complaint received:~~ ~~Indicate if by telephone or in writing (attach copy if written):~~ ~~Date of first occurrence:~~ The project owner is responsible for the delivery and content of all verification submittals to the CPM, regardless of whether the conditions were satisfied directly by the project owner or by an agent.
~~Description of complaint (including dates, frequency, and duration):~~		
COM-4	**Pre-construction Matrix and Tasks Prior to Start of Construction**	~~Findings of investigation by plant personnel:~~ ~~Indicate if complaint relates to violation of a CEC requirement:~~ ~~Date complainant contacted to discuss findings:~~ **Construction shall not commence until the all of the following activities/submittals have been completed:** • **Project owner has submitted a pre-construction matrix identifying conditions to be fulfilled before the start of construction;** • **Project owner has completed all pre-construction conditions to the CPM's satisfaction; and** • **CPM has issued a letter to the project owner authorizing construction.**
COM-5	**Compliance Matrix**	**The project owner shall submit a compliance matrix (in a spreadsheet format) with each Monthly and Annual Compliance Report, which includes the current status of all Compliance Conditions of Certification.**
COM-6	Monthly Compliance Reports and Key Events List	During construction, the project owner shall submit MCRs which include specific information. The first MCR is due one (1) month following the docketing of the Energy Commission's Decision on the project and shall include an initial list of dates for each of the events identified on the Key Events List.

Compliance Table 1:
Summary of Compliance Conditions of Certification

~~PROJECT NAME: AFC~~**Condition Number**~~:~~	**Subject**	
COM-7	**Periodic and** Annual Compliance Reports	After construction ends, and throughout the life of the project, the project owner shall submit ACRs instead of MCRs.
COM-8	Confidential Information	Any information the project owner designates as confidential shall be submitted to the Energy Commission's Executive Director with a request for confidentiality.
COM-9	Annual Fees	Required payment of the Annual Energy Facility Compliance Fee.
COM-10	Amendments, Staff-Approved Project Modifications, Ownership Changes, and Verification Changes	The project owner shall petition the Energy Commission to delete or change a condition of certification, modify the project design or operational requirements, and/or transfer ownership or operational control of the facility. Petitions to Amend require the payment of amendment processing fees.~~Description of corrective measures taken or other complaint resolution:~~ ~~Indicate if complainant agrees with proposed resolution:~~ ~~If not, explain:~~ ~~Other relevant information:~~
COM-11	**Reporting of Complaints, Notices, and Citations**	~~If corrective action necessary, date completed:~~ ~~Date first letter sent to complainant: _____~~ ~~(copy attached)~~ ~~Date final letter sent to complainant: _____~~ ~~(copy attached)~~**Prior to the start of construction, the project owner shall provide all property owners within a one-mile radius a telephone number to contact project representatives with questions, complaints, or concerns. The project owner shall respond to all recorded complaints within 24 hours. Within ten days of receipt, the project owner shall report to the CPM all notices, complaints, violations, and citations.**
COM-12	**Site Contingency Plan**	~~This information is certified to be correct.~~ ~~Plant Manager's Signature: _____ Date:~~ **No less than 60 days prior to the start of commercial operation, the project owner shall submit an on-site Contingency Plan to ensure protection of public health and safety and environmental quality during a response to an emergency.**
COM-13	**Incident-Reporting Requirements**	**The project owner shall notify the CPM within one (1) hour of an incident and submit a detailed incident report within (1) one week, maintain records of incident report, and submit public health and safety documents with employee training provisions.**
COM-14	**Non-Operation**	**No later than two (2) weeks prior to a facility's planned non-operation, or no later than one (1) week after the start of unplanned non-operation, the project owner shall notify the CPM, interested agencies and nearby property owners of this status. During non-operation, the project owner shall provide written updates to the CPM.**

Compliance Table 1:
Summary of Compliance Conditions of Certification

~~PROJECT NAME: AFC~~**Condition Number**~~:~~	**Subject**	
COM-15	**Facility Closure Planning**	**Within the first ACR, the project owner shall submit a Provisional Closure Plan for permanent closure. No less than one (1) year prior to closing, the project owner shall submit a Final Closure Plan and Cost Estimate.**

~~(Attach additional pages and supporting documentation, as required.)~~

ATTACHMENT A
COMPLAINT REPORT AND RESOLUTION FORM

COMPLAINT LOG NUMBER: _____ **DOCKET NUMBER:** _____

PROJECT AME: _____

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:

"This information is certified to be correct."

PLANT MANAGER SIGNATURE: _____ **DATE:** _____

(ATTACH ADDITIONAL PAGES AND ALL SUPPORTING PHOTO/DOCUMENTATION, AS REQUIRED)

AIR QUALITY CONDITIONS OF CERTIFICATION

Staff recommends modifying the Air Quality Conditions of Certification from the Decision for the PHPP. Generally when conditions are amended they retain the original numbering system in order to maintain the compliance history of each condition. Because PHPP never commenced construction, the Air Quality Conditions of Certification do not have a significant compliance history attach to the specific conditions. Therefore, staff is proposing to renumber the Air Quality Conditions of Certification to incorporate the AVAQMD conditions.

The Air Quality Conditions of Certification are divided into two parts, staff recommended Conditions of Certification and the AVAQMD FDOC conditions. Staff conditions are additional conditions of certification recommended to implement the CEQA analysis and mitigation for the project. Listed below are the proposed changes to the staff recommended conditions of certification identified as the **AQ-SCXX** series of conditions. These changes from the approved PHPP conditions are shown in **bold/underline** for new text and ~~strikethrough~~ for deleted text.

For convenience a clean version of all the conditions reflecting the proposed changes that would be applicable to the PEP will be included in FSA.

STAFF CONDITIONS

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 **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 60 days prior to the start of ground disturbance, **including project-related mitigation such as road paving,** 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. **The AQCMM and all Delegates must be approved by the CPM before the start of ground disturbance.**

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 **AQ-SC3**, **AQ-SC4**, **AQ-SC5**, **AQ-SC6**, **AQ-SC7** and **AQ-SC8. The AQCMP shall include a Monthly Compliance Report (MCR). The project owner shall provide a MCR during construction and commissioning including**

information necessary to demonstrate compliance with the conditions of certification.

Verification: At least 60 days prior to the start of any ground disturbance, the project owner shall submit the AQCMP to the CPM **and District** for approval. The ~~District~~ **CPM** will notify the project owner of any necessary modifications to the plan within 30 days from the date of receipt. **The AQCP must be approved by the CPM before the start of ground disturbance. The project owner shall submit the MCR to the CPM and Antelope Valley Air Quality Management District (District) if requested by the District no later than 30 days following the end of each calendar month.**

AQ-SC3 Construction Fugitive Dust Control: The AQCMM shall submit documentation to the CPM in each Monthly Compliance Report **(MCR)** that demonstrates compliance with the following mitigation measures for the purposes of minimizing fugitive dust emissions created from construction activities and preventing all fugitive dust plumes from leaving the project site **and linear facility routes**. Any deviation from the following mitigation measures shall require prior CPM notification and approval.

A. ~~The main access road through the facility to the Main Services Complex will be paved prior to initiating construction in the Main Services Complex, and delivery areas for operations materials (chemicals, replacement parts, etc.) will be paved or treated prior to taking initial deliveries.~~ **(Deleted)**

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, with or without the use of geotextiles, 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 and stabilized with a non-toxic soil stabilizer or soil weighting agent~~ 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 shall be provided with sandbags or other **similar** ~~equivalently effective~~ measures **as specified in the Storm Water Pollution Prevention Plan (SWPP)** 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 at least twice daily (or 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 at least twice daily (or 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**ed**, or the materials shall 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 al bulk materials transport.** ~~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.

O. **Disturbed areas will be re-vegetated as soon as practical.**

Verification: The AQCMM shall **include in the MCR:** ~~provide the CPM a Monthly Compliance Report (MCR) to include:~~

1. A summary of all actions taken to maintain compliance with this condition;

2. Copies of any complaints filed with the District in relation to project construction; and

3. Any other documentation deemed necessary by the CPM, District or 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**:** (1) off the project site**,** ~~or~~ (2) 200 feet beyond the centerline of the construction of linear facilities**,** or (3) within 100 feet upwind of any regularly occupied structures not owned by the project owner indicate that existing mitigation measures are not resulting in effective mitigation. The AQCMP shall include a section detailing how the additional mitigation measures will be accomplished within the time limits specified. The AQCMM or Delegate shall implement the following procedures for additional mitigation measures in the event that such visible dust plumes are observed:

Step 1: The AQCMM or Delegate shall direct more intensive application of the existing mitigation methods within 15 minutes of making such a determination.

Step 2: The AQCMM or Delegate shall direct implementation of additional methods of dust suppression if step 1 specified above fails to result in adequate mitigation within 30 minutes of the original determination.

Step 3: The AQCMM or Delegate shall direct a temporary shutdown of the activity causing the emissions if step 2, specified above, fails to result in effective mitigation within one hour of the original determination. The activity shall not restart until the AQCMM or Delegate is satisfied that appropriate additional mitigation or other site conditions have changed so that visual dust plumes will not result upon restarting the shutdown source. The owner/operator may appeal to the CPM ~~or District~~ any directive from the AQCMM or Delegate to shut down an activity, provided that the shutdown shall go into effect within one hour of the original determination, unless overruled by the CPM ~~or District~~ before that time.

Verification: The AQCMM shall provide the CPM a MCR to include:

1. A summary of all actions taken to maintain compliance with this condition;

2. Copies of any complaints filed with the District in relation to project construction; and

3. Any other documentation deemed necessary by the CPM or AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion.

AQ-SC5 Diesel-Fueled Engine Control: The AQCMM shall submit to the CPM, in the MCR, a construction mitigation report that demonstrates compliance with the following mitigation measures for purposes of controlling diesel construction-related emissions. Any deviation from the following 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 shall meet, at a minimum, the Tier ~~3~~**4 or 4i** 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. This good faith effort shall be documented with signed written correspondence by the appropriate construction contractors along with documented correspondence with at least two construction equipment rental firms. In the event that a Tier ~~3~~**4 or 4i** engine is not available for any off-road equipment larger than 50 hp, that equipment shall be equipped with a Tier ~~2~~**3** engine, or an engine that is equipped with retrofit controls to reduce exhaust emissions of nitrogen oxides (NOx) and diesel particulate matter (DPM) to no more than Tier ~~2~~**3** 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~~**3** equivalent emission levels and the highest level of available control using retrofit or Tier ~~1~~**2** engines is being used for the engine in question; or

2. The construction equipment is intended to be on site for 5 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 **a table in** the MCR **the following to demonstrate control of diesel construction-related emissions:**:

1. A summary of all actions taken to maintain compliance with this condition,

2. 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

3. 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-SC6** Except for minor activities as allowed by the AQCMM, such as cement pours, construction activities shall be limited to the hours between one hour after sunrise and one hour before sunset from November 5 through February 15. Construction activities taking place from February 16 through November 4 shall be limited to the hours between one hour after sunrise and thirty (30) minutes before sunset.~~

~~**Verification:** The project owner shall include in the MCR a summary of all actions taken to maintain compliance with this condition.~~

~~**AQ-SC7** The project owner, when obtaining dedicated 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. The plan required in AQ-SC 2 shall describe the approach the facility owner will use to meet this condition.

Other vehicle/fuel types may be allowed assuming that the emission profile for those vehicles, including fugitive dust generation emissions, is comparable to the vehicles types identified in this condition.

Verification: At least 30 days prior to the start of commercial production, 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-SC8 The project owner shall provide a site operations dust control plan, including all applicable fugitive dust control measures identified in **AQ-SC3** that would be applicable to reducing fugitive dust from ongoing operations; 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 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, with or without the use of geotextiles, that can be determined to be both as or more efficient for fugitive dust control than 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.

The performance and application of the fugitive dust controls shall also be measured against and meet the performance requirements of condition **AQ-SC4**. The 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 and the District for review and approval a copy of the 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-SC9 Except for emergency pressure relief valves (PRV), each HTF tank shall be connected to a volatile organic compound (VOC) vapor control system at any point where the system can vent to the atmosphere.

Verification: At least 60 days prior to HTF system construction, the project owner shall provide the CPM drawings signed by a registered mechanical engineer showing compliance with this condition and shall also make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.

AQ-SC10 HTF expansion vessel shall be gas tight and vent to a vapor control system with a 99 percent control efficiency for any non-PRV location.

Verification: At least 60 days prior to HTF system construction, the project owner shall provide the CPM drawings signed by a registered mechanical engineer showing compliance with this condition and shall also make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission

AQ-SC11 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 period.

B. The project owner shall maintain record of the amount of HTF replaced on a monthly basis for a period of five years. Should HTF loss exceed the Applicants estimate of 0.2 tons per year, the project owner shall implement the following leak detection and repair measures:

   a. 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.

   b. VOC leaks greater than 100-ppmv shall be tagged (with date and concentration) and repaired within seven calendar days of detection.

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

   d. The project owner shall maintain a log of all VOC leaks exceeding 10,000-ppmv, including location, component type, and repair made.

e. Any detected leak exceeding 100-ppmv and not repaired in 7-days and 10,000-ppmv not repaired within 24-hours shall constitute a violation of the District's Authority to Construct (ATC)/Permit to Operate (PTO).

C. Pressure sensing equipment shall be installed that will be capable of sensing a major rupture or spill within the HTF network.

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-SC12 Each expansion tank shall have fixed roof without holes, tears, or other such openings, except pressure/vacuum (PV) valves, in the cover which allow the emission of VOC.

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-SC13 All expansion tank hatches shall be kept closed and gap-free, except during maintenance, inspection, or repair.

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-SC14 Expansion tank roof appurtenances shall not exhibit emissions exceeding 10,000-ppmv as methane measured with an instrument calibrated with methane and conducted in accordance with U.S. Method 21.

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-SC15 Each expansion tank shall be maintained leak-free. A "leak" is defined as the dripping of liquid volatile organic compounds at a rate of three or more drops per minute, or vapor volatile organic compounds in excess of 10,000-ppm as equivalent methane as determined by EPA Test Method 21.

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-SC16 Project owner shall provide District with total HTF volume required for solar power plant and annual volume of HTF replaced at the facility.

Verification: As part of the Annual Compliance Report the project owner shall include information on HTF total volume and annual usage rates to demonstrate compliance with this condition.

AQ-SC6 The project owner shall submit to the CPM Quarterly Operation Reports, following the end of each calendar quarter that include operational and emissions information as necessary to demonstrate compliance with

the Conditions of Certification herein. The Quarterly Operation Report will specifically state that the facility meets all applicable Conditions of Certification or note or highlight all incidences of noncompliance.

Verification: The project owner shall submit the Quarterly Operation Reports to the CPM and District, if requested by the District, no later than 30 days following the end of each calendar quarter.

~~**AQ-SC17**~~ **AQ-SC7** The project owner shall provide the CPM copies of any District issued Authority-to-Construct (ATC) and Permit-to-Operate (PTO) for the facility. The project owner shall submit to the CPM for review and approval any modification proposed by the project owner to any project air permit. The project owner shall submit to the CPM any modification to any permit proposed by the District or U.S. EPA, and any revised permit issued by the District or U.S. EPA, for the project.

Verification: The project owner shall submit any ATC, PTO, and any proposed air permit modification to the CPM within five working days of its submittal either by 1) the project owner to an agency, or 2) receipt of proposed modifications from an agency. The project owner shall submit all modified air permits to the CPM within 15 days of receipt.

~~**AQ-SC18**~~ **AQ-SC8** ~~The project owner shall demonstrate to the satisfaction of the CPM that adequate emission reduction credits have been purchased prior to start of construction of the project. The project emissions of~~ **139.99** ~~115 and~~ **51.64** ~~40 tons per year of NOx and VOC, respectively, shall be offset at a ratio of 1.3 to one for ERC's within the MDAB or areas in the SJVAB that are within 15 miles of the AVAQMD western boundary (~~**181.997**~~149.5 and~~ **57.13** ~~52 tons per year for NOx and VOC, respectively). If ERCs are obtained from locations greater than 15 miles from the western portion of the AVAQMD, an offset ratio of 1.5 to one shall be utilized for those offsets.~~ **The project owner shall provide mitigation in the form of offsets or emission reduction credits (ERCs) prior to the start of construction of the project. The project emissions of 138.99 tons per year of NOx and 51.65 tons per year of VOC shall be offset at a ratio of 1.3 to one for ERC's within the Mojave Desert Air Basin and 1.5 to one for ERC's from the southern San Joaquin Valley Air Basin. The project owner shall provide a total of 180.7 tons per year of NOx and 77.5 tons per year of VOC mitigation. The project owner shall demonstrate that the reductions are provided in the form required by the District and U.S. EPA.**

The project owner shall provide ERCs from the following list:

- **MDAQMD: ERC Certificate 102**
- **MDAQMD: ERC Certificate 103**
- **SJVAPCD: ERC Certificate S-4039-1**
- **SJVAPCD: ERC Certificate S-3387-1**

- **SJVAPCD: ERC Certificate S-3261-1**

- **SJVAPCD: ERC Certificate S-3442**

The project owner shall surrender the ERCs as required by the District. The project owner shall request District, U.S. EPA, ARB and CPM approval for any substitutions, modifications, or additions to the ERCs.

The CPM, in consultation with the District, U.S. EPA and ARB, may approve any such change to the ERC list provided that the project remains in compliance with all applicable laws, ordinances, regulations, and standards, and that the requested change(s) will not cause the project to result in a significant environmental impact. The District must also confirm that each requested change is consistent with applicable federal and state laws and regulations

Verification: The project owner shall submit to the CPM a copy of all ERCs to be surrendered to the District at least 60 days prior to start construction. Construction shall not begin until the CPM has approved all ERCS. This approval shall be done in consultation with the District**. If a substitution or modification to the list of ERCs is approved by the CPM. District and U.S. EPA, the CPM shall file a statement of the approval with the project owner and Energy Commission docket. The CPM shall maintain an updated list of approved ERCs for the project.**

~~**AQ-SC19**~~ **AQ-SC9** The project owner shall provide ~~137~~ **92.4** tons per year of PM10 ERCs (~~128~~ **81.0** tons per year for PM10 emissions and ~~9~~ **11.39** tons per year for PM10-precursor SOx emissions) that are banked consistent with the Rules and Regulations of the **District** ~~AVAQMD~~. ~~Should the project owner pursue road paving as the method to obtain the necessary PM10 ERCs,~~ t **T**he project owner shall pave~~, with asphalt concrete that meets the current county road standards,~~ unpaved local roads to provide emission reductions of **92.4** ~~137~~ tons per year of PM10~~,~~ prior to **the** start of construction of the project. The project owner shall **complete the road paving according to the revised Paved ERC Data Collection Protocol included as Air Quality Appendix Air-2 to the Final Staff Assessment.** ~~submit a road paving plan that includes a list and pictures of candidate roads to be paved, their actual daily average traffic count including classifications of vehicles (ADT), and daily vehicle miles travel (DVMT), their actual road dust silt content, and calculations showing the appropriate amount of emissions reductions due to paving of each road segment.~~ Calculations of PM10 emission reduction credits shall be performed in accordance with **the ERC Data Collection Protocol.** ~~Sections 13.2.1 and 13.2.2 of the U.S. EPA's AP-42 "Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources", Fifth Edition.~~

Verification: At least ~~30~~ **45** days prior to start of construction, the project owner shall submit documentation showing that the project has obtained ~~137~~ **92.4** tons of banked PM10 ERCs. ~~If the project owner chooses to use road paving to obtain the necessary ERCs, the project owner shall submit to the CPM for review and approval, the road paving plan 30 days prior to submittal of the plan to the AVAQMD~~. Construction shall not begin until the CPM has approved all ERCs. This approval shall be done in

consultation with the District. ~~All paving of roads done for PM10 offset purposes shall be completed at least 15 days prior to start construction of the project~~.

~~**AQ-SC20**~~ **AQ-SC10** The project owner shall minimize emissions associated with the simultaneous commissioning of the combustion turbines and not exceed NOx emissions of 2~~50~~**54** pounds per hour.

Verification: The project owner shall provide operating records in **the MCR** ~~monthly compliance reports~~ to document compliance with this condition.

AQ-SC11 The project owner shall comply with all staff (AQ SC) and district (AQ) Conditions of Certification. The CPM, in consultation with the District, may approve any change to a condition of certification regarding air quality, as a staff approved modification, provided that: (1) the Project remains in compliance with all applicable laws, ordinances, regulations, and standards, (2) the requested change clearly will not cause the Project to result in a significant environmental impact, (3) no additional mitigation or offsets will be required as a result of the change, (4) no existing daily, quarterly, or annual permit limit will be exceeded as a result of the change, and (5) no increase in any daily, quarterly, or annual permit limit will be necessary as a result of the change.

Verification: The project owner shall submit a petition to amend for any proposed change to a condition of certification pursuant to this condition and shall provide the CPM with any additional information the CPM requests to substantiate the basis for approval.

DISTRICT'S PERMIT CONDITIONS

COMBUSTION TURBINE GENERATOR POWER BLOCK ~~AUTHORITY TO CONSTRUCT~~ CONDITIONS

[2 individual 1736.4 MMBtu/hr F Class Gas Combustion Turbine Generators, Application Numbers: 00010013 and 00010014]

AQT-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. **[Rule 204]**

Verification: ~~Not necessary.~~ **As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.**

AQT-2. This equipment shall be exclusively fueled with pipeline quality natural gas with a sulfur content not exceeding 0.2 grains per 100 **dry standard cubic feet (**dscf) on a rolling twelve month average basis, and shall be operated and maintained in ~~strict~~accord**ance** with the recommendations of its manufacturer or supplier and/or sound engineering principles. Compliance with this limit shall be demonstrated by providing evidence of a contract, tariff sheet or other approved documentation that shows that the fuel meets the

definition of pipeline quality gas **and records of monthly fuel sulfur content. [Rule 1303; Rule 431.1; 40 CFR 60.4365; 40 CFR 60.5520(d)(1)].**

Verification: The project owner shall complete, **or obtain from the fuel supplier**, on a monthly basis, a laboratory analysis showing the sulfur content of natural gas being burned at the facility. The sulfur analysis reports shall be incorporated into the quarterly compliance reports.

AQT-3. This equipment is subject to the Federal NSPS codified at 40 CFR Part 60, Subparts A (General Provisions) and KKKK (Standards of Performance for New Stationary Gas Turbines)**, and TTTT (Standards of Performance for Greenhouse Gas Emission from New Stationary Gas Turbines)**. This ~~equipment~~**facility** is also subject to the Prevention of Significant Deterioration (40 CFR ~~51.166~~**52.21**) and Federal Acid Rain (Title IV) programs. Compliance with all applicable provisions of these regulations is required.

Verification: The project owner shall provide the District, the ARB and the CPM copies of the federal PSD and Acid Rain permits no later than 30 days after their issuance.

AQT-4. Emissions from this equipment (including its associated duct burner) shall not exceed the following emission limits at any firing rate, except for CO, NOx and VOC during periods of startup~~,~~ **and** shutdown ~~and malfunction~~:

a. Hourly rates, computed every 15 minutes, verified by CEMS and annual compliance tests:

   i. NOx as NO_2 – ~~16.60 lb/hr (based on 2.0 ppmvd corrected to 15 percent O2 and averaged over one hour)~~ **2.0 ppmvd corrected to 15 percent O_2 and 18.50 lb/hr, based on a 1-hr average**

   ii. CO – ~~15.15 lb/hr (based on 2.0 ppmvd (3.0 ppmvd with duct firing) corrected to 15 percent O2 and averaged over one hour)~~ **2.0 ppmvd corrected to 15 percent O_2 and 11.30 lb/hr, based on a 1-hr average**

b. Hourly rates, verified by ~~annual~~ compliance tests or other compliance methods in the case of SOx:

   i. VOC as CH_4 – ~~5.80 lb/hr (based on 1.4 ppmvd (2.0 ppmvd with duct firing) corrected to 15 percent O_2)~~ **2.0 ppmvd corrected to 15 percent O2 and 6.36 lb/hr**

   ii. SOx as SO_2 – ~~1.29~~**5.63** lb/hr (based on 0.~~2~~**75** grains/100 dscf fuel sulfur)

   iii. PM10**/2.5** – ~~18.0~~**11.80** lb/hr

Emissions from this equipment (not including the associated duct burner) shall not exceed the following emission limits at any firing rate, except for CO, NOx and VOC during periods of startup and shutdown.

c. **Hourly rates, computed every 15 minutes, verified by CEMS and annual compliance tests:**

i. **NOx as NO_2 – 2.0 ppmvd corrected to 15 percent O2 and 17.10 lb/hr averaged over one hour**

ii. **CO – 2.0 ppmvd corrected to 15 percent O2 and 10.40 lb/hr, averaged over one hour**

d. **Hourly rates, verified by compliance tests or other compliance methods in the case of SOx:**

i. **VOC as CH_4 – 1.0 ppmvd corrected to 15 percent O2 and 3.00 lb/hr**

ii. **SOx as SO_2 – 5.25 lb/hr (based on 0.75 grains/100 dscf fuel sulfur)**

iii. **PM10/2.5 – 9.80 lb/hr**

[Rule 404; Rule 407; Rule 409; Rule 475; Rule 1134; Rule 1303; NSPS Subpart KKKK]

Verification: The project owner shall submit to the District and CPM the quarterly and annual compliance reports as required by ~~**AQT-17**~~ **AQ-SC6.**

AQT-5. Emissions of CO and NOx from this equipment shall only exceed the limits contained in Condition **AQT-4** during startup and shutdown periods as follows**. Transient conditions shall not exceed the following durations**:

~~a. Startup is defined as the period beginning with ignition and lasting until the equipment has reached operating permit limits, i.e., the applicable emission limits listed in Condition **AQT-4**. Cold startup is defined as a startup when the CTG has not been in operation during the preceding continuous 48 hours, although a startup after an aborted partial cold start is still considered a cold start (a cold start that does not reach 85 percent output). Other startup is defined as a startup that is not a cold startup. Shutdown is defined as the period beginning with the lowering of equipment from base load and lasting until fuel flow is completely off and combustion has ceased.~~

~~b. Transient conditions shall not exceed the following durations:~~

~~i. Cold startup – 110 minutes~~

~~ii. Other startup – 80 minutes~~

~~iii. Shutdown – 30 minutes~~

~~c. During a cold startup emissions shall not exceed the following, verified by CEMS:~~

~~i. NOx – 96 lb~~

~~ii. CO – 410 lb~~

~~d. During any other startup emissions shall not exceed the following, verified by CEMS:~~

~~i. NOx – 40 lb~~

~~ii. CO – 329 lb~~

~~e. During a shutdown emissions shall not exceed the following, verified by CEMS:~~

~~i. NOx – 57 lb~~

~~ii. CO – 337 lb~~

a. Cold Startup – A gas turbine (GT) startup (SU) that occurs when the steam turbine (ST) rotor temperature is less than 485˚F after a GT shutdown (SD), and is limited in time to the lesser of:

i. the first 39 minutes of continuous fuel flow to the GT after ignition; or

ii. the period of time from GT ignition until the GT achieves the first of two consecutive CEM data points in compliance with the emission concentration limits of Parts 4(a) and 4(b).

b. Warm Startup – A GT SU that occurs when the ST rotor temperature is greater than or equal to 485˚F but less than 685˚F after a GT SD, and is limited in time to the lesser of:

i. the first 35 minutes of continuous fuel flow to the GT after ignition; or

ii. the period of time from GT ignition until the GT achieves the first of two consecutive CEM data points in compliance with the emission concentration limits of Parts 4(a) and 4(b).

c. Hot Startup – A GT startup (SU) that occurs when the ST rotor temperature is greater than or equal to 685˚F after a GT SD, and is limited in time to the lesser of:

i. the first 30 minutes of continuous fuel flow to the GT after ignition; or

ii. the period of time from GT ignition until the GT achieves the first of two consecutive CEM data points in compliance with the emission concentration limits of Parts 4(a) and 4(b).

d. Shutdown – The lesser of the 25-minute period immediately prior to the termination of fuel flow to the GT or the period of time from non-

compliance with any requirements listed in Parts 4(a) and 4(b) until termination of fuel flow to the GT.

e. During a cold startup emissions shall not exceed the following, verified by CEMS:

i. NOx – 52 lb

ii. CO – 416 lb

f. During a warm startup emissions shall not exceed the following, verified by CEMS:

i. NOx – 47 lb

ii. CO – 378 lb

g. During a hot startup emissions shall not exceed the following, verified by CEMS:

i. NOx – 43 lb

ii. CO – 76 lb

h. During a shutdown emissions shall not exceed the following, verified by CEMS:

i. NOx – 33 lb

ii. CO – 76 lb

[Rule 1303]

Verification: The project owner shall submit to the District and CPM the quarterly and annual compliance reports as required by ~~**AQT-17**~~ **AQ-SC6**.

AQT-6. Emissions **(including startup, shutdown, and malfunction)** from this facility, including the duct burner, auxiliary equipment, **and** engines, ~~cooling tower,~~ shall not exceed the following emission limits, based on a calendar day summary:

a. NOx ~~– 1359~~ **1,141** lb/day, verified by **the turbine** CEMS

b. CO ~~– 4833~~ **2,179** lb/day, verified by **the turbine** CEMS

c. VOC as CH_4 ~~– 577~~ **472** lb/day, verified by compliance tests**, fuel use data,** and hours of operation in mode

d. SOx as SO_2 ~~– 64~~ **271** lb/day, verified by fuel sulfur content and fuel use data

e. PM10**/2.5** ~~– 931~~ **568** lb/day, verified by compliance tests**, fuel use data,**

and hours of operation

[Rule 1303]

Verification: The project owner shall submit to the District and CPM the quarterly and annual compliance reports as required by ~~**AQT-17**~~ **AQ-SC6**.

AQT-7. Emissions from this facility, including the duct burner, auxiliary ~~equipment,~~ **boiler, and** engines~~, cooling tower and fugitive dust for vehicle use in the solar field,~~ shall not exceed the following emission limits, based on a rolling 12 month summary:

a. NOx – ~~115~~ **138.99** tons/year, verified by CEMS

b. CO – ~~255~~ **351.09** tons/year, verified by CEMS

c. VOC as CH_4 – ~~40~~ **51.65** tons/year, verified by compliance tests**, fuel use data,** and hours of operation in mode

d. SOx as SO_2 – ~~9~~ **11.39** tons/year, verified by fuel sulfur content and fuel use data

e. PM10 – ~~128~~ **81.01** tons/year, verified by compliance tests**, fuel use data** and hours of operation

f. PM2.5 – ~~125~~ **81.01** tons/year, verified by compliance tests**, fuel use data** and hours of operation

[Rule 1303]

Verification: The project owner shall submit to the District and CPM the quarterly and annual compliance reports as required by ~~**AQT-17**~~ **AQ-SC6**~~. Note, the requirement for compliance tests applies only to the stationary sources and fugitive emissions will be verified according to a District approved calculation protocol.~~

AQT-8. Particulate emissions from this equipment shall not exceed an opacity equal to or greater than 20 percent for a period aggregating more than three (3) minutes in any one (1) hour, excluding uncombined water vapor

[Rule 401].

Verification: The project owner shall submit to the District and CPM the quarterly and annual compliance reports as required by ~~**AQT-17**~~ **AQ-SC6**.

AQT-9. This equipment shall exhaust through a stack at a minimum height of ~~145~~ **160** feet.

[Rule 1303]

Verification: At least 60 days prior to construction of the turbine stacks, the project owner shall provide the District and CPM an “approved for construction” drawing showing the appropriate stack height and location of sampling ports and platforms. The

project owner shall make the site available to the District, **U.S.** EPA and the CPM for inspection.

AQT-10. The ~~owner/operator~~ **project owner** shall not operate this equipment after the initial commissioning period without the oxidation catalyst with **a** valid District permit ~~C00nnnn~~[1] and the selective catalytic reduction system with **a** valid District permit ~~C00nnnn~~[2] installed**.** ~~and fully functional, i.e., enables the combustion turbines to meet the emission limits listed in condition **AQT-4**.~~

[Rule 1303]

Verification: As part of the quarterly and annual compliance reports, the project owner shall provide information on any major problem in the operation of the oxidizing catalyst and SCR Systems for the gas turbines and HRSGs. The information shall include, at a minimum, the date and description of the problem and the steps taken to resolve the problem.

AQT-11. The ~~owner/operator~~ **project owner** shall provide stack sampling ports and platforms necessary to perform source tests required to verify compliance with District rules, regulations and permit conditions. The location of these ports and platforms shall be subject to District approval.

[Rule 1303]

Verification: At least 60 days prior to construction of the turbine stacks, the project owner shall provide the District and CPM an "approved for construction" drawing showing the appropriate stack height and location of sampling ports and platforms. The project owner shall make the site available to the District, **U.S.** EPA and ~~CEC~~ **Energy Commission** Staff for inspection.

AQT-12. Emissions of NOx~~,~~ **and** CO, **and** oxygen ~~and ammonia slip~~ shall be monitored using a Continuous Emissions Monitoring System (CEMS). **Ammonia slip shall be monitored using a Parametric Emissions Monitoring System (PEMS).** Turbine fuel consumption shall be monitored using a continuous monitoring system. Stack gas flow rate shall be monitored using either a Continuous Emission Rate Monitoring System (CERMS) meeting the requirements of 40 CFR 75 Appendix A or a stack flow rate calculation method. The ~~owner/operator~~ **project owner** shall install, calibrate, maintain, and operate these monitoring systems according to a District-approved monitoring plan **District**~~AVAQMD~~ Rule 218, 40 CFR 60 and/or 40 CFR 75[3] as applicable. **[Rule 1134; Rule 1303; NSPS KKKK]**

Verification: The ~~owner/operator~~ **project owner** shall install, calibrate, maintain, and operate these monitoring systems according to a District-approved monitoring plan and **District**~~AVAQMD~~ Rule 218, and they shall be installed prior to initial equipment startup after initial steam blows are completed. Two (2) months prior to installation the operator shall submit a monitoring plan for District **and CPM** review and approval.

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[1] ~~As shown in FDOC, permit number yet to be assigned.~~

[2] ~~As shown in FDOC, permit number yet to be assigned.~~

[3] Where 40 CFR 60 and 40 CFR 75 are applicable but inconsistent, 40 CFR 60 shall take precedent.

AQT-13. The owner/operator project owner 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 operator 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. **[District Compliance Test Procedural Manual; Rule 1303; Rule 1134]**

Verification: The project owner shall notify the District and the CPM within ten (10) working days before the execution of the **compliance/certification**~~source~~ tests required in this condition. **Compliance/certification**~~Source~~ test results shall be submitted to the District and to the CPM within 45 days of the date of the tests.

AQT-14. **After the initial compliance test, t**~~T~~he ~~owner/operator~~ **project owner** shall perform the following ~~annual~~ compliance tests **at least as often as once every three years** on this equipment in accordance with the **District**~~AVAQMD~~ 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 15 percent oxygen and lb/hr (measured per USEPA Reference Methods 19 and 20).

b. VOC as CH_4 in ppmvd at 15 percent oxygen and lb/hr (measured per USEPA Reference Methods 25A and 18).

c. SOx as SO_2 in ppmvd at 15 percent oxygen and lb/hr~~.~~ **(measured per USEPA Reference Method 6 or 6C or equivalent).**

d. CO in ppmvd at 15 percent oxygen and lb/hr (measured per USEPA Reference Method 10).

e. PM10 and PM2.5 in mg/m^3 at 15 percent 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 **(measured per USEPA Method 2B)**.

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

h. Ammonia slip in ppmvd at 15 percent oxygen. **(measured per BAAQMD ST-1B)**

[Rule 1134; Rule 1303]

Verification: The project owner shall notify the District and the CPM within ~~seven~~ **ten** (**10**~~7~~) working days before the execution of the source tests required in this condition. Source test results shall be submitted to the District and to the CPM within 60

days of the date of the tests.

AQT-15. The ~~owner/operator~~ **project owner** shall, at least as often as once every **three** ~~five~~ years **following planned facility outages** (commencing with the initial compliance test), include the following supplemental source tests ~~in the annual compliance testing~~:

a. Characterization of cold startup VOC emissions;

b. Characterization of other startup VOC emissions; and

c. Characterization of shutdown VOC emissions.

[Rule 1303]

Verification: The project owner shall notify the District and the CPM within ten (10) working days before the execution of the source tests required in this condition. Source test results shall be submitted to the District and to the CPM within 60 days of the date of the tests.

AQT-16. Continuous monitoring systems shall meet the following acceptability testing requirements from 40 CFR 60 Appendix B (or otherwise District approved):

a. For NOx, .40 CFR 75.

b. For O_2, Performance Specification 3.

c. For CO, Performance Specification 4.

d. For stack gas flow rate, **40 CFR 75**.~~Performance Specification 6 (if CERMS is installed).~~

e. For ammonia, a District approved procedure that is to be submitted by the **project owner** ~~owner/operator~~.

f. For stack gas flow rate (without CERMS), a District approved procedure that is to be submitted by the **project owner**~~owner/operator~~.

[Rule 218; Rule 1134]

Verification: The ~~owner/operator~~ **project owner** shall install, calibrate, maintain, and operate these monitoring systems according to a District-approved monitoring plan and **District**~~AVAQMD~~ Rule 218, and they shall be installed prior to initial equipment startup after initial steam blows are completed. Sixty (60) days prior to installation, the operator shall submit a monitoring plan for District **and CPM for** review and approval. ~~and the CPM for review.~~

AQT-17. The ~~owner/operator~~ **project owner** shall submit to the APCO and USEPA Region IX the following information for the preceding calendar quarter by January 30, April 30, July 30 and October 30 of each year this permit is in

effect. Each January 30 submittal shall include a summary of the reported information for the previous year. This information shall be maintained on site and current for a minimum of five (5) years and shall be provided to District personnel on request:

a. Operating parameters of emission control equipment, including but not limited to ammonia injection rate, NOx emission rate and ammonia slip.

b. Total plant operation time (hours), duct burner operation time (hours), number of startups, hours in cold startup, hours in other startup, and hours in shutdown.

c. Date and time of the beginning and end of each startup and shutdown period.

d. Average plant operation schedule (hours per day, days per week, weeks per year).

e. All continuous emissions data reduced and reported in accordance with the District approved CEMS protocol.

f. Maximum hourly, maximum daily, total quarterly, and total calendar year emissions of NOx, CO, PM10, **PM2.5,** VOC and SOx (including calculation protocol).

g. Fuel sulfur content (monthly laboratory analyses, monthly natural gas sulfur content reports from the natural gas supplier(s), or the results of a custom fuel monitoring schedule approved by U.S. EPA for compliance with the fuel monitoring provisions of 40 CFR 60 Subpart KKKK and 40 CFR Part 72 as applicable)

h. A log of all excess emissions, including the information regarding malfunctions/breakdowns required by Rule 430.

i. Any permanent changes made in the plant process or production which would affect air pollutant emissions, and indicate when changes were made.

j. Any maintenance to any air pollutant control system (recorded on an as-performed basis).

k. **Records of steam turbine rotor temperature.**

[Rule 1303; Subpart KKKK; Rule 431.1; Rule 430; Rule 1134]

Verification: The project owner shall prepare quarterly reports for the preceding calendar quarters by January 30, April 30, July 30 and October 30 with the January 30 report including an annual summary. The reports shall be submitted to the District, **U.S.** EPA and the CPM.

AQT-18. The ~~owner/operator~~ **project owner** must surrender to the District sufficient

valid Emission Reduction Credits for this equipment before the start of construction of any part of the project for which this equipment is intended to be used. In accordance with Regulation XIII, the operator shall obtain ~~150~~ **180.7** tons of NOx, ~~52~~**77.5** tons of VOC, and ~~128~~**81.0** tons of PM10 offsets.

[Rule 1303(B); Rule 1305; Rule 1309]

Verification: The project owner shall submit to the CPM **for approval** a copy of all ERCs to be surrendered to the District at least 60 days prior to start construction. **Construction shall not begin prior to CPM approval of the ERCs.**

AQT-19. During an initial commissioning period of no more than 180 days, commencing with the first firing of fuel in this equipment, NOx, CO, VOC and ammonia concentration limits shall not apply. The ~~owner/operator~~ **project owner** shall minimize emission of NOx, CO, VOC and ammonia to the maximum extent possible during the initial commissioning period.

[Rule 1303]

Verification: The ~~owner/operator~~ **project owner** shall submit a MCR to the CPM specifying how this condition is being complied with. In addition, the project owner shall provide evidence of the District's approval of the emission monitoring system to the CPM prior to first firing of the gas turbines.

AQT-20. The ~~owner/operator~~ **project owner** shall tune each CTG and HRSG to minimize emissions of criteria pollutants at the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor.

[Rule 1303]

Verification: The project owner shall submit a MCR to the CPM specifying how this condition is being complied with. In addition, the project owner shall provide evidence of the District's approval of the emission monitoring system to the CPM prior to first firing of the gas turbines.

AQT-21. The ~~owner/operator~~ **project owner** shall install, adjust and operate each SCR system to minimize emissions of NOx from the CTG and HRSG at the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor. The NOx and ammonia concentration limits **of condition AQT-4 above and condition AQSCR-4 below (SCR conditions)** shall apply coincident with the steady state operation of the SCR systems.

[Rule 1303]

Verification: The project owner shall submit a MCR to the CPM specifying how this condition is being complied with. In addition, the project owner shall provide evidence of the District's approval of the emission monitoring system to the CPM prior to first firing of the gas turbines.

AQT-22. The ~~owner/operator~~ **project owner** shall submit a commissioning plan to the

District and the ~~CEC~~ **Energy Commission** at least four weeks prior to the first firing of fuel in this equipment. The commissioning plan shall describe the procedures to be followed during the commissioning of the CTGs, HRSGs and steam turbine. The commissioning plan shall include a description of each commissioning activity, the anticipated duration of each activity in hours, and the purpose of the activity. The activities described shall include, but not be limited to, the tuning of the dry low NOx combustors, the installation and testing of the CEMS, and any activities requiring the firing of the CTGs and HRSGs without abatement by an SCR system.

[Rule 1303]

Verification: The project owner shall submit a MCR to the CPM specifying how this condition is being complied with.

AQT-23. The total number of firing hours of each CTG and HRSG without abatement of NOx by the SCR shall not exceed ~~624~~ **639** hours during the initial commissioning period. Such operation without NOx abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR system in place and operating. Upon completion of these activities, the ~~owner/operator~~ **project owner** shall provide written notice to the District and CEC and the unused balance of the unabated firing hours shall expire.

[Rule 1303]

Verification: The project owner shall submit a MCR to the CPM specifying how this condition is being complied with.

AQT-24. During the initial commissioning period, emissions from this facility shall not exceed the following emission limits (verified by PEMS):

a. NOx - ~~32~~ **30** tons, and ~~242~~ **132** pounds/hour/CTG

b. CO - ~~118~~ **185** tons, and ~~1337~~ **4,500** pounds/hour/CTG

[Rule 1303]

Verification: The project owner shall submit a MCR to the CPM specifying how this condition is being complied with.

AQT-25. ~~Within 60 days after achieving the maximum firing rate at which the facility will be operated, but not~~ **No** later than 180 days after initial startup, the **project owner** ~~operator~~ shall perform an initial compliance test. This test shall demonstrate that this equipment is capable of operation at 100 percent load in compliance with the emission limits in Condition **AQT-4**.

[Rule 1303

Verification: No later than 30 working days before the commencement of the **initial compliance**~~source~~ tests, the project owner shall submit to the District and the CPM a detailed source test plan designed to satisfy the requirements of this condition. The

project owner shall incorporate the District and CPM comments into the test plan. The project owner shall notify the District and the CPM at least ten (10) working days prior to the planned source testing date. Source test results shall be submitted to the District and the CPM within 60 days of the source testing date.

AQT-26. The initial compliance test shall include tests for the following. The results of the initial compliance test shall be used to prepare a supplemental health risk analysis if required by the District:

a. ~~PAH~~ **Formaldehyde**;

b. Certification of CEMS**, PEMS,** and CERMS (or stack gas flow calculation method) at 100 percent load, startup modes and shutdown mode;

c. Characterization of cold startup VOC emissions;

d. Characterization of other startup VOC emissions; and

e. Characterization of shutdown VOC emissions.

[Rule 1303]

Verification: No later than 30 working days before the commencement of the **initial compliance** ~~source~~ tests, the project owner shall submit to the District and the CPM a detailed source test plan designed to satisfy the requirements of this condition. Source test results shall be submitted to the District and the CPM within 60 days of the source testing date.

AQT-27. This equipment is subject to 40 CFR 60 Subpart TTTT – Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units. Carbon dioxide emissions from this turbine shall not exceed 1,000 lb CO_2/MWh (gross) or 1,030 lb CO_2/MWh (net). [40 CFR 60 Subpart TTTT §60.5520]

Verification: The project owner shall submit to the CPM for approval all emissions and emission calculations to demonstrate compliance with this condition as part of the 4th quarter operational report.

HRSG DUCT BURNER ~~AUTHORITY TO CONSTRUCT~~ CONDITIONS

[2 individual ~~424.3~~ **193.1** MMBtu/hr Natural Gas Duct Burners, Application Numbers: ~~00000000 and 00000000~~ **AV2000000512 and AV20000005131**]

AQDB-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.

[Rule 204]

Verification: ~~Not necessary.~~ **As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.**

AQDB-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.

[Rule 431.1; Rule 1303]

Verification: The project owner shall complete, on a monthly basis, a laboratory analysis showing the sulfur content of natural gas being burned at the facility. The sulfur analysis reports shall be incorporated into the quarterly compliance reports.

AQDB-3. The duct burner shall not be operated unless the combustion turbine generator with **a** valid District permit ~~#,~~ catalytic oxidation system with **a** valid District permit ~~#~~, and selective catalytic NOx reduction system with **a** valid District permit ~~#~~ are in operation.[4]

[Rule 1303]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQDB-4. This equipment shall not be operated for more than ~~2000~~ **1,500** hours per rolling twelve month period.

[Rule 1303]

Verification: The project owner shall submit to the ~~District and~~ CPM the **hours of duct burner operation on a rolling twelve month basis in the** quarterly and annual compliance reports as required by ~~**AQT-17**~~ **AQ-SC6**.

AQDB-5. Monthly hours of operation for this equipment shall be recorded and maintained on site for a minimum of five (5) years and shall be provided to District personnel on request.

[Rule 1303]

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, **U.S.** EPA and CPM.

OXIDATION CATALYST SYSTEM ~~AUTHORITY TO CONSTRUCT~~ CONDITIONS

[2 individual oxidation catalyst systems, Application Numbers: ~~0010011 and 0010012~~ **AV2000000506 and AV2000000507**]

AQOC-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.

[4] All permit numbers are yet to be assigned.

[Rule 204]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQOC-2. This equipment shall be operated and maintained in strict accord with the recommendations of its manufacturer or supplier and/or sound engineering principles.

[Rule 204]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQOC-3. This equipment shall be operated concurrently with the combustion turbine generator with **a** valid District permit ~~B00nnnn~~.[5]

[Rule 1303]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

SELECTIVE CATALYTIC REDUCTION SYSTEM ~~AUTHORITY TO CONSTRUCT~~ CONDITIONS

[2 individual SCR systems, Application Numbers: ~~0010011 and 0010012~~ **AV2000000508 and AV2000000509**]

AQSCR-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.

[Rule 204]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQSCR-2. This equipment shall be operated and maintained in strict accord with the recommendations of its manufacturer or supplier and/or sound engineering principles.

[Rule 204]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

[5] As represented in FDOC; permit number to be assigned.

AQSCR-3 This equipment shall be operated concurrently with the combustion turbine generator with **a** valid District permit ~~B00nnnn~~.[6]

[Rule 1303]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition. **[Rule 204]**

AQSCR-4 Ammonia shall be injected whenever the selective catalytic reduction system has reached or exceeded ~~550°~~ **400 degrees** Fahrenheit except for periods of equipment malfunction. ~~Except during periods of startup, shutdown and malfunction, ammonia slip shall not exceed 5 ppmvd (corrected to 15 percent O_2), averaged over three hours~~. **[Rule 1303]**

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQSCR-5 Except during periods of startup and shutdown, ammonia slip shall not exceed 5 ppmvd averaged over one hour at 15 percent O_2 dry. The project owner shall calculate and continuously record the NH_3 slip concentration using the following:

NH_3 (ppmv) = [a-b*(c*1.2)/1E6]*1E6/b; where:

a = NH3 injection rater (lb/hr)/17(lb/lbmol)

b = dry exhaust gas flow rate (scf/hr)/385.3 (scf/lbmol)

c = change in measured NOx across the SCR, ppmvd at 15 percent O_2

The project owner shall install a NOx analyzer to measure the SCR inlet NOx ppm accurate to within +/- 5 percent calibrated at least once every 12 months.

The project owner shall use the method described above or another alternative method approved by the APCO.

The ammonia slip calculation procedures described above shall not be used for compliance determination or emission information determination without corroborative data using an approved reference method for the determination of ammonia. [Rule 1303]

Verification: The project owner shall include ammonia slip concentrations averages on an hourly basis as part of the Quarterly Operation Report. The project owner shall submit all SCR inlet NOx analyzer calibration results to the CPM within 60 days of the calibration date. Exceedances of the ammonia limit shall be reported and chronic exceedances of the ammonia slip limit, defined as

[6] As represented in FDOC; permit number to be assigned.

occurring more than 10 percent of the operation for any single HRSG exhaust stack, shall be identified by the project owner and confirmed by the CPM within 60 days of the submitted Quarterly Operation Report that indicates chronic exceedances. If a chronic exceedance is identified and confirmed, the project owner shall work in conjunction with the CPM to develop a reasonable compliance plan to investigate and redress the chronic exceedance of the ammonia slip limit within 60 days of the above confirmation.

~~AQSCR-6~~~~Ammonia injection by this equipment in pounds per hour shall be recorded and maintained on site for a minimum of five (5) years and shall be provided to AVAQMD personnel on request~~. The project owner shall record and maintain for this equipment the following on site for a minimum of five (5) years and shall be provided to District personnel upon request.

a. Ammonia injection, in pounds per hour

b. Temperature, in degrees Fahrenheit at the inlet to the SCR.

[Rule 1303]

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, **U.S.** EPA and CPM.

~~COOLING TOWER AUTHORITY TO CONSTRUCT CONDITIONS~~

~~[One Cooling Tower, Application Number: 0010019]~~

~~AQCT-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:~~ ~~As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.~~

~~AQCT-2.~~ ~~This equipment shall be operated and maintained in strict accord with the recommendations of its manufacturer or supplier and/or sound engineering principles.~~

~~Verification:~~ ~~As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.~~

~~AQCT-3.~~ ~~The drift rate shall not exceed 0.0005 percent with a maximum circulation rate of 130,000 gallons per minute. The maximum hourly PM10 emission rate shall not exceed 1.63 pounds per hour, as calculated per the written District approved protocol.~~

~~Verification:~~ ~~The project owner shall submit to the District and CPM the quarterly and annual compliance reports as required by **AQT-17**.~~

~~AQCT-4.~~ ~~The operator shall perform weekly tests of the blow-down water total~~

~~dissolved solids (TDS). The TDS shall not exceed 5000 ppm on a calendar monthly basis. The operator shall maintain a log which contains the date and result of each blow-down water test in TDS ppm, and the resulting mass emission rate. This log shall be maintained on site for a minimum of five (5) years and shall be provided to District personnel on request.~~

~~**Verification:** During site inspection, the project owner shall make all records and reports available to the District, ARB, EPA and CPM.~~

~~**AQCT-5.** The operator 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 operator shall provide a written test and emissions calculation protocol for District review and approval.~~

~~**Verification:** During site inspection, the project owner shall make all records and reports available to the District, ARB, EPA and CPM.~~

~~**AQCT-6.** 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 onsite and available to District personnel on request.~~

~~**Verification:** During site inspection, the project owner shall make all records and reports available to the District, ARB, EPA and CPM.~~

AUXILIARY BOILER ~~AUTHORITY TO CONSTRUCT~~ CONDITIONS

[One 110 MMBtu/hr Gas Fired Auxiliary Boiler, Application Number: ~~0010018~~**AV000000503**]

AQAB-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.

[Rule 204]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQAB-2. This equipment shall be exclusively fueled with **pipeline quality** natural gas and shall be operated and maintained in ~~strict~~ accord**ance** with the recommendations of its manufacturer or supplier and/or sound engineering principles.

[Rule 431.1; Rule 1303(A); 40 CFR 60 Subpart Db]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQAB-3. This equipment is subject to the Federal NSPS codified at 40 CFR Part 60, Subparts A (General Provisions) and Db (Industrial-Commercial-Institutional

Steam Generating Units).

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQAB-4. 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 – ~~1.21 lb/hr (based on 9.0 ppmvd corrected to 3 percent O_2 and averaged over one hour)~~ **9.0 ppmvd corrected to 3 percent O_2, 0.011 lbs/MMBtu, and 1.21 lb/hr (averaged over one hour)**

b. CO – ~~4.05 lb/hr (based on 50 ppmvd corrected to 3 percent O_2 and averaged over one hour)~~ **50 ppmvd corrected to 3 percent O_2, 0.037 lbs/MMBtu, and 4.07 lb/hr (averaged over one hour)**

c. VOC as CH_4 – **0.066 lbs/MMBtu and** 0.~~59~~**66** lb/hr

d. SOx as SO_2 – **0.0022 lbs/MMBtu and 0.25** ~~0.06~~ lb/hr (based on 0.~~2~~**75** grains/100 dscf fuel sulfur)

e. PM10**/2.5** – **0.007 lbs/MMBtu and** 0.~~82~~**77** lb/hr (front and back half)

[Rule 404; Rule 407; Rule 409; Rule 475; Rule 476; Rule 1303(A); 40 CFR 60.44b]

Verification: The project owner shall submit **operating hour data** to the District and CPM the quarterly and annual compliance reports as required by ~~**AQT-17**~~ **AQ-SC6**.

AQAB-5. This equipment shall not be operated for more than ~~500~~ **4,884** hours per rolling twelve month period.

[Rule 1303]

Verification: The project owner shall submit to the District and CPM the quarterly and annual compliance reports as required by ~~**AQT-17**~~ **AQ-SC6**.

AQAB-6. The ~~owner/operator~~ **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 month, by month);

b. Maximum hourly, maximum daily, total quarterly, and total calendar year emissions of NOx, CO, PM10**/2.5**, VOC and SOx (including calculation protocol); and,

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

[Fuel Sulfur Monitoring- 40 CFR 60.42(b)(k)(2); 40 CFR 60.49b(r)(1)]

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, EPA and CPM.

AQAB-7. The ~~owner/operator~~ **project owner** shall perform the following annual compliance tests on this equipment in accordance with the **District**~~AVAQMD~~ 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 percent oxygen and lb/hr (measured per USEPA Reference Methods 19 and 20).

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

c. SOx as SO_2 in ppmvd at 3 percent oxygen and lb/hr **(measured per USEPA Reference Method 6 or 6C).**.

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

e. PM10 **and PM2.5** in mg/m3 at 3 percent 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 **(measured per USEPA Method 2B or F Factor)**.

g. Opacity (measured per USEPA reference Method 9) **Initial test only [40 CFR 60.44b(l) and 60.46b(c)(e)(g); Rule 1303]**

Verification: The project owner shall notify the District and the CPM within seven (7) working days before the execution of the source tests required in this condition. Source test results shall be submitted to the District and to the CPM within 60 days of the date of the tests.

AQAB-8 A non-resettable four-digit (9,999) hour timer shall be installed and maintained on this unit to indicate elapsed operating time.

[Rule 1303]

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.

AQAB-9 The equipment shall exhaust through a stack at a minimum height of 60.5 feet. [Rule 1303]

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.

AQAB-10 **The project owner shall continuously monitor and record fuel flow rate and flue gas oxygen level. [40 CFR 60 Subpart Db, Section 60.49b; Reporting and Recordkeeping Requirements]**

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**.

AQAB-11 **In lieu of installing CEMs to monitor NOx emissions, and pursuant to 40 CFR 60 Subpart Db, Section 60.49b(c), the project owner shall monitor boiler operating conditions and estimate NOx emission rates per a District approved emissions estimation plan. The plan shall be based on the annual source tests required by Condition AQAB-7. The plan shall include test results, operating parameters, analysis, conclusions and a proposed NOx estimating relationship consistent with established emission chemistry and operational effects. Any proposed changes to a District-approved plan shall include subsequent test results, operating parameters, analysis and any other pertinent information to support the proposed changes. The District and CPM must approve any emissions estimation plan or revision for estimated NOx emissions to be considered valid. [40 CFR 60 Subpart Db, Section 60.49b(c)]**

Verification: **The project owner shall submit the emission estimation plan to the CPM for approval within 60 days of the initial source test.**

~~HTF HEATER AUTHORITY TO CONSTRUCT CONDITIONS~~

~~[One 40 MMBtu/hr Gas Fired HTF Heater, Application Number: 0010017]~~

AQHH-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: ~~As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.~~

AQHH-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: ~~As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.~~

AQHH-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 NO2 – 0.44 lb/hr (based on 9.0 ppmvd corrected to 3 percent O2 and averaged over one hour)~~

b. CO – 1.47 lb/hr (based on 50 ppmvd corrected to 3 percent O2 and averaged over one hour)

c. VOC as CH4 – 0.22 lb/hr

d. SOx as SO2 – 0.02 lb/hr (based on 0.2 grains/100 dscf fuel sulfur)

e. PM10 – 0.30 lb/hr (front and back half)

Verification: The project owner shall submit to the District and CPM the quarterly and annual compliance reports as required by **AQT-17**.

AQHH-4. This equipment shall not be operated for more than 1000 hours per rolling twelve month period.

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, EPA and CPM.

AQHH-5. The owner/operator 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 month, by month);

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

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

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, EPA and CPM.

AQHH-6. The owner/operator shall perform the following annual compliance tests on this equipment in accordance with the AVAQMD 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 NO2 in ppmvd at 3 percent oxygen and lb/hr (measured per USEPA Reference Methods 19 and 20);

b. VOC as CH4 in ppmvd at 3 percent oxygen and lb/hr (measured per USEPA Reference Methods 25A and 18);

c. SOx as SO2 in ppmvd at 3 percent oxygen and lb/hr;

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

~~e. PM10 in mg/m3 at 3 percent 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; and~~

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

~~**Verification:** The project owner shall notify the District and the CPM within ten (10) working days before the execution of the source tests required in this condition. Source test results shall be submitted to the District and to the CPM within 60 days of the date of the tests.~~

~~**AQHH-7** A non resettable four-digit (9,999) hour timer shall be installed and maintained on this unit to indicate elapsed operating time.~~

~~**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.~~

EMERGENCY GENERATOR ~~AUTHORITY TO CONSTRUCT~~ CONDITIONS

[One ~~2683~~ **2,011** hp emergency IC engine driving a generator, Application Number: ~~0010015~~ **AV2000000502**]

AQEG-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.

[Rule 204]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQEG-2. This ~~equipment~~ **stationary certified EPA Tier 2 diesel IC engine** shall be installed, operated and maintained in ~~strict~~ accord**ance** with **the** ~~those~~ recommendations of the manufacturer/supplier and/or sound engineering principles which produce the minimum emissions of contaminants.

[Rule 1303; NSPS IIII]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQEG-3. This unit shall be limited to use for emergency power, defined ~~as when commercially available power has been interrupted. In addition, this unit may be operated as part of a testing program that does not exceed 50 hours of testing or maintenance per calendar year~~ **in 17 CCR 93115. In addition, this unit may be operated as part of a testing program that does not exceed 0.5 hours in any one day and not more than 26 hours of testing or maintenance per year (rolling 12 month sum).** Furthermore, pursuant to

District Rule 1110.2, this unit shall be operated less than 200 hours per calendar year. This requirement includes usage during emergencies.

[Rule 1302; 17 CCR 93115; NSPS IIII]

Verification: ~~During site inspection~~ **As part of the quarterly and annual compliance reports**, the project owner shall **submit all dates of operation, elapsed time in hours, the reason for each operation, and the annual maintenance per year (rolling 12-month sum).** ~~make all records and reports available to the District, ARB, EPA and CPM.~~

AQEG-4. This engine shall not be operated for testing purposes during CTG startup/shutdown periods or tested during the same hour as the fire pump. [Rule 1303]

Verification: As part of the quarterly and annual compliance reports, the project owner shall submit all dates of operation, elapsed time in hours, and the reason for each operation.

AQEG-4~~5~~. This unit shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 15 ppm on a weight basis per CARB Diesel **Fuel** or equivalent requirements. ~~Note, a fuel switch to an alternative liquid fuel may be subject to permit applicability and must be processed accordingly.~~

[Rule 404; Rule 431.2; 17 CCR 93115; NSPS IIII]

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, **U.S.** EPA and CPM.

AQEG-~~5~~6 A non-resettable four digit hour timer shall be installed and maintained on this unit to indicate elapsed engine operating time.

[Rule 1302; 17 CCR 93115; NSPS IIII]

Verification: ~~At least 60 days prior to installation, the project owner shall provide the District and CPM an "approved for construction" drawing showing the appropriate hour timer.~~ The project owner shall make the site available to the District, **U.S.** EPA and CPM for inspection.

AQEG-~~6~~7 The ~~owner/operator~~ **project owner** shall maintain a log for this unit, which, at a minimum, contains the information specified below. This log shall be maintained current and on-site for a minimum of five (5) years and shall be provided to District personnel on request:

a. Date of each use or test;

b. Duration of each use or test in hours;

c. Reason for each use;

d. Cumulative calendar year use, in hours; and,

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

[Rule 1302; 17 CCR 93115; NSPS IIII]

Verification: **As part of the quarterly and annual compliance reports, the project owner shall submit all dates of operation, elapsed time in hours, the reason for each operation, and the cumulative calendar use**. During site inspection, the project owner shall make all records and reports available to the District, ARB, **U.S.** EPA and CPM.

AQEG-8 This engine shall not be used to provide power to the interconnecting utility and shall be isolated from the interconnecting utility when operating.

[Rule 1303]

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA and CPM.

AQEG-9 The 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. [17 CCR 93115]

Verification: **As part of the quarterly and annual compliance reports, the project owner shall submit all dates of operation, elapsed time in hours, and the reason for each operation**.

AQEG-10 This engine shall exhaust through a stack at a minimum height of 20 feet.

[Rule 1303]

Verification: **During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA and CPM.**

AQEG-~~7~~11 This equipment shall comply with the applicable requirements of the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines (Title 17 CCR 93115) and the standards of Performance for Stationary Compression Ignition Internal Combustion Engines -40 CFR Part 60 Subpart IIII.

Verification: ~~At least 60 days prior to installation, the project owner shall provide the District and CPM an "approved for construction" drawing showing the engine specifications.~~ The project owner shall make the site **and applicable records** available to the District, **U.S.** EPA and CPM for inspection.

EMERGENCY FIRE SUPPRESSION WATER PUMP ~~AUTHORITY TO CONSTRUCT~~ CONDITIONS

[One ~~182~~ **140** hp emergency IC engine driving a fire suppression water pump, Application Number: ~~0010016~~ **AV2000000501**]]

AQFS-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.

[Rule 204]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQFS-2. This ~~equipment~~ **stationary certified EPA Tier 3 diesel IC engine** shall be installed, operated and maintained in ~~strict~~ accord**ance** with ~~those~~ **the** recommendations of the manufacturer/supplier and/or sound engineering principles which produce the minimum emissions of contaminants.

[Rule 1303]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQFS-3. This ~~unit~~ **direct drive fire pump engine** shall be limited to use for emergency fire **suppression, defined as in 17 CCR 93115** ~~fighting~~. In addition, this unit may be operated as part of a testing program that does not exceed **1 hour in any day and not more than** 50 hours of testing or maintenance per ~~calendar~~ year **(rolling 12 month sum)**. Furthermore, pursuant to District Rule 1110.2, this unit shall be operated less than 200 hours per calendar year. This requirement includes usage during emergencies.

[Rule 1302; 17 CCR 93115; NSPS IIII]

Verification: As part of the quarterly and annual compliance reports, the project owner shall submit all dates of operation, elapsed time in hours, the reason for each operation, and the annual maintenance per year (rolling 12-month sum). ~~During site inspection, the project owner shall make all records and reports available to the District, ARB, EPA and CPM.~~

AQFS-4. This engine shall not be operated for testing purposes during CTG startup/shutdown periods or tested during the same hour as the emergency generator.

[Rule 1303]

Verification: As part of the quarterly and annual compliance reports, the project owner shall submit all dates of operation, elapsed time in hours, and the reason for each operation.

AQFS-4<u>5</u>. This unit shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 15 ppm on a weight basis per CARB Diesel or equivalent requirements. ~~Note, a fuel switch to an alternative liquid fuel may be subject to permit applicability and must be processed accordingly.~~

[Rule 404; Rule 431.2; 17 CCR 93115; NSPS IIII]

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, **U.S.** EPA and CPM.

AQFS-~~5~~6. A non-resettable four digit hour timer shall be installed and maintained on this unit to indicate elapsed engine operating time.

[Rule 1302; 17 CCR 93115; NSPS IIII]

Verification: ~~At least 60 days prior to installation, the project owner shall provide the District and CPM an "approved for construction" drawing showing the appropriate hour timer.~~ The project owner shall make the site available to the District, **U.S.** EPA and CPM for inspection.

AQFS-~~6~~7. The owner/operator shall maintain a log for this unit, which, at a minimum, contains the information specified below. This log shall be maintained current and on-site for a minimum of five (5) years and shall be provided to District personnel on request:

a. Date of each use or test;

b. Duration of each use or test in hours;

c. Reason for each use;

d. Cumulative calendar year use, in hours; and,

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

[Rule 1302; 17 CCR 93115; NSPS IIII]

Verification: **As part of the quarterly and annual compliance reports, the project owner shall submit all dates of operation, elapsed time in hours, the reason for each operation, and the cumulative calendar use.** ~~During site inspection, the project owner shall make all records and reports available to the District, ARB, EPA and CPM.~~

AQFS-8. This engine shall exhaust through a stack at a minimum height of 19.5 feet.

[Rule 1303]

Verification: **The project owner shall make the site available to the District, U.S. EPA and CPM for inspection.**

AQFS-~~79~~. This equipment shall comply with the applicable requirements of the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines (Title 17 CCR 93115) **and the Standards of Performance for Stationary Compression Ignition Internal Combustion Engines-40 CFR Part 60 Subpart IIII**.

Verification: ~~At least 60 days prior to installation, the project owner shall provide the District and CPM an "approved for construction" drawing showing the engine specifications.~~ The project owner shall make the site **and applicable records** available to the District, **U.S.** EPA and CPM for inspection.

Air Quality Appendix Air-1

AIR QUALITYAPPENDIX AIR-1
Petition to Amend Final Commission Decision
GREENHOUSE GASES

Nancy Fletcher and David Vidaver

SUMMARY

The PEP is a proposed modification of the state's electricity system that would produce GHG while generating electricity for California consumers. The project owner is proposing a fast start 645 MW natural gas-fired combined-cycle power plant. The proposal includes two Siemens SGT6-5000F turbines, with HRSGS with duct burners, connected to a single steam turbine. This new facility design will be more suited than the Palmdale Hybrid Power Plant (PHPP) to provide back-up capabilities for variable output intermittent renewable resources.

The proposed project changes present new information and changed circumstances requiring a new greenhouse gas analysis, for the following reasons: the amendment proposes to eliminate the solar component, a different technology with a different role and efficiency is being proposed, and construction and operation GHG emissions have been revised. These changes require new impact analysis to address the GHG emissions CEQA guidelines. The fact that PEP modifies (replaces) the approved Palmdale Hybrid Power Plant does not modify staff's approach.

The PEP would displace other less efficient, higher GHG-emitting generation and provide fast start and dispatch flexibility capabilities to support southern California grid load balancing and renewable energy integration. Because the PEP would improve the efficiency of existing system resources, the addition of PEP would contribute to a reduction of the California GHG emissions and GHG emission rate average. The relative efficiency of the PEP and the system build-out of renewable resources in California would result in a net cumulative reduction of GHG emissions from new and existing fossil sources of electricity. Electricity is produced by operation of an inter-connected system of generation sources. Operation of one power plant, like the PEP project, affects all other power plants in the interconnected system.

Although PEP would burn natural gas for fuel and thus would produce GHG emissions that contribute cumulatively to climate change, it would have a beneficial impact on system operation and facilitate a reduction in GHG emissions in several ways:

- When dispatched,[7] the PEP would displace less efficient (and thus higher GHG-emitting) generation. Because the GHG emissions per megawatt-hour (MWh) from the PEP would be lower than those power plants that the PEP would displace, the addition of the PEP would contribute to a reduction of California and the overall

[7] The entity responsible for balancing a region's electrical load and generation will "dispatch" or call on the operation of generation facilities. The "dispatch order" is generally dictated by the facility's electricity production cost, efficiency, location or contractual obligations.

Western Electricity Coordinating Council (WECC) system GHG[8] emissions and GHG emission rate average.

- The PEP would provide fast start and dispatch flexibility capabilities beyond what would have been provided by the approved PHPP. This increased performance will improve the site's ability to integrate expected and desired additional amounts of variable renewable generation (also known as "variable" or "intermittent" energy resources) to meet the state's renewable portfolio standard (RPS) and GHG emission reduction targets.
- The PEP would replace less efficient generation in the local reliability area required to meet local reliability needs, reducing the GHG emissions associated with providing local reliability services and facilitating the retirement of aging, high GHG-emitting resources in the area.

INTRODUCTION

Gases that trap heat in the atmosphere are called GHGs. GHG emissions are not criteria pollutants; they are discussed in the context of cumulative impacts. Generation of electricity using any fossil fuel, including natural gas, can produce greenhouse gases along with the criteria air pollutants that have been traditionally regulated under the federal and state CAAs. GHG emissions from the electricity sector are dominated by CO_2 emissions from the carbon-based fuels.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

In December 2009, the U.S. Environmental Protection Agency (U.S. EPA) declared that GHGs threaten the public health and welfare of current and future generations (the "endangerment finding"). This finding became effective on January 14, 2010.

Federal rules that became effective December 29, 2009 (40 CFR 98) require federal reporting of GHGs. As federal rulemaking evolves, staff at this time focuses on analyzing the ability of the project to comply with existing federal- and state-level policies and programs for GHGs. The state has demonstrated a clear willingness to address global climate change though research, adaptation,[9] and GHG inventory reductions. In that context, staff evaluates the GHG emissions from the proposed project, presents information on GHG emissions related to electricity generation, and describes the applicable GHG standards and requirements.

The following federal, state, and local laws and policies in **Greenhouse Gas Table 1** pertain to the control and mitigation of greenhouse gas emissions. Staff's analysis

[8] Fuel-use closely correlates to the efficiency of and carbon dioxide (CO_2) emissions from natural gas-fired power plants. And since CO_2 emissions from fuel combustion dominate greenhouse gas (GHG) emissions from power plants, the terms CO_2 and GHG are used interchangeably in this section.

[9] While working to understand and reverse global climate change, it is prudent to also adapt to potential changes in the state's climate (for example, changing rainfall patterns).

examines the project's compliance with these requirements. The proposed project site location is in the city of Palmdale, California, located in the Antelope Valley. The AQMVD is the local agency responsible for air quality.

Greenhouse Gas Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable LORS	Description
Federal	
40 Code of Federal Regulations (CFR) Parts 51 and 52	A new stationary source that emits more than 100,000 TPY of GHGs is also considered to be a major stationary source subject to Prevention of Significant Determination PSD requirements. As of June 23, 2014 the US Supreme Court has invalidated this requirement as a sole PSD permitting trigger. However, PSD still applies to GHGs if the source is otherwise subject to PSD (for another regulated NSR pollutant) and the GHG emissions potential are equal to or greater than 75,000 TPY CO2e. The PEP emissions exceed this trigger.
40 Code of Federal Regulations (CFR) Part 60 Subpart TTTT	This rule sets annual CO_2 emissions performance standards, based on gross or net output, for new stationary combustion turbines. The emissions standards are 0.45 MT CO_2/MWh for gas turbines. As currently proposed, this rule is triggered for facilities that would operate with a capacity factor of 33 percent or higher. The PEP would be subject to this standard.
40 Code of Federal Regulations (CFR) Part 98	This rule requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 metric tons of CO_2 equivalent emissions per year. This requirement is triggered by this facility.
State	
California Global Warming Solutions Act of 2006, AB 32 (Stats. 2006; Chapter 488; H&SC §38500 et seq.)	This act requires the California Air Resource Board (ARB) to enact standards to reduce GHG emission to 1990 levels by 2020. Electricity production facilities are included. A cap-and-trade program became active in January 2012, and enforcement began in January 2013. Cap-and-trade is expected to achieve approximately 20 percent of the GHG reductions expected under AB 32 by 2020.
California Code of Regulations, Title 17, Subchapter 10, Article 2, sections 95100 et. seq.	These ARB regulations implement mandatory GHG emissions reporting as part of the California Global Warming Solutions Act of 2006 (Stats. 2006; Chapter 488; H&SC §38500 et seq.)
Title 20, California Code of Regulations, Section 2900 et seq.; CPUC Decision D0701039 in proceeding R0604009	The regulations prohibit California utilities from entering into long-term contracts with any base load facility that does not meet a greenhouse gas emission standard of 0.5 metric tonnes carbon dioxide per megawatt-hour (0.5 MTCO_2/MWh) or 1,100 pounds carbon dioxide per megawatt-hour (1,100 lbs CO_2/MWh). The PEP would be subject to this regulation.
Local	
Rule 3011 –Greenhouse Gases Provisions of Federal Operating Permits	This rule provides provisions for incorporating requirements for GHG into Federal Operating Permits (FOPs). This rule is consistent with federal PSD rule as defined in 40 CFR Part 52.21. This rule requires the owner or operator of a new major source or a major modification to obtain a PSD permit prior to commencing construction.

GREENHOUSE GAS ANALYSIS

California is actively pursuing policies to reduce GHG emissions that include adding low-GHG emitting renewable electricity generation resources to the system. The GHGs evaluated in this analysis include 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, even though the other GHGs may have a greater impact on climate change on a per-unit of mass basis due to their greater global warming potential as described more fully below, GHG emissions are often "normalized" in terms of metric tons of CO_2-equivalent ($MTCO_2E$) for simplicity. Global warming potential (GWP) is a relative measure, compared to carbon dioxide, of a compound's ability to warm the planet, taking into account each compound's expected residence time in the atmosphere. By convention, carbon dioxide is assigned a global warming potential of one. In comparison, for example methane has a GWP of 25,[10] which means that it has a global warming effect 25 times greater than carbon dioxide on an equal-mass basis. The carbon dioxide equivalent (CO_2E) for a source is obtained by multiplying each GHG by its GWP and then adding the results together to obtain a single, combined emission rate representing all GHGs in terms of CO_2E.

GHG emissions are not included in the class of pollutants traditionally called "criteria pollutants." 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, especially Assembly Bill 32, California's Global Warming Solutions Act of 2006.

GLOBAL CLIMATE CHANGE AND CALIFORNIA

Worldwide, with the exception of 1998, over the past 134-year record, the 11 warmest years all have occurred since 2002, with the two hottest years on record being 2010 and 2005 (NCDC 2014). According to "The Future Is Now: An Update on Climate Change Science Impacts and Response Options for California," an Energy Commission document, the American West is heating up faster than other regions of the United States (CEC 2009c). The California Climate Change Center (CCCC) reports that, by the end of this century, average global surface temperatures could rise by 4.7°F to 10.5°F due to increased GHG emissions.

The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without these natural GHGs, the earth's surface would be approximately 61°F (34°C) cooler (CalEPA 2006); however, emissions from fossil fuel combustion for activities such as electricity production and vehicular transportation have elevated the concentration of GHGs in the atmosphere above natural levels. ARB estimated that the mobile source sector accounted for approximately 37 percent of the GHG emissions generated in California from 2009 through 2012, while the electricity generating sector

[10] Updated global warming potential values became effective January 1, 2014.

accounted for approximately 20 to 22 percent of the 2009 to 2012 California GHG emissions inventory with just more than half of that on average from in-state generation sources (ARB 2014).

The Fourth U.S. Climate Action Report concluded, in assessing current trends, that CO_2 emissions increased by 20 percent from 1990 to 2004, while methane and nitrous oxide emissions decreased by ten percent and two percent, respectively. The Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. It concluded that stabilization of GHGs at 450 ppm carbon dioxide equivalent concentration is required to keep the global mean warming increase below 3.8°F (2.1°C) from year 2000 base line levels (IPCC 2007a).

GHGs differ from criteria pollutants in that GHG emissions from a specific project do not cause direct adverse localized human health effects. Rather, the direct environmental effect of GHG emissions is the cumulative effect of an overall increase in global temperatures, which in turn has numerous indirect effects on the environment and humans. The impacts of climate change include potential physical, economic, and social effects. These effects could include inundation of settled areas near the coast from rises in sea level associated with melting of land-based glacial ice sheets, exposure to more frequent and powerful climate events, and changes in suitability of certain areas for agriculture, reduction in Arctic sea ice, thawing permafrost, later freezing and earlier break-up of ice on rivers and lakes, a lengthened growing season, shifts in plant and animal ranges, earlier flowering of trees, and a substantial reduction in winter snowpack (IPCC 2007b). For example, current estimates include a 70 to 90 percent reduction in snow pack in the Sierra Nevada mountain range. Current data suggests that in the next 25 years, in every season of the year California could experience unprecedented heat, longer and more extreme heat waves, greater intensity and frequency of heat waves, and longer dry periods. More specifically, the CCCC predicted that California could witness the following events (CCCC 2006):

- Temperature rises between 3 and 10.5 ºF
- 6 to 20 inches or greater rise in sea level
- 2 to 4 times as many heat-wave days in major urban centers
- 2 to 6 times as many heat-related deaths in major urban centers
- 1 to 1.5 times more critically dry years
- Losses to mountaintop snowpack and water supply (e.g., according to the CCCC, Sierra Nevada snowpack could be reduced by as much as 70 to 90 percent by 2100 [CEC 2009c])
- 25 to 85 percent increase in days conducive to ozone formation
- 3 to 20 percent increase in electricity demand
- 10 to 55 percent increase in the risk of wildfires

There is general scientific consensus that climate change is occurring and that human activity contributes in some measure (perhaps substantially) to that change. Man-made

emissions of GHGs, if not sufficiently curtailed, are likely to contribute further to continued increases in global temperatures. Indeed, the California Legislature found that "[g]lobal warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California" (H&SC §38500, division 25.5, part 1).

GREENHOUSE GAS ANALYSIS

Staff evaluates the GHG emissions from the proposed project, presents information on GHG emissions related to electricity generation (see "Electricity System GHG Impacts" subsection below), and describes the applicable GHG policies and programs.

In April 2007, the U.S. Supreme Court held that GHG emissions are pollutants within the meaning of the CAA. In reaching its decision, the Court also acknowledged that climate change results, in part, from anthropogenic causes (Massachusetts et al. v. Environmental Protection Agency 549 U.S. 497, 2007). The Supreme Court's ruling paved the way for the regulation of GHG emissions by the U.S. EPA) under the CAA.

In response to this Supreme Court decision, on December 7, 2009 the U.S. EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the CAA:

- Endangerment Finding: That the current and projected concentrations of the GHGs in the atmosphere threaten the public health and welfare of current and future generations; and
- Cause or Contribute Finding: That the combined emissions of GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution, which threatens public health and welfare.

As of June 23, 2014, the U.S. Supreme Court has validated that GHG emissions should continue to be regulated, but only for those facilities that are already regulated under PSD for NSR pollutants.

In 1998, the Energy Commission identified a range of strategies to prepare for an uncertain climate future, including a need to account for the environmental impacts associated with energy production, planning, and procurement (CEC 1998, p. 5). In 2003, the Energy Commission recommended that the state require reporting of GHGs or global climate change emissions as a condition of state licensing of new electric generating facilities (CEC 2003, IEPR p. 42). In 2006, California enacted AB 32. It requires the ARB to adopt requirements to that will reduce 2020 statewide GHG emissions to 1990 levels. AB 32 includes a number of specific requirements:

- **ARB shall prepare and approve a scoping plan for achieving the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions from sources or categories of sources of greenhouse gases by 2020 (H&SC §38561).** The scoping plan, approved by the ARB on December 12, 2008, provides the outline for actions to reduce greenhouse gases in California. The approved scoping plan indicates how these emission reductions will be achieved from significant greenhouse gas sources via regulations, market mechanisms, and other actions. In early 2014, ARB completed its five-year update to the Scoping

Plan, tracking progress towards the 2020 emission goals and proposing new measures as appropriate.

The adopted Scoping Plan anticipates that four-fifths of the planned reductions will come from cost-effective programs and regulations, with the remainder provided by economy-wide cap-and-trade. Measures that affect the electricity sector directly include a 33 percent Renewable Portfolio Standard, alternative transportation fuels such as vehicle and ship electrification, building energy efficiency, and combined heat and power. Most of these measures have been implemented, such as Senate Bill X1 2 (Simitian, Chapter 1, Statutes of 2011-12), which established a firm goal requiring all retail providers have 33 percent of California's electricity supplies by renewable sources by 2020. In January 2015, Governor Brown declared a goal of reaching 50 percent renewable energy by 2030.

- **Identify the statewide level of greenhouse gas emissions in 1990 to serve as the emissions limit to be achieved by 2020 (H&SC §38550).** In December 2007, the ARB approved the 2020 emission limit of 427 million metric tons of carbon dioxide equivalent ($MMTCO_2E$) of greenhouse gases. In 2013, ARB used EPA's updated information to re-calculate that level to 431 million metric tons.

- **Adopt a regulation requiring the mandatory reporting of greenhouse gas emissions (H&SC §38530).** In December 2007, the ARB adopted a regulation requiring the largest electric power generation and industrial sources to report and verify their greenhouse gas emissions. The reporting regulation serves as a solid foundation to determine greenhouse gas emissions and track future changes in emission levels. Facilities that emit more than 25,000 metric tons per year are covered. That includes most emitting power plants of five megawatts or larger. Reported emissions from individual facilities may be found on the Mandatory Reporting website, http://www.arb.ca.gov/cc/reporting/ghg-rep/reported-data/ghg-reports.htm.

- **Adopt a regulation that establishes a system of market-based declining annual aggregate emission limits for sources or categories of sources that emit greenhouse gas emissions, applicable from January 1, 2012, to December 31, 2020 (H&SC §38562(c)).** In 2011, the ARB adopted the cap-and-trade original regulation. The cap-and-trade program covers major sources of GHG emissions in the state such as refineries, power plants, industrial facilities, and transportation fuels. The cap-and-trade program includes an enforceable emissions cap that will decline over time. The state will distribute allowances, which are tradable permits, equal to the emissions allowed under the cap. Sources regulated under the cap will need to surrender allowances and offsets equal to their emissions at the end of each compliance period.

  Individual in-state generating facilities and the first deliverers of imported electricity are the point of regulation. They are responsible for determining their GHG emissions using ARB and U.S. EPA regulations, and purchasing either carbon allowances or offsets to meet their emissions obligation. Third party verification is required. If facilities find that it is not economic to operate and to purchase sufficient compliance instruments to cover its GHG obligations, facilities must lower their annual energy output. Further information on cap-and-trade may be found at:

http://www.arb.ca.gov/cc/capandtrade/capandtrade.htm.

The first mandatory compliance period[11] with cap-and-trade requirements commenced on January 1, 2012, although enforcement was delayed until January 2013.

- **Convene an Environmental Justice Advisory Committee (EJAC) to advise the Board in developing the Scoping Plan and any other pertinent matter in implementing AB 32 (H&SC §38591).** The EJAC met between 2007 and 2010, providing comments on the proposed early action measures and the development of the scoping plan, public health issues, and issues for impacted communities and cap-and-trade. To advise the ARB on the 2013 Scoping Plan Update, ARB reconvened a new EJAC on March 21, 2013. The committee met three times in 2013 and continued in 2014 to provide advice to the ARB.

SB 1368,[12] enacted in 2006, and regulations adopted by the Energy Commission and the CPUC pursuant to that bill, prohibits California utilities from entering into long-term commitments with any base load facilities that exceed the Emission Performance Standard (EPS) of 0.5 metric tonnes CO_2 per megawatt-hour[13] (1,100 pounds CO_2/MWh). Specifically, the SB 1368 EPS applies to new California utility-owned 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, where the power plants are "designed or intended" to operate as base load generation.[14] If a project, in state or out of state, plans to sell electricity or capacity to California utilities, those utilities will have to demonstrate that the project meets the EPS. *Base load* units are defined as units that are expected to operate at a capacity factor higher than 60 percent. Compliance with the EPS is determined by dividing the annual average carbon dioxide emissions by the annual average net electricity production in MWh. This determination is based on capacity factors, heat rates, and corresponding emissions rates that reflect the *expected* operations of the power plant and not on full load heat rates [Chapter 11, Article 1 §2903(a)].

The PEP would be required to participate in California's GHG cap-and-trade program. This cap-and-trade program is part of a broad effort by the State of California to reduce GHG emissions as required by AB 32, which is being implemented by ARB. As currently implemented, market participants, such as the PEP, are required to report their GHG emissions and to obtain GHG emissions allowances (and offsets) for those reported emissions by purchasing allowances from the capped market and offsets from outside the AB 32 program. As new participants enter the market and as the market cap is ratcheted down over time, GHG emission allowance and offset prices will increase

[11] A compliance period is the time frame during which the compliance obligation is calculated. The years 2013 and 2014 are known as the first compliance period and the years 2015 to 2017 are known as the second compliance period. The third compliance period is from 2018 to 2020. At the end of each compliance period each facility will be required to turn in compliance instruments, including allowances and a limited number of ARB offset credits, equivalent to their total GHG emissions throughout the compliance period. (http://www.arb.ca.gov/cc/capandtrade/guidance/chapter1.pdf)

[12] Public Utilities Code § 8340 et seq.

[13] The Emission Performance Standard only applies to carbon dioxide and does not include emissions of other greenhouse gases converted to carbon dioxide equivalent.

[14] See Rule at http://www.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/64072.htm

encouraging innovation by market participants to reduce their GHG emissions. Thus, the PEP, as a GHG cap-and-trade participant, would be consistent with California's landmark AB 32 Program, which is a statewide program coordinated with a region-wide Western Climate Initiative (WCI) program to reduce California's GHG emissions to 1990 levels by 2020.

On October 23, 2015, the U.S. EPA published in the Federal Register a NSPS for GHG emissions for new electric power plants with an immediate effective date. It sets standards to limit emissions of CO_2 from new, modified and reconstructed power plants. The New Source Performance Standards Subpart TTTT-Standards of Performance for Greenhouse Gas Emissions for Electrical Generating Units (Title 40, Code of Federal Regulations, Part 60.5508) are set under the authority of the Clean Air Act section 111(b) and are applicable to new fossil fuel-fired power plants commencing construction after January 8, 2014.

According to Subpart TTTT, base load rating is defined as maximum amount of heat input that an electric generating unit (EGU) can combust on a steady state basis at ISO conditions. For stationary combustion turbines, base load rating includes the heat input from duct burners. Each EGU is subject to the standard if it burns natural gas on a 12-month rolling basis more than 90% of the time and if the EGU supplies more than the design efficiency times the potential electric output as net-electric sales on a 3 year rolling average basis. Affected EGUs supplying equal to or less than the design efficiency times the potential electric output as net electric sales on a 3 year rolling average basis are considered non-base load units and are subject to a heat input limit of 120 lbs CO_2/MMBtu. Each affected 'base load' EGU is subject to the gross energy output standard of 1,000 lbs of CO_2/MWh unless the Administrator approves the EGU being subject to a net energy output standard of 1,030 lbs CO_2/MWh.

The PEP would be expected to supply more than the design efficiency times the potential electric output as net-electric sales on a 3 year rolling average basis and would therefore be considered a base load unit. Each combustion turbine would be subject to a gross energy output standard of 1,000 lbs of CO_2 per megawatt hour (MWh) or a net energy output standard of 1,030 lbs CO_2/MWH. The project owner has proposed demonstrating compliance on a net energy output basis.

ELECTRICITY SYSTEM GREENHOUSE GAS EMISSIONS

While electricity use can be as simple as turning on a switch to operate a light or fan, the system to deliver the adequate and reliable electricity supply is complex and variable. It operates as an integrated whole to reliably and effectively meet demand, such that the dispatch of a new source of generation unavoidably curtails or displaces one or more less efficient or less competitive existing sources. Within the system, generation resources provide electricity, or energy, generating capacity, and ancillary services to stabilize the system and facilitate electricity delivery, or movement, over the grid. *Capacity* is the instantaneous output of a resource, in megawatts. *Energy* is the capacity output over a unit of time, for example an hour or year, generally reported as megawatt-hours or gigawatt-hours (GWh). Ancillary services[15] include regulation, spinning reserve, non-spinning reserve, voltage support, and black start capability.

[15] See CEC 2009d, page 95.

Individual generation resources can be built and operated to provide only one specific service. Alternatively, a resource may be able to provide one or all of these services, depending on its design and constantly changing system needs and operations.

GHG EMISSIONS FROM THE PROPOSED FACILITY

Project Construction

Construction of industrial facilities such as power plants requires coordination of numerous equipment and personnel. The concentrated on-site activities result in temporary, unavoidable increases in vehicle and equipment emissions that include greenhouse gases. Construction of the PEP would include two main phases; Phase 1 site preparations and Phase 2 construction of the foundations and structures and installation of major equipment. The construction would require minimal grading activities, excavation of footings and foundations, backfilling operations, facility construction and equipment installation.

The GHG emissions estimate for project construction including PEP linears is presented below in **Greenhouse Gas Table 2**. The term CO_2E represents the total GHG emissions after weighting by the appropriate global warming potential. **Greenhouse Gas Table 2** also includes the estimated construction emissions for PHPP. The PHPP emissions are over 40 percent higher than the estimated emissions for the PEP.

Greenhouse Gas Table 2
PEP Estimated Construction Greenhouse Gas Emissions

Construction Element	CO_2 Equivalent ($MTCO_2E$) [a]
Combined-Cycle Facility	5,640
Reclaimed Water Line	1,919
Natural Gas Pipeline	2,591
Sewer Line	303
Potable Water Line	121
T-Line Segment 1	3,014
T-Line Segment 2	944
Construction Total	**14,532**
Licensed PHPP Construction Total	20,616

Source: PHPP 2015u, CEC 2010b
Note: [a] One metric tonne (MT) equals 1.1 short tons or 2,204.6 pounds or 1,000 kilograms.

Project Operations

The PEP power block would consist of two 214 MW Siemens SGT6-5000F combustion turbines with inlet evaporative cooling and dry low NOx combustors, one 276 MW steam turbine, and two HRSGs with 193.1 million British thermal units per hour (MMBtu/hr) duct burners. The PEP would include a 110 MMbtu/hr natural gas fired auxiliary boiler. The auxiliary boiler would be used to provide steam when the main power block is offline and during startups to support the fast start design. The PEP would include two diesel-fired engines, one for emergency generation and one for fire suppression. The primary sources of GHG would be the natural gas fired combustion turbines, auxiliary boiler and emergency equipment. There would be minimal GHG associated with sulfur hexafluoride (SF6) emissions from the circuit breakers. The employee and delivery

traffic GHG emissions from off-site activities are negligible in comparison with the gas turbine GHG emissions.

Greenhouse Gas Table 3 includes the estimated GHG emissions for the PEP power block based on potential operational profiles. The project owner evaluated three potential operational scenarios to determine the maximum annual GHG emissions.

- **Scenario 1**: A total of 8,000 hours of operation per year per turbine, including up to 7,960 hours at base load with up to 35 warm starts, five cold starts and 40 shutdowns. This scenario includes 24-hour per day operation and 836 hours of auxiliary boiler operation.

- **Scenario 2**: A total of 4,320 hours of operation per year per turbine, including up to 3,625 hours at base load with up to 360 hot starts, 360 warm starts, five cold starts and 725 shutdowns. This scenario includes 24-hour per day operation and 4,884 hours of auxiliary boiler operation.

- **Scenario 3**: A total of 5,000 hours of operation per year per turbine, including up to 4,470 hours at base load with up to 180 hot starts, 360 warm starts, five cold starts and 545 shutdowns. This scenario includes 24-hour per day operation and 4,136 hours of auxiliary boiler operation.

Greenhouse Gas Table 3
GHG By Operating Scenario Summary

	Turbine, Duct Burners, Auxiliary Boiler CO_2-equivalent (MT CO_2E per year)[a]
Scenario 1	1,925,311
Scenario 2	1,079,408
Scenario 3	1,235,716

Source: PHPP 2015c, PHPP 2015u and staff analysis with updated GWP.
Notes: [a] One metric tonne (MT) equals 1.1 short tons or 2,204.6 pounds or 1,000 kilograms.

Greenhouse Gas Table 4 includes the estimated GHG emissions for the PEP on an annual basis. **Greenhouse Gas Table 4** includes GHG emissions from Scenario 1 and combines them with emission from both the emergency generator and fire pump engines. Scenario 1 is the only scenario with a capacity factor above 60 percent. All emissions are converted to maximum annual CO_2 and CO_2E emissions for the stationary sources. Staff updated the CO_2E emissions based on the U.S. EPA updated GWP values (Federal Register, November 29, 2014).

Greenhouse Gas Table 4
GHG Maximum Scenario Summary[a]

Emission Source	Operational GHG ($MT CO_2E$ per year)[b]
Carbon Dioxide (CO_2)	1,923,355
Methane (CH_4)	905
Nitrous Oxide (N_2O)	1,079
SF6 [c]	9
Total Project Emissions	1,925,347
Estimated Energy Output (net)	5,686,624
Estimated Annualized CO_2 Performance ($MTCO_2$/MWh)	0.338
Estimated Annualized GHG as CO_2E Performance ($MTCO_2E$/MWh)	0.339

Source: CEC 2010b, PHPP 2015c, PHPP 2015u and Staff analysis with updated GWP.
Notes:[a] Table includes Scenario 1only because Scenarios 2 and 3 propose a capacity factor below 60%
[b] One metric tonne (MT) equals 1.1 short tons or 2,204.6 pounds or 1,000 kilogram
[c] CEC 2010b

The PEP would emit approximately 1,925,347 metric tonnes of CO_2 per year if operated at its maximum permitted level. Based on the proposed operating scenarios, the project would be licensed to operate at a capacity factor greater than 60 percent. The SB 1368 Emissions Performance Standard applies individually to each of the two turbines of the combined-cycle that could have a capacity factor above the SB 1368 trigger level of 60 percent.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

Staff assesses the cumulative effects of GHG emissions caused by both construction and operation. As the name implies, construction impacts result from the emissions occurring during the construction of the project. The operation impacts result from the emissions of the proposed project during operation.

METHOD AND THRESHOLDS FOR DETERMINING SIGNIFICANCE

The CEQA guidelines provide three factors for lead agencies to consider when assessing the significance of impacts for the analysis of GHG emissions impacts (CEQA Guidelines, tit. 14, §15064.4).

- *The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;*
- *Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project;*
- *The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still*

cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

Staff evaluates the emissions of the project in the context of the electricity sector as a whole and the AB 32 Scoping Plan implementation efforts for the sector, including the Cap and Trade regulation that implements the state's primary approach to reducing GHG emissions from the electricity sector. The Energy Commission's assessment approach does not include a specific numeric threshold of significance for GHG emissions; rather the assessment is completed in the context of how the project would affect the electricity sector's emissions based on its proposed role and its compliance with applicable regulations and policies.

Included in this sector-wide GHG emission analysis method is the determination of whether a project is consistent with the Avenal precedent decision (as described below).

Staff believes that the small GHG emission increases from construction (including decommissioning/demolition) activities would not be significant for several reasons. First, the period of construction will be short-term and the emissions intermittent during that period, not ongoing during the life of the project. Additionally, control measures that staff recommends to address criteria pollutant emissions, such as limiting idling times and requiring, as appropriate, equipment that meets the latest criteria pollutant emissions standards, would further minimize greenhouse gas emissions to the extent feasible. The use of newer equipment will increase efficiency and reduce GHG emissions and be compatible with low-carbon fuel (e.g., bio-diesel and ethanol) mandates that will likely be part of future ARB regulations to reduce GHG from construction vehicles and equipment.

Operational impacts of the PEP are described in detail in a later section titled "**CALIFORNIA ELECTRICITY AND GREENHOUSE GASES**" since the evaluation of these effects must be done by considering the project's role(s) in the integrated electricity system. In summary, these effects include reducing the operation and greenhouse gas emissions from the older, existing power plants; potentially displacing local electricity generation; the penetration of renewable resources; and accelerating generation retirements and replacements, including facilities currently using once-through cooling. Additionally, GHG emissions impacts arising from operation are mitigated through compliance with the state's cap and trade regulation, which is designed to reduce electricity sector GHG emissions over time in order to meet AB 32 statewide GHG emissions reduction goals.

The facility owner conducted the top-down GHG Best Available Control Technology (BACT) analysis and determined the use of highly efficient turbine technologies, clean fuels combined with good combustion operation and maintenance to maintain optimum efficiency to be BACT for GHG. Based on the U.S. EPA updated GWP values (Federal Register, November 29, 2013), staff updated the total annual CO_2 equivalent emissions to be 1,925,347 metric tons per year for the proposed project.

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.

This entire GHG assessment is a cumulative impact assessment. The project alone would not be sufficient to change global climate, but would emit greenhouse gases and therefore has been analyzed as a potential cumulative impact in the context of existing GHG regulatory requirements and GHG energy policies.

CALIFORNIA ELECTRICITY AND GREENHOUSE GASES – DAVID VIDAVER

In approving the AFC for the Palmdale Hybrid Power Project (PHPP), the Energy Commission found that operation of the proposed project "[would] be consistent with the state's GHG policies and [would] help achieve the state's GHG goals, by (1) causing a decrease in overall electricity system GHG emissions; and (2) fostering the addition of renewable generation into the system, which [would] further reduce system GHG emissions.[16] The decrease in overall electricity system GHG emissions would result from the fact that "*when* [the PHPP runs]*, it usually will take the place of another facility with higher emissions that otherwise would have operated.*"[17]

IMPACT OF THE PEP ON GHG EMISSIONS COMPARED TO APPROVED PHPP

It follows from the above that development of the Palmdale Energy Project (PEP) would reduce GHG emissions from the electricity sector compared to the alternative of developing the project as previously approved.

It is not possible to determine – with any accuracy – the GHG emissions that would be expected from an electricity system that includes the PHPP as approved with one that includes the PEP as now proposed. While the maximum amount of natural gas that can be combusted annually under the projects' air quality and other permits provides a

[16] *Palmdale Hybrid Power Project: Commission Decision*, California Energy Commission (CEC-800-2011-005 CMF; August 2011), pp. 6.1-2, 6.1-15, 6.1-17, and 6.1-21. Available at http://docketpublic.energy.ca.gov/PublicDocuments/Regulatory/Non%20Active%20AFC's/08-AFC-9%20Palmdale%20Hybrid%20PP/2011/Aug/TN%2061876%2008-15-11%20Final%20Commission%20Decision.pdf

[17] *Palmdale Hybrid Power Project: Commission Decision*, p. 6.1-11. New gas-fired generators do not displace hydroelectric or nuclear generation, technologies whose variable operating costs are lower. Nor do they displace output from renewable generators, who have not only lower variable operating costs, but often have must-take contracts for their output as well, and whose energy, in aggregate, must be procured in quantities sufficient to meet the state's Renewable Portfolio Standard. The output from new natural gas-fired generators instead displaces that from less-efficient existing natural gas-fired generators, whose variable costs are higher because they combust more natural gas per unit of electricity generated, and thus produce more GHG emissions. Under some circumstances the displaced output will be that from coal-fired generators, whose GHG emissions are even higher per MWh than those from natural gas-fired generators.

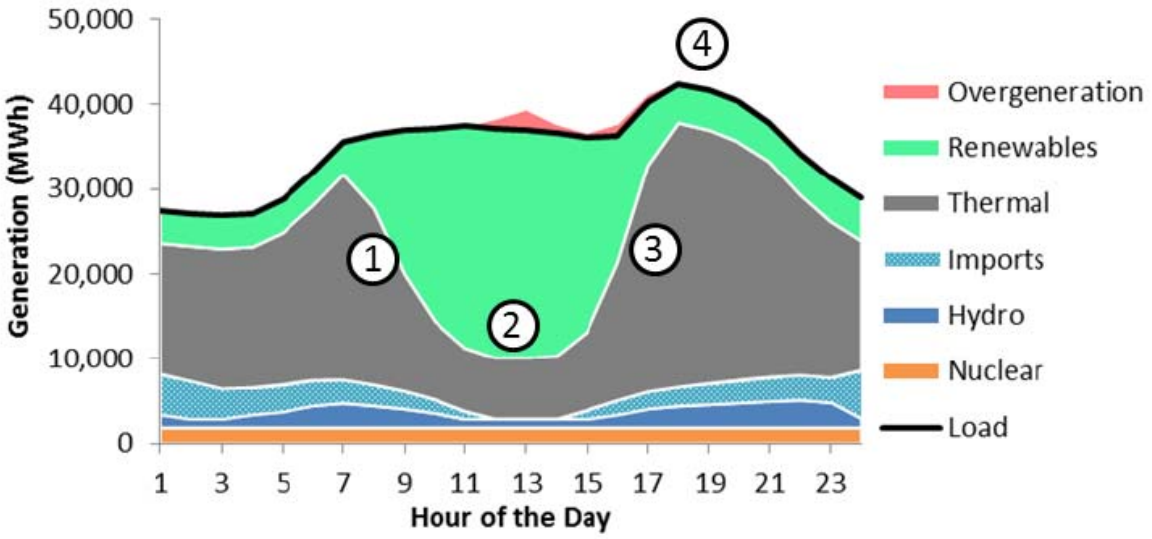
ceiling for the plants' CO_2-equivalent emissions, permitted levels of operation and expected operation, while related, are very different metrics.[18] More importantly, the ceiling is for GHG emissions *from the plant itself*; its consideration ignores the quantity of GHG emissions from the generators that are displaced.

Similarly, a comparison of the thermal efficiencies of the two projects (e.g., at full load) does not provide any information regarding their expected GHG emissions or the system-wide emissions that would result from their development. While the proposed PEP has a higher thermal efficiency than the approved PHPP at most levels of output, the differences in the efficiency and operating flexibility of the two projects mean that they would be operated differently. As such, they would displace different existing generation resources, whose thermal efficiencies, and thus GHG emissions, cannot be known a priori. *As a result, their relative impact on system GHG emissions cannot be known with certainty.*

It is very likely, however, that the PEP would lead to greater reductions in GHG emissions than its approved counterpart, as its increased flexibility (e.g., faster start-up time, ability to operate at lesser shares of full output and to change output by more MW/minute) facilitates the integration of larger amounts of zero-carbon variable energy resources (solar and wind) . This can be seen in **Greenhouse Gas Figure 1,** which depicts the estimated operating profile of the generating resources of the increasingly high-solar electricity system that California will develop over the next 15 years as the RPS increases to 50 percent in 2030. Much of the additional renewable energy will come from solar resources even if there is limited development of utility-scale solar generation, as the residential and commercial sectors take advantage of falling distributed solar costs, tax incentives, and payments for energy remitted to the system at retail rates. In addition new residential construction post-2020 is required, where cost-effective, to be zero-net energy, (i.e., include solar panels).

[18] Natural gas-fired peaking facilities are usually permitted at roughly a 30 percent capacity factor, but are expected to operate in the range of two to five percent. Load following generation is permitted at a 30 to 50 percent capacity factor, but expected to operate in the 10 to 20 percent range. Finally, combined cycles have been frequently permitted at close to a 100 percent capacity factor, but are expected to operate in the 40 to 70 percent range.

Air Quality Figure 1
California Generation Typical for a Non-Summer Day ("Duck" Chart)



Source: CA ISO 2014

The large "belly" (Number 2 in the figure) represents solar generation on a typical non-summer day; this gets larger over time as more solar is added to the system. The gray area represents necessary thermal generation, which is increasingly natural gas over time as California portfolios are divested of coal pursuant to the state's Emission Performance Standard. Note that imports are reduced to zero at midday, and hydro generation is limited to run-of-river (from hydro-generation facilities that do not have reservoir storage, and from water that must be allowed to flow due to recreational needs, flood control, habitat preservation, etc.). A large share of midday generation must also be flexible, dispatchable natural gas as: (a) a threshold amount of thermal capacity needs to be idling (or at least readily available, not unlike a hybrid car) at mid-day at minimum output to protect against sudden component failures (major power plants and transmission lines), or drops in solar output; and, (b) a large amount of gas-fired generation will be needed 4 to 8 hours later when solar energy is unavailable, and unless it is fast start such as PEP, must be on line and generating at minimum output at mid-day.

Greenhouse Gas Figure 1 illustrates a case of over-generation; in which renewable output at mid-day and necessary gas-fired generation jointly result in too much energy being produced. There are several ways to deal with over-generation. In theory, the surplus energy can be exported to neighboring states. But much of the over-generation expected in California will occur during the low-demand months of February to April, when similar surpluses exist in the Pacific Northwest due to the snow melt and the resulting increase in hydroelectric generation in the Columbia River basin. Under these conditions, export potential is likely to be limited and export prices would be near zero.

A long-term solution for over-generation is expected to be the development of cost-effective, multi-hour storage, allowing the surplus to be stored until it can be used in evening hours. In 2013, the California Public Utilities Commission adopted Decision

D.10-03-040. This decision established an energy storage target of 1,325 MW by 2024. In the interim, however, over-generation can only be dealt with by curtailing renewable generation or reducing the amount of gas-fired generation that is needed during midday and early afternoon hours. The latter is facilitated by developing gas-fired resources that operate at low levels of output or cycle off during mid-day hours.

CONSIDERATION OF THE SOLAR THERMAL COMPONENT OF THE APPROVED PHPP DOES NOT CHANGE STAFF'S CONCLUSIONS

The approved PHPP contains a solar thermal component; the proposed revision eliminates it. The net effect of this action with respect to GHG emissions, however, is ambiguous. Neither the approved PHPP nor the proposed PEP will be completed without a long-term contract with a utility. This utility is, in turn, required to comply with the state's RPS, which mandates renewable energy procurement in an amount equal to or greater than 50 percent of the utility's retail sales by 2030. Should a utility sign a long-term contract with a natural gas-fired generation project that does not have a zero- or low-carbon component (e.g., PEP), it will still (be obligated to) procure this quantity of renewable energy. The renewable project with which it contracts will all but certainly have a different operational profile than the solar thermal component of the licensed PHPP, meaning that the two renewable energy sources will displace different natural gas-fired generating resources, whose GHG emissions cannot be known a priori.

COMPLIANCE WITH LORS

FEDERAL

The PEP would be subject to PSD permitting requirements of 40 CFR Parts 51 and 52 (**Air Quality** Compliance with LORS subsection), but not subject to a GHG emissions BACT analysis. The U.S. EPA currently has authority over the PSD program for the AVAQMD. The PEP submitted PSD permitting application to the U.S. EPA including a Class I impact assessment.

The PEP would also be subject to the proposed federal power plant GHG emissions NSPS (40 CFR Part 60, Subpart TTTT) due to proposed operation as a base load facility. The PEP project would have to comply with the federal mandatory GHG reporting regulation (40 CFR Part 98). compliance with the proposed federal NSPS of 1,000 $lb/_{gross}MWh$ for new combustion turbines.

STATE

The PEP would be required to participate in California's GHG cap-and-trade program, which became active in January 2012, with enforcement beginning in January 2013. This cap-and-trade program is part of a broad effort by the state of California to reduce GHG emissions as required by AB 32, which is being implemented by ARB. As currently implemented, market participants such as the PEP are required to report their GHG emissions and to obtain GHG emissions allowances (and offsets) for those reported emissions by purchasing allowances from the capped market and offsets from outside the AB 32 program. The PEP, as a GHG cap-and-trade participant, would be consistent with California's landmark AB 32 Program, which is a statewide program coordinated

with a region wide Western Climate Initiative program to reduce California's GHG emissions to 1990 levels by 2020. ARB staff continues to develop and implement regulations to refine key elements of the GHG reduction measures to improve their linkage with other GHG reduction programs.

On May 22, 2014, The ARB released its first update to their AB32 Scoping Plan. On April 29, 2015, Governor Brown issued Executive Order B-30-15, directing state agencies to implement measures to reduce GHG emissions 40 percent below their 1990 levels by 2030 and to achieve the previously-stated goal of an 80 percent GHG reduction by 2050. In response, ARB is again updating the AB32 Scoping Plan. If this project is built after 2020, the GHG regulatory landscape could be different than today.

On June 17, 2016, ARB released a concept paper addressing four options for updating the Scoping Plan that focus on extending AB32 requirements beyond the year 2020. There are four alternatives listed in the concept paper, described as Concepts 1 to 4. These are summarized as follows:

1. Extending cap-and-trade and other complementary programs,

2. Expand complementary programs without extending cap-and-trade,

3. Aggressively expand transportation-related programs and other complementary programs without extending cap and trade, and

4. Replace cap-and-trade with a carbon tax and expanded complementary programs.

Staff's GHG analysis assumes the cap-and-trade provisions of AB32 would continue as envisioned in Concept 1. If a carbon tax replaces cap-and-trade as envisioned in Concept 4, the effect on SEP is expected to be approximately the same, depending on how the carbon tax is levied. However, if the cap-and-trade approach is abandoned as in Concepts 2 and 3, the only programmatic approach currently in place would apply to reducing GHG emissions from power plants would be the federal New Source Performance Standard requirements being developed by the U.S. EPA. As currently proposed, SEP would comply with these federal GHG requirements.
ARB has initiated a process to obtain public input on which of these options to pursue. They plan on adopting the updated scoping plan in 2016.

SB32 codifies H&SC §38566. This legislation was approved by the California Legislature on August 24, 2016 and sent to Governor Brown for signature. Although it has not yet been finalized, the legislation would require California to reduce GHG emissions to 40 percent below the statewide greenhouse gas emissions limit by the end of 2030. H&SC §38550 defines the statewide GHG emission limit to be equivalent to 1990 emissions.

The facility owner has proposed that the PEP would have a 60 percent or above annual full load capacity factor; therefore, PEP is subject to the requirements of SB 1368 and the current Emission Performance Standard. The project's GHG emission performance has been demonstrated to be below the SB 1368 EPS limit of 1,100 $lb/_{net}MWh$ (see **Greenhouse Gas Table 4**), and with the proposed federal NSPS of 1,000 $lb/_{gross}MWh$ for new combustion.

LOCAL

The AVAQMD Rule 3011 Greenhouse Gases Provisions of Federal Operating Permits provides provisions for incorporating requirements for greenhouse gases (GHG) into FOPs. This rule is consistent with federal PSD rule as defined in 40 CFR Part 52.21. This rule requires the owner or operator of a new major source or a major modification to obtain a PSD permit prior to commencing construction. The project owner has submitted an application to the U.S. EPA. The AVAQMD does not currently have any other approved GHG emissions regulations that would apply to the project. Therefore, currently there are no applicable local LORS for GHG emissions/climate change.

AVENAL PRECEDENT DECISION

The Energy Commission established a precedent decision in the Final Commission Decision for the Avenal Energy Project, finding as a conclusion of law that any new natural gas-fired power plant certified by the Energy Commission "must:

- not increase the overall system heat rate for natural gas plants;
- not interfere with generation from existing renewables or with the integration of new renewable generation; and
- take into account the two preceding factors, reduce system-wide GHG emissions."[19]

The Energy Commission in the recent Final Decision for the Huntington Beach Energy Project[20] noted that the Avenal decision has been augmented by two recent developments. The first is the adoption of CEQA guidelines for the analysis of GHG emissions impacts (CEQA Guidelines, tit. 14, §15064.4). The second development is the enactment of the AB 32 Cap-and-Trade system that implements the state's approach to reducing GHG emissions from the electricity sector. Staff is continuing to analyze this project against that precedent, while also taking into consideration the CEQA guidelines.

The average heat rate for the WECC is presented in **Greenhouse Gas Table 5**, as is the California specific data. These values are an average across all natural gas-fired units that operated in that year. It is interesting to note that the average heat rates in-state versus the average of those across the greater WECC are not that different, and the slight uptick in the average heat rate in 2011 was seen at the WECC level as well as the California level. This is due to the large contribution of California generation to total WECC generation, and generally similar energy resources and technology types throughout the WECC.

[19] Final Commission Decision, Avenal Energy Application for Certification (08-AFC-1) December 2009, pp. 111-114.

[20] Final Commission Decision, Huntington Beach Energy Project (12-AFC-02) November 2014, pp. 4.1-6.7.

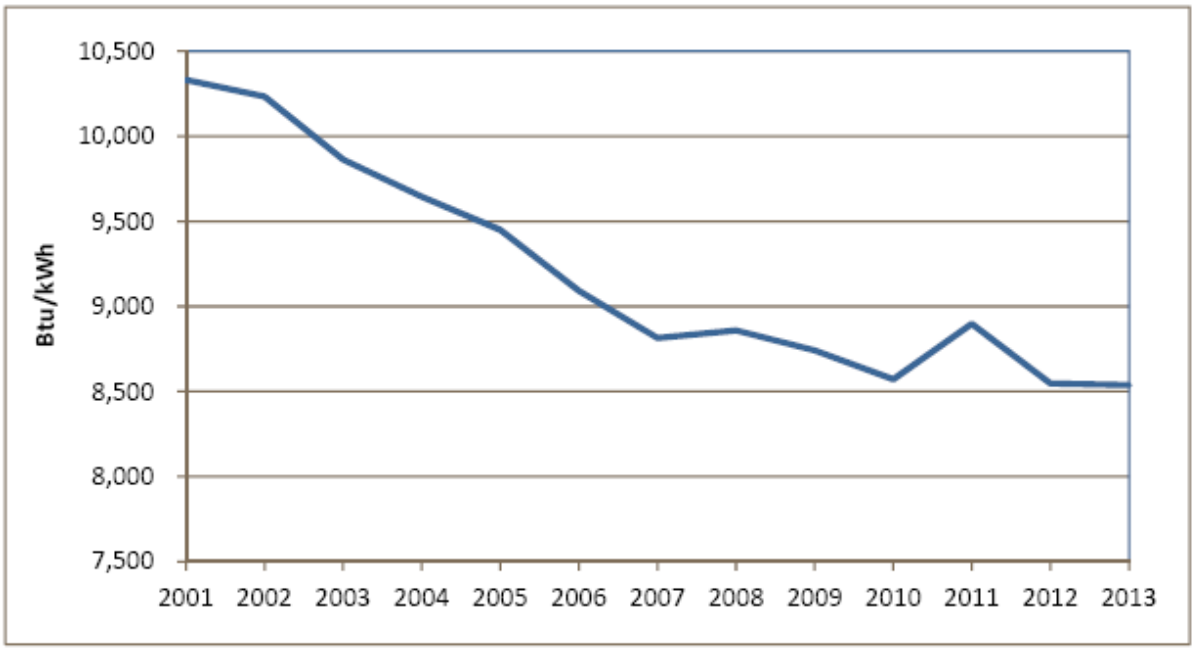
Greenhouse Gas Table 5
Weighted Average Heat Rate for Operating Natural Gas-Fired Plants[1] in the WECC and California 2010-2013

Year	Average WECC Heat Rate [2] (MMBtu/kWh)	Average CA Heat Rate [3] (MMBtu/kWh)
2010	7,784	7,628
2011	7,995	7,879
2012	7,918	7,808
2013	Not available	7,664

[1] Excludes cogeneration facilities
[2] Ventyx, Velocity Suite (compiled from U.S. EPA hourly Continuous Emission Monitoring Survey data)
[3] Thermal Efficiency of Gas-Fired Generation in California: 2014 Update, CEC-200-2014-005, September 2014 (CEC 2014b) 2014b).

Overall, the average heat rate for natural gas units has been declining for years, as shown in **Greenhouse Gas Figure 2**. The improvement is likely the result of the deployment of modern combustion turbine units. The average heat rates in **Greenhouse Gas Table 5** are dominated by the deployment of modern combined-cycles in California and the WECC.

Greenhouse Gas Figure 2
Average Heat Rates for Gas Fired Electric Generation Serving California



Source: QFER CEC-1304 Power Plant Data Reporting.

Source: Thermal Efficiency of Gas-Fired Generation in California: 2014 Update, CEC-200-2014-005, September 2014 (CEC 2014b).

RESPONSE TO PSA COMMENTS

Staff received no comments from the public, interveners, agencies, or the project owner in the **Air Quality Appendix Air-1 - Greenhouse Gases**.

CONCLUSIONS AND RECOMMENDATIONS

The project would lead to a net reduction in GHG emissions across the electricity system that provides energy and capacity to California. Thus, staff concludes that the project would result in a cumulative overall reduction in GHG emissions from the state's power plants, would not worsen current conditions, and would thus not result in impacts that are cumulatively significant. In addition, it would provide flexible, dispatchable, and fast-ramping power in relatively small increments of capacity, which is expected to be necessary to integrate variable-energy renewable generation on the scale projected in the CPUC and CA ISO long-term planning processes.

Staff notes that mandatory reporting of GHG emissions per Federal Government and Air Resources Board greenhouse gas regulations would occur, and these reports would enable these agencies to gather the information needed to regulate the PEP project in trading markets, such as those required by regulations implementing the AB 32.

Staff does not believe that the GHG emission increases from construction or demolition activities would be significant for several reasons. First, construction emissions would be temporary and intermittent, and not continue during the life of the project. Additionally, the control measures or best practices that staff recommends such as limiting idling times and requiring, as appropriate, equipment that meets the latest emissions standards, would further minimize greenhouse gas emissions. Staff believes that the use of newer equipment would increase efficiency and reduce GHG emissions and be compatible with low-carbon fuel (e.g., bio-diesel and ethanol) mandates that will likely be part of the ARB regulations to reduce GHG from construction vehicles and equipment. For all these reasons, staff concludes that the emission of greenhouse gases during construction would be sufficiently reduced and would, therefore, not be significant.

CONDITIONS OF CERTIFICATION

The facility owner be required to report GHG emissions and to obtain GHG emissions allowances (and offsets) for those reported emissions, by purchasing allowances from the capped market and offsets from outside the AB 32 program. Similarly, the PEP would be subject to federal mandatory reporting of GHG emissions. The facility owner may have to provide additional reports and GHG reductions, depending on the future regulations formulated by the U.S. EPA or the ARB. No other changes to the Conditions of Certification related to the greenhouse gas emissions from project operation or construction are proposed. However, since the PEP would be subject to 40 CFR Part 60, Subpart TTTT, PHPP Condition of Certification AQT-3 language is proposed for revision to include compliance with 40 CFR Part 60, Subpart TTTT as follows:

AQT-3 This equipment is subject to the Federal NSPS codified at 40 CFR Part 60, Subparts A (General Provisions) and KKKK (Standards of Performance for New Stationary Gas Turbines)**, and TTTT (Standards of Performance for Greenhouse Gas Emission from New Stationary Gas Turbines)**. This equipment is also subject to the Prevention of Significant Deterioration (40 CFR ~~51.166~~**52.21**) and Federal Acid Rain (Title IV) programs. Compliance

with all applicable provisions of these regulations is required.

Verification: The project owner shall provide the District, the ARB and the CPM copies of the federal PSD and Acid Rain permits no later than 30 days after their issuance.

See the Air Quality section for a complete list of conditions of certification including **AQT-3**.

ACRONYMS

AB	Assembly Bill
ARB	California Air Resources Board
CAA	Clean Air Act
CalEPA	California Environmental Protection Agency
CA ISO	California Independent System Operator
CCCC	California Climate Change Center
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH_4	Methane
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
CPUC	California Public Utilities Commission
EIR	Environmental Impact Report
EPS	Emission Performance Standard
GCC	Global Climate Change
GHG	Greenhouse Gas
GWh	Gigawatt-hour
GWP	Global Warming Potential
HFC	Hydrofluorocarbons
H&SC	Health and Safety Code
IEPR	Integrated Energy Policy Report
IGCC	Integrated Gasification Combined-Cycle
IOU	investor-owned utility
IPCC	Intergovernmental Panel on Climate Change
LCA	Local Capacity Area
LRAs	Local Reliability Areas
LTPP	Long-term Procurement Planning
MT	Metric tones
$MTCO_2e$	Metric Tons of CO2-Equivalent
MW	Megawatts
MWe	Megawatts electrical
MWh	Megawatt-hour
NERC	North American Electric Reliability Corporation
N_2O	Nitrous Oxide

NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NO_3	Nitrates
NOx	Oxides of Nitrogen or Nitrogen Oxides
PEP	Palmdale Energy Project
PHPP	Palmdale Hybrid Power Project
PFC	Perfluorocarbons
POU	Publicly Owner Utility
PSA	Preliminary Staff Assessment
PSD	Prevention of Significant Deterioration
QFER	Quarterly Fuel and Energy Report
RPS	Renewables Portfolio Standard
SB	Senate Bill
SF_6	Sulfur hexafluoride
U.S. EPA	United States Environmental Protection Agency
WECC	Western Electricity Coordinating Council

Air Quality Appendix Air-2

Paving Emissions Reduction Credits Protocol

Palmdale Energy Project

Palmdale, California

Submitted to

Antelope Valley Air Quality Management District

Submitted by

Palmdale Energy, LLC

Prepared by

Atmospheric Dynamics, Inc.

February 2016

ATMOSPHERIC DYNAMICS, INC
Meteorological & Air Quality Modeling

Palmdale Energy, LLC proposes to construct, own, and operate the Palmdale Energy Project (PEP or Project). The PEP will consist of a natural gas-fired combined-cycle design to be developed on an approximately 50-acre site in the northern portions of the City of Palmdale (City). The combined-cycle equipment will utilize two (2) Siemens SCC6-5000F natural gas-fired combustion turbine generators (CTG), two heat recovery steam generators (HRSG) with supplemental duct firing, one (1) steam turbine generator (STG), one (1) auxiliary boiler, and support equipment.

The Project is designed to provide flexible capacity within the CAISO and will have a nominal electrical output of 660 megawatts (MW). Commercial operation is planned for the summer of 2019. The design and location of the proposed PEP would serve to complement electrical generation needs for flexible resource support.

The project will require a AVAQMD Regulation XIII New Source Review (NSR) permit, as specified under Rules 1300-1320. Currently, the AVAQMD air basin is federal and State attainment/unclassified for NO_2, SO_2, PM2.5, and CO. The area is in attainment for the federal PM10 standards, but nonattainment for the 8-hour ozone (O_3) standard. It is also State non-attainment for PM10 and O_3 standards. Based on the project emissions, the new facility will be a major new stationary source per AVAQMD New Source Review (NSR) Regulation XIII.

AVAQMD Regulation XIII, NSR Rule 1302, provides the requirements at which emission levels the offset calculations must be done and thresholds over which emissions must be offset. It also defines which pollutants must be offset, what ratios must be used, and the criteria of what can be used as an emission reduction credit (ERC). If a project meets the requirements of these rules, then the mitigation (i.e., ERC) can be considered to be completely effective since the program has been developed to ensure eventual attainment of the AAQS.

The purpose of this protocol is to provide the AVAQMD with sufficient information to identify the sources of Paving Emissions Reduction Credits (PERCs) in order to voluntarily pave a series of unpaved public roads in order to generate PM10 emission credits. This protocol will outline the methods for data collection and analysis in order to perform the calculations as specified in the Mojave Desert Air Quality Management District (MDAQMD) Rule 1406.

Once the data has been collected and analyzed, an application for PERCs will be submitted to the AVAQMD which will contain all information as required by AVAQMD Rule 1309.

PM10 and PM10 Precursor (SO_x) Offsets

The District is attainment for the federal PM10 standard. Therefore, there is no regulatory requirement, that the applicant is aware of, that requires the adoption of a PM10 plan, road paving rule, or any other preparatory regulatory action prior to responding to an ERC application for emission reductions resulting from the paving of an existing unpaved road. For the same reason, USEPA approval is not required for any District action involving PM10 credits (1305(B)(3)(d)). Furthermore, the District is attainment for both the federal and state PM2.5 standards, and therefore the PEP is not required to offset its PM2.5 emissions pursuant to the District rules. Based on Rule 1302 and the California Environmental Quality Act (CEQA), the project will need to generate the following ERCs listed in Table 1.

Table 1 PM10 and SO_2 Offsets

OFFSETS/MITIGATION PROPOSED FOR PEP Emission Reduction Credits - TPY			
	PM_{10}		SO_2
AVAQMD Offset Trigger Thresholds	15		25
Facility PTE[1]	81.01		11.39
AVAQMD Offset Ratio	1:1		1:1
Total Offsets Required	81.01		11.39*

[1] Values derived from Section 4.1 of the AVAQMD Application Package
* While rule 1302 does not require SO_2 ERCs, SO_2 contributes to PM10 and will be mitigated under CEQA.

The PEP will propose to pave certain roads located within the air basin in order to generate PM10 PERCs, which will mitigate emissions of PM10 and SO_x and satisfy the State air quality requirements and CEQA. Thus, the total PM10 mitigation package would be for 81.01 tons per year of PM10 and 11.39 tons per year of SO_2, for a total PERC quantity of 92.4. In the current permit application package submitted to the AVAQMD and the CEC, ten (10) existing unpaved road segments were identified, totaling approximately 22 miles as listed in Table 2. From these ten (10) initial road segments, a subset of four (4) were selected for potential paving activities and are listed in Table 3. If additional roadway segments are needed, then additional roads from Table 2 will be assessed.

Table 2 Initial Road Segments

Street Segment	From	To	Jurisdiction	Street Type	Segment Length (Mi.)	ROW Req.	Segment Footprint (Acre)
Ave. B	90th Street W	30th Street W	L.A. County	County Road	Approx. 6.0	40 Ft.	29.1
Ave. S-2	96th Street E	106th Street E	L.A. County	County Road	Approx. 1.0	40 Ft.	4.85
110th Street E	Ave. L	Columbia Way /Avenue M	City of Palmdale	Secondary Arterial	Approx. 1.0	92 Ft.	11.15
40th Street W	Ave. N	Ave N-8	L.A. County	County Road	Approx. 0.5	40 Ft.	1.94
Ave. Q	90th Street E	110th Street E	City of Palmdale	Secondary Arterial	Approx. 2.0	92 Ft.	22.3
Ave. S-6	96th Street E	106th Street E	L.A. County	County Road	Approx. 1.0	40 Ft.	4.85
Ave. T-10	87th Street E	96th Street E	L.A. County	County Road	Approx. 1.0	40 Ft.	4.85
Ave. N-8	Bolz Ranch Road	30th Street W	City of Palmdale	Local Interior St.	Approx. 1.5	60 Ft.	10.91
Ave. G	90th Street E	120th Street E	L.A. County	County Road	Approx. 3.0	40 Ft.	9.70
Carson Mesa Road	El Sastre	Vincent View Road	L.A. County	County Road.	Approx. 1.85	40 Ft.	8.24

Completion of the road paving activities will be prior to the commencement of start of construction to the project. Road paving activities will not coincide with facility construction.

PM10 Source Characterization

Particulate emissions occur whenever vehicles travel on unpaved roads. Many industrial areas also have active unpaved roads. When a vehicle travels an unpaved road, the force of the wheels on the road surface causes pulverization of surface material. Particles are lifted and dropped from the rolling wheels, and the road surface is exposed to strong air currents in turbulent shear with the surface. The turbulent wake behind the vehicle continues to act on the road surface after the vehicle has passed.

The emission of concern from unpaved roads is particulate matter (PM) including PM less than 10 microns in aerodynamic diameter (PM-10) and PM less than 2.5 microns in aerodynamic diameter (PM-2.5). The quantity of dust emissions from a given segment of unpaved road varies linearly with the volume of traffic. The emissions depend on correction parameters that characterize the condition of a particular road and the associated vehicle traffic. Parameters of interest in addition to the source activity (number of vehicle passes) include the vehicle characteristics (e.g., vehicle weight), the properties of the road surface material being disturbed (e.g. silt content, moisture content), and the climatic conditions (e.g., frequency and amounts of precipitation).

Dust emissions from unpaved roads have been found to vary directly with the fraction of silt in the road surface material. Silt consists of particles less than 75 *um* in diameter, and silt content can be determined by measuring the proportion of loose dry surface dust that passes through a 200-mesh screen, using the ASTM-C-136 method.

PM10 Emission Calculation Equation

The form of the MDAQMD PM10 emission calculation, which is based on Equation 1 in AP-42 (Chapter 13.2.2 Unpaved Roads) is of the form for vehicles traveling on publicly accessible roads dominated by light duty vehicles:

Equation 1

$$\mathrm{E}_u = \frac{K\left(\frac{s}{12}\right)^a\left(\frac{S}{30}\right)^d}{\left(\frac{M}{0.5}\right)^c}$$

where:

E_u = the unpaved road PM10 emission factor with units of pounds per vehicle mile traveled
k = empirical constant (1.8 for PM10) for units of lbs per VMT
s = the surface material silt content in percent (default value of 6.2 for gravel roads and 11.0 for non-gravel roads)
a = empirical constant (1 for PM10)
S = the mean vehicle speed with units of miles per hour (default value 20 mph for all unpaved roads)
d = empirical constant (0.5 for PM10)

M = surface material moisture content in percent (default value 1)
c = empirical constant (0.2 for PM10)

Due to rainfall or other precipitation, the above equation can be adjusted to reflect average uncontrolled conditions (but including natural mitigation) under the simplifying assumption that annual average emissions are inversely proportional to the number of days with measurable (more than 0.254 mm [0.01 inch]) precipitation:

$$E_{ext} = E[\frac{365 - P}{365}]$$

where:

E_{ext} = annual size specific emission factor extrapolated for natural mitigation, lb/VMT
E = emission factor from Equation 1
P = number of days in a year with at least 0.01 inches of precipitation

Equation 2 (from USEPA AP-42 §13.2.1) shall be used to estimate the quantity of PM10 emissions from re-suspension of loose material on a road surface due to vehicle travel on a dry paved Roadway Segment after paving:

Equation 2: $$E_p = k(sL)^{0.91}(W)^{1.02}$$

where:

E_p = the paved road PM_{10} emission factor with units pounds per vehicle mile traveled
k = empirical constant (0.0022 for PM_{10}) for units of lbs per VMT
sL = the road surface silt loading with units of grams per square meter (a default value equal to 2.4 for all paved roads)
W = average weight of vehicles traveling the road with units of tons (a default value equal to 3.0 for all unpaved roads)

The equations above shall be used to determine the PM10 emission factor (in terms of pounds per VMT) for each roadway segment in an unpaved and paved condition. Where allowed, non-default values shall be used to calculate PM10 emission factors as discussed below and will be obtained in accordance with Section (F) of the Rule.

The annual quantity of PM10 emissions emitted from each Roadway Segment shall be calculated by multiplying the PM10 emission factor by the annual VMT for each Roadway Segment as determined pursuant to subsection (C)(2) of the Rule. The PM10 emission reductions associated with paving an unpaved roadway segment will be calculated as the difference, in tons per year, between the emissions from the road in the unpaved condition and the emissions from the road in the paved condition. In accordance with MDAQMD Rule 1406, vehicle exhaust, brake wear and tire wear emissions will be ignored for purposes of this calculation.

PERC Source Generation Plan

The following subsections provide information which will be obtained and measured in order to quantify emissions of PERCs. While the AVAQMD provides for default values for vehicle speeds, silt content and surface material moister content, site specific conditions at each of the proposed roadway segments will be measured and quantified in accordance with Section F of the MDAQMD Rule 1406.

Determination of Vehicle Miles Traveled

Table 3 shows the proposed sub-set of road segments that are identified for determination of vehicle miles traveled (VMT). The VMT will be calculated using at least seven (7) consecutive measurement periods for each roadway segment as follows:

- Each measurement period (traffic count) shall measure vehicular traffic over a minimum of 24 hours.
    - For averaging within a traffic count, vehicular traffic shall be considered zero (0) for each hour not monitored continuously during any given 24-hour period.
- Traffic counts shall be conducted on non-holiday weekdays and weekends.
- Separate traffic counts will be made for each segment. A segment is identified as a length of road between cross streets. The counts will be made near the center point of each road segment.
- The VMT for each roadway segment shall be calculated by multiplying the time weighted average of seven (7) separate traffic counts for that roadway segment by the roadway segment's length in miles to the nearest 0.1 of a mile.

Table 3 Proposed Roadways with Specific Road Segments

Roadway	From	To	Jurisdiction	Street Type	Total Roadway Length (Miles)	ROW Req.	Roadway Area (Acre)	Distance From PEP (Miles)	Number of Segments for each Traffic Count
Ave S-6	96th Street E	110th Street E	City of Palmdale	County Road	Approx. 0.95	40 ft.	4.61	10.5	5
Ave T-10	87th Street E	96th Street E	City of Palmdale	County Road	Approx. 1 .0	40 ft.	4.85	10.8	5
Ave S-2	96th Street E	106th Street E	LA County	County Road	Approx. 1 .0	40 ft.	4.85	10.25	5
40th Street. W	Ave N	Ave N-6	LA County	County Road	1.43	40 ft.	9.41	5.5	9

Figures 1 through 3 presents the locations, total roadway lengths and individual segments for each of the proposed roads identified in Table 3.

Silt Content Analyses

The roadway segment surface material silt content will be determined by using collection and analysis methodologies as specified in Appendices C.1 and C.2 of USEPA AP-42 "Compilation of Air Pollutant Emission Factors" – Fifth Edition. Specifically, Appendix C.1 summarizes the procedures for sampling while Appendix C.2 provides for the laboratory procedures to analyze the data collected in accordance with C.1.

Sampling Analysis Frequency

The overall objective in an unpaved road sampling program is to inventory the mass of particulate matter (PM) emissions from the roads. This is typically done by:

1. Collecting "representative" samples of the loose surface material from the road;
2. Analyzing the samples to determine silt fractions and moisture content; and
3. Using the results in equation (1) of AP-42, Section 13.2.2, Unpaved Roads, together with traffic data (e. g., number of vehicles traveling the road each day).

Based on the overall study area and that the average length of roadway to be sampled will be less than three (3) miles in length, we would propose that the sampling frequency of silt/moisture content be taken at 0.5 mile intervals (or portion thereof) for each major road segment. Major road segment is defined here as the length of road between intersections with other either paved or unpaved roads. Thus, for a road segment that is 0.6 miles in length, two (2) samples will be taken.

If a longer road is identified for analysis, in that it is longer than three (3) miles in length, then the composite sampling method will be used, as identified in Appendix C.1. Here, a minimum of three incremental samples will be taken with the first sample at the first 0.5-mile segment with additional increments taken from each remaining 0.5-mile length of road up to a maximum length of three (3) miles.

Sample Collection Method

Following the procedures in Appendix C.1, the following collection method will be used to obtain samples of roadway material:

1. Using string or other suitable markers, mark a 0.3 meters (m) (1 foot [ft]) wide portion across the road. The collection area will not be marked with a chalk line or in any other method likely to introduce fine material into the sample.
2. With a whisk broom and dustpan, remove the loose surface material from the hard road base. The base will not be abraded during sweeping. Sweeping will be performed slowly so that fine surface material is not injected into the air. The material will be collected only from the portion of the road over which the wheels and vehicles routinely travel (i.e., not from berms or any "mounds" along the road centerline).
3. The swept material will be periodically deposited into a clean, labeled container of suitable size, such as a metal or plastic 19 liter (L) (5 gallon [gal]) bucket, having a sealable polyethylene liner. Increment samples may be mixed within this container.
4. Record the required information on the sample collection sheet as provided in Appendix C.1 in figure C.1-2.

Sample Sizes

For unpaved roads that are uncontrolled and don't use chemical stabilizers, a sample of 10 to 50 pounds will be taken and split into smaller samples for analysis, following the procedures in Appendix C.2. For unpaved roads that do utilize some type of chemical stabilizer, a minimum of one (1) pound of material will be collected, in accordance with Appendix C.1.

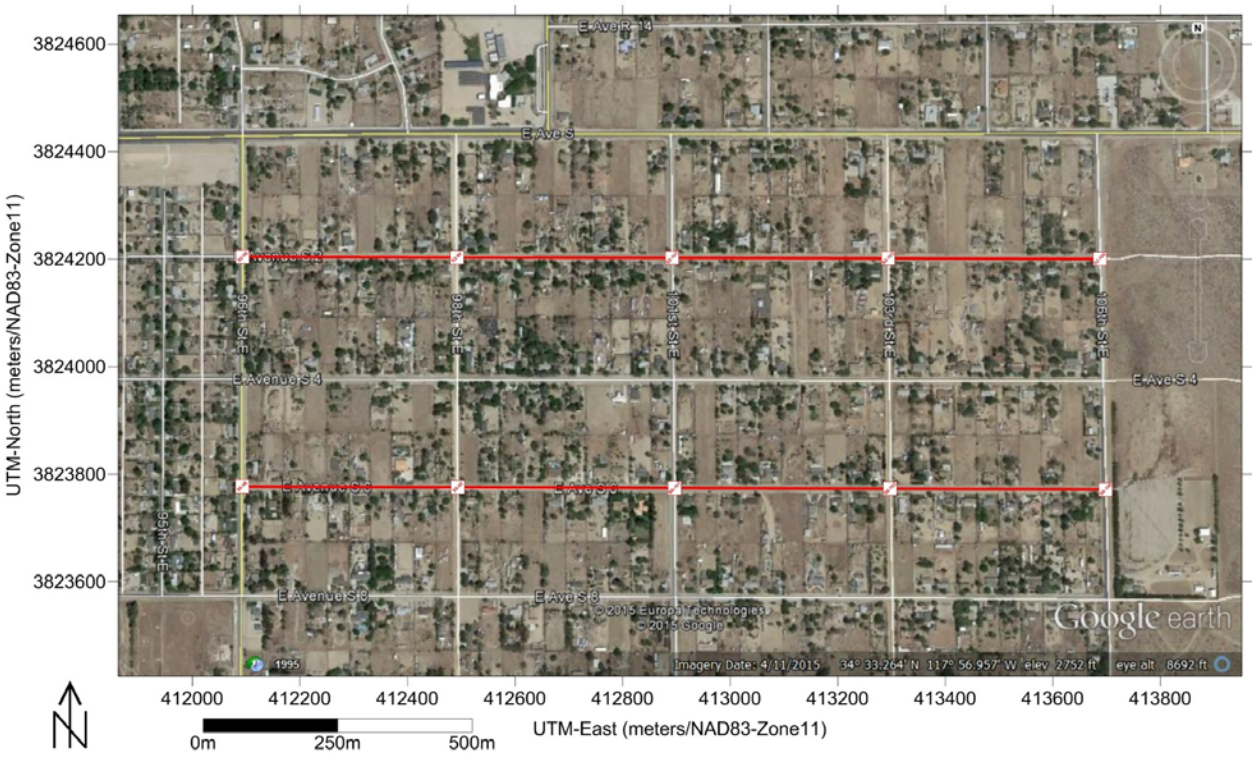
Submittal to AVAQMD

The final application submittal package will contain all the information required by MDAQMD Rule 1402 (B)(1)(b). This will include:

1. The name, address and telephone number of a responsible official for the applicant (the responsible official will be the addressee of all official correspondence regarding the application and PERCs;
2. The name and telephone number of a contact person for inquiries regarding the application and PERCs, if different than the responsible official;
3. Information identifying the particular new or modified facility or emissions unit requiring PM10 offsets pursuant to District Regulation XIII – *New Source Review*.
4. Information sufficient to identify the source of the proposed PERCs, and the PM10 Attainment Status Designation;
5. Information sufficient to allow the calculations specified in this rule to be performed;
6. A statement from the applicant that the unpaved road(s) will be paved according to state or local government paving standards, as applicable;
7. A letter or agreement from the appropriate state or local government stating that each Roadway Segment:
    a) Has been inspected;
    b) Has been described as being either gravel- or non-gravel surfaced;
    c) Will be adopted into the state or local transportation network, if not already part of the network; and,
    d) Will be maintained.
8. A statement from the applicant indicating that any necessary environmental review for the paving of each Roadway Segment required pursuant to the California Environmental Quality Act (CEQA) has been performed. Applicant shall provide a copy of such CEQA review upon District request.
9. Fees in accordance with District requirements.

Figure 1
West Ave N-8 from 45th St W to Tournament Dr

Figure 2
East Ave's S-2 & S-6 from 96th St E to 106th St E



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ACRONYMS

AAQS	Ambient Air Quality Standard
AB 32	California Global Warming Solutions Act of 2006
ACC	Air Cooled Condenser
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
AFC	Application for Certification
AP-42	U.S. EPA Compilation of Air Pollutant Emission Factors
APCO	Air Pollution Control Officer
AQCMM	Air Quality Construction Mitigation Manager
AQCMP	Air Quality Construction Mitigation Plan
ARB	California Air Resources Board
ARM	Ambient Ratio Method
ATC	Authority to Construct
ATCM	Airborne Toxic Control Measure
ASOS	Automated Surface Observing System
AVAQMD	Antelope Valley Air Quality Management District
BACT	Best Available Control Technology
Btu	British Thermal Unit
CAA	Federal Clean Air Act
CAAQS	California Ambient Air Quality Standard
CAM	Compliance Assurance Monitoring
CCR	California Code of Regulations
CEC	California Energy Commission (or Energy Commission)
CEQA	California Environmental Quality Act
CEM	Continuous Emission Monitor

CEMS	Continuous Emission Monitoring System
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalents
CTG	Combustion Turbine Generator
CPM	(Energy Commission) Compliance Project Manager
Decision	Energy Commission Final Decision
District	Antelope Valley Air Quality Management District
dscf	Dry Standard Cubic Foot
EGU	Electric generating unit
EPA	Environmental Protection Agency (same as U.S. EPA)
ERC	Emission Reduction Credit
FDOC	Final Determination Of Compliance
FGR	Flue Gas Recirculation
FND	Federal Negative Declaration
FSA	Final Staff Assessment
Ft	Feet
g/hp-hr	Grams per Horsepower-Hour
GHG	Greenhouse Gas
gr	Grains (1 gr $\cong$ 0.0648 grams, 7000 gr = 1 pound)
gr/scf	Grains per Standard Cubic Feet
H&SC	California Health & Safety Code
HAP	Hazardous Air Pollutant
HP	Horsepower
HR	Hour

HRA	Health Risk Assessment
HRSG	Heat Recovery Steam Generator
H_2S	Hydrogen Sulfide
LAER	Lowest Achievable Emission Rate
lbs	Pounds
LORS	Laws, Ordinances, Regulations and Standards
MACT	Maximum Achievable Control Technology
MCR	Monthly Compliance Report
MDAB	Mojave Desert Air Basin
MDAQMD	Mojave Desert Air Quality Management District
mg/m^3	Milligrams per Cubic Meter
mg	Milligram
MMBtu	Million British Thermal Units
MMBtu/hr	Million British Thermal Units per Hour
mph	Miles per Hour
$MTCO_2$	Metric Tonnes of Carbon Dioxide
$MTCO_2$/MWh	Metric Tonnes of Carbon Dioxide per Megawatt Hour
$MTCO_2e$	Metric Tonnes of Carbon Dioxide Equivalent
MW	Megawatts (1,000,000 Watts)
MWh	Megawatt Hour
NAAQS	National Ambient Air Quality Standard
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NH_3	Ammonia
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NO_3	Nitrates

NMHC	Non-methane Hydrocarbons or VOCs
NOx	Oxides of Nitrogen *or* Nitrogen Oxides
NSPS	New Source Performance Standard
NSR	New Source Review
O_2	Oxygen
O_3	Ozone
OLM	Ozone Limiting Method
PEMS	Predictive Emission Monitoring System
PEP	Palmdale Energy Project
PERC	Paved Emission Reduction Credit
PDOC	Preliminary Determination Of Compliance
PHPP	Palmdale Hybrid Power Project.
PM	Particulate Matter
PM10	Particulate Matter Less than 10 Microns in Diameter
PM2.5	Particulate Matter Less than 2.5 Microns in Diameter
Ppb	Parts Per Billion
ppm	Parts Per Million
ppmvd	Parts Per Million by Volume, Dry
PSA	Preliminary Staff Assessment
PSD	Prevention of Significant Deterioration
PTA	Petition to Amend
PTC	Permit to Construct
PTO	Permit to Operate
RACT	Reasonably Achievable Control Technology
ROW	Right-of-way
SB 1368	Perata, Chapter 598, Statutes of 2006

scf	Standard Cubic Feet
SCAB	South Coast Air Basin
SCR	Selective Catalytic Reduction
SIP	State Implementation Plan
SJVAPCD	San Joaquin Valley Air Pollution Control District
SoCalGas	Southern California Natural Gas Company
SO_2	Sulfur Dioxide
SO_4	Sulfates
SOx	Oxides of Sulfur
STG	Steam Turbine Generator
SWPPP	Storm Water Pollution Prevention Plan
U.S. EPA	United States Environmental Protection Agency
μg	Microgram
$\mu g/m^3$	Microgram per Cubic Meter
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compound

BIOLOGICAL RESOURCES CONDITIONS OF CERTIFICATION

The conditions of certification below are from the Decision for the PHPP. Staff has proposed minor, administrative changes to the conditions, updated the raven fee amount in **BIO-14** as a result of the reduction in loss of native vegetation, updated the amounts of habitat compensation and security amounts in **BIO-17** and **BIO-20** for similar reasons, and has proposed deletion of Condition of Certification **BIO-24** since elimination of the project's solar component makes it unnecessary. Deleted text is shown in ~~strikethrough~~ and added text in **bold and underline**.

DESIGNATED BIOLOGIST SELECTION[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, with at least three references and contact information, to the Energy Commission Compliance Project Manager (CPM) for approval in consultation with the California Department of Fish and ~~Game~~**Wildlife** (~~CDFG~~**CDFW**) and U.S. Fish and Wildlife Service (USFWS).

The Designated Biologist must meet the following minimum qualifications:

1. Bachelor's degree in biological sciences, zoology, botany, ecology, or a closely related field;

2. Three years of experience in field biology or current certification of a nationally recognized biological society, such as The Ecological Society of America or The Wildlife Society;

3. 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 (USFWS 2008b) and demonstrate familiarity with protocols and guidelines for the desert tortoise, and be approved by the USFWS; and

5. Possess a recovery permit for desert tortoise and a California ESA Memorandum of Understanding pursuant to Section 2081(a) for desert tortoise and Mohave ground squirrel or have adequate experience and qualifications to obtain these authorizations.

[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 USFWS that they possess sufficient desert tortoise knowledge and experience to handle and move tortoises appropriately, and have received USFWS approval. Authorized Biologists are permitted to then approve specific monitors to handle tortoises, at their discretion. The California Department of Fish and ~~Game~~**Wildlife** (~~CDFG~~**CDFW**) must also approve such biologists, potentially including individual approvals for 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.

In lieu of the above requirements, the resume shall demonstrate to the satisfaction of the CPM, in consultation with ~~CDFG~~**CDFW** and USFWS, that the proposed Designated Biologist or alternate has the appropriate training and background to effectively implement the conditions of certification.

Verification: The project owner shall submit the specified information at least 60 days prior to the start of any project-related site disturbance activities. No site or related facility activities shall commence until an approved Designated Biologist is available to be on site.

If a Designated Biologist needs to be replaced, the specified information of the proposed replacement must be submitted to the CPM at least 10 working days prior to the termination or release of the preceding Designated Biologist. In an emergency, the project owner shall immediately notify the CPM to discuss the qualifications and approval of a short-term replacement while a permanent Designated Biologist is proposed to the CPM for consideration.

Designated Biologists shall complete a USFWS Qualifications Form (USFWS 2008b) (www.fws.gov/ventura/speciesinfo/protocols_guidelines) and submit it to the USFWS and CPM within 60 days prior to ground breaking for review and final approval.

DESIGNATED BIOLOGIST DUTIES

BIO-2 The project owner shall ensure that the Designated Biologist performs the following during any site (or related facilities) mobilization, ground disturbance, grading, construction, operation, and closure activities. The Designated Biologist may be assisted by the approved Biological Monitor(s) but remains the contact for the project owner and 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~~**CDFW** and USFWS, including notifying these agencies of dead or injured listed species and reporting special-status species observations to the California Natural Diversity Data Base.

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. 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/her duties cease, as approved by the CPM.

BIOLOGICAL MONITOR QUALIFICATIONS

BIO-3 The project owner's CPM-approved Designated Biologist shall submit the resume, at least three references, and contact information of the proposed Biological Monitors to the CPM for approval in consultation with ~~CDFG~~**CDFW** and USFWS. The resume shall demonstrate, to the satisfaction of the CPM, the appropriate education and experience to accomplish the assigned biological resource tasks. Biological Monitors involved in any aspect of desert tortoise surveys or handling must meet the criteria to be considered a USFWS Authorized Biologist (USFWS 2008b) and demonstrate familiarity with the most recent protocols and guidelines for the desert tortoise.

Biological Monitor(s) training by the Designated Biologist shall include familiarity with the conditions of certification, BRMIMP, WEAP, USFWS guidelines on desert tortoise surveys and handling procedures <www.fws.gov/ventura/speciesinfo/protocols_guidelines> and all permits.

Verification: The project owner shall submit the specified information to the CPM for approval at least 60 days prior to the start of any project-related site disturbance activities. The Designated Biologist shall submit a written statement to the CPM confirming that individual Biological Monitor(s) has been trained including the date when training was completed. If additional Biological Monitors are needed during construction, the specified information shall be submitted to the CPM for approval at least 10 days prior to their first day of monitoring activities.

BIOLOGICAL MONITOR DUTIES

BIO-4 The Biological Monitors shall assist the Designated Biologist in conducting surveys and in monitoring of mobilization, ground disturbance, grading, construction, operation, and closure activities. The Designated Biologist shall remain the contact for the project owner and 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 or monitored 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 his/her 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 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, construction, 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;

3. Notify the CPM if there is a halt of any activities and advise the CPM of any corrective actions that have been taken or will be instituted as a result of the work stoppage, and

4. 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 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, and operation activities. The project owner shall notify the CPM of the circumstances and actions being taken to resolve the problem.

Whenever corrective action is taken by the project owner, a determination of success or failure will be made by the CPM within five working days after receipt of notice that

corrective action is completed, or the project owner will be notified by the CPM that coordination with other agencies will require additional time before a determination can be made.

WORKER ENVIRONMENTAL AWARENESS PROGRAM (WEAP)

BIO-6 The project owner shall develop and implement ~~PHPP~~**a project**-specific Worker Environmental Awareness Program (WEAP) and shall secure approval for the WEAP from USFWS, ~~CDFG~~**CDFW**, and the CPM. The WEAP shall be administered to all on-site personnel including surveyors, construction engineers, employees, contractors, contractor's employees, supervisors, inspectors, subcontractors, and delivery personnel. The WEAP shall be implemented during site mobilization, ground disturbance, grading, 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 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;

3. Place special emphasis on Swainson's hawk, arroyo toad, desert tortoise and Mohave ground squirrel, including information on physical characteristics, distribution, behavior, ecology, sensitivity to human activities, legal protection, penalties for violations, reporting requirements, and protection measures;

4. Present the meaning of various temporary and permanent habitat protection measures;

5. Identify whom to contact if there are further comments and questions about the material discussed in the program; and

6. Include a training acknowledgment form to be signed by each worker indicating that he/she 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 60 days prior to the start of any project-related site disturbance activities, the project owner shall provide to the CPM a copy of the draft 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 site and related facilities mobilization, 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 worker education program 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 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 submit two copies of the proposed BRMIMP to the CPM (for review and approval) and shall implement the measures identified in the approved BRMIMP. The BRMIMP shall incorporate impact avoidance and minimization measures described in final versions of the Mohave Ground Squirrel Translocation Plan; the Restoration Plan; the Hazardous Materials Plan; the Sensitive Plant Protection Plan; the Raven Monitoring, Management, and Control Plan; the Swainson's Hawk Monitoring and Mitigation Plan; the Burrowing Owl Monitoring and Mitigation Plan; the Streambed Avoidance and Mitigation Plan; and the Closure Plan.

The BRMIMP shall be prepared in consultation with the Designated Biologist and shall include the following:

1. All biological resources mitigation, monitoring, and compliance measures proposed and agreed to by the project owner (including the Air Quality Road Paving PM10 Mitigation Plan);

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;

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. A detailed description of measures that shall be taken to avoid or mitigate temporary disturbances from construction activities;

7. All locations on a map, at an approved scale, of sensitive biological resource areas subject to disturbance and areas requiring temporary protection and avoidance during construction;

8. Aerial photographs, at an approved scale, of all areas to be disturbed during project construction activities; include one set prior to any site or related facilities mobilization disturbance and one set subsequent to completion of project construction. Provide planned timing of aerial photography and a description of why times were chosen. Provide a final accounting of the before/after acreages and a determination of whether additional habitat compensation is necessary in the Construction Termination Report;

9. Duration for each type of monitoring and a description of monitoring methodologies and frequency;

10. Performance standards to be used to help decide if/when proposed mitigation is or is not successful;

11. All remedial measures to be implemented if performance standards are not met;

12. A discussion of biological resources-related facility closure measures including a description of funding mechanism(s); and

13. A process for proposing plan modifications to the CPM and appropriate agencies for review and approval.

Verification: The project owner shall submit the BRMIMP to the CPM at least 60 days prior to start of any project-related site disturbance activities. The CPM, in consultation with other appropriate agencies, will determine the BRMIMP's acceptability within 45 days of receipt. The BRMIMP shall contain all of the required measures included in all biological conditions of certification. No ground disturbance may occur prior to the CPM's approval of the final BRMIMP.

The project owner shall notify the CPM no less than five working days before implementing any modifications to the approved BRMIMP to obtain CPM approval. Any changes to the approved BRMIMP must also be approved by the CPM in consultation with appropriate agencies to ensure no conflicts exist.

Implementation of BRMIMP measures (construction activities that were monitored, species observed) will 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 site mobilization, ground disturbance, grading, and construction phases; 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 construction site and related facilities in a manner to avoid or minimize impacts to biological resources:

1. Limit Disturbance Area. 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 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 also be located in areas without native vegetation or special-status species habitat. All disturbances, 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 will do so within the planned impact area or in previously disturbed areas. Where new access is required outside of existing roads (e.g. new spur roads) or the construction zone, the route will be clearly marked (i.e., flagged and/or staked) prior to the onset of construction.

3. Minimize Traffic Impacts. Vehicular traffic during project construction and operation shall be confined to existing routes of travel to and from the project site, and cross country vehicle and equipment use outside designated work areas shall be prohibited. The speed limit shall not exceed 25 miles per hour within the project area, on maintenance roads for linear facilities, or on access roads to the ~~PHPP~~**project** site.

4. Monitor During Construction. The Designated Biologist or Biological Monitor shall be present at the construction site during all project activities that have potential to disturb soil, vegetation, and wildlife. In areas that could support desert tortoise, Mohave ground squirrel, or any other sensitive wildlife species, the USFWS-approved Designated Biologist or Biological Monitor shall walk immediately ahead of equipment during brushing and grading activities.

5. Salvage Wildlife during Clearing and Grubbing. The Designated Biologist or Biological Monitor shall salvage and relocate sensitive wildlife during clearing and grading operations. The species shall be salvaged when conditions will not jeopardize the health and safety of the monitor and relocated off-site habitat.

6. Minimize Impacts of Transmission/Pipeline Alignments, Roads, and Staging Areas. For construction activities outside of the plant site (transmission line, pipeline alignments) access roads, pulling sites, and storage and parking areas shall be designed, installed, and maintained with the goal of minimizing impacts to native plant communities and sensitive biological resources. Transmission lines and all electrical

components shall be designed, installed, and maintained in accordance with the Avian Power Line Interaction Committee's (APLIC's) *Suggested Practices for Avian Protection on Power Lines* (APLIC 2006) and *Mitigating Bird Collisions with Power Lines* (APLIC 2004) to reduce the likelihood of bird electrocutions and collisions.

7. Avoid Use of Toxic Substances. Road surfacing and sealants as well as soil bonding and weighting agents used on unpaved surfaces shall be non-toxic to wildlife and plants. Anticoagulants shall not be used for rodent control.

8. Minimize Lighting Impacts. Facility lighting shall be designed, installed, and maintained to prevent side casting of light towards wildlife habitat.

9. Avoid Vehicle Impacts to Desert Tortoise. No vehicles or construction equipment 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 will be left to move on its own. If the tortoise does not move, the animal will be relocated to a safe location within 500 feet of the project area. No tortoise shall be moved without authorization from the ~~CDFG~~**CDFW**, USFWS, and CPM.

10. Avoid Wildlife Pitfalls. At the end of each work day, the Designated Biologist shall ensure that all potential wildlife pitfalls (trenches, bores, and other excavations) outside the permanently fenced area 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 tortoise-exclusion fencing. All trenches, bores, and other excavations shall be inspected periodically throughout and at the end of each workday by the Designated Biologist or a Biological Monitor. Should wildlife become trapped, the Designated Biologist or Biological Monitor shall remove and relocate the individual to a safe location. Any wildlife encountered during the course of construction shall be allowed to leave the construction area unharmed.

11. Avoid Entrapment of Desert Tortoise and Mohave Ground Squirrel. Any construction pipe, culvert, or similar structure with a diameter greater than 3 inches, stored less than 8 inches above ground and within desert tortoise or Mohave ground squirrel habitat for one or more days/nights, shall be inspected for tortoises or Mohave ground squirrel 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 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 attract desert tortoise, common ravens, and other wildlife to the site and shall take appropriate action to reduce water application where necessary.

13. 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.

14. 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.

15. Avoid Spread of Noxious Weeds. The project owner shall implement the following Best Management Practices during construction and operation to prevent the spread and propagation of noxious weeds:

    a. Limit the size of any vegetation and/or ground disturbance to the absolute minimum and limit ingress and egress to defined routes;

    b. Prevent spread of non-native plants via vehicular sources by implementing Trackclean™ or other methods of vehicle cleaning for vehicles coming and going from construction sites. Earth-moving equipment shall be cleaned prior to transport to the construction site;

    c. Use only weed-free straw, hay bales, and seed for erosion control and sediment barrier installations, and

    d. Avoid using invasive non-native species in landscaping plans and erosion control.

16. Stockpile Topsoil. To increase chances for revegetation success, topsoil shall be stockpiled from the project plant site and along project linear features for use in revegetation of temporarily disturbed areas. The top tow (2) to six (6) inches of native topsoil depending on soil conditions that occur at each area subject to temporary disturbance that are relatively free of noxious weeds such as Russian thistle, yellow star thistle, or similar exotics shall be scraped and separately stockpiled for use in revegetation. The amount of topsoil needed for the project plant site and laydown area will be estimated when final design plans are available, and only the amount expected to be needed for revegetation of temporarily disturbed

areas will be collected and stockpiled. The collection and stockpiling of topsoil shall be conducted as described in *Rehabilitation of Disturbed Lands in California.* (Newton and Claassen 2003, pp. 39-40.)

17. 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 a drainage shall be stabilized to reduce erosion potential.

18. Monitor Ground-Disturbing Activities Prior to Site Mobilization. If ground-disturbing activities are required prior to site mobilization, 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.

19. Control and Regulate Fugitive Dust. To reduce the potential for the transmission of fugitive dust the owner shall implement dust control measures. These shall include:

    a. The owner shall apply non-toxic soil binders, equivalent or better in efficiencies than the CARB- approved soil binders, to active unpaved roadways, unpaved staging areas, and unpaved parking area(s) throughout construction to reduce fugitive dust emissions.

    b. Water the disturbed areas of the active construction sites at least three times per day and more often if uncontrolled fugitive dust is noted.

    c. Enclose, cover, water twice daily, and/or apply non-toxic soil binders according to manufacturer's specifications to exposed piles with a 5 percent or greater silt content.

    d. Establish a vegetative ground cover (in compliance with biological resources impact mitigation measures above) or otherwise create stabilized surfaces on all unpaved areas at each of the construction sites within 21 days after active construction operations have ceased.

    e. Increase the frequency of watering, if water is used as a soil binder for disturbed surfaces, or implement other additional fugitive dust mitigation measures, to all active disturbed fugitive dust emission sources when wind speeds (as instantaneous wind gusts) exceed 25 mph.

Verification: All mitigation measures and their implementation methods shall be included in the BRMIMP and implemented. Implementation of the measures will 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.

COMPLIANCE VERIFICATION

BIO-9 The project owner shall provide Energy Commission staff, ~~CDFG~~**CDFW**, and USFWS with reasonable access to the project site and mitigation 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 harmless the Designated Biologist, the Energy Commission and staff, and any other agencies with regulatory requirements addressed by the Energy Commission's sole permitting authority 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, ~~CDFG~~**CDFW**, and USFWS at least 14 calendar days before initiating ground-disturbing activities. Immediately notify the CPM, ~~CDFG~~**CDFW**, and USFWS 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. ~~CDFG~~**CDFW** shall be notified at their Southern Region Headquarters Office, 4949 Viewridge Avenue, San Diego, CA 92123; (858) 467-4201. USFWS shall be notified at their Ventura office at 2493 Portola Road, Suite B, Ventura, CA 93003; (805) 644-1766.

2. Monitoring During Grading. Remain on site daily while grubbing and grading are taking place to avoid or minimize take of listed species, to check for compliance with all impact avoidance and minimization measures, and to check all exclusion zones to ensure that signs, stakes, and fencing are intact and that human activities are restricted in these protected zones.

3. Fence Monitoring. During construction maintain and check desert tortoise exclusion fences on a daily basis to ensure the integrity of the fence is maintained. The Designated Biologist shall be present on site to monitor construction and determine fence placement during fence installation. During operation of the project, fence inspections shall occur at least once per month throughout the life of the project, and more frequently after storms or other events that might affect the integrity and function of desert tortoise exclusion fences. Fence repairs shall occur within two days (48 hours) of detecting problems that affect the functioning of the desert tortoise exclusion fencing.

4. Monthly Compliance Inspections. Conduct compliance inspections at a minimum of once per month after clearing, grubbing, and grading are completed and until construction is completed and submit a monthly compliance report to the CPM, USFWS, and ~~CDFG~~**CDFW**. All

observations of listed species and their sign shall be reported to the Designated Biologist for inclusion in the monthly compliance report.

5. Annual Listed Species Status Report. No later than January 31 of every year the ~~PHPP~~ facility remains in operation, provide the CPM, USFWS, and ~~CDFG~~**CDFW** an annual Listed Species Status Report, which shall include, at a minimum: 1) a general description of the status of the project site and construction/operation activities, including actual or projected completion dates, if known; 2) a copy of the table in the BRMIMP with notes showing the current implementation status of each mitigation measure; 3) an assessment of the effectiveness of each completed or partially completed mitigation measure in minimizing and compensating for project impacts, and 4) recommendations on how effectiveness of mitigation measures might be improved.

6. Final Listed Species Mitigation Report. No later than 45 days after initiation of project operation, provide the CPM a Final Listed Species Mitigation Report that shall include, 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.

7. Notification of Injured, Dead, or Relocated Listed Species. In the event of a sighting in an active construction area (e.g., with equipment, vehicles, or workers), injury, kill, or relocation of any listed species, the CPM, ~~CDFG~~**CDFW**, and USFWS shall be notified immediately by phone. Notification shall occur no later than noon on the business day following the event if it occurs outside normal business hours so that the agencies can determine if further actions are required to protect listed species. Written follow-up notification via FAX or electronic communication shall be submitted to these agencies within two calendar days of the incident and include the following information as relevant:

    a. Injured Desert Tortoise. If a desert tortoise is injured as a result of project-related activities during construction, the Designated Biologist shall immediately take it to a ~~CDFG~~**CDFW**-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~~**CDFW**, 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/Mohave Ground Squirrel Fatality. If a desert tortoise or Mohave ground squirrel is killed by project-related activities during construction or operation, or if a desert tortoise or Mohave ground squirrel is otherwise found dead, submit a written report with the same information as an injury report. 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.

8. 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 two calendar days following the above-required notification of a sighting, kill, injury, or relocation of a listed species, the project owner shall deliver to the CPM, ~~CDFG~~**CDFW**, and USFWS via FAX or electronic communication the written report from the Designated Biologist describing all reported incidents of the sighting, 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~~**CDFW**, and USFWS.

No later than January 31st of every year the ~~PHPP~~ facility remains in operation, provide the CPM an annual Listed Species Status Report as described above, and a summary of desert tortoise exclusion fence inspections and repairs conducted in the course of the year.

RESTORATION PLAN FOR IMPACTS TO NATIVE VEGETATIONCOMMUNITIES

BIO-10 The project owner shall provide restoration for impacts to native vegetation communities and develop and implement a Restoration Plan for all areas subject to temporary project disturbance. Upon completion of construction, all temporarily disturbed areas shall be revegetated, excluding the road and roadbed. The following measures shall be implemented for the revegetation effort areas not subject to the facility Landscape Plan. These measures will include:

1. Plan Details. The plans shall include at minimum: (a) the location of the mitigation site; (b) locations and details for top soil storage; (c) the plant species to be used; (d) seed collection guidelines; (e) a schematic depicting the mitigation area; (f) time of year that the planting will occur and the methodology of the planting; (g) a description of the irrigation methodology if used; (h) measures to control exotic vegetation on site; (i) success criteria; (j) a detailed monitoring program; and k) locations and impacts to all Joshua and Juniper Trees. All habitats dominated by non-

native species prior to project disturbance shall be revegetated using appropriate native species.

2. Topsoil Salvage. Topsoil shall be stockpiled from the project plant site and linear features for use in revegetation of temporarily disturbed soils. The top two (2) to six (6) inches of soil depending on soil conditions that occur at each area subject to temporary disturbance that are relatively free of noxious weeds such as Russian thistle, yellow star thistle, or similar exotics shall be scraped and separately stockpiled for use in revegetation of temporarily disturbed areas. The amount of topsoil needed for the project plant site and laydown area will be estimated when final design plans are available, and only the amount expected to be needed for revegetation of temporarily disturbed areas will be collected and stockpiled. The collection and stockpiling of topsoil shall be conducted as described on pages 39-40 of *Rehabilitation of Disturbed Lands in California* (Newton and Claassen 2003).

3. Seed Stock. Only seed of locally occurring species shall be used for revegetation. Seeds shall contain a mix of short-lived early pioneer species such as native annuals and perennials and subshrubs (for example, squirreltail, cheesebush, matchweed, peppergrass, rabbitbrush, creosote bush, burro-weed, wolfberry, Nevada tea, needlegrass, rice grass, goldenhead). Seeding shall be conducted as described in Chapter 5 of *Rehabilitation of Disturbed Lands in California* (Newton and Claassen 2003, as updated). A list of plant species suitable for Mojave Desert region revegetation projects, including recommended seed treatments, are included in Appendix A-8 of the same report. The list of plants observed during the required special-status plant surveys of the ~~PHPP~~ project area can also be used as a guide to site-specific plant selection for revegetation.

4. Monitoring Requirement and Success Criteria. Post-seeding and planting monitoring will be yearly from years one to five or until the success criteria are met. If the survival and cover requirements have not been met, the owner is responsible for replacement planting to achieve these requirements. Replacement plants shall be monitored with the same survival and growth requirements as previously mentioned. Remediation activities (e.g. additional planting, removal of non-native invasive species, or erosion control) shall be taken during the five-year period if necessary to ensure the success of the restoration effort. If the mitigation fails to meet the established performance criteria after the five-year maintenance and monitoring period, monitoring and remedial activities shall extend beyond the five-year period until the criteria are met or unless otherwise specified by the Energy Commission. If a fire occurs in a revegetation area within the five-year monitoring period, the owner shall be responsible for a one-time replacement. If a second fire occurs, no replanting is required, unless the fire is caused by the owner's activity.

Verification: All mitigation measures and their implementation methods shall be included in the BRMIMP and implemented. Within 90 days after completion of project

construction, the project owner shall provide to the CPM verification of the total vegetation and community subject to temporary and permanent disturbance. If habitat disturbance exceeded that described in this analysis, the CPM shall notify the project owner of any additional mitigation required to compensate for any additional habitat disturbances t. To monitor and evaluate the success of the restoration the owner shall submit annual reports of the restoration including the status of the site, percent cover of native and exotics, and any remedial actions conducted by the owner to the CPM.

SPECIAL-STATUS PLANT SURVEYS/PROTECTION PLAN

BIO-11 To avoid impacts to State and federally listed Threatened and Endangered, Proposed, Petitioned, and Candidate or California Native Plant Society List 1B or 2, plants that might occur on the ~~PHPP~~**project** site or along the proposed transmission line alignments, pre-construction surveys shall be conducted in these areas in the Spring closest to commencement of construction of the power plant site and reclaimed water pipeline, and in the Spring prior to the commencement of ground disturbance for the transmission line and natural gas pipeline. If special-status plant species are detected within 100 feet of the project footprint, the qualified botanist shall prepare a Sensitive Plant Protection Plan to avoid direct and indirect impacts. The project owner shall implement the following measures:

1. Pre-Construction Floristic Surveys. A qualified botanist shall conduct floristic surveys on the ~~PHPP~~ project site and along linear facilities in all areas subject to ground-disturbing activity, including, but not limited to, tower pad preparation and construction areas, tower removal sites, pulling and tensioning sites, assembly yards, and areas subject to grading for new access roads. Surveys shall be conducted within 100 feet of all surface-disturbing activities at the appropriate time of year and according to the most current guidelines from the California Department of Fish and Game and the California Native Plant Society.

2. Sensitive Plant Protection Plan. If special-status plant species are detected during pre-construction surveys, a qualified botanist shall prepare a Sensitive Plant Protection Plan (Plan). Populations of rare plants shall be flagged and mapped prior to any ground disturbance. Where possible the owner shall modify the placement of structures, access roads, laydown areas, and other ground-disturbing activities in order to avoid the plants. The Plan shall include measures for avoiding direct impacts and accidental impacts during construction by identifying the plant occurrence location and establishing an appropriately sized buffer. The Plan shall also include measures to avoid indirect impacts including: sedimentation from adjacent disturbed soils; alterations of the site hydrology from changes in the drainage patterns; dust deposition; and displacement or degradation of the habitat from the introduction and spread of noxious weeds. The Plan shall also include a discussion of monitoring and reporting requirements during and after construction.

   a. Prior to any ground disturbance, any populations of listed plant species identified during the surveys shall be protected by a buffer zone if they can be avoided. The buffer zone shall be established around these

areas and shall be of sufficient size to eliminate potential disturbance to the plants from human activity and any other potential sources of disturbance including human trampling, erosion, and dust. The size of the buffer will depend upon the proposed use of the immediately adjacent lands, and includes consideration of the plant's ecological requirements (e.g., sunlight, moisture, shade tolerance, edaphic physical and chemical characteristics) that are identified by the Designated Biologist. The buffer for herbaceous species shall be, at minimum, 50 feet from the perimeter of the population or the individual. A smaller buffer may be established, provided there are adequate measures in place to avoid the take of the species, with the approval of the USFWS, ~~CDFG~~**CDFW**, and CPM.

b. Impacts to non-listed plant species (i.e., CNPS List 1 and 2, species) shall first be avoided where feasible, and, where not feasible, impacts shall be compensated through reseeding (with locally collected seed stock), or other CPM-approved methods. If Project activities will result in loss of more than 10 percent of the known individuals within an existing population of non-listed special-status plant species, the project owner shall preserve existing off-site occupied habitat that is not already part of the public lands in perpetuity at a 2:1 mitigation ratio. The CPM may reduce this ratio depending on the sensitivity of the plant. The preserved habitat shall be occupied by the plant species impacted, and be of superior or similar habitat quality to the impacted areas in terms of soil features, extent of disturbance, habitat structure, and dominant species composition, as determined by a qualified plant ecologist.

3. State or Federally Listed Plant Species: If impacts to listed plants are determined to be unavoidable, the USFWS shall be consulted for authorization and/or the ~~CDFG~~**CDFW** shall be consulted for authorization through an Incidental Take Permit. Additional mitigation measures to protect or restore listed plant species or their habitat may be required by the ~~CDFG~~**CDFW** before impacts are authorized.

4. Agency Notification and Avoidance: If State or federally listed plant species are detected during the pre-construction floristic surveys, the CPM, USFWS, and ~~CDFG~~**CDFW** shall be notified in writing no more than 15 days from detection of the plants.

5. Review and Submittal of Plan: The project owner shall submit to the CPM, USFWS, and ~~CDFG~~**CDFW** a draft Sensitive Plant Protection Plan. Prior to any ground-disturbing activities within 100 feet of the sensitive plant occurrences detected during the pre-construction floristic surveys, the project owner shall submit to the CPM a final Plan that reflects review and approval by Energy Commission staff in consultation with ~~CDFG~~**CDFW** and USFWS.

Verification: No later than 60 days prior to ground disturbance the project owner shall submit a report describing the results of floristic surveys conducted on the ~~PHPP~~ power plant site and along the proposed transmission line alignment. The report shall

be submitted to the CPM, USFWS, and ~~CDFG~~**CDFW** and shall describe qualifications of the surveyor, survey methods including dates and times, a discussion of visits to reference sites, figures depicting the area(s) surveyed, figures depicting the locations of any special-status plants observed, and a list of all plant species detected.

If special-status plant species are detected during the surveys, the project owner shall submit to the CPM and ~~CDFG~~**CDFW** a Sensitive Plant Protection Plan (Plan) at least 60 days prior to the start of any ground-disturbing activities within 100 feet of the sensitive plant occurrences detected during the pre-construction floristic surveys. The CPM will determine the Plan's acceptability in consultation with ~~CDFG~~**CDFW** and USFWS within 15 days of receipt of the Plan. Any modifications to the approved Plan shall be made only after approval by Energy Commission staff in consultation with ~~CDFG~~**CDFW**. The project owner shall notify the CPM no fewer than 5 working days before implementing any CPM-approved modifications to the Plan.

Within 30 days after completion of construction the project owner shall provide to the CPM, USFWS, and ~~CDFG~~**CDFW** a construction termination report discussing how mitigation measures described in the Plan were implemented.

AVOIDANCE MEASURES FOR ARROYO TOAD

BIO-12 The project owner shall conduct pre-construction surveys for arroyo toads at the Little Rock Creek transmission line crossing on Segment 2 and implement impact avoidance and minimization measure during all construction activities. These measures include, but are not limited to, the following:

1. Surveys. Prior to ground disturbance the project owner shall retain a biologist who is familiar with arroyo toads that occur in desert habitats to conduct clearance surveys prior to construction and monitor all construction activities at Little Rock Creek. Clearance surveys shall be completed within 24 hours of construction. If arroyo toads are detected a 500 foot disturbance free buffer shall be implemented and the area shall be avoided until the owner completes consultation with the USFWS.

2. Monitoring. The project owner shall conduct full time monitoring during ground disturbance and construction of the all areas within 500 feet of Little Rock Creek. Although this species is primarily nocturnal and aestivates during the winter monitoring shall occur year round whenever day time temperatures exceed 50 degrees Fahrenheit and during periods of rainfall. If arroyo toads are detected the Designated Biologist shall contact the CPM and USFWS within 24 hours. Work shall not occur within 500 feet of Little Rock Creek until approved by the CPM and USFWS.

Verification: Within 30 days of completion of arroyo toad clearance surveys the Designated Biologist shall submit a report to the CPM describing how mitigation measures described above have been satisfied. The report shall include the survey results and any other information needed to demonstrate compliance with the measures described above.

DESERT TORTOISE CLEARANCE SURVEYS AND EXCLUSION FENCING

BIO-13 The project owner shall undertake appropriate measures to manage construction at the plant site and linear facilities in a manner to avoid impacts to desert tortoise. Methods for clearance surveys, fence installation, and other procedures shall be consistent with those described in the *Guidelines for Handling Desert Tortoise During Construction Projects* (Desert Tortoise Council 1999) or more current guidance provided by **CDFW** and USFWS. These measures include, but are not limited to, the following:

1. Fence Installation. Prior to ground disturbance, the entire plant site shall be fenced with permanent desert tortoise-exclusion fence. To avoid impacts to desert tortoise during fence construction, the proposed fence alignment shall be flagged and the alignment surveyed within 24 hours prior to fence construction. Surveys shall be conducted by the Designated Biologist using techniques approved by the USFWS and ~~CDFG~~**CDFW**. Biological Monitors may assist the Designated Biologist under his or her supervision. These surveys shall provide 100 percent coverage of all areas to be disturbed during fence construction and an additional transect along both sides of the proposed 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 30 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 USFWS-approved protocol.

    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 compliance with current USFWS guidelines.

    c. Security Gates. Security gates shall be designed with minimal ground clearance to deter ingress by tortoises, including gates that would exclude public access to the ~~PHPP~~**project** site.

    d. Tower Fencing. If tortoises are discovered during clearance surveys of the linear routes, the tower locations shall be temporarily fenced with tortoise exclusion fencing to prevent desert tortoise entry during construction. Temporary fencing must follow current USFWS guidelines for permanent fencing and supporting stakes shall be sufficiently spaced to maintain fence integrity.

    e. 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. Permanent fencing shall be inspected monthly and during/following all

major rainfall events. Any damage to the fencing shall be temporarily repaired immediately to keep tortoises out of the site, and permanently repaired within two days of observing damage. Inspections of permanent site fencing shall occur for the life of the project. Temporary fencing must be inspected weekly and, where drainages intersect the fencing, during and immediately 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 utility corridor or tower site for tortoise.

2. Desert Tortoise Clearance Surveys. Following construction of the tortoise exclusionary fencing around the Plant Site, all fenced areas shall be cleared of tortoises by the Designated Biologist, who may be assisted by Biological Monitors. A minimum of two clearance surveys, with negative results, must be completed, and these must coincide with heightened desert tortoise activity from late March through May and during October. To facilitate seeing the ground from different angles, the second clearance survey shall be walked at 90 degrees to the orientation of the first clearance survey.

3. Relocation for Desert Tortoise. If desert tortoises are detected on the ~~PHPP~~**power** plant site during clearance or other activities, the owner shall halt ground disturbing activities within 500 feet of the tortoise, prepare a Desert Tortoise Translocation Plan, and coordinate with the USFWS, ~~CDFG~~**CDFW**, and CPM regarding the disposition of the animals. If located during clearance surveys within the transmission line project route, the tortoise would be allowed to continue unimpeded out of harm's way. Only in the event that a tortoise required relocation to prevent injury, project impact area the Designated Biologist shall move the tortoise the shortest possible distance, keeping it out of harm's way but still within its home range. Desert tortoise encountered during construction of any of the utility corridors shall be similarly treated in accordance with the techniques described in the *Guidelines for Handling Desert Tortoise during Construction Projects* (Desert Tortoise Council 1999) or more current guidance on the USFWS website. Any person handling tortoise must be approved by the USFWS and ~~CDFG~~**CDFW** and be on site during ground disturbance or construction. If a desert tortoise is discovered on the ~~PHPP~~ power plant site the project owner shall prepare a Desert Tortoise Translocation Plan. The Translocation Plan shall follow the most current USFWS guidelines for the translocation of desert tortoise and shall be submitted to the USFWS, ~~CDFG~~**CDFW**, and CPM for approval. Desert tortoise shall not be moved pending the approval of the Plan. Prior to initiating further ground disturbance at the project site the project owner shall conduct additional clearance surveys of the power plant site.

4. Burrow Inspection. All potential desert tortoise burrows within the fenced area shall be searched for presence. In some cases, a fiber optic scope may be needed to determine presence or absence within a deep burrow.

To prevent reentry by a tortoise or other wildlife, all burrows shall be collapsed once absence has been determined.

5. Burrow Excavation. Burrows inhabited by tortoises shall be excavated by the Designated Biologist or other USFWS/~~CDFG~~**CDFW**/CPM approved handler, using hand tools, and then collapsed or blocked to prevent re-occupation. If excavated during May through July, the Designated Biologist shall search for desert tortoise nests/eggs. All desert tortoise handling and removal, and burrow excavations, including nests, shall be conducted by the Designated Biologist or other USFWS/~~CDFG~~**CDFW**/CPM approved handler (See Paragraph 3 above) in accordance with the USFWS-approved protocol (Desert Tortoise Council 1999) or more current guidance on the USFWS website.

6. Monitoring During Clearing. Following construction of the desert tortoise exclusion fencing and clearance surveys heavy equipment shall be allowed to enter the project site to perform earth work such as clearing, grubbing, leveling, and trenching. A Biological Monitor shall be onsite during initial clearing and grading activities. Should a tortoise be discovered, the measures outlined in Paragraph 3 shall be followed.

7. Reporting. The Designated Biologist shall record the following information for any desert tortoises observed or 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 as described in the paragraph below. Desert tortoise moved from within project areas shall be marked for future identification as described in *Guidelines for Handling Desert Tortoise during Construction Projects* (Desert Tortoise Council 1999) or more current guidance on the USFWS website. Digital photographs of the carapace, plastron, and fourth costal scute shall be taken. Scutes shall not be notched for identification. Any desert tortoises observed within the project area or adjacent habitat shall be reported to the USFWS, ~~CDFG~~**CDFW**, and CPM by written and electronic correspondence within 24 hours.

Verification: Within 30 days of completion of desert tortoise clearance surveys the Designated Biologist shall submit a report to the CPM, USFWS, and ~~CDFG~~**CDFW** describing how each of the mitigation measures described above has been satisfied. The report shall include the desert tortoise survey results, capture and release locations of any relocated desert tortoises, and any other information needed to demonstrate compliance with the measures described above.

If a desert tortoise is located on the power plant site the project owner shall submit to Energy Commission staff, USFWS and ~~CDFG~~**CDFW** a draft Desert Tortoise Translocation Plan. The CPM will review the Plan and provide comments within 30 days receipt of the draft plan. All modifications to the Desert Tortoise Translocation Plan must be made only after approval by the Energy Commission staff in consultation with

USFWS and ~~CDFG~~**CDFW**. The project owner shall notify the CPM no fewer than five working days before implementing any CPM-approved modifications to the Translocation Plan.

Within 30 days after initiation of translocation activities, the Designated Biologist shall provide to the CPM for review and approval, a written report identifying which items of the Translocation Plan have been completed, and a summary of all modifications to measures made during implementation.

RAVEN FEE, MONITORING, MANAGEMENT, AND CONTROL PLAN

BIO-14 The project owner shall design and implement a Raven Monitoring, Management, and Control Plan (Raven Plan) that is consistent with the most current USFWS-approved raven management guidelines and that meets the approval of the USFWS, ~~CDFG~~**CDFW**, and the CPM. Any subsequent modifications to the approved Raven Plan shall be made only with approval of the CPM in consultation with USFWS and ~~CDFG~~**CDFW**. 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 to be proposed in the Raven Plan. Regardless of raven monitoring results, the project owner shall be responsible for all other aspects of the Raven Plan, including avoidance and minimization of project-related trash, water sources, or perch/roost sites that could contribute to increased raven numbers. 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. Prepare and Implement a Raven Management Plan 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 REAT 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 REAT Regional Raven Management Program. The amount

shall be a one-time payment of $105 per acre (~~458.~~**135.5** acres) of permanent disturbance fee $~~48,142.50~~**14,227.50**.

Verification: No later than 30 days prior to any construction-related ground disturbance activities, the Project owner shall provide the CPM, USFWS, and ~~CDFG~~**CDFW** 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~~**CDFW**. No later than 60 days prior to the start of construction, the project owner shall provide written verification to the CPM that NFWF has received and accepted payment into the project's sub-account of the REAT Account to support the USFWS Regional Raven Management Program. 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.

PRE-CONSTRUCTION NEST SURVEYS AND IMPACT AVOIDANCE MEASURES FOR MIGRATORY BIRDS

BIO-15 Pre-construction nest surveys shall be conducted if construction activities will occur from February 1 through August 15. The Designated Biologist or Biological Monitor conducting the surveys shall be experienced bird surveyors and familiar with standard nest-locating techniques such as those described in Martin and Guepel (1993). Surveys shall be conducted in accordance with the following guidelines:

1. Surveys shall cover all potential nesting habitat in the project site and within 500 feet of the boundaries of the plant site and linear facilities;

2. At least two pre-construction surveys shall be conducted, separated by a minimum 10-day interval. One of the surveys shall to be conducted within the 10 days preceding initiation of construction activity. Additional follow-up surveys may be required if periods of construction inactivity exceed three weeks in any given area, 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 no-disturbance buffer zone (protected area surrounding the nest, the size of which is to be determined by the Designated Biologist in consultation with ~~CDFG~~**CDFW**, USFWS, and CPM) and a monitoring plan shall be developed. Nest locations shall be mapped using GPS technology and submitted, along with a weekly report stating the survey results, to the CPM; and

4. The Designated Biologist 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 and in consultation with the CPM, disturb nesting activities shall be prohibited within the buffer zone until such a determination is made.

5. If an occupied golden eagle nest is detected within one mile of the active construction, a one mile no activity buffer will be implemented. The prescribed buffers may be adjusted to reflect existing conditions including

ambient noise, topography, and disturbance with the approval of the CPM. The biological monitor(s) shall conduct regular monitoring of the nest to determine success/failure and to ensure that project activities are not conducted within the buffer(s) until the nesting cycle is complete or the nest fails. The biological monitor(s) shall be responsible for documenting the results of the surveys and ongoing monitoring and will provide a copy of the monitoring reports for impact areas to the respective agencies. The Project owner shall also 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. The monitoring methods shall be consistent with those described in the Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations (Page l et al. 2010) or more current guidance from the USFWS. The Monitoring and Management Plan shall be prepared in consultation with the USFWS. Triggers for adaptive management shall include any evidence of Project-related disturbance to nesting golden eagles, including but not limited to: agitation behavior (displacement, avoidance, and defense); increased vigilance behavior at nest sites; changes in foraging and feeding behavior, or nest site abandonment. The Monitoring and Management Plan shall include a description of adaptive management actions, which shall include, but not be limited to, cessation of construction activities that are deemed by the Designated Biologist to be the source of golden eagle disturbance.

Verification: At least 10 days 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, 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-disturbance buffer zone around the nest.

SWAINSON'S HAWK IMPACT AVOIDANCE AND MINIMIZATION MEASURES

BIO-16 The project owner shall implement the following measures to avoid and offset impacts to Swainson's hawk:

1. Pre-Construction Surveys. To assure that nesting Swainson's hawks are not disturbed by construction activities, a qualified ornithologist approved by the ~~CDFG~~**CDFW** and CPM shall conduct pre-construction surveys prior to commencement of ground disturbing activities. Survey results shall be provided to the ~~CDFG~~**CDFW** and CPM in a written report, within 30 days of commencement of construction activities.

2. Swainson's Hawk Monitoring and Mitigation Plan. If a Swainson's hawk nest site is found within 0.5 mile of the project site, the Designated Biologist shall prepare a Swainson's Hawk Monitoring and Mitigation Plan in consultation with ~~CDFG~~**CDFW** and Energy Commission staff. This plan shall include detailed measures to avoid and minimize impacts to Swainson's hawks in and near the construction areas and shall also include the following:

a. If a nest site is found, no new disturbances or other project-related activities that may cause nest abandonment or forced fledging will be initiated within .5 mile of an active nest between 1 March and 15 September. These buffer zones may be adjusted in consultation with the CPM and ~~CDFG~~**CDFW**.

b. During the nesting season (March 1 through September 15), the Designated Biologist shall be present daily, during any site mobilization, ground disturbance or construction on site, monitoring the behavior of any nesting Swainson's hawks within 0.5 mile of the project. The Designated Biologist shall have authority to order the cessation of all construction activities within 0.5 mile of any Swainson's hawk nest if the birds exhibit abnormal nesting behavior which may cause reproductive failure (nest abandonment and loss of eggs and/or young). Construction shall not resume until the Designated Biologist has consulted with the ~~CDFG~~**CDFW** and CPM. The Designated Biologist, CPM, and ~~CDFG~~**CDFW** must confirm that the bird's behavior has normalized prior to the initiation of construction.

c. If construction or other project-related activities cause nest abandonment by a Swainson's hawk or forced fledging, monitoring of the nest site by a qualified biologist shall be required to determine if the nest is abandoned. If the nest is abandoned and if the nestlings are still alive, the project owner shall fund the recovery and hacking (controlled release of captive reared young) of the nestling(s). Transport to the raptor center shall only be approved by the CPM and ~~CDFG~~**CDFW** Regional Representative.

d. If relocation of nestlings is required, the project owner shall provide a written report documenting the relocation efforts. The report shall include what actions were taken to avoid the nest, the location of the nest, the number and condition of the eggs/nestlings taken from the nest, the location of where the eggs/nestlings are incubated, the survival rate, the location of the nests where the chicks are relocated, and whether the birds were accepted by the adopted parent.

e. Nest trees for Swainson's hawks in the project area shall not be removed unless avoidance measures are determined to be infeasible. If a nest tree for a Swainson's hawk must be removed from the ~~PHPPPEP~~ project area, it shall occur between 1 October and 1 February.

3. Discovery of an Injured Swainson's Hawk. If a Swainson's hawk is found injured during project-related activities on the project site, it shall be immediately relocated to a raptor recovery center approved by the ~~CDFG~~**CDFW** Regional Representative. Any costs associated with the care or treatment of such injured Swainson's hawks shall be borne by the project owner. The Designated Representative shall immediately notify the ~~CDFG~~**CDFW** and CPM of the incident unless the incident occurs outside of normal business hours. In that event, the ~~CDFG~~**CDFW** and

CPM shall be notified no later than noon on the next business day. Notification to the ~~CDFG~~**CDFW** and CPM shall be via telephone or email, followed by a written incident report. Notification shall include the date, time, location, and circumstances of the incident.

Verification: Survey results shall be provided to the ~~CDFG~~**CDFW** and CPM in a written report, within 30 days of commencement of construction activities. If pre-construction surveys detect nesting Swainson's hawks within 0.5 mile of proposed construction activities, the Designated Biologist shall provide to ~~CDFG~~**CDFW** and the CPM a Swainson's Hawk Monitoring and Mitigation Plan at least 30 days prior to the start of any project-related site disturbance activities. The project owner shall report monthly to ~~CDFG~~**CDFW** and the CPM for the duration of construction on the implementation of Swainson's hawk avoidance and minimization measures described in the Swainson's Hawk Monitoring and Mitigation Plan. Within 30 days after completion of construction, the project owner shall provide to the ~~CDFG~~**CDFW** and CPM a written construction termination report identifying how mitigation measures described in the plan have been completed.

No later than two calendar days following the above-required notification of a sighting, kill, injury, or relocation of a Swainson's hawk, the project owner shall deliver to the CPM and ~~CDFG~~**CDFW** via FAX or electronic communication the written report from the Designated Biologist describing all reported incidents of the sighting, injury, kill, or relocation of a Swainson's hawk, identifying who was notified and explaining when the incident(s) 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 and ~~CDFG~~**CDFW**.

SWAINSON'S HAWK HABITAT COMPENSATORY MITIGATION

BIO-17 The project owner shall either assume that a Swainson's hawk nest is within five miles of the project site and provide compensatory mitigation as described below or complete ~~CDFG~~**CDFW** protocol surveys within five miles of project facilities that result in permanent impacts to Swainson's hawk foraging habitat. If surveys are completed they shall include the following components.

The survey periods shall follow a specified schedule:

- Period I occurs from 1 January to 31 March;
- Period II occurs from 1 April to 30 April;
- Period III occurs from 1 May to 30 May; and
- Period IV occurs from 1 June to 15 July.

No fewer than three surveys per period in at least two survey periods shall be completed immediately prior to the start of project construction. All nest sites shall be recorded, mapped using GIS and provided to the CPM and ~~CDFG~~**CDFW**. Compensatory mitigation at a 2:1 ratio shall be required for permanent impacts. If active Swainson's hawk nests (i.e., any nest active

within five years) are not detected within 5 miles of the project site or linear facilities, the project owner will not be required to provide compensatory mitigation.

If the project owner assumes presence, the project owner shall provide compensatory mitigation acreage for ~~610~~**211** acres of Swainson's hawk habitat lands, adjusted to reflect the final project footprint, as specified in this condition. In addition, the project owner shall provide funding for initial improvement and long-term maintenance, enhancement, and management of the acquired lands for protection and enhancement Swainson's hawk populations, and comply with other related requirements of this condition.

a. Loss of foraging habitat for Swainson's hawks shall be mitigated by providing Habitat Management (HM) lands at a ratio of 2:1 for any foraging habitat impacted within a 5-mile radius of active Swainson's hawk nest(s) (~~CDFG~~**CDFW** considers a nest active if it was used one or more times within the last 5 years). Foraging habitat includes but is not limited to alfalfa; fallow fields; beet, tomato, onions, and other low-growing row or field crops; dry-land and irrigated pasture; and cereal grain crops (including corn after harvest). Joshua tree woodland shall be considered foraging habitat in the Antelope Valley.

b. Lands which are currently in urban use or lands that have no existing or potential value for foraging Swainson's hawks will not require mitigation. The project owner will provide the CPM and ~~CDFG~~**CDFW** a report of potential foraging lands impacted by the proposed project as determined by consultation with the ~~CDFG~~**CDFW** and recent site-specific surveys conducted by a ~~CDFG~~**CDFW** -qualified raptor biologist.

This acreage was calculated as follows: a ratio of 2:1 for the ~~PHPP~~ power plant site (~~610~~**100** acres), **2:1 ratio for the laydown site (40 acres),** and a 2:1 ratio (~~10.22~~**71** acres) for the loss of **native vegetation and** agricultural lands associated with ~~Segment 1 of~~ the transmission line. **The project owner shall use a good faith effort to purchase compensation acres for Swainson's hawk within 15 miles of previously surveyed locations of Swainson's hawk nesting sites.** Costs of these requirements are estimated to be $~~9,000,550.00~~**2,794,265.00**(see Biological Resources Table~~s~~ 4~~a~~**2** for a complete breakdown of costs and acreage). All costs are best estimates as of fall 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation based on changing land costs or management fees. Regardless of the estimates, the project owner is responsible for providing adequate funding to implement the required mitigation.

These impact acreages shall be 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 ~~Palmdale Hybrid Power Plant~~ Project Site and **25.25 acres of Mohave creosote bush scrub and Joshua tree woodland and** 10.22 acres of agricultural lands that occur on ~~Segment 1~~**the transmission line**.

This compensation acreage may be included ("nested") within the acreage acquired and managed as Mohave ground squirrel habitat compensation (Condition of Certification **BIO-20**) only if:

- A minimum of ~~610~~**211** acres of suitable foraging habitat including a minimum of ~~366.3~~**76.5** acres of Joshua tree woodland are present. **The project owner shall use a good faith effort to purchase compensation acres for Swainson's hawk within 15 miles of previously surveyed locations of Swainson's hawk nesting sites.**
- The composition of vegetation communities that occur within the proposed mitigation lands, including the acreage of Joshua tree woodland, may be adjusted based on the habitat value of the proposed mitigation lands with the approval of the CPM and ~~CDFG~~**CDFW**.
- The Mohave ground squirrel habitat compensation lands are acquired and dedicated as permanent conservation lands within 18 months of the start of project construction.

If these three criteria are not met, then the project owner shall provide the required number of acres of Swainson's hawk habitat compensation lands, adjusted to reflect the final project footprint and additional delineation of suitable habitat, independent of any compensation land required under other conditions of certification, and shall also provide funding for the initial improvement and long-term maintenance and management of the acquired lands, and shall comply with other related requirements this condition.

The project owner shall provide financial assurances as described below in the amount of $~~9,000,550.00~~**2,794,265.00**. In lieu of acquiring lands itself, the Project owner may satisfy the requirements of this condition by depositing funds into a Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF), as described below. If the Project owner elects to establish a REAT NFWF Account and have NFWF and the agencies complete the required habitat compensation, then the total estimated cost of complying with this condition is $~~9,252,876.50~~**2,881,152.45**. The amount of security or NFWF deposit shall be adjusted up or down to reflect any revised cost estimates recommended by REAT.

The actual costs to comply with this condition will vary depending on the final footprint of the project, the costs of acquiring compensation habitat, the costs of initially improving the habitat, and the actual costs of long-term management as determined by a Property Analysis Report or similar analysis (below). The ~~610~~**211** acre habitat requirement, and associated funding requirements based on that acreage, shall be adjusted up or down if there are changes in the final footprint of the project or the associated costs of evaluation, acquisition, management, and other factors listed in Biological Resources Tables ~~4a~~**2**. Regardless of actual cost, the project owner shall be responsible for funding all requirements of this condition.

COMPENSATORY MITIGATION LAND ACQUISITION

1. Method of Acquisition. Compensation lands shall be acquired by either of the two options listed below. Regardless of the method of acquisition, the transaction shall be complete only upon completion of all terms and conditions described in this Condition of Certification.

   a. The project owner shall acquire lands and transfer title and/or conservation easement to a state or federal land management agency or to a third-party non-profit land management organization, as approved by the CPM in consultation with ~~CDFG~~**CDFW**; or

   b. The Project owner shall deposit funds into a project-specific subaccount within the REAT Account established with the NFWF, in the amount as indicated in Biological Resources Tables 4a (adjusted to reflect final project footprint and any applicable REAT adjustments to costs).

2. Selection Criteria for Compensation Lands. The compensation lands selected for acquisition to meet Energy Commission and CESA requirements shall be equal to or better than the quality and function of the habitat impacted and:

   a. Be within the Western Mojave Desert;

   b. Provide moderate to good quality foraging habitat for Swainson's hawk with capacity to improve in quality and value for this species; and

   c. Be near lands for which there is reasonable evidence (for example, recent (<15 years) CNDDB occurrences on or immediately adjacent to the proposed lands) suggesting current occupation by Swainson's hawk ideally with populations that are stable, recovering, or likely to recover.

   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 cause future erosional damage or other habitat damage, and 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; and

   g. not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat; and

h. have water and mineral rights included as part of the acquisition, unless the CPM, in consultation with ~~CDFG~~**CDFW**, agrees in writing to the acceptability of land without these rights.

3. 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 Swainson's hawk 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~~**CDFW** before deciding whether to approve or disapprove the proposed acquisition.

4. Compensation Lands Acquisition Conditions: The project owner shall comply with the following conditions relating to acquisition of the compensation lands after the CPM, in consultation with ~~CDFG~~**CDFW** approved the proposed compensation lands:

   a. Preliminary Report: The Project owner, or approved third party, shall provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary or requested documents for the proposed compensation land to the CPM. 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~~**CDFW**. For conveyances to the State, approval may also be required from the California Department of General Services, the **California** Fish and Game Commission and the Wildlife Conservation Board.

   b. Title/Conveyance: The Project owner shall acquire and transfer fee title to the compensation lands, a conservation easement over the lands, or both fee title and conservation easement as required by the CPM in consultation with ~~CDFG~~**CDFW**. Any transfer of a conservation easement or fee title must be to ~~CDFG~~**CDFW**, a non-profit organization qualified to hold title to and manage compensation lands (pursuant to California Government Code section 65965), or to other public agency approved by the CPM in consultation with ~~CDFG~~**CDFW**. If an approved non-profit organization holds fee title to the compensation lands, a conservation easement shall be recorded in favor of ~~CDFG~~**CDFW** or another entity approved by the CPM. If an approved non-profit holds a conservation easement, ~~CDFG~~**CDFW** shall be named a third party beneficiary. If an entity other than ~~CDFG~~**CDFW** holds a conservation easement over the compensation lands, the CPM may require that ~~CDFG~~**CDFW** or another entity approved by the CPM, in consultation with ~~CDFG~~**CDFW**, be named a third party beneficiary of the conservation easement. The Project owner shall obtain approval of the CPM, in consultation with ~~CDFG~~**CDFW**, of the terms of any transfer of fee title or conservation easement to the compensation lands.

   c. 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~~**CDFW**, before it can be used to establish funding levels or management activities for the compensation lands.

5. Compensation Lands Acquisition Costs: The Project owner shall pay all other costs related to acquisition of compensation lands and conservation easements. In addition to actual land costs, these acquisition costs shall include but shall not be limited to the items listed below. Management costs including site cleanup measures are described separately, in the following section.

   a. Level 1 Environmental Site Assessment;

   b. Appraisal;

   c. Title and document review costs;

   d. Expenses incurred from other state, federal, or local agency reviews;

   e. Closing and escrow costs;

   f. Overhead costs related to providing compensation lands to ~~CDFG~~**CDFW** or an approved third party;

   g. Biological survey(s) to determine mitigation value of the land; and

   h. Agency costs to accept the land (e.g., writing and recording of conservation easements; title transfer).

COMPENSATORY MITIGATION LAND IMPROVEMENT

1. Land Improvement Requirements: The Project owner shall fund activities that the CPM, in consultation with the ~~CDFG~~**CDFW**, 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 surveys of boundaries and property lines, installation of signs, trash removal and other site cleanup measures, construction and repair of fences, invasive plant removal, removal of roads, and similar measures to protect habitat and improve habitat quality on the compensation lands.

   The costs of these activities are estimated at $250 an acre, but will vary depending on the measures that are required for the compensation lands. A non-profit organization, ~~CDFG~~**CDFW** or another public agency may hold and expend the habitat improvement funds if it is qualified to manage the compensation lands (pursuant to Gov. Code § 65965), if it meets the approval of the CPM in consultation with ~~CDFG~~**CDFW**, and if it is authorized to participate in implementing the required activities on the compensation lands. If ~~CDFG~~**CDFW** takes fee title to the compensation

lands, the habitat improvement fund must be paid to ~~CDFG~~**CDFW** or its designee.

COMPENSATORY MITIGATION LAND LONG-TERM MANAGEMENT

1. Long-term Management Requirements: Long-term management is required to ensure that the compensation lands are managed and maintained to protect and enhance habitat for desert tortoise. Management activities may include maintenance of signs, fences, removal of invasive weeds, monitoring, security and enforcement, and control or elimination of unauthorized use.

2. Long-term Management Plan. The project owner shall pay for the preparation of a Management Plan for the compensation lands. The Management Plan shall reflect site-specific enhancement measures on the acquired compensation lands. The plan shall be submitted for approval of the CPM, in consultation with ~~CDFG~~**CDFW**.

3. Long-Term Maintenance and Management Funding. The Project owner shall provide money to establish an account with a 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 provide initial payment of ~~$854,500~~**305,950.00** calculated at $1,450 an acre for each compensation acre, as shown in Biological Resources Table ~~4a~~**2** (above) into an account for long-term maintenance and management of compensation lands. 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 the project owner and ~~CDFG~~**CDFW** before deciding whether to approve an entity to hold the project's long-term maintenance and management funds on any lands. The CPM, in consultation with the project owner and ~~CDFG~~**CDFW**, may designate another state agency or 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~~**CDFW** takes fee title to the compensation lands, ~~CDFG~~**CDFW** shall determine whether it will hold the long-term management fee in the special deposit fund, leave the money in the REAT Account, or designate another entity such as NFWF to manage the long-term maintenance and management fee for ~~CDFG~~**CDFW** and with ~~CDFG~~**CDFW** supervision.

The Project owner shall ensure that an agreement is in place with the long-term maintenance and management fee holder/manager to ensure the following conditions:

i. Interest. Interest generated from the initial capital shall be available for reinvestment into the principal and for the long-term operation, management, and protection of the approved compensation lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement measures, and any other action approved by ~~CDFG~~**CDFW** designed to protect or improve the habitat values of the compensation lands.

ii. Withdrawal of Principal. The long-term maintenance and management fee principal shall not be drawn upon unless such withdrawal is deemed necessary by the CPM, in consultation with ~~CDFG~~**CDFW**, or the approved third-party long-term maintenance and management fee manager to ensure the continued viability of the species on the compensation lands. If ~~CDFG~~**CDFW** takes fee title to the compensation lands, monies received by ~~CDFG~~**CDFW** pursuant to this provision shall be deposited in a special deposit fund established solely for the purpose to manage lands in perpetuity unless ~~CDFG~~**CDFW** designates NFWF or another entity to manage the long-term maintenance and management fee for ~~CDFG~~**CDFW**.

iii. Pooling Funds. A CPM- approved non-profit organization qualified to hold long-term maintenance and management fees solely for the purpose to manage lands in perpetuity, may pool the fund with other funds for the operation, management, and protection of the compensation lands for local populations of desert tortoise. However, for reporting purposes, the long-term maintenance and management fee fund must be tracked and reported individually to the ~~CDFG~~**CDFW** and CPM.

iv. Reimbursement Fund. The project owner shall provide reimbursement to ~~CDFG~~**CDFW** or an approved third party for reasonable expenses incurred during title, easement, and documentation review; expenses incurred from other State or State-approved federal agency reviews; and overhead related to providing compensation lands.

COMPENSATORY MITIGATION LAND SECURITY

1. Compensation Mitigation Security: The project owner shall provide security sufficient for funding acquisition, improvement, and long-term management of Swainson's hawk compensation land. 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 submitting the Security to the CPM, the Project owner

shall obtain the CPM's approval, in consultation with ~~CDFG~~**CDFW** of the form of the Security.

The security amount shall be based on the estimates provided in Biological Resources Tables ~~4a~~**2.** This amount shall be updated and verified prior to payment and shall be adjusted to reflect actual costs or more current estimates as agreed upon by the REAT agencies.

The Project owner shall provide verification that financial assurances have been established to the CPM with copies of the document(s) to ~~CDFG~~**CDFW**, 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 activities described in Section A of this condition.

In the event that the project owner defaults on the Security, 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. Any amount of the Security that is not used to carry out mitigation shall be returned to the Project owner upon successful completion of the associated requirements in this condition.

Security for the requirements of this condition shall be provided in the amount of $~~9,252,876.50~~**2,881,152.45** if the project owner elects to use the REAT Account with NFWF pursuant to paragraph 4 of this condition, below). The Security is calculated in part from the items that follow but adjusted as specified below (consult Biological Resources Tables 4a for the complete breakdown of estimated costs). However, regardless of the amount of the security or actual cost of implementation, the project owner shall be responsible for implementing all aspects of this condition.

i. land acquisition costs for compensation land, calculated at $10,000/acre;

ii. Site assessments, appraisals, biological surveys, transaction closing and escrow costs, calculated as $18,000 total per parcel (presuming 60 acres per parcel)

iii. Initial site clean-up, restoration, or enhancement, calculated at $250/acre;

iv. Third-party and agency administrative transaction costs and overhead, calculated as percentages of land cost;

v. Long-term management and maintenance fund, calculated at $1,450 per acre;

vi. NFWF fees to establish a project-specific account; manage the sub-account for acquisition and initial site work; and manage the sub-account for long term management and maintenance.

2. The project owner may elect to comply with some or all of the requirements in this condition by providing funds to implement the

requirements 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 of implementing the requirement (as set forth in the Security section of this condition, paragraph 3, above). If the actual cost of the acquisition, initial protection and habitat improvements, long-term funding or other cost 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, the long-term funding requirements as established in an approved PAR or PAR-like analysis, or the other actual costs that are estimated in the table. 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.

4. 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~~**CDFW** 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.

5. The project owner may request the CPM to provide it with all available information about any funds held by the Energy Commission, ~~CDFG~~**CDFW** or NFWF as project security, or funds held in a NFWF sub-account for this project, or other project-specific account held by a third party. The CPM shall also fully cooperate with any independent audit that the project owner may choose to perform on any of these funds.

Verification: The project owner shall provide the CPM with either the results of the nesting surveys or written verification that the project owner shall assume presence no less than 60 days prior to ground disturbance or site mobilization. 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 verification to the CPM and ~~CDFG~~**CDFW** that an approved Security has been established in accordance with this condition of certification no later than 30 days prior to beginning Project ground-disturbing activities. 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 submitting the Security to the CPM, the project owner shall obtain the CPM's approval, in consultation with ~~CDFG~~**CDFW** of the form of the Security. The project owner, or an approved third party, shall complete and provide written verification to the CPM and ~~CDFG~~**CDFW** of the compensation lands acquisition and transfer within 18 months of the start of Project ground-disturbing activities.

No later than 12 months after the start of any ground-disturbing project activities, the project owner shall submit a formal acquisition proposal to the CPM describing the parcel(s) intended for purchase, and shall obtain approval from the CPM, in consultation with ~~CDFG~~**CDFW** 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 and ~~CDFG~~**CDFW** of such completion, no later than 18 months after the issuance of the Energy Commission Decision.

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 associated with any phase of construction. The project owner shall fully fund the required amount for long-term maintenance and management of the compensation lands for that phase of construction 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~~**CDFW** 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 for any phase of construction, 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 for that phase of construction 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 and ~~CDFG~~**CDFW** with a management plan for the compensation lands associated with any phase of construction within 180 days of the land or easement purchase, as determined by the date on the title. The CPM, in consultation with ~~CDFG~~**CDFW** 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 and ~~CDFG~~**CDFW** an analysis, based on aerial photography, with the final accounting of the amount of habitat disturbed during Project construction. If this analysis shows that more lands were disturbed than was anticipated in this condition, the project owner shall provide the Energy Commission with additional compensation lands and funding commensurate with the added impacts and applicable mitigation ratios set forth in this condition. A final analysis of all project related ground disturbance may not result in a reduction of compensation requirements if the deadlines established under this condition for transfer of compensation lands and funding have passed prior to completion of the analysis.

BURROWING OWL IMPACT AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

BIO-18 The project owner shall implement the following measures to avoid and offset impacts to burrowing owls:

1. Pre-Construction Surveys. Concurrent with desert tortoise clearance surveys the Designated Biologist shall conduct pre-construction surveys for burrowing owls within the project site and along all linear facilities in accordance with ~~CDFG~~**CDFW** guidelines (CBOC 1993). Pre-construction surveys for burrowing owls shall occur no more than 30 days prior to initiation of ground disturbance or site mobilization activities. The survey area shall include the Project Disturbance Area and surrounding 500 foot survey buffer where access is legally available.

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 ~~PHPP~~ 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 and ~~CDFG~~**CDFW**, and shall:

   a. Identify and describe suitable relocation sites on the project site or 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. Provide guidelines for creation or enhancement of at least two natural or artificial burrows per relocated owl, including a discussion of timing

of burrow improvements, specific location of burrow installation, and burrow design. Design of the artificial burrows shall be consistent with ~~CDFG~~**CDFW** guidelines (~~CDFG~~**CDFW** 1995) and shall be approved by the CPM in consultation with ~~CDFG~~**CDFW** and USFWS;

c. 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;

d. Provide detailed methods and guidance for passive relocation of burrowing owls occurring within the Project Disturbance Area; and

4. Acquire Compensatory Mitigation Lands for Burrowing Owls. The following measures for compensatory mitigation shall apply only if burrowing owls 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. 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~~**CDFW** (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. 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~~**CDFW** 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~~**CDFW** 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-20**.

   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-20** [Mohave ground squirrel Compensatory Mitigation], with the additional criteria to include: 1) the 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 burrowing owl mitigation lands may be included with the Mohave ground squirrel mitigation lands ONLY if these two burrowing owl criteria are met. If the burrowing owl mitigation land is separate

from the acquisition required for Mohave ground squirrel compensation lands, the Project owner shall fulfill the requirements described below in this condition.

b. Security. If burrowing owl mitigation land is separate from the acreage required for Mohave ground squirrel 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~~**CDFW** 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~~**CDFW** and the USFWS to ensure funding. The estimated costs of enhancement and endowment (see subsection, Mohave ground squirrel, for a discussion of the assumptions used in calculating the Security, which are based on an estimate of $15,169 per acre to fund acquisition, enhancement, and long-term management). The final amount due will be determined by the PAR analysis conducted pursuant to **BIO-17**.

Verification: If pre-construction surveys detect burrowing owls within 500 feet of proposed construction activities, the Designated Biologist shall provide to the CPM, **CDFW** 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~~**CDFW**, 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, ~~CDFG~~**CDFW** 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 notify the CPM, ~~CDFG~~**CDFW** 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~~**CDFW** 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~~**CDFW**, and USFWS describing the 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~~**CDFW** 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~~**CDFW** and USFWS, for the compensation lands and associated fund

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, ~~CDFG~~**CDFW** 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, and ~~CDFG~~**CDFW** 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.

MOHAVE GROUND SQUIRREL CLEARANCE SURVEYS

BIO-19 The project owner shall undertake appropriate measures to manage construction at the plant site and linear facilities in a manner to avoid or minimize impacts to Mohave ground squirrel. These measures include, but are not limited to, the following:

1. Clearance Survey. After the installation of the desert tortoise exclusion fence and prior to any ground disturbance, the Designated Biologist(s) shall examine the area to be disturbed for Mohave ground squirrels and their burrows. The survey shall provide 100 percent coverage of the project limits. Potentially occupied burrows as determined by a permitted ~~*MGS*~~**Mohave ground squirrel** biologist authorized by the ~~CDFG~~**CDFW** shall be fully excavated by hand by the Designated Biologist(s).

2. Translocation Plan. The project owner shall develop and implement a Mohave Ground Squirrel Translocation Plan to address the handling and disposition of any Mohave ground squirrels encountered during the clearance surveys. The Translocation Plan shall be approved by Energy Commission staff in consultation with ~~CDFG~~**CDFW**. The Translocation Plan shall designate a translocation site as close as possible to the project, and which provides suitable conditions for long-term survival of the relocated Mohave ground squirrel. The plan shall include but not be limited to the following components.

   a. identify the appropriate time when translocation may occur

b. the methods of capture, handling, and safe transfer

c. methods of health assessment

d. identify the proposed translocation site

e. identify monitoring and post translocation survivorship

f. identify remedial actions, and

g. reporting procedures to document translocation success.

3. Records of Capture. If Mohave ground squirrels are captured via trapping or burrow excavation, the Designated Biologist shall maintain a record of each Mohave ground squirrel handled, including: a) the locations (Global Positioning System [GPS] coordinates and maps) and time of capture and/or observation as well as release; b) sex; c) approximate age (adult/juvenile); d) weight; e) general condition and health, noting all visible conditions including gait and behavior, diarrhea, emaciation, salivation, hair loss, ectoparasites, and injuries; and f) ambient temperature when handled and released. Any Mohave ground squirrels observed within the project area or adjacent habitat shall be reported to the ~~CDFG~~**CDFW** and CPM by written and electronic correspondence within 24-hours.

Verification: No less than 60 days prior to any site mobilization the project owner shall provide the CPM and ~~CDFG~~**CDFW** a draft Mohave Ground Squirrel Translocation Plan. At least 60 days prior to start of any project-related ground disturbance activities, the project owner shall provide the CPM with the final version of a Mohave Ground Squirrel Translocation Plan that has been approved by Energy Commission staff in consultation with ~~CDFG~~**CDFW**. The CPM will determine the plan's acceptability within 15 days of receipt of the final plan. All modifications to the approved Translocation Plan must be made only after approval of the Energy Commission staff in consultation with ~~CDFG~~**CDFW**. The project owner shall notify the CPM no fewer than 5 working days before implementing any CPM-approved modifications to the Translocation Plan.

Within 30 days of completion of Mohave ground squirrel clearance surveys the Designated Biologist shall submit a report to the CPM and ~~CDFG~~**CDFW** describing how mitigation measures described above have been satisfied. The report shall include the Mohave ground squirrel survey results, capture and release locations of any relocated squirrels, and any other information needed to demonstrate compliance with the measures described above.

Within 30 days after initiation of translocation activities, the Designated Biologist shall provide to the CPM for review and approval, a written report identifying which items of the Translocation Plan have been completed, and a summary of all modifications to measures made during implementation.

MOHAVE GROUND SQUIRREL HABITAT COMPENSATORY MITIGATION

BIO-20 The project owner shall provide compensatory mitigation acreage of ~~665~~**216** acres of Mohave ground squirrel habitat lands, adjusted to reflect the final

project footprint, as specified in this condition. In addition, the project owner shall provide funding for initial improvement and long-term maintenance, enhancement, and management of the acquired lands for protection and enhancement Mohave ground squirrel populations, and comply with other related requirements of this condition.

This mitigation ratio is based on a 2:1 ratio for the power plant site and a 3:1 ratio for the transmission line route. Costs of these requirements are estimated to be ~~$9,812,075.00~~**2,860,080.00**. See Biological Resources Table ~~4b~~**3** for a complete breakdown of costs and acreage. All costs are best estimates as of fall 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation based on changing land costs or management fees. Regardless of the estimates, the project owner is responsible for providing adequate funding to implement the required mitigation.

In lieu of acquiring lands itself, the project owner may satisfy the requirements of this condition by depositing funds into a Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF), as described below. If the Project owner elects to establish a REAT NFWF Account and have NFWF and the agencies complete the required habitat compensation, then the total estimated cost of complying with this condition is ~~$10,141,152.00~~**3,016,483.20.**The amount of security or NFWF deposit shall be adjusted up or down to reflect any revised cost estimates recommended by REAT.

The actual costs to comply with this condition will vary depending on the final footprint of the project, the costs of acquiring compensation habitat, the costs of initially improving the habitat, and the actual costs of long-term management as determined by a Property Analysis Report or similar analysis (below). The ~~665~~ **216** acre habitat requirement, and associated funding requirements based on that acreage, shall be adjusted up or down if there are changes in the final footprint of the project or the associated costs of evaluation, acquisition, management, and other factors listed in Biological Resources Table ~~4b~~**3**. Regardless of actual cost, the project owner shall be responsible for funding all requirements of this condition.

COMPENSATORY MITIGATION LAND ACQUISITION

1. Method of Acquisition. Compensation lands shall be acquired by either of the two options listed below. Regardless of the method of acquisition, the transaction shall be complete only upon completion of all terms and conditions described in this Condition of Certification.

    a The project owner shall acquire lands and transfer title and/or conservation easement to a state or federal land management agency or to a third-party non-profit land management organization, as approved by the CPM in consultation with ~~CDFG~~**CDFW**; or

    b. The project owner shall deposit funds into a project-specific subaccount within the REAT Account established with the NFWF, in

the amount as indicated in Biological Resources Table 4b (adjusted to reflect final project footprint and any applicable REAT adjustments to costs).

2. Selection Criteria for Compensation Lands. The compensation lands selected for acquisition shall:

   a. Be in the western Mojave Desert;

   b. Provide moderate to good quality habitat for Mohave ground squirrel with capacity to improve in quality and value for this species;

   c. Be a contiguous block of land (preferably) or located so they result in a contiguous block of protected habitat;

   d. Be adjacent to larger blocks of lands that are already protected, or be in a location approved by the ~~CDFG~~**CDFW**, such that there is connectivity between the acquired lands and the protected lands;

   e. Be connected to lands for which there is reasonable evidence (for example, recent [<15 years] CNDDB occurrences on or immediately adjacent to the proposed lands) suggesting current occupation by Mohave ground squirrel, ideally with populations that are stable, recovering, or likely to recover;

   f. Not have a history of intensive recreational use, grazing, or other disturbance that might make habitat recovery and restoration infeasible;

   g. 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; and

   h. Not be encumbered by easements or uses that would preclude fencing of the site or preclude or unacceptably constrain management of the site for the primary benefit of the species and their habitat for which mitigation lands were secured.

3. 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 Mohave ground squirrel 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~~**CDFW** before deciding whether to approve or disapprove the proposed acquisition.

4. Compensation Lands Acquisition Conditions: The project owner shall comply with the following conditions relating to acquisition of the compensation lands after the CPM, in consultation with ~~CDFG~~**CDFW** approved the proposed compensation lands:

a. Preliminary Report: The Project owner, or approved third party, shall provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary or requested documents for the proposed compensation land to the CPM. 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~~**CDFW**. For conveyances to the State, approval may also be required from the California Department of General Services, the Fish and Game Commission and the Wildlife Conservation Board.

b. Title/Conveyance: The Project owner shall acquire and transfer fee title to the compensation lands, a conservation easement over the lands, or both fee title and conservation easement as required by the CPM in consultation with ~~CDFG~~**CDFW**. Any transfer of a conservation easement or fee title must be to ~~CDFG~~**CDFW**, a non-profit organization qualified to hold title to and manage compensation lands (pursuant to California Government Code section 65965), or to other public agency approved by the CPM in consultation with ~~CDFG~~**CDFW**. If an approved non-profit organization holds fee title to the compensation lands, a conservation easement shall be recorded in favor of ~~CDFG~~**CDFW** or another entity approved by the CPM. If an approved non-profit holds a conservation easement, ~~CDFG~~**CDFW** shall be named a third party beneficiary. If an entity other than ~~CDFG~~**CDFW** holds a conservation easement over the compensation lands, the CPM may require that ~~CDFG~~**CDFW** or another entity approved by the CPM, in consultation with ~~CDFG~~**CDFW**, be named a third party beneficiary of the conservation easement. The Project owner shall obtain approval of the CPM, in consultation with ~~CDFG~~**CDFW**, of the terms of any transfer of fee title or conservation easement to the compensation lands.

c. 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~~**CDFW**, before it can be used to establish funding levels or management activities for the compensation lands.

5. Compensation Lands Acquisition Costs: The Project owner shall pay all other costs related to acquisition of compensation lands and conservation easements. In addition to actual land costs, these acquisition costs shall include but shall not be limited to the items listed below. Management costs including site cleanup measures are described separately, in the following section.

   a. Level 1 Environmental Site Assessment;

   b. Appraisal;

c. Title and document review costs;

d. Expenses incurred from other state, federal, or local agency reviews;

e. Closing and escrow costs;

f. Overhead costs related to providing compensation lands to ~~CDFG~~**CDFW** or an approved third party;

g. Biological survey(s) to determine mitigation value of the land; and

h. Agency costs to accept the land (e.g., writing and recording of conservation easements; title transfer).

COMPENSATORY MITIGATION LAND IMPROVEMENT

1. Land Improvement Requirements: The Project owner shall fund activities that the CPM, in consultation with the ~~CDFG~~**CDFW** 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 surveys of boundaries and property lines, installation of signs, trash removal and other site cleanup measures, construction and repair of fences, invasive plant removal, removal of roads, and similar measures to protect habitat and improve habitat quality on the compensation lands.

   The costs of these activities are estimated at $250 an acre, but will vary depending on the measures that are required for the compensation lands. A non-profit organization, ~~CDFG~~**CDFW** or another public agency may hold and expend the habitat improvement funds if it is qualified to manage the compensation lands (pursuant to Gov. Code § 65965), if it meets the approval of the CPM in consultation with ~~CDFG~~**CDFW**, and if it is authorized to participate in implementing the required activities on the compensation lands. If ~~CDFG~~**CDFW** takes fee title to the compensation lands, the habitat improvement fund must be paid to ~~CDFG~~**CDFW** or its designee.

COMPENSATORY MITIGATION LAND LONG-TERM MANAGEMENT

1. Long-term Management Requirements: Long-term management is required to ensure that the compensation lands are managed and maintained to protect and enhance habitat for desert tortoise. Management activities may include maintenance of signs, fences, removal of invasive weeds, monitoring, security and enforcement, and control or elimination of unauthorized use.

2. Long-term Management Plan: The project owner shall pay for the preparation of a Management Plan for the compensation lands. The Management Plan shall reflect site-specific enhancement measures on the acquired compensation lands. The plan shall be submitted for approval of the CPM, in consultation with ~~CDFG~~**CDFW**.

3. Long-Term Maintenance and Management Funding: The Project owner shall provide money to establish an account with a 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 provide initial payment of ~~$9,642,250.00~~**313,200.00** calculated at $1,450 an acre for each compensation acre, as shown in Biological Resources Table ~~4b~~**3** (above) into an account for long-term maintenance and management of compensation lands. 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 the project owner and ~~CDFG~~**CDFW** before deciding whether to approve an entity to hold the project's long-term maintenance and management funds on any lands. The CPM, in consultation with the project owner and ~~CDFG~~**CDFW**, may designate another state agency or 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~~**CDFW** takes fee title to the compensation lands, ~~CDFG~~**CDFW** shall determine whether it will hold the long-term management fee in the special deposit fund, leave the money in the REAT Account, or designate another entity such as NFWF to manage the long-term maintenance and management fee for ~~CDFG~~**CDFW** and with ~~CDFG~~**CDFW** supervision.

The Project owner shall ensure that an agreement is in place with the long-term maintenance and management fee holder/manager to ensure the following conditions:

i. Interest. Interest generated from the initial capital shall be available for reinvestment into the principal and for the long-term operation, management, and protection of the approved compensation lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement measures, and any other action approved by ~~CDFG~~**CDFW** designed to protect or improve the habitat values of the compensation lands.

ii. Withdrawal of Principal. The long-term maintenance and management fee principal shall not be drawn upon unless such withdrawal is deemed

necessary by the CPM, in consultation with ~~CDFG~~**CDFW**, or the approved third-party long-term maintenance and management fee manager to ensure the continued viability of the species on the compensation lands. If ~~CDFG~~**CDFW** takes fee title to the compensation lands, monies received by ~~CDFG~~**CDFW** pursuant to this provision shall be deposited in a special deposit fund established solely for the purpose to manage lands in perpetuity unless ~~CDFG~~**CDFW** designates NFWF or another entity to manage the long-term maintenance and management fee for ~~CDFG~~**CDFW**.

iii. Pooling Funds. A CPM- approved non-profit organization qualified to hold long-term maintenance and management fees solely for the purpose to manage lands in perpetuity, may pool the fund with other funds for the operation, management, and protection of the compensation lands for local populations of desert tortoise. However, for reporting purposes, the long-term maintenance and management fee fund must be tracked and reported individually to the ~~CDFG~~**CDFW** and CPM.

iv. Reimbursement Fund. The project owner shall provide reimbursement to ~~CDFG~~**CDFW** or an approved third party for reasonable expenses incurred during title, easement, and documentation review; expenses incurred from other State or State-approved federal agency reviews; and overhead related to providing compensation lands.

COMPENSATORY MITIGATION LAND SECURITY

1. Compensation Mitigation Security: The project owner shall provide security sufficient for funding acquisition, improvement, and long-term management of desert tortoise compensation land. 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 submitting the Security to the CPM, the Project owner shall obtain the CPM's approval, in consultation with ~~CDFG~~**CDFW** of the form of the Security.

   The security amount shall be based on the estimates provided in Biological Resources Table ~~4b~~**3.** This amount shall be updated and verified prior to payment and shall be adjusted to reflect actual costs or more current estimates as agreed upon by the REAT agencies.

   The Project owner shall provide verification that financial assurances have been established to the CPM with copies of the document(s) to ~~CDFG~~**CDFW**, 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 activities described in Section A of this condition.

   In the event that the project owner defaults on the Security, 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. Any amount of the Security that is not used to carry out

mitigation shall be returned to the Project owner upon successful completion of the associated requirements in this condition.

Security for the requirements of this condition shall be provided in the amount of ~~$10,141,152.00~~**3,016,483.20** if the project owner elects to use the REAT Account with NFWF pursuant to paragraph 4 of this condition, below). The Security is calculated in part from the items that follow but adjusted as specified below (consult Biological Resources Table ~~4b~~**3** for the complete breakdown of estimated costs). However, regardless of the amount of the security or actual cost of implementation, the project owner shall be responsible for implementing all aspects of this condition.

i. land acquisition costs for compensation land, calculated at $10,000/acre;

ii. Site assessments, appraisals, biological surveys, transaction closing and escrow costs, calculated as $18,000 total per parcel (presuming 60 acres per parcel)

iii. Initial site clean-up, restoration, or enhancement, calculated at $250/acre;

iv. Third-party and agency administrative transaction costs and overhead, calculated as percentages of land cost;

v. Long-term management and maintenance fund, calculated at $1,450 per acre;

vi. NFWF fees to establish a project-specific account; manage the sub-account for acquisition and initial site work; and manage the sub-account for long term management and maintenance.

2. The project owner may elect to comply with some or all of the requirements in this condition by providing funds to implement the requirements 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 of implementing the requirement (as set forth in the Security section of this condition, paragraph 3, above). If the actual cost of the acquisition, initial protection and habitat improvements, long-term funding or other cost 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, the long-term funding requirements as established in an approved PAR or PAR-like analysis, or the other actual costs that are estimated in the table. 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~~**CDFW** 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 project related ground disturbance.

4. The project owner may request the CPM to provide it with all available information about any funds held by the Energy Commission, ~~CDFG~~**CDFW** or NFWF as project security, or funds held in a NFWF sub-account for this project, or other project-specific account held by a third party. The CPM shall also fully cooperate with any independent audit that the project owner may choose to perform on any of these funds.

Verification: The project owner shall provide the CPM with written notice of intent to start ground disturbance 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 verification to the CPM and ~~CDFG~~**CDFW** that an approved Security has been established in accordance with this condition of certification no later than 30 days prior to beginning Project ground-disturbing activities. 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 submitting the Security to the CPM, the project owner shall obtain the CPM's approval, in consultation with ~~CDFG~~**CDFW** of the form of the Security. The project owner, or an approved third party, shall complete and provide written verification to the CPM and ~~CDFG~~**CDFW** of the compensation lands acquisition and transfer within 18 months of the start of Project ground-disturbing activities.

No later than 12 months after the start of any phase 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~~**CDFW** 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 and ~~CDFG~~**CDFW** of such completion, no later than 18 months after the start of project related ground disturbance activities. If NFWF or another approved third party is being used for all or part of 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 associated with any phase of construction. The project owner shall fully fund the

required amount for long-term maintenance and management of the compensation lands for that phase of construction 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~~**CDFW** 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 for any phase of construction, 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 for that phase of construction 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 and ~~CDFG~~**CDFW** with a management plan for the compensation lands associated with any phase of construction within180 days of the land or easement purchase, as determined by the date on the title. The CPM, in consultation with ~~CDFG~~**CDFW** 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 and ~~CDFG~~**CDFW** an analysis, based on aerial photography, with the final accounting of the amount of habitat disturbed during Project construction. If this analysis shows that more lands were disturbed than was anticipated in this condition, the project owner shall provide the Energy Commission with additional compensation lands and funding commensurate with the added impacts and applicable mitigation ratios set forth in this condition. A final analysis of all project related ground disturbance may not result in a reduction of compensation requirements if the deadlines established under this condition for transfer of compensation lands and funding have passed prior to completion of the analysis.

AMERICAN BADGER AND DESERT KIT FOX IMPACT AVOIDANCE AND MINIMIZATION MEASURES

BIO-21 Prior to ground disturbance the owner shall conduct pre-construction surveys for American badgers and desert kit fox. These surveys may be conducted 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 250 feet of all project facilities, utility corridors, and access roads. 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 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 present, occupied badger dens shall be flagged and ground-disturbing activities avoided within 50 feet of the occupied den avoided. Maternity dens shall be avoided during the pup-rearing season (15 February through 1 July) and a minimum 200-foot buffer established. Buffers may be modified with the concurrence of ~~CDFG~~**CDFW** and CPM. Maternity dens shall be flagged for avoidance, identified on construction maps, and a biological monitor shall be present during construction.

If avoidance of a non-maternity den is not feasible, badgers shall be relocated by slowly excavating the burrow (either by hand or mechanized equipment under the direct supervision of the biologist, removing no more than 4 inches at a time) before or after the rearing season (15 February through 1 July). Any relocation of badgers shall occur only after consultation with the ~~CDFG~~**CDFW** and CPM. A written report documenting the badger removal shall be provided to the CPM within 30 days of relocation.

Verification: The project owner shall submit a report to the CPM and ~~CDFG~~**CDFW** within 30 days of completion of badger and kit fox surveys. The report shall describe survey methods, results, mitigation measures implemented, and the results of the mitigation.

BAT AVOIDANCE AND MINIMIZATION MEASURES

BIO-22 Prior to ground disturbance the project owner shall conduct a survey for roosting bats within 200 feet of project activities within 15 days prior to any grading of rocky outcrops or removal of trees (particularly trees 12 inches in diameter or greater at 4.5 feet above grade with loose bark or other cavities).

The project owner shall also conduct surveys for roosting bats during the maternity season (1 March to 31 July) within 300 feet of project activities. Trees and rocky outcrops shall be surveyed by a qualified bat biologist Surveys shall include a minimum of one day and one evening. The biologist shall be approved by the Designated Biologist. If active maternity roosts or hibernacula are found, the rock outcrop or tree occupied by the roost shall be avoided (i.e., not removed) by the project, if feasible. If avoidance of the maternity roost is not feasible, the bat biologist shall survey (through the use of radio telemetry or other ~~CDFG~~**CDFW**/CPM-approved methods) for nearby alternative maternity colony sites. If the bat biologist determines in consultation with and with the approval of the ~~CDFG~~**CDFW**, and CPM that there are alternative roost sites used by the maternity colony and young are not present, then no further action is required. However, if there are no alternative roosts sites used by the maternity colony, provision of substitute roosting bat habitat is required. If active maternity roosts are absent, but a hibernaculum (i.e., a non-maternity roost) is present, then exclusion of bats prior to demolition of roosts is required.

1. Provision of substitute roosting bat habitat. If a maternity roost will be impacted by the project, and no alternative maternity roosts are in use near the site, substitute roosting habitat for the maternity colony shall be

provided on, or in close proximity to, the project site no less than three months prior to the eviction of the colony. Alternative roost sites will be constructed in accordance with the specific bats' requirements in coordination with ~~CDFG~~**CDFW** and the CPM. Alternative roost sites must be of comparable size and proximal in location to the impacted colony. The ~~CDFG~~**CDFW** shall also be notified of any hibernacula or active nurseries within the construction zone.

2. Exclude bats prior to demolition of roosts. If non-breeding bat hibernacula are found in trees scheduled to be removed or in crevices in rock outcrops within the grading footprint, the individuals shall be safely evicted, under the direction of the qualified bat biologist, by opening the roosting area to allow airflow through the cavity or other means determined appropriate by the bat biologist (e.g., installation of one-way doors). In situations requiring one-way doors, a minimum of one week shall pass after doors are installed and temperatures should be sufficiently warm for bats to exit the roost. This action should allow all bats to leave during the course of one week. Roosts that need to be removed in situations where the use of one-way doors is not necessary in the judgment of the qualified bat biologist shall first be disturbed by various means at the direction of the bat biologist at dusk to allow bats to escape during the darker hours, and the roost tree shall be removed or the grading shall occur the next day (i.e., there shall be no less or more than one night between initial disturbance and the grading or tree removal).

   If an active maternity roost is located in an area to be impacted by the project, and alternative roosting habitat is available, the demolition of the roost site must commence before maternity colonies form (i.e., prior to 1 March) or after young are flying (i.e., after 31 July) using the exclusion techniques described above.

Verification: The project owner shall submit a report to the CPM and ~~CDFG~~**CDFW** within 30 days of completion of roosting bat surveys and any subsequent mitigation. The report shall describe survey methods, results, mitigation measures implemented, and the results of the mitigation.

STREAMBED IMPACT MINIMIZATION AND COMPENSATION MEASURES

BIO-23 The project owner shall implement Best Management Practices and other measures described below to protect jurisdictional waters of the state occurring along the linear alignments. The project owner shall implement the following measures to minimize impacts to waters of the state:

1. Best Management Practices: The applicant shall comply with the following conditions:

   a. Prior to any activities that cross or have the potential to impact any jurisdictional drainage the owner shall provide a detailed map to the ~~CDFG~~**CDFW** and CPM in a GIS format that identifies all potential crossings of jurisdictional habitats including bridges and culverts. The maps shall identify the type of crossing proposed by the owner such as

bridges, culverts, or other mechanism and the best management practices that would be employed.

b. Precautions to minimize turbidity/siltation shall be taken into account during project planning and shall be installed prior to construction. Precautions may also include placement of silt fencing, weed-free straw bales, or sand bags, so that silt or other deleterious materials are not allowed to pass to downstream reaches. The method used to prevent siltation shall be monitored and cleaned/repaired weekly.

c. The project owner shall not operate vehicles or equipment in ponded or flowing water except as described in this condition. Diversion of any stream is not authorized. Bridging of Little Rock Wash is not authorized in this condition.

d. Dewatering is not authorized in this condition.

e. At the completion of construction all temporary bridges, culverts, or other structures shall be removed unless authorized by the ~~CDFG~~**CDFW** and CPM.

f. When any activity requires moving of equipment across a flowing stream, such operations shall be conducted without substantially increasing stream turbidity. The project owner shall bridge by the use of railroad flat cars or other bridging material all ponded or flowing streams if vehicles where high flow levels occur.

g. Where drainages support sheet flow in direct response to rainfall for periods of less than 48 hours construction of bridges is not required. Vehicle use in these areas shall not result in silt/mud/turbid water from reaching downstream areas.

h. Vehicles driven across ephemeral drainages when water is present shall be completely clean of petroleum residue and water levels shall be below the vehicles axels.

i. Any equipment or vehicles driven and/or operated within or adjacent to the stream/lake shall be checked and maintained daily, to prevent leaks of materials that if introduced to water could be deleterious to aquatic life.

j. Installation of bridges, culverts, or other structures shall be such that water flow (velocity and low flow channel width) is not impaired. Bottoms of temporary culverts shall be placed at or below stream channel grade. A biological monitor shall be present during the installation of all bridges, culverts and BMPs.

k. Installation of bridges or culverts shall be done in a manner that shall prevent pollution and/or siltation and which shall provide flows to downstream reaches. Flows to downstream reaches shall be provided during all times.

l. The project owner shall not allow water containing mud, silt, or other pollutants from grading, aggregate washing, or other activities to enter a lake or flowing stream or be placed in locations that may be subjected to high storm flows.

m. If turbidity/siltation levels resulting from project related activities constitute a threat to aquatic life, activities associated with the turbidity/siltation, shall be halted until effective CPM approved control devices are installed, or abatement procedures are initiated.

n. 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.

o. If a stream's low flow channel, bed or banks/lake bed or banks have been altered, these shall be returned as nearly as possible to their original configuration and width, without creating future erosion problems. The gradient of the streambed shall be returned to pre project grade unless such operation is part of a restoration project, in which case, the change in grade must be approved by the Department prior to project commencement.

p. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, construction waste, cement or concrete or washings thereof, asphalt, paint, oil or other petroleum products or any other substances which could be hazardous to aquatic life, or other organic or earthen material from any logging, construction, or other associated project related activity shall be allowed to contaminate the soil and/or enter into or placed where it may be washed by rainfall or runoff into, waters of the State. Any of these materials, placed within or where they may enter a stream or lake, by the owner or any party working under contract, or with the permission of the owner, shall be removed immediately.

q. When operations are completed, any excess materials or debris shall be removed from the work area. No rubbish shall be deposited within 150 feet of the high water mark of any stream or lake.

r. Stationary equipment such as motors, pumps, generators, and welders, located within or adjacent to the stream/lake shall be positioned over drip pans. Stationary heavy equipment shall have suitable containment to handle a catastrophic spill/leak. Clean up equipment such as extra boom, absorbent pads, skimmers, shall be on site prior to the start of dredging.

s. No equipment maintenance shall be done within or near any stream channel where petroleum products or other pollutants from the equipment may enter these areas under any flow.

t. The cleanup of all spills shall begin immediately. The ~~CDFG~~**CDFW** and CPM shall be notified immediately by the owner of any spills and shall be consulted regarding clean-up procedures.

2. Non-native Vegetation Removal. The owner shall remove any non-native vegetation (tree tobacco, castor bean, etc.) from any drainage that requires the placement of a bridge, culvert or other structure. Removal shall be done at least twice annually (Spring/Summer) during implementation of the ~~PHPP~~ project. The removal of riparian vegetation is not authorized under this condition. Should the removal of riparian vegetation become necessary temporary impacts will be mitigated at a ratio of 2:1 and permanent impacts will be mitigated at a ratio of 5:1.

3. Reporting of Special-Status Species: If any special-status species are observed on or in proximity to the project site, or during project surveys, the project owner shall submit California Natural Diversity Data Base (CNDDB) forms and maps to the CNDDB within five working days of the sightings and provide the regional ~~CDFG~~**CDFW** office with copies of the CNDDB forms and survey maps. The CNDDB form is available online at: www.dfg.ca.gov/whdab/pdfs/natspec.pdf. This information shall be mailed within five days to: California Department of Fish and Game, Natural Diversity Data Base, 1807 13th Street, Suite 202, Sacramento, CA 95814, (916) 324-3812. A copy of this information shall also be mailed within five days to ~~CDFG~~**CDFW** and the CPM.

4. Notification: The project owner shall notify the CPM and ~~CDFG~~**CDFW**, in writing, at least five days prior to initiation of project activities in jurisdictional areas and at least five days prior to completion of project activities in jurisdictional areas. The project owner shall notify the CPM and ~~CDFG~~**CDFW** of any change of conditions to the project, the jurisdictional impacts, or the mitigation efforts, if the conditions at the site of the 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~~**CDFW** 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 described below. A copy of the notifying change of conditions report shall be included in the annual reports.

   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 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.

5. Code of Regulations: The project owner shall provide a copy of the Energy Commission Decision to all contractors, subcontractors, and the applicant's project supervisors. Copies shall be readily available at work sites at all times during periods of active work and must be presented to any ~~CDFG~~**CDFW** personnel or personnel from another agency upon demand. The CPM reserves the right to issue a stop work order or allow ~~CDFG~~**CDFW** to issue a stop work order after giving notice to the project owner and the CPM, if the CPM, in consultation with ~~CDFG~~**CDFW**, 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 streambed conditions is incomplete or inaccurate;

   b. New information becomes available that was not known to it in preparing the terms and conditions;

   c. The project or project activities as described in the Final Staff Assessment have changed; or

   d. The conditions affecting biological resources changed or the CPM, in consultation with ~~CDFG~~**CDFW**, determines that project activities will result in a substantial adverse effect on the environment.

Verification: No fewer than 30 days prior to the start of any site or related facilities mobilization activities, the project owner shall implement the mitigation measures described above. No fewer than 30 days prior to the start of work potentially affecting waters of the state, the project owner shall provide written verification (i.e., through incorporation into the BRMIMP) to the CPM that the above best management practices will be implemented and provide a discussion of work in waters of the state in Compliance Reports for the duration of the project. Compliance Reports shall be submitted every six months.

AVIAN AND BAT PROTECTION PLAN / MONITORING BIRD AND BAT IMPACTS FROM SOLAR TECHNOLOGY

BIO-24 The project owner shall prepare and implement an Avian and Bat Protection Plan to monitor bird and bat collisions with facility features (study described below). The Project owner shall use the monitoring data to inform and develop an adaptive management program that would avoid and minimize Project-related avian and bat impacts. Project-related bird and bat deaths or injuries shall be reported to the CPM, **CDFW** and USFWS. The CPM, in consultation with **CDFW** and USFWS, shall determine if the Project-related bird or bat deaths or injuries warrant implementation of adaptive management measures contained in the Avian and Bat Protection Plan. The study design for the Avian and Bat Protection Plan shall be approved by the CPM in consultation with **CDFW** and USFWS, and, once approved, shall be incorporated into the project's BRMIMP and implemented. The Plan shall include adaptive management strategies that include the placement of bird flight diverters, aerial markers, or other strategies to minimize collisions with the solar arrays

The Avian and Bat Protection Plan shall include a Bird and Bat Monitoring Study to monitor the death and injury of birds from collisions with facility features such as reflective mirror-like surfaces. The study design shall be approved by the CPM in consultation with **CDFW** and USFWS, and shall be incorporated into the project's BRMIMP and implemented. The Bird Monitoring Study shall be based upon prior studies by McCrary et al. (1986) or other applicable literature, and shall include detailed specifications on data and carcass collection protocol and a rationale justifying the proposed schedule of carcass searches. The study shall also include seasonal trials to assess bias from carcass removal by scavengers as well as searcher bias and proposed disposition of dead or injured birds.

Verification: No more than 60 days prior to ground disturbance the project owner shall submit to the CPM, USFWS and **CDFW** a final Avian and Bat 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, **CDFW**, and USFWS describing the methods, dates, durations, and results of monitoring. The quarterly reports shall provide a detailed description of any project-related bird or wildlife deaths or injuries detected during the monitoring study or at any other time. Following the completion of the fourth quarter of monitoring the Designated Biologist shall prepare an Annual Report that summarizes the year's data, analyzes any project-related bird fatalities or injuries detected, and provides recommendations for future monitoring and any adaptive management actions needed. The Annual Report shall be provided to the CPM, **CDFW**, and USFWS. Quarterly reporting shall continue until the CPM, in consultation with **CDFW** and USFWS determine whether more years of monitoring are needed, and whether mitigation and adaptive management measures are necessary. After the Bird and Bat Monitoring Study is determined by the CPM to be complete, the project owner or contractor shall prepare a paper that describes the study design and monitoring results to be submitted to the CPM, **CDFW**, USFWS, and a peer-reviewed scientific journal.

~~Proof of submittal shall be provided to the CPM within one year of concluding the monitoring study.~~

CLOSURE PLAN MEASURES

BIO-25 The project owner shall implement and incorporate into the facility closure plan measures to address the local biological resources related to facility closure. A funding mechanism shall be developed in consultation with the Energy Commission staff to ensure sufficient funds are available for revegetation, reclamation, and decommissioning if the project site will not be re-powered or developed. The facility closure plan shall address biological resources-related mitigation measures. In addition to these measures, the plan shall include the following:

1. Removal of transmission conductors when they are no longer used and useful;

2. Removal of all above-ground and subsurface power plant site facilities and related facilities;

3. Methods for restoring wildlife habitat and promoting the re-establishment of native plant and wildlife species;

4. Revegetation of the project site and other disturbed areas utilizing appropriate methods for establishing native vegetation if the site will not be repowered or developed; and

5. A cost estimate to complete closure-related activities.

In addition, the project owner shall secure funding to ensure implementation of the plan and provide to the CPM written evidence of the dedicated funding mechanism(s).

Verification: At least 12 months prior to commencement of planned closure activities, the project owner shall address all biological resources-related issues associated with facility closure, and provide final measures, in a Biological Resources Element. The draft planned permanent or unplanned closure measures shall be submitted to the CPM for comment by staff, ~~CDFG~~**CDFW**, and USFWS. After revision, final measures shall comprise the Biological Resources Element, which shall include the items listed above as well as written evidence of the dedicated funding mechanism(s) for these measures. The final Biological Resources Element shall become part of the facility closure plan, which is submitted to the CPM within 90 days of the permanent closure or another period of time agreed to by the CPM.

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 (see the Conditions of Certification in the **Compliance** section of this Decision).

Upon facility closure, the project owner shall implement measures in the Biological Resources Element and provide written status updates on all closure activities to the CPM at a frequency determined by the CPM.

REVISED CONDITIONS FOR PARTIAL UNDERGROUND TRANSMISSION LINE ALTERNATIVE ROUTE 4

If the project owner opts to construct and operate Transmission Line Alternative Route 4, the following Revised Conditions of Certification **BIO-14**, **BIO-17**, and **BIO-20** reflect the reduced acreages subject to project impacts. The following **Biological Resources Tables** ~~3.2-5~~**4** **and** ~~3.2-6~~**5** shall apply to these Revised Conditions:

Biological Resources Table ~~3.2-5~~**4**
Swainson's Hawk Compensation Cost Estimate[1]

	Task	**Cost per area**	**Cost**
1.	Land Acquisition ~~300~~**70** acres at 2:1 ratio=~~600~~**140** acres	$10,000 per acre[2]	**$1,400,000.00**
2.	Level 1 Environmental Site Assessment	$3000 per parcel[3]	**$6,990.00**
3.	Appraisal	$5000 per parcel	**$11,650.00**
4.	Initial site work - clean-up, enhancement , restoration	$250 per acre[4]	**$35,000.00**
5.	Closing and Escrow Costs – 1 transaction includes landowner to 3rd party and 3rd party to agency	$5000 per transaction	**$15,000.00**
6.	Biological survey for determining mitigation value of land (habitat based with species specific augmentation)	$5000 per parcel	**$11,650.00**
7.	3rd party administrative costs - includes staff time to work with agencies and landowners; develop management plan; oversee land transaction; organizational reporting and due diligence; review of acquisition documents; assembling acres to acquire….	10% of land acquisition cost (#1)	**$140,000.00**
8.	Agency costs to review and determine accepting land donation - includes 2 physical inspections; review and approval of the Level 1 ESA assessment; review of all title documents; drafting deed and deed restrictions; issue escrow instructions; mapping the parcels….	15% of land acquisition costs (#1) × 1.17 (17% of the 15% for overhead)	**$210,000.00**
	SUBTOTAL *- Acquisition & Initial Site Work*	***$~~7,983,000.00~~***	***$1,830,290.00***
9.	Long-term Management and Maintenance (LTMM) Fund - includes land management; enforcement and defense of easement or title [short and long term]; monitoring….	$1450 per acre[5]	**$203,000.00**
	SUBTOTAL *- Acquisition, Initial Site Work, & LTMM*	***$~~8,853,000.00~~***	***$2,033,290.00***

	NFWF Fees		
10.	Establish the project specific account	n/a (presumes establishment of Mohave ground squirrel account for project)	
11.	NFWF management fee for acquisition & initial site work	3% of SUBTOTAL	**$60,998.70**
12.	NFWF Management fee for LTMM Fund	1% of LTMM Fund	**$2,030.00**
13.	Call for and Process Pre-Proposal Modified RFP	n/a (presumes establishment of Mohave ground squirrel account for project)	
	***TOTAL** for deposit in REAT-NFWF Project Specific Account*	~~*$9,101,190.00*~~	***$2,096,318.70***

1. Estimates prepared in consultation with ~~**CDFW**~~**CDFW**. All costs are best estimates as of fall 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.
2. Based on mean of data provided by ~~**CDFW**~~**CDFW** for land acquisition in Los Angeles County. If the agencies, developer, or 3rd party has better, credible information on land costs in the specific area where project-specific mitigation lands are likely to be purchased, that data overrides this general estimate. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.
3. For the purposes of determining costs, an average parcel is 60 acres (based on input from DFG).
4. Based on information from ~~**CDFW**~~**CDFW**.
5. Estimate for purposes of calculating general costs. The actual long term management and maintenance costs will be determined using a Property Assessment Report (PAR) tailored to the specific acquisition.

Biological Resources Table ~~3.2-6~~5
Mohave Ground Squirrel Compensation Cost Estimate[1]

	Task	Cost per area	Cost
1.	Land Acquisition (total of ~~600~~ **140** acres) 2:1 ratio on power plant site Compensatory mitigation is not required for the transmission line right-of-way	$10,000 per acre[2]	**$1,400,000.00**
2.	Level 1 Environmental Site Assessment	$3000 per parcel[3]	**$6,990.00**
3.	Appraisal	$5000 per parcel	**$11,650.00**
4.	Initial site work - clean-up, enhancement , restoration	$250 per acre[4]	**$35,000.00**
5.	Closing and Escrow Costs – 1 transaction includes landowner to 3rd party and 3rd party to agency	$5000 per transaction	**$15,000.00**
6.	Biological survey for determining mitigation value of land (habitat based with species specific augmentation)	$5000 per parcel	**$11,650.00**
7.	3rd party administrative costs - includes staff time to work with agencies and	10% of land acquisition cost (#1)	**$140,000.00**

	landowners; develop management plan; oversee land transaction; organizational reporting and due diligence; review of acquisition documents; assembling acres to acquire….		
8.	Agency costs to review and determine accepting land donation - includes 2 physical inspections; review and approval of the Level 1 ESA assessment; review of all title documents; drafting deed and deed restrictions; issue escrow instructions; mapping the parcels….	15% of land acquisition costs (#1) × 1.17 (17% of the 15% for overhead)	**$210,000.00**
	***SUBTOTAL** - Acquisition & Initial Site Work*	~~***$7,983,000.00***~~	***$1,830,290.00***
9.	Long-term Management and Maintenance (LTMM) Fund - includes land management; enforcement and defense of easement or title [short and long term]; monitoring….	$1450 per acre[5]	**$203,000.00**
	***SUBTOTAL** - Acquisition, Initial Site Work, & LTMM*	~~***$8,853,000.00***~~	***$2,033,290.00***
	NFWF Fees		
10.	Establish the project specific account	$12,000	**$12,000.00**
11.	NFWF management fee for acquisition & initial site work	3% of SUBTOTAL	**$60,998.70**
12.	NFWF Management fee for LTMM Fund	1% of LTMM Fund	**$2,030.00**
13.	Call for and Process Pre-Proposal Modified RFP	$30,000	**$30,000.00**
	***TOTAL** for deposit in REAT-NFWF Project Specific Account*	~~***$9,143,190.00***~~	***$2,138,318.70***

1. Estimates prepared in consultation with ~~**CDFW**~~**CDFW**. All costs are best estimates as of fall 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.
2. Based on mean of data provided by ~~**CDFW**~~**CDFW** for land acquisition in Los Angeles County. If the agencies, developer, or 3rd party has better, credible information on land costs in the specific area where project-specific mitigation lands are likely to be purchased, that data overrides this general estimate. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.
3. For the purposes of determining costs, an average parcel is 60 acres (based on input from ~~**CDFW**~~**CDFW**).
4. Based on information from ~~**CDFW**~~**CDFW**.
5. Estimate for purposes of calculating general costs. The actual long term management and maintenance costs will be determined using a Property Assessment Report (PAR) tailored to the specific acquisition.

RAVEN FEE, MONITORING, MANAGEMENT, AND CONTROL PLAN

ALTERNATIVE BIO-14 The project owner shall design and implement a Raven Monitoring, Management, and Control Plan (Raven Plan) that is consistent with the most current USFWS-approved raven management guidelines and that meets the approval of the USFWS, ~~CDFG~~**CDFW**, and the CPM. Any subsequent modifications to the approved Raven Plan shall be made only with approval of the CPM in consultation with USFWS and ~~CDFG~~**CDFW**. 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 to be proposed in the Raven Plan. Regardless of raven monitoring results, the project owner shall be responsible for all other aspects of the Raven Plan, including avoidance and minimization of project-related trash, water sources, or perch/roost sites that could contribute to increased raven numbers. 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:

3. Prepare and Implement a Raven Management Plan 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.
4. Contribute to the REAT 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 REAT Regional Raven Management Program. The amount shall be a one-time payment of $105 per acre (~~384~~**125.5** acres) of permanent disturbance fee ~~$40,320~~**13,177.00**.

Verification: No later than 30 days prior to any construction-related ground disturbance activities, the Project owner shall provide the CPM, USFWS, and ~~CDFG~~**CDFW** 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~~**CDFW**. No later than 60 days prior to the start of construction, the project owner shall provide written verification to the CPM that NFWF has received and accepted payment into the project's sub-account of the REAT Account to support the

USFWS Regional Raven Management Program. 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.

SWAINSON'S HAWK HABITAT COMPENSATORY MITIGATION

ALTERNATIVE BIO-17 The project owner shall either assume that Swainson's hawk nest within five miles of the project site and provide compensatory mitigation as described below or complete CFDG protocol surveys within five miles of project facilities that result in permanent impacts to Swainson's hawk foraging habitat. If surveys are completed they shall include the following components.

The survey periods shall follow a specified schedule: Period I occurs from 1 January to 31 March, Period II occurs from 1 April to 30 April, Period III occurs from 1 may to 30 May, and Period IV occurs from 1 June to 15 July. No fewer than three surveys per period in at least two survey periods shall be completed immediately prior to the start of project construction. All nest sites shall be recorded, mapped using GIS and provided to the CPM and ~~CDFG~~**CDFW**. Compensatory mitigation at a 2:1 ratio shall be required for permanent impacts. If active Swainson's hawk nests (i.e., any nest active within five years) are not detected within 5 miles of the project site or linear facilities, the project owner will not be required to provide compensatory mitigation.

If the project owner assumes presence, the project owner shall provide compensatory mitigation acreage for 600 acres of Swainson's hawk habitat lands, adjusted to reflect the final project footprint, as specified in this condition. In addition, the project owner shall provide funding for initial improvement and long-term maintenance, enhancement, and management of the acquired lands for protection and enhancement Swainson's hawk populations, and comply with other related requirements of this condition.

a. Loss of foraging habitat for Swainson's hawks shall be mitigated by providing Habitat Management (HM) lands at a ratio of 2:1 for any foraging habitat impacted within a 5-mile radius of active Swainson's hawk nest(s) (~~CDFG~~**CDFW** considers a nest active if it was used one or more times within the last 5 years). Foraging habitat includes but is not limited to alfalfa; fallow fields; beet, tomato, onions, and other low-growing row or field crops; dry-land and irrigated pasture; and cereal grain crops (including corn after harvest). Joshua tree woodland shall be considered foraging habitat in the Antelope Valley.

b. Lands which are currently in urban use or lands that have no existing or potential value for foraging Swainson's hawks will not require mitigation. The project owner will provide the CPM and ~~CDFG~~**CDFW** a report of potential foraging lands impacted by the proposed project as determined by consultation with the ~~CDFG~~**CDFW** and recent site-

specific surveys conducted by a ~~CDFG~~**CDFW**-qualified raptor biologist.

This acreage was calculated as follows: a ratio of 2:1 for the ~~PHPP~~ power plant site (600 acres). Costs of these requirements are estimated to be ~~$7,983,000.00~~**1,327,210.00** (see **Biological Resources Tables ~~3.2~~4-** for a complete breakdown of costs and acreage). All costs are best estimates as of fall 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation based on changing land costs or management fees. Regardless of the estimates, the project owner is responsible for providing adequate funding to implement the required mitigation.

These impact acreages shall be 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 Palmdale Hybrid Power Plant Project Site.
This compensation acreage may be included ("nested") within the acreage acquired and managed as Mohave ground squirrel habitat compensation (Condition of Certification **BIO-20**) only if:

a. A minimum of ~~600~~**140** acres of habitat including a minimum of ~~366.3~~**76** acres of Joshua tree woodland, ~~233.1~~**64** acres of Mojave creosote bush scrub.

b. The Mohave ground squirrel habitat compensation lands are acquired and dedicated as permanent conservation lands within 18 months of the start of project construction.

If these two criteria are not met, then the project owner shall provide the required number of acres of Swainson's hawk habitat compensation lands, adjusted to reflect the final project footprint and additional delineation of suitable habitat, independent of any compensation land required under other conditions of certification, and shall also provide funding for the initial improvement and long-term maintenance and management of the acquired lands, and shall comply with other related requirements this condition.

The project owner shall provide financial assurances as described below in the amount of ~~$8,853,000.00~~**2,033,290.00**. In lieu of acquiring lands itself, the Project owner may satisfy the requirements of this condition by depositing funds into a Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF), as described below. If the Project owner elects to establish a REAT NFWF Account and have NFWF and the agencies complete the required habitat compensation, then the total estimated cost of complying with this condition is ~~$9,101,190.00~~**2,096,318.70**. The amount of security or NFWF deposit shall be adjusted up or down to reflect any revised cost estimates recommended by REAT.

The actual costs to comply with this condition will vary depending on the final footprint of the project, the costs of acquiring compensation habitat, the costs of initially improving the habitat, and the actual costs of long-term

management as determined by a Property Analysis Report or similar analysis (below). The ~~600~~**100** acre habitat requirement, and associated funding requirements based on that acreage, shall be adjusted up or down if there are changes in the final footprint of the project or the associated costs of evaluation, acquisition, management, and other factors listed in **Biological Resources Tables ~~3.2-5~~4**. Regardless of actual cost, the project owner shall be responsible for funding all requirements of this condition.

COMPENSATORY MITIGATION LAND ACQUISITION

1. Method of Acquisition. Compensation lands shall be acquired by either of the two options listed below. Regardless of the method of acquisition, the transaction shall be complete only upon completion of all terms and conditions described in this Condition of Certification.

    a. The project owner shall acquire lands and transfer title and/or conservation easement to a state or federal land management agency or to a third-party non-profit land management organization, as approved by the CPM in consultation with ~~CDFG~~**CDFW**; or

    b. The Project owner shall deposit funds into a project-specific subaccount within the REAT Account established with the NFWF, in the amount as indicated in **Biological Resources Tables ~~3.2-5~~4** (adjusted to reflect final project footprint and any applicable REAT adjustments to costs).

2. Selection Criteria for Compensation Lands. The compensation lands selected for acquisition to meet Energy Commission and CESA requirements shall be equal to or better than the quality and function of the habitat impacted and:

    a. Be within the Western Mojave Desert;

    b. Provide moderate to good quality foraging habitat for Swainson's hawk with capacity to improve in quality and value for this species; and

    c. Be near lands for which there is reasonable evidence (for example, recent (<15 years) CNDDB occurrences on or immediately adjacent to the proposed lands) suggesting current occupation by Swainson's hawk ideally with populations that are stable, recovering, or likely to recover.

    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 cause future erosional damage or other habitat damage, and 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; and

g. not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat; and

h. have water and mineral rights included as part of the acquisition, unless the CPM, in consultation with ~~CDFG~~**CDFW**, agrees in writing to the acceptability of land without these rights.

3. 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 Swainson's hawk 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~~**CDFW** before deciding whether to approve or disapprove the proposed acquisition.

4. Compensation Lands Acquisition Conditions: The project owner shall comply with the following conditions relating to acquisition of the compensation lands after the CPM, in consultation with ~~CDFG~~**CDFW** approved the proposed compensation lands:

   a. Preliminary Report: The Project owner, or approved third party, shall provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary or requested documents for the proposed compensation land to the CPM. 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~~**CDFW**. For conveyances to the State, approval may also be required from the California Department of General Services, the Fish and Game Commission and the Wildlife Conservation Board.

   b. Title/Conveyance: The Project owner shall acquire and transfer fee title to the compensation lands, a conservation easement over the lands, or both fee title and conservation easement as required by the CPM in consultation with ~~CDFG~~**CDFW**. Any transfer of a conservation easement or fee title must be to ~~CDFG~~**CDFW**, a non-profit organization qualified to hold title to and manage compensation lands (pursuant to California Government Code section 65965), or to other public agency approved by the CPM in consultation with ~~CDFG~~**CDFW**. If an approved non-profit organization holds fee title to the compensation lands, a conservation easement shall be recorded in favor of ~~CDFG~~**CDFW** or another entity approved by the CPM. If an approved non-profit holds a conservation easement, ~~CDFG~~**CDFW** shall be named a third party beneficiary. If an entity other than ~~CDFG~~**CDFW** holds a conservation easement over the compensation lands, the CPM may require that ~~CDFG~~**CDFW** or another entity approved by the CPM, in consultation with ~~CDFG~~**CDFW**, be named a third party beneficiary of the conservation easement. The Project owner shall obtain approval of the

CPM, in consultation with ~~CDFG~~**CDFW**, of the terms of any transfer of fee title or conservation easement to the compensation lands.

c. 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~~**CDFW**, before it can be used to establish funding levels or management activities for the compensation lands.

5. Compensation Lands Acquisition Costs: The Project owner shall pay all other costs related to acquisition of compensation lands and conservation easements. In addition to actual land costs, these acquisition costs shall include but shall not be limited to the items listed below. Management costs including site cleanup measures are described separately, in the following section.

a. Level 1 Environmental Site Assessment;

b. Appraisal;

c. Title and document review costs;

d. Expenses incurred from other state, federal, or local agency reviews;

e. Closing and escrow costs;

f. Overhead costs related to providing compensation lands to ~~CDFG~~**CDFW** or an approved third party;

g. Biological survey(s) to determine mitigation value of the land; and

h. Agency costs to accept the land (e.g., writing and recording of conservation easements; title transfer).

COMPENSATORY MITIGATION LAND IMPROVEMENT

1. Land Improvement Requirements: The Project owner shall fund activities that the CPM, in consultation with the ~~CDFG~~**CDFW**, 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 surveys of boundaries and property lines, installation of signs, trash removal and other site cleanup measures, construction and repair of fences, invasive plant removal, removal of roads, and similar measures to protect habitat and improve habitat quality on the compensation lands.

   The costs of these activities are estimated at $250 an acre, but will vary depending on the measures that are required for the compensation lands. A non-profit organization, ~~CDFG~~**CDFW** 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~~**CDFW**, and if it is authorized to participate in implementing the required activities on the compensation lands. If ~~CDFG~~**CDFW** takes fee title to the compensation lands, the habitat improvement fund must be paid to ~~CDFG~~**CDFW** or its designee.

COMPENSATORY MITIGATION LAND LONG-TERM MANAGEMENT

1. Long-term Management Requirements: Long-term management is required to ensure that the compensation lands are managed and maintained to protect and enhance habitat for desert tortoise. Management activities may include maintenance of signs, fences, removal of invasive weeds, monitoring, security and enforcement, and control or elimination of unauthorized use.

2. Long-term Management Plan. The project owner shall pay for the preparation of a Management Plan for the compensation lands. The Management Plan shall reflect site-specific enhancement measures on the acquired compensation lands. The plan shall be submitted for approval of the CPM, in consultation with ~~CDFG~~**CDFW**.

3. Long-Term Maintenance and Management Funding. The Project owner shall provide money to establish an account with a 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 provide initial payment of $~~870,000.00~~**203,000.00** calculated at $1,450 an acre for each compensation acre, as shown in **Biological Resources Tables ~~3.2-5~~4** (above) into an account for long-term maintenance and management of compensation lands. 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 the project owner and ~~CDFG~~**CDFW** before deciding whether to approve an entity to hold the project's long-term maintenance and management funds on any lands. The CPM, in consultation with the project owner and ~~CDFG~~**CDFW**, may designate another state agency or 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~~**CDFW** takes fee title to the compensation lands, ~~CDFG~~**CDFW** shall determine whether it will hold the long-term management fee in the special deposit fund, leave the money in the REAT Account, or designate another entity such as NFWF to manage the long-term maintenance and management fee for ~~CDFG~~**CDFW** and with ~~CDFG~~**CDFW** supervision.

The Project owner shall ensure that an agreement is in place with the long-term maintenance and management fee holder/manager to ensure the following conditions:

i. Interest. Interest generated from the initial capital shall be available for reinvestment into the principal and for the long-term operation, management, and protection of the approved compensation lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement measures, and any other action approved by ~~CDFG~~**CDFW** designed to protect or improve the habitat values of the compensation lands.

ii. Withdrawal of Principal. The long-term maintenance and management fee principal shall not be drawn upon unless such withdrawal is deemed necessary by the CPM, in consultation with ~~CDFG~~**CDFW**, or the approved third-party long-term maintenance and management fee manager to ensure the continued viability of the species on the compensation lands. If ~~CDFG~~**CDFW** takes fee title to the compensation lands, monies received by ~~CDFG~~**CDFW** pursuant to this provision shall be deposited in a special deposit fund established solely for the purpose to manage lands in perpetuity unless ~~CDFG~~**CDFW** designates NFWF or another entity to manage the long-term maintenance and management fee for ~~CDFG~~**CDFW**.

iii. Pooling Funds. A CPM- approved non-profit organization qualified to hold long-term maintenance and management fees solely for the purpose to manage lands in perpetuity, may pool the fund with other funds for the operation, management, and protection of the compensation lands for local populations of desert tortoise. However, for reporting purposes, the long-term maintenance and management fee fund must be tracked and reported individually to the ~~CDFG~~**CDFW** and CPM.

iv. Reimbursement Fund. The project owner shall provide reimbursement to ~~CDFG~~**CDFW** or an approved third party for reasonable expenses incurred during title, easement, and documentation review; expenses incurred from other State or State-approved federal agency reviews; and overhead related to providing compensation lands.

COMPENSATORY MITIGATION LAND SECURITY

1. Compensation Mitigation Security: The project owner shall provide security sufficient for funding acquisition, improvement, and long-term management of Swainson's hawk compensation land. 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 submitting the Security to the CPM, the Project owner shall obtain the CPM's approval, in consultation with ~~CDFG~~**CDFW** of the form of the Security.

The security amount shall be based on the estimates provided in **Biological Resources Tables ~~3.2-5~~4.** This amount shall be updated and verified prior to payment and shall be adjusted to reflect actual costs or more current estimates as agreed upon by the REAT agencies.

The Project owner shall provide verification that financial assurances have been established to the CPM with copies of the document(s) to ~~CDFG~~**CDFW**, 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 activities described in Section A of this condition.

In the event that the project owner defaults on the Security, 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. Any amount of the Security that is not used to carry out mitigation shall be returned to the Project owner upon successful completion of the associated requirements in this condition.

Security for the requirements of this condition shall be provided in the amount of $~~9,101,190.00~~**2,096,318.70** if the project owner elects to use the REAT Account with NFWF pursuant to paragraph 4 of this condition, below). The Security is calculated in part from the items that follow but adjusted as specified below (consult **Biological Resources Tables ~~3.2-5~~4** for the complete breakdown of estimated costs). However, regardless of the amount of the security or actual cost of implementation, the project owner shall be responsible for implementing all aspects of this condition.

i. land acquisition costs for compensation land, calculated at $10,000/acre;

ii. Site assessments, appraisals, biological surveys, transaction closing and escrow costs, calculated as $18,000 total per parcel (presuming 60 acres per parcel)

iii. Initial site clean-up, restoration, or enhancement, calculated at $250/acre;

iv. Third-party and agency administrative transaction costs and overhead, calculated as percentages of land cost;

v. Long-term management and maintenance fund, calculated at $1,450 per acre;

vi. NFWF fees to establish a project-specific account; manage the sub-account for acquisition and initial site work; and manage the sub-account for long term management and maintenance.

2. The project owner may elect to comply with some or all of the requirements in this condition by providing funds to implement the requirements 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 of implementing the requirement (as set forth in the Security section of this condition, paragraph 3, above). If the actual cost of the acquisition, initial protection and habitat improvements, long-term funding or other cost 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, the long-term funding requirements as established in an approved PAR or PAR-like analysis, or the other actual costs that are estimated in the table. 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~~**CDFW** 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.

4. The project owner may request the CPM to provide it with all available information about any funds held by the Energy Commission, ~~CDFG~~**CDFW** or NFWF as project security, or funds held in a NFWF sub-account for this project, or other project-specific account held by a third party. The CPM shall also fully cooperate with any independent audit that the project owner may choose to perform on any of these funds.

Verification: The project owner shall provide the CPM with either the results of the nesting surveys or written verification that the project owner shall assume presence no less than 60 days prior to ground disturbance or site mobilization. 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 verification to the CPM and ~~CDFG~~**CDFW** that an approved Security has been established in accordance with this condition of certification no later than 30 days prior to beginning Project ground-disturbing activities. 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 submitting the Security to the CPM, the project owner shall obtain the CPM's approval, in consultation with ~~CDFG~~**CDFW** of the form of the Security. The project owner, or an approved third party, shall complete and provide written verification to the CPM and ~~CDFG~~**CDFW** of the compensation lands acquisition and transfer within 18 months of the start of Project ground-disturbing activities.

No later than 12 months after the start of any ground-disturbing project activities, the project owner shall submit a formal acquisition proposal to the CPM describing the parcel(s) intended for purchase, and shall obtain approval from the CPM, in consultation with ~~CDFG~~**CDFW** 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 and ~~CDFG~~**CDFW** of such completion, no later than 18 months after the issuance of the Energy Commission Decision.

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 associated with any phase of construction. The project owner shall fully fund the required amount for long-term maintenance and management of the compensation lands for that phase of construction 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~~**CDFW** 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 for any phase of construction, 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 for that phase of construction 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 and ~~CDFG~~**CDFW** with a management plan for the compensation lands associated with any phase of construction within 180 days of the land or easement purchase, as determined by the date on the title. The CPM, in consultation with ~~CDFG~~**CDFW** 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 and ~~CDFG~~**CDFW** an analysis, based on aerial photography, with the final accounting of the amount of habitat disturbed during Project construction. If this analysis shows that more lands were disturbed than was anticipated in this condition, the project owner shall provide the Energy Commission with additional compensation lands and funding commensurate with the added impacts and applicable mitigation ratios set forth in this condition. A final analysis of all project related ground disturbance may not result in a reduction of compensation requirements if the deadlines established under this condition for transfer of compensation lands and funding have passed prior to completion of the analysis.

MOHAVE GROUND SQUIRREL HABITAT COMPENSATORY MITIGATION

ALTERNATIVE BIO-20 The project owner shall provide compensatory mitigation acreage of ~~600~~**140** acres of Mohave ground squirrel habitat lands, adjusted to

reflect the final project footprint, as specified in this condition. In addition, the project owner shall provide funding for initial improvement and long-term maintenance, enhancement, and management of the acquired lands for protection and enhancement Mohave ground squirrel populations, and comply with other related requirements of this condition.

This mitigation ratio is based on a 2:1 ratio for the power plant site. Costs of these requirements are estimated to be ~~$8,853,000.00~~**2,033,290.00** (see **Biological Resources Table ~~3.2-6~~5** for a complete breakdown of costs and acreage). All costs are best estimates as of fall 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation based on changing land costs or management fees. Regardless of the estimates, the project owner is responsible for providing adequate funding to implement the required mitigation.

In lieu of acquiring lands itself, the project owner may satisfy the requirements of this condition by depositing funds into a Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF), as described below. If the Project owner elects to establish a REAT NFWF Account and have NFWF and the agencies complete the required habitat compensation, then the total estimated cost of complying with this condition is ~~$9,143,190.00~~**2,138,318.70**. The amount of security or NFWF deposit shall be adjusted up or down to reflect any revised cost estimates recommended by REAT.

The actual costs to comply with this condition will vary depending on the final footprint of the project, the costs of acquiring compensation habitat, the costs of initially improving the habitat, and the actual costs of long-term management as determined by a Property Analysis Report or similar analysis (below). The ~~600~~**140** acre habitat requirement, and associated funding requirements based on that acreage, shall be adjusted up or down if there are changes in the final footprint of the project or the associated costs of evaluation, acquisition, management, and other factors listed in **Biological Resources Table ~~3.2-6~~5**. Regardless of actual cost, the project owner shall be responsible for funding all requirements of this condition.

COMPENSATORY MITIGATION LAND ACQUISITION

1. Method of Acquisition. Compensation lands shall be acquired by either of the two options listed below. Regardless of the method of acquisition, the transaction shall be complete only upon completion of all terms and conditions described in this Condition of Certification.

    a. The project owner shall acquire lands and transfer title and/or conservation easement to a state or federal land management agency or to a third-party non-profit land management organization, as approved by the CPM in consultation with ~~CDFG~~**CDFW**; or

b. The project owner shall deposit funds into a project-specific subaccount within the REAT Account established with the NFWF, in the amount as indicated in **Biological Resources Table ~~3.2-6~~5** (adjusted to reflect final project footprint and any applicable REAT adjustments to costs).

2. Selection Criteria for Compensation Lands. The compensation lands selected for acquisition shall:

   a. Be in the western Mojave Desert;

   b. Provide moderate to good quality habitat for Mohave ground squirrel with capacity to improve in quality and value for this species;

   c. Be a contiguous block of land (preferably) or located so they result in a contiguous block of protected habitat;

   d. Be adjacent to larger blocks of lands that are already protected, or be in a location approved by the ~~CDFG~~**CDFW**, such that there is connectivity between the acquired lands and the protected lands;

   e. Be connected to lands for which there is reasonable evidence (for example, recent [<15 years] CNDDB occurrences on or immediately adjacent to the proposed lands) suggesting current occupation by Mohave ground squirrel, ideally with populations that are stable, recovering, or likely to recover;

   f. Not have a history of intensive recreational use, grazing, or other disturbance that might make habitat recovery and restoration infeasible;

   g. 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; and

   h. Not be encumbered by easements or uses that would preclude fencing of the site or preclude or unacceptably constrain management of the site for the primary benefit of the species and their habitat for which mitigation lands were secured.

3. 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 Mohave ground squirrel 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~~**CDFW** before deciding whether to approve or disapprove the proposed acquisition.

4. Compensation Lands Acquisition Conditions: The project owner shall comply with the following conditions relating to acquisition of the

compensation lands after the CPM, in consultation with ~~CDFG~~**CDFW** approved the proposed compensation lands:

a. Preliminary Report: The Project owner, or approved third party, shall provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary or requested documents for the proposed compensation land to the CPM. 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~~**CDFW**. For conveyances to the State, approval may also be required from the California Department of General Services, the Fish and Game Commission and the Wildlife Conservation Board.

b. Title/Conveyance: The Project owner shall acquire and transfer fee title to the compensation lands, a conservation easement over the lands, or both fee title and conservation easement as required by the CPM in consultation with ~~CDFG~~**CDFW**. Any transfer of a conservation easement or fee title must be to ~~CDFG~~**CDFW**, a non-profit organization qualified to hold title to and manage compensation lands (pursuant to California Government Code section 65965), or to other public agency approved by the CPM in consultation with ~~CDFG~~**CDFW**. If an approved non-profit organization holds fee title to the compensation lands, a conservation easement shall be recorded in favor of ~~CDFG~~**CDFW** or another entity approved by the CPM. If an approved non-profit holds a conservation easement, ~~CDFG~~**CDFW** shall be named a third party beneficiary. If an entity other than ~~CDFG~~**CDFW** holds a conservation easement over the compensation lands, the CPM may require that ~~CDFG~~**CDFW** or another entity approved by the CPM, in consultation with ~~CDFG~~**CDFW**, be named a third party beneficiary of the conservation easement. The Project owner shall obtain approval of the CPM, in consultation with ~~CDFG~~**CDFW**, of the terms of any transfer of fee title or conservation easement to the compensation lands.

c. 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~~**CDFW**, before it can be used to establish funding levels or management activities for the compensation lands.

5. Compensation Lands Acquisition Costs: The Project owner shall pay all other costs related to acquisition of compensation lands and conservation easements. In addition to actual land costs, these acquisition costs shall include but shall not be limited to the items listed below. Management costs including site cleanup measures are described separately, in the following section.

a. Level 1 Environmental Site Assessment;

b. Appraisal;

c. Title and document review costs;

d. Expenses incurred from other state, federal, or local agency reviews;

e. Closing and escrow costs;

f. Overhead costs related to providing compensation lands to ~~CDFG~~**CDFW** or an approved third party;

g. Biological survey(s) to determine mitigation value of the land; and

h. Agency costs to accept the land (e.g., writing and recording of conservation easements; title transfer).

COMPENSATORY MITIGATION LAND IMPROVEMENT

1. Land Improvement Requirements: The Project owner shall fund activities that the CPM, in consultation with the ~~CDFG~~**CDFW** 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 surveys of boundaries and property lines, installation of signs, trash removal and other site cleanup measures, construction and repair of fences, invasive plant removal, removal of roads, and similar measures to protect habitat and improve habitat quality on the compensation lands.

   The costs of these activities are estimated at $250 an acre, but will vary depending on the measures that are required for the compensation lands. A non-profit organization, ~~CDFG~~**CDFW** 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~~**CDFW**, and if it is authorized to participate in implementing the required activities on the compensation lands. If ~~CDFG~~**CDFW** takes fee title to the compensation lands, the habitat improvement fund must be paid to ~~CDFG~~**CDFW** or its designee.

COMPENSATORY MITIGATION LAND LONG-TERM MANAGEMENT

1. Long-term Management Requirements: Long-term management is required to ensure that the compensation lands are managed and maintained to protect and enhance habitat for desert tortoise. Management activities may include maintenance of signs, fences, removal of invasive weeds, monitoring, security and enforcement, and control or elimination of unauthorized use.

2. Long-term Management Plan. The project owner shall pay for the preparation of a Management Plan for the compensation lands. The Management Plan shall reflect site-specific enhancement measures on the acquired compensation lands. The plan shall be submitted for approval of the CPM, in consultation with ~~CDFG~~**CDFW**.

3. Long-Term Maintenance and Management Funding. The Project owner shall provide money to establish an account with a 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 provide initial payment of ~~$870,000.00~~**203,000.00** calculated at $1,450 an acre for each compensation acre, as shown in **Biological Resources Table ~~3.2-6~~5** (above) into an account for long-term maintenance and management of compensation lands. 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 the project owner and ~~CDFG~~**CDFW** before deciding whether to approve an entity to hold the project's long-term maintenance and management funds on any lands. The CPM, in consultation with the project owner and ~~CDFG~~**CDFW**, may designate another state agency or 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~~**CDFW** takes fee title to the compensation lands, ~~CDFG~~**CDFW** shall determine whether it will hold the long-term management fee in the special deposit fund, leave the money in the REAT Account, or designate another entity such as NFWF to manage the long-term maintenance and management fee for ~~CDFG~~**CDFW** and with ~~CDFG~~**CDFW** supervision.

The Project owner shall ensure that an agreement is in place with the long-term maintenance and management fee holder/manager to ensure the following conditions:

i. Interest. Interest generated from the initial capital shall be available for reinvestment into the principal and for the long-term operation, management, and protection of the approved compensation lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement measures, and any other action approved by ~~CDFG~~**CDFW** designed to protect or improve the habitat values of the compensation lands.

ii. Withdrawal of Principal. The long-term maintenance and management fee principal shall not be drawn upon unless such withdrawal is deemed necessary by the CPM, in consultation with ~~CDFG~~**CDFW**, or the approved third-party long-term maintenance and management fee manager to ensure the continued viability of the species on the compensation lands. If ~~CDFG~~**CDFW** takes fee title to the compensation lands, monies received by ~~CDFG~~**CDFW** pursuant to this provision shall be deposited in a special deposit fund established solely for the purpose to manage lands in perpetuity unless ~~CDFG~~**CDFW** designates NFWF or another entity to manage the long-term maintenance and management fee for ~~CDFG~~**CDFW**.

iii. Pooling Funds. A CPM- approved non-profit organization qualified to hold long-term maintenance and management fees solely for the purpose to manage lands in perpetuity, may pool the fund with other funds for the operation, management, and protection of the compensation lands for local populations of desert tortoise. However, for reporting purposes, the long-term maintenance and management fee fund must be tracked and reported individually to the ~~CDFG~~**CDFW** and CPM.

iv. Reimbursement Fund. The project owner shall provide reimbursement to ~~CDFG~~**CDFW** or an approved third party for reasonable expenses incurred during title, easement, and documentation review; expenses incurred from other State or State-approved federal agency reviews; and overhead related to providing compensation lands.

COMPENSATORY MITIGATION LAND SECURITY

1. Compensation Mitigation Security: The project owner shall provide security sufficient for funding acquisition, improvement, and long-term management of desert tortoise compensation land. 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 submitting the Security to the CPM, the Project owner shall obtain the CPM's approval, in consultation with ~~CDFG~~**CDFW** of the form of the Security.

   The security amount shall be based on the estimates provided in **Biological Resources Table ~~3.2-6~~5.** This amount shall be updated and verified prior to payment and shall be adjusted to reflect actual costs or more current estimates as agreed upon by the REAT agencies.

   The Project owner shall provide verification that financial assurances have been established to the CPM with copies of the document(s) to ~~CDFG~~**CDFW**, 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 activities described in Section A of this condition.

In the event that the project owner defaults on the Security, 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. Any amount of the Security that is not used to carry out mitigation shall be returned to the Project owner upon successful completion of the associated requirements in this condition.

Security for the requirements of this condition shall be provided in the amount of ~~$9,143,190.00~~**2,138,318.70** if the project owner elects to use the REAT Account with NFWF pursuant to paragraph 4 of this condition, below). The Security is calculated in part from the items that follow but adjusted as specified below (consult **Biological Resources Table ~~3.2-6~~5** for the complete breakdown of estimated costs). However, regardless of the amount of the security or actual cost of implementation, the project owner shall be responsible for implementing all aspects of this condition.

i. land acquisition costs for compensation land, calculated at $10,000/acre;

ii. Site assessments, appraisals, biological surveys, transaction closing and escrow costs, calculated as $18,000 total per parcel (presuming 60 acres per parcel);

iii. Initial site clean-up, restoration, or enhancement, calculated at $250/acre;

iv. Third-party and agency administrative transaction costs and overhead, calculated as percentages of land cost;

v. Long-term management and maintenance fund, calculated at $1,450 per acre; and

vi. NFWF fees to establish a project-specific account; manage the sub-account for acquisition and initial site work; and manage the sub-account for long term management and maintenance.

2. The project owner may elect to comply with some or all of the requirements in this condition by providing funds to implement the requirements 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 of implementing the requirement (as set forth in the Security section of this condition, paragraph 3, above). If the actual cost of the acquisition, initial protection and habitat improvements, long-term funding or other cost 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, the long-term funding requirements as established in an approved PAR or PAR-like analysis, or

the other actual costs that are estimated in the table. 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~~**CDFW** 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 project related ground disturbance.

4. The project owner may request the CPM to provide it with all available information about any funds held by the Energy Commission, ~~CDFG~~**CDFW** or NFWF as project security, or funds held in a NFWF sub-account for this project, or other project-specific account held by a third party. The CPM shall also fully cooperate with any independent audit that the project owner may choose to perform on any of these funds.

Verification: The project owner shall provide the CPM with written notice of intent to start ground disturbance 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 verification to the CPM and ~~CDFG~~**CDFW** that an approved Security has been established in accordance with this condition of certification no later than 30 days prior to beginning Project ground-disturbing activities. 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 submitting the Security to the CPM, the project owner shall obtain the CPM's approval, in consultation with ~~CDFG~~**CDFW** of the form of the Security. The project owner, or an approved third party, shall complete and provide written verification to the CPM and ~~CDFG~~**CDFW** of the compensation lands acquisition and transfer within 18 months of the start of Project ground-disturbing activities.

No later than 12 months after the start of any phase 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~~**CDFW** 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 and ~~CDFG~~**CDFW** of such completion, no later than 18 months after the start of project related ground disturbance activities. If NFWF or another approved third party is being used for all or part of 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 associated with any phase of construction. The project owner shall fully fund the required amount for long-term maintenance and management of the compensation lands for that phase of construction 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~~**CDFW** 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 for any phase of construction, 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 for that phase of construction 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 and ~~CDFG~~**CDFW** with a management plan for the compensation lands associated with any phase of construction within180 days of the land or easement purchase, as determined by the date on the title. The CPM, in consultation with ~~CDFG~~**CDFW** 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 and ~~CDFG~~**CDFW** an analysis, based on aerial photography, with the final accounting of the amount of habitat disturbed during Project construction. If this analysis shows that more lands were disturbed than was anticipated in this condition, the project owner shall provide the Energy Commission with additional compensation lands and funding commensurate with the added impacts and applicable mitigation ratios set forth in this condition. A final analysis of all project related ground disturbance may not result in a reduction of compensation requirements if the deadlines established under this condition for transfer of compensation lands and funding have passed prior to completion of the analysis.

CULTURAL CONDITIONS OF CERTIFICATION

Staff has included the conditions of certification from the Final Decision below. Staff is proposing changes to Condition of Certification **CUL-6** to include mitigation measures in the event that damage to the California Aqueduct, PPP or other ancillary facilities of the Aqueduct cannot be avoided. Changes to the conditions of certification are shown in **bold and underline** for new text and in ~~strikethrough~~ for deleted text.

CUL-1 Prior to the start of ground disturbance (includes "preconstruction site mobilization," "construction-related ground disturbance," and "construction-related grading, boring, and trenching," as defined in the General Conditions for this project), the project owner shall obtain the services of a Cultural Resources Specialist (CRS) and one or more alternate CRSs (at the project owner's option).

The CRS shall manage all cultural resources monitoring, mitigation, curation, and reporting activities in accordance with the Conditions of Certification (Conditions). The CRS may elect to obtain the services of Cultural Resources Monitors (CRMs) and other technical specialists, if needed, to assist in monitoring, mitigation, and curation activities. The project owner 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 affected in an unanticipated manner. No ground disturbance shall occur prior to Compliance Project Manager (CPM) approval of the CRS and alternates, unless such activities are specifically approved by the CPM.

Approval of a CRS may be denied or revoked for reasons including but not limited to non-compliance on this or other projects licensed by the Energy Commission. After all ground disturbance is completed and the CRS has fulfilled all responsibilities specified in these cultural resources conditions, the project owner may discharge the CRS, if the CPM approves. With the discharge of the CRS, these cultural resources conditions no longer apply to the activities of this power plant.

CULTURAL RESOURCES SPECIALIST

The project owner shall submit the resumes and qualifications for the CRS, CRS alternates, and all technical specialists to the CPM for review and approval. 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 (36 C.F.R., part 61). In addition, the CRS shall have the following additional qualifications:

1. The CRS's qualifications shall be appropriate to the needs of the project and shall include a background in anthropology, archaeology, history, architectural history, or a related field;

2. At least three years of archaeological or historical, as appropriate (per nature of predominant cultural resources on the project site), resource mitigation and field experience in California; and

3. At least one year of experience in a decision-making capacity on cultural resources projects in California and the appropriate training and experience to knowledgably make recommendations regarding the significance of cultural resources.

The resumes of the CRS and alternate CRS shall include the names and telephone numbers of contacts familiar with the work of the CRS/alternate CRS on referenced projects and demonstrate to the satisfaction of the CPM that the CRS/alternate CRS has the appropriate training and experience to implement effectively the Conditions.

CULTURAL RESOURCES MONITORS

CRMs 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 of 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.

CULTURAL RESOURCES TECHNICAL SPECIALISTS

The resume(s) of any additional technical specialist(s), e.g., historical archaeologist, historian, architectural historian, and/or physical anthropologist, shall be submitted to the CPM for approval.

Verification:

1. At least 45 days prior to the start of ground disturbance, the project owner shall submit the resume for the CRS, and alternate(s) if desired, to the CPM for review and approval.

2. 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 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 there is no alternate CRS in place to conduct the duties of the CRS, a previously approved 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.

3. At least 20 days prior to ground disturbance, the CRS shall provide a letter naming anticipated CRMs for the project and stating that the identified CRMs meet the minimum qualifications for cultural resources monitoring required by this Condition.

4. At least 5 days prior to additional CRMs beginning on-site duties during the project, the CRS shall provide additional letters to the CPM identifying the CRMs and attesting to their qualifications.

5. At least 10 days prior to any technical specialists beginning tasks, the resume(s) of the specialists shall be provided to the CPM for review and approval.

6. At least 10 days prior to the start of ground disturbance, the project owner shall confirm in writing to the CPM that the approved CRS will be available for onsite work and is prepared to implement the cultural resources conditions.

CUL-2 Prior to the start of ground disturbance, if the CRS has not previously worked on the project, the project owner shall provide the CRS with copies of the AFC, data responses, confidential cultural resources reports, all supplements, and the Energy Commission's Final Staff Assessment (FSA) for the project. The project owner shall also provide the CRS 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 a map at an appropriate scale (e.g., 1:2000 or 1" = 200') for plotting cultural features or materials. If the CRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the CRS and CPM. The CPM shall review map submittals and, in consultation with the CRS, approve those that are appropriate for use in cultural resources planning activities. No ground disturbance shall occur prior to CPM approval of maps and drawings, unless such activities are specifically approved by the CPM.

If construction of the project would proceed in phases, maps and drawings not previously provided shall be provided to the CRS and CPM prior to the start of each phase. Written notice identifying the proposed schedule of each project phase shall be provided to the CRS and CPM.

Weekly, until ground disturbance is completed, the project construction manager shall provide to the CRS and CPM a schedule of project activities for the following week, including the identification of area(s) where ground disturbance will occur during that week.

The project owner shall notify the CRS and CPM of any changes to the scheduling of the construction phases.

Verification:

1. At least 40 days prior to the start of ground disturbance, the project owner shall provide the AFC, data responses, confidential cultural resources documents, all supplements, and the Energy Commission FSA to the CRS, if needed, and the subject maps and drawings to the CRS and CPM. The CPM will review submittals in consultation with the CRS and approve maps and drawings suitable for cultural resources planning activities.

2. At least 15 days prior to the start of ground disturbance, if there are changes to any construction-related footprint, the project owner shall provide revised maps and drawings for the changes to the CRS 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 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-3 Prior to the start of ground disturbance, the project owner shall submit the Cultural Resources Monitoring and Mitigation Plan (CRMMP), as prepared by or under the direction of the CRS, to the CPM for review and approval. The CRMMP shall follow the content and organization of the draft model CRMMP, provided by the CPM, and the authors' name(s) shall appear on the title page of the CRMMP. The CRMMP shall identify general and specific measures to minimize potential impacts to sensitive cultural resources. 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, 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.

The CRMMP shall include, but not be limited to, the following elements and measures:

1. The following statement 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. A proposed general research design that includes a discussion of archaeological research questions and testable hypotheses specifically applicable to the project area, and a discussion of artifact collection, retention/disposal, and curation policies as related to the research questions formulated in the research design. The research design will specify that the preferred treatment strategy for any buried archaeological deposits is avoidance. A mitigation plan shall be prepared for any CRHR-eligible (as determined by the CPM) resource, impacts to which cannot be avoided. A prescriptive treatment plan may be included in the CRMMP for limited data types.

3. Specification of the implementation sequence and the estimated time frames needed to accomplish all construction-related tasks during the ground disturbance and post-ground–disturbance analysis phases of the project.

4. Identification of the 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.

5. A description of the manner in which Native American observers or monitors will be included, the procedures to be used to select them, and their role and responsibilities.

6. A description of 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, and identification of areas where these measures are to be implemented. 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 construction-related effects.

7. A statement that all encountered cultural resources over 50 years old shall be recorded on Department of Parks and Recreation (DPR) 523 forms and mapped and photographed. In addition, all archaeological materials retained as a result of the archaeological investigations (survey, testing, data recovery) shall be curated 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.

8. A statement that the project owner will pay all curation fees for artifacts recovered and for related documentation produced during cultural resources investigations conducted for the project. The project owner shall identify three possible curation facilities that could accept cultural resources materials resulting from project activities.

9. A statement that the CRS has access to equipment and supplies necessary for site mapping, photography, and recovery of any cultural resource materials that are encountered during ground disturbance and cannot be treated prescriptively.

10. A statement demonstrating when and how the project owner will comply with Health and Human Safety Code 7050.5(b) and Public Resources Code 5097.98(b) and (e).

11. A description of the contents, format, and review and approval process of the final Cultural Resource Report (CRR), which shall be prepared according to ARMR guidelines.

Verification:

1. Upon approval of the CRS proposed by the project owner, the CPM will provide to the project owner an electronic copy of the draft model CRMMP for the CRS.

2. At least 30 days prior to the start of ground disturbance, the project owner shall submit the CRMMP to the CPM for review and approval.

3. At least 30 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).

4. Within 90 days after completion of ground disturbance (including landscaping), if cultural materials requiring curation were generated or collected, the project owner shall provide to the CPM a copy of an agreement with, or other written commitment from, a curation facility that meets the standards stated in the California State Historical Resources Commission's *Guidelines for the Curation of Archaeological Collections*, to accept the cultural materials from this project. Any agreements concerning curation will be retained and available for audit for the life of the project.

CUL-4 The project owner shall submit the final Cultural Resources Report (CRR) to the CPM for approval. The final CRR shall be written by or under the direction of the CRS and shall be provided in the ARMR format. The final CRR shall report on all field activities including dates, times and locations, results, samplings, and analyses. All survey reports, Department of Parks and Recreation (DPR) 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 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 90 days after completion of ground disturbance (including landscaping), the project owner shall submit the final CRR to the CPM 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 CPM approval of 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 construction-related reports.

CUL-5 Prior to and for the duration of ground disturbance, the project owner shall provide Worker Environmental Awareness Program (WEAP) training to all new workers within their first week of employment at the project site, along the linear facilities routes, and at laydown areas, roads, and other ancillary areas. The training shall be prepared by the CRS, may be conducted by any member of the archaeological team, and may be presented in the form of a video. The CRS shall be available (by telephone or in person) to answer questions posed by employees. The training may be discontinued when ground disturbance is completed or suspended, but must be resumed when ground disturbance, such as landscaping, resumes.

The training shall include:

1. A discussion of applicable laws and penalties under the law;

2. Samples or visuals of artifacts that might be found in the project vicinity;

3. A discussion of what such artifacts may look like when partially buried, or wholly buried and then freshly exposed;

4. A discussion of what prehistoric and historical archaeological deposits look like at the surface and when exposed during construction, and the range of variation in the appearance of such deposits;

5. Instruction that the CRS, alternate CRS, and CRMs have the authority to halt ground disturbance in the area of a discovery to an extent sufficient to ensure that the resource is protected from further impacts, as determined by the CRS;

6. Instruction that employees are to halt work on their own in the vicinity of a potential cultural resources discovery and shall contact their supervisor and the CRS or CRM, and that redirection of work would be determined by the construction supervisor and the CRS;

7. An informational brochure that identifies reporting procedures in the event of a discovery;

8. An acknowledgement form signed by each worker indicating that they have received the training; and

9. A sticker that shall be placed on hard hats indicating that environmental training has been completed.

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-6 The project owner shall ensure that the CRS, alternate CRS, or CRMs monitor full time all construction-related ground disturbance along the linear facilities routes, at laydown areas, roads, and other ancillary areas, and on those parts of the project site that the geo-archaeological report identified as representing a terrace landform (having a high archaeological sensitivity) to ensure there are no impacts to undiscovered resources and to ensure that known resources are not impacted in an unanticipated manner, including the Palmdale Ditch.

The project owner shall ensure that no damage to the Palmdale Ditch occurs during project construction. If the Palmdale Ditch is damaged in any way, including but not limited to disturbance of the masonry of the bridge and culverts, disturbance of the earthen profile or course, or disturbance of the tunnel mouth, the project owner shall submit to the CPM a plan for the recordation of the impacted parts of the ditch or features by an architectural historian who meets the U.S. Secretary of the Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal

Regulations, part 61 (36 C.F.R., part 61). The recordation shall meet the standards of the Historic American Engineering Record.

The project owner shall ensure that no damage to the California Aqueduct, Pearblossom Pumping Plant or other ancillary facilities of the resource (Aqueduct) occurs during project construction. If the Aqueduct would be damaged in a way that would change the eligibility of the resource, including but not limited to damage to the following character-defining features: its design as related to topography and natural features, the trapezoidal shape, the concrete lining and the ancillary infrastructure such as pumping plants and dams, the project owner shall submit to the CPM a plan for the recordation of the impacted parts of the aqueduct or features by an architectural historian who meets the U.S. Secretary of the Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61 (36 C.F.R., part 61). The recordation shall meet the standards of the Historic American Engineering Record Level I. This documentation should be completed in accordance with the Guidelines for Architectural and Engineering Documentation, published by the Department of the Interior-National Park Service, in the Federal Register/Volume 68, No. 139/Monday, July 21, 2003/Notices, pp. 43159 to 43162.

Full-time archaeological monitoring for this project shall be the archaeological monitoring of the earth-removing activities in the areas specified in the first paragraph of this condition, for as long as the activities are ongoing. Where excavation equipment is actively removing dirt and hauling the excavated material farther than fifty 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.

A Native American monitor shall be obtained to monitor ground disturbance in areas where Native American artifacts are discovered. Contact lists of interested Native Americans and guidelines for monitoring shall be obtained from the Native American Heritage Commission. Preference in selecting a monitor shall be given to Native Americans with traditional ties to the area that shall be monitored. If efforts to obtain the services of a qualified Native American monitor are unsuccessful, the project owner shall immediately

inform the CPM. The CPM will either identify potential monitors or will allow ground disturbance to proceed without a Native American monitor.

The research design in the CRMMP shall govern the collection, treatment, retention/disposal, and curation of any archaeological materials encountered.

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 with Energy Commission technical staff.

Cultural resources monitoring activities are the responsibility of the CRS. Any interference with monitoring activities, removal of a monitor from duties assigned by the CRS, or direction to a monitor to relocate monitoring activities by anyone other than the CRS shall be considered non-compliance with these Conditions.

Upon becoming aware of any incidents of non-compliance with the Conditions and/or applicable LORS, the CRS and/or the project owner shall notify the CPM by telephone or e-mail within 24 hours. The CRS shall also recommend corrective action to resolve the problem or achieve compliance with the Conditions. When the issue is resolved, the CRS shall write a report describing the issue, the resolution of the issue, and the effectiveness of the resolution measures. This report shall be provided in the next MCR for the review of the CPM.

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. Monthly, while monitoring is on-going, the project owner shall include in each MCR a copy of the monthly summary report of cultural resources-related monitoring prepared by the CRS and shall attach any new DPR 523A forms completed for finds treated prescriptively, as specified in the CRMMP.

3. Immediately upon a CRM recognizing that ~~PHPP~~**project** construction will impact the Palmdale Ditch or any associated features in an unanticipated and adverse manner, the project owner shall submit to the CPM for review and approval a plan for the recordation of the impacted parts of the ditch or features. The plan shall be prepared by an architectural historian who meets the U.S. Secretary of the Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61 (36 C.F.R., part 61). The recordation shall be conducted by such a qualified architectural historian and shall meet the standards of the Historic American Engineering Record.

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-7 The project owner shall grant authority to halt ground disturbance to the CRS, alternate CRS, and the CRMs in the event of a discovery. Redirection of ground disturbance shall be accomplished under the direction of the construction supervisor in consultation with the CRS.

In the event that a cultural resource over 50 years of age is found (or if younger, determined exceptionally significant by the CPM), or impacts to such

a resource can be anticipated, ground disturbance shall be halted or redirected in the immediate vicinity of the discovery sufficient to ensure that the resource is protected from further impacts. If the discovery includes human remains, the project owner shall comply with the requirements of Health and Human Safety Code 7050.5(b) and (c). Monitoring and daily reporting as provided in these conditions shall continue during the project's ground-disturbing activities elsewhere. The halting or redirection of ground disturbance shall remain in effect until the CRS has visited the discovery, and all of the following have occurred:

1. The CRS has notified the project owner, and the CPM has been notified within 24 hours of the discovery, or by Monday morning if the cultural resources discovery occurs between 8:00 AM on Friday and 8:00 AM on Sunday morning, including a description of the discovery (or changes in character or attributes), the action taken (i.e., work stoppage or redirection), a recommendation of CRHR eligibility, and recommendations for data recovery from any cultural resources discoveries, whether or not a determination of CRHR eligibility has been made.

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, 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, 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-8 If fill soils must be acquired from a non-commercial borrow site or disposed of to a non-commercial disposal site, unless less-than-five-year-old surveys of these sites for archaeological resources are documented to and approved by the CPM, the CRS shall survey the borrow and/or disposal site/s for cultural resources and record on DPR 523 forms any that are identified. When the survey is completed, the CRS shall convey the results and recommendations for further action to the project owner and the CPM, who will determine what, if any, further action is required. If the CPM determines that significant archaeological resources that cannot be avoided are present at the borrow site, other Conditions shall apply. The CRS shall report on the methods and results of these surveys in the final CRR.

Verification:

1. As soon as the project owner knows that a non-commercial borrow site and/or disposal site will be used, he/she shall notify the CRS and CPM and provide documentation of previous archaeological survey, if any, dating within the past five years, for CPM approval.

In the absence of documentation of recent archaeological survey, at least 30 days prior to any soil borrow or disposal activities on the non-commercial borrow and/or disposal sites, the CRS shall survey the site/s for archaeological resources. The CRS shall notify the project owner and the CPM of the results of the cultural resources survey, with recommendations, if any, for further action

HAZMAT CONDITIONS OF CERTIFICATION

Existing Hazardous Materials Management Conditions of Certification will be sufficient to reduce impacts from the proposed PEP to a less than significant level. Staff recommends that the following conditions be modified, deleted, or added to reflect the elimination of Therminol heat transfer fluid, the provision of a revised list of hazardous materials, security requirements, and the updating of Energy Commission standard conditions. All other Conditions remain the same. (Additions/revisions are in **bold underline**; deletions are in ~~strikeout~~.)

HAZ-1 During commissioning and operations, the project owner shall not use any hazardous materials not listed in Appendix B, below **from the Revised Petition to Amend (PHPP 2015d)** or in greater quantities than those identified by chemical name in Appendix B, unless approved in advance by the Compliance Project Manager (CPM). All inert gases are exempt from this requirement. Paints, thinners, laboratory reagents, and herbicides in amounts less than 20 gallons or 20 pounds are exempt from this requirement unless containing a chemical at any amount which is regulated as an extremely hazardous chemical pursuant to 40 CFR Part 355 Appendix A, or is required by the Compliance Project Manager (CPM) to be listed based upon its toxic, flammable, combustible, caustic, or explosive nature.

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 provide a **Hazardous Materials** Business Plan **(HMBP)**, a Spill Prevention, Control, and Countermeasure Plan (SPCC), ~~a Process Safety Management Plan (PSMP)~~ and a Risk Management Plan (RMP) to the Health Hazardous Materials Division of the Los Angeles County Fire Department **(HHMDLACFD)** and the CPM for review. After receiving comments from the **HHMDLACFD** ~~Health Hazardous Materials Division of the Los Angeles County Fire Department~~ and the CPM, the project owner shall reflect all recommendations in the final documents. Copies of the final plans shall then be provided to the **HHMDLACFD** ~~Health Hazardous Materials Division of the Los Angeles County Fire Department~~ for information and to the CPM for approval.

Verification: At least thirty (30) days prior to receiving any hazardous material on the site for commissioning or operations, the project owner shall provide a copy of a final **(or revised, if appropriate)** ~~Business Plan~~ **HMBP and SPCC Plan** to the CPM for approval.

At least thirty (30) days prior to delivery of aqueous ammonia to the site, the project owner shall provide the final RMP to the ~~CUPA~~ **HHMDLACFD** for information and to the CPM for approval.

~~At least thirty (30) days prior to delivery of Therminol to the site, the project owner shall provide the final PSM Plan and SPCC Plan to the CUPA for information and to the CPM for approval.~~

HAZ-3 The project owner shall develop and implement a Safety Management Plan for delivery of aqueous ammonia and other liquid and gaseous hazardous materials by tanker truck. 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 including provisions to maintain lockout control by a power plant employee not involved in the delivery or transfer operation. This plan shall be applicable during construction, commissioning, and operation of the power plant.

Verification: At least 30 days prior to the delivery of any liquid or gaseous hazardous material via tanker truck 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 aqueous ammonia storage facility shall be designed to ~~either~~ the ASME Pressure Vessel Code ~~and ANSI K61.1~~6 ~~or to API 620~~. In either case, the storage tank shall be protected by a secondary containment basin capable of holding 125 percent of the storage volume or the storage volume plus the volume associated with 24 hours of rain assuming the 25-year storm **and shall contain High Density Polyethylene (HDPE) plastic balls that would float and cover the entire surface in the event of a release of aqueous ammonia from the storage tank into the secondary containment area. These balls shall be inspected annually and any cracked or otherwise damaged balls replaced immediately.**

In addition, the pad where the tanker truck will transfer aqueous ammonia to the storage tank shall be bermed and sloped to direct spilled aqueous ammonia to flow to a grated area that would lead to a subsurface sump. The final design drawings and specifications for the ammonia storage tank, **transfer pad and its subsurface sump**, and secondary containment basin shall be submitted to the CPM.

Verification: At least 30 days prior to **the start of construction** ~~delivery of~~ **the** aqueous ammonia **storage and transfer** ~~to the~~ facility, the project owner shall submit final design drawings and specifications for the ammonia storage tank, **ammonia pumps, pipes, valves, and detectors**, **the transfer pad and its subsurface sump,** and **the storage tank** secondary containment basin to the CPM for review and approval.

In the Annual Compliance Report, the project owner shall include a report on the annual HDPE ball inspection and how many damaged balls were replaced.

HAZ-5 The project owner shall direct all vendors delivering aqueous ammonia to the site to use only tanker truck transport vehicles which meet or exceed the specifications of DOT Code MC-307.

Verification: At least 30 days prior to receipt of aqueous ammonia on site, the project owner shall submit copies of the notification letter to supply vendors indicating the transport vehicle specifications to the CPM for review and approval.

HAZ-6 The project owner shall direct all vendors delivering any hazardous material to the site for use during commissioning and commercial operations to use only the route approved by the CPM. Trucks and tankers will travel on SR-14 and exit onto East Avenue M and from which they will enter the plant site via the access road. If the route must be changed for any reason, the project owner shall obtain the review and approval of the CPM not later than ten (10) days before the next shipment of hazardous materials is due to arrive at the facility and shall notify the Los Angeles County Fire Department at the same time a request for route change is submitted to the CPM.

Verification: At least 30 days prior to receipt of any hazardous materials on site, the project owner shall submit copies of the required transportation route limitation direction to the CPM for review and approval. Any change to the route must be reviewed and approved by the CPM and must be made in writing not less than ten (10) days prior to the next shipment of hazardous materials to the facility.

~~**HAZ-7** The project owner shall place an adequate number of isolation valves in the Heat transfer Fluid (HTF) pipe loops so as to be able to isolate a solar panel loop in the event of a leak of fluid such that the volume of a total loss of HTF from that isolated loop will not exceed 1,250 gallons. These valves shall be capable of being actuated manually and remotely. 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 construction.~~

~~**Verification:** At least sixty (60) days prior to the commencement of solar array construction, the project owner shall provide the design drawings as described above to the CPM for review and approval.~~

HAZ-8 At least 30 days 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, **incident,** or emergency; and
6. Evacuation procedures.

Verification: At least 30 days prior to commencing construction, the project owner shall notify the CPM that a site-specific Construction Security Plan is available for review and approval.

HAZ-9 The project owner shall prepare a site-specific Security Plan for the operational phase and shall ~~submit it to~~ **notify** the CPM **that it is available on-site** for review and approval. The project owner shall implement site security measures addressing physical site security and hazardous materials storage. The level of security to be implemented shall not be less than that described as below (as per NERC ~~2002~~**2011**).

The Operation Security Plan shall include the following:

1. Permanent full perimeter fence or wall, at least eight feet high **and topped with a wire obstacle (e.g.: barbed wire or barbed tape)** around the **entire site** ~~Power Block and Solar Field~~ and meet the requirements specified in Condition of Certification **BIO-11.**

2. Main entrance security gate, either hand operable or motorized;

3. Evacuation procedures;

4. Protocol for contacting law enforcement and the CPM in the event of suspicious activity, **incident,** or emergency;

5. Written standard procedures for employees, contractors and vendors when encountering suspicious objects or packages on-site or off-site;

6. a. A statement (refer to sample, attachment "A") signed by the project owner certifying that background investigations have been conducted on all project personnel. Background investigations shall be restricted to ascertain the accuracy of employee identity and employment history, and shall be conducted in accordance with state and federal law 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 contractor personnel that visit the project site.

7. Site access controls for employees, contractors, vendors, and visitors;

8. A statement(s) (refer to sample, attachment "C") signed by the owners or authorized representative of ~~Therminol, hydrogen, 93% sulfuric acid, and~~ aqueous ammonia transport vendors certifying that they have prepared

and implemented security plans in conformity with 49 CFR 172.802, and that they have conducted employee background investigations in accordance with 49 CFR Part 1572, subparts A and B;

9. ~~Closed Circuit TV~~ ~~(~~CCTV~~)~~ monitoring system able to pan, tilt, and zoom (PTZ), recordable, and viewable in the power plant control room and security station (if separate from the control room) providing a view of the **entire perimeter fence line**, main entrance gate, the entrance to the control room, and the ammonia storage tank but angled and physically restricted so as to not view or record any activity at Air Force Plant 42; and

10. Additional measures to ensure adequate perimeter security consisting of either:

    a. Security guard(s) present 24 hours per day, seven days per week, **or**

    b. Power plant personnel on-site 24 hours per day, seven days per week and:

        1) The ~~northern and eastern sections of the~~ perimeter fence around the ~~solar array~~ **entire site** shall be viewable by the CCTV system; ~~**or**~~ **and**

        2) have perimeter breach detectors **or** on-site motion detectors for all fence lines.

The project owner shall fully implement the security plans and obtain CPM approval of any substantive modifications to the security plans. The CPM may authorize modifications to these measures, or may require additional measures, such as protective barriers for critical power plant components (e.g., transformers, gas lines, compressors, etc.) depending on 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~~ **Corporation** after consultation with appropriate law enforcement agencies and the applicant.

Verification: At least 30 days prior to the initial receipt of hazardous materials onsite, 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~~ updated certification statements are appended to the Operations Security Plan, **and that the plan remains current or that it has been revised in any manner. If revised, the project owner shall notify the CPM that the revised Operations Security Plan is available for review and approval.**

Also, 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.

HAZ-10 The project owner shall not allow any fuel gas pipe cleaning activities on site at any power Unit, either before placing the pipe into service or at any time during the lifetime of the facility, that involve "flammable gas blows" where natural (or flammable) gas is used to blow out debris from piping and then vented to atmosphere. Instead, an inherently safer method involving a non-flammable gas (e.g. air, nitrogen, steam) or mechanical pigging shall be used as per NFPA 56. A written procedure shall be developed and implemented as per NFPA 56, section 4.3.1

Verification: At least 30 days before any fuel gas pipe cleaning activities begin at any Unit, the project owner shall submit a copy of the Fuel Gas Pipe Cleaning Work Plan (as described in NFPA 56, section 4.3.1) which shall indicate the method of cleaning to be used, what gas will be used, the source of pressurization, and whether a mechanical PIG will be used, to the CBO for information and to the CPM for review and approval

LAND USE CONDITIONS OF CERTIFICATION

Existing Conditions of Certification **LAND-1**, **LAND-2**, and **LAND-3**, and the addition of **LAND-4** would be sufficient to reduce impacts from the proposed amendment to a less than significant level and ensure the project remains in compliance with applicable laws, ordinances, regulations, and standards. Therefore, staff does not propose any modifications to the existing conditions of certification, with the exception of a minor clarification to **LAND-3** to include the two missing digits in one of the referenced AINs and update the project name, and the addition of **LAND-4** as shown below. (**Note:** Deleted text is in ~~strikethrough~~, new text is **bold and underlined**)

LAND-1 The project owner shall coordinate with property owners of farmland that is actively in production within the proposed transmission line right-of-way. The purpose of this coordination is to: (1) schedule construction activities at a location and time when damage to agricultural operations would be minimized to the extent practicable; and (2) ensure that any areas damaged or disturbed by construction are restored to a condition that closely approximates conditions that existed prior to construction-related disturbance, to the extent practicable.

This includes avoiding construction during peak planting, growing, and harvest seasons, if feasible, based on transmission line outage limitations. If damage or destruction occurs, the applicant shall perform restoration activities on the disturbed area in order to return the area to a condition that closely approximates conditions that existed prior to construction-related disturbance. This could include activities such as soil preparation, regrading, and reseeding.

Verification: The project owner shall document coordination efforts with affected agricultural landowners, and shall submit this documentation to the CPM at least 30 calendar days prior to the start of construction activities on the affected agricultural parcels. In addition, the project owner shall document any plans for restoration activities prior to construction and document any actual restoration activities it conducts post completion of the restoration. The project owner shall submit the documentation of restoration plans to the CPM at least 30 calendar days prior to the start of construction activities on the affected agricultural parcels. The project owner shall submit the documentation of the actual restoration activities that occurred to the CPM no later than 30 calendar days after the completion of construction activities on the affected agricultural parcels.

LAND-2 The project owner shall ensure that the proposed transmission line and natural gas pipeline will be constructed and operated in compliance with the city of Palmdale's Zoning Ordinance, Chapter 2, Article 21 (Site Plan Review). The project owner shall submit a Site Plan Review to the city of Palmdale in sufficient time for review and comment, and to the Compliance Project Manager (CPM) for review and approval prior to the start of transmission line construction. The Site Plan Review shall be in compliance with the review process set forth by Chapter 2, Article 21 (Site Plan Review) of the city's

Zoning Ordinance in order to ensure that the physical plans for the project are compatible with neighboring developments, are appropriate for the site, and achieve the highest level of design that is feasible for the project.

Verification: At least 90 calendar days prior to the start of construction of the transmission line and natural gas pipeline, including any demolition, grading, trenching, or site remediation, the project owner shall submit the site plan to the city of Palmdale 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 city of Palmdale.

At least 30 calendar days prior to the start of construction, the project owner shall provide copies of any revisions to the site plan received from the city of Palmdale, along with any changes to the proposed site plan, to the CPM for review and approval.

LAND-3 The project owner shall dedicate an easement within, or adjacent to, the ~~PHPP~~**project** transmission line corridor for the Avenue S Connector Trail as required by Los Angeles County's Antelope Valley Trails Master Plan and as requested by Los Angeles County's Department of Parks and Recreation. The easement to be dedicated by the project owner shall be a minimum of a 12-foot wide trail easement from the western edge of parcel #AIN**30**39011005 to the eastern edge of parcel #AIN3039006021.

Verification: The project owner shall coordinate the dedication of a portion of the ~~PHPP~~**project** transmission line corridor to the county of Los Angeles for development of the Avenue S Connector Trail easement as approved by the Compliance Project Manager (CPM) within 180 days of the start of construction. The project owner shall provide documentation to the CPM that the dedication of the trail easement has been executed based on mutually agreed upon provisions between the project owner and the Los Angeles County's Department of Parks and Recreation, while ensuring safety and security of trail users. The documentation also shall guarantee that the easement would be located in the area specified by the county (a 12 foot wide trail easement from the western edge of parcel #AIN**30**39011005 to the eastern edge of parcel #AIN3039006021). The project owner shall provide to the CPM updates in the Annual Compliance Report on the status of easement dedication.

LAND-4 The project owner shall enter into a Franchise Agreement with the County of Los Angeles for the following portions of the transmission line that will cross County of Los Angeles public roadways:

- **Two crossings over the Sierra Highway**
- **Four crossings over the Angeles Forest Highway**
- **One crossing over Vincent View Road**

Verification: At least 15 days prior to construction of any of the crossings identified above, the project owner shall provide a copy of the approved Franchise Agreement(s) with Los Angeles County to the CPM.

NOISE & VIBRATION CONDITIONS OF CERTIFICATION

Staff does not propose any modifications to the existing conditions of certification, shown below, with the exception of one change to **NOISE-4** to update the noise level limit that reflects the amended project. (**Note:** Deleted text is in ~~strikethrough~~ and new text is **bold and underlined**)

NOISE-1 At least 15 days prior to the start of ground disturbance, the project owner shall notify all residents within one-half mile of the site and one-quarter mile of the linear facilities, 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-mentioned 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-mentioned 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 the PHPP, the project owner shall document, investigate, evaluate, and attempt to resolve all project-related noise complaints. The project owner or authorized agent shall:

1. use the Noise Complaint Resolution Form (below), or a functionally equivalent procedure acceptable to the CPM, to document and respond to each noise complaint;

2. attempt to contact the person(s) making the noise complaint within 24 hours;

3. conduct an investigation to determine the source of noise related to the complaint;

4. take all feasible measures to reduce the noise at its source if the noise is project related; and

5. 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 RESTRICTIONS

NOISE-4 The project design and implementation shall include appropriate noise mitigation measures adequate to ensure that operation of the project will not cause noise levels due solely to plant operation to exceed an average of ~~40~~**42** dBA L_{eq} measured at Measurement Location ML 1, near the residence identified as R2 in **Noise and Vibration Figure 2**. No new pure-tone components may be caused by the project. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints.

The measurement of power plant noise for the purposes of demonstrating compliance with this condition of certification may alternatively be made at a location, acceptable to the CPM, closer to the plant (e.g., 400 feet from the plant boundary) and this measured level then mathematically extrapolated to determine the plant noise contribution at the affected residence. The character of the plant noise shall be evaluated at the affected residential locations to determine the presence of pure tones or other dominant sources of plant noise.

A. When the project first achieves a sustained output of 85 percent or greater of rated capacity, the project owner shall conduct a community noise survey at Measurement Location ML 1 or at closer locations acceptable to the CPM. This survey shall be performed during power plant operation and shall also include measurement of one-third octave band sound pressure levels to determine whether new pure-tone noise components have been caused by the project.

B. If the results from the noise survey indicate that the power plant average noise level (L_{eq}) at Measurement Location ML 1 exceeds the above value,

mitigation measures shall be implemented to reduce noise to a level of compliance with this limit.

C. If the results from the noise survey indicate that pure tones are present, mitigation measures shall be implemented to eliminate the pure tones.

Verification: The survey shall take place within 30 days of the project's first achieving a sustained output of 85 percent or greater of rated capacity. Within 15 days after completing the survey, the project owner shall submit a summary report of the survey to the CPM. Included in the survey report will be a description of any additional mitigation measures necessary to achieve compliance with the above-listed noise limit and a schedule, subject to CPM approval, for implementing these measures. When these measures are in place, the project owner shall repeat the noise survey.

Within 15 days of completion of the new survey, the project owner shall submit to the CPM a summary report of the new noise survey, performed as described above and showing compliance with this condition.

NOISE-5 Following the project's first achieving a sustained output of 85 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.

CONSTRUCTION TIME RESTRICTIONS

NOISE-6 Heavy equipment operation and noisy construction work relating to any project features shall be restricted to the times of day delineated below:

Monday through Friday: 6:00 a.m. to 6:00 p.m.

Haul trucks and other engine-powered equipment shall be equipped with mufflers that meet all applicable regulations. Haul trucks shall be operated in accordance with posted speed limits. Truck engine exhaust brake use shall be limited to emergencies.

Verification: Prior to ground disturbance, the project owner shall transmit to the CPM a statement acknowledging that the above restrictions will be observed throughout the construction of the project.

STEAM BLOW RESTRICTIONS

NOISE-7 If a high-pressure steam blow is employed, the project owner shall equip steam blow piping with a temporary silencer that quiets the noise of steam blows to no greater than 92 dBA measured at a distance of 50 feet. The project owner shall conduct steam blows only during the hours of 8:00 a.m. to 5:00 p.m.

Verification: At least 15 days prior to the first steam blow, the project owner shall submit to the CPM drawings or other information describing the temporary steam blow silencer and the noise levels expected and a description of the steam blow schedule.

PUBLIC HEALTH CONDITIONS OF CERTIFICATION

Given all the information at hand, and the lack of any finding of *Legionella* bacteria in CT inlet evaporative cooler water and the potential harm added chemicals could cause the CT internal parts, staff agrees with the project owner and proposes that Condition **PUBLIC HEALTH-1** be deleted.

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 either staff's "Cooling Water Management Program Guidelines" or with the Cooling Technology Institute's "Best Practices for Control of Legionella" guidelines but in either case, the Plan must include sampling and testing for the presence of Legionella bacteria at least every six months. After two years of power plant operations, the project owner may ask the CPM to reevaluate and revise the Legionella bacteria testing requirement.~~

~~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.~~

SOCIOECONOMICS CONDITIONS OF CERTIFICATION

Staff has proposed the addition of Condition of Certification **SOCIO-1** as shown below. (**Note:** Deleted text is in ~~strikethrough~~, new text is **bold and underlined**)

SOCIO-1 Prior to the start of project construction, the project owner shall pay the one-time statutory school facility development fee to the Lancaster Elementary School District and the Antelope Valley Union High School District as required by Education Code Section 17620.

Verification: At least 30 days prior to the start of project construction, the project owner shall provide to the Compliance Project Manager (CPM) proof of payment to the Lancaster Elementary School District and Antelope Valley Union High School District of the statutory development fee.

SOIL AND WATER CONDITIONS OF CERTIFICATION

Conditions of Certification with respect to soil and water resources are proposed under Conditions of Certification **SOIL&WATER-1** through **SOIL&WATER-9** of this section. Staff has proposed modifications to the conditions of certification as shown below in **bold underline** and ~~strikethrough~~. A summary of proposed modifications to the **Soil and Water Resources** conditions of certification is presented below in **Soil and Water Table 10**.

Soil and Water Table 10
Summary of Recommended Modifications to Conditions of Certification

Condition of Certification	Recommended Modifications
SOIL&WATER-1	DRAINAGE, EROSION, AND SEDIMENT CONTROL PLAN: Minor change to update the owner name.
SOIL&WATER-2	CONSTRUCTION – STORM WATER POLLUTION PREVENTION PLAN: Minor change to make consistent with current law.
SOIL&WATER-3	WATER SUPPLY – PLANT CONSTRUCTION: Changed the water supply quality to tertiary-treated recycled water. Changed the recycled water supplier. Minor change to update the owner name.
SOIL&WATER-4	WATER SUPPLY – PLANT OPERATION: Modified the quality of recycled water supplied. Changed the recycled water supplier. Changed to require a copy of the recycled water agreement with the city of Palmdale. Minor change to update the owner name. Changed to require a new water supply acquisition agreement between the project owner and District 40 and a Will-Serve letter issued by District 40 for the PEP potable water supply as a pre-requisite to construction.
SOIL&WATER-5	WATER METERING: Included a new provision for recording the volume of recycled water trucked to PEP. Changed the start date of the reporting year. Minor change to update the owner name.
SOIL&WATER-6	HYDROSTATIC TEST WATER DISCHARGE REQUIREMENTS: Minor change to update the owner name. Called-out an acronym.
SOIL&WATER-7	ZERO LIQUID DISCHARGE SYSTEM REQUIREMENTS: Deleted due to change in power plant design petition to amend (PHPP 2015c).
SOIL&WATER-8	WASTEWATER COLLECTION SYSTEM REQUIREMENTS: Minor change to update the owner name.
SOIL&WATER-9	SEWER SERVICE CONNECTION: Minor change to update the owner name.

DRAINAGE, EROSION, AND SEDIMENTATION CONTROL PLAN

SOIL & WATER-1: Prior to site mobilization, the project ~~Palmdale Hybrid Power Project (PHPP)~~ owner shall obtain the Compliance Project Manager's (CPM's) approval for a site specific **Drainage, Erosion, and Sediment Control Plan (**DESCP**)** that ensures protection of water quality and soil resources of the **project**~~PHPP~~ site and all linear facilities for both the construction and operation phases of the **project**~~PHPP~~. This plan shall address appropriate methods and actions, both temporary and permanent, for the protection of water quality and soil resources, demonstrate no increase in

off-site flooding potential, and identify all monitoring and maintenance activities. The **project**~~PHPP~~ owner shall complete all necessary engineering plans, reports, and documents necessary for the **Compliance Project Manager (**CPM**)** to conduct a review of the **project**~~PHPP~~ and provide a written evaluation as to whether the proposed grading, drainage improvements, and flood management activities comply with all requirements presented herein. The plan shall be consistent with the grading and drainage plan condition of certification in the **Facility Design** section ~~of this Final Staff Assessment~~ and shall contain the following elements:

Vicinity Map: A map shall be provided indicating the location of all **project**~~PHPP~~ elements (including service utilities and the generator transmission line) with depictions of all significant geographic features to include watercourses, washes, irrigation and drainage canals, major utilities, and sensitive areas.

Site Delineation: The site and all **project**~~PHPP~~ elements (including service utilities and the generator transmission line) shall be delineated showing boundary lines of all construction areas and the location of all existing and proposed structures, underground utilities, roads, and drainage facilities. Adjacent property owners shall be identified on the vicinity map. All maps shall be presented at a legible scale

Drainage: The DESCP shall include the following elements:

a. Topography. Topography for offsite areas are required to define the existing upstream tributary areas to the site and downstream to provide enough definition to map the existing storm water flow and flood hazard. Spot elevations shall be required where relatively flat conditions exist.

b. Proposed Grade. Proposed grade contours shall be shown at a scale appropriate for delineation of onsite ephemeral washes, drainage ditches, and tie-ins to the existing topography.

c. Hydrology. Existing and proposed hydrologic calculations for onsite areas and offsite areas that drain to the site; include maps showing the drainage area boundaries and sizes in acres, topography and typical overland flow directions, and show all existing, interim, and proposed drainage infrastructure and their intended direction of flow.

d. Hydraulics. Provide hydraulic calculations to support the selection and sizing of the onsite drainage network, diversion facilities and Best Management Practices (BMPs).

Watercourses and Critical Areas: The DESCP shall show the location of all onsite and nearby watercourses including washes, irrigation and drainage canals, and drainage ditches, and shall indicate the proximity of those features to the construction site. Maps shall identify high hazard flood prone areas.

Clearing and Grading: The plan 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, cut/fill depths or other means. The locations of any disposal areas, fills, or other special features shall also be shown. Existing and proposed topography tying in proposed contours with existing topography shall be illustrated. The DESCP shall include a statement of the quantities of material excavated at the site, whether such excavations or fill is temporary or permanent, and the amount of such material to be imported or exported or a statement explaining that there would be no clearing and/or grading conducted for each element of the **project**~~PHPP~~. Areas of no disturbance shall be properly identified and delineated on the plan maps.

Soil Wind and Water Erosion Control: The plan shall address exposed soil treatments to be used during construction and operation of the **project**~~PHPP~~ 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 **project**~~PHPP~~ 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.

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**~~PHPP~~ element construction, and final grading/stabilization). Separate BMP implementation schedules shall be provided for each **project**~~PHPP~~ element for each phase of construction.

Best Management Practices: The DESCP shall show the location, timing, and maintenance schedule of all erosion- and sediment-control BMPs to be used prior to initial grading, during **project**~~PHPP~~ element excavation and construction, during final grading/stabilization, and after construction. BMPs shall include measures designed to control dust and stabilize construction access roads and entrances. The maintenance schedule shall include post-construction maintenance of treatment-control BMPs applied to disturbed areas following construction.

Erosion Control Drawings: The erosion-control drawings and narrative shall be designed, stamped and sealed by a professional engineer or erosion-control specialist.

Agency Comments: The DESCP shall include copies of recommendations, conditions, and provisions from the County of Los Angeles, California Department of Fish and ~~Game~~**Wildlife** (**CDFW~~G~~**), and Lahontan Regional Water Quality Control Board (RWQCB).

Monitoring Plan: Monitoring activities shall include routine measurement of the volume of accumulated sediment in the onsite drainage ditches, and storm water diversions.

Verification: The DESCP shall be consistent with the grading and drainage plan as required by Condition of Certification **CIVIL-1**, and shall be approved by the chief building official (CBO) and ~~Compliance Project Manager (~~CPM~~)~~. In addition, the **project**~~PHPP~~ owner shall do all of the following:

a. No later than sixty (60) days prior to start of site mobilization, the **project**~~HPP~~ owner shall submit a copy of the DESCP to the city of Palmdale, County of Los Angeles, and the RWQCB for review and comment. The CBO and CPM shall consider the comments received from the city of Palmdale, County of Los Angeles, and RWQCB in their approval of the DESCP.

b. During construction, the **project**~~PHPP~~ owner shall provide a monthly compliance report on the effectiveness of the drainage, erosion, and sediment control measures and the results of monitoring and maintenance activities. Reporting the effectiveness shall include a table listing: (1) each drainage, erosion, and sediment control measure; (2) the monitoring frequency of the drainage, erosion, and sediment control measure; and (3) the maintenance performed, if any, to that measure during the monthly reporting period.

c. Once operational, the **project**~~PHPP~~ owner shall provide in the annual compliance report information on the results of storm water BMP monitoring and maintenance activities.

d. Provide the CPM with two (2) copies each of all monitoring or other reports required for compliance with Los Angeles County, CDFG, and RWQCB.

CONSTRUCTION – STORM WATER POLLUTION PREVENTION PLAN

SOIL&WATER-2: The project owner shall fulfill the requirements contained in State Water Resources Control Board's ~~*National Pollutant Discharge Elimination System (NPDES)*~~ *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities Order No. 2009-0009-DWG,* ***as Modified by 2010-0014-DWQ,*** *NPDES No. CAS000002* and all subsequent revisions and amendments. The project owner shall develop and implement a construction Storm Water Pollution Prevention Plan (SWPPP) for the construction of the project.

Verification: Thirty (30) days prior to site mobilization, the project owner shall submit the construction SWPPP to the CBO and CPM for approval. A copy of the approved construction SWPPP shall be kept accessible onsite at all times.

WATER SUPPLY – CONSTRUCTION WATER

SOIL&WATER-3: The **project**~~PHPP's~~ proposed use of ~~secondary-treated~~ **recycled** water during construction for dust control and soil compaction shall be ~~secondary-23~~ **disinfected tertiary-treated** recycled water ~~from~~ **supplied by** the **city of** Palmdale. ~~Water Reclamation Plant (District No. 20) and~~ **Use of this recycled water** shall meet the requirements of CCR Title 22, Division 4, Chapter 3 and Title 17~~, Division 1, Chapter 5. Hydrostatic test water shall be disinfected tertiary treated recycled water from District No. 20 and shall also meet the requirements of CCR Title 22, Division 4, Chapter 3 and Title 17, Division 1, Chapter 5~~. The project owner shall provide the CPM two (2) copies of the executed agreement between the applicant and the ~~County of Los Angeles Sanitation District No. 20~~ **city of Palmdale** for the supply of recycled water ~~for PHPP construction~~. This agreement shall specify all terms and costs for the receipt and use of recycled water ~~by the PHPP~~. The **project**~~PHPP~~ shall not use recycled water from District No. 20 for **project**~~PHPP~~ construction until this agreement is executed.

Verification: No later than sixty (60) days prior to construction, the **project**~~PHPP~~ owner shall submit two (2) copies of the executed agreement for the supply and onsite use of ~~secondary-23 and~~ **disinfected** tertiary-treated recycled water ~~from~~ **supplied by the city of** Palmdale ~~District No. 20~~ for **project**~~PHPP~~ construction.

If construction water is provided by a pipeline connected to the Palmdale WRP, then the **project**~~PHPP~~ owner shall submit to the CPM two (2) copies of the Engineering Report and Cross Connection inspection report and include all comments from the Lahontan RWQCB and the California Department of Public Health (DPH) prior to the delivery of recycled water from District No. 20.

WATER SUPPLY – OPERATION WATER

SOIL&WATER-4: The project's use of water for **project**~~PHPP~~ operations shall be **potable water from the Los Angeles County Department of Public Works (LACDPW) and** tertiary-treated **recycled** water from the **city of Palmdale. Use of recycled water** ~~Los Angeles County LACWD regional supply~~ shall comply with CCR Title 22~~, Division 4, Chapter 3~~ and Title 17~~, Division 1, Chapter 5~~. **The project owner shall provide the CPM a copy of an agreement demonstrating the city of Palmdale is committed to delivery of recycled water.**

As a pre-requisite to construction, the project owner shall provide the CPM a copy of the New Water Supply Entitlement Acquisition agreement between the project power and District 40 demonstrating the necessary fees have been paid and Will-Serve letter for the potable water supply demonstrating the District 40 is committed to delivery of potable water.

Verification: Prior to construction, the project owner shall provide a copy of the executed New Water Supply Entitlement Acquisition agreement and Will-Serve letter for potable water supply from District 40.

No later than thirty (90) days prior to construction, the project owner shall provide a copy of the executed agreement with city of Palmdale for the recycled water supply.

No later than sixty (60) days prior to operation, the **project**~~PHPP~~ owner shall submit the Engineering Report and Cross Connection inspection report **for the recycled water supply** to the Lahontan RWQCB, California Department of Public Health (DPH), and CBO. The **project**~~PHPP~~ owner shall submit to the CPM two (2) copies of the Engineering Report and Cross Connection inspection report and include all comments from the Lahontan RWQCB and California DPH prior to ~~the~~ **accepting** delivery of recycled water ~~from the LACWD~~.

WATER METERING

SOIL&WATER-5: Prior to the ~~use of~~ **connection to a** potable or recycled water **service** ~~for construction and operation of the PHPP~~, the project owner shall install and maintain metering devices as part of the water supply and distribution system to monitor and record the volume of potable and recycled water supplied to the **project**~~PHPP~~. The metering devices shall be operational for the life of the project.

If recycled water is trucked to the project, the project owner shall keep daily logs of the volume of recycled water in each truckload delivered to the project.

A semi-annual summary of the **project**~~PHPP~~ construction daily maximum, monthly average, monthly total, and annual total water use, differentiating between potable and recycled water, shall be submitted; to the CPM in the annual compliance report.

An annual summary of the **project**~~PHPP~~ operation daily maximum, monthly average, monthly total, and annual total water use, differentiating between potable and recycled water, shall be submitted; to the CPM in the annual compliance report.

The daily and monthly water use shall be reported; in gallons per day, and the semi-annual and annual water use shall be reported in acre-feet per year. For calculating the total water use, the term “year” **begins on January 1.**~~would correspond to the date established for the annual compliance report submittal~~.

Verification:

1. At least sixty (60) days prior to use of any water source for **project**~~PHPP~~ construction and operation, the **project**~~PHPP~~ owner shall submit to the CPM evidence that metering devices have been installed and are operational on the potable and recycled pipelines serving the **project**~~PHPP~~ construction and operation. The **project**~~PHPP~~ owner shall provide a report on the servicing, testing, and calibration of the metering devices in the annual compliance report.

2. Beginning six (6) months after the start of construction, the **project**~~PHPP~~ owner shall prepare a semi-annual summary of the daily maximum, monthly average, monthly total, and annual total amount of water used for construction purposes.

3. Annually, the **project**~~PHPP~~ owner shall prepare a summary of the daily maximum, monthly average, monthly total, and annual total water use.

HYDROSTATIC TEST WATER DISCHARGE REQUIREMENTS

SOIL&WATER-6: The **project**~~PHPP~~ owner shall discharge all hydrostatic test water in accordance with the ~~Palmdale~~ NPDES permit. The project owner shall comply with ~~the Sanitation Districts of Los Angeles County (~~LACSD~~)~~ Wastewater Ordinance requirements for appropriate management of these discharges.

Verification: Prior to the discharge of hydrostatic test water into the LACSD sewer system, the project owner shall do all of the following:

1. Analyze both carbon and non-carbon steel piping test water in accordance with LACSD specified analyses prior to discharge or disposal of the test water;

2. Submit those analyses together with a tabulated summary of the analytical results and corresponding acceptable limits to the CPM for review and the LACSD for approval and a copy to the CBO. If discharge to the sewer system is approved by the LACSD, include a copy of the approval letter in the annual compliance report.

3. If discharge of either the carbon or non-carbon steel piping test water to the sewer system is not approved by the LACSD, then submit a copy of the disposal receipt issued by a water treatment plant in the annual compliance report.

~~ZERO LIQUID DISCHARGE SYSTEM REQUIREMENTS~~

SOIL&WATER-7: Deleted per staff analysis of petition to amend (PHPP 2015c)

~~The PHPP owner shall treat all process wastewater streams with a zero liquid discharge (ZLD) system. The PHPP owner shall operate the ZLD system in accordance with a ZLD management plan approved by the CPM. The ZLD management plan shall include the following elements:~~

~~a. A flow diagram showing all water sources and wastewater disposal methods at the PHPP;~~

~~b. A narrative of expected operation and maintenance of the ZLD system;~~

~~c. A narrative of the redundant or back-up wastewater disposal method to be implemented during periods of ZLD system shutdown or maintenance;~~

~~d. A maintenance schedule;~~

~~e. A description of on-site storage facilities and containment measures;~~

~~f. A table identifying influent water quality; and~~

~~g. A table characterizing the constituent concentrations of the solid waste or brine and specifying the permit limits of the selected landfill.~~

~~The PHPP operation and wastewater production shall not exceed the treatment capacity of the ZLD system or result in an industrial wastewater discharge.~~

Verification: ~~At least sixty (60) days prior to the start of commercial operation, the PHPP owner shall submit to the CPM evidence that the final design of the ZLD system has the approval of the CBO. At least sixty (60) days prior to the start of commercial operation, the PHPP owner shall prepare a ZLD management plan for review and approval by the CPM. The ZLD management plan shall be updated by the PHPP owner and submitted to the CPM for review and approval if a change in water source or infrastructure is needed.~~

~~In the annual compliance report, the PHPP owner shall submit a status report on operation of the ZLD system, including dates and length of disruptions, maintenance activities performed, and volumes of interim wastewater streams stored onsite. The annual compliance report shall contain an evaluation of whether the ZLD is being operated within the parameters described in the ZLD management plan. The ZLD management plan shall be updated by the PHPP owner if the CPM has determined it is necessary based on information presented in the Annual Compliance Report.~~

WASTEWATER COLLECTION SYSTEM REQUIREMENTS

SOIL&WATER-8: The **project**~~PHPP~~ owner shall recycle and reuse all process wastewater streams to the extent practicable. Prior to transport and disposal of any facility operation wastewaters that are not suitable for treatment and reuse onsite, the **project**~~PHPP~~ owner shall test and classify the stored wastewater to determine proper management and disposal requirements. The **project**~~PHPP~~ owner shall ensure that the wastewater is transported and disposed of in accordance with the wastewater's characteristics and classification and all applicable LORS (including any CCR Title 22 Hazardous Waste and Title 23 Waste Discharges to Land requirements).

Verification: In the annual compliance report, the **project**~~PHPP~~ owner shall provide the CPM with a report of test results of any wastewater that is not suitable for treatment and reuse onsite, the classification of this wastewater, and documentation of the proper management and disposal of this wastewater, including but not limited to non-hazardous and hazardous waste manifest.

SEWER SERVICE CONNECTION

SOIL&WATER-9: Prior to commercial operation, the project owner shall provide the CPM and the County of Los Angeles Sanitation District No. 20 (Palmdale WRP) all information and documentation required to satisfy LACSD No. 20 Wastewater Ordinance, Master Ordinance and Rate and Mean Loadings Ordinance for the discharge of sanitary wastewater into the LACSD No. 20 sewer system. During operation, any monitoring reports provided to LACSD

No. 20 shall also be provided to the CPM. The CPM shall be notified of any violations of discharge limits or amounts.

Verification: At least sixty (60) days prior to commercial operation, the project owner shall submit the information and documentation required to satisfy LACSD No. 20 Wastewater Ordinance, Master Ordinance and Rate and Mean Loadings Ordinance for review and comment, and to the CPM and the CBO for review and approval.

During **project**~~PHPP~~ operation, the project owner shall submit any wastewater quality monitoring reports required by LACSD No. 20 to the CPM in the annual compliance report. The project owner shall submit any notice of violations from LACSD No. 20 to the CPM within ten (10) days of receipt and fully explain the corrective actions taken in the annual compliance report.

TRAFFIC & TRANSPORTATION CONDITIONS OF CERTIFICATION

Staff is proposing a minor change to Condition of Certification **TRANS-1** to reflect the change to the project's name. Modifications to Conditions of Certification **TRANS-2** and **TRANS-4** are for clarification purposes and to reflect the different project design. Changes to **TRANS-5** are editorial in nature. Deletion of **TRANS-8** and **TRANS-9** reflect the removal of the solar component of the project. Modifications are shown in ~~strike-through~~ for deletions and **bold / underline** for additions.

TRANS-1 The project owner shall prepare and implement a construction traffic control plan. The traffic control plan must include but not be limited to the following issues:

- Schedule construction activities such that traffic will arrive and depart from the power plant site during non-peak traffic hours to the extent practicable taking into consideration Condition **AQ-SC-6**. During the months of October through March when such scheduling may not be feasible, prepare and distribute a map showing acceptable access routes to the plant site that avoid the SR-14 / Avenue M interchange during peak hours, such as SR-14 to Avenue L east to Sierra Highway south on Sierra Highway to Avenue M and east to the **power plant** ~~PHPP~~ site;
- Make improvements to East Avenue M (e.g. turn and acceleration/deceleration lanes) consistent with the existing project access features to allow for safe arrival/departure to/from the project site;
- Limit heavy equipment and building materials deliveries between 9:30 am and 3:30 pm, per Palmdale General Plan Circulation Element, to minimize impacts and route truck traffic around residential development;
- Provide signing, lighting, and traffic control device placement during construction impacting regional and local roadways;
- Ensure construction traffic avoids using the SR-14 on and off-ramps to East Avenue M and the intersection of Sierra Highway and East Avenue M during peak morning and afternoon traffic periods;
- Traffic diversion plans (in coordination with the cities of Palmdale and Lancaster) to ensure access during temporary lane/road closures;
- Ensure access for emergency vehicles to the project site;
- Ensure pedestrian and bicycle safety from construction vehicle travel routes and any construction-related temporary travel lane closures or disruptions;
- Temporary closure of travel lanes or disruptions to street segments and intersections during reconductoring activities or any other utility tie-ins;
- Establish a parking plan for workers, construction vehicles, and trucks during transmission line and pipeline construction;
- Installation of the natural gas pipeline and water line to occur during nonpeak hours; and

- Use flagging, flag men, signage, and cover open trenches when needed; and
- All road paving activities shall comply with engineering design standards for road development pursuant to guidelines mandated by the Public Works Departments of the City of Palmdale and the County of Los Angeles as appropriate.

Verification: At least 90 days prior to the start of site mobilization, the project owner shall submit a traffic control plan that outlines each component above to Caltrans and the cities of Palmdale and Lancaster Planning Departments for review and comment and to the **Compliance Project Manager (**CPM**)** for review and approval. The project owner shall provide the CPM with any comments from Caltrans and the cities of Palmdale and Lancaster.

TRANS-2 The project owner shall obtain Determinations of No Hazard to Navigable Airspace from the **Federal Aviation Administration (**FAA**)** for U.S. Air Force Plant 42 regarding the project's transmission towers, **HRSG structure, HRSG stack, combustion turbine enclosures, combustion turbine air inlet filters, combustion turbine oil skid and coolers, steam turbine generator step-up transformer, air cooled condenser, steam turbine generator enclosure, low pressure steam turbine, steam turbine building** ~~cooling tower, clarified water tank, crystallizer,~~ **and construction crane** that would penetrate Plant **42's** airspace.

Verification: At least 90 days prior to the construction, the project owner shall provide the CPM copies of the FAA Determinations of No Hazard to Navigable Airspace regarding the project structures identified above and the project owner must comply with specific recommendations contained in the FAA determinations.

TRANS-3 The project owner shall comply with Caltrans and other relevant jurisdictions' limitations on vehicle sizes and weights used during construction and operation. In addition, the project owner or its contractor shall obtain necessary transportation permits from Caltrans and all relevant jurisdictions for roadway use.

Verification: The project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

TRANS-4 Pilot Notification and Awareness

The project owner shall initiate the following actions to ensure pilots are aware of the project location and potential hazards to aviation:

(a) Submit a letter to the FAA requesting a Notice to Airmen (NOTAM) be issued advising pilots of the location of the **power plant** ~~PHPP~~ and recommending avoidance of overflight of the project site below 1,500 feet AGL. The letter shall also request that the NOTAM be maintained in active status until all navigational charts and Airport Facility Directories (AFDs) have been updated.

(b) Submit a letter to the FAA requesting a power plant depiction symbol be placed at the **power plant** site location on the Los Angeles

Sectional Chart with a notice to "avoid overflight below 1,500 feet AGL".

(c) Submit a request to and coordinate with the USAF Plant **42** Commander to add a new remark to the Automated Surface Observing System (ASOS) identifying the location of the **power plant** and advising pilots to avoid direct overflight below 1,500 feet AGL as they approach or depart the airport.

(d) Request ~~that TRACON (SOCAL) and/or the Los Angeles Air Traffic Control Center~~ **The project owner shall** submit aerodrome remarks describing the location of the ~~PHPP~~ **power** plant and advising against direct overflight below 1,500 feet AGL to:

1. FAA ~~AeroNav Services, formerly the FAA National Aeronautical Charting Office (Airport/Facility Directory)~~ **Airport/Facility Directory - Southwest U.S.**

2. Jeppesen ~~Sanderson Inc.(JeppGuide Airport Directory, Western Region)~~ (**Airway Manual Services - Western U.S. Airport Directory** ~~Region~~

3. Airguide ~~**Publications (Flight Guide, Western States)**~~ **Pilot's Guide to California Airports**

(e) Install one, non-blinking red aviation obstruction light on each of the project's two, **160**~~145~~-foot tall HRSG stacks, both ends of the **135**~~48~~-foot tall **air cooled condenser** ~~cooling tower,~~ and at each corner of the power block area.

Verification: ~~Within 30~~ **No later than 60** days **prior to** ~~following~~ **the start of construction**, the project owner shall submit draft language for the letters of request to the FAA (including ~~SOCAL~~ **Southern California** TRACON) and Plant 42 to the CPM for review and approval.

~~At least 60 days prior to the start of operations~~, **Within** 60 days **after CPM approval of draft language for the letter of request to the FAA (including Southern California TRACON),** the project owner shall submit the required letters of request to the FAA and request that **Southern California** TRACON ~~(SOCAL)~~ submit aerodrome remarks to the listed agencies. The project owner shall submit copies of these requests to the CPM. A copy of any resulting correspondence shall be submitted to the CPM within 10 days of receipt**. The letters should request a response within 30 days which should include a timeline for implementing the suggested remarks in identified publications and designation on the chart mentioned above. If the FAA does not respond within 30 days, the project owner shall contact the CPM.**[1]
~~If the project owner does not receive a response from any of the above agencies within 45 days of the request, the project owner shall follow up with a letter to the respective~~

[1] **The Energy Commission does not have the authority to compel issuance of a NOTAM or require the FAA or U.S. Air Force Plant 42 to publish the location of or remarks regarding the project in any aviation chart or guide, or add that information to the U.S. Air Force Plant 42 ASOS.**

~~agency/ies to confirm implementation of the request. A copy of any resulting correspondence shall be submitted to the CPM within 10 days of receipt.~~

~~The project owner shall contact the CPM within 72 hours if notified that any or all of the requested notices cannot be implemented[2]. Should this occur, the project owner shall appeal such a determination, consistent with any established appeal process and in consultation with the CPM. A final decision from the jurisdictional agency denying the request, as a result of the appeal process, shall release the project owner from any additional action related to that request and shall be deemed compliance with that portion of this condition of certification.~~

TRANS-5 The project owner shall repair any damage to roadways affected be construction activity along with the primary roadways identified in the traffic control plan for construction related traffic to the road's pre-project construction condition.

Verification: At least 90 days prior to the start of site mobilization, the project owner shall photograph, videotape, or digitally record images of the roadways that will be affected by any underground utility connection construction and heavy construction traffic. The project owner shall provide the CPM, **Chief Building Official (**CBO**) or delegate** and the ~~city~~ **cities** of Palmdale and Lancaster with a copy of the images for the roadway segments under its jurisdiction. Also prior to start of construction, the project owner shall notify the cities about the schedule for project construction. The purpose of this notification is to postpone any planned roadway resurfacing and/or improvement projects until after the project construction has taken place and to coordinate construction-related activities associated with other projects.

Within 30 days prior to the commencement of project operations, the project owner shall meet with the CBO and the cities of Palmdale and Lancaster to determine the actions necessary and schedule the repair of identified sections of public roadways and restore the **right-of-way (**ROW**)** to original or as near-original condition as possible. Following completion of any road improvements, the project owner shall provide to the CPM and CBO comment letters from the cities of Palmdale and Lancaster stating whether the work completed within public rights-of-way meets city standards. If the CPM and CBO determine that additional work is needed to meet city standards, the CPM will direct the project owner to complete the additional work.

TRANS-6 The project owner shall provide emergency access that complies with the city of Palmdale General Plan Circulation Element and requirements of the Los Angeles County Fire Department.

Verification: At least 90 days prior to the start of construction, the project owner shall provide plans to the Los Angeles County Fire Department and Palmdale Public Works Department for review and comment, and the CPM and CBO for review and approval, which demonstrate that emergency access will be provided in compliance with city of Palmdale and Los Angeles County Fire Department standards. The project owner

[1] ~~The Energy Commission does not have the authority to compel issuance of a NOTAM or require the FAA or Byron Airport to publish the location of or remarks regarding the project in any aviation chart or guide, or add that information to the Byron Airport ASOS.~~

shall provide the CPM with any comment letters received from the city of Palmdale and/or Los Angeles County Fire Department. Adequate emergency access shall be provided prior to the start of project operations.

TRANS-7 The project owner shall ensure that all necessary permits and/or licenses are secured from the U.S. Department of Transportation, California Highway Patrol, Caltrans and the cities of Palmdale and Lancaster for the transport of hazardous materials.

Verification: The project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

~~**TRANS-8** Prior to the start of construction, the project owner shall provide a plan to the CPM and the Air Force Plant 42 Commander identifying all reasonable measures the project owner will take to minimize the creation of glint and glare on Air Force Plant 42 airfield traffic including, but not limited to, the following:~~

~~1. Ensure the mirrors are (1) brought out of stowage before sunrise and are aligned to catch the first rays of the morning sun; and (2) returned to stow position after sunset. Ensure mirrors are continuously monitored for malfunctions and remain properly aligned with the sun. Acquire appropriate equipment and establish procedures for a timely repositioning of inoperative or malfunctioning mirrors to minimize the probability of glint or glare exposure. Procedures shall address the mirror trajectory path to a stowage position, or in the event that stowage is not possible, an alternate trajectory to a neutral positioning with respect to glare. Mirror repositioning due to a mirror alignment malfunction shall be accomplished as soon as practical to minimize glint or glare exposure.~~

~~2. Minimize reflections from bellows shields by using a non-reflective or diffuse material or coating (for example, paint) for the shields.~~

~~3. Ensure PHPP operator establishes and maintains a communication link with Air Force Plant 42 control tower to ensure that when necessary mirrors are positioned so as not to interfere with critical flight operations.~~

~~4. Establish procedures to avoid glare when intentionally moving individual collector's off-axis to "dump" power incident on the heat collection elements during periods of high insolation.~~

~~The plant operator shall develop and implement a plan to address events in which mirror modules need to be rotated off-axis, such as an event in which it is necessary to dump power. The mirrors' rotational trajectory and final positioning shall ensure the safe movement and positioning of the mirror modules with respect to operational flight~~

patterns to minimize the occurrence and impact of glint or glare events.

In addition, this plan shall include specific provisions for tracking and compiling data involving any and all mirror malfunctions. This data shall include the (1) date, time and location of offending mirror or mirrors; (2) specific adjustments made to correct each mirror or mirrors; (3) date and time specific adjustments were evaluated for effectiveness; and (4) effectiveness of each adjustment. That information shall be included in the monthly compliance reports during construction and in the semi-annual compliance reports during operation. This information will be used to ensure that the offending mirrors are quickly adjusted, thereby having a minimum impact on flight operations. In addition, this information will provide data for the plant operator to use in monitoring mirror operations and preventing malfunctions.

Verification: Within 30 days prior to the start of construction, the project owner shall submit the required plan to the Air Force Plant 42 Commander for comment and to the CPM for review and approval. The project owner shall also notify the CPM when the required modifications have been made and are available for inspection.

In addition, the project owner shall include in the monthly compliance reports all data concerning malfunctions of any mirrors during construction and initial start-up operation of the plant and in the semi-annual compliance reports during regular operation.

TRANS-9 Throughout the construction and operation of the project, the project owner shall work with the Air Force Plant 42 Commander or his or her designated representative to develop and implement a process for documenting, investigating, evaluating, and resolving all project-related glare complaints.

The project owner or authorized agent shall:

1. Work with the Commander, Air Force Plant 42 or his or her designated representative to develop a procedure for quickly resolving complaints. The process shall include a means for immediately alerting through telephone or other means the project owner of a glint and glare complaint as well as a Complaint Resolution Form (below), or functionally equivalent procedure acceptable to the CPM, Commander, Air Force Plant 42, and the project owner to document and respond to each complaint.

2. Investigate each complaint and contact the Commander, Air Force Plant 42, or his or her designated representative within 24 hours to report on actions to be taken to resolve complaint.

3. If glint or glare is project-related, project owner shall take all feasible measures to reduce glint and glare at its source within 24 hours or will

notify the Commander as soon as possible when such measures can be completed.

4. As soon as the complaint has been resolved to the satisfaction of the Commander, Air Force Plant 42, or his or her designated representative, submit to the CPM a report in which the complaint as well as the actions taken to resolve the complaint are documented. The report shall include (1) specific details of the complaint as well as (2) information about the final results of glare reduction efforts; and (3) a signed statement by Commander, Air Force Plant 42, or his or her designated representative, in which the complainant states that the glare problem is resolved to his or her satisfaction.

Verification: Thirty days prior to the start of mirror installation, the project owner shall provide copies of the glare resolution form to the Commander, Air Force Plant 42 or his or her designated representative. This form shall include the name and telephone number of the project owner's designated representative authorized to take action to resolve complaints of glint and glare. Within five business days of receiving a glare complaint, the project owner shall file the Glare Complaint Resolution Form in which he or she has documented the resolution of the complaint with the CPM and the Commander, Air Force Plant 42 or his or her designated representative. If the mitigation required to resolve a complaint is not completed within three business days from the date the complaint is received, the project owner shall submit an updated glare resolution form to the CPM and the Air Force Plant 42 Commander or his or her designated representative when the mitigation is implemented along with the items indicated in item number 4, above.

APPENDIX TT-1: PLUME VELOCITY ANALYSIS

Nancy Fletcher

INTRODUCTION

The following analysis assesses exhaust stack plume vertical velocities of the proposed PEP, CTGs, HRSGs, and ACC exhaust plumes. Staff completed calculations to determine the worst-case vertical plume velocities at different heights above the ground based on the project owner's proposed facility design, with staff corrections to some of the operational data. The purpose of this appendix is to provide documentation of the method used to estimate worst-case vertical plume velocity estimates to assist evaluation of the project's impacts on aviation safety in the vicinity of the PEP.

SUMMARY OF THE DECISION

On August 10, 2011, the Energy Commission approved the Palmdale Hybrid Power Plant (PHPP), a 570 MW (nominal output) hybrid of a natural gas-fired combined-cycle generating equipment integrated with solar thermal generating equipment. The Final Commission Decision (CEC 2011b) for the PHPP evaluated the potential for thermal plumes to be generated from the two HRSG stacks and a ten-cell cooling tower. The Final Commission Decision concluded the turbine and cooling tower could generate thermal plumes with velocities exceeding the 4.3 m/s threshold up to a height of 990 feet above ground level for the HRGS and 875 feet above ground level for the cooling tower.

PROJECT DESCRIPTION

The proposed PEP would be a natural-gas-fired, combined-cycle, air-cooled electrical generating facility located in the city of Palmdale in the Antelope Valley. The PEP power block would consist of two 214 MW Siemens SGT6-5000F combustion turbines with inlet evaporative cooling and dry low NOx combustors, one 276 MW (nominal base load) Siemens steam turbine, and two heat recovery steam generators (HRSGs) with duct burners. The PEP would employ dry cooling through an air cooled condenser (ACC). The PEP would also include a 110 MMbtu/hr natural gas fired auxiliary boiler, two emergency engines and other ancillary equipment.

PLUME VELOCITY CALCULATION METHOD

SPILLANE APPROACH

Staff uses a calculation approach from a technical paper (Best 2003) to estimate the worst-case plume vertical velocities for vertical turbulence from plumes such as the PEP stacks and cooling system. The calculation approach, known as the "Spillane approach", is based on calm wind conditions to assess average plume vertical velocity as a function of height. Calm wind conditions are considered the worst-case wind

conditions for worst case plume rise and velocities. The Spillane approach uses the following equations to determine vertical velocity for single stacks during dead calm wind (i.e., wind speed = 0) conditions:

(1) $(V*a)^3 = (V*a)_o^3 + 0.12*F_o*[(z-z_v)^2-(6.25D-z_v)^2]$

(2) $(V*a)_o = V_{exit}*D/2*(T_a/T_s)^{0.5}$

(3) $F_o = g*V_{exit}*D^2*(1-T_a/T_s)/4$

(4) $Z_v = 6.25D*[1-(T_a/T_s)^{0.5}]$

Where: V = vertical velocity (meters per second [m/s]), plume-average velocity

a = plume top-hat radius (m, increases at a linear rate of $a = 0.16*(z- z_v)$

F_o= initial stack buoyancy flux m^4/s^3

z = height above stack exit (m)

z_v= virtual source height (m)

V_{exit}= initial stack velocity (m/s)

D = stack diameter (m)

T_a= ambient temperature (K)

T_s= stack temperature (K)

g = acceleration of gravity (9.8 m/s^2)

Individual plumes can be broken into three stages. The first stage describes plume conditions close to the stack exit where the plume momentum remains relatively unaffected by ambient and plume buoyancy conditions. This momentum rise stage describes the plume as it travels to a height of 6.25D. In the second stage, the plume responds to differences between ambient and plume buoyancy conditions. Cooler and less turbulent ambient air interacts with the plume and impacts the plume's vertical velocity. The dilution of the stack exhaust is sensitive to ambient wind speed. Therefore the calm wind conditions are considered to be conservative and yield worst case conditions. In the third stage, the plume rise is largely impacted by the buoyancy of the plume and continues until turbulence within and outside the plume equalizes. This generally takes place at large heights and distances form the stack where the plume vertical velocity is close to zero.

Equation (1) is solved for V at any given height above stack exit that is above the momentum rise stage for single stacks (where z > 6.25D) and at the end of the plume merged stage for multiple plumes. This solution provides the plume-average velocity for the area of the plume at a given height above stack exit; the peak plume velocity would be two times higher than the plume-average velocity predicted by this equation. The stack buoyancy flux (Equation 3) is a prominent part of Equation (1). The calm condition calculation basis represents the worst-case conditions, and the vertical velocities will decrease substantially as wind speeds increase.

For multiple stack plumes, where the stacks are equivalent as is the case for PEP, the multiple stack plume velocity during calm winds is calculated by staff in a simplified fashion, presented in the Best Paper as follows:

(5) $V_m = V_{sp} * N^{0.25}$

Where: V_m = multiple stack combined plume vertical velocity (m/s)

V_{sp} = single plume vertical velocity (m/s), calculated using Equation (1)

N = number of stacks

This simplified multiple stack plume velocity calculation method predicts somewhat lower velocity values than the full Spillane approach methodology for multiple plumes as given in data results presented in the Best paper (Best 2003). However, for a long linear set of plumes, such as the ACC grid designed for the PEP, it is very unlikely that all plumes can merge fully to allow this velocity given the stack separation and the height/atmospheric conditions needed for them to fully merge. Therefore the use of this approach will likely over predict the combined plume velocities in this case.

MITRE EXHAUST PLUME ANALYZER

On September 24, 2015, the FAA released a guidance memorandum (FAA 2015) recommending that thermal plumes be evaluated for air traffic safety. FAA determined that the overall risk associated with thermal plumes in causing a disruption of flight is low. However, it determined that such plumes in the vicinity of airports may pose a unique hazard to aircraft in critical phases of flight (such as take-off and landing). In this memorandum a new computer model, different than the analysis technique used by staff and identified above as the Spillane Approach, is used to evaluate vertical plumes for hazards to light aircraft. It was prepared under FAA funding and available for use in evaluating exhaust plume impacts.

This new model, the MITRE Corporation's Exhaust Plume Analyzer (MITRE 2012), was identified by the FAA as a potentially effective tool to assess the impact that exhaust plumes may impose on flight operations in the vicinity of airports (FAA 2015). The Exhaust Plume Analyzer was developed to evaluate aviation risks from large thermal stacks, such as turbine exhaust stacks. The model provides output in the form of graphical risk probability isopleths ranging from 10^{-2} to 10^{-7} risk probabilities for both severe turbulence and upset conditions for four different aircraft sizes. However, at this time the Exhaust Plume Analyzer model cannot be used to provide reasonable risk predictions on variable exhaust temperature thermal plume sources, such as cooling towers and air cooled condensers.

The FAA has not provided guidance on how to evaluate the risk probability isopleth output of the Exhaust Plume Analyzer model, but states in their memorandum that they intend to update their guidance on near-airport land use, including evaluation of thermal exhaust plumes, in fiscal year 2016. However, MITRE Corporation is suggesting that a probability of severe turbulence at an occurrence level of greater than 1×10^{-7} (they call this a Target Safety Level) should be considered potentially significant. This is equivalent to one occurrence of severe aircraft turbulence in 10 million flights. For the

past 50 years, the MITRE Corporation has provided air traffic safety guidance to FAA, and their recommended Target Safety Level is based on this experience (MITRE 2016).

Additionally, the MITRE model has a probability of occurrence plot limitation. While it provides output for predict plumes up to a maximum height of 3,500 feet above ground, the meteorological data that is used by the model is currently limited to a maximum height of 3,000 feet. Outputs corresponding to the higher altitudes simply reuse the 3,000 foot meteorological data. The model was developed with the assumption that a plume would not rise higher than 3,000-3,500 feet above ground level, and therefore the modeling output was terminated at that height. There is uncertainty if there will be any effort to expand the data set and model to work properly at altitudes above 3,000 feet above ground level at this point. The results obtained by staff using the Spillane approach suggest that this limitation would not apply to the PEP.

At this time staff does not believe the MITRE model should be used for final work products until the significance threshold is verified by the FAA and the model capabilities are enhanced to include other thermal plume sources such as cooling towers and air-cooled condensers.

STAFF ANALYSIS

This appendix uses the Spillane approach method to be consistent with staff assessments done for other projects and because the Spillane approach is described in the FAA materials as providing similar risk assessments for light aircraft. As stated above, staff will consider using the new MITRE method to the extent that it is applicable after conducting further review of the FAA methodology and once FAA develops guidance on how to evaluate the output of the Exhaust Plume Analyzer.

EQUIPMENT DESIGN AND OPERATING PARAMETERS

SIEMENS SGT6-5000F COMBUSTION GAS TURBINE DESIGN AND OPERATING PARAMETERS

The design and operating parameter data for the two 214 MW Siemens SGT6-5000F combustion gas turbine stacks are provided in **Plume Velocity Table 1**. Operating scenarios from four temperatures across the range of operation were selected for evaluation from the manufacturer performance estimate data sheet provided by the project owner in the Petition to Amend (PTA) Appendix 4.1A. Operating parameters chosen to compute worst-case vertical plume velocities include ambient temperatures of 23, 64, 98 and 108 degree Fahrenheit (ºF) at maximum turbine loads without duct burning[3]. The exhaust operating parameters provided in **Plume Velocity Table 1** correspond to full load operation for the corresponding ambient conditions.

[3] Turbine data provided by the vendor indicate a lower stack potential temperature and volumetric flow for cases including duct burning therefore yielding lower potential plume velocities at specified heights.

Plume Velocity Table 1
Siemens CTG Exhaust Parameters

Parameter	Siemens SGT6-5000F			
Stack Height	160 ft. (48.77 meters)			
Stack Diameter	22 ft. (6.71 meters)			
Number of Stacks (#)	2			
CTG Load (%)	100			
Case Number (#)	1	11	16	21
Ambient Temperature (°F)	23	64	98	108
Evaporative Cooling	No	Yes	Yes	Yes
Exhaust Temperature (°F)	195	215	221	223
Exhaust Flow Rate (ACFM)	1,337,241	1,334,691	1,346,870	1,344,061
Exhaust Velocity (ft/sec)/(m/s)	58.6/17.87	58.5/17.84	59.1/18.00	58.9/17.96
Stack Buoyance Flux (m^4/s^3)	518	394	327	309

Source: PHPP 2015g, Staff analysis

AIR-COOLED CONDENSER DESIGN AND OPERATING PARAMETERS

Plume Velocity Table 2 includes/approximates the design and operating parameter data for the ACC for the combined-cycle power block. The ACC stack parameter data submitted by the project owner (PHPP 2016dd) was provided by Siemens and the ACC manufacturer.

Plume Velocity Table 2
ACC Operating and Exhaust Parameters

Parameter	Air Cooled Condenser		
Number of Cells (total)	32		
Cell Height (ft)	130 ft. (39.62 meters)		
Cell Diameter (ft)	36.09 ft. (11 meters)		
Case Number (#)	1	2	3
Ambient Temperature (°F)	23	64	98
Number of Cells in Operation	10	16	32
Outlet Air Temperature (°F)	146.1	145.2	140.1
Exhaust Flow Rate (ACFM)	195,175	321,609	664,699
Exhaust Velocity (ft/sec)/(m/s)	3.2/0.97	5.2/1.60	10.8/3.30

Source: PEP 201X, Staff analysis

PLUME VELOCITY CALCULATION RESULTS

Using the Spillane approach, the plume average vertical velocities at different heights above ground were determined by staff for calm conditions for the proposed CTGs/HRSGs and ACC. As explained in the **Transportation and Traffic** section, a plume average vertical velocity of 4.3 m/s has been determined by staff to be the critical velocity of concern to light aircraft. This is based on the Australian Civil Aviation Safety

Authority (CASA) advisory circular (CASA 2003). Vertical velocities below this level are not of concern to light aircraft.

When two plumes merge, the vertical velocity is expected to decrease slower than plumes that have not merged. Therefore the height at which the vertical velocity decreases below the critical plume velocity of 4.3 m/s could occur at a higher height for merged plumes than plumes that are not merged. Plumes begin to merge when the sum of the radius of one plume and an adjacent plume equals the distance between the two stacks. Plumes are considered fully merged at the height the when the sum of the plume radii is equal to twice the distance between the stacks. Staff evaluated the potential for plume merging using a stack-to-stack distance for the CTGs/HRSGs of approximately 130 feet or 40 meters

Staff calculated plume average vertical velocities for the four operating cases outlined in **Plume Velocity Table 1** for the CTGs and HRSGs. The worst-case predicted plume velocities occur at 100 percent load without duct firing or evaporative cooling at the 23°F ambient temperature scenario. Staff's calculated worst-case plume average velocity values are provided in **Plume Velocity Table 3**. Height above ground is determined by adding the physical stack height to z, the height above stack exit.

The Siemens SGT6-5000F gas turbine plume average velocity is calculated to drop below 4.3 m/s at a height of approximately 820 feet above ground for the single turbine plume (N=1). The plume diameter at this height would be around 62 meters, which would be larger than the distance between the two Siemens SGT6-5000F gas turbine stacks (approximately 40 meters). Therefore the merging of the adjacent turbine plumes should be considered. In the case of two plumes fully merging (N=2), the average velocity is calculated to drop below 4.3 m/s at the height of 1,245 feet above ground.

Plume Velocity Table 3
Siemens Turbine Plume Size (m) and Vertical Plume Velocities (m/s)

Height Above Ground Level (Feet)	Plume Diameter (m) [a]	Number of Merged Stacks	Plume Velocity (m/s)
300	11.76	1.00	8.82
400	21.51	1.00	6.47
500	31.27	1.00	5.54
600	41.02	1.20	5.24
700	50.77	1.45	5.08
800	60.53	1.70	4.96
900	70.28	1.94	4.87
1,000	80.04	2.00	4.69
1,100	89.79	2.00	4.51
1,200	99.54	2.00	4.36
1,300	109.30	2.00	4.22
1,400	119.05	2.00	4.10
1,500	128.80	2.00	3.99
1,600	138.56	2.00	3.90
1,700	148.31	2.00	3.81
1,800	158.07	2.00	3.73
1,900	167.82	2.00	3.65
2,000	177.57	2.00	3.59

Notes:
a – The separation between the two stacks would be about 130 ft (40 m) and the plumes will begin to merge when the plume diameter is the same as the separation and is assumed to be fully merged when the plume diameter is twice the stack separation.

Staff calculated plume average vertical velocities for all three operating cases shown in **Plume Velocity Table 2** for the combined-cycle's air-cooled condenser and determined that the worst-case height at which the plume velocities would drop below 4.3 m/s would occur at the 98°F ambient temperature condition. This result was based on the assumption all cells of the ACC were in operation at the 98°F ambient temperature condition and the plumes from all cells in operation would be fully merged. Staff's calculated worst-case plume average velocity values are provided in **Plume Velocity Table 4**. The combined-cycle air-cooled condenser plume average velocity is calculated to drop below 4.3 m/s at a height of approximately 1,222 feet above ground.

Plume Velocity Table 4
Combined-Cycle Air-Cooled Condenser Vertical Plume Velocities (m/s)

Height Above Ground Level (Feet)	Plume Velocity (m/s)
400	5.19
500	5.54
600	5.38
700	5.17
800	4.96
900	4.77
1,000	4.60
1,100	4.45
1,200	4.32
1,300	4.20
1,400	4.10
1,500	4.00
1,600	3.91
1,700	3.83
1,800	3.75
1,900	3.68
2,000	3.61

It should be noted that additional thermal plume merging between the gas turbine and the air-cooled condenser could occur and increase the plume heights where vertical velocities of 4.3 m/s are exceeded under worst case conditions. The model used for this analysis is not able to add different kinds of thermal plumes together. However, the approach is still conservative given the conservatism built in the model.

In addition, the ACC thermal plume analysis submitted by the project owner followed a different set of assumptions. For cases involving more than two stacks such as the ACC, plume merging can become more complex. The 32 individual cells of the ACC would be arranged in four rows of eight cells (4 x 8 matrix). The analysis provided by the project owner conservatively used an effective stack diameter calculated based on the number of cells in operation for each case. The calculated effective stack diameter represents a single merged cell that is then used with the Spillane methodology. The results provided by the project owner were replicated by staff. Per the project owner's analysis methodology the plume would not be expected to exceed a vertical velocity of 4.3 m/s under worst case conditions, however the single plume would retain the peak vertical velocity at higher altitudes. Both the staff analysis provided above and the project owner analysis result in the predicted vertical velocity from the ACC to be less than the combined cycle.

WIND SPEED STATISTICS

The **Air Quality** section of this document uses meteorological data from Palmdale Air Force Plant 42 Automated Surface Observing System (ASOS) located approximately 2.5 km east-southeast of the PEP site. The wind roses and wind frequency distribution data collected from the ASOS monitoring station are considered to be representative for the project site location. The project owner provides the calm wind speed statistics from the ASOS monitoring station from ground-level meteorological data collected for 2010 through 2014 (PHPP 2015g). Calm winds for the purposes of the reported monitoring station statistics are those hours with average wind speeds below 0.5 m/s. Calm or very low wind speeds can also occur for shorter periods of time within each of the monitored average hourly conditions. However, the shortest time resolution for the available meteorological data is one hour. The annual wind rose data shows calm/low wind speed conditions averaging an hour or longer is 3.82 percent in the site area, or about 335 hours per year.

CONCLUSIONS

The worst case calm wind condition vertical plume average velocities from the proposed Siemens SGT6-5000F combined-cycle turbine stacks are predicted to drop below 4.3 m/s at the height of 1,245 feet assuming two plumes fully merged. The worst case air-cooled condenser plume average velocity is calculated to drop below 4.3 m/s at a height of approximately 1,222 feet. Thus, the thermal plume from the proposed combined-cycle turbines would cause greatest risk to light aircraft.

Also, there is the potential for additional thermal plume merging between the gas turbine stacks and the ACC. This merging could potentially increase the plume heights where vertical velocities of 4.3 m/s are exceeded under worst case conditions. Calm/low wind speed conditions (wind speeds less than 0.5 m/s) conducive to the formation of worst-case thermal plume velocities would occur on average approximately 3.82 percent of the time.

REFERENCES

BEST, P. et al. 2003. Aviation Safety and Buoyant Plumes. Presented at the Clean Air Conference, Newcastle, New South Wales, Australia. By Peter Best, Lena Jackson, Mark Kanowski of Katestone Environmental, Toowong, Queensland, Australia and Kevin Spillane of Bendigo, Victoria, Australia.

CASA 2003 – Australian Civil Aviation Safety Authority (CASA) advisory circular AC 139-05(0) (http://www.casa.gov.au/newrules/parts/139/download/ac139-005.pdf).

CEC 2011b – California Energy Commission (TN 61876). Palmdale Hybrid Power Project Final Commission Decision, date submitted to CEC/Docket Unit August 15, 2011, docketed August 15, 2011

FAA 2015 – Federal Aviation Administration Memorandum – Technical Guidance and Assessment Tool for Evaluation of Thermal Plume Impact on Airport Operations (September 24, 2015).

MITRE 2012 – Expanded Model for Determining the Effects of Vertical Plumes on Aviation Safety, Gouldley, Hopper and Schwalbe, MITRE Product MP 120461, September 2012.

MITRE 2016 – Center for Advanced Aviation System Development [http://www.mitre.org/centers/center-for-advanced-aviation-system-development/who-we-are], website accessed 2-23-2016.

PHPP 2015g – Galati Blek LLP (TN 205520). Revised Petition to Amend (RPTA) Appendices. Submitted to CEC/Docket Unit on July 27, 2015

PHPP 2016dd – Marie Fleming Day/Zen LLC, Palmdale Energy LLC's Air Cooled Condensers Plume Analysis (TN 211662). Submitted to CEC/Docket Unit on May 27, 2016.

PALMDALE ENERGY PROJECT (08-AFC-9C)
Petition to Amend the Final Commission Decision
TRANSMISSION LINE SAFETY AND NUISANCE
Testimony of Obed Odoemelam, Ph.D.

SUMMARY OF CONCLUSIONS

The Petition to Amend (PTA) the Palmdale Hybrid Power Project (PHPP) proposes project modifications that would not change existing **Transmission Line Safety and Nuisance (TLSN)** Conditions of Certification. These certification requirements were intended in the Commission's Final 2011 Decision to ensure that any transmission line safety and nuisance impacts would be less than significant. Therefore, in accordance with the California Environmental Quality Act (CEQA) Guidelines section 15162 (Cal. Code Regs., tit. 14, § 15162), staff concludes that no supplementation to the 2011 Decision is necessary for **TLSN**. The Committee may rely upon the environmental analysis and conclusions of the 2011 Commission Decision with regards to **TLSN** and does not need to re-analyze them. Staff's assessment shows that the proposed design and operational plan would not affect the ability of the amended PHPP (renamed Palmdale Energy Project (PEP)) to comply with applicable laws, ordinances, regulations, and standards (LORS) given that the previously-approved conditions of certification would be retained.

INTRODUCTION

The safety and nuisance impacts from operating transmission lines depend on compliance with specific nuisance and safety LORS. Compliance is ensured by maintaining these impacts within levels considered appropriate by the California Utilities Commission. The owner of the Commission-permitted PHPP established the adequacy of their proposed design and operational plan before the California Energy Commission (Energy Commission) which approved the proposal and specified the five conditions of certification necessary. The project owner is proposing the same compliance measures for PEP. Staff has reviewed the related Energy Commission Decision along with the owner's amendment request documents to determine whether or not the proposed modification would affect the ability of PEP to comply with applicable LORS.

SUMMARY OF THE DECISION

In its 2011 Decision (CEC 2011b), the Energy Commission found the design, routing and operational plan for PHPP transmission line adequate to ensure operation without adverse safety and nuisance impacts. To ensure implementation of the necessary mitigation measures, the Decision included staff's proposed **TLSN** Conditions of Certification **TLSN-1** through **TLSN-5**.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

There have been no changes to the transmission line-related LORS of concern to staff since the Energy Commission's Decision was published in August 10, 2011 regarding PHPP.

ENVIRONMENTAL IMPACT ANALYSIS

As more fully described in the **Project Description and Transmission System Engineering** sections, the proposed PEP is a facility without the solar thermal generating component proposed for the Commission-approved PHPP. Two alternative routes were approved for PHPP's tie-line; the applicant's proposed line route, and staff's Alternative Route 4. The only proposed modification to the already approved transmission scheme relates to the point of connection between the facility's proposed 230-kV tie-line and the area's electric power grid to which PEP would be connected at SCE's existing Vincent Substation south of Palmdale. The proposed route modification would involve using an additional 1,800 feet of transmission conductor that would run from the facility's switchyard to a point further west on Avenue M than proposed for PHPP. This new line segment would be located on three transmission poles.

The applicant has provided the design of the proposed support tower design as necessary for compliance with the National Electrical Safety Code (NESC), CPUC's General Order 95 (GO-95) and other applicable safety requirements.

COMPLIANCE WITH LORS

As discussed in staff's analysis for the approved PHPP, current CPUC policy on minimizing the field and non-field impacts of any line is to design and operate the line according to the guidelines of the main area utility lines to which the line would be connected. The utility in this case is the Southern California Edison (SCE). Since the proposed PEP line would be designed according to the respective requirements of GO-95, GO-52, GO-128, GO-131-D, and Title 8, Section 2700 et seq. of the California Code of Regulations, and operated and maintained according to current SCE guidelines, staff considers the proposed design and operational plan to be in compliance with the applicable LORS.

RESPONSE TO PSA COMMENTS

Staff received no PSA comments from the project owner, the public, interveners, agencies, in the area of **Transmission Line Safety and Nuisance**.

CONCLUSIONS AND RECOMMENDATIONS

The project owner proposes to implement the same design, operational and routing plan approved in the Commission's 2011 Decision on PHPP along with the five implementing conditions of certification. Since the related mitigation requirements would be adequate to minimize the safety and nuisance impacts of specific concern to staff, we conclude that the proposed modification would not affect PEP's ability to comply with the applicable transmission line safety and nuisance LORS.

CONDITIONS OF CERTIFICATION

The conditions of certification for TLSN are located in the
Conditions of Certification Compendium at the back of this Final Staff Assessment

REFERENCES

PHPP 2015c – Galati Blek LLP (TN 205394-1) Revised Petition to Amend (RPTA) dated July 17, 2015. Submitted to CEC/Eric Veerkamp on July and docketed on July 20, 2015

CEC2010b - California Energy Commission. Palmdale Hybrid Power Project: Final Staff Assessment (TN 59309). Docketed on 12/22/2015.

CEC2011b - California Energy Commission. Final Commission Decision: Palmdale Hybrid Power Project. Docketed on 8/15/2011.

VISUAL RESOURCES CONDITIONS OF CERTIFICATION

The visual resources conditions of certification from the PHPP Decision are shown below. Staff and project owner are recommending deletion of **VIS-1**, shown here in ~~strikethrough~~ text. No changes are proposed to the remaining conditions of certification.

~~**CONSTRUCTION SCREENINGVIS-1** The project owner shall reduce the visibility of construction equipment, materials, and activities at the project site and as appropriate at any staging and material and equipment storage areas with temporary screening such as fabric attached to fencing or berms prior to the start of ground disturbance. Screening shall be of an appropriate height, design, opacity, and color for each specific location, as determined by the CPM.~~

~~The project owner shall submit to the CPM for review and approval a specific screening plan whose proper implementation will satisfy these requirements. The project owner shall provide a sample (at least 3" x 5") of the proposed screening material with the plan.~~

~~**Verification:** At least 30 days prior to the start of site mobilization, the project owner shall submit the screening plan to the CPM for review and approval. The screening shall be installed during the site mobilization phase. The project owner shall notify the CPM when installation is completed. The project owner shall provide the CPM with electronic color photographs after installing screening at the power plant site and at staging, material, and equipment storage areas showing the effectiveness of the screening.~~

SURFACE TREATMENT OF PROJECT STRUCTURES AND BUILDINGS

VIS-2 The project owner shall also color and finish the surfaces of all non-mirror project structures and buildings visible to the public to ensure that they: (1) minimize visual intrusion and contrast by blending with the landscape; (2) minimize glare; and (3) comply with local design policies and ordinances including special design standards for project development within a scenic highway viewshed pursuant to the city of Palmdale General Plan's Environmental Resources Policy. The transmission line conductors shall be non-specular and non-reflective, and the insulators shall be non-reflective and non-refractive.

The project owner shall submit a Surface Treatment Plan to the Compliance Project Manager (CPM) for review and approval. 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; 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 The construction of the transmission line and towers near Pearlblossom Highway shall implement special design standards (i.e. height limits) pursuant to the city of Palmdale General Plan's Environmental Resources;

E. One set of 11" x 17" color photo simulations at life size scale of the proposed treatment for project structures, including structures treated during manufacture, from the Key Observation Points;

F. A specific schedule for completing the treatment; and

G. A procedure to ensure proper treatment maintenance for the life of the project.

The project owner shall not request vendor treatment of any buildings or structures during their manufacture, or perform final field treatment on any buildings or structures, until the project owner has received Surface Treatment Plan approval by the CPM.

Verification: At least 90 days prior to specifying vendor color(s) and finish(es) for structures or buildings to be surface treated during manufacture, the project owner shall submit the proposed Surface Treatment Plan to the CPM for review and approval and simultaneously to the City of Palmdale Planning Department for review and comment. The project owner shall provide the CPM with the City's comments at least 30 days prior to the estimated date of providing paint specification to vendors.

If the CPM determines that the plan requires revision, the project owner shall provide to 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 Surface Treatment Plan must be submitted to the CPM for review and approval.

Within 90 days after the start of commercial operation, the project owner shall notify the CPM that surface treatment of all listed structures and buildings has been completed and is ready for inspection; and shall submit one set of electronic color photographs from the Key Observation Points. 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.

CONSTRUCTION LIGHTING

VIS-3 The project owner shall ensure that lighting for construction of the power plant is used in a manner that minimizes potential night lighting impacts, as follows:

A. All lighting shall be of minimum necessary brightness consistent with worker safety and security;

B. All fixed position lighting shall be shielded/hooded, and directed downward

and toward the area to be illuminated to prevent direct illumination of the night sky and obtrusive spill light beyond the boundaries of the power plant site or the site of construction of ancillary facilities, including any security related boundaries;

C. Wherever feasible and safe and not needed for security, lighting shall be kept off when not in use; and

D. Complaints concerning adverse lighting impacts will be promptly addressed and mitigated.

Verification: Within seven days after the first use of construction lighting, the project owner shall notify the CPM that the lighting is ready for inspection. If the CPM requires modifications to the lighting, the project owner shall implement the necessary modifications within 15 days of the CPM's request and notify the CPM that the modifications have been completed.

Within 10 days 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 10 days after completing implementation of the proposal. A copy of the complaint resolution form report shall be included in the subsequent Monthly Compliance Report following complaint resolution.

PERMANENT EXTERIOR LIGHTING

VIS-4 To the extent feasible, consistent with safety and security considerations and commercial availability, the project owner shall design and install all permanent exterior lighting such that a) light fixtures do not cause obtrusive spill light beyond the project site; b) lighting does not cause excessive reflected glare; c) direct lighting does not illuminate the nighttime sky; d) illumination of the project and its immediate vicinity is minimized, and e) lighting complies with local policies and ordinances.

The project owner shall submit to the CPM for review and approval and simultaneously to the City of Palmdale Department of Public Works and Planning, Development Services Division for review and comment a Lighting Mitigation Plan that includes the following:

A. A process for addressing and mitigating complaints received about potential lighting impacts;

B. Lighting shall incorporate commercially available fixture hoods/shielding, with light directed downward or toward the area to be illuminated;

C. Light fixtures shall not cause obtrusive spill light beyond the project boundary;

D. All lighting shall be of minimum necessary brightness consistent with operational safety and security; and

E. 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.

Verification: At least 90 days prior to ordering any permanent exterior lighting, the project owner shall contact the CPM to determine the required documentation for 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 City of Palmdale Department of Public Works and Planning, Development Services Division for review and comment a Lighting Mitigation Plan. The project owner shall provide the City's comments to the CPM at least 10 days prior to the date lighting materials are ordered.

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 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 installed and is ready for inspection. If after inspection the CPM notifies 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 10 days 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. A copy of the complaint resolution form report shall be submitted to the CPM within 30 days of complaint resolution.

LANDSCAPING

VIS-5 The project owner shall provide landscaping within the 30 foot setback area between the fence line and East Avenue M/Site 1 Road. The landscaping should be consistent with the conceptual Joshua Tree and Native Desert Vegetation Preservation Chapter 14.04 of the Palmdale Municipal Code (shown on **VISUAL RESOURCES Figure 3B**). The landscaping shall also comply with the city of Palmdale municipal code requirements stipulated in section 18-60.140 (Landscape Development). The project owner shall maintain the landscaping for the life of the project, including providing any needed irrigation, removing debris on an annual or semi-annual basis, and replacing dead or dying vegetation.

The project owner shall submit simultaneously to the City of Palmdale Planning Department for review and comment and to the CPM for review and approval, a landscaping plan whose proper implementation will satisfy these

requirements.

The project owner shall not implement the plan until the project owner receives approval of the plan from the CPM. The planting must be completed by the start of commercial operation, and the planting must occur during the optimal planting season.

Verification: Prior to commercial operation and at least 90 days prior to installing the landscaping, the project owner shall submit the Landscaping Plan to the CPM for review and approval and simultaneously to City of Palmdale Planning Division for review and comment. The project owner shall provide the City's comments (if any) 30 days prior to the installation of the landscaping.

If the CPM determines that the plan requires revision, the project owner shall provide to the CPM and city of Palmdale Planning Division a plan with the specified revision(s) for review and approval by the CPM before the plan is implemented.

The project owner shall simultaneously notify the CPM and city of Palmdale Planning Division within seven days after completing installation of the landscaping and is ready for inspection.

The project owner shall report landscape maintenance activities, including replacement of dead or dying vegetation, for the previous year of operation in each Annual Compliance Report.

WASTE MANAGEMENT CONDITIONS OF CERTIFICATION

The existing and modified conditions of certification are adequate to ensure there would be no unmitigated significant impacts.

WASTE-1 The project owner shall implement the following steps at locations where excavation or significant ground disturbance will occur for the construction of the project transmission line. All steps shall be completed at least 60 days prior to the project transmission line construction to prevent mobilization of contaminants and exposure of workers and the public:

- Step 1. Investigate the tower locations and associated laydown and staging areas for construction of the transmission line to determine whether these locations have a record of hazardous material contamination which would affect construction activities. This investigation shall be performed as a Phase I Environmental Site Assessment (ESA). If contamination is identified that could potentially affect the health and safety of workers or the public during construction of the Proposed Project, proceed to Step 2.

- Step 2. Perform a Phase II ESA to characterize the locations and determine the nature and extent of the contamination present at the location before construction activities proceed within the Project Right-of-Way near the suspect site. If it is determined there are conditions that may pose a risk to the health and safety of workers or the public, or could mobilize contamination, then proceed to Step 3.

- Step 3. Prepare a Health Risk Assessment to determine whether risks may be present and a Remedial Action Plan to identify what remedial measures would be required to facilitate linear construction if there were conditions that pose a risk. Mitigate the health and safety risk according to applicable regulations or requirements. This would include preparation and implementation of site-specific Health and Safety Plans, Work Plans, and/or Remediation Plans.

Verification: The project owner shall submit the Phase I ESA, and Phase II ESA, Health Risk Assessment results and other plans, as applicable, to the CPM at least 60 days prior to commencement of transmission lines construction.

WASTE-2 In areas where the land has been or is currently being farmed, and where excavation or significant ground disturbance will occur for the construction of the project transmission line, soil samples shall be collected and tested for herbicides, pesticides, and fumigants to determine the presence and extent of any material levels of contamination.

The sampling and testing plan shall be prepared in consultation with the appropriate Los Angeles County agency, conducted by an appropriate California licensed professional, and sent to a California Certified laboratory for testing. Sampling and analysis shall be consistent with the DTSC's 'Interim

Guidance for Sampling Agricultural Fields for School Sites (Third Revision)' or equivalent. A report documenting the areas proposed for sampling, and the process used for sampling and testing shall be submitted to the Energy Commission for review and approval at least 90 days before transmission line construction occurs in the affected areas.

Results of the laboratory testing and recommended resolutions for handling and excavation of material found to exceed regulatory requirements shall be submitted to the Energy Commission 60 days prior to transmission line construction occurs in the affected areas. Should sampling indicate additional remediation or mitigation is required, Conditions of Certification **WASTE-3** and **-4** would apply.

Excavated materials containing elevated levels of pesticide or herbicide require special handling and disposal according to procedures established by the regulatory agencies. Effective dust suppression procedures shall be used in construction areas to reduce airborne emissions of these contaminants and reduce the risk of exposure to workers and the public. Regulatory agencies for the State of California and Los Angeles County shall be contacted by Applicant or its contractor to plan handling, treatment, and/or disposal options.

Verification: The project owner shall identify the current/previous land use for the project transmission tower locations and associated laydown and staging areas for construction of the transmission line. The project owner shall submit a report documenting the areas proposed for sampling, and the process used for sampling and testing to the CPM for approval at least 90 days before transmission line construction occurs in the affected areas. Results of the laboratory testing and recommended mitigation or remediation plan for handling and excavation of material found to exceed regulatory requirements shall be submitted to the CPM for review and approval 60 days prior to transmission line construction.

WASTE-3 The project owner shall contract with an experienced and qualified Professional Engineer or Professional Geologist, who shall be available for consultation and oversight of earth moving activities throughout all phases of site construction. The Professional Engineer/Geologist shall be given full authority by the project owner to oversee any earth moving activities that have the potential to disturb contaminated soil. Selection of the Professional Engineer/Geologist shall be subject to CPM approval.

Verification: At least 30 days prior to the start of site mobilization, the project owner shall submit the resume of their preferred Professional Engineer or Geologist to the CPM for review and approval. The project owner shall then provide a copy of the contract with the approved Professional Engineer/Geologist prior to the start of site construction activities.

WASTE-4 If potentially contaminated soil is identified during any phase of site construction, including 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 DTSC, 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. The Professional Engineer or Professional Geologist shall contact the project owner, the CPM, and representatives of the DTSC for guidance and oversight in accordance with Condition of Certification **WASTE-3**.

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-5 In the event that contamination is identified during assessment of the project site, during any phase of ~~PHPP~~ construction, and if the Project Engineer (PE), Professional Geologist (PG), or CPM reasonably determines that sampling is needed to confirm the nature and extent of contamination, then the Project PE and/or PG shall file a written report to the CPM stating a recommended course of action. If significant contamination (i.e., contamination levels which exceed the EPA Reportable Quantity [RQ] thresholds as listed under the Emergency Planning and Community Right to Know Act [EPCRA]) are identified and which the PG, PE, or CPM reasonably determines may pose a significant risk to workers, the public, or the environment, then the DTSC will be consulted regarding the proposed course of action.

Verification: The project owner shall consult with DTSC, and enter into an agreement at DTSC's request, to ensure oversight of any additional site assessment and remediation work needed to reevaluate the site or address contamination levels above Reportable Quantities, that have been determined to pose a significant risk to workers or the public found during any phase of ~~PHPP~~ site construction. The project owner shall ensure that the CPM is involved and appraised of all discussions with DTSC, and CPM review and approval shall be required for project decisions addressing site remediation.

WASTE-6 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 City of Palmdale Building and Safety Department and 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 City of Palmdale Building and Safety Department and CPM for ~~approval~~ review no less than 30 days prior to the initiation of construction activities at the site.

WASTE-7 Upon notification of any impending waste management-related enforcement action 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, and describe how the violation will be corrected.

Verification: The project owner shall notify the CPM in writing within 10 days of becoming aware of an impending enforcement action and provide a description and timeline for correction of the violation. The CPM shall notify the project owner of any changes that will be required in the way project-related wastes are managed to ensure compliance with LORS.

WASTE-8 The project owner shall obtain a hazardous waste generator identification number from the United States Environmental Protection Agency (U.S. EPA) prior to generating any hazardous waste during 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 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

~~**WASTE-9** The project owner shall provide a Recycling and Reuse Plan to the County of Los Angeles, consistent with the Chapter 20.87 of the Los Angeles County Code. The project owner shall ensure compliance with all of the County's diversion program requirements in unincorporated areas of Los Angeles County. For construction activities within Palmdale city limits, contractors will be required to coordinate with the City of Palmdale Public Works Department and utilize the existing recycling and reuse resources available to City contractors, and shall:~~

- ~~Incorporate C&D recovery plans and BMPs in the project design, where practical~~
- ~~Include recovery requirements and goals in project specifications and contracts~~
- ~~Educate contractors and crew on material recovery and reuse techniques~~
- ~~Coordinate with local agencies and materials exchanges to maximize recovery of C&D reusable materials~~

Verification: ~~At least 60 days prior to the start of any construction activities, the project owner shall submit the proposed Recycling and Reuse Plan and list of recycling services to the County of Los Angeles and CPM for review and approval. Upon completion of construction, the project owner shall submit proof that the 50 percent diversion rate within the unincorporated portions of Los Angeles County and goals set by the City of Palmdale limits has been achieved and that the requirements of the Recycling and Reuse Plan have been complied with to the County and CPM.~~

WASTE-10 The project owner shall prepare an Operation Waste Management Plan for all wastes generated during operation of the ~~PHPP~~ 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 Palmdale area CUPA – Los Angeles County Fire Department– and DTSC 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-11 ~~If the project owner chooses not to classify all HTF-contaminated soil as hazardous; the project owner shall consult with DTSC to determine the hazardous or non-hazardous classification of contaminated soils. As part of such consultation, the project owner shall:~~

- ~~Assume that HTF-contaminated soil is hazardous until determined otherwise.~~
- ~~Establish a history of discharges.~~
- ~~Petition DTSC for concurrence on a standardized waste classification for HTF-contaminated soils generated at the facility.~~
- ~~Dispose of soils classified as hazardous and non-hazardous at properly permitted landfills.~~

~~Until the CPM is notified of DTSC's standardized waste classification, all HTF-contaminated soils shall be considered hazardous and disposed of at a hazardous waste facility. The project owner shall also inform the CPM upon any plans to change or modify the proposed offsite disposal methods.~~

~~**Verification:** At least 90 days prior to start of project operation, the project owner shall notify the CPM whether it will classify all HTF-contaminated soil as hazardous or whether it will seek standardized waste classification from DTSC. If it chooses to seek standardized waste classification, the project owner shall provide DTSC's determination to the CPM within 30 days' receipt.~~

~~**WASTE-12 The** project owner shall ensure that the cooling tower basin sludge is tested pursuant to Title 22, California Code of Regulations, and section 66262.10 and report the findings to the CPM. The handling, testing, and disposal methods for sludge shall be identified in the Operation Waste Management Plan required in Condition of Certification **WASTE-10**.~~

~~**Verification**: The project owner shall report the results of filter cake testing to the CPM within seven days of sampling. If two consecutive tests show that the sludge is non-hazardous, the project owner may apply to the CPM to discontinue testing. The test results and method and location of sludge disposal shall also be reported in the Annual Compliance Report required in Condition of Certification **WASTE-10**.~~

WASTE-13 The project owner shall ensure that all spills or releases of hazardous substances, hazardous materials, or hazardous waste 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 all unauthorized releases and spills of hazardous substances, materials, or wastes that are in excess of reportable quantities (RQs) that occur on the project property or transmission corridors during construction and on the project property during operation. The documentation shall include, at a minimum, the following information:

- location of release;
- date and time of release;
- reason for release;
- volume released;

- amount of contaminated soil/material generated;
- how release was managed and material cleaned up;
- 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.

Verification: Copies of the unauthorized releases and spill documentation shall be provided to the CPM within 30 days of the date the release was discovered.

WASTE- 14 During the construction phase, project owner shall require contracted waste and/or refuse haulers to document each waste load transferred from the construction site to a disposal site and/or recycling center. The project owner shall be responsible for cleanup debris from local illegal dumping, waste burning, or other activities located within the road paving project footprint. If potentially contaminated soil is identified during any phase of road paving, as evidenced by discoloration, odor, detection by handheld instruments, or other signs, the project owner shall have a registered environmental professional 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, and the CPM stating the recommended course of action.

Verification: The project owner shall identify permitted solid waste facilities or recycling centers that receive roadway waste and maintain copies of weigh tickets and manifests showing the type and volume of waste disposed. This information shall be maintained at the job site and made accessible to the CPM upon request. The project owner shall submit any reports of contamination filed by the Professional Engineer or Professional Geologist to the CPM within 5 days of their receipt.

WORKER SAFETY & FIRE PROTECTION CONDITIONS OF CERTIFICATION

Existing **Worker Safety/Fire Protection** Conditions of Certification will be sufficient to reduce impacts from the PEP to a less than significant level. Staff recommends that the following conditions be added to reflect an updating of Energy Commission standard conditions. All other Conditions remain the same. (Additions/revisions are in **bold underline**; deletions are in ~~strikeout~~.)

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 which shall also include a Heat Stress Protection Plan and a Best Management Practices (BMPs) for the storage and application of herbicides used to control weeds;
- A Construction Emergency Action Plan; and
- A Construction Fire Prevention Plan.

The Personal Protective Equipment Program, the Exposure Monitoring Program, 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 Los Angeles 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. The project owner shall provide a copy of a letter to the CPM from the Los Angeles County Fire Department stating the Fire Department's comments on the Construction Fire Prevention Plan and Emergency Action Plan.

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 which shall also include a Heat Stress Protection Plan and a Best Management Practices (BMPs) for the storage and application of herbicides used to control weeds ~~beneath and around the solar array~~;
- An Emergency Action Plan;
- Hazardous Materials Management Program;

- Fire Prevention Program (8 CCR § 3221); and;
- Personal Protective Equipment Program (8 CCR §§ 3401-3411).

The Operation Injury and Illness Prevention Plan, Emergency Action Plan, and Personal Protective Equipment Program shall be submitted to the CPM for review and approval concerning compliance of the program with all applicable Safety Orders. The Operation Fire Prevention Plan and the Emergency Action Plan shall also be submitted to the Los Angeles 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. The project owner shall provide a copy of a letter to the CPM from the Los Angeles County Fire Department stating the Fire Department's comments on the Operations Fire Prevention Plan and Emergency Action Plan.

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 over-all 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, emergency response reports for injuries, and inform the CPM of safety-related incidents; and
- Assure that all the plans identified in **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 **WORKER SAFETY-3**, implements all appropriate Cal/OSHA and Commission safety requirements. The Safety Monitor shall conduct on-site (including linear facilities) safety inspections at intervals necessary to fulfill those responsibilities.

Verification: least 30 days prior to the start of construction, the project owner shall provide proof of its agreement to fund the Safety Monitor services to the CPM for review and approval.

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 30 days prior to the start of site mobilization the project owner shall submit to the CPM proof that a portable 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 point for emergency personnel to enter the site. This access point and the method of gate operation shall be submitted to the Los Angeles County Fire Department for review and comment and 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 Los Angeles County Fire Department and the CPM preliminary plans showing the location of a second access point to the site and a description of how the gate will be opened by the fire department. At least (30) days prior to the start of site mobilization, the project owner shall submit final plans to the CPM review and approval. The final plan submittal shall also include a letter containing comments from the Los Angeles County Fire Department or a statement that no comments were received.

WORKER SAFETY-7 The project owner shall provide to the CPM for review a copy of the worker safety plan for reconductoring the transmission lines between the Pearl Blossom and Vincent substations.

Verification: At least 60 days prior to the start of reconductoring, the project owner shall submit to the CPM the worker safety plan for review.

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 obtained when implementing ii (above) exceed 50 micrograms per cubic meter ($\mu g/m^3$).

Verification: At least 30 days prior to the commencement of site mobilization, the enhanced Dust control Plan shall be provided to the CPM for review and approval.

~~**WORKER SAFETY-9** The project owner shall participate in annual joint training exercises with the Los Angeles County Fire Department (LACFD). The project owner may coordinate this training with other Energy Commission licensed solar power plants within Los Angeles County such that this project shall host the annual training on a rotating yearly basis with the other solar power plants.~~

~~Verification: At least 10 days prior to the start of commissioning, the project owner shall submit to the CPM proof that a joint training program with the LACFD is established. In each January Monthly Compliance Report during construction and the Annual Compliance Report during operation, the project owner shall include the date, list of participants, training protocol, and location of the annual joint training.~~

WORKER SAFETY-10 The project owner shall report to the CPM within 24 hours of any incidence of heat illness (heat stress, exhaustion, stroke, or prostration) occurring in any worker on-site and shall report to the CPM the incidence of any confirmed case of Valley Fever in any worker on the site within 24 hours of receipt of medical diagnosis.

Verification: The project owner shall provide reports of heat-related and Valley Fever incidences in any worker on the site via telephone call or e-mail to the CPM within 24 hours of a heat-related occurrence or confirmed diagnosis of a case of Valley Fever, and shall include such reports in the Monthly Compliance Report during construction and the Annual Compliance Report during operation.

WORKER SAFETY-11 **The project owner shall adhere to all applicable provisions of the latest version of NFPA 850: Recommended Practice For Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations as the minimum level of fire protection. The project owner shall interpret and adhere to all applicable NFPA 850 recommended provisions and actions stating "should" as "shall". In any situations where both NFPA 850 and the Los Angeles County Fire Code have application, the more restrictive shall apply.**

Verification: The project owner shall ensure that the project adheres to all applicable provisions of NFPA 850. At least 60 days prior to the start of construction of the fire protection system, the project owner shall provide all fire protection system specifications and drawings to the Los Angeles County Fire Department for review and comment, to the CPM for review and approval, and to the CBO for plan check and construction inspection.

Engineering Assessment

FACILTITY DESIGN CONDITIONS OF CERTIFICATION

Following are the existing conditions of certification applicable to the PEP with the following revisions. These revisions include the following:

- The applicable version and section references of the CBSC have been updated to 2013;
- Condition of Certification **GEN-2** has been updated to reflect the equipment proposed for the amended project, as specified in **GEN-2**, **Facility Design Table 2**: **Major Structures and Equipment List**; and
- Condition of Certification **ELEC-1** refers to 13.8-kV systems. The PEP would use Siemens equipment instead of the General Electric equipment selected for PHPP and therefore references to 13.8-kV voltages should be replaced with 18 kV; **ELEC-1** has been revised accordingly.

Deleted text is in ~~strikethrough~~ and new text is **bold and underlined**.

And as described above, the changes to **GEN-5**, **GEN-6**, and **CIV-1** as the result of the petitioner's comments on the PSA are in ~~double-strikethrough~~ for the deleted text and in **bold and underlined** for the added text.

GEN-1 The project owner shall design, construct, and inspect the project in accordance with the ~~2007~~**2013** California Building Standards Code (CBSC), also known as Title 24, California Code of Regulations, which encompasses the California Building Code (CBC), California 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 laws, ordinances, regulations and standards (LORS) in effect at the time initial design plans are submitted to the chief building official (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 (~~2007~~**2013** CBC, Appendix Chapter 1, § **1.1.3**~~101.2~~, Scope). All transmission facilities (lines, switchyards, switching stations, and substations) are covered in the conditions of certification in the **Transmission System Engineering** section of this Decision.

In the event that the initial engineering designs are submitted to the CBO when the successor to the ~~2007~~**2013** CBSC is in effect, the ~~2007~~**2013** 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 compliance project manager (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 (~~2007~~**2013** CBC, Appendix Chapter 1, § **111**~~110~~, Certificate of Occupancy). 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, 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 within 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)~~
~~Reclaim and Fire Water Storage Tank Foundation and Connections~~	~~1~~
~~Brine Storage Tank Foundation and Connections~~	~~1~~
~~Process Surge Tank Foundation and Connections~~	~~1~~
~~Demineralized Water Tank Foundation and Connections~~	~~1~~
~~RO Water Tank Foundation and Connections~~	~~1~~
~~Combustion Turbine Wash Drain Tank Foundation and Connections~~	~~1~~
~~ACW Heat Exchangers Foundation and Connections~~	~~2~~
~~Cooling Tower Foundations and Connections~~	~~1~~
~~Cooling Tower Blowdown Filter Press and Shelter Foundation and Connections~~	~~1~~
~~Pretreatment Filter Press and Shelter Foundation and Connections~~	~~1~~
~~Crystallizer Vapor Body Foundation and Connections~~	~~1~~
~~Sludge Thickener Foundation and Connections~~	~~1~~
~~Solids Contact Clarifier Foundation and Connections~~	~~1~~
~~Fire Pump Module Foundation and Connections~~	~~1~~
~~Admin/Control Building Warehouse Foundation and Connections~~	~~1~~
~~Water Treatment Building Foundation and Connections~~	~~1~~
~~Auxiliary Cooling Water Pump Foundation and Connections~~	~~2~~
~~Circulating Water Pump Foundation and Connections~~	~~2~~
~~Gland Steam Regulating Skid Foundation and Connections~~	~~1~~
~~STG MCC XFMR & Module Foundation and Connections~~	~~1~~
~~Cycle Chemical Feed Module Foundation and Connections~~	~~1~~
~~Auxiliary Electric Module Foundation and Connections~~	~~1~~
~~Ammonia Storage Foundation and Connections~~	~~1~~
~~HRSG Structure, Foundation and Connections~~	~~2~~
~~HRSG Blowdown Sump Foundation and Connections~~	~~1~~
~~HRSG Blowdown Tank Foundation and Connections~~	~~2~~
~~CEMS Foundation and Connections~~	~~2~~
~~Combustion Turbine Generator Foundation and Connections~~	~~2~~
~~Gas Fired Oil Heater Foundation and Connections~~	~~2~~
~~Fuel Gas Filter/separator Foundation and Connections~~	~~2~~
~~Fuel Gas Heater Foundation and Connections~~	~~2~~
~~Auxiliary Transformer Foundation and Connections~~	~~2~~
~~Oil/water Separator Foundation and Connections~~	~~1~~
~~Emergency Shutdown Generator Foundation and Connections~~	~~1~~
~~Switchgear Module Foundation and Connections~~	~~2~~
~~Switchyard Module Foundation and Connections~~	~~1~~
~~Diesel Tank Foundation and Connections~~	~~1~~
~~Condenser Exhausters Foundation and Connections~~	~~1~~
~~Steam Turbine Lube Oil Skid Foundation and Connections~~	~~1~~

~~Equipment/System~~	~~Quantity (Plant)~~
~~Steam Turbine Drains Tank Foundation and Connections~~	~~1~~
~~ACW Pumps Foundation and Connections~~	~~2~~
~~Condensate Pumps Foundation and Connections~~	~~3~~
~~EHC Unit Foundation and Connections~~	~~1~~
~~Steam Turbine Generator Foundation and Connections~~	~~1~~
~~Thyristor Foundation and Connections~~	~~1~~
~~Valve House Foundation and Connections~~	~~1~~
~~Cooling Tower MCC and XFMRS Foundation and Connections~~	~~1~~
~~Solar Field and Components Foundation and Connections~~	~~1 Lot~~
~~Solar Array Heat Exchangers Foundation and Connections~~	~~1 Lot~~
~~HTF Oil Heater Foundation and Connections~~	~~1 Lot~~
~~HTF Surge Tanks Foundation and Connections~~	~~1 Lot~~

Facility Design Table 2
Major Structures and Equipment List

Equipment/System	Quantity (Plant)
Raw and Fire Water Storage Tank Foundation and Connections	1
Demineralized Water Tank Foundation and Connections	1
Combustion Turbine Wash Drain Tank Foundation and Connections	2
Closed Cooling Water Fin-Fan Coolers Foundation and Connections	1
Air Cooled Condenser Structure, Foundations and Connections	1
Condensate Return Tank Foundations and Connections	1
Fire Pump Module Foundation and Connections	1
Admin/Control Building Warehouse Structure, Foundation and Connections	1
Water Treatment Module Foundation and Connections	1
Water Treatment Module Area MCC	1
Sampling Container Foundations and Connections	1
Laboratory Container Foundations and Connections	1
STG Power Control Center Foundation and Connections	1
Cycle Chemical Feed Module Foundation and Connections	1
Ammonia Storage Foundation and Connections	1
HRSG Structure, Foundation and Connections	2
CEMS Foundation and Connections	2
Combustion Turbine Generator Foundation and Connections	2
Combustion Turbine Inlet Air Filter Foundation and Connections	2
Fuel Gas Filter/separator Foundation and Connections	2
Fuel Gas Pre-heater Foundation and Connections	2
Rotor Air Cooler Foundations and Connections	2
CT Lube Oil Skid and Coolers Foundations and Connections	2
Auxiliary Transformer Foundation and Connections	2

Equipment/System	**Quantity (Plant)**
Generator Step-Up Transformer Foundations and Connections	**3**
Oil/water Separator Foundation and Connections	**1**
Emergency Shutdown Generator Foundation and Connections	**1**
CT Electrical Package	**2**
MV Switchgear Module Foundation and Connections	**2**
BOP Power Control Center	**1**
Air Cooled Condenser Power Control Center	**1**
Switchyard Module Foundation and Connections	**1**
Steam Turbine Lube Oil Skid Foundation and Connections	**1**
Steam Turbine Generator Foundation and Connections	**1**
Steam Turbine Generator Enclosure/Building Foundations and Connections	**1**
Generator Circuit Breakers	**2**
Auxiliary Boiler Foundations and Connections	**1**

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, in accordance with the ~~2007~~**2013** CBC**, Section 109**. These fees may be based on the value of the facilities reviewed, on hourly rates, or may be otherwise agreed upon by the project owner and the CBO.

Verification: A copy of the contract between the project owner and the CBO shall be submitted to the CPM. 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, structural engineer, or civil engineer, as the resident engineer in charge of the project (~~2007~~**2013** California Administrative Code, § 4-209, Designation of Responsibilities). All transmission facilities (lines, switchyards, switching stations, and substations) are addressed in the conditions of certification in the **Transmission System Engineering** section of this Decision.

The resident engineer 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 resident engineer 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 shall have the authority to halt construction and to require changes or remedial work if the work does not meet requirements.

If the resident engineer 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 within a 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 resident engineer and any other delegated engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the resident engineer and other delegated engineer(s) within five days of the approval.

If the resident engineer 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 Decision.

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 (~~2007~~**2013** CBC, Appendix Chapter 1, § 104, Duties and Powers of Building Official).

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; and 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 resident engineer 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 (~~2007~~**2013** CBC, **Chapter 18, § 1803 ~~and~~ ~~Chapter 18A, § 1803A~~ Geotechnical Investigations** ~~Appendix J, § J104.3, Soils Report; 1802.2, Foundation and Soils Investigations~~);

3. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with requirements set forth in the ~~2007~~**2013** CBC, **Chapter 17, § 1704, Special Inspection** ~~Appendix J, section J105, Inspections, and the 2007 California Administrative Code, section 4-211, Observation and Inspection of Construction~~ (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 resident engineer.

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 (~~2007~~**2013** CBC, Appendix Chapter 1, § ~~114~~**115**, Stop **Work** Orders).

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~~**2013** California Administrative Code, section 4-211, Observation and Inspection of Construction (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 resident engineer 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 within a 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 within a 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, 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~~**2013** CBC, Chapter 17, Section 1704, Special Inspections; ~~Chapter 17A, Section 1704A, Special Inspections;~~ and ~~Appendix~~ Chapter 1, Section **110**~~109~~, Inspections. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in conditions of certification in the **Transmission System Engineering** section of this Decision.

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. Observe the work assigned for conformance with the approved design drawings and specifications;

3. Furnish inspection reports to the CBO and resident engineer. All discrepancies shall be brought to the immediate attention of the resident engineer for correction, then, if uncorrected, to the CBO and the CPM for corrective action (~~2007~~**2013** CBC, Chapter 17, § 1704.**2.4**~~1.2~~, Report Requirements); and

4. Submit a final signed report to the resident engineer, 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 within a 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 (~~2007~~**2013** CBC, ~~Appendix Chapter 1, § 109.6, Approval Required;~~ Chapter 17, § 1704.**2.4**~~1.2~~, Report Requirements). 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 an alternative site approved by the CPM during the operating life of the project (~~2007~~**2013** CBC, **1.8.4.3.1**~~106.3.1~~, **Retention of Plans** ~~Approval of Construction Documents~~). 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" files (Adobe .pdf 6.0), 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 investigation reports required by the ~~2007~~**2013** CBC, **Chapter 18, § 1803.6 Reporting, and § 1803, Geotechnical Investigation.** ~~Appendix J, section J104.3, Soils Report; and Chapter 18, section 1802.2, Foundation and Soils Investigation.~~

Verification: At least 15 days (or within a 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 (~~2007~~**2013** CBC, Appendix Chapter 1, § **115**~~114~~, Stop Work Orders).

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~~**2013** CBC, Appendix Chapter 1, section **110**~~109~~, Inspections, and Chapter 17, section 1704, Special Inspections. 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 (~~2007~~**2013** CBC, Chapter 17, § 1704.**2.4**~~1.2~~, Report Requirements). 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 (~~2007~~**2013** CBC, Chapter 17, § 1703.2, Written Approval).

Verification: Within 30 days (or within a 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 **Facility Design 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 (~~2007~~**2013** CBC, Appendix Chapter 1, § **104.1, Duties and Powers of Building Official, 105, Permits**~~109.6, Approval Required~~);

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 (~~2007~~**2013 CBC, Appendix Chapter 1, § 107.5 Retention of Construction Documents**~~2007 California Administrative Code, § 4-210, Plans, Specifications, Computations and Other Data~~);

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 (~~2007~~**2013** CBC, Appendix Chapter 1, § **107.3.4**~~106.3.4~~, Design Professional in Responsible Charge); and

5. Submit to the CBO the responsible design engineer's signed statement that the final design plans conform to applicable LORS (~~2007~~**2013** CBC, Appendix Chapter 1, § **107.3.4**~~106.3.4~~, Design Professional in Responsible Charge).

Verification: At least 60 days (or within a 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 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~~**2013** CBC, Chapter 17, section 1704, Special Inspections~~,~~ and ~~section 1709.1,~~ Structural Observations.

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 (~~2007~~**2013** CBC, Chapter 17, § 1704.**2.4**~~1.2~~, Report Requirements). 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 necessary to obtain the CBO's approval.

STRUC-3 The project owner shall submit to the CBO design changes to the final plans required by the ~~2007~~**2013** 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 (~~2007~~**2013** CBC, Appendix Chapter 1, § **107**~~106.1~~, Submittal Documents; ~~§ 106.4, Amended Construction Documents;~~ ~~2007~~**2013** California Administrative Code, § 4-215, Changes in Approved Drawings and Specifications).

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~~**2013** CBC, ~~Chapter 3, Table 307.1(2),~~ shall, at a minimum, be designed to comply with **H-2 Occupancy Category of the 2013 CBC** ~~the requirements of that chapter~~.

Verification: At least 30 days (or within a 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. 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 (~~2007~~**2013** CBC, Appendix Chapter 1, § **107**~~106.1~~, Submittal Documents; § **110**~~109.5~~, **Inspections** ~~Inspection Requests~~; § **105, Permits**~~109.6, Approval Required~~; **2013**~~2007~~ California Plumbing Code, § **301**~~301.1.1~~, **Materials** ~~Approvals~~).

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 (~~2007~~**2013** CBC, Appendix Chapter 1, § **107.3.4**~~106.3.4~~, Design Professional in Responsible Charge), which may include, but are not limited to:

- American National Standards Institute (ANSI) B31.1 (Power Piping Code);

- ANSI/NFPA Z223.1 (Fuel Gas Piping Code);
- ANSI B31.3 (Chemical Plant and Petroleum Refinery Piping Code);
- ANSI B31.8 (Gas Transmission and Distribution Piping Code);
- NACE R.P. 0169-83;
- NACE R.P. 0187-87;
- 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);
- Los Angeles County codes; and
- City of Palmdale codes.

The CBO may deputize inspectors to carry out the functions of the code enforcement agency (~~2007~~**2013**, Appendix Chapter 1, § 103.3, Deputies).

Verification: At least 30 days (or within a 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 (~~2007~~**2013** CBC, Appendix Chapter 1, § **110**~~109.5~~, Inspections ~~Requests~~).

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 within a 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 (~~2007~~**2013** CBC, Appendix Chapter 1, § **110.3.7**~~109.3.7~~, Energy Efficiency Inspections; § **107.3.4**~~106.3.4~~, Design Professionals in Responsible Charge).

Verification: At least 30 days (or within a 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 110 Volts or higher (see a representative list, below) 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 Decision.

A. Final plant design plans shall include:

1. one-line diagram for the ~~13.8 kV~~**18-kV**, 4.16-kV and 480-V systems;

2. system grounding drawings;

3. lightning protection system; and

4. Hazard area classification plan.

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~~**18-kV**, 4.16-kV and 480-V systems;

6. system grounding requirements;

7. lighting energy calculations; and

8. 110 volt system design calculations and submittals showing feeder sizing, transformer and panel load confirmation, fixture schedules and layout plans.

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.

GEOLOGY AND PALEONTOLOGY CONDITIONS OF CERTIFICATION

Staff has proposed modifications to Condition of Certification **GEO-1** to require compliance with current design standards. Changes to **PAL-1** and **PAL-8** are also proposed to ensure consistency with current LORS and professional guidelines. Changes to the conditions are shown below in **bold underline** and ~~strikethrough~~.

GEO-1 ~~A project-specific geotechnical report shall be prepared by review of detailed project foundation plans and requirements, and updating the preliminary geotechnical report for the project.~~ **A Soils Engineering Report as required by Section 1803 of the California Building Code (CBC) (2013), or its successor in effect at the time construction of the project were to commence, shall specifically include laboratory test data, associated geotechnical engineering analyses, and a thorough discussion of seismicity; liquefaction; dynamic compaction; compressible soils; corrosive soils; and tsunami. In accordance with CBC, the report must also include recommendations for ground improvement and/or foundation systems necessary to mitigate these potential geologic hazards, if present.**

Verification: ~~The design-level geotechnical investigation report for the proposed PHPP site shall be submitted to the CPM at least 60 days prior to start of plant construction.~~ **The project owner shall include in the application for a grading permit a copy of the Soils Engineering Report which addresses the potential for strong seismic shaking; liquefaction; dynamic compaction; settlement due to compressible soils; and corrosive soils; and a summary of how the results of the analyses were incorporated into the project foundation and grading plan design for review and comment by the delegate chief building official (CBO). A copy of the Soils Engineering Report, application for grading permit and any comments by the CBO are to be provided to the CPM at least 30 days prior to grading.**

GEO-2 Additional fault investigation shall be performed for the southern end of the natural gas pipeline in conjunction with city of Palmdale approval, in accordance with city of Palmdale General Plan S1.1.7. which requires that utility locations be limited in areas with exposure to faulting, and based on the city of Palmdale General Plan faulting hazards map (Figure LU-4). If the natural gas pipeline crosses the San Andreas fault or any of its splays (Cemetery fault), or if it would be in danger of rupture from intense ground shaking, design shall include appropriate safety features. This shall include a mechanism, such as automatic pressure-sensitive shut-off valves, to cut gas supply in event of pipe rupture.

Verification: A fault investigation report for the southern end of the proposed natural gas line shall be submitted to the CPM at least 60 days prior to start of pipeline construction. Recommendations for further mitigation, beyond automatic shut-off valves, shall be included, as appropriate.

GEO-2A Additional fault investigation shall be performed for the southern end of the natural gas pipeline and transmission line Alternative Route 4 (if selected), in

conjunction with city of Palmdale approval, in accordance with city of Palmdale General Plan S1.1.7, which requires that utility locations be limited in areas with exposure to faulting, and based on the city of Palmdale General Plan faulting hazards map (Figure LU-4). If the natural gas pipeline or underground transmission line cross the San Andreas fault or any of its splays (Cemetery fault), or if it would be in danger of rupture from intense ground shaking, design shall include appropriate safety features. This shall include a mechanism, such as automatic pressure-sensitive shut-off valves, to cut gas supply in event of pipe rupture.

Verification: A fault investigation report for the southern end of the proposed natural gas line and transmission line Alternative Route 4 (if selected) shall be submitted to the CPM at least 60 days prior to start of trenching. Recommendations for further mitigation, beyond automatic shut-off valves, shall be included, as appropriate.

GEO-3 Additional fault investigation shall be performed for the southern end of electric transmission line where it crosses the Llano fault Alquist-Priolo Zone and the San Andreas Fault Alquist-Priolo zone. This investigation shall include sufficient geologic mapping and/or fault trenching to verify that towers would not be directly impacted by fault rupture.

Verification: A fault investigation report for the southern end of the proposed transmission line shall be submitted to the CPM at least 60 days prior to start of transmission line construction. Recommendations for further mitigation, beyond avoiding founding transmission towers directly on fault traces, shall be included, as appropriate.

GEO-4 Additional geotechnical investigation shall be performed for the electric transmission line where it crosses areas of projected liquefaction hazards per the Seismic Hazard Reduction Act. This geotechnical investigation shall be prepared and provided to the city of Palmdale as per the General Plan Safety Element Policy S1.1.1.

Verification: The design-level geotechnical investigation report for the proposed transmission line shall be submitted to the CPM at least 60 days prior to start of transmission line construction.

GEO-5 Additional geologic or geotechnical investigation shall be performed along the southern alignment between the San Andreas Fault and the Vincent substation, to evaluate and mitigate the risk of landslide failure affecting the transmission line towers.

Verification: The design-level engineering geological or geotechnical investigation report for the proposed transmission line shall be submitted to the CPM at least 60 days prior to start of transmission line construction.

PAL-1 The project owner shall provide the Compliance Project Manager (CPM) with the resume and qualifications of its Paleontological Resource Specialist (PRS) for review and approval. If the approved PRS is replaced prior to completion of project mitigation and submittal of the Paleontological Resources Report, the project owner shall obtain CPM approval of the

replacement PRS. The project owner shall keep resumes on file for qualified Paleontological Resource Monitors (PRMs). If a PRM is replaced, the resume of the replacement PRM shall also be provided to the CPM **for review and approval**.

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 **Qualified Professional Paleontologist** ~~vertebrate paleontologist~~ as **defined** ~~described~~ in the **Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources** by the Society of Vertebrate Paleontology (SVP) ~~guidelines of 1995~~**(SVP, 2010)**. 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 **PRMs** ~~paleontological resource monitors~~ to monitor as he or she deems necessary on the project. ~~Paleontologic Resource Monitors (~~PRMs~~)~~ shall have the equivalent **or combination** of the following qualifications **approved by the CPM**:

- 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 **to the CPM, whose approval must be obtained prior to initiation of ground disturbing activities**.

(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~~,~~**.** **The letter shall state** ~~stating~~ that the identified monitors meet the minimum qualifications for paleontological resource monitoring required by ~~the~~**this condition of certification**. 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 plant, construction lay down areas, and all related facilities. Maps shall identify all areas of the project where ground disturbance is anticipated. If the PRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the PRS and CPM. The site grading plan and plan and profile drawings for the utility lines would be acceptable for this purpose. The plan drawings should show the location, depth, and extent of all ground disturbances and be at a scale between 1 inch = 40 feet and 1 inch = 100 feet 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 project proceeds in phases, maps and drawings may be submitted prior to the start of each phase. A letter identifying the proposed schedule of each project phase shall be provided to the PRS and CPM. Before work commences on affected phases, the project owner shall notify the PRS and CPM of any construction phase scheduling changes.

At a minimum, the project owner shall ensure that the PRS or PRM consults weekly with the project superintendent or construction field manager to confirm area(s) to be worked the following week, and until ground disturbance is completed.

Verification:

(1) At least 30 days prior to the start of ground disturbance, the project owner shall provide the maps and drawings to the PRS and CPM.

(2) If there are changes to the footprint of the project, revised maps and drawings shall be provided to the PRS and CPM at least 15 days prior to the start of ground disturbance.

(3) If there are changes to the scheduling of the construction phases, the project owner shall submit a letter to the CPM within 5 days of identifying the changes.

PAL-3 The project owner shall ensure that the PRS prepares **a Paleontological Resources Monitoring and Mitigation Plan (PRMMP)**, and~~the project owner~~ submits **the PRMMP** 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 **be used as the basis of discussion when on-site decisions or changes are proposed.** ~~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 **include all updates and** 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 **2010**~~1995~~) and shall include, but not be limited, to the following:

1. **Procedures for and assurance**~~Assurance~~ that the performance and sequence of project-related tasks, such as any literature searches, pre-construction surveys, worker environmental training, fieldwork, flagging or staking, construction monitoring, mapping and data recovery, fossil preparation and collection, identification and inventory, preparation of final reports, and transmittal of materials for curation will be performed according to PRMMP procedures;

2. Identification of the person(s) expected to assist with each of the tasks identified within the PRMMP and the conditions of certification;

3. A thorough discussion of the anticipated geologic units expected to be encountered, the location and depth of the units relative to the project when known, and the known sensitivity of those units based on the occurrence of fossils either in that unit or in correlative units;

4. An explanation of why **sampling is needed**, **a description of the sampling methodology** ~~how~~, and how much sampling is expected to take place ~~and~~ in ~~what~~**which geologic** 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~~**stopping** 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. **Approval of the**~~The~~ PRMMP **by the CPM shall occur prior to any ground disturbance. 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 Prior to ground disturbance**, the project owner and the PRS shall prepare a CPM-approved Worker Environmental Awareness Program (WEAP).** ~~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 training based on a CPM-approved video script or other presentation materials. Following initial training, a CPM-approved video, other approved training presentation, 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 purpose of the WEAP is to train project workers to recognize paleontologic resources and identify procedures they must follow to ensure there are no impacts to sensitive paleontologic resources. The WEAP shall include:**

~~The training shall include:~~

1. A discussion of applicable laws and penalties under the law;

2. Good quality photographs or physical examples of vertebrate fossils for project sites containing units of high paleontologic sensitivity;

3. Information that the PRS or PRM has the authority to **stop**~~halt~~ or redirect construction in the event of a discovery or unanticipated impact to a paleontological resource;

4. Instruction that employees are to ~~halt~~**stop** 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.

The project owner shall also submit the training script and, if the project owner is planning to use a video for training, a copy of the training video, with the set of reporting procedures for workers to follow that will be used to present the WEAP and qualify workers to conduct ground disturbing activities that could impact paleontologic resources.

Verification:

(1) At least 30 days prior to ground disturbance, the project owner shall submit **to the CPM for review and comment the draft**~~the proposed~~ WEAP, including the brochure **and sticker. The submittal shall also include a draft training script and, if the project owner is planning to use a video for training, a copy of the training video**~~,~~ with the set of reporting procedures for workers to follow.

(2) At least **15**~~30~~ days prior to ground disturbance, the project owner shall submit **to the CPM for approval the final WEAP and training script.** ~~the training program presentation/materials to the CPM for approval if the project owner is planning to use a presentation format other than a video for interim training or a script if a video is to be used for training.~~

~~(3) If the owner requests an alternate paleontological trainer, the resume and qualifications of the trainer shall be submitted to the CPM for review and approval prior to installation of an alternate trainer. Alternate trainers shall not conduct training prior to CPM authorization.~~

~~(4) In the monthly compliance report (MCR, the project owner shall provide copies of the WEAP certification of completion forms with the names of those trained and the trainer or type of training (in-person or other approved presentation format) offered that month. The MCR shall also include a running total of all persons who have completed the training to date.~~

PAL-5 **No worker shall excavate or perform any ground disturbance activity prior to receiving CPM-approved WEAP training by the PRS, unless specifically approved by the CPM.**

Prior to project kick-off and ground disturbance the following workers shall be WEAP trained by the PRS in-person: project managers, construction supervisors, foremen, and all general workers involved with or who operate ground-disturbing equipment or tools. Following project kick-off, 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. A WEAP certification of completion form shall be used to document who has received the required training.

~~The project owner shall ensure that the PRS and PRM(s) monitor consistent with the PRMMP all construction-related grading, excavation, trenching, and augering in areas where potential fossil-bearing materials have been identified, both at the site and along any constructed linear facilities associated with the project. In the event that the PRS determines full-time monitoring is not necessary in locations that were identified as potentially fossil-bearing in the PRMMP, the project owner shall notify and seek the concurrence of the CPM.~~

~~The project owner shall ensure that the PRS and PRM(s) have the authority to halt or redirect construction if paleontological resources are encountered. The project owner shall ensure that there is no interference with monitoring activities unless directed by the PRS. Monitoring activities shall be conducted as follows:~~

1. ~~Any change of monitoring from the accepted schedule in the PRMMP shall be proposed in a letter or email from the PRS and the project owner to the CPM prior to the change in monitoring and will be included in the monthly compliance report. The letter or email shall include the justification for the change in monitoring and be submitted to the CPM for review and approval.~~

2. ~~The project owner shall ensure that the PRM(s) keep a daily monitoring log of paleontological resource activities. The PRS may informally discuss paleontological resource monitoring and mitigation activities with the CPM at any time.~~

3. ~~The project owner shall ensure that the PRS notifies the CPM within 24 hours of the occurrence of any incidents of non-compliance with any paleontological resources conditions of certification. The PRS shall recommend corrective action to resolve the issues or achieve compliance with the conditions of certification.~~

4. ~~For any significant paleontological resources encountered, either the project owner or the PRS shall notify the CPM within 24 hours, or Monday morning in the case of a weekend event where construction has been halted because of a paleontological find.~~

~~The project owner shall ensure that the PRS prepares a summary of monitoring and other paleontological activities placed in the monthly compliance reports. The summary will include the name(s) of PRS or PRM(s) active during the month, general descriptions of training and monitored construction activities, and general locations of excavations, grading, and other activities. A section of the report shall include the geologic units or subunits encountered, descriptions of samplings within each unit, and a list of identified fossils. A final section of the report will address any issues or concerns about the project relating to paleontologic monitoring, including any incidents of non-compliance or any changes to the monitoring plan that have been approved by the CPM. If no monitoring took place during the month, the report shall include an explanation in the summary as to why monitoring was not conducted.~~

Verification:

(1) 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 and/or video) offered that month. An example of a suitable WEAP certification completion form is provided below. The MCR shall also include a running total of all persons who have completed the training to date.

(2) If the project owner requests an alternate paleontological WEAP 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 WEAP training prior to CPM authorization.

~~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 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 stop 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 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, when construction has been stopped because of a paleontological find.**

The project owner shall ensure that the PRS prepares a summary of monitoring and other paleontological activities that will be included in each MCR. The summary will include the name(s) of PRS or PRM(s) active during the month, general descriptions of training and monitored construction activities, and general locations of excavations, grading, and other activities. A section of the report shall include the geologic units or subunits, encountered descriptions of samplings within each unit, and a list of identified fossils. A final section of the report will address any issues or concerns about the project relating to paleontologic monitoring, including any incidents of non-compliance or any changes to the monitoring plan that have been approved by the CPM. If no monitoring took place during the month, the report shall include an explanation in the summary as to why monitoring was not conducted.

~~The project owner, 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 ensure that the PRS submits the summary of monitoring and paleontological activities in the MCR. When feasible, the CPM shall be notified ten days in advance of any proposed changes in monitoring different from that 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.** ~~The project owner shall maintain in his/her compliance file copies of~~

~~signed contracts or agreements with the designated PRS and other qualified research specialists. The project owner shall maintain these files for a period of three years after project completion and approval of the CPM-approved paleontological resource report (see **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; **and the PRS' description of the** ~~determinations of~~ sensitivity and significance **of those resources.** ~~; 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.

PAL-8 **The project owner, through the designated PRS, shall ensure that all components of the PRMMP are adequately performed, including collection of fossil material, preparation of fossil material for analysis, analysis of fossils, identification and inventory of fossils, preparation of fossils for curation, and delivery for curation of all significant paleontological resource materials encountered and collected during project construction. The project owner shall pay all curation fees charged by the museum for fossil material collected and curated as a result of paleontological mitigation. The project owner shall also provide the curator with documentation showing the project owner irrevocably and unconditionally donates, gives, and assigns permanent, absolute, and unconditional ownership of the fossil material.**

Within 60 days after the submittal of the PRR, the project owner shall submit documentation to the CPM showing fees have been paid for curation and the owner relinquishes control and ownership of all fossil material.

Certification of Completion
Worker Environmental Awareness Program
Palmdale ~~Hybrid Power Plant~~Energy Project (08-AFC-9C)

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:___/___/__ ___

REFERENCES

CBC, 2013 - California Building Code, 2013, California Code of Regulations, Title 24. 2007, California Building Standards Code, Part 2, California Building Code (2013).

CEC 2011b - California Energy Commission (TN 61876). Palmdale Hybrid Power Project Final Commission Decision, August 10, 2011, docketed August 15, 2011.

PHPP, 2015c - Galati Blek LLP/Scott A. Galati (TN 205394-1). Revised Petition to Amend (RPTA), dated July 17, 2015. Submitted to CEC/Eric Veerkamp on July 17, 2015 and docketed on July 20, 2015.

PHPP, 2015u - DayZen LLC/Marie Fleming (TN 206797). Response to CEC Staff Data Request Set No. 1 (1-63), dated November 2015. Submitted to CEC/Docket Unit on November 30, 2015

SVP, 2010 - Society of Vertebrate Paleontology, Impact Mitigation Guidelines Revision Committee Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources (2010).

POWER PLANT EFFICENCY PROPOSED CONDITIONS OF CERTIFICATION

Power Plant Efficiency and staff believes no such conditions are warranted by the proposed amendment and none are proposed

POWER PLANT RELIABILITY PROPOSED CONDITIONS OF CERTIFICATION

Power Plant Reliability and staff believes no such conditions are warranted by the proposed amendment and none are proposed

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. Once approved, the project owner shall inform the CPM and CBO of any anticipated changes to the design, and shall submit a detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change to the CPM and CBO for review and approval.

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.

a) Breakers and busses in the power plant switchyard and other switchyards, where applicable, shall be sized to comply with a short-circuit analysis.

b) 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.

c) The project conductors shall be sized to accommodate the full output of the project.

d) Termination facilities shall comply with applicable PG&E interconnection standards.

e) The project owner shall provide to the CPM:

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

ii) A letter stating that the mitigation measures or projects selected by the transmission owners for each reliability criteria violation, for which the project is responsible, are acceptable,

iii) The final SCE Right-of-Way Study, and

iv) A copy of the Federal Energy Regulatory Commission executed LGIA signed by the California ISO, SCE and the project owner.

v) A letter from the DWR indicating that DWR has been consulted with has coordinated the planned outages associated with the replacement and reconductoring of the Pearblossom-Vincent 230 kV line to have no adverse impact to DWR's operations, and determined the outages to be acceptable.

Verification: Prior to the start of construction or start of modification of transmission facilities, 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

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

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 e);

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) The final SCE Right-of-Way Study, and

g) A copy of the Federal Energy Regulatory Commission executed LGIA signed by the California ISO, SCE and the project owner.

h) A signed letter from the CDWR indicating that the planned outages associated with the replacement and reconductoring of the Pearblossom to Vincent 230 kV line are acceptable.

Prior to the start of construction of or modification of transmission facilities, the project owner shall inform the CBO and the CPM of any anticipated changes to the design that are different from the design previously submitted and approved and shall submit a detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change to the CPM and CBO for review and approval.

TSE-6 The project owner shall provide the following Notice to the California Independent System Operator (California ISO) prior to synchronizing the facility with the California Transmission system:

1. At least one week prior to synchronizing the facility with the grid for testing, provide the California ISO a letter stating the proposed date of synchronization; and

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

Verification: The project owner shall provide copies of the California ISO letter to the CPM when it is sent to the California ISO one week prior to initial synchronization with the grid. The project owner shall contact the California ISO Outage Coordination Department, Monday through Friday, between the hours of 0700 and 1530 at (916) 351-2300 at least one business day prior to synchronizing the facility with the grid for testing. A report of conversation with the California ISO shall be provided electronically to the CPM one day before synchronizing the facility with the California transmission system for the first time.

TSE-7 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.

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

PALMDALE ENERGY PROJECT CONDITIONS OF CERTIFICATION COMPENDIUM WITH COMPLIANCE CONDITIONS AND MONITORING PLAN (Clean Version)

PALMDALE ENERGY PROJECT (08-AFC-9C)
Petition to Amend the Final Commission Decision
COMPLIANCE CONDITIONS AND MONITORING PLAN

Eric Veerkamp

INTRODUCTION

The Palmdale Energy Project (PEP) Compliance Conditions of Certification, including a Compliance Monitoring Plan (Compliance Plan), are established as required by Public Resources Code section 25532. The Compliance Plan provides a means for assuring that the facility is constructed, operated, and closed in compliance with public health and safety and environmental law; all other applicable laws, ordinances, regulations, and standards (LORS); and the conditions adopted by the California Energy Commission (Energy Commission) and specified in the Energy Commission's Decision on the project's Application for Certification (AFC), or otherwise required by law.

The Compliance Plan is composed of elements that:

- Set forth the duties and responsibilities of the compliance project manager (CPM), the project owner or operator, delegate agencies, and others;
- Set forth the requirements for handling confidential records and maintaining the compliance record;
- State procedures for settling disputes and making post-certification changes;
- State the requirements for periodic compliance reports and other administrative procedures that are necessary to verify the compliance status for all Energy Commission-approved conditions of certification;
- Establish contingency planning, facility non-operation protocols, and closure requirements; and
- Establish a tracking method for the technical area conditions of certification that contain measures required to mitigate potentially adverse project impacts associated with construction, operation, and closure below a level of significance; each technical condition of certification also includes one or more verification provisions that describe the means of assuring that the condition has been satisfied.

This section has been updated to reflect current definitions, clarify roles and responsibilities, changes in amendment processing. The Compliance Conditions of Certification have been updated based on lessons learned from previous cases.

KEY PROJECT EVENT DEFINITIONS

The following terms and definitions help determine when various conditions of certification are implemented.

PROJECT CERTIFICATION

Project certification occurs on the day the Energy Commission files its decision after adopting it at a publically noticed Business Meeting or hearing. At that time, all Energy Commission conditions of certification become binding on the project owner and the proposed facility. Also at that time, the project enters the compliance phase. It retains the same docket number it had during its siting review, but the letter "C" is added at the end (for example, 08-AFC-9C) to differentiate the compliance phase activities from those of the certification proceeding.

SITE ASSESSMENT AND PRE-CONSTRUCTION ACTIVITIES

The below-listed site assessment and pre-construction activities may be initiated or completed prior to the start of construction, subject to the CPM's approval of the specific site assessment or pre-construction activities.

Site assessment and pre-construction activities include the following, but only to the extent the activities are minimally disruptive to soil and vegetation and will not affect listed or special-status species or other sensitive resources:

1. the installation of environmental monitoring equipment;

2. a minimally invasive 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 minimally invasive work to provide safe access to the site for any of the purposes specified in 1 through 4, above.

SITE MOBILIZATION AND CONSTRUCTION

When a condition of certification requires the project owner to take an action or obtain CPM approval prior to the start of construction, or within a period of time relative to the start of construction, that action must be taken, or approval must be obtained, prior to any site mobilization or construction activities, as defined below.

Site mobilization and construction activities are those necessary to provide site access for construction mobilization and facility installation, including both temporary and permanent equipment and structures, as determined by the CPM.

Site mobilization and construction activities include, but are not limited to:

1. ground disturbance activities like grading, boring, trenching, leveling, mechanical clearing, grubbing, and scraping;

2. site preparation activities, such as access roads, temporary fencing, trailer and utility installation, construction equipment installation and storage, equipment and supply laydown areas, borrow and fill sites, temporary parking facilities, chemical spraying, controlled burns; and

3. permanent installation activities for all facility and linear structures, including access roads, fencing, utilities, parking facilities, equipment storage, mitigation and landscaping activities, and other installations, as applicable.

COMMISSIONING

Commissioning activities test the functionality of the installed components and systems to ensure the facility operates safely and reliably. Commissioning provides a multistage, integrated, and disciplined approach to testing, calibrating, and proving all of the project's systems, software, and networks. For compliance monitoring purposes, examples of commissioning activities include interface connection and utility pre-testing, "cold" and "hot" electrical testing, system pressurization and optimization tests, grid synchronization, and combustion turbine "first fire" and tuning.

START OF COMMERCIAL OPERATION

For compliance monitoring purposes, "commercial operation or "operation" begins once commissioning activities are complete, the certificate of occupancy has been issued, and the power plant has reached reliable steady-state electrical production. At the start of commercial operation, plant control is usually transferred from the construction manager to the plant operations manager. Operation activities can include a steady state of electrical production, or, for "peaker plants," a seasonal or on-demand operational regime to meet peak load demands.

NON-OPERATION AND CLOSURE

Non-operation is time-limited and can encompass part or all of a facility. Non-operation can be a planned event, usually for equipment maintenance or repair, or unplanned, usually the result of unanticipated events or emergencies.

Closure is a facility shutdown with no intent to restart operation. It may also be the cumulative result of unsuccessful efforts to re-start over an increasingly lengthy period of non-operation, condemned by inadequate means and/or lack of a viable plan. Facility closures can occur due to a variety of factors, including, but not limited to, irreparable damage and/or functional or economic obsolescence.

ROLES AND RESPONSIBILITIES

Provided below is a generalized description of the compliance roles and responsibilities for Energy Commission staff (staff) and the project owner for the construction and operation of the PEP project.

COMPLIANCE PROJECT MANAGER RESPONSIBILITIES

The CPM's compliance monitoring and project oversight responsibilities include:

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

2. Resolving complaints;

3. Processing post-certification project amendments for changes to the project description, conditions of certification and ownership or operational control, and requests for extension of the deadline for the start of construction (see COM-10 for instructions on filing a Petition to Amend or to extend a construction start date);

4. Documenting and tracking compliance filings; and

5. Ensuring that the compliance files are maintained and accessible.

The CPM is the primary contact person for the Energy Commission during project pre-construction, construction, operation, emergency response, and closure. The CPM will consult with the appropriate responsible parties when handling compliance issues, disputes, complaints and amendments.

All project compliance submittals are submitted to the CPM for processing. Where a submittal requires CPM approval, required by a condition of certification requires CPM approval, the approval will involve appropriate Energy Commission technical staff and management. All submittals must include searchable electronic versions (.pdf, MS Word, or equivalent files).

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. These meetings are used to assist the Energy Commission and the project owner's technical staff in the status review of all required pre-construction or pre-operation conditions of certification, and facilitate staff taking proper action if outstanding conditions remain. In addition, these meetings shall ensure, to the extent possible, that the Energy Commission's conditions of certification do not delay the construction and operation of the plant due to last minute unforeseen issues or a compliance oversight. Pre-construction meetings held before the Energy Commission approves a project must be publicly noticed unless they are confined to administrative issues and processes.

ENERGY COMMISSION RECORD

The Energy Commission maintains the following documents and information as public record, in either the Compliance file or Dockets Unit files, for the life of the project (or other period as specified):

- All documents demonstrating compliance with any legal requirements relating to the construction, operation, and closure of the facility;
- All Monthly and Annual Compliance Reports (MCRs, ACRs) and other required Periodic Compliance Reports (PCRs) filed by the project owner;
- All project-related formal complaints of alleged noncompliance filed with the Energy Commission; and
- All petitions for project or condition of certification changes and the resulting staff or Energy Commission action.

Chief Building Official Delegation and Agency Cooperation

Under the California Building Code standards, while monitoring project construction and operation, staff acts as, and has the authority of, the Chief Building Official (CBO). Staff may delegate some CBO responsibility to either an independent third-party contractor or a local building official. However, staff retains CBO authority when selecting a delegate CBO (DCBO), including the interpretation and enforcement of state and local codes, and the use of discretion, as necessary, in implementing the various codes and standards.

The DCBO will be responsible for facilitating compliance with all appropriate codes, standards, and Energy Commission requirements. The DCBO will conduct on-site (including linear facilities) reviews and inspections at intervals necessary to fulfill these responsibilities. The project owner will pay all DCBO fees necessary to cover the costs of these reviews and inspections.

PROJECT OWNER RESPONSIBILITIES

The project owner is responsible for ensuring that all conditions of certification and applicable LORS in the PEP amended Decision are satisfied. The project owner will submit all compliance submittals to the CPM for processing unless the conditions specify another recipient. The Compliance Conditions regarding post-certification changes specify measures that the project owner must take when modifying the project's design, operation, or performance requirements, or to transfer ownership or operational control. Failure to comply with any of the conditions of certification or applicable LORS may result in a non-compliance report, an administrative fine, certification revocation, or any combination thereof, as appropriate. A summary of the Compliance Conditions of Certification are included as Compliance Table 1 at the end of this Compliance Plan.

COMPLIANCE ENFORCEMENT

The Energy Commission's legal authority to enforce the terms and conditions of its Decision are specified in Public Resources Code sections 25534 and 25900. The Energy Commission may amend or revoke a project certification and may impose a civil penalty for any significant failure to comply with the terms or conditions of the Decision. The Energy Commission's actions and fine assessments would take into account the specific circumstances of the incident(s).

PERIODIC COMPLIANCE REPORTING

Many of the conditions of certification require submittals in the MCRs and ACRs. All compliance submittals assist the CPM in tracking project activities and monitoring compliance with the terms and conditions of the PEP Decision. During construction, the project owner or an authorized agent will submit compliance reports on a monthly basis. During operation, compliance reports are submitted annually; though reports regarding compliance with various technical area conditions of certification may be required more often (e.g. AIR QUALITY). Further detail regarding the MCR/ACR content and the requirements for an accompanying compliance matrix are described below.

Request for Investigation

Title 20 California Code of Regulations section 1230 through 1231.5 sets forth the formal process for any person to request the Energy Commission investigate an alleged violation of a commission regulation, order or condition of certification. The California Office of Administrative Law provides on-line access to the California Code of Regulations at http://www.oal.ca.gov/.

The steps of the Request for Investigation include the filing, with the executive director, of information regarding the alleged violation, an investigation and a response. Based on the information and the results of the executive director's investigation, the executive director may then bring a complaint against the alleged violator or take other action.

Request for Informal Investigation

While the commission has a formal request for investigation process under section 1230, such a process does not preclude any person with a concern related to a licensed power plant from contacting the CPM. The CPM can work to resolve concerns taking appropriate actions such as contacting the project owner for information, working with other agencies, setting up meetings with stakeholders and recommending the executive director initiate a complaint.

POST-CERTIFICATION CHANGES TO THE ENERGY COMMISSION DECISION

The project owner must petition the Energy Commission pursuant to Title 20, California Code of Regulations, section 1769, to modify the design, operation, or performance requirements of the project and/or the linear facilities, or to transfer ownership or operational control of the facility.

A project owner is required to submit a five thousand ($5,000) dollar fee for every PTA to a previously certified facility, pursuant to Public Resources Code section 25806(e). If the amendment's actual processing costs exceed $5,000.00, the total PTA reimbursement fees owed by a project owner will not exceed the maximum filing fee for an AFC, which is seven hundred fifty thousand dollars ($750,000), adjusted annually. Implementation of a project modification without first securing Energy Commission approval may result in an enforcement action, including civil penalties, in accordance with Public Resources Code, section 25534.

Below is a summary of the criteria for determining the type of approval process required, reflecting the provisions of Title 20, California Code of Regulations, section 1769, at the time this compliance plan was drafted. If the Energy Commission modifies this regulation, the language in effect at the time of the requested change shall apply. Upon request, the CPM can provide sample formats of these submittals.

AMENDMENT

The project owner shall submit a PTA to the Energy Commission Decision, pursuant to Title 20, California Code of Regulations, section 1769 (a), when proposing modifications to the design, operation, or performance requirements of the project and/or the linear

facilities. If a proposed modification results in an added, changed, or deleted condition of certification, or makes changes causing noncompliance with any applicable LORS, the petition will be processed as a formal amendment to the Decision, triggering public notification of the proposal, public review of the staff's analysis, and consideration of approval by the full Energy Commission.

CHANGE OF OWNERSHIP AND/OR OPERATIONAL CONTROL

The project owner is required to file a petition pursuant to section 1769 (b) for approval of any changes in ownership or operational control. This process requires public notice and approval by the Energy Commission, but does not require submittal of an amendment processing fee.

STAFF-APPROVED PROJECT MODIFICATION

Modifications that do not result in additions, deletions, or changes to the conditions of certification, that are compliant with the applicable LORS, and that will not have significant environmental impacts, may be authorized by staff pursuant to section 1769 (a)(2). Once the CPM files a Notice of Determination of 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 there is a valid objection to the staff's determination, the petition must be processed as a formal amendment to the Decision and must be considered for approval by the full Energy Commission at a publically noticed Business Meeting or hearing.

VERIFICATION CHANGE

Pursuant to section 1770(d), a verification to a condition of certification may be modified by staff, after giving notice to the project owner, if the change does not conflict with any condition of certification.

EMERGENCY RESPONSE CONTINGENCY PLANNING AND INCIDENT REPORTING

To protect public health and safety and environmental quality, the conditions of certification include contingency planning and incident reporting requirements to ensure compliance with necessary health and safety practices. A well-drafted contingency plan avoids or limits potential hazards and impacts resulting from serious incidents involving personal injury, hazardous spills, flood, fire, explosions or other catastrophic events and ensures a comprehensive timely response. All such incidents must be reported immediately to the CPM and documented. These requirements are designed to build from "lessons learned," limit the hazards and impacts, anticipate and prevent recurrence, and provide for the safe and secure shutdown and re-start of the facility.

FACILITY CLOSURE

The Energy Commission cannot reasonably foresee all potential circumstances in existence when a facility permanently closes. Therefore, the closure conditions provided herein strive for the flexibility to address circumstances that may exist at some future

time. Most importantly, facility closure must be consistent with all applicable Energy Commission conditions of certification and the LORS in effect at that time.

Prior to submittal of the facility's Final Closure Plan to the Energy Commission, the project owner and the CPM will hold a meeting to discuss the specific contents of the plan. In the event that significant issues are associated with the plan's approval, the CPM will hold one or more workshops and/or the Energy Commission may hold public hearings as part of its approval procedure.

With the exception of measures to eliminate any immediate threats to public health and safety or to the environment, facility closure activities cannot be initiated until the Energy Commission approves the Final Closure Plan and Cost Estimate, and the project owner complies with any requirements the Energy Commission may incorporate as conditions of approval of the Final Closure Plan.

COMPLIANCE CONDITIONS OF CERTIFICATION

For the PEP project, staff proposes the **Compliance** Conditions of Certification below.

The language of **COM-1** through **COM-9** has been updated to reflect not only new formatting, but new definitions and compliance enforcement policies. The new **COM-10** has been updated with Compliance Plan information pertaining to Amendments, Staff-Approved Project Modification, Ownership changes, and Verification Changes, and replaces the previous **COM-14**. **COM-11, previously COM-10,** has been updated to incorporate a number of administrative changes to reporting complaints, notices and citations. **COM-12** (Emergency Response Site Contingency Plan), is a new condition requiring a Contingency Plan for emergency response for a number of foreseeable emergency events. **COM-13** (Incident-Reporting Requirements) is also a new condition requiring the project owner to notify the CPM within one hour of any serious event, as defined by the condition, occur. **COM-14** (Non-Operation and Repair/Restoration Plan) and **COM-15** (Facility Closure Planning) replace previous Compliance Plan information pertaining to Facility Closure, unplanned temporary and unplanned permanent. The summary table of conditions and the Compliance Report and Resolution Form at the end of this section, have also been updated.

COM-1 Unrestricted Access

The project owner shall ensure that the CPM, responsible staff, and delegate agencies are granted unrestricted access to the facility site, related facilities, project-related staff, and the records maintained on-site~~,~~ for the purpose of conducting facility audits, surveys, inspections, or general or closure-related 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, whether such visits are by the CPM in person or through representatives from staff, delegated agencies, or consultants.

COM-2 Compliance Record

The project owner shall maintain electronic copies of all project files and submittals on-site, or at an alternative site approved by the CPM for the operational life and closure of the project. The files shall also contain at least:

1. the facility's Application for Certification;
2. all amendment petitions, staff approvals and Energy Commission orders;
3. all site-related environmental impact and survey documentation;
4. all appraisals, assessments, and studies for the project;
5. all finalized original and amended design plans and "as-built" drawings for the entire project;
6. all citations, warnings, violations, or corrective actions applicable to the project, and
7. the most current versions of any plans, manuals, and training documentation required by the conditions of certification or applicable LORS.

Staff and delegate agencies shall, upon request to the project owner, be given unrestricted access to the files maintained pursuant to this condition.

COM-3 Compliance Verification Submittals

Verification lead times associated with the start of construction may require the project owner to file submittals during the amendment process, particularly if construction is planned to commence shortly after certification.

A cover letter from the project owner or an 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, cite the appropriate condition of certification number(s), and give a brief description of the subject of the submittal. When submitting supplementary or corrected information, the project owner shall reference the date of the previous submittal and the condition(s) of certification applicable.

All reports and plans required by the project's conditions of certification shall be submitted in a searchable electronic format (.pdf, MS Word or Excel, etc.) and include standard formatting elements such as a table of contents identifying by title and page number each section, table, graphic, exhibit, or addendum. All report and/or plan graphics and maps shall be adequately scaled and shall include a key with descriptive labels, directional headings, a distance scale, and the most recent revision date.

The project owner is responsible for the content and delivery of all verification submittals to the CPM and notification that the actions required by the verification were satisfied by the project owner or an agent of the project

owner. All submittals shall be accompanied by an electronic copy on an electronic storage medium, or by e-mail, as agreed upon by the CPM. If hard copy submittals are required, they should be addressed as follows:

[Insert Name], Compliance Project Manager
Palmdale Energy Project (08-AFC-9C)
California Energy Commission
1516 Ninth Street (MS-2000)

COM-4 Pre-Construction Matrix and Tasks Prior to Start of Construction

Prior to construction, the project owner shall submit to the CPM a compliance matrix including only those conditions that must be fulfilled before the start of construction. The matrix shall be included with the project owner's first compliance submittal or prior to the first pre-construction meeting, whichever comes first, and shall be submitted in a format similar to the description below.

Site mobilization and construction activities shall not start until the following have occurred:

1. The project owner has submitted the pre-construction matrix and all compliance verifications pertaining to pre-construction conditions of certification; and

2. The CPM has issued an authorization-to-construct letter to the project owner.

The deadlines for submitting various compliance verifications to the CPM allow staff sufficient time to review and comment on, and, if necessary, also allow the project owner to revise the submittal in a timely manner. These procedures help ensure that project construction proceeds according to schedule. Failure to submit required compliance documents by the specified deadlines may result in delayed authorizations to commence various stages of the project.

If the project owner anticipates site mobilization immediately following PTA approval, it may be necessary for the project owner to file compliance submittals prior to project certification. In these instances, compliance verifications can be submitted in advance of the required deadlines and the anticipated authorizations to start construction. The project owner must understand that submitting compliance verifications prior to these authorizations is at the owner's own risk. Any approval by staff prior to project certification is subject to change, based upon the Commission Decision

or amendment thereto, and early staff compliance approvals do not imply that the Energy Commission will certify the project for actual construction and operation.

COM-5 Compliance Matrix

The project owner shall submit a compliance matrix to the CPM with each MCR and ACR. The compliance matrix shall identify:

1. the technical area~~:~~ (e.g., biological resources, facility design, etc.);

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 updated language and the date ~~of~~ the amendment was proposed or approved.

The CPM can provide a template for the compliance matrix upon request.

COM-6 Monthly Compliance Report

The first MCR is due one month following the docketing of the project’s Decision unless otherwise agreed to by the CPM. The first MCR shall include the AFC number and an initial list of dates for each of the events identified on the Key Events List. (The Key Events List form is found at the end of this Compliance Plan.)

During pre-construction, construction, or closure~~,~~ the project owner or authorized agent shall submit an electronic searchable version of the MCR to the CPM within ten (10) business days after the end of each reporting month. MCRs shall be submitted each month until construction is complete and the final certificate of occupancy is issued by the DCBO. MCRs shall be clearly identified for the month being reported. The MCR 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 MCR. Each of these items shall be identified in the transmittal letter, as well as the conditions they satisfy, and submitted as attachments to the MCR;

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, and permits issued by, other governmental agencies during the month;

8. a projection of project compliance activities scheduled during the next (2) 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 incidents, complaints, notices of violation, official warnings, and citations received during the month; a list of any incidents that occurred during the month, a description of the actions taken to date to resolve the issues; and the status of any unresolved actions noted in the previous MCRs.

COM-7 Periodic and Annual Compliance Reports

After construction is complete, the project must submit searchable electronic ACRs to the CPM, as well as other PCRs required by the various technical disciplines. ACRs shall be completed for each year of commercial operation and are due each year on a date agreed to by the CPM. Other PCRs (e.g. quarterly reports or decommissioning reports to monitor closure compliance), may be specified by the CPM. The searchable electronic copies may be filed on an electronic storage medium or by e-mail, subject to CPM approval. Each ACR must include the AFC number, identify the reporting period, and contain the following:

1. an updated compliance matrix which shows 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 ACR; each of these items shall be identified in the transmittal letter with the conditions it satisfies, and submitted as an attachment to the ACR;

4. a cumulative list of all post-certification changes approved by the Energy Commission or 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 Site Contingency Plan, including amendments and plan updates; and

10. a listing of complaints, incidents, notices of violation, official warnings, and citations received during the year, a description of how the issues were resolved, and the status of any unresolved complaints.

COM-8 Confidential Information

Any information that the project owner designates as 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).

COM-9 Annual Energy Facility Compliance Fee

Pursuant to the provisions of section 25806 (b) of the Public Resources Code, the project owner is required to pay an compliance fee which is adjusted annually. The initial payment is due on the date the Energy Commission files its final Decision. All subsequent payments are due by July 1 of each year in which the facility retains its certification.

COM-10 Amendments and Staff Approved Project Modifications. The project owner shall petition the Energy Commission, pursuant to Title 20, California Code of Regulations, section 1769, to modify the design, operation, or performance requirements of the project or linear facilities, or to transfer ownership or operational control of the facility. Section 1769 details the required contents for a Petition to Amend an Energy Commission Decision.

A project owner is required to submit a five thousand ($5,000) dollar fee for every Petition to Amend a previously certified facility, pursuant to Public Resources Code section 25806(e). If the actual amendment processing costs exceed $5,000.00, the total Petition to Amend reimbursement fees owed by a project owner will not exceed seven hundred fifty thousand dollars ($750,000), adjusted annually.

COM-11 Reporting of Complaints, Notices, and Citations

Prior to the start of construction or closure, the project owner shall send a letter to property owners within one (1) 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 must include automatic answering with date and time stamp recording.

The project owner shall respond to all recorded complaints within 24 hours or the next business day. The project site shall post the telephone number on-site and make it easily visible to passersby during construction, operation, and closure. The project owner shall provide the contact information to the CPM and promptly report any disruption to the contact system or telephone number change to the CPM, who will provide it to any persons contacting him or her with a complaint.

Within five (5) days of receipt, the project owner shall report and provide copies to the CPM, of all complaints, (including, but not limited to, noise and lighting complaints, notices of violation, notices of fines, official warnings, and citations). Complaints shall be logged and numbered. Noise complaints shall be recorded on the form provided in the **NOISE AND VIBRATION** Conditions of Certification. All other complaints shall be recorded on the complaint form (Attachment A) at the end of this Compliance Plan. Additionally, the project owner must include in the next subsequent MCR, ACR or PCR, copies of all complaints, notices, warnings, citations and fines, a description of how the issues were resolved, and the status of any unresolved or ongoing matters.

COM-12 Emergency Response Site Contingency Plan. No less than 60 days prior to the start of construction (or other CPM-approved date), the project owner shall submit for CPM review and approval, an Emergency Response Site Contingency Plan (Contingency Plan). Subsequently, no less than 60 days prior to the start of commercial operation, the project owner shall update (as necessary) and resubmit the Contingency Plan for CPM review and approval. The Contingency Plan shall evidence a facility's coordinated emergency response and recovery preparedness for a series of reasonably foreseeable emergency events. The CPM may require Contingency Plan updating over the life of the facility. Contingency Plan elements include, but are not limited to:

1. A site-specific list and direct contact information for persons, agencies, and responders to be notified for an unanticipated event;

2. A detailed and labeled facility map, including all fences and gates, the windsock location (if applicable), the on- and off-site assembly areas, and the main roads and highways near the site;

3. A detailed and labeled map of population centers, sensitive receptors, and the nearest emergency response facilities;

4. A description of the on-site, first response and backup emergency alert and communication systems, site-specific emergency response protocols, and procedures for maintaining the facility's contingency response capabilities, including a detailed map of interior and exterior evacuation routes, and the planned location(s) of all permanent safety equipment;

5. An organizational chart including the name, contact information, and first aid/emergency response certification(s) and renewal date(s) for all personnel regularly on-site;

6. A brief description of reasonably foreseeable, site-specific incidents and accident sequences (on- and off-site), including response procedures and protocols and site security measures to maintain twenty-four-hour site security;

7. Procedures for maintaining contingency response capabilities; and

8. The procedures and implementation sequence for the safe and secure shutdown of all non-critical equipment and removal of hazardous materials and waste (see also specific conditions of certification for the technical areas of Public Health, Waste Management, Hazardous Materials Management, and Worker Safety).

COM-13 Incident-Reporting Requirements. The project owner shall notify the CPM, by telephone and e-mail, within one (1) hour after it is safe and feasible, upon identification of any incident at the power plant or appurtenant facilities that results or could result in any of the following:

1. A reduction in the maximum output capability of a generating unit of at least ten (10) MW or five (5) percent, whichever is greater, that lasts for fifteen (15) minutes or longer (or such values as trigger CAISO no prior notice outage reporting requirements under any subsequent modifications to CAISO tariff 9.3.10.3.1); facility's ability to respond to dispatch (excluding forced outages cause by protective equipment or other typically encountered shutdown events);

2. Potential health impacts to the surrounding population or any release that could result in an off-site odor issue;

3. Notification to or response by any off-site emergency response, federal, state or local agency regarding a fire, hazardous materials release, on-site injury, or any physical or cyber security incident.

The notice shall describe the circumstances, status, and expected duration of the incident. If warranted, as soon as it is safe and feasible, the project owner shall implement the safe shutdown of any non-critical equipment and removal of any hazardous materials and waste that pose a threat to public health and safety and to environmental quality (also, see specific conditions of certification for the technical areas of Hazardous Materials Management and Waste Management). Within one (1) week of the incident, the project owner

shall submit to the CPM a detailed incident report, which includes, as appropriate, the following information:

4. A brief description of the incident, including its date, time, and location;
5. A description of the cause of the incident, or likely causes if it is still under investigation;
6. The location of any off-site impacts;
7. Description of any resultant impacts;
8. A description of emergency response actions associated with the incident;
9. Identification of responding agencies;
10. Identification of emergency notifications made to federal, state, and/or local agencies;
11. Identification of any hazardous materials released and an estimate of the quantity released;
12. A description of any injuries, fatalities, or property damage that occurred as a result of the incident;
13. Fines or violations assessed or being processed by other agencies;
14. Name, phone number, and e-mail address of the appropriate facility contact person having knowledge of the event; and
15. Corrective actions to prevent a recurrence of the incident.

The project owner shall maintain all incident report records for the life of the project, including closure. After the submittal of the initial report for any incident, the project owner shall submit to the CPM copies of incident reports within 24 hours of a request.

COM-14 Non-Operation and Repair/Restoration Plans. If the facility ceases operation temporarily (excluding planned maintenance), for longer than one (1) week (or other CPM-approved date), but less than three (3) months (or other CPM-approved date), the project owner shall notify the CPM, interested agencies, and nearby property owners. Notice of planned non-operation shall be given at least two (2) weeks prior to the scheduled date. Notice of unplanned non-operation shall be provided no later than one (1) week after non-operation begins.

For any non-operation, a Repair/Restoration Plan for conducting the activities necessary to restore the facility to availability and reliable and/or improved performance shall be submitted to the CPM within one (1) week after notice of non-operation is given. If non-operation is due to an unplanned incident, temporary repairs and/or corrective actions may be undertaken before the

Repair/Restoration Plan is submitted. The Repair/Restoration Plan shall include:

1. Identification of operational and non-operational components of the plant;

2. A detailed description of the repair and inspection or restoration activities;

3. A proposed schedule for completing the repair and inspection or restoration activities;

4. An assessment of whether or not the proposed activities would require changing, adding, and/or deleting any conditions of certification, and/or would cause noncompliance with any applicable LORS; and

5. Planned activities during non-operation, including any measures to ensure continued compliance with all conditions of certification and LORS.

Written monthly updates (or other CPM-approved intervals) to the CPM for non-operational periods, until operation resumes, shall include:

1. Progress relative to the schedule;

2. Developments that delayed or advanced progress or that may delay or advance future progress;

3. Any public, agency, or media comments or complaints; and

4. Projected date for the resumption of operation.

During non-operation, all applicable conditions of certification and reporting requirements remain in effect. If, after one (1) year from the date of the project owner's last report of productive Repair/Restoration Plan work, the facility does not resume operation or does not provide a plan to resume operation, the Executive Director may assign suspended status to the facility and recommend commencement of permanent closure activities. Within 90 days of the Executive Director's determination, the project owner shall do one of the following:

1. If the facility has a closure plan, the project owner shall update it and submit it for Energy Commission review and approval; or

2. If the facility does not have a closure plan, the project owner shall develop one consistent with the requirements in this Compliance Plan and submit it for Energy Commission review and approval.

COM-15: Facility Closure Planning.

To ensure that a facility's eventual permanent closure and long-term maintenance do not pose a threat to public health and safety and/or to environmental quality, the project owner shall coordinate with the Energy Commission to plan and prepare for eventual permanent closure.

A. Provisional Closure Plan

To assure satisfactory long-term site maintenance and adequate closure for “the whole of a project,” the project owner shall include within the first ACR a Provisional Closure Plan for CPM review and approval. The CPM may require Provisional Closure Plan updates to reflect project modifications approved by the Energy Commission. The Provisional Closure Plan shall consider applicable final closure plan requirements, including interim and long-term maintenance costs and reflect that qualified personnel will carry out permanent closure and long-term maintenance activities.

The Provisional Closure Plan shall reflect the most current regulatory standards, best management practices, and applicable LORS, and provide for a phased closure process and include but not be limited to:

1. Comprehensive scope of work;
2. Dismantling and demolition;
3. Recycling and site clean-up;
4. Mitigation and monitoring direct, indirect, and cumulative impacts;
5. Site remediation and/or restoration;
6. Interim and long-term operation monitoring and maintenance, including long-term equipment replacement costs; and
7. Contingencies.

B. Final Closure Plan and Cost Estimate

No less than one (1) year (or other CPM-approved date) prior to initiating a permanent facility closure, the project owner shall submit for Energy Commission review and approval, a Final Closure Plan and Cost Estimate, which includes any long-term, site maintenance and monitoring. Final Closure Plan and Cost Estimate contents include, but are not limited to:

1. A statement of specific Final Closure Plan objectives;
2. A statement of qualifications and resumes of the technical experts proposed to conduct the closure activities, with detailed descriptions of previous power plant closure experience;
3. Identification of any facility-related installations or maintenance agreements not part of the Energy Commission certification, designation of who is responsible for these, and an explanation of what will be done with them after closure;

4. A comprehensive scope of work and itemized budget for permanent plant closure and long-term site maintenance activities, with a description and explanation of methods to be used, broken down by phases, including, but not limited to:
    a. dismantling and demolition;
    b. recycling and site clean-up;
    c. impact mitigation and monitoring;
    d. site remediation and/or restoration, including ongoing testing or monitoring protocols;
    e. exterior maintenance, including paint, landscaping and fencing;
    f. site security and lighting; and
    g. any contingencies.
5. A Final Cost Estimate for all closure activities, by phases, including long-term site monitoring and maintenance costs, and long-term equipment replacement;
6. A schedule projecting all phases of closure activities for the power plant site and all appurtenances constructed as part of the Energy Commission-certified project;
7. An electronic submittal package of all relevant plans, drawings, risk assessments, and maintenance schedules and/or reports, including an above- and below-ground infrastructure inventory map and registered engineer's or DCBO's assessment of demolishing the facility; additionally, for any facility that permanently ceased operation prior to submitting a Final Closure Plan and Cost Estimate and for which only minimal or no maintenance has been done since, a comprehensive condition report focused on identifying potential hazards;
8. All information additionally required by the facility's conditions of certification applicable to plant closure;
9. An equipment disposition plan, including:
    a. recycling and disposal methods for equipment and materials; and
    b. identification and justification for any equipment and materials that will remain on-site after closure;
10. A site disposition plan, including but not limited to:
    a. proposed rehabilitation, restoration, and/or remediation procedures, as required by the conditions of certification and applicable LORS, and long-term site maintenance activities.

11. Identification and assessment of all potential direct, indirect, and cumulative impacts and proposal of mitigation measures to reduce significant adverse impacts to a less-than-significant level; potential impacts to be considered shall include, but not be limited to:

    a. traffic;

    b. noise and vibration;

    c. soil erosion;

    d. air quality degradation;

    e. solid waste;

    f. hazardous materials;

    g. waste water discharges; and

    h. contaminated soil.

12. Identification of all current conditions of certification, LORS, federal, state, regional, and local planning efforts applicable to the facility, and proposed strategies for achieving and maintaining compliance during closure;

13. Updated mailing list and Listserv of all responsible agencies, potentially interested parties, and property owners within one (1) mile of the facility;

14. Identification of alternatives to plant closure and assessment of the feasibility and environmental impacts of these; and

15. Description of and schedule for security measures and safe shutdown of all non-critical equipment and removal of hazardous materials and waste (see conditions of certification for Public Health, Waste Management, Hazardous Materials Management, and Worker Safety).

If the Energy Commission-approved Final Closure Plan and Cost Estimate are not initiated within one (1) year of its approval date, it shall be updated and re-submitted to the Energy Commission for supplementary review and approval. If a project owner initiates but then suspends closure activities, and the suspension continues for longer than one (1) year, the Energy Commission may initiate correction actions against the project owner to complete facility closure. The project owner remains liable for all costs of contingency planning and closure.

Prior to submittal of the facility's Final Closure Plan to the Energy Commission, the project owner and the CPM will hold a meeting to discuss the specific contents of the plan. In the event that significant issues are associated with the plan's approval, the CPM will hold one or more workshops

and/or the Energy Commission may hold public hearings as part of its approval procedure.

KEY EVENTS LIST

PROJECT: _____

DOCKET #: _____

COMPLIANCE PROJECT MANAGER: _____

EVENT DESCRIPTION	DATE
Certification Date	
Obtain Site Control	
On-line Date	
POWER PLANT SITE ACTIVITIES	
Start Site Assessment/Pre-construction	
Start Site Mobilization/Construction	
Begin Pouring Major Foundation Concrete	
Begin Installation of Major Equipment	
Completion of Installation of Major Equipment	
First Combustion of Turbine	
Obtain Building Occupation Permit	
Start Commercial Operation	
Complete All Construction	
TRANSMISSION LINE ACTIVITIES	
Start Transmission Line Construction	
Complete Transmission Line Construction	
Synchronization with Grid and Interconnection	
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	

Condition Number	**Subject**	
COM-1	Unrestricted Access	The project owner shall grant staff and delegate agencies or consultants unrestricted access to the power plant site.
COM-2	Compliance Record	The project owner shall maintain project files on-site. Staff and delegate agencies shall be given unrestricted access to the files.
COM-3	Compliance Verification Submittals	The project owner is responsible for the delivery and content of all verification submittals to the CPM, regardless of whether the conditions were satisfied directly by the project owner or by an agent.
COM-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: • Project owner has submitted a pre-construction matrix identifying conditions to be fulfilled before the start of construction; • Project owner has completed all pre-construction conditions to the CPM's satisfaction; and • CPM has issued a letter to the project owner authorizing construction.
COM-5	Compliance Matrix	The project owner shall submit a compliance matrix (in a spreadsheet format) with each Monthly and Annual Compliance Report, which includes the current status of all Compliance Conditions of Certification.
COM-6	Monthly Compliance Reports and Key Events List	During construction, the project owner shall submit MCRs which include specific information. The first MCR is due one (1) month following the docketing of the Energy Commission's Decision on the project and shall include an initial list of dates for each of the events identified on the Key Events List.
COM-7	Periodic and Annual Compliance Reports	After construction ends, and throughout the life of the project, the project owner shall submit ACRs instead of MCRs.
COM-8	Confidential Information	Any information the project owner designates as confidential shall be submitted to the Energy Commission's Executive Director with a request for confidentiality.
COM-9	Annual Fees	Required payment of the Annual Energy Facility Compliance Fee.
COM-10	Amendments, Staff-Approved Project Modifications, Ownership Changes, and Verification Changes	The project owner shall petition the Energy Commission to delete or change a condition of certification, modify the project design or operational requirements, and/or transfer ownership or operational control of the facility. Petitions to Amend require the payment of amendment processing fees.

Condition Number	**Subject**	
COM-11	Reporting of Complaints, Notices, and Citations	Prior to the start of construction, the project owner shall provide all property owners within a one-mile radius a telephone number to contact project representatives with questions, complaints, or concerns. The project owner shall respond to all recorded complaints within 24 hours. Within ten days of receipt, the project owner shall report to the CPM all notices, complaints, violations, and citations.
COM-12	Site Contingency Plan	No less than 60 days prior to the start of commercial operation, the project owner shall submit an on-site Contingency Plan to ensure protection of public health and safety and environmental quality during a response to an emergency.
COM-13	Incident-Reporting Requirements	The project owner shall notify the CPM within one (1) hour of an incident and submit a detailed incident report within (1) one week, maintain records of incident report, and submit public health and safety documents with employee training provisions.
COM-14	Non-Operation	No later than two (2) weeks prior to a facility's planned non-operation, or no later than one (1) week after the start of unplanned non-operation, the project owner shall notify the CPM, interested agencies and nearby property owners of this status. During non-operation, the project owner shall provide written updates to the CPM.
COM-15	Facility Closure Planning	Within the first ACR, the project owner shall submit a Provisional Closure Plan for permanent closure. No less than one (1) year prior to closing, the project owner shall submit a Final Closure Plan and Cost Estimate.

ATTACHMENT A
COMPLAINT REPORT AND RESOLUTION FORM

COMPLAINT LOG NUMBER: **DOCKET NUMBER:**

PROJECT AME:

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:

"This information is certified to be correct."

PLANT MANAGER SIGNATURE: **DATE:**

(ATTACH ADDITIONAL PAGES AND ALL SUPPORTING PHOTO/DOCUMENTATION, AS REQUIRED)

Environmental Assessment

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 **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 60 days prior to the start of ground disturbance, including project-related mitigation such as road paving, 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. The AQCMM and all Delegates must be approved by the CPM before the start of ground disturbance.

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 **AQ-SC3**, **AQ-SC4**, **AQ-SC5**, **AQ-SC6**, **AQ-SC7** and **AQ-SC8.** The AQCMP shall include a Monthly Compliance Report (MCR). The project owner shall provide a MCR during construction and commissioning including information necessary to demonstrate compliance with the conditions of certification.

Verification: At least 60 days prior to the start of any ground disturbance, the project owner shall submit the AQCMP to the CPM and Antelope Valley Air Quality Management District (District) for approval. The CPM will notify the project owner of any necessary modifications to the plan within 30 days from the date of receipt. The AQCP must be approved by the CPM before the start of ground disturbance. The project owner shall submit the MCR to the CPM and District if requested by the District no later than 30 days following the end of each calendar month.

AQ-SC3 Construction Fugitive Dust Control: The AQCMM shall submit documentation to the CPM in each Monthly Compliance Report (MCR) that demonstrates compliance with the following mitigation measures for the purposes of minimizing fugitive dust emissions created from construction activities and preventing all fugitive dust plumes from leaving the project site and linear facility routes. Any deviation from the following mitigation measures shall require prior CPM notification and approval.

A. (Deleted)

B. All disturbed areas in the project and linear construction sites shall be watered as frequently as necessary 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 shall be provided with sandbags or other similar measures as specified in the Storm Water Pollution Prevention Plan (SWPP) to prevent run-off to roadways.

J. All paved roads within the construction site shall be swept at least twice daily (or 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 at least twice daily (or 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 covered, or the materials shall 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 al bulk materials transport.

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.

O. Disturbed areas will be re-vegetated as soon as practical.

Verification: The AQCMM shall include in the MCR:

1. A summary of all actions taken to maintain compliance with this condition;

2. Copies of any complaints filed with the District in relation to project construction; and

3. Any other documentation deemed necessary by the CPM, District or 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 Delegate shall monitor all construction activities for visible dust plumes. Observations of visible dust plumes that have the potential to be transported: (1) off the project site, (2) 200 feet beyond the centerline of the construction of linear facilities, or (3) within 100 feet upwind of any regularly occupied structures not owned by the project owner 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, provided that 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 MCR to include:

1. A summary of all actions taken to maintain compliance with this condition;

2. Copies of any complaints filed with the District in relation to project construction; and

3. Any other documentation deemed necessary by the CPM or AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion.

AQ-SC5 Diesel-Fueled Engine Control: The AQCMM shall submit to the CPM, in the MCR, a construction mitigation report that demonstrates compliance with the following mitigation measures for purposes of controlling diesel construction-related emissions. Any deviation from the following 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 shall meet, at a minimum, the Tier 4 or 4i 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. This good faith effort shall be documented with signed written correspondence by the appropriate construction contractors along with documented correspondence with at least two construction equipment rental firms. In the event that a Tier 4 or 4i engine is not available for any off-road equipment larger than 50 hp, that equipment shall be equipped with a Tier 3 engine, or an engine that is equipped with retrofit controls to reduce exhaust emissions of nitrogen oxides (NOx) and diesel particulate matter (DPM) to no more than Tier 3 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 3 equivalent emission levels and the highest level of available control using retrofit or Tier 2 engines is being used for the engine in question; or

2. The construction equipment is intended to be on site for 5 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 a table in the MCR the following to demonstrate control of diesel construction-related emissions:

1. A summary of all actions taken to maintain compliance with this condition,
2. 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

3. 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-SC6 The project owner shall submit to the CPM Quarterly Operation Reports, following the end of each calendar quarter that include operational and emissions information as necessary to demonstrate compliance with the Conditions of Certification herein. The Quarterly Operation Report will specifically state that the facility meets all applicable Conditions of Certification or note or highlight all incidences of noncompliance.

Verification: The project owner shall submit the Quarterly Operation Reports to the CPM and District, if requested by the District, no later than 30 days following the end of each calendar quarter.

AQ-SC7 The project owner shall provide the CPM copies of any District issued Authority-to-Construct (ATC) and Permit-to-Operate (PTO) for the facility. The project owner shall submit to the CPM for review and approval any modification proposed by the project owner to any project air permit. The project owner shall submit to the CPM any modification to any permit proposed by the District or U.S. EPA, and any revised permit issued by the District or U.S. EPA, for the project.

Verification: The project owner shall submit any ATC, PTO, and any proposed air permit modification to the CPM within five working days of its submittal either by 1) the project owner to an agency, or 2) receipt of proposed modifications from an agency. The project owner shall submit all modified air permits to the CPM within 15 days of receipt.

AQ-SC8 The project owner shall provide mitigation in the form of offsets or emission reduction credits (ERCs) prior to the start of construction of the project. The project emissions of 138.99 tons per year of NOx and 51.65 tons per year of VOC shall be offset at a ratio of 1.3 to one for ERC's within the Mojave Desert Air Basin and 1.5 to one for ERC's from the southern San Joaquin Valley Air Basin. The project owner shall provide a total of 180.7 tons per year of NOx and 77.5 tons per year of VOC mitigation. The project owner shall demonstrate that the reductions are provided in the form required by the District and U.S. EPA.

The project owner shall provide ERCs from the following list:

- MDAQMD: ERC Certificate 102
- MDAQMD: ERC Certificate 103
- SJVAPCD: ERC Certificate S-4039-1
- SJVAPCD: ERC Certificate S-3387-1
- SJVAPCD: ERC Certificate S-3261-1
- SJVAPCD: ERC Certificate S-3442

The project owner shall surrender the ERCs as required by the District. The project owner shall request District, U.S. EPA, ARB and CPM approval for any substitutions, modifications, or additions to the ERCs.

The CPM, in consultation with the District, U.S. EPA and ARB, may approve any such change to the ERC list provided that the project remains in compliance with all applicable laws, ordinances, regulations, and standards, and that the requested change(s) will not cause the project to result in a significant environmental impact. The District must also confirm that each requested change is consistent with applicable federal and state laws and regulations

Verification: The project owner shall submit to the CPM a copy of all ERCs to be surrendered to the District at least 60 days prior to start construction. Construction shall not begin until the CPM has approved all ERCS. This approval shall be done in consultation with the District. If a substitution or modification to the list of ERCs is approved by the CPM. District and U.S. EPA, the CPM shall file a statement of the approval with the project owner and Energy Commission docket. The CPM shall maintain an updated list of approved ERCs for the project.

AQ-SC9 The project owner shall provide 92.4 tons per year of PM10 ERCs 81.0 tons per year for PM10 emissions and 11.39 tons per year for PM10-precursor SOx emissions) that are banked consistent with the Rules and Regulations of the District. The project owner shall pave unpaved local roads to provide emission reductions of 137 tons per year of PM10 prior to the start of construction of the project. The project owner shall complete the road paving according to the revised Paved ERC Data Collection Protocol included as Air Quality Appendix Air-2 to the Final Staff Assessment. Calculations of PM10 emission reduction credits shall be performed in accordance with the ERC Data Collection Protocol.

Verification: At least 45 days prior to start of construction, the project owner shall submit documentation showing that the project has obtained 92.4 tons of banked PM10 ERCs. Construction shall not begin until the CPM has approved all ERCs. This approval shall be done in consultation with the District.

AQ-SC10 The project owner shall minimize emissions associated with the simultaneous commissioning of the combustion turbines and not exceed NOx emissions of 254 pounds per hour.

Verification: The project owner shall provide operating records in the MCR to document compliance with this condition.

AQ-SC11 The project owner shall comply with all staff (AQ SC) and district (AQ) Conditions of Certification. The CPM, in consultation with the District, may approve any change to a condition of certification regarding air quality, as a staff approved modification, provided that: (1) the Project remains in compliance with all applicable laws, ordinances, regulations, and standards, (2) the requested change clearly will not cause the Project to result in a significant environmental impact, (3) no additional mitigation or offsets will be required as a result of the change, (4) no existing daily, quarterly, or annual permit limit will be exceeded as a result of the change, and (5) no increase in any daily, quarterly, or annual permit limit will be necessary as a result of the change.

Verification: The project owner shall submit a petition to amend for any proposed change to a condition of certification pursuant to this condition and shall provide the CPM with any additional information the CPM requests to substantiate the basis for approval.

DISTRICT'S PERMIT CONDITIONS

Combustion Turbine Generator Power Block Conditions

[2 individual 1736.4 MMBtu/hr F Class Gas Combustion Turbine Generators, Application Numbers: 00010013 and 00010014]

AQT-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.

[Rule 204]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQT-2 This equipment shall be exclusively fueled with pipeline quality natural gas with a sulfur content not exceeding 0.2 grains per 100 dry standard cubic feet (dscf) on a rolling twelve month average basis, and shall be operated and maintained in accordance with the recommendations of its manufacturer or supplier and/or sound engineering principles. Compliance with this limit shall be demonstrated by providing evidence of a contract, tariff sheet or other approved documentation that shows that the fuel meets the definition of pipeline quality gas and records of monthly fuel sulfur content. [Rule 1303; Rule 431.1; 40 CFR 60.4365; 40 CFR 60.5520(d)(1)].

Verification: The project owner shall complete, or obtain from the fuel supplier, on a monthly basis, a laboratory analysis showing the sulfur content of natural gas being burned at the facility. The sulfur analysis reports shall be incorporated into the quarterly compliance reports.

AQT-3 This equipment is subject to the Federal NSPS codified at 40 CFR Part 60, Subparts A (General Provisions) and KKKK (Standards of Performance for New Stationary Gas Turbines), and TTTT (Standards of Performance for Greenhouse Gas Emission from New Stationary Gas Turbines). This facility is also subject to the Prevention of Significant Deterioration (40 CFR 52.21) and Federal Acid Rain (Title IV) programs. Compliance with all applicable provisions of these regulations is required.

Verification: The project owner shall provide the District, the ARB and the CPM copies of the federal PSD and Acid Rain permits no later than 30 days after their issuance.

AQT-4 Emissions from this equipment (including its associated duct burner) shall not exceed the following emission limits at any firing rate, except for CO, NOx and VOC during periods of startup and shutdown:

a. Hourly rates, computed every 15 minutes, verified by CEMS and annual compliance tests:

   i. NOx as NO_2 – 2.0 ppmvd corrected to 15 percent O_2 and 18.50 lb/hr, based on a 1-hr average

   ii. CO – 2.0 ppmvd corrected to 15 percent O_2 and 11.30 lb/hr, based on a 1-hr average

b. Hourly rates, verified by compliance tests or other compliance methods in the case of SOx:

   i. VOC as CH_4 – 2.0 ppmvd corrected to 15 percent O2 and 6.36 lb/hr

   ii. SOx as SO_2 – 5.63 lb/hr (based on 0.75 grains/100 dscf fuel sulfur)

   iii. PM10/2.5 – 11.80 lb/hr

Emissions from this equipment (not including the associated duct burner) shall not exceed the following emission limits at any firing rate, except for CO, NOx and VOC during periods of startup and shutdown.

c. Hourly rates, computed every 15 minutes, verified by CEMS and annual compliance tests:

   i. NOx as NO_2 – 2.0 ppmvd corrected to 15 percent O2 and 17.10 lb/hr averaged over one hour

   ii. CO – 2.0 ppmvd corrected to 15 percent O2 and 10.40 lb/hr, averaged over one hour

d. Hourly rates, verified by compliance tests or other compliance methods in the case of SOx:

   i. VOC as CH_4 – 1.0 ppmvd corrected to 15 percent O2 and 3.00 lb/hr

   ii. SOx as SO_2 – 5.25 lb/hr (based on 0.75 grains/100 dscf fuel sulfur)

   iii. PM10/2.5 – 9.80 lb/hr

[Rule 404; Rule 407; Rule 409; Rule 475; Rule 1134; Rule 1303; NSPS Subpart KKKK]

Verification: The project owner shall submit to the District and CPM the quarterly and annual compliance reports as required by **AQ-SC6.**

AQT-5 Emissions of CO and NOx from this equipment shall only exceed the limits contained in Condition **AQT-4** during startup and shutdown periods as follows. Transient conditions shall not exceed the following durations:

a. Cold Startup – A gas turbine (GT) startup (SU) that occurs when the steam turbine (ST) rotor temperature is less than 485˚F after a GT shutdown (SD), and is limited in time to the lesser of:

   i. the first 39 minutes of continuous fuel flow to the GT after ignition; or

   ii. the period of time from GT ignition until the GT achieves the first of two consecutive CEM data points in compliance with the emission concentration limits of Parts 4(a) and 4(b).

b. Warm Startup – A GT SU that occurs when the ST rotor temperature is greater than or equal to 485˚F but less than 685˚F after a GT SD, and is limited in time to the lesser of:

   i. the first 35 minutes of continuous fuel flow to the GT after ignition; or

   ii. the period of time from GT ignition until the GT achieves the first of two consecutive CEM data points in compliance with the emission concentration limits of Parts 4(a) and 4(b).

c. Hot Startup – A GT startup (SU) that occurs when the ST rotor temperature is greater than or equal to 685˚F after a GT SD, and is limited in time to the lesser of:

   i. the first 30 minutes of continuous fuel flow to the GT after ignition; or

   ii. the period of time from GT ignition until the GT achieves the first of two consecutive CEM data points in compliance with the emission concentration limits of Parts 4(a) and 4(b).

d. Shutdown – The lesser of the 25-minute period immediately prior to the termination of fuel flow to the GT or the period of time from non-compliance with any requirements listed in Parts 4(a) and 4(b) until termination of fuel flow to the GT.

e. During a cold startup emissions shall not exceed the following, verified by CEMS:

   i. NOx – 52 lb

   ii. CO – 416 lb

f. During a warm startup emissions shall not exceed the following, verified by CEMS:

   i. NOx – 47 lb

   ii. CO – 378 lb

g. During a hot startup emissions shall not exceed the following, verified by CEMS:

   i. NOx – 43 lb

   ii. CO – 305 lb

   iii.

h. During a shutdown emissions shall not exceed the following, verified by CEMS:

   i. NOx – 33 lb

   ii. CO – 76 lb

[Rule 1303]

Verification: The project owner shall submit to the District and CPM the quarterly and annual compliance reports as required by **AQ-SC6**.

AQT-6 Emissions (including startup, shutdown, and malfunction) from this facility, including the duct burner, auxiliary equipment, and engines, shall not exceed the following emission limits, based on a calendar day summary:

a. NOx – 1,141 lb/day, verified by the turbine CEMS

b. CO – 2,179 lb/day, verified by the turbine CEMS

c. VOC as CH_4 – 472 lb/day, verified by compliance tests, fuel use data, and hours of operation in mode

d. SOx as SO_2 – 271 lb/day, verified by fuel sulfur content and fuel use data

e. PM10/2.5 – 568 lb/day, verified by compliance tests, fuel use data, and hours of operation

[Rule 1303]

Verification: The project owner shall submit to the District and CPM the quarterly and annual compliance reports as required by **AQ-SC6**.

AQT-7 Emissions from this facility, including the duct burner, auxiliary boiler, and engines, shall not exceed the following emission limits, based on a rolling 12 month summary:

a. NOx – 138.99 tons/year, verified by CEMS

b. CO – 351.09 tons/year, verified by CEMS

c. VOC as CH_4 – 51.65 tons/year, verified by compliance tests, fuel use data, and hours of operation in mode

d. SOx as SO_2 – 11.39 tons/year, verified by fuel sulfur content and fuel use data

e. PM10 – 81.01 tons/year, verified by compliance tests, fuel use data and hours of operation

f. PM2.5 – 81.01 tons/year, verified by compliance tests, fuel use data and hours of operation

[Rule 1303]

Verification: The project owner shall submit to the District and CPM the quarterly and annual compliance reports as required by **AQ-SC6**.

AQT-8 Particulate emissions from this equipment shall not exceed an opacity equal to or greater than 20 percent for a period aggregating more than three (3) minutes in any one (1) hour, excluding uncombined water vapor

[Rule 401]

Verification: The project owner shall submit to the District and CPM the quarterly and annual compliance reports as required by AQ-SC6.

AQT-9 This equipment shall exhaust through a stack at a minimum height of 160 feet.

[Rule 1303]

Verification: At least 60 days prior to construction of the turbine stacks, the project owner shall provide the District and CPM an "approved for construction" drawing showing the appropriate stack height and location of sampling ports and platforms. The project owner shall make the site available to the District, U.S. EPA and the CPM for inspection.

AQT-10 The project owner shall not operate this equipment after the initial commissioning period without the oxidation catalyst with a valid District permit and the selective catalytic reduction system with a valid District permit installed.

[Rule 1303]

Verification: As part of the quarterly and annual compliance reports, the project owner shall provide information on any major problem in the operation of the oxidizing catalyst and SCR Systems for the gas turbines and HRSGs. The information shall include, at a minimum, the date and description of the problem and the steps taken to resolve the problem.

AQT-11 The project owner shall provide stack sampling ports and platforms necessary to perform source tests required to verify compliance with District rules, regulations and permit conditions. The location of these ports and platforms shall be subject to District approval.

[Rule 1303]

Verification: At least 60 days prior to construction of the turbine stacks, the project owner shall provide the District and CPM an "approved for construction" drawing showing the appropriate stack height and location of sampling ports and platforms. The project owner shall make the site available to the District, U.S. EPA and Energy Commission Staff for inspection.

AQT-12 Emissions of NOx and CO, and oxygen and shall be monitored using a Continuous Emissions Monitoring System (CEMS). Ammonia slip shall be monitored using a Parametric Emissions Monitoring System (PEMS). Turbine fuel consumption shall be monitored using a continuous monitoring system. Stack gas flow rate shall be monitored using either a Continuous Emission Rate Monitoring System (CERMS) meeting the requirements of 40 CFR 75 Appendix A or a stack flow rate calculation method. The project owner shall install, calibrate, maintain, and operate these monitoring systems according to a District-approved monitoring plan District Rule 218, 40 CFR 60 and/or 40 CFR 75[1] as applicable. [Rule 1134; Rule 1303; NSPS KKKK]

Verification: The project owner shall install, calibrate, maintain, and operate these monitoring systems according to a District-approved monitoring plan and District Rule 218, and they shall be installed prior to initial equipment startup after initial steam blows are completed. Two (2) months prior to installation the operator shall submit a monitoring plan for District and CPM review and approval.

AQT-13 The project owner 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 operator 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. [District Compliance Test Procedural Manual; Rule 1303; Rule 1134]

Verification: The project owner shall notify the District and the CPM within ten (10) working days before the execution of the compliance/certification tests required in this condition. Compliance/certification test results shall be submitted to the District and to the CPM within 45 days of the date of the tests.

AQT-14 After the initial compliance test, the project owner shall perform the following compliance tests at least as often as once every three years on this equipment in accordance with the District 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 15 percent oxygen and lb/hr (measured per USEPA Reference Methods 19 and 20).

[1] Where 40 CFR 60 and 40 CFR 75 are applicable but inconsistent, 40 CFR 60 shall take precedent.

b. VOC as CH_4 in ppmvd at 15 percent oxygen and lb/hr (measured per USEPA Reference Methods 25A and 18).

c. SOx as SO_2 in ppmvd at 15 percent oxygen and lb/hr (measured per USEPA Reference Method 6 or 6C or equivalent).

d. CO in ppmvd at 15 percent oxygen and lb/hr (measured per USEPA Reference Method 10).

e. PM10 and PM2.5 in mg/m^3 at 15 percent 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 (measured per USEPA Method 2B).

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

h. Ammonia slip in ppmvd at 15 percent oxygen. (measured per BAAQMD ST-1B)

[Rule 1134; Rule 1303]

Verification: The project owner shall notify the District and the CPM within ten 10 working days before the execution of the source tests required in this condition. Source test results shall be submitted to the District and to the CPM within 60 days of the date of the tests.

AQT-15 The project owner shall, at least as often as once every three years following planned facility outages (commencing with the initial compliance test), include the following supplemental source tests:

a. Characterization of cold startup VOC emissions;

b. Characterization of other startup VOC emissions; and

c. Characterization of shutdown VOC emissions.

[Rule 1303]

Verification: The project owner shall notify the District and the CPM within ten (10) working days before the execution of the source tests required in this condition. Source test results shall be submitted to the District and to the CPM within 60 days of the date of the tests.

AQT-16 Continuous monitoring systems shall meet the following acceptability testing requirements from 40 CFR 60 Appendix B (or otherwise District approved):

a. For NOx, .40 CFR 75.

b. For O_2, Performance Specification 3.

c. For CO, Performance Specification 4.

d. For stack gas flow rate, 40 CFR 75.

e. For ammonia, a District approved procedure that is to be submitted by the project owner.

f. For stack gas flow rate (without CERMS), a District approved procedure that is to be submitted by the project owner.

[Rule 218; Rule 1134]

Verification: The project owner shall install, calibrate, maintain, and operate these monitoring systems according to a District-approved monitoring plan and Distract Rule 218, and they shall be installed prior to initial equipment startup after initial steam blows are completed. Sixty (60) days prior to installation, the operator shall submit a monitoring plan for District and CPM for review and approval.

AQT-17 The project owner shall submit to the APCO and USEPA Region IX the following information for the preceding calendar quarter by January 30, April 30, July 30 and October 30 of each year this permit is in effect. Each January 30 submittal shall include a summary of the reported information for the previous year. This information shall be maintained on site and current for a minimum of five (5) years and shall be provided to District personnel on request:

a. Operating parameters of emission control equipment, including but not limited to ammonia injection rate, NOx emission rate and ammonia slip.

b. Total plant operation time (hours), duct burner operation time (hours), number of startups, hours in cold startup, hours in other startup, and hours in shutdown.

c. Date and time of the beginning and end of each startup and shutdown period.

d. Average plant operation schedule (hours per day, days per week, weeks per year).

e. All continuous emissions data reduced and reported in accordance with the District approved CEMS protocol.

f. Maximum hourly, maximum daily, total quarterly, and total calendar year emissions of NOx, CO, PM10, PM2.5, VOC and SOx (including calculation protocol).

g. Fuel sulfur content (monthly laboratory analyses, monthly natural gas sulfur content reports from the natural gas supplier(s), or the results of a custom fuel monitoring schedule approved by U.S. EPA for compliance with the fuel monitoring provisions of 40 CFR 60 Subpart KKKK and 40 CFR Part 72 as applicable)

h. A log of all excess emissions, including the information regarding malfunctions/breakdowns required by Rule 430.

i. Any permanent changes made in the plant process or production which would affect air pollutant emissions, and indicate when changes were made.

j. Any maintenance to any air pollutant control system (recorded on an as-performed basis).

k. Records of steam turbine rotor temperature.

[Rule 1303; Subpart KKKK; Rule 431.1; Rule 430; Rule 1134]

Verification: The project owner shall prepare quarterly reports for the preceding calendar quarters by January 30, April 30, July 30 and October 30 with the January 30 report including an annual summary. The reports shall be submitted to the District, U.S. EPA and the CPM.

AQT-18 The project owner must surrender to the District sufficient valid Emission Reduction Credits for this equipment before the start of construction of any part of the project for which this equipment is intended to be used. In accordance with Regulation XIII, the operator shall obtain 180.7 tons of NOx, 77.5 tons of VOC, and 81.0 tons of PM10 offsets. [Rule 1303(B); Rule 1305; Rule 1309]

Verification: The project owner shall submit to the CPM for approval a copy of all ERCs to be surrendered to the District at least 60 days prior to start construction. Construction shall not begin prior to CPM approval of the ERCs.

AQT-19 During an initial commissioning period of no more than 180 days, commencing with the first firing of fuel in this equipment, NOx, CO, VOC and ammonia concentration limits shall not apply. The project owner shall minimize emission of NOx, CO, VOC and ammonia to the maximum extent possible during the initial commissioning period.

[Rule 1303]

Verification: The project owner shall submit a MCR to the CPM specifying how this condition is being complied with. In addition, the project owner shall provide evidence of the District's approval of the emission monitoring system to the CPM prior to first firing of the gas turbines.

AQT-20 The project owner shall tune each CTG and HRSG to minimize emissions of criteria pollutants at the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor.

[Rule 1303]

Verification: The project owner shall submit a MCR to the CPM specifying how this condition is being complied with. In addition, the project owner shall provide evidence of the District's approval of the emission monitoring system to the CPM prior to first firing of the gas turbines.

AQT-21 The project owner shall install, adjust and operate each SCR system to minimize emissions of NOx from the CTG and HRSG at the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor. The NOx and ammonia concentration limits of condition AQT-4 above and condition AQSCR-4 below (SCR conditions) shall apply coincident with the steady state operation of the SCR systems.

[Rule 1303]

Verification: The project owner shall submit a MCR to the CPM specifying how this condition is being complied with. In addition, the project owner shall provide evidence of the District's approval of the emission monitoring system to the CPM prior to first firing of the gas turbines.

AQT-22 The project owner shall submit a commissioning plan to the District and the Energy Commission at least four weeks prior to the first firing of fuel in this equipment. The commissioning plan shall describe the procedures to be followed during the commissioning of the CTGs, HRSGs and steam turbine. The commissioning plan shall include a description of each commissioning activity, the anticipated duration of each activity in hours, and the purpose of the activity. The activities described shall include, but not be limited to, the tuning of the dry low NOx combustors, the installation and testing of the CEMS, and any activities requiring the firing of the CTGs and HRSGs without abatement by an SCR system.

[Rule 1303]

Verification: The project owner shall submit a MCR to the CPM specifying how this condition is being complied with.

AQT-23 The total number of firing hours of each CTG and HRSG without abatement of NOx by the SCR shall not exceed 639 hours during the initial commissioning period. Such operation without NOx abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR system in place and operating. Upon completion of these activities, the project owner shall provide written notice to the District and CEC and the unused balance of the unabated firing hours shall expire.

[Rule 1303]

Verification: The project owner shall submit a MCR to the CPM specifying how this condition is being complied with.

AQT-24 During the initial commissioning period, emissions from this facility shall not exceed the following emission limits (verified by PEMS):

a. NOx - 30 tons, and 132 pounds/hour/CTG

b. CO - 185 tons, and 4,500 pounds/hour/CTG

[Rule 1303]

Verification: The project owner shall submit a MCR to the CPM specifying how this condition is being complied with.

AQT-25 No later than 180 days after initial startup, the project owner shall perform an initial compliance test. This test shall demonstrate that this equipment is capable of operation at 100 percent load in compliance with the emission limits in Condition AQT-4.

[Rule 1303]

Verification: No later than 30 working days before the commencement of the initial compliance tests, the project owner shall submit to the District and the CPM a detailed source test plan designed to satisfy the requirements of this condition. The project owner shall incorporate the District and CPM comments into the test plan. The project owner shall notify the District and the CPM at least ten (10) working days prior to the planned source testing date. Source test results shall be submitted to the District and the CPM within 60 days of the source testing date.

AQT-26 The initial compliance test shall include tests for the following. The results of the initial compliance test shall be used to prepare a supplemental health risk analysis if required by the District:

a. Formaldehyde;

b. Certification of CEMS, PEMS, and CERMS (or stack gas flow calculation method) at 100 percent load, startup modes and shutdown mode;

c. Characterization of cold startup VOC emissions;

d. Characterization of other startup VOC emissions; and

e. Characterization of shutdown VOC emissions.

[Rule 1303]

Verification: No later than 30 working days before the commencement of the initial compliance tests, the project owner shall submit to the District and the CPM a detailed source test plan designed to satisfy the requirements of this condition. Source test results shall be submitted to the District and the CPM within 60 days of the source testing date.

AQT-27 This equipment is subject to 40 CFR 60 Subpart TTTT – Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units. Carbon dioxide emissions from this turbine shall not exceed 1,000 lb CO_2/MWh (gross) or 1,030 lb CO_2/MWh (net). [40 CFR 60 Subpart TTTT §60.5520]

Verification: The project owner shall submit to the CPM for approval all emissions and emission calculations to demonstrate compliance with this condition as part of the 4^{th} quarter operational report.

HRSG Duct Burner Conditions

[2 individual 193.1 MMBtu/hr Natural Gas Duct Burners, Application Numbers: AV2000000512 and AV2000000513]

AQDB-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.

[Rule 204]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQDB-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.

[Rule 431.1; Rule 1303]

Verification: The project owner shall complete, on a monthly basis, a laboratory analysis showing the sulfur content of natural gas being burned at the facility. The sulfur analysis reports shall be incorporated into the quarterly compliance reports.

AQDB-3 The duct burner shall not be operated unless the combustion turbine generator with a valid District permit, catalytic oxidation system with a valid District permit, and selective catalytic NOx reduction system with a valid District permit are in operation.[2]

[Rule 1303]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQDB-4 This equipment shall not be operated for more than 1,500 hours per rolling twelve month period.

[Rule 1303]

Verification: The project owner shall submit to the CPM the hours of duct burner operation on a rolling twelve month basis in the quarterly and annual compliance reports as required by **AQ-SC6**.

AQDB-5 Monthly hours of operation for this equipment shall be recorded and maintained on site for a minimum of five (5) years and shall be provided to District personnel on request.

[Rule 1303]

[2] All permit numbers are yet to be assigned.

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA and CPM.

Oxidation Catalyst System Conditions

[2 individual oxidation catalyst systems, Application Numbers: AV2000000506 and AV2000000507]

AQOC-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.

[Rule 204]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQOC-2 This equipment shall be operated and maintained in strict accord with the recommendations of its manufacturer or supplier and/or sound engineering principles.

[Rule 204]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQOC-3 This equipment shall be operated concurrently with the combustion turbine generator with a valid District permit[3] [Rule 1303]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

Selective Catalytic Reduction System Conditions

[2 individual SCR systems, Application Numbers: AV2000000508 and AV2000000509]

AQSCR-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.

[Rule 204]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

[3] As represented in the FDOC; permit number to be assigned.

AQSCR-2 This equipment shall be operated and maintained in strict accord with the recommendations of its manufacturer or supplier and/or sound engineering principles.

[Rule 204]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQSCR-3 This equipment shall be operated concurrently with the combustion turbine generator with a valid District permit.[4] [Rule 1303]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

[Rule 204]

AQSCR-4 Ammonia shall be injected whenever the selective catalytic reduction system has reached or exceeded 400 degrees Fahrenheit except for periods of equipment malfunction.

[Rule 1303]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQSCR-5 Except during periods of startup and shutdown, ammonia slip shall not exceed 5 ppmvd averaged over one hour at 15 percent O_2 dry. The project owner shall calculate and continuously record the NH_3 slip concentration using the following:

NH_3 (ppmv) = [a-b*(c*1.2)/1E6]*1E6/b; where:

a = NH3 injection rater (lb/hr)/17(lb/lbmol)

b = dry exhaust gas flow rate (scf/hr)/385.3 (scf/lbmol)

c = change in measured NOx across the SCR, ppmvd at 15 percent O_2

The project owner shall install a NOx analyzer to measure the SCR inlet NOx ppm accurate to within +/- 5 percent calibrated at least once every 12 months.

The project owner shall use the method described above or another alternative method approved by the APCO.

[4] As represented in the FDOC; permit number to be assigned.

The ammonia slip calculation procedures described above shall not be used for compliance determination or emission information determination without corroborative data using an approved reference method for the determination of ammonia.

[Rule 1303]

Verification: The project owner shall include ammonia slip concentrations averages on an hourly basis as part of the Quarterly Operation Report. The project owner shall submit all SCR inlet NOx analyzer calibration results to the CPM within 60 days of the calibration date. Exceedances of the ammonia limit shall be reported and chronic exceedances of the ammonia slip limit, defined as occurring more than 10 percent of the operation for any single HRSG exhaust stack, shall be identified by the project owner and confirmed by the CPM within 60 days of the submitted Quarterly Operation Report that indicates chronic exceedances. If a chronic exceedance is identified and confirmed, the project owner shall work in conjunction with the CPM to develop a reasonable compliance plan to investigate and redress the chronic exceedance of the ammonia slip limit within 60 days of the above confirmation.

AQSCR-6 The project owner shall record and maintain for this equipment the following on site for a minimum of five (5) years and shall be provided to District personnel upon request.

a. Ammonia injection, in pounds per hour

b. Temperature, in degrees Fahrenheit at the inlet to the SCR.

[Rule 1303]

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA and CPM.

Auxiliary Boiler Conditions

[One 110 MMBtu/hr Gas Fired Auxiliary Boiler, Application Number: AV000000503]

AQAB-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.

[Rule 204]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQAB-2 This equipment shall be exclusively fueled with pipeline quality natural gas and shall be operated and maintained in accordance with the recommendations of its manufacturer or supplier and/or sound engineering principles. [Rule 431.1; Rule 1303(A); 40 CFR 60 Subpart Db]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQAB-3 This equipment is subject to the Federal NSPS codified at 40 CFR Part 60, Subparts A (General Provisions) and Db (Industrial-Commercial-Institutional Steam Generating Units).

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQAB-4 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 – 9.0 ppmvd corrected to 3 percent O_2, 0.011 lbs/MMBtu, and 1.21 lb/hr (averaged over one hour)

b. CO – 50 ppmvd corrected to 3 percent O_2, 0.037 lbs/MMBtu, and 4.07 lb/hr (averaged over one hour)

c. VOC as CH_4 – 0.066 lbs/MMBtu and 0.66 lb/hr

d. SOx as SO_2 – 0.0022 lbs/MMBtu and 0.25 lb/hr (based on 0.75 grains/100 dscf fuel sulfur)

e. PM10/2.5 – 0.007 lbs/MMBtu and 0.77 lb/hr (front and back half)

[Rule 404; Rule 407; Rule 409; Rule 475; Rule 476; Rule 1303(A); 40 CFR 60.44b]

Verification: The project owner shall submit operating hour data to the District and CPM the quarterly and annual compliance reports as required by AQ-SC6.

AQAB-5 This equipment shall not be operated for more than 4,884 hours per rolling twelve month period.

[Rule 1303]

Verification: The project owner shall submit to the District and CPM the quarterly and annual compliance reports as required by AQ-SC6.

AQAB-6 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 month, by month);

b. Maximum hourly, maximum daily, total quarterly, and total calendar year emissions of NOx, CO, PM10/2.5, VOC and SOx (including calculation protocol); and,

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

[Fuel Sulfur Monitoring- 40 CFR 60.42(b)(k)(2); 40 CFR 60.49b(r)(1)]

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, EPA and CPM.

AQAB-7 The project owner shall perform the following annual compliance tests on this equipment in accordance with the District 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 percent oxygen and lb/hr (measured per USEPA Reference Methods 19 and 20).

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

c. SOx as SO_2 in ppmvd at 3 percent oxygen and lb/hr (measured per USEPA Reference Method 6 or 6C).

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

e. PM10 and PM2.5 in mg/m3 at 3 percent 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 (measured per USEPA Method 2B or F Factor).

g. Opacity (measured per USEPA reference Method 9) Initial test only

[40 CFR 60.44b(l) and 60.46b(c)(e)(g); Rule 1303]

Verification: The project owner shall notify the District and the CPM within seven (7) working days before the execution of the source tests required in this condition. Source test results shall be submitted to the District and to the CPM within 60 days of the date of the tests.

AQAB-8 A non-resettable four-digit (9,999) hour timer shall be installed and maintained on this unit to indicate elapsed operating time. [Rule 1303]

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.

AQAB-9 The equipment shall exhaust through a stack at a minimum height of 60.5 feet.

[Rule 1303]

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.

AQAB-10 The project owner shall continuously monitor and record fuel flow rate and flue gas oxygen level. [40 CFR 60 Subpart Db, Section 60.49b; Reporting and Recordkeeping Requirements]

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.

AQAB-11 In lieu of installing CEMs to monitor NOx emissions, and pursuant to 40 CFR 60 Subpart Db, Section 60.49b(c), the project owner shall monitor boiler operating conditions and estimate NOx emission rates per a District approved emissions estimation plan. The plan shall be based on the annual source tests required by Condition AQAB-7. The plan shall include test results, operating parameters, analysis, conclusions and a proposed NOx estimating relationship consistent with established emission chemistry and operational effects. Any proposed changes to a District-approved plan shall include subsequent test results, operating parameters, analysis and any other pertinent information to support the proposed changes. The District and CPM must approve any emissions estimation plan or revision for estimated NOx emissions to be considered valid. [40 CFR 60 Subpart Db, Section 60.49b(c)]

Verification: The project owner shall submit the emission estimation plan to the CPM for approval within 60 days of the initial source test.

Emergency Generator Conditions

[One 2,011 hp emergency IC engine driving a generator, Application Number: AV2000000502]

AQEG-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.

[Rule 204]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQEG-2 This stationary certified EPA Tier 2 diesel IC engine shall be installed, operated and maintained in accordance with the recommendations of the manufacturer/supplier and/or sound engineering principles which produce the minimum emissions of contaminants.

[Rule 1303; NSPS IIII]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQEG-3 This unit shall be limited to use for emergency power, defined in 17 CCR 93115. In addition, this unit may be operated as part of a testing program that does not exceed 0.5 hours in any one day and not more than 26 hours of testing or maintenance per year (rolling 12 month sum). Furthermore, pursuant to District Rule 1110.2, this unit shall be operated less than 200 hours per calendar year. This requirement includes usage during emergencies.

[Rule 1302; 17 CCR 93115; NSPS IIII]

Verification: As part of the quarterly and annual compliance reports, the project owner shall submit all dates of operation, elapsed time in hours, the reason for each operation, and the annual maintenance per year (rolling 12-month sum).

AQEG-4 This engine shall not be operated for testing purposes during CTG startup/shutdown periods or tested during the same hour as the fire pump.

[Rule 1303]

Verification: As part of the quarterly and annual compliance reports, the project owner shall submit all dates of operation, elapsed time in hours, and the reason for each operation.

AQEG-5 This unit shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 15 ppm on a weight basis per CARB Diesel Fuel or equivalent requirements. [Rule 404; Rule 431.2; 17 CCR 93115; NSPS IIII]

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA and CPM.

AQEG-6 A non-resettable four digit hour timer shall be installed and maintained on this unit to indicate elapsed engine operating time.

[Rule 1302; 17 CCR 93115; NSPS IIII]

Verification: The project owner shall make the site available to the District, U.S. EPA and CPM for inspection.

AQEG-7 The project owner shall maintain a log for this unit, which, at a minimum, contains the information specified below. This log shall be maintained current and on-site for a minimum of five (5) years and shall be provided to District personnel on request:

a. Date of each use or test;

b. Duration of each use or test in hours;

c. Reason for each use;

d. Cumulative calendar year use, in hours; and,

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

[Rule 1302; 17 CCR 93115; NSPS IIII]

Verification: As part of the quarterly and annual compliance reports, the project owner shall submit all dates of operation, elapsed time in hours, the reason for each operation, and the cumulative calendar use. During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA and CPM.

AQEG-8 This engine shall not be used to provide power to the interconnecting utility and shall be isolated from the interconnecting utility when operating.

[Rule 1303]

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA and CPM.

AQEG-9 The 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. [17 CCR 93115]

Verification: As part of the quarterly and annual compliance reports, the project owner shall submit all dates of operation, elapsed time in hours, and the reason for each operation.

AQEG-10 This engine shall exhaust through a stack at a minimum height of 20 feet.

[Rule 1303]

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA and CPM.

AQEG-11 This equipment shall comply with the applicable requirements of the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines (Title 17 CCR 93115) and the standards of Performance for Stationary Compression Ignition Internal Combustion Engines -40 CFR Part 60 Subpart IIII.

Verification: The project owner shall make the site and applicable records available to the District, U.S. EPA and CPM for inspection.

Emergency Fire Suppression Water Pump Conditions

[One 140 hp emergency IC engine driving a fire suppression water pump, Application Number: AV2000000501]

AQFS-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.

[Rule 204]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQFS-2 This stationary certified EPA Tier 3 diesel IC engine shall be installed, operated and maintained in accordance with the recommendations of the manufacturer/supplier and/or sound engineering principles which produce the minimum emissions of contaminants.

[Rule 1303]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQFS-3 This direct drive fire pump engine shall be limited to use for emergency fire suppression, defined as in 17 CCR 93115. In addition, this unit may be operated as part of a testing program that does not exceed 1 hour in any day and not more than 50 hours of testing or maintenance per year (rolling 12 month sum). Furthermore, pursuant to District Rule 1110.2, this unit shall be operated less than 200 hours per calendar year. This requirement includes usage during emergencies.

[Rule 1302; 17 CCR 93115; NSPS IIII]

Verification: As part of the quarterly and annual compliance reports, the project owner shall submit all dates of operation, elapsed time in hours, the reason for each operation, and the annual maintenance per year (rolling 12-month sum).

AQFS-4 This engine shall not be operated for testing purposes during CTG startup/shutdown periods or tested during the same hour as the emergency generator.

[Rule 1303]

Verification: As part of the quarterly and annual compliance reports, the project owner shall submit all dates of operation, elapsed time in hours, and the reason for each operation.

AQFS-5 This unit shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 15 ppm on a weight basis per CARB Diesel or equivalent requirements.

[Rule 404; Rule 431.2; 17 CCR 93115; NSPS IIII]

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA and CPM.

AQFS-6 A non-resettable four digit hour timer shall be installed and maintained on this unit to indicate elapsed engine operating time.

[Rule 1302; 17 CCR 93115; NSPS IIII]

Verification: The project owner shall make the site available to the District, U.S. EPA and CPM for inspection.

AQFS-7 The owner/operator shall maintain a log for this unit, which, at a minimum, contains the information specified below. This log shall be maintained current and on-site for a minimum of five (5) years and shall be provided to District personnel on request:

a. Date of each use or test;

b. Duration of each use or test in hours;

c. Reason for each use;

d. Cumulative calendar year use, in hours; and,

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

[Rule 1302; 17 CCR 93115; NSPS IIII]

Verification: As part of the quarterly and annual compliance reports, the project owner shall submit all dates of operation, elapsed time in hours, the reason for each operation, and the cumulative calendar use.

AQFS-8 This engine shall exhaust through a stack at a minimum height of 19.5 feet.

[Rule 1303]

Verification: The project owner shall make the site available to the District, U.S. EPA and CPM for inspection.

AQFS-9 This equipment shall comply with the applicable requirements of the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines (Title 17 CCR 93115) and the Standards of Performance for Stationary Compression Ignition Internal Combustion Engines-40 CFR Part 60 Subpart IIII.

Verification: The project owner shall make the site and applicable records available to the District, U.S. EPA and CPM for inspection.

BIOLOGICAL RESOURCES CONDITIONS OF CERTIFICATION

DESIGNATED BIOLOGIST SELECTION[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, with at least three references and contact information, to the Energy Commission Compliance Project Manager (CPM) for approval in consultation with the California Department of Fish and Wildlife CDFW) and U.S. Fish and Wildlife Service (USFWS).

The Designated Biologist must meet the following minimum qualifications:

1. Bachelor's degree in biological sciences, zoology, botany, ecology, or a closely related field;

2. Three years of experience in field biology or current certification of a nationally recognized biological society, such as The Ecological Society of America or The Wildlife Society;

3. 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 (USFWS 2008b) and demonstrate familiarity with protocols and guidelines for the desert tortoise, and be approved by the USFWS; and

5. Possess a recovery permit for desert tortoise and a California ESA Memorandum of Understanding pursuant to Section 2081(a) for desert tortoise and Mohave ground squirrel or have adequate experience and qualifications to obtain these authorizations.

In lieu of the above requirements, the resume shall demonstrate to the satisfaction of the CPM, in consultation with CDFW and USFWS, that the proposed Designated Biologist or alternate has the appropriate training and background to effectively implement the conditions of certification.

Verification: The project owner shall submit the specified information at least 60 days prior to the start of any project-related site disturbance activities. No site or related facility activities shall commence until an approved Designated Biologist is available to be on site.

[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 USFWS that they possess sufficient desert tortoise knowledge and experience to handle and move tortoises appropriately, and have received USFWS approval. Authorized Biologists are permitted to then approve specific monitors to handle tortoises, at their discretion. The California Department of Fish and ~~Game~~**Wildlife** (~~CDFG~~**CDFW**) must also approve such biologists, potentially including individual approvals for 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.

If a Designated Biologist needs to be replaced, the specified information of the proposed replacement must be submitted to the CPM at least 10 working days prior to the termination or release of the preceding Designated Biologist. In an emergency, the project owner shall immediately notify the CPM to discuss the qualifications and approval of a short-term replacement while a permanent Designated Biologist is proposed to the CPM for consideration.

Designated Biologists shall complete a USFWS Qualifications Form (USFWS 2008b) (www.fws.gov/ventura/speciesinfo/protocols_guidelines) and submit it to the USFWS and CPM within 60 days prior to ground breaking for review and final approval.

DESIGNATED BIOLOGIST DUTIES

BIO-2 The project owner shall ensure that the Designated Biologist performs the following during any site (or related facilities) mobilization, ground disturbance, grading, construction, operation, and closure activities. The Designated Biologist may be assisted by the approved Biological Monitor(s) but remains the contact for the project owner and 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 CDFW and USFWS, including notifying these agencies of dead or injured listed species and reporting special-status species observations to the California Natural Diversity Data Base.

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. 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/her duties cease, as approved by the CPM.

BIOLOGICAL MONITOR QUALIFICATIONS

BIO-3 The project owner's CPM-approved Designated Biologist shall submit the resume, at least three references, and contact information of the proposed Biological Monitors to the CPM for approval in consultation with CDFW and USFWS. The resume shall demonstrate, to the satisfaction of the CPM, the appropriate education and experience to accomplish the assigned biological resource tasks. Biological Monitors involved in any aspect of desert tortoise surveys or handling must meet the criteria to be considered a USFWS Authorized Biologist (USFWS 2008b) and demonstrate familiarity with the most recent protocols and guidelines for the desert tortoise.

Biological Monitor(s) training by the Designated Biologist shall include familiarity with the conditions of certification, BRMIMP, WEAP, USFWS guidelines on desert tortoise surveys and handling procedures www.fws.gov/ventura/speciesinfo/protocols guidelines> and all permits.

Verification: The project owner shall submit the specified information to the CPM for approval at least 60 days prior to the start of any project-related site disturbance activities. The Designated Biologist shall submit a written statement to the CPM confirming that individual Biological Monitor(s) has been trained including the date when training was completed. If additional Biological Monitors are needed during construction, the specified information shall be submitted to the CPM for approval at least 10 days prior to their first day of monitoring activities.

BIOLOGICAL MONITOR DUTIES

BIO-4 The Biological Monitors shall assist the Designated Biologist in conducting surveys and in monitoring of mobilization, ground disturbance, grading,

construction, operation, and closure activities. The Designated Biologist shall remain the contact for the project owner and 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 or monitored 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 his/her 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 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, construction, 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;

3. Notify the CPM if there is a halt of any activities and advise the CPM of any corrective actions that have been taken or will be instituted as a result of the work stoppage, and

4. 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 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, and operation activities. The project owner shall notify the CPM of the circumstances and actions being taken to resolve the problem.

Whenever corrective action is taken by the project owner, a determination of success or failure will be made by the CPM within five working days after receipt of notice that corrective action is completed, or the project owner will be notified by the CPM that

coordination with other agencies will 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 USFWS, CDFW, and the CPM. The WEAP shall be administered to all on-site personnel including surveyors, construction engineers, employees, contractors, contractor's employees, supervisors, inspectors, subcontractors, and delivery personnel. The WEAP shall be implemented during site mobilization, ground disturbance, grading, 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 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;

3. Place special emphasis on Swainson's hawk, arroyo toad, desert tortoise and Mohave ground squirrel, including information on physical characteristics, distribution, behavior, ecology, sensitivity to human activities, legal protection, penalties for violations, reporting requirements, and protection measures;

4. Present the meaning of various temporary and permanent habitat protection measures;

5. Identify whom to contact if there are further comments and questions about the material discussed in the program; and

6. Include a training acknowledgment form to be signed by each worker indicating that he/she 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 60 days prior to the start of any project-related site disturbance activities, the project owner shall provide to the CPM a copy of the draft 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 site and related facilities mobilization, 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 worker education program 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 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 submit two copies of the proposed BRMIMP to the CPM (for review and approval) and shall implement the measures identified in the approved BRMIMP. The BRMIMP shall incorporate impact avoidance and minimization measures described in final versions of the Mohave Ground Squirrel Translocation Plan; the Restoration Plan; the Hazardous Materials Plan; the Sensitive Plant Protection Plan; the Raven Monitoring, Management, and Control Plan; the Swainson's Hawk Monitoring and Mitigation Plan; the Burrowing Owl Monitoring and Mitigation Plan; the Streambed Avoidance and Mitigation Plan; and the Closure Plan.

The BRMIMP shall be prepared in consultation with the Designated Biologist and shall include the following:

1. All biological resources mitigation, monitoring, and compliance measures proposed and agreed to by the project owner (including the Air Quality Road Paving PM10 Mitigation Plan);

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;

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. A detailed description of measures that shall be taken to avoid or mitigate temporary disturbances from construction activities;

7. All locations on a map, at an approved scale, of sensitive biological resource areas subject to disturbance and areas requiring temporary protection and avoidance during construction;

8. Aerial photographs, at an approved scale, of all areas to be disturbed during project construction activities; include one set prior to any site or related facilities mobilization disturbance and one set subsequent to completion of project construction. Provide planned timing of aerial photography and a description of why times were chosen. Provide a final accounting of the before/after acreages and a determination of whether additional habitat compensation is necessary in the Construction Termination Report;

9. Duration for each type of monitoring and a description of monitoring methodologies and frequency;

10. Performance standards to be used to help decide if/when proposed mitigation is or is not successful;

11. All remedial measures to be implemented if performance standards are not met;

12. A discussion of biological resources-related facility closure measures including a description of funding mechanism(s); and

13. A process for proposing plan modifications to the CPM and appropriate agencies for review and approval.

Verification: The project owner shall submit the BRMIMP to the CPM at least 60 days prior to start of any project-related site disturbance activities. The CPM, in consultation with other appropriate agencies, will determine the BRMIMP's acceptability within 45 days of receipt. The BRMIMP shall contain all of the required measures included in all biological conditions of certification. No ground disturbance may occur prior to the CPM's approval of the final BRMIMP.

The project owner shall notify the CPM no less than five working days before implementing any modifications to the approved BRMIMP to obtain CPM approval. Any changes to the approved BRMIMP must also be approved by the CPM in consultation with appropriate agencies to ensure no conflicts exist.

Implementation of BRMIMP measures (construction activities that were monitored, species observed) will 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 site mobilization, ground disturbance, grading, and construction phases; 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 construction site and related facilities in a manner to avoid or minimize impacts to biological resources:

1. Limit Disturbance Area. 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 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 also be located in areas without native vegetation or special-status species habitat. All disturbances, 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 will do so within the planned impact area or in previously disturbed areas. Where new access is required outside of existing roads (e.g. new spur roads) or the construction zone, the route will be clearly marked (i.e., flagged and/or staked) prior to the onset of construction.

3. Minimize Traffic Impacts. Vehicular traffic during project construction and operation shall be confined to existing routes of travel to and from the project site, and cross country vehicle and equipment use outside designated work areas shall be prohibited. The speed limit shall not exceed 25 miles per hour within the project area, on maintenance roads for linear facilities, or on access roads to the project site.

4. Monitor During Construction. The Designated Biologist or Biological Monitor shall be present at the construction site during all project activities that have potential to disturb soil, vegetation, and wildlife. In areas that could support desert tortoise, Mohave ground squirrel, or any other sensitive wildlife species, the USFWS-approved Designated Biologist or Biological Monitor shall walk immediately ahead of equipment during brushing and grading activities.

5. Salvage Wildlife during Clearing and Grubbing. The Designated Biologist or Biological Monitor shall salvage and relocate sensitive wildlife during clearing and grading operations. The species shall be salvaged when conditions will not jeopardize the health and safety of the monitor and relocated off-site habitat.

6. Minimize Impacts of Transmission/Pipeline Alignments, Roads, and Staging Areas. For construction activities outside of the plant site (transmission line, pipeline alignments) access roads, pulling sites, and storage and parking areas shall be designed, installed, and maintained

with the goal of minimizing impacts to native plant communities and sensitive biological resources. Transmission lines and all electrical components shall be designed, installed, and maintained in accordance with the Avian Power Line Interaction Committee's (APLIC's) *Suggested Practices for Avian Protection on Power Lines* (APLIC 2006) and *Mitigating Bird Collisions with Power Lines* (APLIC 2004) to reduce the likelihood of bird electrocutions and collisions.

7. Avoid Use of Toxic Substances. Road surfacing and sealants as well as soil bonding and weighting agents used on unpaved surfaces shall be non-toxic to wildlife and plants. Anticoagulants shall not be used for rodent control.

8. Minimize Lighting Impacts. Facility lighting shall be designed, installed, and maintained to prevent side casting of light towards wildlife habitat.

9. Avoid Vehicle Impacts to Desert Tortoise. No vehicles or construction equipment 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 will be left to move on its own. If the tortoise does not move, the animal will be relocated to a safe location within 500 feet of the project area. No tortoise shall be moved without authorization from the CDFW, USFWS, and CPM.

10. Avoid Wildlife Pitfalls. At the end of each work day, the Designated Biologist shall ensure that all potential wildlife pitfalls (trenches, bores, and other excavations) outside the permanently fenced area 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 tortoise-exclusion fencing. All trenches, bores, and other excavations shall be inspected periodically throughout and at the end of each workday by the Designated Biologist or a Biological Monitor. Should wildlife become trapped, the Designated Biologist or Biological Monitor shall remove and relocate the individual to a safe location. Any wildlife encountered during the course of construction shall be allowed to leave the construction area unharmed.

11. Avoid Entrapment of Desert Tortoise and Mohave Ground Squirrel. Any construction pipe, culvert, or similar structure with a diameter greater than 3 inches, stored less than 8 inches above ground and within desert tortoise or Mohave ground squirrel habitat for one or more days/nights, shall be inspected for tortoises or Mohave ground squirrel 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 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 attract desert tortoise, common ravens, and other wildlife to the site and shall take appropriate action to reduce water application where necessary.

13. 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.

14. 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.

15. Avoid Spread of Noxious Weeds. The project owner shall implement the following Best Management Practices during construction and operation to prevent the spread and propagation of noxious weeds:

    a. Limit the size of any vegetation and/or ground disturbance to the absolute minimum and limit ingress and egress to defined routes;

    b. Prevent spread of non-native plants via vehicular sources by implementing Trackclean™ or other methods of vehicle cleaning for vehicles coming and going from construction sites. Earth-moving equipment shall be cleaned prior to transport to the construction site;

    c. Use only weed-free straw, hay bales, and seed for erosion control and sediment barrier installations, and

    d. Avoid using invasive non-native species in landscaping plans and erosion control.

16. Stockpile Topsoil. To increase chances for revegetation success, topsoil shall be stockpiled from the project plant site and along project linear features for use in revegetation of temporarily disturbed areas. The top tow (2) to six (6) inches of native topsoil depending on soil conditions that occur at each area subject to temporary disturbance that are relatively free

of noxious weeds such as Russian thistle, yellow star thistle, or similar exotics shall be scraped and separately stockpiled for use in revegetation. The amount of topsoil needed for the project plant site and laydown area will be estimated when final design plans are available, and only the amount expected to be needed for revegetation of temporarily disturbed areas will be collected and stockpiled. The collection and stockpiling of topsoil shall be conducted as described in *Rehabilitation of Disturbed Lands in California.* (Newton and Claassen 2003, pp. 39-40.)

17. 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 a drainage shall be stabilized to reduce erosion potential.

18. Monitor Ground-Disturbing Activities Prior to Site Mobilization. If ground-disturbing activities are required prior to site mobilization, 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.

19. Control and Regulate Fugitive Dust. To reduce the potential for the transmission of fugitive dust the owner shall implement dust control measures. These shall include:

    a. The owner shall apply non-toxic soil binders, equivalent or better in efficiencies than the CARB- approved soil binders, to active unpaved roadways, unpaved staging areas, and unpaved parking area(s) throughout construction to reduce fugitive dust emissions.

    b. Water the disturbed areas of the active construction sites at least three times per day and more often if uncontrolled fugitive dust is noted.

    c. Enclose, cover, water twice daily, and/or apply non-toxic soil binders according to manufacturer's specifications to exposed piles with a 5 percent or greater silt content.

    d. Establish a vegetative ground cover (in compliance with biological resources impact mitigation measures above) or otherwise create stabilized surfaces on all unpaved areas at each of the construction sites within 21 days after active construction operations have ceased.

    e. Increase the frequency of watering, if water is used as a soil binder for disturbed surfaces, or implement other additional fugitive dust mitigation measures, to all active disturbed fugitive dust emission

sources when wind speeds (as instantaneous wind gusts) exceed 25 mph.

Verification: All mitigation measures and their implementation methods shall be included in the BRMIMP and implemented. Implementation of the measures will 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.

COMPLIANCE VERIFICATION

BIO-9 The project owner shall provide Energy Commission staff, CDFW, and USFWS with reasonable access to the project site and mitigation 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 harmless the Designated Biologist, the Energy Commission and staff, and any other agencies with regulatory requirements addressed by the Energy Commission's sole permitting authority 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, CDFW, and USFWS at least 14 calendar days before initiating ground-disturbing activities. Immediately notify the CPM, CDFW, and USFWS 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. CDFW shall be notified at their Southern Region Headquarters Office, 4949 Viewridge Avenue, San Diego, CA 92123; (858) 467-4201. USFWS shall be notified at their Ventura office at 2493 Portola Road, Suite B, Ventura, CA 93003; (805) 644-1766.

2. Monitoring During Grading. Remain on site daily while grubbing and grading are taking place to avoid or minimize take of listed species, to check for compliance with all impact avoidance and minimization measures, and to check all exclusion zones to ensure that signs, stakes, and fencing are intact and that human activities are restricted in these protected zones.

3. Fence Monitoring. During construction maintain and check desert tortoise exclusion fences on a daily basis to ensure the integrity of the fence is maintained. The Designated Biologist shall be present on site to monitor construction and determine fence placement during fence installation. During operation of the project, fence inspections shall occur at least once per month throughout the life of the project, and more frequently after storms or other events that might affect the integrity and function of desert tortoise exclusion fences. Fence repairs shall occur within two days (48

hours) of detecting problems that affect the functioning of the desert tortoise exclusion fencing.

4. Monthly Compliance Inspections. Conduct compliance inspections at a minimum of once per month after clearing, grubbing, and grading are completed and until construction is completed and submit a monthly compliance report to the CPM, USFWS, and CDFW. All observations of listed species and their sign shall be reported to the Designated Biologist for inclusion in the monthly compliance report.

5. Annual Listed Species Status Report. No later than January 31 of every year the facility remains in operation, provide the CPM, USFWS, and CDFW an annual Listed Species Status Report, which shall include, at a minimum: 1) a general description of the status of the project site and construction/operation activities, including actual or projected completion dates, if known; 2) a copy of the table in the BRMIMP with notes showing the current implementation status of each mitigation measure; 3) an assessment of the effectiveness of each completed or partially completed mitigation measure in minimizing and compensating for project impacts, and 4) recommendations on how effectiveness of mitigation measures might be improved.

6. Final Listed Species Mitigation Report. No later than 45 days after initiation of project operation, provide the CPM a Final Listed Species Mitigation Report that shall include, 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.

7. Notification of Injured, Dead, or Relocated Listed Species. In the event of a sighting in an active construction area (e.g., with equipment, vehicles, or workers), injury, kill, or relocation of any listed species, the CPM, CDFW, and USFWS shall be notified immediately by phone. Notification shall occur no later than noon on the business day following the event if it occurs outside normal business hours so that the agencies can determine if further actions are required to protect listed species. Written follow-up notification via FAX or electronic communication shall be submitted to these agencies within two calendar days of the incident and include the following information as relevant:

    a. Injured Desert Tortoise. If a desert tortoise is injured as a result of project-related activities during construction, the Designated Biologist shall immediately take it to a CDFW-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, CDFW, and USFWS shall determine the final disposition of the injured animal, if it recovers. Written notification shall include, at a minimum, the date, time, and location, circumstances of the incident, and the name of the facility where the animal was taken.

b. Desert Tortoise/Mohave Ground Squirrel Fatality. If a desert tortoise or Mohave ground squirrel is killed by project-related activities during construction or operation, or if a desert tortoise or Mohave ground squirrel is otherwise found dead, submit a written report with the same information as an injury report. 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.

8. 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 two calendar days following the above-required notification of a sighting, kill, injury, or relocation of a listed species, the project owner shall deliver to the CPM, CDFW, and USFWS via FAX or electronic communication the written report from the Designated Biologist describing all reported incidents of the sighting, 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, CDFW, and USFWS.

No later than January 31st of every year the ~~PHPP~~ facility remains in operation, provide the CPM an annual Listed Species Status Report as described above, and a summary of desert tortoise exclusion fence inspections and repairs conducted in the course of the year.

RESTORATION PLAN FOR IMPACTS TO NATIVE VEGETATIONCOMMUNITIES

BIO-10 The project owner shall provide restoration for impacts to native vegetation communities and develop and implement a Restoration Plan for all areas subject to temporary project disturbance. Upon completion of construction, all temporarily disturbed areas shall be revegetated, excluding the road and

roadbed. The following measures shall be implemented for the revegetation effort areas not subject to the facility Landscape Plan. These measures will include:

1. Plan Details. The plans shall include at minimum: (a) the location of the mitigation site; (b) locations and details for top soil storage; (c) the plant species to be used; (d) seed collection guidelines; (e) a schematic depicting the mitigation area; (f) time of year that the planting will occur and the methodology of the planting; (g) a description of the irrigation methodology if used; (h) measures to control exotic vegetation on site; (i) success criteria; (j) a detailed monitoring program; and k) locations and impacts to all Joshua and Juniper Trees. All habitats dominated by non-native species prior to project disturbance shall be revegetated using appropriate native species.

2. Topsoil Salvage. Topsoil shall be stockpiled from the project plant site and linear features for use in revegetation of temporarily disturbed soils. The top two (2) to six (6) inches of soil depending on soil conditions that occur at each area subject to temporary disturbance that are relatively free of noxious weeds such as Russian thistle, yellow star thistle, or similar exotics shall be scraped and separately stockpiled for use in revegetation of temporarily disturbed areas. The amount of topsoil needed for the project plant site and laydown area will be estimated when final design plans are available, and only the amount expected to be needed for revegetation of temporarily disturbed areas will be collected and stockpiled. The collection and stockpiling of topsoil shall be conducted as described on pages 39-40 of *Rehabilitation of Disturbed Lands in California* (Newton and Claassen 2003).

3. Seed Stock. Only seed of locally occurring species shall be used for revegetation. Seeds shall contain a mix of short-lived early pioneer species such as native annuals and perennials and subshrubs (for example, squirreltail, cheesebush, matchweed, peppergrass, rabbitbrush, creosote bush, burro-weed, wolfberry, Nevada tea, needlegrass, rice grass, goldenhead). Seeding shall be conducted as described in Chapter 5 of *Rehabilitation of Disturbed Lands in California* (Newton and Claassen 2003, as updated). A list of plant species suitable for Mojave Desert region revegetation projects, including recommended seed treatments, are included in Appendix A-8 of the same report. The list of plants observed during the required special-status plant surveys of the ~~PHPP~~ project area can also be used as a guide to site-specific plant selection for revegetation.

4. Monitoring Requirement and Success Criteria. Post-seeding and planting monitoring will be yearly from years one to five or until the success criteria are met. If the survival and cover requirements have not been met, the owner is responsible for replacement planting to achieve these requirements. Replacement plants shall be monitored with the same survival and growth requirements as previously mentioned. Remediation

activities (e.g. additional planting, removal of non-native invasive species, or erosion control) shall be taken during the five-year period if necessary to ensure the success of the restoration effort. If the mitigation fails to meet the established performance criteria after the five-year maintenance and monitoring period, monitoring and remedial activities shall extend beyond the five-year period until the criteria are met or unless otherwise specified by the Energy Commission. If a fire occurs in a revegetation area within the five-year monitoring period, the owner shall be responsible for a one-time replacement. If a second fire occurs, no replanting is required, unless the fire is caused by the owner's activity.

Verification: All mitigation measures and their implementation methods shall be included in the BRMIMP and implemented. Within 90 days after completion of project construction, the project owner shall provide to the CPM verification of the total vegetation and community subject to temporary and permanent disturbance. If habitat disturbance exceeded that described in this analysis, the CPM shall notify the project owner of any additional mitigation required to compensate for any additional habitat disturbances t. To monitor and evaluate the success of the restoration the owner shall submit annual reports of the restoration including the status of the site, percent cover of native and exotics, and any remedial actions conducted by the owner to the CPM.

SPECIAL-STATUS PLANT SURVEYS/PROTECTION PLAN

BIO-11 To avoid impacts to State and federally listed Threatened and Endangered, Proposed, Petitioned, and Candidate or California Native Plant Society List 1B or 2, plants that might occur on the project site or along the proposed transmission line alignments, pre-construction surveys shall be conducted in these areas in the Spring closest to commencement of construction of the power plant site and reclaimed water pipeline, and in the Spring prior to the commencement of ground disturbance for the transmission line and natural gas pipeline. If special-status plant species are detected within 100 feet of the project footprint, the qualified botanist shall prepare a Sensitive Plant Protection Plan to avoid direct and indirect impacts. The project owner shall implement the following measures:

1. Pre-Construction Floristic Surveys. A qualified botanist shall conduct floristic surveys on the ~~PHPP~~ project site and along linear facilities in all areas subject to ground-disturbing activity, including, but not limited to, tower pad preparation and construction areas, tower removal sites, pulling and tensioning sites, assembly yards, and areas subject to grading for new access roads. Surveys shall be conducted within 100 feet of all surface-disturbing activities at the appropriate time of year and according to the most current guidelines from the California Department of Fish and Game and the California Native Plant Society.

2. Sensitive Plant Protection Plan. If special-status plant species are detected during pre-construction surveys, a qualified botanist shall prepare a Sensitive Plant Protection Plan (Plan). Populations of rare plants shall be flagged and mapped prior to any ground disturbance. Where possible the owner shall modify the placement of structures,

access roads, laydown areas, and other ground-disturbing activities in order to avoid the plants. The Plan shall include measures for avoiding direct impacts and accidental impacts during construction by identifying the plant occurrence location and establishing an appropriately sized buffer. The Plan shall also include measures to avoid indirect impacts including: sedimentation from adjacent disturbed soils; alterations of the site hydrology from changes in the drainage patterns; dust deposition; and displacement or degradation of the habitat from the introduction and spread of noxious weeds. The Plan shall also include a discussion of monitoring and reporting requirements during and after construction.

a. Prior to any ground disturbance, any populations of listed plant species identified during the surveys shall be protected by a buffer zone if they can be avoided. The buffer zone shall be established around these areas and shall be of sufficient size to eliminate potential disturbance to the plants from human activity and any other potential sources of disturbance including human trampling, erosion, and dust. The size of the buffer will depend upon the proposed use of the immediately adjacent lands, and includes consideration of the plant's ecological requirements (e.g., sunlight, moisture, shade tolerance, edaphic physical and chemical characteristics) that are identified by the Designated Biologist. The buffer for herbaceous species shall be, at minimum, 50 feet from the perimeter of the population or the individual. A smaller buffer may be established, provided there are adequate measures in place to avoid the take of the species, with the approval of the USFWS, CDFW, and CPM.

b. Impacts to non-listed plant species (i.e., CNPS List 1 and 2, species) shall first be avoided where feasible, and, where not feasible, impacts shall be compensated through reseeding (with locally collected seed stock), or other CPM-approved methods. If Project activities will result in loss of more than 10 percent of the known individuals within an existing population of non-listed special-status plant species, the project owner shall preserve existing off-site occupied habitat that is not already part of the public lands in perpetuity at a 2:1 mitigation ratio. The CPM may reduce this ratio depending on the sensitivity of the plant. The preserved habitat shall be occupied by the plant species impacted, and be of superior or similar habitat quality to the impacted areas in terms of soil features, extent of disturbance, habitat structure, and dominant species composition, as determined by a qualified plant ecologist.

3. State or Federally Listed Plant Species: If impacts to listed plants are determined to be unavoidable, the USFWS shall be consulted for authorization and/or the CDFW shall be consulted for authorization through an Incidental Take Permit. Additional mitigation measures to protect or restore listed plant species or their habitat may be required by the CDFW before impacts are authorized.

4. Agency Notification and Avoidance: If State or federally listed plant species are detected during the pre-construction floristic surveys, the CPM, USFWS, and CDFW shall be notified in writing no more than 15 days from detection of the plants.

5. Review and Submittal of Plan: The project owner shall submit to the CPM, USFWS, and CDFW a draft Sensitive Plant Protection Plan. Prior to any ground-disturbing activities within 100 feet of the sensitive plant occurrences detected during the pre-construction floristic surveys, the project owner shall submit to the CPM a final Plan that reflects review and approval by Energy Commission staff in consultation with CDFW and USFWS.

Verification: No later than 60 days prior to ground disturbance the project owner shall submit a report describing the results of floristic surveys conducted on the ~~PHPP~~ power plant site and along the proposed transmission line alignment. The report shall be submitted to the CPM, USFWS, and CDFW and shall describe qualifications of the surveyor, survey methods including dates and times, a discussion of visits to reference sites, figures depicting the area(s) surveyed, figures depicting the locations of any special-status plants observed, and a list of all plant species detected.

If special-status plant species are detected during the surveys, the project owner shall submit to the CPM and CDFW a Sensitive Plant Protection Plan (Plan) at least 60 days prior to the start of any ground-disturbing activities within 100 feet of the sensitive plant occurrences detected during the pre-construction floristic surveys. The CPM will determine the Plan's acceptability in consultation with CDFW and USFWS within 15 days of receipt of the Plan. Any modifications to the approved Plan shall be made only after approval by Energy Commission staff in consultation with CDFW. The project owner shall notify the CPM no fewer than 5 working days before implementing any CPM-approved modifications to the Plan.

Within 30 days after completion of construction the project owner shall provide to the CPM, USFWS, and CDFW a construction termination report discussing how mitigation measures described in the Plan were implemented.

AVOIDANCE MEASURES FOR ARROYO TOAD

BIO-12 The project owner shall conduct pre-construction surveys for arroyo toads at the Little Rock Creek transmission line crossing on Segment 2 and implement impact avoidance and minimization measure during all construction activities. These measures include, but are not limited to, the following:

1. Surveys. Prior to ground disturbance the project owner shall retain a biologist who is familiar with arroyo toads that occur in desert habitats to conduct clearance surveys prior to construction and monitor all construction activities at Little Rock Creek. Clearance surveys shall be completed within 24 hours of construction. If arroyo toads are detected a 500 foot disturbance free buffer shall be implemented and the area shall be avoided until the owner completes consultation with the USFWS.

2. Monitoring. The project owner shall conduct full time monitoring during ground disturbance and construction of the all areas within 500 feet of Little Rock Creek. Although this species is primarily nocturnal and aestivates during the winter monitoring shall occur year round whenever day time temperatures exceed 50 degrees Fahrenheit and during periods of rainfall. If arroyo toads are detected the Designated Biologist shall contact the CPM and USFWS within 24 hours. Work shall not occur within 500 feet of Little Rock Creek until approved by the CPM and USFWS.

Verification: Within 30 days of completion of arroyo toad clearance surveys the Designated Biologist shall submit a report to the CPM describing how mitigation measures described above have been satisfied. The report shall include the survey results and any other information needed to demonstrate compliance with the measures described above.

DESERT TORTOISE CLEARANCE SURVEYS AND EXCLUSION FENCING

BIO-13 The project owner shall undertake appropriate measures to manage construction at the plant site and linear facilities in a manner to avoid impacts to desert tortoise. Methods for clearance surveys, fence installation, and other procedures shall be consistent with those described in the *Guidelines for Handling Desert Tortoise During Construction Projects* (Desert Tortoise Council 1999) or more current guidance provided by CDFW and USFWS. These measures include, but are not limited to, the following:

1. Fence Installation. Prior to ground disturbance, the entire plant site shall be fenced with permanent desert tortoise-exclusion fence. To avoid impacts to desert tortoise during fence construction, the proposed fence alignment shall be flagged and the alignment surveyed within 24 hours prior to fence construction. Surveys shall be conducted by the Designated Biologist using techniques approved by the USFWS and CDFW. Biological Monitors may assist the Designated Biologist under his or her supervision. These surveys shall provide 100 percent coverage of all areas to be disturbed during fence construction and an additional transect along both sides of the proposed 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 30 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 USFWS-approved protocol.

    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 compliance with current USFWS guidelines.

c. Security Gates. Security gates shall be designed with minimal ground clearance to deter ingress by tortoises, including gates that would exclude public access to the project site.

d. Tower Fencing. If tortoises are discovered during clearance surveys of the linear routes, the tower locations shall be temporarily fenced with tortoise exclusion fencing to prevent desert tortoise entry during construction. Temporary fencing must follow current USFWS guidelines for permanent fencing and supporting stakes shall be sufficiently spaced to maintain fence integrity.

e. 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. Permanent fencing shall be inspected monthly and during/following all major rainfall events. Any damage to the fencing shall be temporarily repaired immediately to keep tortoises out of the site, and permanently repaired within two days of observing damage. Inspections of permanent site fencing shall occur for the life of the project. Temporary fencing must be inspected weekly and, where drainages intersect the fencing, during and immediately 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 utility corridor or tower site for tortoise.

2. Desert Tortoise Clearance Surveys. Following construction of the tortoise exclusionary fencing around the Plant Site, all fenced areas shall be cleared of tortoises by the Designated Biologist, who may be assisted by Biological Monitors. A minimum of two clearance surveys, with negative results, must be completed, and these must coincide with heightened desert tortoise activity from late March through May and during October. To facilitate seeing the ground from different angles, the second clearance survey shall be walked at 90 degrees to the orientation of the first clearance survey.

3. Relocation for Desert Tortoise. If desert tortoises are detected on the power plant site during clearance or other activities, the owner shall halt ground disturbing activities within 500 feet of the tortoise, prepare a Desert Tortoise Translocation Plan, and coordinate with the USFWS, CDFW, and CPM regarding the disposition of the animals. If located during clearance surveys within the transmission line project route, the tortoise would be allowed to continue unimpeded out of harm's way. Only in the event that a tortoise required relocation to prevent injury, project impact area the

Designated Biologist shall move the tortoise the shortest possible distance, keeping it out of harm's way but still within its home range. Desert tortoise encountered during construction of any of the utility corridors shall be similarly treated in accordance with the techniques described in the *Guidelines for Handling Desert Tortoise during Construction Projects* (Desert Tortoise Council 1999) or more current guidance on the USFWS website. Any person handling tortoise must be approved by the USFWS and CDFW and be on site during ground disturbance or construction. If a desert tortoise is discovered on the power plant site the project owner shall prepare a Desert Tortoise Translocation Plan. The Translocation Plan shall follow the most current USFWS guidelines for the translocation of desert tortoise and shall be submitted to the USFWS, CDFW, and CPM for approval. Desert tortoise shall not be moved pending the approval of the Plan. Prior to initiating further ground disturbance at the project site the project owner shall conduct additional clearance surveys of the power plant site.

4. Burrow Inspection. All potential desert tortoise burrows within the fenced area shall be searched for presence. In some cases, a fiber optic scope may be needed to determine presence or absence within a deep burrow. To prevent reentry by a tortoise or other wildlife, all burrows shall be collapsed once absence has been determined.

5. Burrow Excavation. Burrows inhabited by tortoises shall be excavated by the Designated Biologist or other USFWS/CDFW/CPM approved handler, using hand tools, and then collapsed or blocked to prevent re-occupation. If excavated during May through July, the Designated Biologist shall search for desert tortoise nests/eggs. All desert tortoise handling and removal, and burrow excavations, including nests, shall be conducted by the Designated Biologist or other USFWS/CDFW/CPM approved handler (See Paragraph 3 above) in accordance with the USFWS-approved protocol (Desert Tortoise Council 1999) or more current guidance on the USFWS website.

6. Monitoring During Clearing. Following construction of the desert tortoise exclusion fencing and clearance surveys heavy equipment shall be allowed to enter the project site to perform earth work such as clearing, grubbing, leveling, and trenching. A Biological Monitor shall be onsite during initial clearing and grading activities. Should a tortoise be discovered, the measures outlined in Paragraph 3 shall be followed.

7. Reporting. The Designated Biologist shall record the following information for any desert tortoises observed or 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 as described in the paragraph below. Desert tortoise moved from within project areas shall be marked for future identification as described in *Guidelines for Handling Desert Tortoise during Construction Projects* (Desert Tortoise Council 1999) or more current guidance on the USFWS website. Digital photographs of the carapace, plastron, and fourth costal scute shall be taken. Scutes shall not be notched for identification. Any desert tortoises observed within the project area or adjacent habitat shall be reported to the USFWS, CDFW, and CPM by written and electronic correspondence within 24 hours.

Verification: Within 30 days of completion of desert tortoise clearance surveys the Designated Biologist shall submit a report to the CPM, USFWS, and CDFW describing how each of the mitigation measures described above has been satisfied. The report shall include the desert tortoise survey results, capture and release locations of any relocated desert tortoises, and any other information needed to demonstrate compliance with the measures described above.

If a desert tortoise is located on the power plant site the project owner shall submit to Energy Commission staff, USFWS and CDFW a draft Desert Tortoise Translocation Plan. The CPM will review the Plan and provide comments within 30 days receipt of the draft plan. All modifications to the Desert Tortoise Translocation Plan must be made only after approval by the Energy Commission staff in consultation with USFWS and CDFW. The project owner shall notify the CPM no fewer than five working days before implementing any CPM-approved modifications to the Translocation Plan.

Within 30 days after initiation of translocation activities, the Designated Biologist shall provide to the CPM for review and approval, a written report identifying which items of the Translocation Plan have been completed, and a summary of all modifications to measures made during implementation.

RAVEN FEE, MONITORING, MANAGEMENT, AND CONTROL PLAN

BIO-14 The project owner shall design and implement a Raven Monitoring, Management, and Control Plan (Raven Plan) that is consistent with the most current USFWS-approved raven management guidelines and that meets the approval of the USFWS, CDFW, and the CPM. Any subsequent modifications to the approved Raven Plan shall be made only with approval of the CPM in consultation with USFWS and CDFW. 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 to be proposed in the Raven Plan. Regardless of raven monitoring results, the project owner shall be responsible for all other aspects of the Raven Plan, including avoidance and minimization of project-related trash, water sources, or perch/roost sites that could contribute to increased raven numbers. 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. Prepare and Implement a Raven Management Plan 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 REAT 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 REAT Regional Raven Management Program. The amount shall be a one-time payment of $105 per acre (135.5 acres) of permanent disturbance fee $14,227.50.

Verification: No later than 30 days prior to any construction-related ground disturbance activities, the Project owner shall provide the CPM, USFWS, and CDFW 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 CDFW. No later than 60 days prior to the start of construction, the project owner shall provide written verification to the CPM that NFWF has received and accepted payment into the project's sub-account of the REAT Account to support the USFWS Regional Raven Management Program. 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.

PRE-CONSTRUCTION NEST SURVEYS AND IMPACT AVOIDANCE MEASURES FOR MIGRATORY BIRDS

BIO-15 Pre-construction nest surveys shall be conducted if construction activities will occur from February 1 through August 15. The Designated Biologist or Biological Monitor conducting the surveys shall be experienced bird surveyors and familiar with standard nest-locating techniques such as those described in Martin and Guepel (1993). Surveys shall be conducted in accordance with the following guidelines:

1. Surveys shall cover all potential nesting habitat in the project site and within 500 feet of the boundaries of the plant site and linear facilities;

2. At least two pre-construction surveys shall be conducted, separated by a minimum 10-day interval. One of the surveys shall to be conducted within the 10 days preceding initiation of construction activity. Additional follow-up surveys may be required if periods of construction inactivity exceed three weeks in any given area, 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 no-disturbance buffer zone (protected area surrounding the nest, the size of which is to be determined by the Designated Biologist in consultation with CDFW, USFWS, and CPM) and a monitoring plan shall be developed. Nest locations shall be mapped using GPS technology and submitted, along with a weekly report stating the survey results, to the CPM; and

4. The Designated Biologist 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 and in consultation with the CPM, disturb nesting activities shall be prohibited within the buffer zone until such a determination is made.

5. If an occupied golden eagle nest is detected within one mile of the active construction, a one mile no activity buffer will be implemented. The prescribed buffers may be adjusted to reflect existing conditions including ambient noise, topography, and disturbance with the approval of the CPM. The biological monitor(s) shall conduct regular monitoring of the nest to determine success/failure and to ensure that project activities are not conducted within the buffer(s) until the nesting cycle is complete or the nest fails. The biological monitor(s) shall be responsible for documenting the results of the surveys and ongoing monitoring and will provide a copy of the monitoring reports for impact areas to the respective agencies. The Project owner shall also 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. The monitoring methods shall be consistent with those described in the Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations (Page l et al. 2010) or more current guidance from the USFWS. The Monitoring and Management Plan shall be prepared in consultation with the USFWS. Triggers for adaptive management shall include any evidence of Project-related disturbance to nesting golden eagles, including but not limited to: agitation behavior (displacement, avoidance, and defense); increased vigilance behavior at nest sites; changes in foraging and feeding behavior, or nest site abandonment. The Monitoring and Management Plan shall include a description of adaptive management actions, which shall include, but not be limited to, cessation of construction activities that are deemed by the Designated Biologist to be the source of golden eagle disturbance.

Verification: At least 10 days 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, 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-disturbance buffer zone around the nest.

SWAINSON'S HAWK IMPACT AVOIDANCE AND MINIMIZATION MEASURES

BIO-16 The project owner shall implement the following measures to avoid and offset impacts to Swainson's hawk:

1. Pre-Construction Surveys. To assure that nesting Swainson's hawks are not disturbed by construction activities, a qualified ornithologist approved by the CDFW and CPM shall conduct pre-construction surveys prior to commencement of ground disturbing activities. Survey results shall be provided to the CDFW and CPM in a written report, within 30 days of commencement of construction activities.

2. Swainson's Hawk Monitoring and Mitigation Plan. If a Swainson's hawk nest site is found within 0.5 mile of the project site, the Designated Biologist shall prepare a Swainson's Hawk Monitoring and Mitigation Plan in consultation with CDFW and Energy Commission staff. This plan shall include detailed measures to avoid and minimize impacts to Swainson's hawks in and near the construction areas and shall also include the following:

   a. If a nest site is found, no new disturbances or other project-related activities that may cause nest abandonment or forced fledging will be initiated within .5 mile of an active nest between 1 March and 15 September. These buffer zones may be adjusted in consultation with the CPM and CDFW.

   b. During the nesting season (March 1 through September 15), the Designated Biologist shall be present daily, during any site mobilization, ground disturbance or construction on site, monitoring the behavior of any nesting Swainson's hawks within 0.5 mile of the project. The Designated Biologist shall have authority to order the cessation of all construction activities within 0.5 mile of any Swainson's hawk nest if the birds exhibit abnormal nesting behavior which may cause reproductive failure (nest abandonment and loss of eggs and/or young). Construction shall not resume until the Designated Biologist has consulted with the CDFW and CPM. The Designated Biologist, CPM, and CDFW must confirm that the bird's behavior has normalized prior to the initiation of construction.

   c. If construction or other project-related activities cause nest abandonment by a Swainson's hawk or forced fledging, monitoring of the nest site by a qualified biologist shall be required to determine if the nest is abandoned. If the nest is abandoned and if the nestlings are still alive, the project owner shall fund the recovery and hacking (controlled

release of captive reared young) of the nestling(s). Transport to the raptor center shall only be approved by the CPM and CDFW Regional Representative.

d. If relocation of nestlings is required, the project owner shall provide a written report documenting the relocation efforts. The report shall include what actions were taken to avoid the nest, the location of the nest, the number and condition of the eggs/nestlings taken from the nest, the location of where the eggs/nestlings are incubated, the survival rate, the location of the nests where the chicks are relocated, and whether the birds were accepted by the adopted parent.

e. Nest trees for Swainson's hawks in the project area shall not be removed unless avoidance measures are determined to be infeasible. If a nest tree for a Swainson's hawk must be removed from the project area, it shall occur between 1 October and 1 February.

3. Discovery of an Injured Swainson's Hawk. If a Swainson's hawk is found injured during project-related activities on the project site, it shall be immediately relocated to a raptor recovery center approved by the CDFW Regional Representative. Any costs associated with the care or treatment of such injured Swainson's hawks shall be borne by the project owner. The Designated Representative shall immediately notify the CDFW and CPM of the incident unless the incident occurs outside of normal business hours. In that event, the CDFW and CPM shall be notified no later than noon on the next business day. Notification to the CDFW and CPM shall be via telephone or email, followed by a written incident report. Notification shall include the date, time, location, and circumstances of the incident.

Verification: Survey results shall be provided to the CDFW and CPM in a written report, within 30 days of commencement of construction activities. If pre-construction surveys detect nesting Swainson's hawks within 0.5 mile of proposed construction activities, the Designated Biologist shall provide to CDFW and the CPM a Swainson's Hawk Monitoring and Mitigation Plan at least 30 days prior to the start of any project-related site disturbance activities. The project owner shall report monthly to CDFW and the CPM for the duration of construction on the implementation of Swainson's hawk avoidance and minimization measures described in the Swainson's Hawk Monitoring and Mitigation Plan. Within 30 days after completion of construction, the project owner shall provide to the CDFW and CPM a written construction termination report identifying how mitigation measures described in the plan have been completed.

No later than two calendar days following the above-required notification of a sighting, kill, injury, or relocation of a Swainson's hawk, the project owner shall deliver to the CPM and CDFW via FAX or electronic communication the written report from the Designated Biologist describing all reported incidents of the sighting, injury, kill, or relocation of a Swainson's hawk, identifying who was notified and explaining when the incident(s) 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 and CDFW.

SWAINSON'S HAWK HABITAT COMPENSATORY MITIGATION

BIO-17 The project owner shall either assume that a Swainson's hawk nest is within five miles of the project site and provide compensatory mitigation as described below or complete CDFW protocol surveys within five miles of project facilities that result in permanent impacts to Swainson's hawk foraging habitat. If surveys are completed they shall include the following components.

The survey periods shall follow a specified schedule:

- Period I occurs from 1 January to 31 March;
- Period II occurs from 1 April to 30 April;
- Period III occurs from 1 May to 30 May; and
- Period IV occurs from 1 June to 15 July.

No fewer than three surveys per period in at least two survey periods shall be completed immediately prior to the start of project construction. All nest sites shall be recorded, mapped using GIS and provided to the CPM and CDFW. Compensatory mitigation at a 2:1 ratio shall be required for permanent impacts. If active Swainson's hawk nests (i.e., any nest active within five years) are not detected within 5 miles of the project site or linear facilities, the project owner will not be required to provide compensatory mitigation.

If the project owner assumes presence, the project owner shall provide compensatory mitigation acreage for **211** acres of Swainson's hawk habitat lands, adjusted to reflect the final project footprint, as specified in this condition. In addition, the project owner shall provide funding for initial improvement and long-term maintenance, enhancement, and management of the acquired lands for protection and enhancement Swainson's hawk populations, and comply with other related requirements of this condition.

a. Loss of foraging habitat for Swainson's hawks shall be mitigated by providing Habitat Management (HM) lands at a ratio of 2:1 for any foraging habitat impacted within a 5-mile radius of active Swainson's hawk nest(s) CDFW considers a nest active if it was used one or more times within the last 5 years). Foraging habitat includes but is not limited to alfalfa; fallow fields; beet, tomato, onions, and other low-growing row or field crops; dry-land and irrigated pasture; and cereal grain crops (including corn after harvest). Joshua tree woodland shall be considered foraging habitat in the Antelope Valley.

b. Lands which are currently in urban use or lands that have no existing or potential value for foraging Swainson's hawks will not require mitigation. The project owner will provide the CPM and CDFW a report of potential foraging lands impacted by the proposed project as determined by

consultation with the CDFW and recent site-specific surveys conducted by a CDFW -qualified raptor biologist.

This acreage was calculated as follows: a ratio of 2:1 for the power plant site (100 acres), 2:1 ratio for the laydown site (40 acres), and a 2:1 ratio (71 acres) for the loss of native vegetation and agricultural lands associated with the transmission line. The project owner shall use a good faith effort to purchase compensation acres for Swainson's hawk within 15 miles of previously surveyed locations of Swainson's hawk nesting sites. Costs of these requirements are estimated to be $2,794,265.00(see Biological Resources Table~~s~~ 2 for a complete breakdown of costs and acreage). All costs are best estimates as of fall 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation based on changing land costs or management fees. Regardless of the estimates, the project owner is responsible for providing adequate funding to implement the required mitigation.

These impact acreages shall be 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 Project Site and 25.25 acres of Mohave creosote bush scrub and Joshua tree woodland and 10.22 acres of agricultural lands that occur on the transmission line.

This compensation acreage may be included ("nested") within the acreage acquired and managed as Mohave ground squirrel habitat compensation (Condition of Certification **BIO-20**) only if:

- A minimum of 211 acres of suitable foraging habitat including a minimum of 76.5 acres of Joshua tree woodland are present. The project owner shall use a good faith effort to purchase compensation acres for Swainson's hawk within 15 miles of previously surveyed locations of Swainson's hawk nesting sites.
- The composition of vegetation communities that occur within the proposed mitigation lands, including the acreage of Joshua tree woodland, may be adjusted based on the habitat value of the proposed mitigation lands with the approval of the CPM and CDFW.
- The Mohave ground squirrel habitat compensation lands are acquired and dedicated as permanent conservation lands within 18 months of the start of project construction.

If these three criteria are not met, then the project owner shall provide the required number of acres of Swainson's hawk habitat compensation lands, adjusted to reflect the final project footprint and additional delineation of suitable habitat, independent of any compensation land required under other conditions of certification, and shall also provide funding for the initial

improvement and long-term maintenance and management of the acquired lands, and shall comply with other related requirements this condition.

The project owner shall provide financial assurances as described below in the amount of $2,794,265.00. In lieu of acquiring lands itself, the Project owner may satisfy the requirements of this condition by depositing funds into a Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF), as described below. If the Project owner elects to establish a REAT NFWF Account and have NFWF and the agencies complete the required habitat compensation, then the total estimated cost of complying with this condition is $2,881,152.45. The amount of security or NFWF deposit shall be adjusted up or down to reflect any revised cost estimates recommended by REAT.

The actual costs to comply with this condition will vary depending on the final footprint of the project, the costs of acquiring compensation habitat, the costs of initially improving the habitat, and the actual costs of long-term management as determined by a Property Analysis Report or similar analysis (below). The 211 acre habitat requirement, and associated funding requirements based on that acreage, shall be adjusted up or down if there are changes in the final footprint of the project or the associated costs of evaluation, acquisition, management, and other factors listed in Biological Resources Tables 2. Regardless of actual cost, the project owner shall be responsible for funding all requirements of this condition.

COMPENSATORY MITIGATION LAND ACQUISITION

1. Method of Acquisition. Compensation lands shall be acquired by either of the two options listed below. Regardless of the method of acquisition, the transaction shall be complete only upon completion of all terms and conditions described in this Condition of Certification.

    a. The project owner shall acquire lands and transfer title and/or conservation easement to a state or federal land management agency or to a third-party non-profit land management organization, as approved by the CPM in consultation with CDFW; or

    b. The Project owner shall deposit funds into a project-specific subaccount within the REAT Account established with the NFWF, in the amount as indicated in Biological Resources Tables 4a (adjusted to reflect final project footprint and any applicable REAT adjustments to costs).

2. Selection Criteria for Compensation Lands. The compensation lands selected for acquisition to meet Energy Commission and CESA requirements shall be equal to or better than the quality and function of the habitat impacted and:

    a. Be within the Western Mojave Desert;

b. Provide moderate to good quality foraging habitat for Swainson's hawk with capacity to improve in quality and value for this species; and

c. Be near lands for which there is reasonable evidence (for example, recent (<15 years) CNDDB occurrences on or immediately adjacent to the proposed lands) suggesting current occupation by Swainson's hawk ideally with populations that are stable, recovering, or likely to recover.

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 cause future erosional damage or other habitat damage, and 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; and

g. not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat; and

h. have water and mineral rights included as part of the acquisition, unless the CPM, in consultation with CDFW, agrees in writing to the acceptability of land without these rights.

3. 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 Swainson's hawk in relation to the criteria listed above and must be approved by the CPM. The CPM will share the proposal with and consult with CDFW before deciding whether to approve or disapprove the proposed acquisition.

4. Compensation Lands Acquisition Conditions: The project owner shall comply with the following conditions relating to acquisition of the compensation lands after the CPM, in consultation with CDFW approved the proposed compensation lands:

   a. Preliminary Report: The Project owner, or approved third party, shall provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary or requested documents for the proposed compensation land to the CPM. All documents conveying or conserving compensation lands and all conditions of title are subject to review and approval by the CPM, in consultation with CDFW. For conveyances to the State, approval may

also be required from the California Department of General Services, the California Fish and Game Commission and the Wildlife Conservation Board.

b. Title/Conveyance: The Project owner shall acquire and transfer fee title to the compensation lands, a conservation easement over the lands, or both fee title and conservation easement as required by the CPM in consultation with CDFW. Any transfer of a conservation easement or fee title must be to CDFW, a non-profit organization qualified to hold title to and manage compensation lands (pursuant to California Government Code section 65965), or to other public agency approved by the CPM in consultation with CDFW. If an approved non-profit organization holds fee title to the compensation lands, a conservation easement shall be recorded in favor of CDFW or another entity approved by the CPM. If an approved non-profit holds a conservation easement, CDFW shall be named a third party beneficiary. If an entity other than CDFW holds a conservation easement over the compensation lands, the CPM may require that CDFW or another entity approved by the CPM, in consultation with CDFW, be named a third party beneficiary of the conservation easement. The Project owner shall obtain approval of the CPM, in consultation with CDFW, of the terms of any transfer of fee title or conservation easement to the compensation lands.

c. 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 CDFW, before it can be used to establish funding levels or management activities for the compensation lands.

5. Compensation Lands Acquisition Costs: The Project owner shall pay all other costs related to acquisition of compensation lands and conservation easements. In addition to actual land costs, these acquisition costs shall include but shall not be limited to the items listed below. Management costs including site cleanup measures are described separately, in the following section.

   a. Level 1 Environmental Site Assessment;

   b. Appraisal;

   c. Title and document review costs;

   d. Expenses incurred from other state, federal, or local agency reviews;

   e. Closing and escrow costs;

f. Overhead costs related to providing compensation lands to ~~CDFG~~**CDFW** or an approved third party;

g. Biological survey(s) to determine mitigation value of the land; and

h. Agency costs to accept the land (e.g., writing and recording of conservation easements; title transfer).

COMPENSATORY MITIGATION LAND IMPROVEMENT

1. Land Improvement Requirements: The Project owner shall fund activities that the CPM, in consultation with the CDFW, 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 surveys of boundaries and property lines, installation of signs, trash removal and other site cleanup measures, construction and repair of fences, invasive plant removal, removal of roads, and similar measures to protect habitat and improve habitat quality on the compensation lands.

   The costs of these activities are estimated at $250 an acre, but will vary depending on the measures that are required for the compensation lands. A non-profit organization, CDFW or another public agency may hold and expend the habitat improvement funds if it is qualified to manage the compensation lands (pursuant to Gov. Code § 65965), if it meets the approval of the CPM in consultation with CDFW, and if it is authorized to participate in implementing the required activities on the compensation lands. If CDFW takes fee title to the compensation lands, the habitat improvement fund must be paid to CDFW or its designee.

COMPENSATORY MITIGATION LAND LONG-TERM MANAGEMENT

1. Long-term Management Requirements: Long-term management is required to ensure that the compensation lands are managed and maintained to protect and enhance habitat for desert tortoise. Management activities may include maintenance of signs, fences, removal of invasive weeds, monitoring, security and enforcement, and control or elimination of unauthorized use.

2. Long-term Management Plan. The project owner shall pay for the preparation of a Management Plan for the compensation lands. The Management Plan shall reflect site-specific enhancement measures on the acquired compensation lands. The plan shall be submitted for approval of the CPM, in consultation with CDFW.

3. Long-Term Maintenance and Management Funding. The Project owner shall provide money to establish an account with a 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 provide initial payment of $305,950.00 calculated at $1,450 an acre for each compensation acre, as shown in Biological Resources Table 2 (above) into an account for long-term maintenance and management of compensation lands. 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 the project owner and CDFW before deciding whether to approve an entity to hold the project's long-term maintenance and management funds on any lands. The CPM, in consultation with the project owner and CDFW, may designate another state agency or non-profit organization to hold the long-term maintenance and management fee if the organization is qualified to manage the compensation lands in perpetuity.

If CDFW takes fee title to the compensation lands, CDFW shall determine whether it will hold the long-term management fee in the special deposit fund, leave the money in the REAT Account, or designate another entity such as NFWF to manage the long-term maintenance and management fee for CDFW and with CDFW supervision.

The Project owner shall ensure that an agreement is in place with the long-term maintenance and management fee holder/manager to ensure the following conditions:

i. Interest. Interest generated from the initial capital shall be available for reinvestment into the principal and for the long-term operation, management, and protection of the approved compensation lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement measures, and any other action approved by CDFW designed to protect or improve the habitat values of the compensation lands.

ii. Withdrawal of Principal. The long-term maintenance and management fee principal shall not be drawn upon unless such withdrawal is deemed necessary by the CPM, in consultation with CDFW, or the approved third-party long-term maintenance and management fee manager to

ensure the continued viability of the species on the compensation lands. If CDFW takes fee title to the compensation lands, monies received by CDFW pursuant to this provision shall be deposited in a special deposit fund established solely for the purpose to manage lands in perpetuity unless CDFW designates NFWF or another entity to manage the long-term maintenance and management fee for CDFW.

iii. Pooling Funds. A CPM- approved non-profit organization qualified to hold long-term maintenance and management fees solely for the purpose to manage lands in perpetuity, may pool the fund with other funds for the operation, management, and protection of the compensation lands for local populations of desert tortoise. However, for reporting purposes, the long-term maintenance and management fee fund must be tracked and reported individually to the CDFW and CPM.

iv. Reimbursement Fund. The project owner shall provide reimbursement to CDFW or an approved third party for reasonable expenses incurred during title, easement, and documentation review; expenses incurred from other State or State-approved federal agency reviews; and overhead related to providing compensation lands.

COMPENSATORY MITIGATION LAND SECURITY

1. Compensation Mitigation Security: The project owner shall provide security sufficient for funding acquisition, improvement, and long-term management of Swainson's hawk compensation land. 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 submitting the Security to the CPM, the Project owner shall obtain the CPM's approval, in consultation with CDFW of the form of the Security.

   The security amount shall be based on the estimates provided in Biological Resources Tables 2. This amount shall be updated and verified prior to payment and shall be adjusted to reflect actual costs or more current estimates as agreed upon by the REAT agencies.

   The Project owner shall provide verification that financial assurances have been established to the CPM with copies of the document(s) to CDFW, 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 activities described in Section A of this condition.

   In the event that the project owner defaults on the Security, 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. Any amount of the Security that is not used to carry out mitigation shall be returned to the Project owner upon successful completion of the associated requirements in this condition.

Security for the requirements of this condition shall be provided in the amount of $2,881,152.45 if the project owner elects to use the REAT Account with NFWF pursuant to paragraph 4 of this condition, below). The Security is calculated in part from the items that follow but adjusted as specified below (consult Biological Resources Tables 4a for the complete breakdown of estimated costs). However, regardless of the amount of the security or actual cost of implementation, the project owner shall be responsible for implementing all aspects of this condition.

i. land acquisition costs for compensation land, calculated at $10,000/acre;

ii. Site assessments, appraisals, biological surveys, transaction closing and escrow costs, calculated as $18,000 total per parcel (presuming 60 acres per parcel)

iii. Initial site clean-up, restoration, or enhancement, calculated at $250/acre;

iv. Third-party and agency administrative transaction costs and overhead, calculated as percentages of land cost;

v. Long-term management and maintenance fund, calculated at $1,450 per acre;

vi. NFWF fees to establish a project-specific account; manage the sub-account for acquisition and initial site work; and manage the sub-account for long term management and maintenance.

2. The project owner may elect to comply with some or all of the requirements in this condition by providing funds to implement the requirements 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 of implementing the requirement (as set forth in the Security section of this condition, paragraph 3, above). If the actual cost of the acquisition, initial protection and habitat improvements, long-term funding or other cost 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, the long-term funding requirements as established in an approved PAR or PAR-like analysis, or the other actual costs that are estimated in the table. 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.

4. 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 CDFW 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.

5. The project owner may request the CPM to provide it with all available information about any funds held by the Energy Commission, CDFW or NFWF as project security, or funds held in a NFWF sub-account for this project, or other project-specific account held by a third party. The CPM shall also fully cooperate with any independent audit that the project owner may choose to perform on any of these funds.

Verification: The project owner shall provide the CPM with either the results of the nesting surveys or written verification that the project owner shall assume presence no less than 60 days prior to ground disturbance or site mobilization. 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 verification to the CPM and CDFW that an approved Security has been established in accordance with this condition of certification no later than 30 days prior to beginning Project ground-disturbing activities. 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 submitting the Security to the CPM, the project owner shall obtain the CPM's approval, in consultation with CDFW of the form of the Security. The project owner, or an approved third party, shall complete and provide written verification to the CPM and CDFW of the compensation lands acquisition and transfer within 18 months of the start of Project ground-disturbing activities.

No later than 12 months after the start of any ground-disturbing project activities, the project owner shall submit a formal acquisition proposal to the CPM describing the parcel(s) intended for purchase, and shall obtain approval from the CPM, in consultation with CDFW 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 and CDFW of such completion, no later than 18 months after the issuance of the Energy Commission Decision.

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 associated with any phase of construction. The project owner shall fully fund the

required amount for long-term maintenance and management of the compensation lands for that phase of construction 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 CDFW 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 for any phase of construction, 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 for that phase of construction 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 and CDFW with a management plan for the compensation lands associated with any phase of construction within 180 days of the land or easement purchase, as determined by the date on the title. The CPM, in consultation with CDFW 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 and CDFW an analysis, based on aerial photography, with the final accounting of the amount of habitat disturbed during Project construction. If this analysis shows that more lands were disturbed than was anticipated in this condition, the project owner shall provide the Energy Commission with additional compensation lands and funding commensurate with the added impacts and applicable mitigation ratios set forth in this condition. A final analysis of all project related ground disturbance may not result in a reduction of compensation requirements if the deadlines established under this condition for transfer of compensation lands and funding have passed prior to completion of the analysis.

BURROWING OWL IMPACT AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

BIO-18 The project owner shall implement the following measures to avoid and offset impacts to burrowing owls:

1. Pre-Construction Surveys. Concurrent with desert tortoise clearance surveys the Designated Biologist shall conduct pre-construction surveys for burrowing owls within the project site and along all linear facilities in accordance with CDFW guidelines (CBOC 1993). Pre-construction surveys for burrowing owls shall occur no more than 30 days prior to initiation of ground disturbance or site mobilization activities. The survey area shall include the Project Disturbance Area and surrounding 500 foot survey buffer where access is legally available.

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 ~~PHPP~~ 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 and CDFW, and shall:

   a. Identify and describe suitable relocation sites on the project site or 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. Provide guidelines for creation or enhancement of at least two natural or artificial burrows per relocated owl, including a discussion of timing of burrow improvements, specific location of burrow installation, and burrow design. Design of the artificial burrows shall be consistent with CDFW guidelines (CDFW 1995) and shall be approved by the CPM in consultation with CDFW and USFWS;

   c. 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;

   d. Provide detailed methods and guidance for passive relocation of burrowing owls occurring within the Project Disturbance Area; and

4. Acquire Compensatory Mitigation Lands for Burrowing Owls. The following measures for compensatory mitigation shall apply only if burrowing owls

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. 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 CDFW (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. 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 CDFW or to a third party, such as a non-governmental organization dedicated to habitat conservation, subject to approval by the CPM, in consultation with CDFW 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-20**.

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-20** [Mohave ground squirrel Compensatory Mitigation], with the additional criteria to include: 1) the 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 burrowing owl mitigation lands may be included with the Mohave ground squirrel mitigation lands ONLY if these two burrowing owl criteria are met. If the burrowing owl mitigation land is separate from the acquisition required for Mohave ground squirrel compensation lands, the Project owner shall fulfill the requirements described below in this condition.

b. Security. If burrowing owl mitigation land is separate from the acreage required for Mohave ground squirrel 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 CDFW 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 CDFW and the USFWS to ensure funding. The estimated costs of enhancement and endowment (see subsection, Mohave ground squirrel, for a discussion of the assumptions used in calculating the Security, which are based on an estimate of $15,169 per acre to fund acquisition, enhancement, and long-term management). The final amount due will be determined by the PAR analysis conducted pursuant to BIO-17.

Verification: If pre-construction surveys detect burrowing owls within 500 feet of proposed construction activities, the Designated Biologist shall provide to the CPM, **CDFW** 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, CDFW, 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, CDFW 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 notify the CPM, CDFW 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, DFW 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, CDFW, and USFWS describing the 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, CDFW 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 CDFW and USFWS, for the compensation lands and associated fund

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, CDFW 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, and CDFW 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.

MOHAVE GROUND SQUIRREL CLEARANCE SURVEYS

BIO-19 The project owner shall undertake appropriate measures to manage construction at the plant site and linear facilities in a manner to avoid or minimize impacts to Mohave ground squirrel. These measures include, but are not limited to, the following:

1. Clearance Survey. After the installation of the desert tortoise exclusion fence and prior to any ground disturbance, the Designated Biologist(s) shall examine the area to be disturbed for Mohave ground squirrels and their burrows. The survey shall provide 100 percent coverage of the project limits. Potentially occupied burrows as determined by a permitted Mohave ground squirrel biologist authorized by the CDFW shall be fully excavated by hand by the Designated Biologist(s).

2. Translocation Plan. The project owner shall develop and implement a Mohave Ground Squirrel Translocation Plan to address the handling and disposition of any Mohave ground squirrels encountered during the clearance surveys. The Translocation Plan shall be approved by Energy Commission staff in consultation with CDFW. The Translocation Plan shall designate a translocation site as close as possible to the project, and which provides suitable conditions for long-term survival of the relocated Mohave ground squirrel. The plan shall include but not be limited to the following components.

    a. identify the appropriate time when translocation may occur

    b. the methods of capture, handling, and safe transfer

    c. methods of health assessment

    d. identify the proposed translocation site

    e. identify monitoring and post translocation survivorship

    f. identify remedial actions, and

    g. reporting procedures to document translocation success.

3. Records of Capture. If Mohave ground squirrels are captured via trapping or burrow excavation, the Designated Biologist shall maintain a record of each Mohave ground squirrel handled, including: a) the locations (Global

Positioning System [GPS] coordinates and maps) and time of capture and/or observation as well as release; b) sex; c) approximate age (adult/juvenile); d) weight; e) general condition and health, noting all visible conditions including gait and behavior, diarrhea, emaciation, salivation, hair loss, ectoparasites, and injuries; and f) ambient temperature when handled and released. Any Mohave ground squirrels observed within the project area or adjacent habitat shall be reported to the CDFW and CPM by written and electronic correspondence within 24-hours.

Verification: No less than 60 days prior to any site mobilization the project owner shall provide the CPM and CDFW a draft Mohave Ground Squirrel Translocation Plan. At least 60 days prior to start of any project-related ground disturbance activities, the project owner shall provide the CPM with the final version of a Mohave Ground Squirrel Translocation Plan that has been approved by Energy Commission staff in consultation with CDFW. The CPM will determine the plan's acceptability within 15 days of receipt of the final plan. All modifications to the approved Translocation Plan must be made only after approval of the Energy Commission staff in consultation with CDFW. The project owner shall notify the CPM no fewer than 5 working days before implementing any CPM-approved modifications to the Translocation Plan.

Within 30 days of completion of Mohave ground squirrel clearance surveys the Designated Biologist shall submit a report to the CPM and CDFW describing how mitigation measures described above have been satisfied. The report shall include the Mohave ground squirrel survey results, capture and release locations of any relocated squirrels, and any other information needed to demonstrate compliance with the measures described above.

Within 30 days after initiation of translocation activities, the Designated Biologist shall provide to the CPM for review and approval, a written report identifying which items of the Translocation Plan have been completed, and a summary of all modifications to measures made during implementation.

MOHAVE GROUND SQUIRREL HABITAT COMPENSATORY MITIGATION

BIO-20 The project owner shall provide compensatory mitigation acreage of 216 acres of Mohave ground squirrel habitat lands, adjusted to reflect the final project footprint, as specified in this condition. In addition, the project owner shall provide funding for initial improvement and long-term maintenance, enhancement, and management of the acquired lands for protection and enhancement Mohave ground squirrel populations, and comply with other related requirements of this condition.

This mitigation ratio is based on a 2:1 ratio for the power plant site and a 3:1 ratio for the transmission line route. Costs of these requirements are estimated to be $2,860,080.00. See Biological Resources Table 3 for a complete breakdown of costs and acreage. All costs are best estimates as of fall 2010. Actual costs will be determined at the time of the transactions and

may change the funding needed to implement the required mitigation obligation based on changing land costs or management fees. Regardless of the estimates, the project owner is responsible for providing adequate funding to implement the required mitigation.

In lieu of acquiring lands itself, the project owner may satisfy the requirements of this condition by depositing funds into a Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF), as described below. If the Project owner elects to establish a REAT NFWF Account and have NFWF and the agencies complete the required habitat compensation, then the total estimated cost of complying with this condition is $3,016,483.20.The amount of security or NFWF deposit shall be adjusted up or down to reflect any revised cost estimates recommended by REAT.

The actual costs to comply with this condition will vary depending on the final footprint of the project, the costs of acquiring compensation habitat, the costs of initially improving the habitat, and the actual costs of long-term management as determined by a Property Analysis Report or similar analysis (below). The 216 acre habitat requirement, and associated funding requirements based on that acreage, shall be adjusted up or down if there are changes in the final footprint of the project or the associated costs of evaluation, acquisition, management, and other factors listed in Biological Resources Table 3. Regardless of actual cost, the project owner shall be responsible for funding all requirements of this condition.

COMPENSATORY MITIGATION LAND ACQUISITION

1. Method of Acquisition. Compensation lands shall be acquired by either of the two options listed below. Regardless of the method of acquisition, the transaction shall be complete only upon completion of all terms and conditions described in this Condition of Certification.

    a The project owner shall acquire lands and transfer title and/or conservation easement to a state or federal land management agency or to a third-party non-profit land management organization, as approved by the CPM in consultation with CDFW; or

    b. The project owner shall deposit funds into a project-specific subaccount within the REAT Account established with the NFWF, in the amount as indicated in Biological Resources Table 4b (adjusted to reflect final project footprint and any applicable REAT adjustments to costs).

2. Selection Criteria for Compensation Lands. The compensation lands selected for acquisition shall:

    a. Be in the western Mojave Desert;

b. Provide moderate to good quality habitat for Mohave ground squirrel with capacity to improve in quality and value for this species;

c. Be a contiguous block of land (preferably) or located so they result in a contiguous block of protected habitat;

d. Be adjacent to larger blocks of lands that are already protected, or be in a location approved by the CDFW, such that there is connectivity between the acquired lands and the protected lands;

e. Be connected to lands for which there is reasonable evidence (for example, recent [<15 years] CNDDB occurrences on or immediately adjacent to the proposed lands) suggesting current occupation by Mohave ground squirrel, ideally with populations that are stable, recovering, or likely to recover;

f. Not have a history of intensive recreational use, grazing, or other disturbance that might make habitat recovery and restoration infeasible;

g. 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; and

h. Not be encumbered by easements or uses that would preclude fencing of the site or preclude or unacceptably constrain management of the site for the primary benefit of the species and their habitat for which mitigation lands were secured.

3. 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 Mohave ground squirrel in relation to the criteria listed above and must be approved by the CPM. The CPM will share the proposal with and consult with CDFW before deciding whether to approve or disapprove the proposed acquisition.

4. Compensation Lands Acquisition Conditions: The project owner shall comply with the following conditions relating to acquisition of the compensation lands after the CPM, in consultation with CDFW approved the proposed compensation lands:

   a. Preliminary Report: The Project owner, or approved third party, shall provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary or requested documents for the proposed compensation land to the CPM. All documents conveying or conserving compensation lands and all conditions of title are subject to review and approval by the CPM, in

consultation with CDFW. For conveyances to the State, approval may also be required from the California Department of General Services, the Fish and Game Commission and the Wildlife Conservation Board.

b. Title/Conveyance: The Project owner shall acquire and transfer fee title to the compensation lands, a conservation easement over the lands, or both fee title and conservation easement as required by the CPM in consultation with CDFW. Any transfer of a conservation easement or fee title must be to CDFW, a non-profit organization qualified to hold title to and manage compensation lands (pursuant to California Government Code section 65965), or to other public agency approved by the CPM in consultation with CDFW. If an approved non-profit organization holds fee title to the compensation lands, a conservation easement shall be recorded in favor of CDFW or another entity approved by the CPM. If an approved non-profit holds a conservation easement, CDFW shall be named a third party beneficiary. If an entity other than CDFW holds a conservation easement over the compensation lands, the CPM may require that CDFW or another entity approved by the CPM, in consultation with CDFW, be named a third party beneficiary of the conservation easement. The Project owner shall obtain approval of the CPM, in consultation with CDFW, of the terms of any transfer of fee title or conservation easement to the compensation lands.

c. 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 CDFW, before it can be used to establish funding levels or management activities for the compensation lands.

5. Compensation Lands Acquisition Costs: The Project owner shall pay all other costs related to acquisition of compensation lands and conservation easements. In addition to actual land costs, these acquisition costs shall include but shall not be limited to the items listed below. Management costs including site cleanup measures are described separately, in the following section.

   a. Level 1 Environmental Site Assessment;

   b. Appraisal;

   c. Title and document review costs;

   d. Expenses incurred from other state, federal, or local agency reviews;

   e. Closing and escrow costs;

f. Overhead costs related to providing compensation lands to CDFW or an approved third party;

g. Biological survey(s) to determine mitigation value of the land; and

h. Agency costs to accept the land (e.g., writing and recording of conservation easements; title transfer).

COMPENSATORY MITIGATION LAND IMPROVEMENT

1. Land Improvement Requirements: The Project owner shall fund activities that the CPM, in consultation with the CDFW 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 surveys of boundaries and property lines, installation of signs, trash removal and other site cleanup measures, construction and repair of fences, invasive plant removal, removal of roads, and similar measures to protect habitat and improve habitat quality on the compensation lands.

   The costs of these activities are estimated at $250 an acre, but will vary depending on the measures that are required for the compensation lands. A non-profit organization, CDFW or another public agency may hold and expend the habitat improvement funds if it is qualified to manage the compensation lands (pursuant to Gov. Code § 65965), if it meets the approval of the CPM in consultation with CDFW, and if it is authorized to participate in implementing the required activities on the compensation lands. If CDFW takes fee title to the compensation lands, the habitat improvement fund must be paid to CDFW or its designee.

COMPENSATORY MITIGATION LAND LONG-TERM MANAGEMENT

1. Long-term Management Requirements: Long-term management is required to ensure that the compensation lands are managed and maintained to protect and enhance habitat for desert tortoise. Management activities may include maintenance of signs, fences, removal of invasive weeds, monitoring, security and enforcement, and control or elimination of unauthorized use.

2. Long-term Management Plan: The project owner shall pay for the preparation of a Management Plan for the compensation lands. The Management Plan shall reflect site-specific enhancement measures on the acquired compensation lands. The plan shall be submitted for approval of the CPM, in consultation with **CDFW**.

3. Long-Term Maintenance and Management Funding: The Project owner shall provide money to establish an account with a 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 provide initial payment of $313,200.00 calculated at $1,450 an acre for each compensation acre, as shown in Biological Resources Table ~~3~~ (above) into an account for long-term maintenance and management of compensation lands. 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 the project owner and CDFW before deciding whether to approve an entity to hold the project's long-term maintenance and management funds on any lands. The CPM, in consultation with the project owner and CDFW, may designate another state agency or non-profit organization to hold the long-term maintenance and management fee if the organization is qualified to manage the compensation lands in perpetuity.

If CDFW takes fee title to the compensation lands, CDFW shall determine whether it will hold the long-term management fee in the special deposit fund, leave the money in the REAT Account, or designate another entity such as NFWF to manage the long-term maintenance and management fee for CDFW and with CDFW supervision.

The Project owner shall ensure that an agreement is in place with the long-term maintenance and management fee holder/manager to ensure the following conditions:

i. <u>Interest</u>. Interest generated from the initial capital shall be available for reinvestment into the principal and for the long-term operation, management, and protection of the approved compensation lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement measures, and any other action approved by CDFW designed to protect or improve the habitat values of the compensation lands.

ii. <u>Withdrawal of Principal</u>. The long-term maintenance and management fee principal shall not be drawn upon unless such withdrawal is deemed necessary by the CPM, in consultation with CDFW, or the approved third-party long-term maintenance and management fee manager to

ensure the continued viability of the species on the compensation lands. If CDFW takes fee title to the compensation lands, monies received by CDFW pursuant to this provision shall be deposited in a special deposit fund established solely for the purpose to manage lands in perpetuity unless CDFW designates NFWF or another entity to manage the long-term maintenance and management fee for CDFW.

iii. Pooling Funds. A CPM- approved non-profit organization qualified to hold long-term maintenance and management fees solely for the purpose to manage lands in perpetuity, may pool the fund with other funds for the operation, management, and protection of the compensation lands for local populations of desert tortoise. However, for reporting purposes, the long-term maintenance and management fee fund must be tracked and reported individually to the CDFW and CPM.

iv. Reimbursement Fund. The project owner shall provide reimbursement to CDFW or an approved third party for reasonable expenses incurred during title, easement, and documentation review; expenses incurred from other State or State-approved federal agency reviews; and overhead related to providing compensation lands.

COMPENSATORY MITIGATION LAND SECURITY

1. Compensation Mitigation Security: The project owner shall provide security sufficient for funding acquisition, improvement, and long-term management of desert tortoise compensation land. 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 submitting the Security to the CPM, the Project owner shall obtain the CPM's approval, in consultation with CDFW of the form of the Security.

   The security amount shall be based on the estimates provided in Biological Resources Table 3. This amount shall be updated and verified prior to payment and shall be adjusted to reflect actual costs or more current estimates as agreed upon by the REAT agencies.

   The Project owner shall provide verification that financial assurances have been established to the CPM with copies of the document(s) to CDFW, 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 activities described in Section A of this condition.

   In the event that the project owner defaults on the Security, 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. Any amount of the Security that is not used to carry out

mitigation shall be returned to the Project owner upon successful completion of the associated requirements in this condition.

Security for the requirements of this condition shall be provided in the amount of $3,016,483.20 if the project owner elects to use the REAT Account with NFWF pursuant to paragraph 4 of this condition, below). The Security is calculated in part from the items that follow but adjusted as specified below (consult Biological Resources Table 3 for the complete breakdown of estimated costs). However, regardless of the amount of the security or actual cost of implementation, the project owner shall be responsible for implementing all aspects of this condition.

i. land acquisition costs for compensation land, calculated at $10,000/acre;

ii. Site assessments, appraisals, biological surveys, transaction closing and escrow costs, calculated as $18,000 total per parcel (presuming 60 acres per parcel)

iii. Initial site clean-up, restoration, or enhancement, calculated at $250/acre;

iv. Third-party and agency administrative transaction costs and overhead, calculated as percentages of land cost;

v. Long-term management and maintenance fund, calculated at $1,450 per acre;

vi. NFWF fees to establish a project-specific account; manage the sub-account for acquisition and initial site work; and manage the sub-account for long term management and maintenance.

2. The project owner may elect to comply with some or all of the requirements in this condition by providing funds to implement the requirements 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 of implementing the requirement (as set forth in the Security section of this condition, paragraph 3, above). If the actual cost of the acquisition, initial protection and habitat improvements, long-term funding or other cost 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, the long-term funding requirements as established in an approved PAR or PAR-like analysis, or the other actual costs that are estimated in the table. 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 CDFW 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 project related ground disturbance.

4. The project owner may request the CPM to provide it with all available information about any funds held by the Energy Commission, CDFW or NFWF as project security, or funds held in a NFWF sub-account for this project, or other project-specific account held by a third party. The CPM shall also fully cooperate with any independent audit that the project owner may choose to perform on any of these funds.

Verification: The project owner shall provide the CPM with written notice of intent to start ground disturbance 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 verification to the CPM and CDFW that an approved Security has been established in accordance with this condition of certification no later than 30 days prior to beginning Project ground-disturbing activities. 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 submitting the Security to the CPM, the project owner shall obtain the CPM's approval, in consultation with CDFW of the form of the Security. The project owner, or an approved third party, shall complete and provide written verification to the CPM and CDFW of the compensation lands acquisition and transfer within 18 months of the start of Project ground-disturbing activities.

No later than 12 months after the start of any phase 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 CDFW 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 and CDFW of such completion, no later than 18 months after the start of project related ground disturbance activities. If NFWF or another approved third party is being used for all or part of 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

associated with any phase of construction. The project owner shall fully fund the required amount for long-term maintenance and management of the compensation lands for that phase of construction 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 CDFW 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 for any phase of construction, 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 for that phase of construction 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 and CDFW with a management plan for the compensation lands associated with any phase of construction within180 days of the land or easement purchase, as determined by the date on the title. The CPM, in consultation with CDFW 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 and CDFW an analysis, based on aerial photography, with the final accounting of the amount of habitat disturbed during Project construction. If this analysis shows that more lands were disturbed than was anticipated in this condition, the project owner shall provide the Energy Commission with additional compensation lands and funding commensurate with the added impacts and applicable mitigation ratios set forth in this condition. A final analysis of all project related ground disturbance may not result in a reduction of compensation requirements if the deadlines established under this condition for transfer of compensation lands and funding have passed prior to completion of the analysis.

AMERICAN BADGER AND DESERT KIT FOX IMPACT AVOIDANCE AND MINIMIZATION MEASURES

BIO-21 Prior to ground disturbance the owner shall conduct pre-construction surveys for American badgers and desert kit fox. These surveys may be conducted 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 250 feet of all project facilities, utility corridors, and access roads. 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 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 present, occupied badger dens shall be flagged and ground-disturbing activities avoided within 50 feet of the occupied den avoided. Maternity dens shall be avoided during the pup-rearing season (15 February through 1 July) and a minimum 200-foot buffer established. Buffers may be modified with the concurrence of CDFW and CPM. Maternity dens shall be flagged for avoidance, identified on construction maps, and a biological monitor shall be present during construction.

If avoidance of a non-maternity den is not feasible, badgers shall be relocated by slowly excavating the burrow (either by hand or mechanized equipment under the direct supervision of the biologist, removing no more than 4 inches at a time) before or after the rearing season (15 February through 1 July). Any relocation of badgers shall occur only after consultation with the CDFW and CPM. A written report documenting the badger removal shall be provided to the CPM within 30 days of relocation.

Verification: The project owner shall submit a report to the CPM and CDFW within 30 days of completion of badger and kit fox surveys. The report shall describe survey methods, results, mitigation measures implemented, and the results of the mitigation.

BAT AVOIDANCE AND MINIMIZATION MEASURES

BIO-22 Prior to ground disturbance the project owner shall conduct a survey for roosting bats within 200 feet of project activities within 15 days prior to any grading of rocky outcrops or removal of trees (particularly trees 12 inches in diameter or greater at 4.5 feet above grade with loose bark or other cavities).

The project owner shall also conduct surveys for roosting bats during the maternity season (1 March to 31 July) within 300 feet of project activities. Trees and rocky outcrops shall be surveyed by a qualified bat biologist Surveys shall include a minimum of one day and one evening. The biologist shall be approved by the Designated Biologist. If active maternity roosts or hibernacula are found, the rock outcrop or tree occupied by the roost shall be avoided (i.e., not removed) by the project, if feasible. If avoidance of the maternity roost is not feasible, the bat biologist shall survey (through the use of radio telemetry or other CDFW/CPM-approved methods) for nearby alternative maternity colony sites. If the bat biologist determines in consultation with and with the approval of the CDFW, and CPM that there are alternative roost sites used by the maternity colony and young are not present, then no further action is required. However, if there are no alternative roosts sites used by the maternity colony, provision of substitute roosting bat habitat is required. If active maternity roosts are absent, but a hibernaculum (i.e., a non-maternity roost) is present, then exclusion of bats prior to demolition of roosts is required.

1. Provision of substitute roosting bat habitat. If a maternity roost will be impacted by the project, and no alternative maternity roosts are in use near the site, substitute roosting habitat for the maternity colony shall be provided on, or in close proximity to, the project site no less than three months prior to the eviction of the colony. Alternative roost sites will be constructed in accordance with the specific bats' requirements in coordination with CDFW and the CPM. Alternative roost sites must be of comparable size and proximal in location to the impacted colony. The CDFW shall also be notified of any hibernacula or active nurseries within the construction zone.

2. Exclude bats prior to demolition of roosts. If non-breeding bat hibernacula are found in trees scheduled to be removed or in crevices in rock outcrops within the grading footprint, the individuals shall be safely evicted, under the direction of the qualified bat biologist, by opening the roosting area to allow airflow through the cavity or other means determined appropriate by the bat biologist (e.g., installation of one-way doors). In situations requiring one-way doors, a minimum of one week shall pass after doors are installed and temperatures should be sufficiently warm for bats to exit the roost. This action should allow all bats to leave during the course of one week. Roosts that need to be removed in situations where the use of one-way doors is not necessary in the judgment of the qualified bat biologist shall first be disturbed by various means at the direction of the bat biologist at dusk to allow bats to escape during the darker hours, and the roost tree shall be removed or the grading shall occur the next day (i.e., there shall be no less or more than one night between initial disturbance and the grading or tree removal).

   If an active maternity roost is located in an area to be impacted by the project, and alternative roosting habitat is available, the demolition of the roost site must commence before maternity colonies form (i.e., prior to 1 March) or after young are flying (i.e., after 31 July) using the exclusion techniques described above.

Verification: The project owner shall submit a report to the CPM and CDFW within 30 days of completion of roosting bat surveys and any subsequent mitigation. The report shall describe survey methods, results, mitigation measures implemented, and the results of the mitigation.

STREAMBED IMPACT MINIMIZATION AND COMPENSATION MEASURES

BIO-23 The project owner shall implement Best Management Practices and other measures described below to protect jurisdictional waters of the state occurring along the linear alignments. The project owner shall implement the following measures to minimize impacts to waters of the state:

1. Best Management Practices: The applicant shall comply with the following conditions:

a. Prior to any activities that cross or have the potential to impact any jurisdictional drainage the owner shall provide a detailed map to the CDFW and CPM in a GIS format that identifies all potential crossings of jurisdictional habitats including bridges and culverts. The maps shall identify the type of crossing proposed by the owner such as bridges, culverts, or other mechanism and the best management practices that would be employed.

b. Precautions to minimize turbidity/siltation shall be taken into account during project planning and shall be installed prior to construction. Precautions may also include placement of silt fencing, weed-free straw bales, or sand bags, so that silt or other deleterious materials are not allowed to pass to downstream reaches. The method used to prevent siltation shall be monitored and cleaned/repaired weekly.

c. The project owner shall not operate vehicles or equipment in ponded or flowing water except as described in this condition. Diversion of any stream is not authorized. Bridging of Little Rock Wash is not authorized in this condition.

d. Dewatering is not authorized in this condition.

e. At the completion of construction all temporary bridges, culverts, or other structures shall be removed unless authorized by the CDFW and CPM.

f. When any activity requires moving of equipment across a flowing stream, such operations shall be conducted without substantially increasing stream turbidity. The project owner shall bridge by the use of railroad flat cars or other bridging material all ponded or flowing streams if vehicles where high flow levels occur.

g. Where drainages support sheet flow in direct response to rainfall for periods of less than 48 hours construction of bridges is not required. Vehicle use in these areas shall not result in silt/mud/turbid water from reaching downstream areas.

h. Vehicles driven across ephemeral drainages when water is present shall be completely clean of petroleum residue and water levels shall be below the vehicles axels.

i. Any equipment or vehicles driven and/or operated within or adjacent to the stream/lake shall be checked and maintained daily, to prevent leaks of materials that if introduced to water could be deleterious to aquatic life.

j. Installation of bridges, culverts, or other structures shall be such that water flow (velocity and low flow channel width) is not impaired. Bottoms of temporary culverts shall be placed at or below stream

channel grade. A biological monitor shall be present during the installation of all bridges, culverts and BMPs.

k. Installation of bridges or culverts shall be done in a manner that shall prevent pollution and/or siltation and which shall provide flows to downstream reaches. Flows to downstream reaches shall be provided during all times.

l. The project owner shall not allow water containing mud, silt, or other pollutants from grading, aggregate washing, or other activities to enter a lake or flowing stream or be placed in locations that may be subjected to high storm flows.

m. If turbidity/siltation levels resulting from project related activities constitute a threat to aquatic life, activities associated with the turbidity/siltation, shall be halted until effective CPM approved control devices are installed, or abatement procedures are initiated.

n. 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.

o. If a stream's low flow channel, bed or banks/lake bed or banks have been altered, these shall be returned as nearly as possible to their original configuration and width, without creating future erosion problems. The gradient of the streambed shall be returned to pre project grade unless such operation is part of a restoration project, in which case, the change in grade must be approved by the Department prior to project commencement.

p. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, construction waste, cement or concrete or washings thereof, asphalt, paint, oil or other petroleum products or any other substances which could be hazardous to aquatic life, or other organic or earthen material from any logging, construction, or other associated project related activity shall be allowed to contaminate the soil and/or enter into or placed where it may be washed by rainfall or runoff into, waters of the State. Any of these materials, placed within or where they may enter a stream or lake, by the owner or any party working under contract, or with the permission of the owner, shall be removed immediately.

q. When operations are completed, any excess materials or debris shall be removed from the work area. No rubbish shall be deposited within 150 feet of the high water mark of any stream or lake.

r. Stationary equipment such as motors, pumps, generators, and welders, located within or adjacent to the stream/lake shall be positioned over drip pans. Stationary heavy equipment shall have

suitable containment to handle a catastrophic spill/leak. Clean up equipment such as extra boom, absorbent pads, skimmers, shall be on site prior to the start of dredging.

s. No equipment maintenance shall be done within or near any stream channel where petroleum products or other pollutants from the equipment may enter these areas under any flow.

t. The cleanup of all spills shall begin immediately. The CDFW and CPM shall be notified immediately by the owner of any spills and shall be consulted regarding clean-up procedures.

2. Non-native Vegetation Removal. The owner shall remove any non-native vegetation (tree tobacco, castor bean, etc.) from any drainage that requires the placement of a bridge, culvert or other structure. Removal shall be done at least twice annually (Spring/Summer) during implementation of the ~~PHPP~~ project. The removal of riparian vegetation is not authorized under this condition. Should the removal of riparian vegetation become necessary temporary impacts will be mitigated at a ratio of 2:1 and permanent impacts will be mitigated at a ratio of 5:1.

3. Reporting of Special-Status Species: If any special-status species are observed on or in proximity to the project site, or during project surveys, the project owner shall submit California Natural Diversity Data Base (CNDDB) forms and maps to the CNDDB within five working days of the sightings and provide the regional CDFW office with copies of the CNDDB forms and survey maps. The CNDDB form is available online at: www.dfg.ca.gov/whdab/pdfs/natspec.pdf. This information shall be mailed within five days to: California Department of Fish and Game, Natural Diversity Data Base, 1807 13th Street, Suite 202, Sacramento, CA 95814, (916) 324-3812. A copy of this information shall also be mailed within five days to CDFW and the CPM.

4. Notification: The project owner shall notify the CPM and CDFW, in writing, at least five days prior to initiation of project activities in jurisdictional areas and at least five days prior to completion of project activities in jurisdictional areas. The project owner shall notify the CPM and CDFW of any change of conditions to the project, the jurisdictional impacts, or the mitigation efforts, if the conditions at the site of the 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 CDFW 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 described below. A copy of the notifying change of conditions report shall be included in the annual reports.

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 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.

5. Code of Regulations: The project owner shall provide a copy of the Energy Commission Decision to all contractors, subcontractors, and the applicant's project supervisors. Copies shall be readily available at work sites at all times during periods of active work and must be presented to any CDFW personnel or personnel from another agency upon demand. The CPM reserves the right to issue a stop work order or allow CDFW to issue a stop work order after giving notice to the project owner and the CPM, if the CPM, in consultation with CDFW, 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 streambed conditions is incomplete or inaccurate;

   b. New information becomes available that was not known to it in preparing the terms and conditions;

   c. The project or project activities as described in the Final Staff Assessment have changed; or

   d. The conditions affecting biological resources changed or the CPM, in consultation with CDFW, determines that project activities will result in a substantial adverse effect on the environment.

Verification: No fewer than 30 days prior to the start of any site or related facilities mobilization activities, the project owner shall implement the mitigation measures

described above. No fewer than 30 days prior to the start of work potentially affecting waters of the state, the project owner shall provide written verification (i.e., through incorporation into the BRMIMP) to the CPM that the above best management practices will be implemented and provide a discussion of work in waters of the state in Compliance Reports for the duration of the project. Compliance Reports shall be submitted every six months.

CLOSURE PLAN MEASURES

BIO-25 The project owner shall implement and incorporate into the facility closure plan measures to address the local biological resources related to facility closure. A funding mechanism shall be developed in consultation with the Energy Commission staff to ensure sufficient funds are available for revegetation, reclamation, and decommissioning if the project site will not be re-powered or developed. The facility closure plan shall address biological resources-related mitigation measures. In addition to these measures, the plan shall include the following:

1. Removal of transmission conductors when they are no longer used and useful;

2. Removal of all above-ground and subsurface power plant site facilities and related facilities;

3. Methods for restoring wildlife habitat and promoting the re-establishment of native plant and wildlife species;

4. Revegetation of the project site and other disturbed areas utilizing appropriate methods for establishing native vegetation if the site will not be repowered or developed; and

5. A cost estimate to complete closure-related activities.

In addition, the project owner shall secure funding to ensure implementation of the plan and provide to the CPM written evidence of the dedicated funding mechanism(s).

Verification: At least 12 months prior to commencement of planned closure activities, the project owner shall address all biological resources-related issues associated with facility closure, and provide final measures, in a Biological Resources Element. The draft planned permanent or unplanned closure measures shall be submitted to the CPM for comment by staff, CDFW, and USFWS. After revision, final measures shall comprise the Biological Resources Element, which shall include the items listed above as well as written evidence of the dedicated funding mechanism(s) for these measures. The final Biological Resources Element shall become part of the facility closure plan, which is submitted to the CPM within 90 days of the permanent closure or another period of time agreed to by the CPM.

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 (see the Conditions of Certification in the Compliance section of this Decision).

Upon facility closure, the project owner shall implement measures in the Biological Resources Element and provide written status updates on all closure activities to the CPM at a frequency determined by the CPM.

REVISED CONDITIONS FOR PARTIAL UNDERGROUND TRANSMISSION LINE ALTERNATIVE ROUTE 4

If the project owner opts to construct and operate Transmission Line Alternative Route 4, the following Revised Conditions of Certification **BIO-14**, **BIO-17**, and **BIO-20** reflect the reduced acreages subject to project impacts. The following **Biological Resources Tables** ~~3.2-5~~**4** **and** ~~3.2-6~~**5** shall apply to these Revised Conditions:

Biological Resources Table ~~3.2-5~~**4**
Swainson's Hawk Compensation Cost Estimate[1]

	Task	Cost per area	Cost
1.	Land Acquisition 70 acres at 2:1 ratio 140 acres	$10,000 per acre[2]	$1,400,000.00
2.	Level 1 Environmental Site Assessment	$3000 per parcel[3]	$6,990.00
3.	Appraisal	$5000 per parcel	$11,650.00
4.	Initial site work - clean-up, enhancement, restoration	$250 per acre[4]	$35,000.00
5.	Closing and Escrow Costs – 1 transaction includes landowner to 3rd party and 3rd party to agency	$5000 per transaction	$15,000.00
6.	Biological survey for determining mitigation value of land (habitat based with species specific augmentation)	$5000 per parcel	$11,650.00
7.	3rd party administrative costs - includes staff time to work with agencies and landowners; develop management plan; oversee land transaction; organizational reporting and due diligence; review of acquisition documents; assembling	10% of land acquisition cost (#1)	$140,000.00

	Task	Cost per area	Cost
	acres to acquire….		
8.	Agency costs to review and determine accepting land donation - includes 2 physical inspections; review and approval of the Level 1 ESA assessment; review of all title documents; drafting deed and deed restrictions; issue escrow instructions; mapping the parcels….	15% of land acquisition costs (#1) × 1.17 (17% of the 15% for overhead)	$210,000.00
	***SUBTOTAL** - Acquisition & Initial Site Work*		*$1,830,290.00*
9.	Long-term Management and Maintenance (LTMM) Fund - includes land management; enforcement and defense of easement or title [short and long term]; monitoring….	$1450 per acre[5]	$203,000.00
	***SUBTOTAL** - Acquisition, Initial Site Work, & LTMM*		$2,033,290.00
	NFWF Fees		
10.	Establish the project specific account	n/a (presumes establishment of Mohave ground squirrel account for project)	
11.	NFWF management fee for acquisition & initial site work	3% of SUBTOTAL	$60,998.70
12.	NFWF Management fee for LTMM Fund	1% of LTMM Fund	$2,030.00
13.	Call for and Process Pre-Proposal Modified RFP	n/a (presumes establishment of Mohave ground squirrel account for project)	
	***TOTAL** for deposit in REAT-NFWF Project Specific Account*		$2,096,318.70

1. Estimates prepared in consultation with **CDFW**. All costs are best estimates as of fall 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.
2. Based on mean of data provided by **CDFW** for land acquisition in Los Angeles County. If the agencies, developer, or 3rd party has better, credible information on land costs in the specific area where project-specific mitigation lands are likely to be purchased, that data overrides this general estimate. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.
3. For the purposes of determining costs, an average parcel is 60 acres (based on input from DFG).
4. Based on information from **CDFW**.
5. Estimate for purposes of calculating general costs. The actual long term management and maintenance costs will be determined using a Property Assessment Report (PAR) tailored to the specific acquisition.

Biological Resources Table ~~3.2-6~~5
Mohave Ground Squirrel Compensation Cost Estimate[1]

	Task	Cost per area	Cost
1.	Land Acquisition (total of 140 acres) 2:1 ratio on power plant site Compensatory mitigation is not required for the transmission line right-of-way	$10,000 per acre[2]	$1,400,000.00
2.	Level 1 Environmental Site Assessment	$3000 per parcel[3]	$6,990.00
3.	Appraisal	$5000 per parcel	$11,650.00
4.	Initial site work - clean-up, enhancement , restoration	$250 per acre[4]	$35,000.00
5.	Closing and Escrow Costs – 1 transaction includes landowner to 3rd party and 3rd party to agency	$5000 per transaction	$15,000.00
6.	Biological survey for determining mitigation value of land (habitat based with species specific	$5000 per parcel	$11,650.00

	augmentation)		
7.	3rd party administrative costs - includes staff time to work with agencies and landowners; develop management plan; oversee land transaction; organizational reporting and due diligence; review of acquisition documents; assembling acres to acquire….	10% of land acquisition cost (#1)	$140,000.00
8.	Agency costs to review and determine accepting land donation - includes 2 physical inspections; review and approval of the Level 1 ESA assessment; review of all title documents; drafting deed and deed restrictions; issue escrow instructions; mapping the parcels….	15% of land acquisition costs (#1) × 1.17 (17% of the 15% for overhead)	$210,000.00
	***SUBTOTAL** - Acquisition & Initial Site Work*		*$1,830,290.00*
9.	Long-term Management and Maintenance (LTMM) Fund - includes land management; enforcement and defense of easement or title [short and long term]; monitoring….	$1450 per acre[5]	$203,000.00
	***SUBTOTAL** - Acquisition, Initial Site Work, & LTMM*		*$2,033,290.00*
	NFWF Fees		
10.	Establish the project specific account	$12,000	$12,000.00
11.	NFWF management fee for acquisition & initial site work	3% of SUBTOTAL	$60,998.70
12.	NFWF Management fee for LTMM Fund	1% of LTMM Fund	$2,030.00
13.	Call for and Process Pre-Proposal Modified RFP	$30,000	$30,000.00
	***TOTAL** for deposit in REAT-NFWF Project Specific Account*		$2,138,318.70

1. Estimates prepared in consultation with **CDFW**. All costs are best estimates as of fall 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.
2. Based on mean of data provided by **CDFW** for land acquisition in Los Angeles County. If the agencies, developer, or 3rd party has better, credible information on land costs in the specific area where project-specific mitigation lands are likely to be purchased, that data overrides this general estimate. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.
3. For the purposes of determining costs, an average parcel is 60 acres (based on input from **CDFW**).
4. Based on information from **CDFW**.
5. Estimate for purposes of calculating general costs. The actual long term management and maintenance costs will be determined using a Property Assessment Report (PAR) tailored to the specific acquisition.

RAVEN FEE, MONITORING, MANAGEMENT, AND CONTROL PLAN

ALTERNATIVE BIO-14 The project owner shall design and implement a Raven Monitoring, Management, and Control Plan (Raven Plan) that is consistent with the most current USFWS-approved raven management guidelines and that meets the approval of the USFWS, CDFW, and the CPM. Any subsequent modifications to the approved Raven Plan shall be made only with approval of the CPM in consultation with USFWS and CDFW. 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 to be proposed in the Raven Plan. Regardless of raven monitoring results, the project owner shall be responsible for all other aspects of the Raven Plan, including avoidance and minimization of project-related trash, water sources, or perch/roost sites that could contribute to increased raven numbers. 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. Prepare and Implement a Raven Management Plan 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 REAT 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 REAT Regional Raven Management Program. The amount shall be a one-time payment of $105 per acre (125.5 acres) of permanent disturbance fee $13,177.00.

Verification: No later than 30 days prior to any construction-related ground disturbance activities, the Project owner shall provide the CPM, USFWS, and CDFW 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 CDFW. No later than 60 days prior to the start of construction, the project owner shall provide written verification to the CPM that NFWF has received and accepted payment into the project's sub-account of the REAT Account to support the USFWS Regional Raven Management Program. 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.

SWAINSON'S HAWK HABITAT COMPENSATORY MITIGATION

ALTERNATIVE BIO-17 The project owner shall either assume that Swainson's hawk nest within five miles of the project site and provide compensatory mitigation as described below or complete CFDG protocol surveys within five miles of

project facilities that result in permanent impacts to Swainson's hawk foraging habitat. If surveys are completed they shall include the following components.

The survey periods shall follow a specified schedule: Period I occurs from 1 January to 31 March, Period II occurs from 1 April to 30 April, Period III occurs from 1 may to 30 May, and Period IV occurs from 1 June to 15 July. No fewer than three surveys per period in at least two survey periods shall be completed immediately prior to the start of project construction. All nest sites shall be recorded, mapped using GIS and provided to the CPM and CDFW. Compensatory mitigation at a 2:1 ratio shall be required for permanent impacts. If active Swainson's hawk nests (i.e., any nest active within five years) are not detected within 5 miles of the project site or linear facilities, the project owner will not be required to provide compensatory mitigation.

If the project owner assumes presence, the project owner shall provide compensatory mitigation acreage for 600 acres of Swainson's hawk habitat lands, adjusted to reflect the final project footprint, as specified in this condition. In addition, the project owner shall provide funding for initial improvement and long-term maintenance, enhancement, and management of the acquired lands for protection and enhancement Swainson's hawk populations, and comply with other related requirements of this condition.

a. Loss of foraging habitat for Swainson's hawks shall be mitigated by providing Habitat Management (HM) lands at a ratio of 2:1 for any foraging habitat impacted within a 5-mile radius of active Swainson's hawk nest(s) CDFW considers a nest active if it was used one or more times within the last 5 years). Foraging habitat includes but is not limited to alfalfa; fallow fields; beet, tomato, onions, and other low-growing row or field crops; dry-land and irrigated pasture; and cereal grain crops (including corn after harvest). Joshua tree woodland shall be considered foraging habitat in the Antelope Valley.

b. Lands which are currently in urban use or lands that have no existing or potential value for foraging Swainson's hawks will not require mitigation. The project owner will provide the CPM and CDFW a report of potential foraging lands impacted by the proposed project as determined by consultation with the CDFW and recent site-specific surveys conducted by a CDFW-qualified raptor biologist.

This acreage was calculated as follows: a ratio of 2:1 for the ~~PHPP~~ power plant site (600 acres). Costs of these requirements are estimated to be $1,327,210.00 (see Biological Resources Tables 4- for a complete breakdown of costs and acreage). All costs are best estimates as of fall 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation based on changing land costs or management fees. Regardless of the estimates, the project owner is responsible for providing adequate funding to implement the required mitigation.

These impact acreages shall be 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 Palmdale Hybrid Power Plant Project Site.

This compensation acreage may be included ("nested") within the acreage acquired and managed as Mohave ground squirrel habitat compensation (Condition of Certification BIO-20) only if:

a. A minimum of 140 acres of habitat including a minimum of 76 acres of Joshua tree woodland, 64 acres of Mojave creosote bush scrub.

b. The Mohave ground squirrel habitat compensation lands are acquired and dedicated as permanent conservation lands within 18 months of the start of project construction.

If these two criteria are not met, then the project owner shall provide the required number of acres of Swainson's hawk habitat compensation lands, adjusted to reflect the final project footprint and additional delineation of suitable habitat, independent of any compensation land required under other conditions of certification, and shall also provide funding for the initial improvement and long-term maintenance and management of the acquired lands, and shall comply with other related requirements this condition.

The project owner shall provide financial assurances as described below in the amount of $2,033,290.00. In lieu of acquiring lands itself, the Project owner may satisfy the requirements of this condition by depositing funds into a Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF), as described below. If the Project owner elects to establish a REAT NFWF Account and have NFWF and the agencies complete the required habitat compensation, then the total estimated cost of complying with this condition is $2,096,318.70. The amount of security or NFWF deposit shall be adjusted up or down to reflect any revised cost estimates recommended by REAT.

The actual costs to comply with this condition will vary depending on the final footprint of the project, the costs of acquiring compensation habitat, the costs of initially improving the habitat, and the actual costs of long-term management as determined by a Property Analysis Report or similar analysis (below). The 100 acre habitat requirement, and associated funding requirements based on that acreage, shall be adjusted up or down if there are changes in the final footprint of the project or the associated costs of evaluation, acquisition, management, and other factors listed in Biological Resources Tables 4. Regardless of actual cost, the project owner shall be responsible for funding all requirements of this condition.

COMPENSATORY MITIGATION LAND ACQUISITION

1. Method of Acquisition. Compensation lands shall be acquired by either of the two options listed below. Regardless of the method of acquisition, the transaction shall be complete only upon completion of all terms and conditions described in this Condition of Certification.

    a. The project owner shall acquire lands and transfer title and/or conservation easement to a state or federal land management agency or to a third-party non-profit land management organization, as approved by the CPM in consultation with CDFW; or

    b. The Project owner shall deposit funds into a project-specific subaccount within the REAT Account established with the NFWF, in the amount as indicated in Biological Resources Tables ~~5~~4 (adjusted to reflect final project footprint and any applicable REAT adjustments to costs).

2. Selection Criteria for Compensation Lands. The compensation lands selected for acquisition to meet Energy Commission and CESA requirements shall be equal to or better than the quality and function of the habitat impacted and:

    a. Be within the Western Mojave Desert;

    b. Provide moderate to good quality foraging habitat for Swainson's hawk with capacity to improve in quality and value for this species; and

    c. Be near lands for which there is reasonable evidence (for example, recent (<15 years) CNDDB occurrences on or immediately adjacent to the proposed lands) suggesting current occupation by Swainson's hawk ideally with populations that are stable, recovering, or likely to recover.

    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 cause future erosional damage or other habitat damage, and 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; and

    g. not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat; and

h. have water and mineral rights included as part of the acquisition, unless the CPM, in consultation with CDFW, agrees in writing to the acceptability of land without these rights.

3. 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 Swainson's hawk in relation to the criteria listed above and must be approved by the CPM. The CPM will share the proposal with and consult with CDFW before deciding whether to approve or disapprove the proposed acquisition.

4. Compensation Lands Acquisition Conditions: The project owner shall comply with the following conditions relating to acquisition of the compensation lands after the CPM, in consultation with CDFW approved the proposed compensation lands:

   a. Preliminary Report: The Project owner, or approved third party, shall provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary or requested documents for the proposed compensation land to the CPM. All documents conveying or conserving compensation lands and all conditions of title are subject to review and approval by the CPM, in consultation with CDFW. For conveyances to the State, approval may also be required from the California Department of General Services, the Fish and Game Commission and the Wildlife Conservation Board.

   b. Title/Conveyance: The Project owner shall acquire and transfer fee title to the compensation lands, a conservation easement over the lands, or both fee title and conservation easement as required by the CPM in consultation with CDFW. Any transfer of a conservation easement or fee title must be to CDFW, a non-profit organization qualified to hold title to and manage compensation lands (pursuant to California Government Code section 65965), or to other public agency approved by the CPM in consultation with CDFW. If an approved non-profit organization holds fee title to the compensation lands, a conservation easement shall be recorded in favor of CDFW or another entity approved by the CPM. If an approved non-profit holds a conservation easement, CDFW shall be named a third party beneficiary. If an entity other than CDFW holds a conservation easement over the compensation lands, the CPM may require that CDFW or another entity approved by the CPM, in consultation with CDFW, be named a third party beneficiary of the conservation easement. The Project owner shall obtain approval of the CPM, in consultation with CDFW, of the terms of any transfer of fee title or conservation easement to the compensation lands.

c. 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 CDFW, before it can be used to establish funding levels or management activities for the compensation lands.

5. Compensation Lands Acquisition Costs: The Project owner shall pay all other costs related to acquisition of compensation lands and conservation easements. In addition to actual land costs, these acquisition costs shall include but shall not be limited to the items listed below. Management costs including site cleanup measures are described separately, in the following section.

   a. Level 1 Environmental Site Assessment;

   b. Appraisal;

   c. Title and document review costs;

   d. Expenses incurred from other state, federal, or local agency reviews;

   e. Closing and escrow costs;

   f. Overhead costs related to providing compensation lands to CDFW or an approved third party;

   g. Biological survey(s) to determine mitigation value of the land; and

   h. Agency costs to accept the land (e.g., writing and recording of conservation easements; title transfer).

COMPENSATORY MITIGATION LAND IMPROVEMENT

1. Land Improvement Requirements: The Project owner shall fund activities that the CPM, in consultation with the CDFW, 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 surveys of boundaries and property lines, installation of signs, trash removal and other site cleanup measures, construction and repair of fences, invasive plant removal, removal of roads, and similar measures to protect habitat and improve habitat quality on the compensation lands.

   The costs of these activities are estimated at $250 an acre, but will vary depending on the measures that are required for the compensation lands. A non-profit organization, CDFW 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 CDFW, and if it is authorized to participate in implementing the required activities on the compensation lands. If CDFW takes fee title to the compensation lands, the habitat improvement fund must be paid to CDFW or its designee.

COMPENSATORY MITIGATION LAND LONG-TERM MANAGEMENT

1. Long-term Management Requirements: Long-term management is required to ensure that the compensation lands are managed and maintained to protect and enhance habitat for desert tortoise. Management activities may include maintenance of signs, fences, removal of invasive weeds, monitoring, security and enforcement, and control or elimination of unauthorized use.

2. Long-term Management Plan. The project owner shall pay for the preparation of a Management Plan for the compensation lands. The Management Plan shall reflect site-specific enhancement measures on the acquired compensation lands. The plan shall be submitted for approval of the CPM, in consultation with CDFW.

3. Long-Term Maintenance and Management Funding. The Project owner shall provide money to establish an account with a 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 provide initial payment of $203,000.00 calculated at $1,450 an acre for each compensation acre, as shown in Biological Resources Tables ~~5~~4 (above) into an account for long-term maintenance and management of compensation lands. 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 the project owner and CDFW before deciding whether to approve an entity to hold the project's long-term maintenance and management funds on any lands. The CPM,

in consultation with the project owner and CDFW, may designate another state agency or non-profit organization to hold the long-term maintenance and management fee if the organization is qualified to manage the compensation lands in perpetuity.

If CDFW takes fee title to the compensation lands, CDFW shall determine whether it will hold the long-term management fee in the special deposit fund, leave the money in the REAT Account, or designate another entity such as NFWF to manage the long-term maintenance and management fee for CDFW and with CDFW supervision.

The Project owner shall ensure that an agreement is in place with the long-term maintenance and management fee holder/manager to ensure the following conditions:

i. Interest. Interest generated from the initial capital shall be available for reinvestment into the principal and for the long-term operation, management, and protection of the approved compensation lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement measures, and any other action approved by CDFW designed to protect or improve the habitat values of the compensation lands.

ii. Withdrawal of Principal. The long-term maintenance and management fee principal shall not be drawn upon unless such withdrawal is deemed necessary by the CPM, in consultation with CDFW, or the approved third-party long-term maintenance and management fee manager to ensure the continued viability of the species on the compensation lands. If CDFW takes fee title to the compensation lands, monies received by CDFW pursuant to this provision shall be deposited in a special deposit fund established solely for the purpose to manage lands in perpetuity unless CDFW designates NFWF or another entity to manage the long-term maintenance and management fee for CDFW.

iii. Pooling Funds. A CPM- approved non-profit organization qualified to hold long-term maintenance and management fees solely for the purpose to manage lands in perpetuity, may pool the fund with other funds for the operation, management, and protection of the compensation lands for local populations of desert tortoise. However, for reporting purposes, the long-term maintenance and management fee fund must be tracked and reported individually to the CDFW and CPM.

iv. Reimbursement Fund. The project owner shall provide reimbursement to CDFW or an approved third party for reasonable expenses incurred during title, easement, and documentation review; expenses incurred from other State or State-approved federal agency reviews; and overhead related to providing compensation lands.

COMPENSATORY MITIGATION LAND SECURITY

1. Compensation Mitigation Security: The project owner shall provide security sufficient for funding acquisition, improvement, and long-term management of Swainson's hawk compensation land. 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 submitting the Security to the CPM, the Project owner shall obtain the CPM's approval, in consultation with CDFW of the form of the Security.

   The security amount shall be based on the estimates provided in Biological Resources Tables 4. This amount shall be updated and verified prior to payment and shall be adjusted to reflect actual costs or more current estimates as agreed upon by the REAT agencies.

   The Project owner shall provide verification that financial assurances have been established to the CPM with copies of the document(s) to CDFW, 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 activities described in Section A of this condition.

   In the event that the project owner defaults on the Security, 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. Any amount of the Security that is not used to carry out mitigation shall be returned to the Project owner upon successful completion of the associated requirements in this condition.

   Security for the requirements of this condition shall be provided in the amount of $2,096,318.70 if the project owner elects to use the REAT Account with NFWF pursuant to paragraph 4 of this condition, below). The Security is calculated in part from the items that follow but adjusted as specified below (consult Biological Resources Tables 4 for the complete breakdown of estimated costs). However, regardless of the amount of the security or actual cost of implementation, the project owner shall be responsible for implementing all aspects of this condition.

   i. land acquisition costs for compensation land, calculated at $10,000/acre;

   ii. Site assessments, appraisals, biological surveys, transaction closing and escrow costs, calculated as $18,000 total per parcel (presuming 60 acres per parcel)

   iii. Initial site clean-up, restoration, or enhancement, calculated at $250/acre;

iv. Third-party and agency administrative transaction costs and overhead, calculated as percentages of land cost;

v. Long-term management and maintenance fund, calculated at $1,450 per acre;

vi. NFWF fees to establish a project-specific account; manage the sub-account for acquisition and initial site work; and manage the sub-account for long term management and maintenance.

2. The project owner may elect to comply with some or all of the requirements in this condition by providing funds to implement the requirements 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 of implementing the requirement (as set forth in the Security section of this condition, paragraph 3, above). If the actual cost of the acquisition, initial protection and habitat improvements, long-term funding or other cost 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, the long-term funding requirements as established in an approved PAR or PAR-like analysis, or the other actual costs that are estimated in the table. 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 CDFW 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.

4. The project owner may request the CPM to provide it with all available information about any funds held by the Energy Commission, CDFW or NFWF as project security, or funds held in a NFWF sub-account for this project, or other project-specific account held by a third party. The CPM shall also fully cooperate with any independent audit that the project owner may choose to perform on any of these funds.

Verification: The project owner shall provide the CPM with either the results of the nesting surveys or written verification that the project owner shall assume presence no less than 60 days prior to ground disturbance or site mobilization. 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 verification to the CPM and CDFW that an approved Security has been established in accordance with this condition of certification no later than 30 days prior to beginning Project ground-disturbing activities. 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 submitting the Security to the CPM, the project owner shall obtain the CPM's approval, in consultation with CDFW of the form of the Security. The project owner, or an approved third party, shall complete and provide written verification to the CPM and CDFW of the compensation lands acquisition and transfer within 18 months of the start of Project ground-disturbing activities.

No later than 12 months after the start of any ground-disturbing project activities, the project owner shall submit a formal acquisition proposal to the CPM describing the parcel(s) intended for purchase, and shall obtain approval from the CPM, in consultation with CDFW 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 and CDFW of such completion, no later than 18 months after the issuance of the Energy Commission Decision.

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 associated with any phase of construction. The project owner shall fully fund the required amount for long-term maintenance and management of the compensation lands for that phase of construction 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 CDFW 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 for any phase of construction, 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 for that phase of construction 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 and CDFW with a management plan for the compensation lands associated with any phase of construction within 180 days of the land or easement purchase, as determined by the date on the title. The CPM, in consultation with CDFW 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 and CDFW an analysis, based on aerial photography,

with the final accounting of the amount of habitat disturbed during Project construction. If this analysis shows that more lands were disturbed than was anticipated in this condition, the project owner shall provide the Energy Commission with additional compensation lands and funding commensurate with the added impacts and applicable mitigation ratios set forth in this condition. A final analysis of all project related ground disturbance may not result in a reduction of compensation requirements if the deadlines established under this condition for transfer of compensation lands and funding have passed prior to completion of the analysis.

MOHAVE GROUND SQUIRREL HABITAT COMPENSATORY MITIGATION

ALTERNATIVE BIO-20 The project owner shall provide compensatory mitigation acreage of 140 acres of Mohave ground squirrel habitat lands, adjusted to reflect the final project footprint, as specified in this condition. In addition, the project owner shall provide funding for initial improvement and long-term maintenance, enhancement, and management of the acquired lands for protection and enhancement Mohave ground squirrel populations, and comply with other related requirements of this condition.

This mitigation ratio is based on a 2:1 ratio for the power plant site. Costs of these requirements are estimated to be $2,033,290.00 (see Biological Resources Table 5 for a complete breakdown of costs and acreage). All costs are best estimates as of fall 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation based on changing land costs or management fees. Regardless of the estimates, the project owner is responsible for providing adequate funding to implement the required mitigation.

In lieu of acquiring lands itself, the project owner may satisfy the requirements of this condition by depositing funds into a Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF), as described below. If the Project owner elects to establish a REAT NFWF Account and have NFWF and the agencies complete the required habitat compensation, then the total estimated cost of complying with this condition is $2,138,318.70. The amount of security or NFWF deposit shall be adjusted up or down to reflect any revised cost estimates recommended by REAT.

The actual costs to comply with this condition will vary depending on the final footprint of the project, the costs of acquiring compensation habitat, the costs of initially improving the habitat, and the actual costs of long-term management as determined by a Property Analysis Report or similar analysis (below). The 140 acre habitat requirement, and associated funding requirements based on that acreage, shall be adjusted up or down if there are changes in the final footprint of the project or the associated costs of evaluation, acquisition, management, and other factors listed in Biological Resources Table 5. Regardless of actual cost, the project owner shall be responsible for funding all requirements of this condition.

COMPENSATORY MITIGATION LAND ACQUISITION

1. Method of Acquisition. Compensation lands shall be acquired by either of the two options listed below. Regardless of the method of acquisition, the transaction shall be complete only upon completion of all terms and conditions described in this Condition of Certification.

   a. The project owner shall acquire lands and transfer title and/or conservation easement to a state or federal land management agency or to a third-party non-profit land management organization, as approved by the CPM in consultation with CDFW; or

   b. The project owner shall deposit funds into a project-specific subaccount within the REAT Account established with the NFWF, in the amount as indicated in Biological Resources Table 5 (adjusted to reflect final project footprint and any applicable REAT adjustments to costs).

2. Selection Criteria for Compensation Lands. The compensation lands selected for acquisition shall:

   a. Be in the western Mojave Desert;

   b. Provide moderate to good quality habitat for Mohave ground squirrel with capacity to improve in quality and value for this species;

   c. Be a contiguous block of land (preferably) or located so they result in a contiguous block of protected habitat;

   d. Be adjacent to larger blocks of lands that are already protected, or be in a location approved by the CDFW, such that there is connectivity between the acquired lands and the protected lands;

   e. Be connected to lands for which there is reasonable evidence (for example, recent [<15 years] CNDDB occurrences on or immediately adjacent to the proposed lands) suggesting current occupation by Mohave ground squirrel, ideally with populations that are stable, recovering, or likely to recover;

   f. Not have a history of intensive recreational use, grazing, or other disturbance that might make habitat recovery and restoration infeasible;

   g. 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; and

   h. Not be encumbered by easements or uses that would preclude fencing of the site or preclude or unacceptably constrain management of the

site for the primary benefit of the species and their habitat for which mitigation lands were secured.

3. 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 Mohave ground squirrel in relation to the criteria listed above and must be approved by the CPM. The CPM will share the proposal with and consult with CDFW before deciding whether to approve or disapprove the proposed acquisition.

4. Compensation Lands Acquisition Conditions: The project owner shall comply with the following conditions relating to acquisition of the compensation lands after the CPM, in consultation with CDFW approved the proposed compensation lands:

   a. Preliminary Report: The Project owner, or approved third party, shall provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary or requested documents for the proposed compensation land to the CPM. All documents conveying or conserving compensation lands and all conditions of title are subject to review and approval by the CPM, in consultation with CDFW. For conveyances to the State, approval may also be required from the California Department of General Services, the Fish and Game Commission and the Wildlife Conservation Board.

   b. Title/Conveyance: The Project owner shall acquire and transfer fee title to the compensation lands, a conservation easement over the lands, or both fee title and conservation easement as required by the CPM in consultation with CDFW. Any transfer of a conservation easement or fee title must be to CDFW, a non-profit organization qualified to hold title to and manage compensation lands (pursuant to California Government Code section 65965), or to other public agency approved by the CPM in consultation with CDFW. If an approved non-profit organization holds fee title to the compensation lands, a conservation easement shall be recorded in favor of CDFW or another entity approved by the CPM. If an approved non-profit holds a conservation easement, CDFW shall be named a third party beneficiary. If an entity other than CDFW holds a conservation easement over the compensation lands, the CPM may require that CDFW or another entity approved by the CPM, in consultation with CDFW, be named a third party beneficiary of the conservation easement. The Project owner shall obtain approval of the CPM, in consultation with CDFW, of the terms of any transfer of fee title or conservation easement to the compensation lands.

   c. 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 CDFW, before it can be used to establish funding levels or management activities for the compensation lands.

5. Compensation Lands Acquisition Costs: The Project owner shall pay all other costs related to acquisition of compensation lands and conservation easements. In addition to actual land costs, these acquisition costs shall include but shall not be limited to the items listed below. Management costs including site cleanup measures are described separately, in the following section.

   a. Level 1 Environmental Site Assessment;

   b. Appraisal;

   c. Title and document review costs;

   d. Expenses incurred from other state, federal, or local agency reviews;

   e. Closing and escrow costs;

   f. Overhead costs related to providing compensation lands to CDFW or an approved third party;

   g. Biological survey(s) to determine mitigation value of the land; and

   h. Agency costs to accept the land (e.g., writing and recording of conservation easements; title transfer).

COMPENSATORY MITIGATION LAND IMPROVEMENT

1. Land Improvement Requirements: The Project owner shall fund activities that the CPM, in consultation with the CDFW 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 surveys of boundaries and property lines, installation of signs, trash removal and other site cleanup measures, construction and repair of fences, invasive plant removal, removal of roads, and similar measures to protect habitat and improve habitat quality on the compensation lands.

   The costs of these activities are estimated at $250 an acre, but will vary depending on the measures that are required for the compensation lands. A non-profit organization, CDFW 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 CDFW,

and if it is authorized to participate in implementing the required activities on the compensation lands. If CDFW takes fee title to the compensation lands, the habitat improvement fund must be paid to CDFW or its designee.

COMPENSATORY MITIGATION LAND LONG-TERM MANAGEMENT

1. Long-term Management Requirements: Long-term management is required to ensure that the compensation lands are managed and maintained to protect and enhance habitat for desert tortoise. Management activities may include maintenance of signs, fences, removal of invasive weeds, monitoring, security and enforcement, and control or elimination of unauthorized use.

2. Long-term Management Plan. The project owner shall pay for the preparation of a Management Plan for the compensation lands. The Management Plan shall reflect site-specific enhancement measures on the acquired compensation lands. The plan shall be submitted for approval of the CPM, in consultation with CDFW.

3. Long-Term Maintenance and Management Funding. The Project owner shall provide money to establish an account with a 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 provide initial payment of $203,000.00 calculated at $1,450 an acre for each compensation acre, as shown in Biological Resources Table 5 (above) into an account for long-term maintenance and management of compensation lands. 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 the project owner and CDFW before deciding whether to approve an entity to hold the project's long-term maintenance and management funds on any lands. The CPM, in consultation with the project owner and CDFW, may designate another state agency or non-profit organization to hold the long-term maintenance

and management fee if the organization is qualified to manage the compensation lands in perpetuity.

If CDFW takes fee title to the compensation lands, CDFW shall determine whether it will hold the long-term management fee in the special deposit fund, leave the money in the REAT Account, or designate another entity such as NFWF to manage the long-term maintenance and management fee for CDFW and with CDFW supervision.

The Project owner shall ensure that an agreement is in place with the long-term maintenance and management fee holder/manager to ensure the following conditions:

i. Interest. Interest generated from the initial capital shall be available for reinvestment into the principal and for the long-term operation, management, and protection of the approved compensation lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement measures, and any other action approved by CDFW designed to protect or improve the habitat values of the compensation lands.

ii. Withdrawal of Principal. The long-term maintenance and management fee principal shall not be drawn upon unless such withdrawal is deemed necessary by the CPM, in consultation with CDFW, or the approved third-party long-term maintenance and management fee manager to ensure the continued viability of the species on the compensation lands. If CDFW takes fee title to the compensation lands, monies received by CDFW pursuant to this provision shall be deposited in a special deposit fund established solely for the purpose to manage lands in perpetuity unless CDFW designates NFWF or another entity to manage the long-term maintenance and management fee for CDFW.

iii. Pooling Funds. A CPM- approved non-profit organization qualified to hold long-term maintenance and management fees solely for the purpose to manage lands in perpetuity, may pool the fund with other funds for the operation, management, and protection of the compensation lands for local populations of desert tortoise. However, for reporting purposes, the long-term maintenance and management fee fund must be tracked and reported individually to the CDFW and CPM.

iv. Reimbursement Fund. The project owner shall provide reimbursement to CDFW or an approved third party for reasonable expenses incurred during title, easement, and documentation review; expenses incurred from other State or State-approved federal agency reviews; and overhead related to providing compensation lands.

COMPENSATORY MITIGATION LAND SECURITY

1. Compensation Mitigation Security: The project owner shall provide security sufficient for funding acquisition, improvement, and long-term management of desert tortoise compensation land. 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 submitting the Security to the CPM, the Project owner shall obtain the CPM's approval, in consultation with CDFW of the form of the Security.

   The security amount shall be based on the estimates provided in Biological Resources Table 5**.** This amount shall be updated and verified prior to payment and shall be adjusted to reflect actual costs or more current estimates as agreed upon by the REAT agencies.

   The Project owner shall provide verification that financial assurances have been established to the CPM with copies of the document(s) to CDFW, 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 activities described in Section A of this condition.

   In the event that the project owner defaults on the Security, 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. Any amount of the Security that is not used to carry out mitigation shall be returned to the Project owner upon successful completion of the associated requirements in this condition.

   Security for the requirements of this condition shall be provided in the amount of $2,138,318.70 if the project owner elects to use the REAT Account with NFWF pursuant to paragraph 4 of this condition, below). The Security is calculated in part from the items that follow but adjusted as specified below (consult Biological Resources Table 5 for the complete breakdown of estimated costs). However, regardless of the amount of the security or actual cost of implementation, the project owner shall be responsible for implementing all aspects of this condition.

   i. land acquisition costs for compensation land, calculated at $10,000/acre;

   ii. Site assessments, appraisals, biological surveys, transaction closing and escrow costs, calculated as $18,000 total per parcel (presuming 60 acres per parcel);

   iii. Initial site clean-up, restoration, or enhancement, calculated at $250/acre;

   iv. Third-party and agency administrative transaction costs and overhead, calculated as percentages of land cost;

v. Long-term management and maintenance fund, calculated at $1,450 per acre; and

vi. NFWF fees to establish a project-specific account; manage the sub-account for acquisition and initial site work; and manage the sub-account for long term management and maintenance.

2. The project owner may elect to comply with some or all of the requirements in this condition by providing funds to implement the requirements 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 of implementing the requirement (as set forth in the Security section of this condition, paragraph 3, above). If the actual cost of the acquisition, initial protection and habitat improvements, long-term funding or other cost 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, the long-term funding requirements as established in an approved PAR or PAR-like analysis, or the other actual costs that are estimated in the table. 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 CDFW 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 project related ground disturbance.

4. The project owner may request the CPM to provide it with all available information about any funds held by the Energy Commission, CDFW or NFWF as project security, or funds held in a NFWF sub-account for this project, or other project-specific account held by a third party. The CPM shall also fully cooperate with any independent audit that the project owner may choose to perform on any of these funds.

Verification: The project owner shall provide the CPM with written notice of intent to start ground disturbance 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 verification to the CPM and CDFW that an approved Security has been established in

accordance with this condition of certification no later than 30 days prior to beginning Project ground-disturbing activities. 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 submitting the Security to the CPM, the project owner shall obtain the CPM's approval, in consultation with CDFW of the form of the Security. The project owner, or an approved third party, shall complete and provide written verification to the CPM and CDFW of the compensation lands acquisition and transfer within 18 months of the start of Project ground-disturbing activities.

No later than 12 months after the start of any phase 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 CDFW 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 and CDFW of such completion, no later than 18 months after the start of project related ground disturbance activities. If NFWF or another approved third party is being used for all or part of 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 associated with any phase of construction. The project owner shall fully fund the required amount for long-term maintenance and management of the compensation lands for that phase of construction 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 CDFW 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 for any phase of construction, 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 for that phase of construction 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 and CDFW with a management plan for the compensation lands associated with any phase of construction within180 days of the land or easement purchase, as determined by the date on the title. The CPM, in consultation with CDFW 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 and CDFW an analysis, based on aerial photography,

with the final accounting of the amount of habitat disturbed during Project construction. If this analysis shows that more lands were disturbed than was anticipated in this condition, the project owner shall provide the Energy Commission with additional compensation lands and funding commensurate with the added impacts and applicable mitigation ratios set forth in this condition. A final analysis of all project related ground disturbance may not result in a reduction of compensation requirements if the deadlines established under this condition for transfer of compensation lands and funding have passed prior to completion of the analysis.

PROPOSED CONDITIONS OF CERTIFICATION

The conditions of certification for **Bio** are located in the Conditions of Certification Compendium at the back of this Final Staff Assessment.

CULTURAL CONDITIONS OF CERTIFICATION

Staff has included the conditions of certification from the Final Decision below. Staff is proposing changes to Condition of Certification **CUL-6** to include mitigation measures in the event that damage to the California Aqueduct, PPP or other ancillary facilities of the Aqueduct cannot be avoided.

CUL-1 Prior to the start of ground disturbance (includes "preconstruction site mobilization, "construction-related ground disturbance," and "construction-related grading, boring, and trenching," as defined in the General Conditions for this project), the project owner shall obtain the services of a Cultural Resources Specialist (CRS) and one or more alternate CRSs (at the project owner's option).

The CRS shall manage all cultural resources monitoring, mitigation, curation, and reporting activities in accordance with the Conditions of Certification (Conditions). The CRS may elect to obtain the services of Cultural Resources Monitors (CRMs) and other technical specialists, if needed, to assist in monitoring, mitigation, and curation activities. The project owner 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 affected in an unanticipated manner. No ground disturbance shall occur prior to Compliance Project Manager (CPM) approval of the CRS and alternates, unless such activities are specifically approved by the CPM.

Approval of a CRS may be denied or revoked for reasons including but not limited to non-compliance on this or other projects licensed by the Energy Commission. After all ground disturbance is completed and the CRS has fulfilled all responsibilities specified in these cultural resources conditions, the project owner may discharge the CRS, if the CPM approves. With the discharge of the CRS, these cultural resources conditions no longer apply to the activities of this power plant.

CULTURAL RESOURCES SPECIALIST

The project owner shall submit the resumes and qualifications for the CRS, CRS alternates, and all technical specialists to the CPM for review and approval. 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 (36 C.F.R., part 61). In addition, the CRS shall have the following additional qualifications:

1. The CRS's qualifications shall be appropriate to the needs of the project and shall include a background in anthropology, archaeology, history, architectural history, or a related field;

2. At least three years of archaeological or historical, as appropriate (per nature of predominant cultural resources on the project site), resource mitigation and field experience in California; and

3. At least one year of experience in a decision-making capacity on cultural resources projects in California and the appropriate training and experience to knowledgably make recommendations regarding the significance of cultural resources.

The resumes of the CRS and alternate CRS shall include the names and telephone numbers of contacts familiar with the work of the CRS/alternate CRS on referenced projects and demonstrate to the satisfaction of the CPM that the CRS/alternate CRS has the appropriate training and experience to implement effectively the Conditions.

CULTURAL RESOURCES MONITORS

CRMs 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 of 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.

CULTURAL RESOURCES TECHNICAL SPECIALISTS

The resume(s) of any additional technical specialist(s), e.g., historical archaeologist, historian, architectural historian, and/or physical anthropologist, shall be submitted to the CPM for approval.

Verification:

1. At least 45 days prior to the start of ground disturbance, the project owner shall submit the resume for the CRS, and alternate(s) if desired, to the CPM for review and approval.

2. 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 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 there is no alternate CRS in place to conduct the duties of the CRS, a previously approved 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.

3. At least 20 days prior to ground disturbance, the CRS shall provide a letter naming anticipated CRMs for the project and stating that the identified CRMs meet the minimum qualifications for cultural resources monitoring required by this Condition.

4. At least 5 days prior to additional CRMs beginning on-site duties during the project, the CRS shall provide additional letters to the CPM identifying the CRMs and attesting to their qualifications.

5. At least 10 days prior to any technical specialists beginning tasks, the resume(s) of the specialists shall be provided to the CPM for review and approval.

6. At least 10 days prior to the start of ground disturbance, the project owner shall confirm in writing to the CPM that the approved CRS will be available for onsite work and is prepared to implement the cultural resources conditions.

CUL-2 Prior to the start of ground disturbance, if the CRS has not previously worked on the project, the project owner shall provide the CRS with copies of the AFC, data responses, confidential cultural resources reports, all supplements, and the Energy Commission's Final Staff Assessment (FSA) for the project. The project owner shall also provide the CRS 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 a map at an appropriate scale (e.g., 1:2000 or 1" = 200') for plotting cultural features or materials. If the CRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the CRS and CPM. The CPM shall review map submittals and, in consultation with the CRS, approve those that are appropriate for use in cultural resources planning activities. No ground disturbance shall occur prior to CPM approval of maps and drawings, unless such activities are specifically approved by the CPM.

If construction of the project would proceed in phases, maps and drawings not previously provided shall be provided to the CRS and CPM prior to the start of each phase. Written notice identifying the proposed schedule of each project phase shall be provided to the CRS and CPM.

Weekly, until ground disturbance is completed, the project construction manager shall provide to the CRS and CPM a schedule of project activities for the following week, including the identification of area(s) where ground disturbance will occur during that week.

The project owner shall notify the CRS and CPM of any changes to the scheduling of the construction phases.

Verification:

1. At least 40 days prior to the start of ground disturbance, the project owner shall provide the AFC, data responses, confidential cultural resources documents, all supplements, and the Energy Commission FSA to the CRS, if needed, and the subject maps and drawings to the CRS and CPM. The CPM will review submittals in consultation with the CRS and approve maps and drawings suitable for cultural resources planning activities.

2. At least 15 days prior to the start of ground disturbance, if there are changes to any construction-related footprint, the project owner shall provide revised maps and drawings for the changes to the CRS 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 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-3 Prior to the start of ground disturbance, the project owner shall submit the Cultural Resources Monitoring and Mitigation Plan (CRMMP), as prepared by or under the direction of the CRS, to the CPM for review and approval. The CRMMP shall follow the content and organization of the draft model CRMMP, provided by the CPM, and the authors' name(s) shall appear on the title page of the CRMMP. The CRMMP shall identify general and specific measures to minimize potential impacts to sensitive cultural resources. 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, 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.

The CRMMP shall include, but not be limited to, the following elements and measures:

1. The following statement 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. A proposed general research design that includes a discussion of archaeological research questions and testable hypotheses specifically applicable to the project area, and a discussion of artifact collection, retention/disposal, and curation policies as related to the research questions formulated in the research design. The research design will specify that the preferred treatment strategy for any buried archaeological deposits is avoidance. A mitigation plan shall be prepared for any CRHR-eligible (as determined by the CPM) resource, impacts to which cannot be avoided. A prescriptive treatment plan may be included in the CRMMP for limited data types.

3. Specification of the implementation sequence and the estimated time frames needed to accomplish all construction-related tasks during the ground disturbance and post-ground–disturbance analysis phases of the project.

4. Identification of the 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.

5. A description of the manner in which Native American observers or monitors will be included, the procedures to be used to select them, and their role and responsibilities.

6. A description of 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, and identification of areas where these measures are to be implemented. 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 construction-related effects.

7. A statement that all encountered cultural resources over 50 years old shall be recorded on Department of Parks and Recreation (DPR) 523 forms and mapped and photographed. In addition, all archaeological materials retained as a result of the archaeological investigations (survey, testing, data recovery) shall be curated 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.

8. A statement that the project owner will pay all curation fees for artifacts recovered and for related documentation produced during cultural resources investigations conducted for the project. The project owner shall identify three possible curation facilities that could accept cultural resources materials resulting from project activities.

9. A statement that the CRS has access to equipment and supplies necessary for site mapping, photography, and recovery of any cultural resource materials that are encountered during ground disturbance and cannot be treated prescriptively.

10. A statement demonstrating when and how the project owner will comply with Health and Human Safety Code 7050.5(b) and Public Resources Code 5097.98(b) and (e).

11. A description of the contents, format, and review and approval process of the final Cultural Resource Report (CRR), which shall be prepared according to ARMR guidelines.

Verification:

1. Upon approval of the CRS proposed by the project owner, the CPM will provide to the project owner an electronic copy of the draft model CRMMP for the CRS.

2. At least 30 days prior to the start of ground disturbance, the project owner shall submit the CRMMP to the CPM for review and approval.

3. At least 30 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).

4. Within 90 days after completion of ground disturbance (including landscaping), if cultural materials requiring curation were generated or collected, the project owner shall provide to the CPM a copy of an agreement with, or other written commitment from, a curation facility that meets the standards stated in the California State Historical Resources Commission's *Guidelines for the Curation of Archaeological Collections*, to accept the cultural materials from this project. Any agreements concerning curation will be retained and available for audit for the life of the project.

CUL-4 The project owner shall submit the final Cultural Resources Report (CRR) to the CPM for approval. The final CRR shall be written by or under the direction of the CRS and shall be provided in the ARMR format. The final CRR shall report on all field activities including dates, times and locations, results, samplings, and analyses. All survey reports, Department of Parks and Recreation (DPR) 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 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 90 days after completion of ground disturbance (including landscaping), the project owner shall submit the final CRR to the CPM 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 CPM approval of 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 construction-related reports.

CUL-5 Prior to and for the duration of ground disturbance, the project owner shall provide Worker Environmental Awareness Program (WEAP) training to all new workers within their first week of employment at the project site, along the linear facilities routes, and at laydown areas, roads, and other ancillary areas. The training shall be prepared by the CRS, may be conducted by any member of the archaeological team, and may be presented in the form of a video. The CRS shall be available (by telephone or in person) to answer questions posed by employees. The training may be discontinued when ground disturbance is completed or suspended, but must be resumed when ground disturbance, such as landscaping, resumes.

The training shall include:

1. A discussion of applicable laws and penalties under the law;

2. Samples or visuals of artifacts that might be found in the project vicinity;

3. A discussion of what such artifacts may look like when partially buried, or wholly buried and then freshly exposed;

4. A discussion of what prehistoric and historical archaeological deposits look like at the surface and when exposed during construction, and the range of variation in the appearance of such deposits;

5. Instruction that the CRS, alternate CRS, and CRMs have the authority to halt ground disturbance in the area of a discovery to an extent sufficient to ensure that the resource is protected from further impacts, as determined by the CRS;

6. Instruction that employees are to halt work on their own in the vicinity of a potential cultural resources discovery and shall contact their supervisor and the CRS or CRM, and that redirection of work would be determined by the construction supervisor and the CRS;

7. An informational brochure that identifies reporting procedures in the event of a discovery;

8. An acknowledgement form signed by each worker indicating that they have received the training; and

9. A sticker that shall be placed on hard hats indicating that environmental training has been completed.

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-6 The project owner shall ensure that the CRS, alternate CRS, or CRMs monitor full time all construction-related ground disturbance along the linear facilities routes, at laydown areas, roads, and other ancillary areas, and on those parts of the project site that the geo-archaeological report identified as representing a terrace landform (having a high archaeological sensitivity) to ensure there are no impacts to undiscovered resources and to ensure that known resources are not impacted in an unanticipated manner, including the Palmdale Ditch.

The project owner shall ensure that no damage to the Palmdale Ditch occurs during project construction. If the Palmdale Ditch is damaged in any way, including but not limited to disturbance of the masonry of the bridge and culverts, disturbance of the earthen profile or course, or disturbance of the tunnel mouth, the project owner shall submit to the CPM a plan for the recordation of the impacted parts of the ditch or features by an architectural historian who meets the U.S. Secretary of the Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal

Regulations, part 61 (36 C.F.R., part 61). The recordation shall meet the standards of the Historic American Engineering Record.

The project owner shall ensure that no damage to the California Aqueduct, Pearblossom Pumping Plant or other ancillary facilities of the resource (Aqueduct) occurs during project construction. If the Aqueduct would be damaged in a way that would change the eligibility of the resource, including but not limited to damage to the following character-defining features: its design as related to topography and natural features, the trapezoidal shape, the concrete lining and the ancillary infrastructure such as pumping plants and dams, the project owner shall submit to the CPM a plan for the recordation of the impacted parts of the aqueduct or features by an architectural historian who meets the U.S. Secretary of the Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61 (36 C.F.R., part 61). The recordation shall meet the standards of the Historic American Engineering Record Level I. This documentation should be completed in accordance with the Guidelines for Architectural and Engineering Documentation, published by the Department of the Interior-National Park Service, in the Federal Register/Volume 68, No. 139/Monday, July 21, 2003/Notices, pp. 43159 to 43162.

Full-time archaeological monitoring for this project shall be the archaeological monitoring of the earth-removing activities in the areas specified in the first paragraph of this condition, for as long as the activities are ongoing. Where excavation equipment is actively removing dirt and hauling the excavated material farther than fifty 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.

A Native American monitor shall be obtained to monitor ground disturbance in areas where Native American artifacts are discovered. Contact lists of interested Native Americans and guidelines for monitoring shall be obtained from the Native American Heritage Commission. Preference in selecting a monitor shall be given to Native Americans with traditional ties to the area that shall be monitored. If efforts to obtain the services of a qualified Native American monitor are unsuccessful, the project owner shall immediately inform the CPM. The CPM will either identify potential monitors or will allow ground disturbance to proceed without a Native American monitor.

The research design in the CRMMP shall govern the collection, treatment, retention/disposal, and curation of any archaeological materials encountered.

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 with Energy Commission technical staff.

Cultural resources monitoring activities are the responsibility of the CRS. Any interference with monitoring activities, removal of a monitor from duties assigned by the CRS, or direction to a monitor to relocate monitoring activities by anyone other than the CRS shall be considered non-compliance with these Conditions.

Upon becoming aware of any incidents of non-compliance with the Conditions and/or applicable LORS, the CRS and/or the project owner shall notify the CPM by telephone or e-mail within 24 hours. The CRS shall also recommend corrective action to resolve the problem or achieve compliance with the Conditions. When the issue is resolved, the CRS shall write a report describing the issue, the resolution of the issue, and the effectiveness of the resolution measures. This report shall be provided in the next MCR for the review of the CPM.

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. Monthly, while monitoring is on-going, the project owner shall include in each MCR a copy of the monthly summary report of cultural resources-related monitoring

prepared by the CRS and shall attach any new DPR 523A forms completed for finds treated prescriptively, as specified in the CRMMP.

3. Immediately upon a CRM recognizing that project construction will impact the Palmdale Ditch or any associated features in an unanticipated and adverse manner, the project owner shall submit to the CPM for review and approval a plan for the recordation of the impacted parts of the ditch or features. The plan shall be prepared by an architectural historian who meets the U.S. Secretary of the Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61 (36 C.F.R., part 61). The recordation shall be conducted by such a qualified architectural historian and shall meet the standards of the Historic American Engineering Record.

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-7 The project owner shall grant authority to halt ground disturbance to the CRS, alternate CRS, and the CRMs in the event of a discovery. Redirection of ground disturbance shall be accomplished under the direction of the construction supervisor in consultation with the CRS.

In the event that a cultural resource over 50 years of age is found (or if younger, determined exceptionally significant by the CPM), or impacts to such a resource can be anticipated, ground disturbance shall be halted or redirected in the immediate vicinity of the discovery sufficient to ensure that the resource is protected from further impacts. If the discovery includes human remains, the project owner shall comply with the requirements of

Health and Human Safety Code 7050.5(b) and (c). Monitoring and daily reporting as provided in these conditions shall continue during the project's ground-disturbing activities elsewhere. The halting or redirection of ground disturbance shall remain in effect until the CRS has visited the discovery, and all of the following have occurred:

1. The CRS has notified the project owner, and the CPM has been notified within 24 hours of the discovery, or by Monday morning if the cultural resources discovery occurs between 8:00 AM on Friday and 8:00 AM on Sunday morning, including a description of the discovery (or changes in character or attributes), the action taken (i.e., work stoppage or redirection), a recommendation of CRHR eligibility, and recommendations for data recovery from any cultural resources discoveries, whether or not a determination of CRHR eligibility has been made.

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, 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, 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-8 If fill soils must be acquired from a non-commercial borrow site or disposed of to a non-commercial disposal site, unless less-than-five-year-old surveys of these sites for archaeological resources are documented to and approved by the CPM, the CRS shall survey the borrow and/or disposal site/s for cultural resources and record on DPR 523 forms any that are identified. When the survey is completed, the CRS shall convey the results and recommendations for further action to the project owner and the CPM, who will determine what, if any, further action is required. If the CPM determines that significant archaeological resources that cannot be avoided are present at the borrow site, other Conditions shall apply. The CRS shall report on the methods and results of these surveys in the final CRR.

Verification:

1. As soon as the project owner knows that a non-commercial borrow site and/or disposal site will be used, he/she shall notify the CRS and CPM and provide documentation of previous archaeological survey, if any, dating within the past five years, for CPM approval.

In the absence of documentation of recent archaeological survey, at least 30 days prior to any soil borrow or disposal activities on the non-commercial borrow and/or disposal sites, the CRS shall survey the site/s for archaeological resources. The CRS shall notify the project owner and the CPM of the results of the cultural resources survey, with recommendations, if any, for further action

HAZMAT CONDITIONS OF CERTIFICATION

Existing Hazardous Materials Management Conditions of Certification will be sufficient to reduce impacts from the proposed PEP to a less than significant level. Staff recommends that the following conditions be modified, deleted, or added to reflect the elimination of Therminol heat transfer fluid, the provision of a revised list of hazardous materials, security requirements, and the updating of Energy Commission standard conditions. All other Conditions remain the same.

HAZ-1 During commissioning and operations, the project owner shall not use any hazardous materials not listed in Appendix B, below from the Revised Petition to Amend (PHPP 2015d) or in greater quantities than those identified by chemical name in Appendix B, unless approved in advance by the Compliance Project Manager (CPM). All inert gases are exempt from this requirement. Paints, thinners, laboratory reagents, and herbicides in amounts less than 20 gallons or 20 pounds are exempt from this requirement unless containing a chemical at any amount which is regulated as an extremely hazardous chemical pursuant to 40 CFR Part 355 Appendix A, or is required by the Compliance Project Manager (CPM) to be listed based upon its toxic, flammable, combustible, caustic, or explosive nature.

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 provide a Hazardous Materials Business Plan (HMBP), a Spill Prevention, Control, and Countermeasure Plan (SPCC), and a Risk Management Plan (RMP) to the Health Hazardous Materials Division of the Los Angeles County Fire Department (HHMDLACFD) and the CPM for review. After receiving comments from the HHMDLACFD and the CPM, the project owner shall reflect all recommendations in the final documents. Copies of the final plans shall then be provided to the HHMDLACFD for information and to the CPM for approval.

Verification: At least thirty (30) days prior to receiving any hazardous material on the site for commissioning or operations, the project owner shall provide a copy of a final (or revised, if appropriate) HMBP and SPCC Plan to the CPM for approval.

At least thirty (30) days prior to delivery of aqueous ammonia to the site, the project owner shall provide the final RMP to the HHMDLACFD for information and to the CPM for approval.

HAZ-3 The project owner shall develop and implement a Safety Management Plan for delivery of aqueous ammonia and other liquid and gaseous hazardous materials by tanker truck. 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 including provisions to maintain lockout control by a power plant employee not involved in the delivery or transfer

operation. This plan shall be applicable during construction, commissioning, and operation of the power plant.

Verification: At least 30 days prior to the delivery of any liquid or gaseous hazardous material via tanker truck 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 aqueous ammonia storage facility shall be designed to the ASME Pressure Vessel Code. In either case, the storage tank shall be protected by a secondary containment basin capable of holding 125 percent of the storage volume or the storage volume plus the volume associated with 24 hours of rain assuming the 25-year storm and shall contain High Density Polyethylene (HDPE) plastic balls that would float and cover the entire surface in the event of a release of aqueous ammonia from the storage tank into the secondary containment area. These balls shall be inspected annually and any cracked or otherwise damaged balls replaced immediately.

In addition, the pad where the tanker truck will transfer aqueous ammonia to the storage tank shall be bermed and sloped to direct spilled aqueous ammonia to flow to a grated area that would lead to a subsurface sump. The final design drawings and specifications for the ammonia storage tank, transfer pad and its subsurface sump, and secondary containment basin shall be submitted to the CPM.

Verification: At least 30 days prior to the start of construction of the aqueous ammonia storage and transfer facility, the project owner shall submit final design drawings and specifications for the ammonia storage tank, ammonia pumps, pipes, valves, and detectors, the transfer pad and its subsurface sump, and the storage tank secondary containment basin to the CPM for review and approval.

In the Annual Compliance Report, the project owner shall include a report on the annual HDPE ball inspection and how many damaged balls were replaced.

HAZ-5 The project owner shall direct all vendors delivering aqueous ammonia to the site to use only tanker truck transport vehicles which meet or exceed the specifications of DOT Code MC-307.

Verification: At least 30 days prior to receipt of aqueous ammonia on site, the project owner shall submit copies of the notification letter to supply vendors indicating the transport vehicle specifications to the CPM for review and approval.

HAZ-6 The project owner shall direct all vendors delivering any hazardous material to the site for use during commissioning and commercial operations to use only the route approved by the CPM. Trucks and tankers will travel on SR-14 and exit onto East Avenue M and from which they will enter the plant site via the access road. If the route must be changed for any reason, the project owner shall obtain the review and approval of the CPM not later than ten (10) days before the next shipment of hazardous materials is due to arrive at the facility and shall notify the Los Angeles County Fire Department at the same time a request for route change is submitted to the CPM.

Verification: At least 30 days prior to receipt of any hazardous materials on site, the project owner shall submit copies of the required transportation route limitation direction to the CPM for review and approval. Any change to the route must be reviewed and approved by the CPM and must be made in writing not less than ten (10) days prior to the next shipment of hazardous materials to the facility.

HAZ-8 At least 30 days 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, incident, or emergency; and

6. Evacuation procedures.

Verification: At least 30 days prior to commencing construction, the project owner shall notify the CPM that a site-specific Construction Security Plan is available for review and approval.

HAZ-9 The project owner shall prepare a site-specific Security Plan for the operational phase and shall notify the CPM that it is available on-site for review and approval. The project owner shall implement site security measures addressing physical site security and hazardous materials storage. The level of security to be implemented shall not be less than that described as below (as per NERC 2011).

The Operation Security Plan shall include the following:

1. Permanent full perimeter fence or wall, at least eight feet high and topped with a wire obstacle (e.g.: barbed wire or barbed tape) around the entire site and meet the requirements specified in Condition of Certification BIO-11.

2. Main entrance security gate, either hand operable or motorized;

3. Evacuation procedures;

4. Protocol for contacting law enforcement and the CPM in the event of suspicious activity, incident, or emergency;

5. Written standard procedures for employees, contractors and vendors when encountering suspicious objects or packages on-site or off-site;

6. a. A statement (refer to sample, attachment “A”) signed by the project owner certifying that background investigations have been conducted on all project personnel. Background investigations shall be restricted to ascertain the accuracy of employee identity and employment history, and shall be conducted in accordance with state and federal law 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 contractor personnel that visit the project site.

7. Site access controls for employees, contractors, vendors, and visitors;

8. A statement(s) (refer to sample, attachment “C”) signed by the owners or authorized representative of aqueous ammonia transport vendors certifying that they have prepared and implemented security plans in conformity with 49 CFR 172.802, and that they have conducted employee background investigations in accordance with 49 CFR Part 1572, subparts A and B;

9. ~~(~~CCTV~~)~~ monitoring system able to pan, tilt, and zoom (PTZ), recordable, and viewable in the power plant control room and security station (if separate from the control room) providing a view of the entire perimeter fence line, main entrance gate, the entrance to the control room, and the ammonia storage tank but angled and physically restricted so as to not view or record any activity at Air Force Plant 42; and

10. Additional measures to ensure adequate perimeter security consisting of either:

    a. Security guard(s) present 24 hours per day, seven days per week, **or**

    b. Power plant personnel on-site 24 hours per day, seven days per week and:

       1) The perimeter fence around the entire site shall be viewable by the CCTV system; and

       2) have perimeter breach detectors **or** on-site motion detectors for all fence lines.

The project owner shall fully implement the security plans and obtain CPM approval of any substantive modifications to the security plans. The CPM may authorize modifications to these measures, or may require additional measures, such as protective barriers for critical power plant components (e.g., transformers, gas lines, compressors, etc.) depending on 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 Corporation after consultation with appropriate law enforcement agencies and the applicant.

Verification: At least 30 days prior to the initial receipt of hazardous materials onsite, 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~~ updated certification statements are appended to the Operations Security Plan, and that the plan remains current or that it has been revised in any manner. If revised, the project owner shall notify the CPM that the revised Operations Security Plan is available for review and approval.

Also, 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.

HAZ-10 The project owner shall not allow any fuel gas pipe cleaning activities on site at any power Unit, either before placing the pipe into service or at any time during the lifetime of the facility, that involve “flammable gas blows” where natural (or flammable) gas is used to blow out debris from piping and then vented to atmosphere. Instead, an inherently safer method involving a non-flammable gas (e.g. air, nitrogen, steam) or mechanical pigging shall be used as per NFPA 56. A written procedure shall be developed and implemented as per NFPA 56, section 4.3.1

Verification: At least 30 days before any fuel gas pipe cleaning activities begin at any Unit, the project owner shall submit a copy of the Fuel Gas Pipe Cleaning Work Plan (as described in NFPA 56, section 4.3.1) which shall indicate the method of cleaning to be used, what gas will be used, the source of pressurization, and whether a mechanical PIG will be used, to the CBO for information and to the CPM for review and approval

LAND USE CONDITIONS OF CERTIFICATION

Existing Conditions of Certification **LAND-1**, **LAND-2**, and **LAND-3**, and the addition of **LAND-4** would be sufficient to reduce impacts from the proposed amendment to a less than significant level and ensure the project remains in compliance with applicable laws, ordinances, regulations, and standards.

LAND-1 The project owner shall coordinate with property owners of farmland that is actively in production within the proposed transmission line right-of-way. The purpose of this coordination is to: (1) schedule construction activities at a location and time when damage to agricultural operations would be minimized to the extent practicable; and (2) ensure that any areas damaged or disturbed by construction are restored to a condition that closely approximates conditions that existed prior to construction-related disturbance, to the extent practicable.

This includes avoiding construction during peak planting, growing, and harvest seasons, if feasible, based on transmission line outage limitations. If damage or destruction occurs, the applicant shall perform restoration activities on the disturbed area in order to return the area to a condition that closely approximates conditions that existed prior to construction-related disturbance. This could include activities such as soil preparation, regrading, and reseeding.

Verification: The project owner shall document coordination efforts with affected agricultural landowners, and shall submit this documentation to the CPM at least 30 calendar days prior to the start of construction activities on the affected agricultural parcels. In addition, the project owner shall document any plans for restoration activities prior to construction and document any actual restoration activities it conducts post completion of the restoration. The project owner shall submit the documentation of restoration plans to the CPM at least 30 calendar days prior to the start of construction activities on the affected agricultural parcels. The project owner shall submit the documentation of the actual restoration activities that occurred to the CPM no later than 30 calendar days after the completion of construction activities on the affected agricultural parcels.

LAND-2 The project owner shall ensure that the proposed transmission line and natural gas pipeline will be constructed and operated in compliance with the city of Palmdale's Zoning Ordinance, Chapter 2, Article 21 (Site Plan Review). The project owner shall submit a Site Plan Review to the city of Palmdale in sufficient time for review and comment, and to the Compliance Project Manager (CPM) for review and approval prior to the start of transmission line construction. The Site Plan Review shall be in compliance with the review process set forth by Chapter 2, Article 21 (Site Plan Review) of the city's Zoning Ordinance in order to ensure that the physical plans for the project are compatible with neighboring developments, are appropriate for the site, and achieve the highest level of design that is feasible for the project.

Verification: At least 90 calendar days prior to the start of construction of the transmission line and natural gas pipeline, including any demolition, grading, trenching, or site remediation, the project owner shall submit the site plan to the city of Palmdale 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 city of Palmdale.

At least 30 calendar days prior to the start of construction, the project owner shall provide copies of any revisions to the site plan received from the city of Palmdale, along with any changes to the proposed site plan, to the CPM for review and approval.

LAND-3 The project owner shall dedicate an easement within, or adjacent to, the project transmission line corridor for the Avenue S Connector Trail as required by Los Angeles County's Antelope Valley Trails Master Plan and as requested by Los Angeles County's Department of Parks and Recreation. The easement to be dedicated by the project owner shall be a minimum of a 12-foot wide trail easement from the western edge of parcel #AIN3039011005 to the eastern edge of parcel #AIN3039006021.

Verification: The project owner shall coordinate the dedication of a portion of the project transmission line corridor to the county of Los Angeles for development of the Avenue S Connector Trail easement as approved by the Compliance Project Manager (CPM) within 180 days of the start of construction. The project owner shall provide documentation to the CPM that the dedication of the trail easement has been executed based on mutually agreed upon provisions between the project owner and the Los Angeles County's Department of Parks and Recreation, while ensuring safety and security of trail users. The documentation also shall guarantee that the easement would be located in the area specified by the county (a 12 foot wide trail easement from the western edge of parcel #AIN3039011005 to the eastern edge of parcel #AIN3039006021). The project owner shall provide to the CPM updates in the Annual Compliance Report on the status of easement dedication.

LAND-4 The project owner shall enter into a Franchise Agreement with the County of Los Angeles for the following portions of the transmission line that will cross County of Los Angeles public roadways:

- Two crossings over the Sierra Highway
- Four crossings over the Angeles Forest Highway
- One crossing over Vincent View Road

Verification: At least 15 days prior to construction of any of the crossings identified above, the project owner shall provide a copy of the approved Franchise Agreement(s) with Los Angeles County to the CPM.

NOISE AND VIBRATION CONDITIONS OF CERTIFICATION

NOISE-1 At least 15 days prior to the start of ground disturbance, the project owner shall notify all residents within one-half mile of the site and one-quarter mile of the linear facilities, 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-mentioned 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-mentioned 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 the PHPP, the project owner shall document, investigate, evaluate, and attempt to resolve all project-related noise complaints. The project owner or authorized agent shall:

1. use the Noise Complaint Resolution Form (below), or a functionally equivalent procedure acceptable to the CPM, to document and respond to each noise complaint;

2. attempt to contact the person(s) making the noise complaint within 24 hours;

3. conduct an investigation to determine the source of noise related to the complaint;

4. take all feasible measures to reduce the noise at its source if the noise is project related; and

5. 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 RESTRICTIONS

NOISE-4 The project design and implementation shall include appropriate noise mitigation measures adequate to ensure that operation of the project will not cause noise levels due solely to plant operation to exceed an average of ~~40~~42 dBA L_{eq} measured at Measurement Location ML 1, near the residence identified as R2 in **Noise and Vibration Figure 2**. No new pure-tone components may be caused by the project. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints.

The measurement of power plant noise for the purposes of demonstrating compliance with this condition of certification may alternatively be made at a location, acceptable to the CPM, closer to the plant (e.g., 400 feet from the plant boundary) and this measured level then mathematically extrapolated to determine the plant noise contribution at the affected residence. The character of the plant noise shall be evaluated at the affected residential locations to determine the presence of pure tones or other dominant sources of plant noise.

A. When the project first achieves a sustained output of 85 percent or greater of rated capacity, the project owner shall conduct a community noise survey at Measurement Location ML 1 or at closer locations acceptable to the CPM. This survey shall be performed during power plant operation and shall also include measurement of one-third octave band sound pressure levels to determine whether new pure-tone noise components have been caused by the project.

B. If the results from the noise survey indicate that the power plant average noise level (L_{eq}) at Measurement Location ML 1 exceeds the above value, mitigation measures shall be implemented to reduce noise to a level of compliance with this limit.

C. If the results from the noise survey indicate that pure tones are present, mitigation measures shall be implemented to eliminate the pure tones.

Verification: The survey shall take place within 30 days of the project's first achieving a sustained output of 85 percent or greater of rated capacity. Within 15 days

after completing the survey, the project owner shall submit a summary report of the survey to the CPM. Included in the survey report will be a description of any additional mitigation measures necessary to achieve compliance with the above-listed noise limit and a schedule, subject to CPM approval, for implementing these measures. When these measures are in place, the project owner shall repeat the noise survey.

Within 15 days of completion of the new survey, the project owner shall submit to the CPM a summary report of the new noise survey, performed as described above and showing compliance with this condition.

NOISE-5 Following the project's first achieving a sustained output of 85 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.

CONSTRUCTION TIME RESTRICTIONS

NOISE-6 Heavy equipment operation and noisy construction work relating to any project features shall be restricted to the times of day delineated below:

Monday through Friday: 6:00 a.m. to 6:00 p.m.

Haul trucks and other engine-powered equipment shall be equipped with mufflers that meet all applicable regulations. Haul trucks shall be operated in accordance with posted speed limits. Truck engine exhaust brake use shall be limited to emergencies.

Verification: Prior to ground disturbance, the project owner shall transmit to the CPM a statement acknowledging that the above restrictions will be observed throughout the construction of the project.

STEAM BLOW RESTRICTIONS

NOISE-7 If a high-pressure steam blow is employed, the project owner shall equip steam blow piping with a temporary silencer that quiets the noise of steam blows to no greater than 92 dBA measured at a distance of 50 feet. The project owner shall conduct steam blows only during the hours of 8:00 a.m. to 5:00 p.m.

Verification: At least 15 days prior to the first steam blow, the project owner shall submit to the CPM drawings or other information describing the temporary steam blow silencer and the noise levels expected and a description of the steam blow schedule.

PUBLIC HEALTH CONDITIONS OF CERTIFICATION

PUBLIC HEALTH-1 Deleted.

SOCIOECONOMICS CONDITIONS OF CERTIFICATION

Staff has proposed the addition of Condition of Certification **SOCIO-1** as shown below.

SOCIO-1 Prior to the start of project construction, the project owner shall pay the one-time statutory school facility development fee to the Lancaster Elementary School District and the Antelope Valley Union High School District as required by Education Code Section 17620.

Verification: At least 30 days prior to the start of project construction, the project owner shall provide to the Compliance Project Manager (CPM) proof of payment to the Lancaster Elementary School District and Antelope Valley Union High School District of the statutory development fee.

SOIL & WATER RESOURCES CONDITIONS OF CERTIFICATION

Conditions of Certification with respect to soil and water resources are proposed under Conditions of Certification **SOIL&WATER-1** through **SOIL&WATER-9** of this section.

Soil and Water Table 10
Summary of Recommended Modifications to Conditions of Certification

Condition of Certification	Recommended Modifications
SOIL&WATER-1	DRAINAGE, EROSION, AND SEDIMENT CONTROL PLAN: Minor change to update the owner name.
SOIL&WATER-2	CONSTRUCTION – STORM WATER POLLUTION PREVENTION PLAN: Minor change to make consistent with current law.
SOIL&WATER-3	WATER SUPPLY – PLANT CONSTRUCTION: Changed the water supply quality to tertiary-treated recycled water. Changed the recycled water supplier. Minor change to update the owner name.
SOIL&WATER-4	WATER SUPPLY – PLANT OPERATION: Modified the quality of recycled water supplied. Changed the recycled water supplier. Changed to require a copy of the recycled water agreement with the city of Palmdale. Minor change to update the owner name. Changed to require a new water supply acquisition agreement between the project owner and District 40 and a Will-Serve letter issued by District 40 for the PEP potable water supply as a pre-requisite to construction.
SOIL&WATER-5	WATER METERING: Included a new provision for recording the volume of recycled water trucked to PEP. Changed the start date of the reporting year. Minor change to update the owner name.
SOIL&WATER-6	HYDROSTATIC TEST WATER DISCHARGE REQUIREMENTS: Minor change to update the owner name. Called-out an acronym.
SOIL&WATER-7	ZERO LIQUID DISCHARGE SYSTEM REQUIREMENTS: Deleted due to change in power plant design petition to amend (PHPP 2015c).
SOIL&WATER-8	WASTEWATER COLLECTION SYSTEM REQUIREMENTS: Minor change to update the owner name.
SOIL&WATER-9	SEWER SERVICE CONNECTION: Minor change to update the owner name.

DRAINAGE, EROSION, AND SEDIMENTATION CONTROL PLAN

SOIL & WATER-1: Prior to site mobilization, the project owner shall obtain the Compliance Project Manager's (CPM's) approval for a site specific Drainage, Erosion, and Sediment Control Plan (DESCP) that ensures protection of water quality and soil resources of the project site and all linear facilities for both the construction and operation phases of the project. This plan shall address appropriate methods and actions, both temporary and permanent, for the protection of water quality and soil resources, demonstrate no increase in off-site flooding potential, and identify all monitoring and maintenance activities. The project owner shall complete all necessary engineering plans, reports, and documents necessary for the Compliance Project Manager (CPM) to conduct a review of the project and provide a written evaluation as to whether the proposed grading, drainage improvements, and flood

management activities comply with all requirements presented herein. The plan shall be consistent with the grading and drainage plan condition of certification in the Facility Design section and shall contain the following elements:

Vicinity Map: A map shall be provided indicating the location of all project elements (including service utilities and the generator transmission line) with depictions of all significant geographic features to include watercourses, washes, irrigation and drainage canals, major utilities, and sensitive areas.

Site Delineation: The site and all project elements (including service utilities and the generator transmission line) shall be delineated showing boundary lines of all construction areas and the location of all existing and proposed structures, underground utilities, roads, and drainage facilities. Adjacent property owners shall be identified on the vicinity map. All maps shall be presented at a legible scale

Drainage: The DESCP shall include the following elements:

a. Topography. Topography for offsite areas are required to define the existing upstream tributary areas to the site and downstream to provide enough definition to map the existing storm water flow and flood hazard. Spot elevations shall be required where relatively flat conditions exist.

b. Proposed Grade. Proposed grade contours shall be shown at a scale appropriate for delineation of onsite ephemeral washes, drainage ditches, and tie-ins to the existing topography.

c. Hydrology. Existing and proposed hydrologic calculations for onsite areas and offsite areas that drain to the site; include maps showing the drainage area boundaries and sizes in acres, topography and typical overland flow directions, and show all existing, interim, and proposed drainage infrastructure and their intended direction of flow.

d. Hydraulics. Provide hydraulic calculations to support the selection and sizing of the onsite drainage network, diversion facilities and Best Management Practices (BMPs).

Watercourses and Critical Areas: The DESCP shall show the location of all onsite and nearby watercourses including washes, irrigation and drainage canals, and drainage ditches, and shall indicate the proximity of those features to the construction site. Maps shall identify high hazard flood prone areas.

Clearing and Grading: The plan 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, cut/fill depths or other means. The locations

of any disposal areas, fills, or other special features shall also be shown. Existing and proposed topography tying in proposed contours with existing topography shall be illustrated. The DESCP shall include a statement of the quantities of material excavated at the site, whether such excavations or fill is temporary or permanent, and the amount of such material to be imported or exported or a statement explaining that there would be no clearing and/or grading conducted for each element of the project. Areas of no disturbance shall be properly identified and delineated on the plan maps.

Soil Wind and Water Erosion Control: The plan shall address exposed soil treatments to be used during construction and operation of the 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 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.

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.

Best Management Practices: The DESCP shall show the location, timing, and maintenance schedule of all erosion- and sediment-control BMPs to be used prior to initial grading, during project element excavation and construction, during final grading/stabilization, and after construction. BMPs shall include measures designed to control dust and stabilize construction access roads and entrances. The maintenance schedule shall include post-construction maintenance of treatment-control BMPs applied to disturbed areas following construction.

Erosion Control Drawings: The erosion-control drawings and narrative shall be designed, stamped and sealed by a professional engineer or erosion-control specialist.

Agency Comments: The DESCP shall include copies of recommendations, conditions, and provisions from the County of Los Angeles, California Department of Fish and Wildlife (CDFW), and Lahontan Regional Water Quality Control Board (RWQCB).

Monitoring Plan: Monitoring activities shall include routine measurement of the volume of accumulated sediment in the onsite drainage ditches, and storm water diversions.

Verification: The DESCP shall be consistent with the grading and drainage plan as required by Condition of Certification **CIVIL-1**, and shall be approved by the chief

building official (CBO) and (CPM). In addition, the project owner shall do all of the following:

a. No later than sixty (60) days prior to start of site mobilization, the project owner shall submit a copy of the DESCP to the city of Palmdale, County of Los Angeles, and the RWQCB for review and comment. The CBO and CPM shall consider the comments received from the city of Palmdale, County of Los Angeles, and RWQCB in their approval of the DESCP.

b. During construction, the project owner shall provide a monthly compliance report on the effectiveness of the drainage, erosion, and sediment control measures and the results of monitoring and maintenance activities. Reporting the effectiveness shall include a table listing: (1) each drainage, erosion, and sediment control measure; (2) the monitoring frequency of the drainage, erosion, and sediment control measure; and (3) the maintenance performed, if any, to that measure during the monthly reporting period.

c. Once operational, the project owner shall provide in the annual compliance report information on the results of storm water BMP monitoring and maintenance activities.

d. Provide the CPM with two (2) copies each of all monitoring or other reports required for compliance with Los Angeles County, CDFG, and RWQCB.

CONSTRUCTION – STORM WATER POLLUTION PREVENTION PLAN

SOIL&WATER-2: The project owner shall fulfill the requirements contained in State Water Resources Control (*NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities Order No. 2009-0009-DWG, as Modified by 2010-0014-DWQ, NPDES No. CAS000002* and all subsequent revisions and amendments. The project owner shall develop and implement a construction Storm Water Pollution Prevention Plan (SWPPP) for the construction of the project.

Verification: Thirty (30) days prior to site mobilization, the project owner shall submit the construction SWPPP to the CBO and CPM for approval. A copy of the approved construction SWPPP shall be kept accessible onsite at all times.

WATER SUPPLY – CONSTRUCTION WATER

SOIL&WATER-3: The project proposed use of recycled water during construction for dust control and soil compaction shall be disinfected tertiary treated recycled water supplied by the city of Palmdale. Use of this recycled water shall meet the requirements of CCR Title 22, Division 4, Chapter 3 and Title 17; the project owner shall provide the CPM two (2) copies of the executed agreement between the applicant and city of Palmdale for the supply of recycled water. This agreement shall specify all terms and costs for the

receipt and use of recycled water. The project shall not use recycled water from District No. 20 for project construction until this agreement is executed.

Verification: No later than sixty (60) days prior to construction, the project owner shall submit two (2) copies of the executed agreement for the supply and onsite use of disinfected tertiary-treated recycled water ~~from~~ supplied by the city of Palmdale for project construction.

If construction water is provided by a pipeline connected to the Palmdale WRP, then the project owner shall submit to the CPM two (2) copies of the Engineering Report and Cross Connection inspection report and include all comments from the Lahontan RWQCB and the California Department of Public Health (DPH) prior to the delivery of recycled water from District No. 20.

WATER SUPPLY – OPERATION WATER

SOIL&WATER-4: The project's use of water for project operations shall be potable water from the Los Angeles County Department of Public Works (LACDPW) and tertiary-treated recycled water from the city of Palmdale. Use of recycled water shall comply with CCR Title 22, and Title 17. The project owner shall provide the CPM a copy of an agreement demonstrating the city of Palmdale is committed to delivery of recycled water.

As a pre-requisite to construction, the project owner shall provide the CPM a copy of the New Water Supply Entitlement Acquisition agreement between the project power and District 40 demonstrating the necessary fees have been paid and Will-Serve letter for the potable water supply demonstrating the District 40 is committed to delivery of potable water.

Verification: No later than thirty (90) days prior to construction, the project owner shall provide a copy of the executed New Water Supply Entitlement Acquisition agreement and Will-Serve letter for potable water supply from District 40.

No later than thirty (30) days prior to construction, the project owner shall provide a copy of the executed agreement with city of Palmdale for the recycled water supply.

No later than sixty (60) days prior to operation, the project owner shall submit the Engineering Report and Cross Connection inspection report for the recycled water supply to the Lahontan RWQCB, California Department of Public Health (DPH), and CBO. The project owner shall submit to the CPM two (2) copies of the Engineering Report and Cross Connection inspection report and include all comments from the Lahontan RWQCB and California DPH prior to accepting delivery of recycled water

WATER METERING

SOIL&WATER-5: Prior to the connection to a potable or recycled water service, the project owner shall install and maintain metering devices as part of the water supply and distribution system to monitor and record the volume of potable and recycled water supplied to the project. The metering devices shall be operational for the life of the project.

If recycled water is trucked to the project, the project owner shall keep daily logs of the volume of recycled water in each truckload delivered to the project.

A semi-annual summary of the project construction daily maximum, monthly average, monthly total, and annual total water use, differentiating between potable and recycled water, shall be submitted; to the CPM in the annual compliance report.

An annual summary of the project operation daily maximum, monthly average, monthly total, and annual total water use, differentiating between potable and recycled water, shall be submitted; to the CPM in the annual compliance report.

The daily and monthly water use shall be reported; in gallons per day, and the semi-annual and annual water use shall be reported in acre-feet per year. For calculating the total water use, the term "year" begins on January 1.

Verification:

1. At least sixty (60) days prior to use of any water source for project construction and operation, the project owner shall submit to the CPM evidence that metering devices have been installed and are operational on the potable and recycled pipelines serving the project construction and operation. The project owner shall provide a report on the servicing, testing, and calibration of the metering devices in the annual compliance report.

2. Beginning six (6) months after the start of construction, the project owner shall prepare a semi-annual summary of the daily maximum, monthly average, monthly total, and annual total amount of water used for construction purposes.

3. Annually, the project owner shall prepare a summary of the daily maximum, monthly average, monthly total, and annual total water use.

HYDROSTATIC TEST WATER DISCHARGE REQUIREMENTS

SOIL&WATER-6: The **project** owner shall discharge all hydrostatic test water in accordance with the NPDES permit. The project owner shall comply with (LACSD) Wastewater Ordinance requirements for appropriate management of these discharges.

Verification: Prior to the discharge of hydrostatic test water into the LACSD sewer system, the project owner shall do all of the following:

1. Analyze both carbon and non-carbon steel piping test water in accordance with LACSD specified analyses prior to discharge or disposal of the test water;

2. Submit those analyses together with a tabulated summary of the analytical results and corresponding acceptable limits to the CPM for review and the LACSD for approval and a copy to the CBO. If discharge to the sewer system is approved by the LACSD, include a copy of the approval letter in the annual compliance report.

3. If discharge of either the carbon or non-carbon steel piping test water to the sewer system is not approved by the LACSD, then submit a copy of the disposal receipt issued by a water treatment plant in the annual compliance report.

SOIL&WATER-7: Deleted per staff analysis of petition to amend (PHPP 2015c)

WASTEWATER COLLECTION SYSTEM REQUIREMENTS

SOIL&WATER-8: The project owner shall recycle and reuse all process wastewater streams to the extent practicable. Prior to transport and disposal of any facility operation wastewaters that are not suitable for treatment and reuse onsite, the project owner shall test and classify the stored wastewater to determine proper management and disposal requirements. The project owner shall ensure that the wastewater is transported and disposed of in accordance with the wastewater's characteristics and classification and all applicable LORS (including any CCR Title 22 Hazardous Waste and Title 23 Waste Discharges to Land requirements).

Verification: In the annual compliance report, the project owner shall provide the CPM with a report of test results of any wastewater that is not suitable for treatment and reuse onsite, the classification of this wastewater, and documentation of the proper management and disposal of this wastewater, including but not limited to non-hazardous and hazardous waste manifest.

SEWER SERVICE CONNECTION

SOIL&WATER-9: Prior to commercial operation, the project owner shall provide the CPM and the County of Los Angeles Sanitation District No. 20 (Palmdale WRP) all information and documentation required to satisfy LACSD No. 20 Wastewater Ordinance, Master Ordinance and Rate and Mean Loadings Ordinance for the discharge of sanitary wastewater into the LACSD No. 20 sewer system. During operation, any monitoring reports provided to LACSD No. 20 shall also be provided to the CPM. The CPM shall be notified of any violations of discharge limits or amounts.

Verification: At least sixty (60) days prior to commercial operation, the project owner shall submit the information and documentation required to satisfy LACSD No. 20 Wastewater Ordinance, Master Ordinance and Rate and Mean Loadings Ordinance for review and comment, and to the CPM and the CBO for review and approval.

During project operation, the project owner shall submit any wastewater quality monitoring reports required by LACSD No. 20 to the CPM in the annual compliance report. The project owner shall submit any notice of violations from LACSD No. 20 to the CPM within ten (10) days of receipt and fully explain the corrective actions taken in the annual compliance report.

TRAFFIC & TRANSPORTATION CONDITIONS OF CERTIFICATION

TRANS-1 The project owner shall prepare and implement a construction traffic control plan. The traffic control plan must include but not be limited to the following issues:

- Schedule construction activities such that traffic will arrive and depart from the power plant site during non-peak traffic hours to the extent practicable taking into consideration Condition **AQ-SC-6**. During the months of October through March when such scheduling may not be feasible, prepare and distribute a map showing acceptable access routes to the plant site that avoid the SR-14 / Avenue M interchange during peak hours, such as SR-14 to Avenue L east to Sierra Highway south on Sierra Highway to Avenue M and east to the power plant site;
- Make improvements to East Avenue M (e.g. turn and acceleration/deceleration lanes) consistent with the existing project access features to allow for safe arrival/departure to/from the project site;
- Limit heavy equipment and building materials deliveries between 9:30 am and 3:30 pm, per Palmdale General Plan Circulation Element, to minimize impacts and route truck traffic around residential development;
- Provide signing, lighting, and traffic control device placement during construction impacting regional and local roadways;
- Ensure construction traffic avoids using the SR-14 on and off-ramps to East Avenue M and the intersection of Sierra Highway and East Avenue M during peak morning and afternoon traffic periods;
- Traffic diversion plans (in coordination with the cities of Palmdale and Lancaster) to ensure access during temporary lane/road closures;
- Ensure access for emergency vehicles to the project site;
- Ensure pedestrian and bicycle safety from construction vehicle travel routes and any construction-related temporary travel lane closures or disruptions;
- Temporary closure of travel lanes or disruptions to street segments and intersections during reconductoring activities or any other utility tie-ins;
- Establish a parking plan for workers, construction vehicles, and trucks during transmission line and pipeline construction;
- Installation of the natural gas pipeline and water line to occur during nonpeak hours; and
- Use flagging, flag men, signage, and cover open trenches when needed; and
- All road paving activities shall comply with engineering design standards for road development pursuant to guidelines mandated by the Public

Works Departments of the City of Palmdale and the County of Los Angeles as appropriate.

Verification: At least 90 days prior to the start of site mobilization, the project owner shall submit a traffic control plan that outlines each component above to Caltrans and the cities of Palmdale and Lancaster Planning Departments for review and comment and to the Compliance Project Manager (CPM) for review and approval. The project owner shall provide the CPM with any comments from Caltrans and the cities of Palmdale and Lancaster.

TRANS-2 The project owner shall obtain Determinations of No Hazard to Navigable Airspace from the Federal Aviation Administration (FAA) for U.S. Air Force Plant 42 regarding the project's transmission towers, HRSG structure, HRSG stack, combustion turbine enclosures, combustion turbine air inlet filters, combustion turbine oil skid and coolers, steam turbine generator step-up transformer, air cooled condenser, steam turbine generator enclosure, low pressure steam turbine, steam turbine building and construction crane that would penetrate Plant 42's airspace.

Verification: At least 90 days prior to the construction, the project owner shall provide the CPM copies of the FAA Determinations of No Hazard to Navigable Airspace regarding the project structures identified above and the project owner must comply with specific recommendations contained in the FAA determinations.

TRANS-3 The project owner shall comply with Caltrans and other relevant jurisdictions' limitations on vehicle sizes and weights used during construction and operation. In addition, the project owner or its contractor shall obtain necessary transportation permits from Caltrans and all relevant jurisdictions for roadway use.

Verification: The project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

TRANS-4 Pilot Notification and Awareness

The project owner shall initiate the following actions to ensure pilots are aware of the project location and potential hazards to aviation:

(a) Submit a letter to the FAA requesting a Notice to Airmen (NOTAM) be issued advising pilots of the location of the power plant and recommending avoidance of overflight of the project site below 1,500 feet AGL. The letter shall also request that the NOTAM be maintained in active status until all navigational charts and Airport Facility Directories (AFDs) have been updated.

(b) Submit a letter to the FAA requesting a power plant depiction symbol be placed at the power plant site location on the Los Angeles Sectional Chart with a notice to "avoid overflight below 1,500 feet AGL".

(c) Submit a request to and coordinate with the USAF Plant 42 Commander to add a new remark to the Automated Surface Observing System (ASOS) identifying the location of the power plant and advising pilots to avoid direct overflight below 1,500 feet AGL as they approach or depart the airport.

(d) Request The project owner shall submit aerodrome remarks describing the location of the power plant and advising against direct overflight below 1,500 feet AGL to:

1. FAA Airport/Facility Directory - Southwest U.S.

2. Jeppesen (Airway Manual Services – Western U.S. Airport Directory)

3. Airguide Pilot's Guide to California Airports

(e) Install one, non-blinking red aviation obstruction light on each of the project's two, 160-foot tall HRSG stacks, both ends of the 135-foot tall air cooled condenser, and at each corner of the power block area.

Verification: No later than 60 days prior to the start of construction, the project owner shall submit draft language for the letters of request to the FAA (including Southern California TRACON) and Plant 42 to the CPM for review and approval.

Within 60 days after CPM approval of draft language for the letter of request to the FAA (including Southern California TRACON), the project owner shall submit the required letters of request to the FAA and request that Southern California TRACON submit aerodrome remarks to the listed agencies. The project owner shall submit copies of these requests to the CPM. A copy of any resulting correspondence shall be submitted to the CPM within 10 days of receipt. The letters should request a response within 30 days which should include a timeline for implementing the suggested remarks in identified publications and designation on the chart mentioned above. If the FAA does not respond within 30 days, the project owner shall contact the CPM.[1]

TRANS-5 The project owner shall repair any damage to roadways affected be construction activity along with the primary roadways identified in the traffic control plan for construction related traffic to the road's pre-project construction condition.

Verification: At least 90 days prior to the start of site mobilization, the project owner shall photograph, videotape, or digitally record images of the roadways that will be affected by any underground utility connection construction and heavy construction traffic. The project owner shall provide the CPM, Chief Building Official (CBO) or delegate and the cities of Palmdale and Lancaster with a copy of the images for the roadway segments under its jurisdiction. Also prior to start of construction, the project owner shall notify the cities about the schedule for project construction. The purpose of this notification is to postpone any planned roadway resurfacing and/or improvement

[1] The Energy Commission does not have the authority to compel issuance of a NOTAM or require the FAA or U.S. Air Force Plant 42 to publish the location of or remarks regarding the project in any aviation chart or guide, or add that information to the U.S. Air Force Plant 42 ASOS.

projects until after the project construction has taken place and to coordinate construction-related activities associated with other projects.

Within 30 days prior to the commencement of project operations, the project owner shall meet with the CBO and the cities of Palmdale and Lancaster to determine the actions necessary and schedule the repair of identified sections of public roadways and restore the right-of-way (ROW) to original or as near-original condition as possible. Following completion of any road improvements, the project owner shall provide to the CPM and CBO comment letters from the cities of Palmdale and Lancaster stating whether the work completed within public rights-of-way meets city standards. If the CPM and CBO determine that additional work is needed to meet city standards, the CPM will direct the project owner to complete the additional work.

TRANS-6 The project owner shall provide emergency access that complies with the city of Palmdale General Plan Circulation Element and requirements of the Los Angeles County Fire Department.

Verification: At least 90 days prior to the start of construction, the project owner shall provide plans to the Los Angeles County Fire Department and Palmdale Public Works Department for review and comment, and the CPM and CBO for review and approval, which demonstrate that emergency access will be provided in compliance with city of Palmdale and Los Angeles County Fire Department standards. The project owner shall provide the CPM with any comment letters received from the city of Palmdale and/or Los Angeles County Fire Department. Adequate emergency access shall be provided prior to the start of project operations.

TRANS-7 The project owner shall ensure that all necessary permits and/or licenses are secured from the U.S. Department of Transportation, California Highway Patrol, Caltrans and the cities of Palmdale and Lancaster for the transport of hazardous materials.

Verification: The project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

APPENDIX TT-1: PLUME VELOCITY ANALYSIS

Testimony of Nancy Fletcher

INTRODUCTION

The following analysis assesses exhaust stack plume vertical velocities of the proposed PEP, CTGs, HRSGs, and ACC exhaust plumes. Staff completed calculations to determine the worst-case vertical plume velocities at different heights above the ground based on the project owner's proposed facility design, with staff corrections to some of the operational data. The purpose of this appendix is to provide documentation of the method used to estimate worst-case vertical plume velocity estimates to assist evaluation of the project's impacts on aviation safety in the vicinity of the PEP.

SUMMARY OF THE DECISION

On August 10, 2011, the Energy Commission approved the Palmdale Hybrid Power Plant (PHPP), a 570 MW (nominal output) hybrid of a natural gas-fired combined-cycle generating equipment integrated with solar thermal generating equipment. The Final Commission Decision (CEC 2011b) for the PHPP evaluated the potential for thermal plumes to be generated from the two HRSG stacks and a ten-cell cooling tower. The Final Commission Decision concluded the turbine and cooling tower could generate thermal plumes with velocities exceeding the 4.3 m/s threshold up to a height of 990 feet above ground level for the HRGS and 875 feet above ground level for the cooling tower.

PROJECT DESCRIPTION

The proposed PEP would be a natural-gas-fired, combined-cycle, air-cooled electrical generating facility located in the city of Palmdale in the Antelope Valley. The PEP power block would consist of two 214 MW Siemens SGT6-5000F combustion turbines with inlet evaporative cooling and dry low NOx combustors, one 276 MW (nominal base load) Siemens steam turbine, and two heat recovery steam generators (HRSGs) with duct burners. The PEP would employ dry cooling through an air cooled condenser (ACC). The PEP would also include a 110 MMbtu/hr natural gas fired auxiliary boiler, two emergency engines and other ancillary equipment.

PLUME VELOCITY CALCULATION METHOD

SPILLANE APPROACH

Staff uses a calculation approach from a technical paper (Best 2003) to estimate the worst-case plume vertical velocities for vertical turbulence from plumes such as the PEP stacks and cooling system. The calculation approach, known as the "Spillane approach", is based on calm wind conditions to assess average plume vertical velocity as a function of height. Calm wind conditions are considered the worst-case wind conditions for worst case plume rise and velocities. The Spillane approach uses the

following equations to determine vertical velocity for single stacks during dead calm wind (i.e., wind speed = 0) conditions:

(1) $(V*a)^3 = (V*a)_o^3 + 0.12*F_o*[(z-z_v)^2-(6.25D-z_v)^2]$

(2) $(V*a)_o = V_{exit}*D/2*(T_a/T_s)^{0.5}$

(3) $F_o = g*V_{exit}*D^2*(1-T_a/T_s)/4$

(4) $Z_v = 6.25D*[1-(T_a/T_s)^{0.5}]$

Where: V = vertical velocity (meters per second [m/s]), plume-average velocity

a = plume top-hat radius (m, increases at a linear rate of $a = 0.16*(z- z_v)$

F_o= initial stack buoyancy flux m^4/s^3

z = height above stack exit (m)

z_v= virtual source height (m)

V_{exit}= initial stack velocity (m/s)

D = stack diameter (m)

T_a= ambient temperature (K)

T_s= stack temperature (K)

g = acceleration of gravity (9.8 m/s^2)

Individual plumes can be broken into three stages. The first stage describes plume conditions close to the stack exit where the plume momentum remains relatively unaffected by ambient and plume buoyancy conditions. This momentum rise stage describes the plume as it travels to a height of 6.25D. In the second stage, the plume responds to differences between ambient and plume buoyancy conditions. Cooler and less turbulent ambient air interacts with the plume and impacts the plume's vertical velocity. The dilution of the stack exhaust is sensitive to ambient wind speed. Therefore the calm wind conditions are considered to be conservative and yield worst case conditions. In the third stage, the plume rise is largely impacted by the buoyancy of the plume and continues until turbulence within and outside the plume equalizes. This generally takes place at large heights and distances form the stack where the plume vertical velocity is close to zero.

Equation (1) is solved for V at any given height above stack exit that is above the momentum rise stage for single stacks (where z > 6.25D) and at the end of the plume merged stage for multiple plumes. This solution provides the plume-average velocity for the area of the plume at a given height above stack exit; the peak plume velocity would be two times higher than the plume-average velocity predicted by this equation. The stack buoyancy flux (Equation 3) is a prominent part of Equation (1). The calm condition

calculation basis represents the worst-case conditions, and the vertical velocities will decrease substantially as wind speeds increase.

For multiple stack plumes, where the stacks are equivalent as is the case for PEP, the multiple stack plume velocity during calm winds is calculated by staff in a simplified fashion, presented in the Best Paper as follows:

(5) $V_m = V_{sp} * N^{0.25}$

Where: V_m = multiple stack combined plume vertical velocity (m/s)

V_{sp} = single plume vertical velocity (m/s), calculated using Equation (1)

N = number of stacks

This simplified multiple stack plume velocity calculation method predicts somewhat lower velocity values than the full Spillane approach methodology for multiple plumes as given in data results presented in the Best paper (Best 2003). However, for a long linear set of plumes, such as the ACC grid designed for the PEP, it is very unlikely that all plumes can merge fully to allow this velocity given the stack separation and the height/atmospheric conditions needed for them to fully merge. Therefore the use of this approach will likely over predict the combined plume velocities in this case.

MITRE EXHAUST PLUME ANALYZER

On September 24, 2015, the FAA released a guidance memorandum (FAA 2015) recommending that thermal plumes be evaluated for air traffic safety. FAA determined that the overall risk associated with thermal plumes in causing a disruption of flight is low. However, it determined that such plumes in the vicinity of airports may pose a unique hazard to aircraft in critical phases of flight (such as take-off and landing). In this memorandum a new computer model, different than the analysis technique used by staff and identified above as the Spillane Approach, is used to evaluate vertical plumes for hazards to light aircraft. It was prepared under FAA funding and available for use in evaluating exhaust plume impacts.

This new model, the MITRE Corporation's Exhaust Plume Analyzer (MITRE 2012), was identified by the FAA as a potentially effective tool to assess the impact that exhaust plumes may impose on flight operations in the vicinity of airports (FAA 2015). The Exhaust Plume Analyzer was developed to evaluate aviation risks from large thermal stacks, such as turbine exhaust stacks. The model provides output in the form of graphical risk probability isopleths ranging from 10^{-2} to 10^{-7} risk probabilities for both severe turbulence and upset conditions for four different aircraft sizes. However, at this time the Exhaust Plume Analyzer model cannot be used to provide reasonable risk predictions on variable exhaust temperature thermal plume sources, such as cooling towers and air cooled condensers.

The FAA has not provided guidance on how to evaluate the risk probability isopleth output of the Exhaust Plume Analyzer model, but states in their memorandum that they intend to update their guidance on near-airport land use, including evaluation of thermal exhaust plumes, in fiscal year 2016. However, MITRE Corporation is suggesting that a

probability of severe turbulence at an occurrence level of greater than 1 x 10^{-7} (they call this a Target Safety Level) should be considered potentially significant. This is equivalent to one occurrence of severe aircraft turbulence in 10 million flights. For the past 50 years, the MITRE Corporation has provided air traffic safety guidance to FAA, and their recommended Target Safety Level is based on this experience (MITRE 2016).

Additionally, the MITRE model has a probability of occurrence plot limitation. While it provides output for predict plumes up to a maximum height of 3,500 feet above ground, the meteorological data that is used by the model is currently limited to a maximum height of 3,000 feet. Outputs corresponding to the higher altitudes simply reuse the 3,000 foot meteorological data. The model was developed with the assumption that a plume would not rise higher than 3,000-3,500 feet above ground level, and therefore the modeling output was terminated at that height. There is uncertainty if there will be any effort to expand the data set and model to work properly at altitudes above 3,000 feet above ground level at this point. The results obtained by staff using the Spillane approach suggest that this limitation would not apply to the PEP.

At this time staff does not believe the MITRE model should be used for final work products until the significance threshold is verified by the FAA and the model capabilities are enhanced to include other thermal plume sources such as cooling towers and air-cooled condensers.

STAFF ANALYSIS

This appendix uses the Spillane approach method to be consistent with staff assessments done for other projects and because the Spillane approach is described in the FAA materials as providing similar risk assessments for light aircraft. As stated above, staff will consider using the new MITRE method to the extent that it is applicable after conducting further review of the FAA methodology and once FAA develops guidance on how to evaluate the output of the Exhaust Plume Analyzer.

EQUIPMENT DESIGN AND OPERATING PARAMETERS

SIEMENS SGT6-5000F COMBUSTION GAS TURBINE DESIGN AND OPERATING PARAMETERS

The design and operating parameter data for the two 214 MW Siemens SGT6-5000F combustion gas turbine stacks are provided in **Plume Velocity Table 1**. Operating scenarios from four temperatures across the range of operation were selected for evaluation from the manufacturer performance estimate data sheet provided by the project owner in the Petition to Amend (PTA) Appendix 4.1A. Operating parameters chosen to compute worst-case vertical plume velocities include ambient temperatures of 23, 64, 98 and 108 degree Fahrenheit (ºF) at maximum turbine loads without duct burning[2]. The exhaust operating parameters provided in **Plume Velocity Table 1** correspond to full load operation for the corresponding ambient conditions.

[2] Turbine data provided by the vendor indicate a lower stack potential temperature and volumetric flow for cases including duct burning therefore yielding lower potential plume velocities at specified heights.

Plume Velocity Table 1
Siemens CTG Exhaust Parameters

Parameter	Siemens SGT6-5000F			
Stack Height	160 ft. (48.77 meters)			
Stack Diameter	22 ft. (6.71 meters)			
Number of Stacks (#)	2			
CTG Load (%)	100			
Case Number (#)	1	11	16	21
Ambient Temperature (°F)	23	64	98	108
Evaporative Cooling	No	Yes	Yes	Yes
Exhaust Temperature (°F)	195	215	221	223
Exhaust Flow Rate (ACFM)	1,337,241	1,334,691	1,346,870	1,344,061
Exhaust Velocity (ft/sec)/(m/s)	58.6/17.87	58.5/17.84	59.1/18.00	58.9/17.96
Stack Buoyance Flux (m^4/s^3)	518	394	327	309

Source: PHPP 2015g, Staff analysis

AIR-COOLED CONDENSER DESIGN AND OPERATING PARAMETERS

Plume Velocity Table 2 includes/approximates the design and operating parameter data for the ACC for the combined-cycle power block. The ACC stack parameter data submitted by the project owner (PHPP 2016dd) was provided by Siemens and the ACC manufacturer.

Plume Velocity Table 2
ACC Operating and Exhaust Parameters

Parameter	Air Cooled Condenser		
Number of Cells (total)	32		
Cell Height (ft)	130 ft. (39.62 meters)		
Cell Diameter (ft)	36.09 ft. (11 meters)		
Case Number (#)	1	2	3
Ambient Temperature (°F)	23	64	98
Number of Cells in Operation	10	16	32
Outlet Air Temperature (°F)	146.1	145.2	140.1
Exhaust Flow Rate (ACFM)	195,175	321,609	664,699
Exhaust Velocity (ft/sec)/(m/s)	3.2/0.97	5.2/1.60	10.8/3.30

Source: PEP 201X, Staff analysis

PLUME VELOCITY CALCULATION RESULTS

Using the Spillane approach, the plume average vertical velocities at different heights above ground were determined by staff for calm conditions for the proposed CTGs/HRSGs and ACC. As explained in the **Transportation and Traffic** section, a plume average vertical velocity of 4.3 m/s has been determined by staff to be the critical velocity of concern to light aircraft. This is based on the Australian Civil Aviation Safety

Authority (CASA) advisory circular (CASA 2003). Vertical velocities below this level are not of concern to light aircraft.

When two plumes merge, the vertical velocity is expected to decrease slower than plumes that have not merged. Therefore the height at which the vertical velocity decreases below the critical plume velocity of 4.3 m/s could occur at a higher height for merged plumes than plumes that are not merged. Plumes begin to merge when the sum of the radius of one plume and an adjacent plume equals the distance between the two stacks. Plumes are considered fully merged at the height the when the sum of the plume radii is equal to twice the distance between the stacks. Staff evaluated the potential for plume merging using a stack-to-stack distance for the CTGs/HRSGs of approximately 130 feet or 40 meters

Staff calculated plume average vertical velocities for the four operating cases outlined in **Plume Velocity Table 1** for the CTGs and HRSGs. The worst-case predicted plume velocities occur at 100 percent load without duct firing or evaporative cooling at the 23°F ambient temperature scenario. Staff's calculated worst-case plume average velocity values are provided in **Plume Velocity Table 3**. Height above ground is determined by adding the physical stack height to z, the height above stack exit.

The Siemens SGT6-5000F gas turbine plume average velocity is calculated to drop below 4.3 m/s at a height of approximately 820 feet above ground for the single turbine plume (N=1). The plume diameter at this height would be around 62 meters, which would be larger than the distance between the two Siemens SGT6-5000F gas turbine stacks (approximately 40 meters). Therefore the merging of the adjacent turbine plumes should be considered. In the case of two plumes fully merging (N=2), the average velocity is calculated to drop below 4.3 m/s at the height of 1,245 feet above ground.

Plume Velocity Table 3
Siemens Turbine Plume Size (m) and Vertical Plume Velocities (m/s)

Height Above Ground Level (Feet)	Plume Diameter (m) [a]	Number of Merged Stacks	Plume Velocity (m/s)
300	11.76	1.00	8.82
400	21.51	1.00	6.47
500	31.27	1.00	5.54
600	41.02	1.20	5.24
700	50.77	1.45	5.08
800	60.53	1.70	4.96
900	70.28	1.94	4.87
1,000	80.04	2.00	4.69
1,100	89.79	2.00	4.51
1,200	99.54	2.00	4.36
1,300	109.30	2.00	4.22
1,400	119.05	2.00	4.10
1,500	128.80	2.00	3.99
1,600	138.56	2.00	3.90
1,700	148.31	2.00	3.81
1,800	158.07	2.00	3.73
1,900	167.82	2.00	3.65
2,000	177.57	2.00	3.59

Notes:
a – The separation between the two stacks would be about 130 ft (40 m) and the plumes will begin to merge when the plume diameter is the same as the separation and is assumed to be fully merged when the plume diameter is twice the stack separation.

Staff calculated plume average vertical velocities for all three operating cases shown in **Plume Velocity Table 2** for the combined-cycle's air-cooled condenser and determined that the worst-case height at which the plume velocities would drop below 4.3 m/s would occur at the 98°F ambient temperature condition. This result was based on the assumption all cells of the ACC were in operation at the 98°F ambient temperature condition and the plumes from all cells in operation would be fully merged. Staff's calculated worst-case plume average velocity values are provided in **Plume Velocity Table 4**. The combined-cycle air-cooled condenser plume average velocity is calculated to drop below 4.3 m/s at a height of approximately 1,222 feet above ground.

Plume Velocity Table 4
Combined-Cycle Air-Cooled Condenser Vertical Plume Velocities (m/s)

Height Above Ground Level (Feet)	Plume Velocity (m/s)
400	5.19
500	5.54
600	5.38
700	5.17
800	4.96
900	4.77
1,000	4.60
1,100	4.45
1,200	4.32
1,300	4.20
1,400	4.10
1,500	4.00
1,600	3.91
1,700	3.83
1,800	3.75
1,900	3.68
2,000	3.61

It should be noted that additional thermal plume merging between the gas turbine and the air-cooled condenser could occur and increase the plume heights where vertical velocities of 4.3 m/s are exceeded under worst case conditions. The model used for this analysis is not able to add different kinds of thermal plumes together. However, the approach is still conservative given the conservatism built in the model.

In addition, the ACC thermal plume analysis submitted by the project owner followed a different set of assumptions. For cases involving more than two stacks such as the ACC, plume merging can become more complex. The 32 individual cells of the ACC would be arranged in four rows of eight cells (4 x 8 matrix). The analysis provided by the project owner conservatively used an effective stack diameter calculated based on the number of cells in operation for each case. The calculated effective stack diameter represents a single merged cell that is then used with the Spillane methodology. The results provided by the project owner were replicated by staff. Per the project owner's analysis methodology the plume would not be expected to exceed a vertical velocity of 4.3 m/s under worst case conditions, however the single plume would retain the peak vertical velocity at higher altitudes. Both the staff analysis provided above and the project owner analysis result in the predicted vertical velocity from the ACC to be less than the combined cycle.

WIND SPEED STATISTICS

The **Air Quality** section of this document uses meteorological data from Palmdale Air Force Plant 42 Automated Surface Observing System (ASOS) located approximately 2.5 km east-southeast of the PEP site. The wind roses and wind frequency distribution data collected from the ASOS monitoring station are considered to be representative for the project site location. The project owner provides the calm wind speed statistics from the ASOS monitoring station from ground-level meteorological data collected for 2010 through 2014 (PHPP 2015g). Calm winds for the purposes of the reported monitoring station statistics are those hours with average wind speeds below 0.5 m/s. Calm or very low wind speeds can also occur for shorter periods of time within each of the monitored average hourly conditions. However, the shortest time resolution for the available meteorological data is one hour. The annual wind rose data shows calm/low wind speed conditions averaging an hour or longer is 3.82 percent in the site area, or about 335 hours per year.

CONCLUSIONS

The worst case calm wind condition vertical plume average velocities from the proposed Siemens SGT6-5000F combined-cycle turbine stacks are predicted to drop below 4.3 m/s at the height of 1,245 feet assuming two plumes fully merged. The worst case air-cooled condenser plume average velocity is calculated to drop below 4.3 m/s at a height of approximately 1,222 feet. Thus, the thermal plume from the proposed combined-cycle turbines would cause greatest risk to light aircraft.

Also, there is the potential for additional thermal plume merging between the gas turbine stacks and the ACC. This merging could potentially increase the plume heights where vertical velocities of 4.3 m/s are exceeded under worst case conditions. Calm/low wind speed conditions (wind speeds less than 0.5 m/s) conducive to the formation of worst-case thermal plume velocities would occur on average approximately 3.82 percent of the time.

REFERENCES

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FAA 2015 – Federal Aviation Administration Memorandum – Technical Guidance and Assessment Tool for Evaluation of Thermal Plume Impact on Airport Operations (September 24, 2015).

MITRE 2012 – Expanded Model for Determining the Effects of Vertical Plumes on Aviation Safety, Gouldley, Hopper and Schwalbe, MITRE Product MP 120461, September 2012.

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PHPP 2015g – Galati Blek LLP (TN 205520). Revised Petition to Amend (RPTA) Appendices. Submitted to CEC/Docket Unit on July 27, 2015

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VISUAL RESOURCES CONDITIONS OF CERTIFICATION

VIS-1 Deleted

SURFACE TREATMENT OF PROJECT STRUCTURES AND BUILDINGS

VIS-2 The project owner shall also color and finish the surfaces of all non-mirror project structures and buildings visible to the public to ensure that they: (1) minimize visual intrusion and contrast by blending with the landscape; (2) minimize glare; and (3) comply with local design policies and ordinances including special design standards for project development within a scenic highway viewshed pursuant to the city of Palmdale General Plan's Environmental Resources Policy. The transmission line conductors shall be non-specular and non-reflective, and the insulators shall be non-reflective and non-refractive.

The project owner shall submit a Surface Treatment Plan to the Compliance Project Manager (CPM) for review and approval. 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; 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 The construction of the transmission line and towers near Pearlblossom Highway shall implement special design standards (i.e. height limits) pursuant to the city of Palmdale General Plan's Environmental Resources;

E. One set of 11" x 17" color photo simulations at life size scale of the proposed treatment for project structures, including structures treated during manufacture, from the Key Observation Points;

F. A specific schedule for completing the treatment; and

G. A procedure to ensure proper treatment maintenance for the life of the project.

The project owner shall not request vendor treatment of any buildings or structures during their manufacture, or perform final field treatment on any buildings or structures, until the project owner has received Surface Treatment Plan approval by the CPM.

Verification: At least 90 days prior to specifying vendor color(s) and finish(es) for structures or buildings to be surface treated during manufacture, the project owner shall submit the proposed Surface Treatment Plan to the CPM for review and approval and simultaneously to the City of Palmdale Planning Department for review and comment. The project owner shall provide the CPM with the City's comments at least 30 days prior to the estimated date of providing paint specification to vendors.

If the CPM determines that the plan requires revision, the project owner shall provide to 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 Surface Treatment Plan must be submitted to the CPM for review and approval.

Within 90 days after the start of commercial operation, the project owner shall notify the CPM that surface treatment of all listed structures and buildings has been completed and is ready for inspection; and shall submit one set of electronic color photographs from the Key Observation Points. 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.

CONSTRUCTION LIGHTING

VIS-3 The project owner shall ensure that lighting for construction of the power plant is used in a manner that minimizes potential night lighting impacts, as follows:

A. All lighting shall be of minimum necessary brightness consistent with worker safety and security;

B. All fixed position lighting shall be shielded/hooded, and directed downward and toward the area to be illuminated to prevent direct illumination of the night sky and obtrusive spill light beyond the boundaries of the power plant site or the site of construction of ancillary facilities, including any security related boundaries;

C. Wherever feasible and safe and not needed for security, lighting shall be kept off when not in use; and

D. Complaints concerning adverse lighting impacts will be promptly addressed and mitigated.

Verification: Within seven days after the first use of construction lighting, the project owner shall notify the CPM that the lighting is ready for inspection. If the CPM requires modifications to the lighting, the project owner shall implement the necessary modifications within 15 days of the CPM's request and notify the CPM that the modifications have been completed.

Within 10 days 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 10 days after completing

implementation of the proposal. A copy of the complaint resolution form report shall be included in the subsequent Monthly Compliance Report following complaint resolution.

PERMANENT EXTERIOR LIGHTING

VIS-4 To the extent feasible, consistent with safety and security considerations and commercial availability, the project owner shall design and install all permanent exterior lighting such that a) light fixtures do not cause obtrusive spill light beyond the project site; b) lighting does not cause excessive reflected glare; c) direct lighting does not illuminate the nighttime sky; d) illumination of the project and its immediate vicinity is minimized, and e) lighting complies with local policies and ordinances.

The project owner shall submit to the CPM for review and approval and simultaneously to the City of Palmdale Department of Public Works and Planning, Development Services Division for review and comment a Lighting Mitigation Plan that includes the following:

A. A process for addressing and mitigating complaints received about potential lighting impacts;

B. Lighting shall incorporate commercially available fixture hoods/shielding, with light directed downward or toward the area to be illuminated;

C. Light fixtures shall not cause obtrusive spill light beyond the project boundary;

D. All lighting shall be of minimum necessary brightness consistent with operational safety and security; and

E. 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.

Verification: At least 90 days prior to ordering any permanent exterior lighting, the project owner shall contact the CPM to determine the required documentation for 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 City of Palmdale Department of Public Works and Planning, Development Services Division for review and comment a Lighting Mitigation Plan. The project owner shall provide the City's comments to the CPM at least 10 days prior to the date lighting materials are ordered.

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 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 installed and is ready for inspection. If after inspection the CPM notifies 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 10 days 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. A copy of the complaint resolution form report shall be submitted to the CPM within 30 days of complaint resolution.

LANDSCAPING

VIS-5 The project owner shall provide landscaping within the 30 foot setback area between the fence line and East Avenue M/Site 1 Road. The landscaping should be consistent with the conceptual Joshua Tree and Native Desert Vegetation Preservation Chapter 14.04 of the Palmdale Municipal Code (shown on **VISUAL RESOURCES Figure 3B**). The landscaping shall also comply with the city of Palmdale municipal code requirements stipulated in section 18-60.140 (Landscape Development). The project owner shall maintain the landscaping for the life of the project, including providing any needed irrigation, removing debris on an annual or semi-annual basis, and replacing dead or dying vegetation.

The project owner shall submit simultaneously to the City of Palmdale Planning Department for review and comment and to the CPM for review and approval, a landscaping plan whose proper implementation will satisfy these requirements.

The project owner shall not implement the plan until the project owner receives approval of the plan from the CPM. The planting must be completed by the start of commercial operation, and the planting must occur during the optimal planting season.

Verification: Prior to commercial operation and at least 90 days prior to installing the landscaping, the project owner shall submit the Landscaping Plan to the CPM for review and approval and simultaneously to City of Palmdale Planning Division for review and comment. The project owner shall provide the City's comments (if any) 30 days prior to the installation of the landscaping.

If the CPM determines that the plan requires revision, the project owner shall provide to the CPM and city of Palmdale Planning Division a plan with the specified revision(s) for review and approval by the CPM before the plan is implemented.

The project owner shall simultaneously notify the CPM and city of Palmdale Planning Division within seven days after completing installation of the landscaping and is ready for inspection.

The project owner shall report landscape maintenance activities, including replacement of dead or dying vegetation, for the previous year of operation in each Annual Compliance Report.

WASTE MANAGEMENT CONDITIONS OF CERTIFICATION

The existing and modified conditions of certification are adequate to ensure there would be no unmitigated significant impacts.

WASTE-1 The project owner shall implement the following steps at locations where excavation or significant ground disturbance will occur for the construction of the project transmission line. All steps shall be completed at least 60 days prior to the project transmission line construction to prevent mobilization of contaminants and exposure of workers and the public:

- Step 1. Investigate the tower locations and associated laydown and staging areas for construction of the transmission line to determine whether these locations have a record of hazardous material contamination which would affect construction activities. This investigation shall be performed as a Phase I Environmental Site Assessment (ESA). If contamination is identified that could potentially affect the health and safety of workers or the public during construction of the Proposed Project, proceed to Step 2.

- Step 2. Perform a Phase II ESA to characterize the locations and determine the nature and extent of the contamination present at the location before construction activities proceed within the Project Right- of-Way near the suspect site. If it is determined there are conditions that may pose a risk to the health and safety of workers or the public, or could mobilize contamination, then proceed to Step 3.

- Step 3. Prepare a Health Risk Assessment to determine whether risks may be present and a Remedial Action Plan to identify what remedial measures would be required to facilitate linear construction if there were conditions that pose a risk. Mitigate the health and safety risk according to applicable regulations or requirements. This would include preparation and implementation of site-specific Health and Safety Plans, Work Plans, and/or Remediation Plans.

Verification: The project owner shall submit the Phase I ESA, and Phase II ESA, Health Risk Assessment results and other plans, as applicable, to the CPM at least 60 days prior to commencement of transmission lines construction.

WASTE-2 In areas where the land has been or is currently being farmed, and where excavation or significant ground disturbance will occur for the construction of the project transmission line, soil samples shall be collected and tested for herbicides, pesticides, and fumigants to determine the presence and extent of any material levels of contamination.

The sampling and testing plan shall be prepared in consultation with the appropriate Los Angeles County agency, conducted by an appropriate California licensed professional, and sent to a California Certified laboratory for testing. Sampling and analysis shall be consistent with the DTSC's 'Interim

Guidance for Sampling Agricultural Fields for School Sites (Third Revision)' or equivalent. A report documenting the areas proposed for sampling, and the process used for sampling and testing shall be submitted to the Energy Commission for review and approval at least 90 days before transmission line construction occurs in the affected areas.

Results of the laboratory testing and recommended resolutions for handling and excavation of material found to exceed regulatory requirements shall be submitted to the Energy Commission 60 days prior to transmission line construction occurs in the affected areas. Should sampling indicate additional remediation or mitigation is required, Conditions of Certification **WASTE-3** and **-4** would apply.

Excavated materials containing elevated levels of pesticide or herbicide require special handling and disposal according to procedures established by the regulatory agencies. Effective dust suppression procedures shall be used in construction areas to reduce airborne emissions of these contaminants and reduce the risk of exposure to workers and the public. Regulatory agencies for the State of California and Los Angeles County shall be contacted by Applicant or its contractor to plan handling, treatment, and/or disposal options.

Verification: The project owner shall identify the current/previous land use for the project transmission tower locations and associated laydown and staging areas for construction of the transmission line. The project owner shall submit a report documenting the areas proposed for sampling, and the process used for sampling and testing to the CPM for approval at least 90 days before transmission line construction occurs in the affected areas. Results of the laboratory testing and recommended mitigation or remediation plan for handling and excavation of material found to exceed regulatory requirements shall be submitted to the CPM for review and approval 60 days prior to transmission line construction.

WASTE-3 The project owner shall contract with an experienced and qualified Professional Engineer or Professional Geologist, who shall be available for consultation and oversight of earth moving activities throughout all phases of site construction. The Professional Engineer/Geologist shall be given full authority by the project owner to oversee any earth moving activities that have the potential to disturb contaminated soil. Selection of the Professional Engineer/Geologist shall be subject to CPM approval.

Verification: At least 30 days prior to the start of site mobilization, the project owner shall submit the resume of their preferred Professional Engineer or Geologist to the CPM for review and approval. The project owner shall then provide a copy of the contract with the approved Professional Engineer/Geologist prior to the start of site construction activities.

WASTE-4 If potentially contaminated soil is identified during any phase of site construction, including 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 DTSC, 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. The Professional Engineer or Professional Geologist shall contact the project owner, the CPM, and representatives of the DTSC for guidance and oversight in accordance with Condition of Certification **WASTE-3**.

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-5 In the event that contamination is identified during assessment of the project site, during any phase of construction, and if the Project Engineer (PE), Professional Geologist (PG), or CPM reasonably determines that sampling is needed to confirm the nature and extent of contamination, then the Project PE and/or PG shall file a written report to the CPM stating a recommended course of action. If significant contamination (i.e., contamination levels which exceed the EPA Reportable Quantity [RQ] thresholds as listed under the Emergency Planning and Community Right to Know Act [EPCRA]) are identified and which the PG, PE, or CPM reasonably determines may pose a significant risk to workers, the public, or the environment, then the DTSC will be consulted regarding the proposed course of action.

Verification: The project owner shall consult with DTSC, and enter into an agreement at DTSC's request, to ensure oversight of any additional site assessment and remediation work needed to reevaluate the site or address contamination levels above Reportable Quantities, that have been determined to pose a significant risk to workers or the public found during any phase of site construction. The project owner shall ensure that the CPM is involved and appraised of all discussions with DTSC, and CPM review and approval shall be required for project decisions addressing site remediation.

WASTE-6 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 City of Palmdale Building and Safety Department and CPM for review 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 City of Palmdale Building and Safety Department and CPM for review no less than 30 days prior to the initiation of construction activities at the site.

WASTE-7 Upon notification of any impending waste management-related enforcement action 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, and describe how the violation will be corrected.

Verification: The project owner shall notify the CPM in writing within 10 days of becoming aware of an impending enforcement action and provide a description and timeline for correction of the violation. The CPM shall notify the project owner of any changes that will be required in the way project-related wastes are managed to ensure compliance with LORS.

WASTE-8 The project owner shall obtain a hazardous waste generator identification number from the United States Environmental Protection Agency (U.S. EPA) prior to generating any hazardous waste during 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 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

WASTE-9 Deleted

WASTE-10 The project owner shall prepare an Operation Waste Management Plan for all wastes generated during operation of the 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 Palmdale area CUPA – Los Angeles County Fire Department– and DTSC 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-11 Deleted

WASTE-12 Deleted

WASTE-13 The project owner shall ensure that all spills or releases of hazardous substances, hazardous materials, or hazardous waste 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 all unauthorized releases and spills of hazardous substances, materials, or wastes that are in excess of reportable quantities (RQs) that occur on the project property or transmission corridors during construction and on the project property during operation. The documentation shall include, at a minimum, the following information:

- location of release;
- date and time of release;
- reason for release;
- volume released;
- amount of contaminated soil/material generated;
- how release was managed and material cleaned up;
- 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.

Verification: Copies of the unauthorized releases and spill documentation shall be provided to the CPM within 30 days of the date the release was discovered.

WASTE- 14 During the construction phase, project owner shall require contracted waste and/or refuse haulers to document each waste load transferred from the construction site to a disposal site and/or recycling center. The project owner shall be responsible for cleanup debris from local illegal dumping, waste burning, or other activities located within the road paving project footprint. If potentially contaminated soil is identified during any phase of road paving, as evidenced by discoloration, odor, detection by handheld instruments, or other signs, the project owner shall have a registered environmental professional 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, and the CPM stating the recommended course of action.

Verification: The project owner shall identify permitted solid waste facilities or recycling centers that receive roadway waste and maintain copies of weigh tickets and manifests showing the type and volume of waste disposed. This information shall be maintained at the job site and made accessible to the CPM upon request. The project owner shall submit any reports of contamination filed by the Professional Engineer or Professional Geologist to the CPM within 5 days of their receipt.

WORKER SAFETY & FIRE PROTECTION CONDITIONS OF CERTIFICATION

WORKER SAFETY-1 The project owner shall submit to the 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 which shall also include a Heat Stress Protection Plan and a Best Management Practices (BMPs) for the storage and application of herbicides used to control weeds;
- A Construction Emergency Action Plan; and
- A Construction Fire Prevention Plan.

The Personal Protective Equipment Program, the Exposure Monitoring Program, 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 Los Angeles 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. The project owner shall provide a copy of a letter to the CPM from the Los Angeles County Fire Department stating the Fire Department's comments on the Construction Fire Prevention Plan and Emergency Action Plan.

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 which shall also include a Heat Stress Protection Plan and a Best Management Practices (BMPs) for the storage and application of herbicides used to control weeds ;
- An Emergency Action Plan;
- Hazardous Materials Management Program;
- Fire Prevention Program (8 CCR § 3221); and;
- Personal Protective Equipment Program (8 CCR §§ 3401-3411).

The Operation Injury and Illness Prevention Plan, Emergency Action Plan, and Personal Protective Equipment Program shall be submitted to the CPM for review and approval concerning compliance of the program with all applicable Safety Orders. The Operation Fire Prevention Plan and the Emergency Action Plan shall also be submitted to the Los Angeles 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. The project owner shall provide a copy of a letter to the CPM from the Los Angeles County Fire Department stating the Fire Department's comments on the Operations Fire Prevention Plan and Emergency Action Plan.

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 over-all 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, emergency response reports for injuries, and inform the CPM of safety-related incidents; and
- Assure that all the plans identified in **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 **WORKER SAFETY-3**, implements all appropriate Cal/OSHA and 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 30 days prior to the start of construction, the project owner shall provide proof of its agreement to fund the Safety Monitor services to the CPM for review and approval.

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 30 days prior to the start of site mobilization the project owner shall submit to the CPM proof that a portable 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 point for emergency personnel to enter the site. This access point and the method of gate operation shall be submitted to the Los Angeles County Fire Department for review and comment and 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 Los Angeles County Fire Department and the CPM preliminary plans showing the location of a second access point to the site and a description of how the gate will be opened by the fire department. At least (30) days prior to the start of site mobilization, the project owner shall submit final plans to the CPM review and approval. The final plan submittal shall also include a letter containing comments from the Los Angeles County Fire Department or a statement that no comments were received.

WORKER SAFETY-7 The project owner shall provide to the CPM for review a copy of the worker safety plan for reconductoring the transmission lines between the Pearl Blossom and Vincent substations.

Verification: At least 60 days prior to the start of reconductoring, the project owner shall submit to the CPM the worker safety plan for review.

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 obtained when implementing ii (above) exceed 50 micrograms per cubic meter ($\mu g/m^3$).

Verification: At least 30 days prior to the commencement of site mobilization, the enhanced Dust control Plan shall be provided to the CPM for review and approval.

WORKER SAFETY-9 Deleted

WORKER SAFETY-10 The project owner shall report to the CPM within 24 hours of any incidence of heat illness (heat stress, exhaustion, stroke, or prostration) occurring in any worker on-site and shall report to the CPM the incidence of any confirmed case of Valley Fever in any worker on the site within 24 hours of receipt of medical diagnosis.

Verification: The project owner shall provide reports of heat-related and Valley Fever incidences in any worker on the site via telephone call or e-mail to the CPM within 24 hours of a heat-related occurrence or confirmed diagnosis of a case of Valley Fever, and shall include such reports in the Monthly Compliance Report during construction and the Annual Compliance Report during operation.

WORKER SAFETY-11 The project owner shall adhere to all applicable provisions of the latest version of NFPA 850: Recommended Practice For Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations as the minimum level of fire protection. The project owner shall interpret and adhere to all applicable NFPA 850 recommended provisions and actions stating “should” as “shall”. In any situations where both NFPA 850 and the Los Angeles County Fire Code have application, the more restrictive shall apply.

Verification: The project owner shall ensure that the project adheres to all applicable provisions of NFPA 850. At least 60 days prior to the start of construction of the fire protection system, the project owner shall provide all fire protection system specifications and drawings to the Los Angeles County Fire Department for review and comment, to the CPM for review and approval, and to the CBO for plan check and construction inspection.

Engineering Assessment

FACILITY OF DESIGN CONDITIONS OF CERTIFICATION

Following are the existing conditions of certification applicable to the PEP with the following revisions. These revisions include the following:

- The applicable version and section references of the CBSC have been updated to 2013;
- Condition of Certification **GEN-2** has been updated to reflect the equipment proposed for the amended project, as specified in **GEN-2**, **Facility Design Table 2**: **Major Structures and Equipment List**; and
- Condition of Certification **ELEC-1** refers to 13.8-kV systems. The PEP would use Siemens equipment instead of the General Electric equipment selected for PHPP and therefore references to 13.8-kV voltages should be replaced with 18 kV; **ELEC-1** has been revised accordingly.

GEN-1 The project owner shall design, construct, and inspect the project in accordance with the 2013 California Building Standards Code (CBSC), also known as Title 24, California Code of Regulations, which encompasses the California Building Code (CBC), California 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 laws, ordinances, regulations and standards (LORS) in effect at the time initial design plans are submitted to the chief building official (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 2013 CBC, Appendix Chapter 1, § 1.1.3 Scope). All transmission facilities (lines, switchyards, switching stations, and substations) are covered in the conditions of certification in the **Transmission System Engineering** section of this Decision.

In the event that the initial engineering designs are submitted to the CBO when the successor to the 2013 CBSC is in effect, the 2013 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 compliance project manager (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 (2013 CBC, Appendix Chapter 1, § 111, Certificate of Occupancy). 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, 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 within 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)
Raw and Fire Water Storage Tank Foundation and Connections	1
Demineralized Water Tank Foundation and Connections	1
Combustion Turbine Wash Drain Tank Foundation and Connections	2
Closed Cooling Water Fin-Fan Coolers Foundation and Connections	1
Air Cooled Condenser Structure, Foundations and Connections	1
Condensate Return Tank Foundations and Connections	1
Fire Pump Module Foundation and Connections	1
Admin/Control Building Warehouse Structure, Foundation and Connections	1
Water Treatment Module Foundation and Connections	1
Water Treatment Module Area MCC	1
Sampling Container Foundations and Connections	1
Laboratory Container Foundations and Connections	1
STG Power Control Center Foundation and Connections	1
Cycle Chemical Feed Module Foundation and Connections	1
Ammonia Storage Foundation and Connections	1
HRSG Structure, Foundation and Connections	2
CEMS Foundation and Connections	2
Combustion Turbine Generator Foundation and Connections	2
Combustion Turbine Inlet Air Filter Foundation and Connections	2
Fuel Gas Filter/separator Foundation and Connections	2
Fuel Gas Pre-heater Foundation and Connections	2
Rotor Air Cooler Foundations and Connections	2
CT Lube Oil Skid and Coolers Foundations and Connections	2
Auxiliary Transformer Foundation and Connections	2
Generator Step-Up Transformer Foundations and Connections	3
Oil/water Separator Foundation and Connections	1
Emergency Shutdown Generator Foundation and Connections	1
CT Electrical Package	2
MV Switchgear Module Foundation and Connections	2
BOP Power Control Center	1
Air Cooled Condenser Power Control Center	1
Switchyard Module Foundation and Connections	1
Steam Turbine Lube Oil Skid Foundation and Connections	1
Steam Turbine Generator Foundation and Connections	1
Steam Turbine Generator Enclosure/Building Foundations and Connections	1
Generator Circuit Breakers	2
Auxiliary Boiler Foundations and Connections	1

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, in accordance with the 2013 CBC, Section 109. These fees may be based on the value of the facilities reviewed, on hourly rates, or may be otherwise agreed upon by the project owner and the CBO.

Verification: A copy of the contract between the project owner and the CBO shall be submitted to the CPM. 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, structural engineer, or civil engineer, as the resident engineer in charge of the project (2013 California Administrative Code, § 4-209, Designation of Responsibilities). All transmission facilities (lines, switchyards, switching stations, and substations) are addressed in the conditions of certification in the **Transmission System Engineering** section of this Decision.

The resident engineer 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 resident engineer 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 shall have the authority to halt construction and to require changes or remedial work if the work does not meet requirements.

If the resident engineer 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 within a 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 resident engineer and any other delegated engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the resident engineer and other delegated engineer(s) within five days of the approval.

If the resident engineer 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 Decision.

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 (2013 CBC, Appendix Chapter 1, § 104, Duties and Powers of Building Official).

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; and 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 resident engineer 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 (2013 CBC, Chapter 18, § 1803 and Chapter 18A, § 1803A Geotechnical Investigations);

3. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with requirements set forth in the

2013 CBC, Chapter 17, § 1704, Special Inspection (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 resident engineer.

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 (2013 CBC, Appendix Chapter 1, § 115, Stop Work Orders).

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 2013 California Administrative Code, section 4-211, Observation and Inspection of Construction (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 resident engineer 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 within a 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 within a 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, 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 2013 CBC, Chapter 17, Section 1704, Special Inspections; Chapter 17A, Section 1704A, Special Inspections; and Appendix Chapter 1, Section 110, Inspections. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in conditions of certification in the **Transmission System Engineering** section of this Decision.

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. Observe the work assigned for conformance with the approved design drawings and specifications;

3. Furnish inspection reports to the CBO and resident engineer. All discrepancies shall be brought to the immediate attention of the resident engineer for correction, then, if uncorrected, to the CBO and the CPM for corrective action (2013 CBC, Chapter 17, § 1704.2.4, Report Requirements); and

4. Submit a final signed report to the resident engineer, 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 within a 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 (2013 CBC, Chapter 17, § 1704.2.4, Report Requirements). 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 an alternative site approved by the CPM during the operating life of the project (2013 CBC, 1.8.4.3.1, Retention of Plans). 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" files (Adobe .pdf 6.0), 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 investigation reports required by the 2013 CBC, Chapter 18, § 1803.6 Reporting, and § 1803, Geotechnical Investigation.

Verification: At least 15 days (or within a 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 (2013 CBC, Appendix Chapter 1, § 115, Stop Work Orders).

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 2013 CBC, Appendix Chapter 1, section 110, Inspections, and Chapter 17, section 1704, Special Inspections. 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 (2013 CBC, Chapter 17, § 1704.2.4, Report Requirements). 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 (2013 CBC, Chapter 17, § 1703.2, Written Approval).

Verification: Within 30 days (or within a 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 **Facility Design 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 (2013 CBC, Appendix Chapter 1, § 104.1, Duties and Powers of Building Official, 105, Permits);

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 (2013 CBC, Appendix Chapter 1, § 107.5 Retention of Construction Documents

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 (2013 CBC, Appendix Chapter 1, § 107.3.4, Design Professional in Responsible Charge); and

5. Submit to the CBO the responsible design engineer's signed statement that the final design plans conform to applicable LORS (2013 CBC, Appendix Chapter 1, § 107.3.4, Design Professional in Responsible Charge).

Verification: At least 60 days (or within a 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 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 2013 CBC, Chapter 17, section 1704, Special Inspections and Structural Observations.

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 (2013 CBC, Chapter 17, § 1704.2.4, Report Requirements). 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 necessary to obtain the CBO's approval.

STRUC-3 The project owner shall submit to the CBO design changes to the final plans required by the 2013 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 (2013 CBC, Appendix Chapter 1, § 107, Submittal Documents; 2013 California Administrative Code, § 4-215, Changes in Approved Drawings and Specifications).

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 2013 CBC, shall, at a minimum, be designed to comply with H-2 Occupancy Category of the 2013 CBC.

Verification: At least 30 days (or within a 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. 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 (2013 CBC, Appendix Chapter 1, § 107, Submittal Documents; § 110, Inspections; § 105, Permits; 2013 California Plumbing Code, § 301, Materials).

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 (2013 CBC, Appendix Chapter 1, § 107.3.4, Design Professional in Responsible Charge), which may include, but are not limited to:

- American National Standards Institute (ANSI) B31.1 (Power Piping Code);
- ANSI/NFPA Z223.1 (Fuel Gas Piping Code);
- ANSI B31.3 (Chemical Plant and Petroleum Refinery Piping Code);
- ANSI B31.8 (Gas Transmission and Distribution Piping Code);
- NACE R.P. 0169-83;
- NACE R.P. 0187-87;
- 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);
- Los Angeles County codes; and
- City of Palmdale codes.

The CBO may deputize inspectors to carry out the functions of the code enforcement agency (2013, Appendix Chapter 1, § 103.3, Deputies).

Verification: At least 30 days (or within a 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 (2013 CBC, Appendix Chapter 1, § 110, Inspections).

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 within a 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 (2013 CBC, Appendix Chapter 1, § 110.3.7, Energy Efficiency Inspections; § 107.3.4, Design Professionals in Responsible Charge).

Verification: At least 30 days (or within a 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 110 Volts or higher (see a representative list, below) 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 Decision.

A. Final plant design plans shall include:

1. one-line diagram for the 18-kV, 4.16-kV and 480-V systems;
2. system grounding drawings;
3. lightning protection system; and
4. Hazard area classification plan.

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 18-kV, 4.16-kV and 480-V systems;
6. system grounding requirements;
7. lighting energy calculations; and
8. 110 volt system design calculations and submittals showing feeder sizing, transformer and panel load confirmation, fixture schedules and layout plans.

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.

GEOLOGY & PALEONTOLOGY CONDITIONS OF CERTIFICATION

Staff has proposed modifications to Condition of Certification **GEO-1** to require compliance with current design standards. Changes to **PAL-1** and **PAL-8** are also proposed to ensure consistency with current LORS and professional guidelines.

GEO-1 A Soils Engineering Report as required by Section 1803 of the California Building Code (CBC) (2013), or its successor in effect at the time construction of the project were to commence, shall specifically include laboratory test data, associated geotechnical engineering analyses, and a thorough discussion of seismicity; liquefaction; dynamic compaction; compressible soils; corrosive soils; and tsunami. In accordance with CBC, the report must also include recommendations for ground improvement and/or foundation systems necessary to mitigate these potential geologic hazards, if present.

Verification: The project owner shall include in the application for a grading permit a copy of the Soils Engineering Report which addresses the potential for strong seismic shaking; liquefaction; dynamic compaction; settlement due to compressible soils; and corrosive soils; and a summary of how the results of the analyses were incorporated into the project foundation and grading plan design for review and comment by the delegate chief building official (CBO). A copy of the Soils Engineering Report, application for grading permit and any comments by the CBO are to be provided to the CPM at least 30 days prior to grading.

GEO-2 Additional fault investigation shall be performed for the southern end of the natural gas pipeline in conjunction with city of Palmdale approval, in accordance with city of Palmdale General Plan S1.1.7. which requires that utility locations be limited in areas with exposure to faulting, and based on the city of Palmdale General Plan faulting hazards map (Figure LU-4). If the natural gas pipeline crosses the San Andreas fault or any of its splays (Cemetery fault), or if it would be in danger of rupture from intense ground shaking, design shall include appropriate safety features. This shall include a mechanism, such as automatic pressure-sensitive shut-off valves, to cut gas supply in event of pipe rupture.

Verification: A fault investigation report for the southern end of the proposed natural gas line shall be submitted to the CPM at least 60 days prior to start of pipeline construction. Recommendations for further mitigation, beyond automatic shut-off valves, shall be included, as appropriate.

GEO-2A Additional fault investigation shall be performed for the southern end of the natural gas pipeline and transmission line Alternative Route 4 (if selected), in conjunction with city of Palmdale approval, in accordance with city of Palmdale General Plan S1.1.7, which requires that utility locations be limited in areas with exposure to faulting, and based on the city of Palmdale General Plan faulting hazards map (Figure LU-4). If the natural gas pipeline or underground transmission line cross the San Andreas fault or any of its splays (Cemetery fault), or if it would be in danger of rupture from intense ground shaking, design shall include appropriate safety features. This shall

include a mechanism, such as automatic pressure-sensitive shut-off valves, to cut gas supply in event of pipe rupture.

Verification: A fault investigation report for the southern end of the proposed natural gas line and transmission line Alternative Route 4 (if selected) shall be submitted to the CPM at least 60 days prior to start of trenching. Recommendations for further mitigation, beyond automatic shut-off valves, shall be included, as appropriate.

GEO-3 Additional fault investigation shall be performed for the southern end of electric transmission line where it crosses the Llano fault Alquist-Priolo Zone and the San Andreas Fault Alquist-Priolo zone. This investigation shall include sufficient geologic mapping and/or fault trenching to verify that towers would not be directly impacted by fault rupture.

Verification: A fault investigation report for the southern end of the proposed transmission line shall be submitted to the CPM at least 60 days prior to start of transmission line construction. Recommendations for further mitigation, beyond avoiding founding transmission towers directly on fault traces, shall be included, as appropriate.

GEO-4 Additional geotechnical investigation shall be performed for the electric transmission line where it crosses areas of projected liquefaction hazards per the Seismic Hazard Reduction Act. This geotechnical investigation shall be prepared and provided to the city of Palmdale as per the General Plan Safety Element Policy S1.1.1.

Verification: The design-level geotechnical investigation report for the proposed transmission line shall be submitted to the CPM at least 60 days prior to start of transmission line construction.

GEO-5 Additional geologic or geotechnical investigation shall be performed along the southern alignment between the San Andreas Fault and the Vincent substation, to evaluate and mitigate the risk of landslide failure affecting the transmission line towers.

Verification: The design-level engineering geological or geotechnical investigation report for the proposed transmission line shall be submitted to the CPM at least 60 days prior to start of transmission line construction.

PAL-1 The project owner shall provide the Compliance Project Manager (CPM) with the resume and qualifications of its Paleontological Resource Specialist (PRS) for review and approval. If the approved PRS is replaced prior to completion of project mitigation and submittal of the Paleontological Resources Report, the project owner shall obtain CPM approval of the replacement PRS. The project owner shall keep resumes on file for qualified Paleontological Resource Monitors (PRMs). If a PRM is replaced, the resume of the replacement PRM shall also be provided to the CPM for review and approval.

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 Qualified Professional Paleontologist as defined in the Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources by the Society of Vertebrate Paleontology (SVP) (SVP, 2010). 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 PRMs to monitor as he or she deems necessary on the project (PRMs) shall have the equivalent or combination of the following qualifications approved by the CPM:

- 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 to the CPM, whose approval must be obtained prior to initiation of ground disturbing activities.

(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**.** The letter shall state that the identified monitors meet the minimum qualifications for paleontological resource monitoring required by this condition of certification. 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 plant, construction lay down areas, and all related facilities. Maps shall identify all areas of the project where ground disturbance is anticipated. If the PRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the PRS and CPM. The site grading plan and plan and profile drawings for the utility lines would be acceptable for this purpose. The plan drawings should show the location, depth, and extent of all ground disturbances and be at a scale between 1 inch = 40 feet and 1 inch = 100 feet 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 project proceeds in phases, maps and drawings may be submitted prior to the start of each phase. A letter identifying the proposed schedule of each project phase shall be provided to the PRS and CPM. Before work commences on affected phases, the project owner shall notify the PRS and CPM of any construction phase scheduling changes.

At a minimum, the project owner shall ensure that the PRS or PRM consults weekly with the project superintendent or construction field manager to confirm area(s) to be worked the following week, and until ground disturbance is completed.

Verification:

(1) At least 30 days prior to the start of ground disturbance, the project owner shall provide the maps and drawings to the PRS and CPM.

(2) If there are changes to the footprint of the project, revised maps and drawings shall be provided to the PRS and CPM at least 15 days prior to the start of ground disturbance.

(3) If there are changes to the scheduling of the construction phases, the project owner shall submit a letter to the CPM within 5 days of identifying the changes.

PAL-3 The project owner shall ensure that the PRS prepares a Paleontological Resources Monitoring and Mitigation Plan (PRMMP), and submits the PRMMP to the CPM for review and approval. Approval of the PRMMP by the CPM shall occur prior to any ground disturbance. The PRMMP shall be used as the basis of discussion when on-site decisions or changes are proposed. Copies of the PRMMP shall include all updates and 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 2010 and shall include, but not be limited, to the following:

1. Procedures for and assurance that the performance and sequence of project-related tasks, such as any literature searches, pre-construction surveys, worker environmental training, fieldwork, flagging or staking, construction monitoring, mapping and data recovery, fossil preparation

and collection, identification and inventory, preparation of final reports, and transmittal of materials for curation will be performed according to PRMMP procedures;

2. Identification of the person(s) expected to assist with each of the tasks identified within the PRMMP and the conditions of certification;

3. A thorough discussion of the anticipated geologic units expected to be encountered, the location and depth of the units relative to the project when known, and the known sensitivity of those units based on the occurrence of fossils either in that unit or in correlative units;

4. An explanation of why sampling is needed, a description of the sampling methodology and how much sampling is expected to take place in which geologic 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, stopping 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. Approval of the-PRMMP by the CPM shall occur prior to any ground disturbance. 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 Prior to ground disturbance, the project owner and the PRS shall prepare a CPM-approved Worker Environmental Awareness Program (WEAP).

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 purpose of the WEAP is to train project workers to recognize paleontologic resources and identify procedures they must follow to ensure there are no impacts to sensitive paleontologic resources. The WEAP shall include:

1. A discussion of applicable laws and penalties under the law;

2. Good quality photographs or physical examples of vertebrate fossils for project sites containing units of high paleontologic sensitivity;

3. Information that the PRS or PRM has the authority to stop or redirect construction in the event of a discovery or unanticipated impact to a paleontological resource;

4. Instruction that employees are to stop 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.

The project owner shall also submit the training script and, if the project owner is planning to use a video for training, a copy of the training video, with the set of reporting procedures for workers to follow that will be used to present the WEAP and qualify workers to conduct ground disturbing activities that could impact paleontologic resources.

Verification:

(1) At least 30 days prior to ground disturbance, the project owner shall submit to the CPM for review and comment the draft WEAP, including the brochure and sticker. The submittal shall also include a draft training script and, if the project owner is planning to use a video for training, a copy of the training video, with the set of reporting procedures for workers to follow.

(2) At least 15 days prior to ground disturbance, the project owner shall submit to the CPM for approval the final WEAP and training script

PAL-5 No worker shall excavate or perform any ground disturbance activity prior to receiving CPM-approved WEAP training by the PRS, unless specifically approved by the CPM.

Prior to project kick-off and ground disturbance the following workers shall be WEAP trained by the PRS in-person: project managers, construction

supervisors, foremen, and all general workers involved with or who operate ground-disturbing equipment or tools. Following project kick-off, 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. A WEAP certification of completion form shall be used to document who has received the required training.

Verification:

(1) 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 and/or video) offered that month. An example of a suitable WEAP certification completion form is provided below. The MCR shall also include a running total of all persons who have completed the training to date.

(2) If the project owner requests an alternate paleontological WEAP 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 WEAP training prior to CPM authorization.

PAL-6 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 stop 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 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, when construction has been stopped because of a paleontological find.

The project owner shall ensure that the PRS prepares a summary of monitoring and other paleontological activities that will be included in each MCR. The summary will include the name(s) of PRS or PRM(s) active during the month, general descriptions of training and monitored construction activities, and general locations of excavations, grading, and other activities. A section of the report shall include the geologic units or subunits, encountered descriptions of samplings within each unit, and a list of identified fossils. A final section of the report will address any issues or concerns about the project relating to paleontologic monitoring, including any incidents of non-compliance or any changes to the monitoring plan that have been approved by the CPM. If no monitoring took place during the month, the report shall include an explanation in the summary as to why monitoring was not conducted.

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 ten days in advance of any proposed changes in monitoring different from that 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-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; and the PRS' description of the sensitivity and significance of those resources.

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.

PAL-8 The project owner, through the designated PRS, shall ensure that all components of the PRMMP are adequately performed, including collection of fossil material, preparation of fossil material for analysis, analysis of fossils, identification and inventory of fossils, preparation of fossils for curation, and

delivery for curation of all significant paleontological resource materials encountered and collected during project construction. The project owner shall pay all curation fees charged by the museum for fossil material collected and curated as a result of paleontological mitigation. The project owner shall also provide the curator with documentation showing the project owner irrevocably and unconditionally donates, gives, and assigns permanent, absolute, and unconditional ownership of the fossil material.

Within 60 days after the submittal of the PRR, the project owner shall submit documentation to the CPM showing fees have been paid for curation and the owner relinquishes control and ownership of all fossil material.

Certification of Completion
Worker Environmental Awareness Program
Palmdale Energy Project (08-AFC-9C)

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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24.			
25.			

Cultural Trainer: _____ Signature:_____ Date: ___/___/____

PaleoTrainer: _____ Signature:_____ Date: ___/___/____

Biological Trainer: _____Signature:_____ Date:___/___/__ ___

REFERENCES

CBC, 2013 - California Building Code, 2013, California Code of Regulations, Title 24. 2007, California Building Standards Code, Part 2, California Building Code (2013).

CEC 2011b - California Energy Commission (TN 61876). Palmdale Hybrid Power Project Final Commission Decision, August 10, 2011, docketed August 15, 2011.

PHPP, 2015c - Galati Blek LLP/Scott A. Galati (TN 205394-1). Revised Petition to Amend (RPTA), dated July 17, 2015. Submitted to CEC/Eric Veerkamp on July 17, 2015 and docketed on July 20, 2015.

PHPP, 2015u - DayZen LLC/Marie Fleming (TN 206797). Response to CEC Staff Data Request Set No. 1 (1-63), dated November 2015. Submitted to CEC/Docket Unit on November 30, 2015

SVP, 2010 - Society of Vertebrate Paleontology, Impact Mitigation Guidelines Revision Committee Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources (2010).

POWER PLANT EFFICENCY PROPOSED CONDITIONS OF CERTIFICATION

Power Plant Efficiency and staff believes no such conditions are warranted by the proposed amendment and none are proposed

POWER PLANT RELIABILITY PROPOSED CONDITIONS OF CERTIFICATION

Power Plant Reliability and staff believes no such conditions are warranted by the proposed amendment and none are proposed

TRANSMISSION SYSTEMS ENGINEERS 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. Once approved, the project owner shall inform the CPM and CBO of any anticipated changes to the design, and shall submit a detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change to the CPM and CBO for review and approval.

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.

a) Breakers and busses in the power plant switchyard and other switchyards, where applicable, shall be sized to comply with a short-circuit analysis.

b) 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.

c) The project conductors shall be sized to accommodate the full output of the project.

d) Termination facilities shall comply with applicable PG&E interconnection standards.

e) The project owner shall provide to the CPM:

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

ii) A letter stating that the mitigation measures or projects selected by the transmission owners for each reliability criteria violation, for which the project is responsible, are acceptable,

iii) The final SCE Right-of-Way Study, and

iv) A copy of the Federal Energy Regulatory Commission executed LGIA signed by the California ISO, SCE and the project owner.

v) A letter from the DWR indicating that DWR has been consulted with has coordinated the planned outages associated with the replacement and reconductoring of the Pearblossom-Vincent 230 kV line to have no adverse impact to DWR's operations, and determined the outages to be acceptable.

Verification: Prior to the start of construction or start of modification of transmission facilities, 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;

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

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 e);

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) The final SCE Right-of-Way Study, and

g) A copy of the Federal Energy Regulatory Commission executed LGIA signed by the California ISO, SCE and the project owner.

h) A signed letter from the CDWR indicating that the planned outages associated with the replacement and reconductoring of the Pearblossom to Vincent 230 kV line are acceptable.

Prior to the start of construction of or modification of transmission facilities, the project owner shall inform the CBO and the CPM of any anticipated changes to the design that are different from the design previously submitted and approved and shall submit a detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change to the CPM and CBO for review and approval.

TSE-6 The project owner shall provide the following Notice to the California Independent System Operator (California ISO) prior to synchronizing the facility with the California Transmission system:

1. At least one week prior to synchronizing the facility with the grid for testing, provide the California ISO a letter stating the proposed date of synchronization; and

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

Verification: The project owner shall provide copies of the California ISO letter to the CPM when it is sent to the California ISO one week prior to initial synchronization with the grid. The project owner shall contact the California ISO Outage Coordination Department, Monday through Friday, between the hours of 0700 and 1530 at (916) 351-2300 at least one business day prior to synchronizing the facility with the grid for testing. A report of conversation with the California ISO shall be provided electronically to the CPM one day before synchronizing the facility with the California transmission system for the first time.

TSE-7 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.

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”.

REFERENCES

AECOM 2009l – AECOM/ S. Head (tn: 52528). Supplemental Responses from July Committee Conference. Dated 7/22/09. Submitted to CEC/Docket Unit on 7/23/09.

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CALIFORNIA ISO 1998b – California ISO dispatch protocol posted April 1998

CALIFORNIA ISO 2002a – California ISO Grid Planning Standards, February 2002

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CALIFORNIA ISO 2010a – California ISO Interconnection Facilities Study. Dated 11/23/09. Submitted to CEC/Docket Unit on 1/7/10.

CEC 2009v – CEC/ F. Miller (tn: 53631). Response to Committee Order. Dated 10/14/09. Submitted to CEC/Docket Unit on 10/14/09.

CEC 2010b – California Energy Commission (TN 59309). Palmdale Hybrid Power Project Final Staff Assessment, date submitted to CEC/Docket Unit Dec. 22, 2010, docketed Dec. 22, 2015

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COP 2008a – City of Palmdale/ S. Williams (tn: 47383). Application for Certification for the Palmdale Hybrid Power Project. Dated on 07/30/08. Submitted to CEC/ Docket Unit on 08/04/08.

DWR 2009a – Department of Water Resources/ R. Buckingham (tn: 51776). DWR Comments on PHPP Transmission Upgrades. Dated on 6/1/09. Submitted to CEC/ Docket Unit on 6/2/09.

NERC (North American Electric Reliability Council) 2006. Reliability Standards for the Bulk Electric Systems of North America, May 2 2006

PHPP 2015c - Galati Blek LLP, Scott A. Galati (TN 205394-1). Revised Petition to Amend (RPTA), dated July 17, 2015. Submitted to CEC/Eric Veerkamp on July 17, 2015 and docketed on July 20, 2015

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PHPP 2015u - DayZen LLC, Marie Fleming (TN 206797). Response to CEC Staff Data Request Set No. 1 (1-63), dated November 2015. Submitted to CEC/Docket Unit on November 30, 2015

PHPP 2016l – DayZen LLC, Scott A. Galati (TN 210591). Repeated Application for Confidential Designation Palmdale Energy Project CAISO Cluster 8 Phase I Interconnection Study – Addendum # 1, dated March 2, 2016. Submitted to Robert Oglesby, CEC/Docket Unit on March 2, 2016

PHPP 2016m – DayZen LLC, Marie Fleming (TN 210594). Revised Supplemental Response to California Energy Commission Staff Data Request 55 and 58, dated February 26, 2016. Submitted to CEC/Docket Unit on March 2, 2016

PHPP 2016n – DayZen LLC (TN 210610). Revised Transmission System Engineering Drawings. Submitted to CEC/Docket Unit on March 4, 2016

PHPP 2016o – Dayzen LLC, Scott A. Galati (TN 210359). Application for Confidential Designation Palmdale Energy Project CAISO Cluster 8 Phase I Interconnection Study, dated February 11, 2016. Submitted to Robert Oglesby/CEC/Docket Unit on February 17, 2016

PHPP 2016q – DayZen LLC, Marie Fleming (TN 210783). Revised One-Line Drawing No. A01 Revision E. Submitted to CEC/Docket Unit on March 18, 2016

PHPP 2016r – DayZen LLC, Marie Fleming (TN 210797). Revised Supplemental Response to California Energy Commission Staff Data Request 55, dated March 21, 2016. Submitted to CEC/Docket Unit on March 21, 2016

SCE 2009a – Sothern California Edison/ M. Alvarez (tn: 52185). SCE Letter in Response to CEC June 10th Requesting Additional Information for Proposed Project. Dated 6/29/09. Submitted to CEC/ Docket Unit on 6/29/09.

SCE 2009b - Southern California Edison/ J. Kelly (tn: 54366). SCE Letter to Mayor Ledford. Dated 11/19/09. Submitted to CEC/ Docket Unit on 12/7/09.

WECC (Western Electricity Coordinating Council) 2002. NERC/WECC Planning Standards, August 2002

Declarations
&
Resumes

DECLARATION OF
James Adams, Environmental Planner

I, James Adams, declare as follows:

1. I am presently employed by the California Energy Commission in the Environmental Office of the Siting Transmission and Environmental Protection Division as a Planner II.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I help prepare the staff testimony on Traffic and Transportation for the Palmdale Energy Project based on my independent analysis of the Palmdale Energy Project Amendment and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: 5/10/16 Signed: 

At: Sacramento, California

James S. Adams
Environmental Protection Office
California Energy Commission
1516 Ninth Street, MS 40
Sacramento, CA 95814-5504
PH (916) 653-0702, FAX (916) 651-8868
Jim.Adams@energy.ca.gov

12/2009
Present – **Private Consultant**

Provide consulting and analytical services on personal time at the Nuclear Decommissioning Costs Triennial Proceedings at the California Public Utilities Commission or Consent-Based Siting of Nuclear Waste proceeding by the U.S. Department of Energy.

7/2014
Present - **Environmental Planner – Retired Annuitant**

Continue to conduct aviation safety analyses related to glare issues regarding the Ivanpah Solar Electric Generating System and other solar power tower projects. Review applications for certification for power plants that would be located near operating airports. Train newer staff on these and other power plant issues such as high velocity plumes potentially affecting low-flying aircraft.

5/1999
6/2014 **Environmental Planner**

Review applications for certification to acquire permits from the California Energy Commission to build electric generating power plants. Specific technical fields include traffic and transportation. In particular, I have throughout my 15 year career focused on aviation safety issues such as thermal and high-velocity plumes and glint and glare related to power plant siting cases. Recent work involves Ivanpah and Palen Solar Electric Generating Stations. Pilots and air traffic controllers have reported significant glare from the Ivanpah project and I have been the lead analyst for the Environmental Office in investigating this issue. This involves working with the Federal Aviation Administration, Caltrans Aeronautics, NASA Aviation Safety Reporting System, and Clark County (Nevada) Department of Aviation.

11/1997
5/1999 **Energy and Resource Consultant**

Provided clients with technical expertise on various issues related to natural resource use and development. Activities included managing an Intervention by the Redwood Alliance before the California Public Utilities Commission regarding the decommissioning of the Humboldt Bay Power Plant's nuclear reactor.

9/1994--
10/1997 **Senior Analyst - Safe Energy Communication Council (SECC)**

Responsible for developing and/or implementing campaigns on various

energy issues involving the promotion of energy efficiency and renewable energy and advocating less reliance on nuclear power. Managed educational outreach efforts to newspaper editorial writers throughout the U.S. to encourage coverage of energy issues. Participated in meetings and negotiations with key President Clinton administration officials, members of Congress and staff, national coalitions, and grassroots organizations on important energy issues (e.g. U.S. Department of Energy Budget for Fiscal Years 1996-1998). Successfully raised $140,000 from private foundations to support SECC activities.

6/1978--
12/1992 **Principal Consultant - Redwood Alliance**

Provided consulting services to the Alliance; a renewable energy/political advocacy organization. Major responsibilities included managing and/or participating in several interventions/appearances before the California Public Utilities Commission, California Energy Commission, California Legislature, U.S. Congress and the U.S. Nuclear Regulatory Commission. Issues included electric utility planning options, greater reliance on energy efficiency and renewable energy, nuclear power economic analyses, decommissioning cost estimates, and nuclear waste management and disposal.

2/1983--
8/1986 **Natural Resource Specialist**

Assisted private consulting, firms, non-profit corporations and government agencies in various projects related to the enhancement and protection of national forests in Northern California and Southern Oregon. This included contracts with the U.S. Forest Service, Fish and Wildlife Service, National Park Service, the California Coastal Conservancy, and private landowners.

6/1978--
1999 **Consultant/Journalist/Paralegal/Lobbyist**

Throughout the period of work outlined above, I have written a considerable amount of news articles and reports connected to ongoing-projects and issues of personal interest. The legal/administrative interventions have required extensive paralegal work to support attorneys, and technical expertise to identify and assist consultants. In addition, many of the projects required consulting services and lobbying, at the local, state and federal level whenever necessary, as well as working with the print and television media as appropriate.

From 1978 through 1984 1 served on the Board of Directors for two locals non-profit agencies devoted to sustainable community development, Redwood Community Development Council and Redwood Community Action Agency (RCAA). I also was hired on staff at RCAA as a natural resource specialist which is explained more fully above. I am proficient with computers, printers, fax machines and related equipment.

EDUCATION

M.A. Social Science. Political science and natural resources emphasis. California State University at Humboldt. December 1988.

B.A. Political Science. Political and economic aspects of natural resource development, with a particular emphasis in forest ecology and appropriate technology. California State University at Humboldt. June 1978.

Academic Honors.

Member of PI GAMMU MU Honor Society since 1986.

MILITARY SERVICE

7/1969--9/1973 U.S. Navy. Air Traffic Controller (Flight Operations, Control Tower, Radar)
9/1975 - Honorable Discharge.

DECLARATION OF
Matthew Braun

I, Matthew Braun, declare as follows:

1. I am presently employed by the California Energy Commission in the Siting, Transmission and Environmental Protection Division as a Cultural Resources Analyst.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I am familiar with, and have reviewed the analysis and preparation of, staff testimony on **Cultural Resources** for the **Petition to Amend the 2011 Commission Decision for the Palmdale Hybrid Power Project**. Therefore, based on the independent analysis of the Petition to Amend and associated supplements; based on data from reliable documents and sources; and, based on my professional experience and knowledge: I attest to the accuracy of this testimony, and support its conclusions, finding and recommendations hereto.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

   I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: 8/22/16 Signed: Matt Braun

At: Sacramento, California

MATTHEW BRAUN

Cultural Resources Specialist

Academic Background

MA, Anthropology (Archaeology), Northern Illinois University
BS, Anthropology and Psychology, University of Pittsburgh

Professional Experience

Mr. Braun is a Secretary of the Interior qualified prehistoric archaeologist and cultural anthropologist. He has over 9 years of experience conducting archaeological field work, consulting with Native American groups, researching, analyzing, and writing about Native American concerns, archaeology, ethnohistory, anthropology, cultural and ethnographic landscapes and paleontology. Mr. Braun has experience preparing cultural resources technical reports and environmental documents pursuant to applicable federal, state and local regulations in compliance with the National Environmental Policy Act (NEPA), Section 106 and 110 of the National Historic Preservation Act (NHPA), and the California Environmental Quality Act (CEQA).

California Energy Commission.....2014-present

The California Energy Commission is the State Agency responsible for licensing energy facilities 50 megawatt and greater and environmental review is conducted under a CEQA-equivalent Certified Regulatory Program. As a Planner II, Mr. Braun provides independent analyses of prehistoric and ethnographic resources for proposed energy facilities throughout California by conducting fieldwork, report writing, and critical analysis of Applicant proposed impacts and mitigation measures. As a cultural resources analyst with the Energy Commission, Mr. Braun participated in the following projects:

- **Alamitos Generating Station.** Mr. Braun conducted analyses of impacts to ethnographic resources for this natural gas-fired power plant in Long Beach, California.
- **Carlsbad Energy Center Project.** Mr. Braun conducted analyses of impacts to ethnographic and archaeological resources for this natural-gas fired power plant in Carlsbad, California.
- **Argus Cogeneration Project.** Mr. Braun conducted analyses of impacts to ethnographic and archaeological resources from the decommissioning of this coal-fired powered plant in Trona, California.
- **Gateway Generating Station Power Project.** Mr. Braun oversaw portions of the compliance efforts of this natural gas-fired power plant in Antioch, California.
- **Puente Power Proejct.** Mr. Braun conducted analyses of impacts to ethnographic and archaeological resources for this natural-gas fired power plant in Oxnard, California.
- **Mission Rock Energy Center.** Mr. Braun conducted analyses of impacts to ethnographic and archaeological resources for this natural-gas fired power plant in Santa Paula, California.
- **Desert Renewable Energy Conservation Plan.** Mr. Braun conducted analyses of impacts to ethnographic and archaeological resources for this planning document for renewable energy in the California Desert.
- **Palmdale Energy Project.** Mr. Braun conducted analyses of impacts to ethnographic and archaeological resources for this natural-gas fired power plant in Palmdale, California.
- **Pomona Repower Project.** Mr. Braun conducted analyses of impacts to ethnographic and archaeological resources for this natural-gas fired power plant in Pomona, California.

Aspen Environmental Group.....2012-2014

California Energy Commission. Under contract with the CEC as an employee of Aspen, Mr. Braun participated in the following projects:

- **Rio Mesa Solar Electric Generating Facility, Cultural Resources Staff Assessment (2012-2013).** Mr. Braun conducted analyses of impacts to archaeological resources, ethnographic resources and ethnographic landscapes through fieldwork, archival research and interviews with local Native American tribal representatives from the area near the 3,960 acre 500 MW solar concentrating thermal plant located on the Palo Verde Mesa near Blythe, California. Important resource issues included impacts to trail systems, prehistoric archaeological sites, plant and animal resources, and other elements that are part of a Native American tribe's ethnographic landscape. This was a large, complex project, coordinated with other solar projects and with Native American representatives from the Fort Mojave Tribe, the Chemehuevi Tribe, the Colorado River Indian Tribes, the Agua Caliente Band of Cahuilla Indians, and the Fort Yuma Quechan Tribe.

- **Hydrogen Energy California, Cultural Resources Staff Assessment (HECA) (2012-present).** Mr. Braun conducted analyses of impacts to ethnographic resources and ethnographic landscapes through consultation with local Native American Tribal representatives and archival research of the area near the 453 acre 400 MW Integrated Gasification Combined Cycle (IGCC) power plant and associated linear facilities. Important resources include known and unknown burials, traditional gathering and hunting areas, and other ethnographic resources. This project was coordinated with the Department of Energy and Native American representatives from the Tejon Indian Tribe and the Tubatalabals of Kern County.

- **Palen Solar Electric Generating Facility, Cultural Resources Staff Assessment (2013).** Mr. Braun is conducting analyses of impacts to ethnographic resources through fieldwork, archival research and interviews with Native American tribal representatives from the area near the 3,794 acre concentrating solar thermal plant located near Desert Center, California. He is the lead author of the ethnographic technical report, and co-author to the Staff Assessment issued by the CEC. Important resource issues include impacts to cultural landscapes, components of which include trail systems, archaeological sites, plant and animal resources, rock art and earth figures, among intangible spiritual and religious values. This is a large, complex project coordinated with other solar projects and with Native American representatives from the Chemehuevi Tribe, Colorado River Indian Tribes, Fort Mojave Tribe, Fort Yuma Quechan Tribe, Cocopah Indian Tribe, Morongo Band of Cahuilla Indians, San Manuel Band of Mission Indians, Agua Caliente Band of Cahuilla Indians, Cabazon Band of Mission Indians, and Soboba Band of Luiseño Indians.

- **Desert Renewable Energy Conservation Plan, southern CA desert (DRECP) (2013-present).** The goal of this planning project is to generate an efficient and effective biological mitigation and conservation program providing renewable project developers with permit timing and cost certainty under the federal and California Endangered Species Acts while at the same time preserving, restoring and enhancing natural communities and related ecosystems. The DRECP Plan Area consists of approximately 22.5 million acres of federal and non-federal California desert land in Imperial, Inyo, Kern, Los Angeles, Riverside, San Bernardino, and San Diego counties. Mr. Braun is an author of the Cultural Resources and Tribal Interest chapters of the associated EIR/EIS (BLM and CEC lead agencies).

- **Genesis Solar Energy Project, Cultural Resources Compliance (2010-2014).** Mr. Braun reviewed all of the licensees' submittals and actions related to compliance with cultural resources conditions of certification and providing recommendations to staff regarding acceptability. The GSEP is a large, complex project for which cultural resources compliance review has been coordinated with other

solar projects, with BLM as the federal lead agency, and with local Native American tribal representatives. This effort included reviewing more than 3100 daily monitoring logs, 30 monthly compliance reports, and more than 950 DPR forms associated with the collection of more than 2700 artifacts.

Western Power Administration, Desert Southwest Region. Under contract with WAPA as an employee of Aspen, Mr. Braun participated in the following project:

- **Parker-Blythe Transmission Line 1 & 2, Cultural Resources Survey (2014).** Mr. Braun co-led an archaeological field crew in re-recording 56 archaeological sites, and providing recommendations concerning the NRHP eligibility of these resources. Important resources included trails, lithic scatters, petroglyphs, intaglios, ceramics, and cleared circles. The transmission line is located on land managed by the Colorado River Indian Tribes, several different BLM field offices, and the BOR, and this project required coordination for permits and fieldwork.

Other California projects

- **Renewable Energy General Plan Amendment, Opportunities and Constraints Study (2013-present).** Inyo County is proposing to amend their General Plan to designate some lands for renewable energy development. As part of this amendment, an Opportunities and Constraints Technical Study was conducted to identify areas of the County that would be less likely to impact cultural resources. Mr. Braun worked closely with GIS specialists to construct cultural resources sensitivity maps to identify those less sensitive areas.
- **California Valley Solar Ranch, Cultural and Paleontological Resources Compliance (2012-2013).** The CVSR project is a 250 MW solar photovoltaic power plant on the Carrizo Plain in rural San Luis Obispo County. The solar arrays for the project will cover nearly 2,000 acres. Mr. Braun served as an assistant technical reviewer for cultural resources and paleontology during the compliance process. Duties included the review of licensees' submittals and actions related to compliance with cultural resources and paleontological conditions of approval and providing recommendations to San Luis Obispo County regarding acceptability.
- **Renewable Energy General Plan Amendment, Opportunities and Constraints Study (2013-present).** San Luis Obispo County is proposing to amend their General Plan to designate some lands for renewable energy development. As part of this amendment, an Opportunities and Constraints Technical Study was conducted to identify areas of the County that would be less likely to impact cultural resources. Mr. Braun worked closely with GIS specialists to construct cultural resources sensitivity maps to identify those less sensitive areas.
- **Santa Margarita Quarry Expansion Project, Environmental Impact Report (2013-present).** The Santa Margarita Quarry is an aggregate quarry along the Salinas River in San Luis Obispo County, and is proposing to expand existing operations by approximately 50 acres and is applying for a Conditional Use Permit to expand. A Reclamation Plan is also being proposed, and Mr. Braun is authoring the corresponding cultural and paleontological resources EIR section and conducting Native American outreach with those groups interested in the project.
- **Donnell Basin Flood Control Project, Initial Study and Mitigated Negative Declaration (2013).** Mr. Braun conducted archaeological survey of the 65 acre Donnell Basin and co-authored the technical report. Donnell Basin is an area proposed by the San Bernardino Flood Control District to be used for overflow in the Twenty-nine Palms area. Important resource issues included a prehistoric quarry and built-environment resources.

- **Mission Channel and Zanja Creek Routine Maintenance Project, Technical Report and Mitigated Negative Declaration (2014-present).** Under contract with the Department of Public Works, Flood Control District Mr. Braun conducted a cultural resources record search, and is the co-author a technical report and IS/MND sections associated with vegetation management, channel shaping, slope repairs and sediment removal along approximately 8 miles of the Mission Channel/Zanja Creek in Redlands, CA. The Mission Channel/Zanja Creek was built in 1819 and is listed on the National Register of Historic Places.
- **Costa Photovoltaic Solar Energy Facility, Cultural Resources Reconnaissance Survey and Technical Report (2013).** Mr. Braun conducted a cultural resources reconnaissance survey and co-authored a technical report in support of a CEQA review and preparation of an Initial Study for a proposed 170 acres solar energy facility on private land in Kings County, California. Cultural resources identified and evaluated include segments of an historic irrigation canal.
- **Gales Photovoltaic Solar Energy Facility, Cultural Resources Reconnaissance Survey and Technical Report (2013).** Mr. Braun conducted a cultural resources reconnaissance survey and co-authored a technical report in support of a CEQA review and preparation of an Initial Study for a proposed 20 acre solar energy facility on private land in Kings County, California. Cultural resources identified and evaluated include segments of two historic irrigation canals.
- **Venable Photovoltaic Solar Energy Facility, Cultural Resources Reconnaissance Survey and Technical Report (2013).** Mr. Braun conducted a cultural resources reconnaissance survey and co-authored a technical report in support of a CEQA review and preparation of an Initial Study for a proposed 20 acre solar energy facility on private land in the City of Blythe, Riverside County, California.
- **Zuni Photovoltaic Solar Energy Facility, Cultural Resources Reconnaissance Survey and Technical Report (2013).** Mr. Braun conducted a cultural resources reconnaissance survey and co-authored a technical report in support of a CEQA review and preparation of an Initial Study for a proposed 20 acre solar energy facility on private land in the town of Apple Valley, San Bernardino County, California.
- **Desert Harvest Solar Project (CEQA-equivalent document) (2012).** Under contract with EDF Renewable Energy, Mr. Braun assisted senior cultural resources staff with writing the cultural resources, Native American concerns, and paleontology sections of the Desert Harvest EIS. The proposed project is a 1,280 acre 150 MW photovoltaic generating facility in the Chuckwalla Valley near Desert Center, California.

Argonne National Laboratory (Environmental Sciences Division) 2010-present

The Environmental Sciences Division at Argonne conducts environmental analyses in compliance with NEPA and other applicable environmental regulations. The main Argonne Campus is located in Lemont, Illinois with satellite branches in Denver, Colorado and Washington, D.C.

- **Programmatic Environmental Impact Statement for Solar Energy Development in Six Western States (2010-2012).** Under contract with the BLM, Mr. Braun provided technical expertise by developing, synthesizing, and interpreting prehistoric and historic contexts, ethnohistoric contexts, paleontological contexts and Native American concerns in order to assess the impacts to these resources at the programmatic level and a more focused Solar Energy Zone level. The six western states that were analyzed in this study were California, Nevada, Arizona, Utah, New Mexico, and Colorado. This research involved archival studies, communication and coordination with cooperating partners in the BLM, National Park Service (NPS), State Historic Preservation Officers (SHPO), as well

as Native American tribal governments, and responding to and addressing comments from cooperators and the public.

- **Oil Shale and Tar Sands Programmatic Environmental Impact Statement (2011-2012).** Mr. Braun assisted senior cultural resource staff in updating a Class I survey based on GIS data from SHPOs in Wyoming, Colorado and Utah for the BLM. Through the analysis of this data, a predictive model was developed in determining the probability of encountering significant archaeological sites in the affected areas proposed for oil shale and tar sands development.
- **Generic Environmental Impact Statements for License Renewals for the Nuclear Regulatory Commission (NRC) (2010-2012).** Under contract with the Nuclear Regulatory Commission, Mr. Braun conducted archival and site specific analyses for impacts related to the relicensing of NRC permitted facilities for the Diablo Canyon Nuclear Power Plant (California), the Davis Besse Nuclear Power Station (Ohio), and the Grand Gulf Nuclear Station (Mississippi).
- **2012-2012 Outer Continental Shelf Oil and Gas Programmatic Environmental Impact Statement (2012).** Mr. Braun conducted archival research related to whaling practices by indigenous groups on the North Slope, the Chukchi Sea and the St. Lawrence Island regions of Alaska. This information was then used to analyze potential impacts that off-shore oil and gas leases issued by the Bureau of Ocean Energy Management, Regulation and Enforcement would have on indigenous whaling practices.
- **Uranium Leasing Program Programmatic Environmental Impact Statement (2012).** Mr. Braun conducted research analyzing potential impacts to cultural resources in uranium mining lease tracts in Colorado. This research was conducted in conjunction with the Department of Energy which issues the leasing permits and the Colorado and Utah SHPOs.
- **Long-Term Monitoring Strategies for Cultural and Natural Resources Affected by Utility Scale Solar Energy Development on BLM lands (2011).** Mr. Braun collaborated in a multi-disciplinary group to develop strategies for the protection and monitoring of significant resources affected by large-scale solar energy projects on BLM land in California, Nevada, Arizona, Utah, New Mexico and Colorado.
- **National Register of Historic Places Evaluation of Five Test Grids and Buildings at Dugway Proving Ground, Dugway, Utah (2011).** Under contract with the Department of Defense, Mr. Braun conducted field work and evaluations of historic properties related to the chemical and biological weapons testing that occurred at Dugway Proving Ground in the post-World War (WW) II and Cold War Eras. Evaluations were conducted of large-scale grids which were laid out in a pattern to collect sampling information about the rate of dispersal and efficacy of the agent being tested from the air or the ground, as well as evaluations of a naval gun and a WW II Era tar-paper structure.
- **National Register of Historic Places Evaluation of the Intense Pulsed Neutron Source (IPNS) at Argonne National Laboratory, Argonne, Illinois (2012).** Under the direction of senior cultural resources staff, Mr. Braun conducted research related to the history of neutron studies at Argonne and other facilities to evaluate the significance of the IPNS located at Argonne. The IPNS was the first neutron accelerator of its kind constructed in the world, and this user-facility provided physicists extensive knowledge regarding the behavior of high-speed neutron activity.
- **Phase I Cultural Resources Survey for the Materials Design Laboratory at Argonne National Laboratory, Argonne, Illinois (2010).** Mr. Braun assisted senior cultural resources staff in planning, conducting and authoring a Phase I survey for cultural resources potentially affected by construction of the Materials Design Laboratory and ancillary facilities.

American Resources Group.....(2012)

American Resources Group is a cultural resources firm based out of Carbondale, Illinois.

- **Keystone XL Pipeline Phase I Cultural Resources Survey (2012).** Mr. Braun conducted a pedestrian survey in Eastern Nebraska for a re-alignment of the controversial Keystone XL Pipeline.

Professional Affiliations and Training

- Section 106 Agreement Documents (National Preservation Institute, 2012)
- Consultation and Protection of Native American Sacred Lands (National Preservation Institute, 2012)
- NEPA and the National Historic Preservation Act (ICF, 2013)
- CEQA and Historic Resources (CPF, 2013)
- UXO Hazards Training

DECLARATION OF
HUEI-AN (ANN) CHU

I, Huei-An (Ann) Chu, declare as follows:

1. I am presently employed by the California Energy Commission in the Engineering Office of the Siting, Transmission and Environmental Protection Division as an Air Resources Engineer.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I prepared the staff testimony on **Public Health** for the **Palmdale Energy Project Amendment**, based on my independent analysis of the Petition to Amend and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and, if called as a witness, could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: 8/17/2016

Signed: Huei-An Chu

At: Sacramento, California

Huei-An (Ann) Chu

1516 Ninth Street, MS-46, Sacramento, CA 95815
Phone: **(916) 651-0965** , Email: Ann.Chu@energy.ca.gov

EDUCATION

PhD, Environmental Sciences and Engineering, 05/2006
School of Public Health, University of North Carolina at Chapel Hill
Area of Specialization: Environmental Risk Assessment, Environmental Management and Policy, Risk-Based Regulation, Biostatistics, Environmental Epidemiology

MEM, Environmental Management, 05/2000
School of Forestry and Environmental Studies, Yale University, New Haven, CT

MS, Environmental Engineering, 06/1998
National Taiwan University, Taipei, Taiwan

BA, Geography, with honors, 06/1996
National Taiwan University, Taipei, Taiwan

SKILLS

Language: Fluent in Chinese and English.

Computer software and programming skills: HARP, SAS, Stata, Minitab, ArcGIS, ArcView, ArcInfo, Stella, Crystal Ball, ISC, ERMapper, Microsoft Excel, PowerPoint, Word.

WORK EXPERIENCE

Air Resources Engineer, California Energy Commission, 1/12/2012 - Present
- Independently performs responsible, varied analyses assessing air quality and public health impacts of energy resource use and large electric power generation projects in California.
- Model air quality and public health impacts of stationary sources using HARP (Hot Spot Analysis and Reporting Program).
- Identify air quality and public health impacts of stationary sources and measures to mitigate these impacts following California Environmental Quality Act and regulations of US EPA (including the National Environmental Policy Act), ARB, and the Districts.
- Collect, analyze, and evaluate data on the effects of air pollutants and power plant emissions on human health, and the environment.
- Ensure conditions of certification are met and recommending enforcement actions for violations.

Research Associate, Taiwan Development Institute, 10/01/2010 – 12/31/2011
- Provided professional consultation for the environmental risk assessment of Taiwan's techno-industrial development initiatives
- Reviewed the environmental risk assessment reports of Taiwan's techno-industrial development initiatives
- Presented in various distinguished lecturer series about environmental risk assessment

Consultant, Chu Consulting, 08/2007 - 07/2010
- Conducted a cumulative risk assessment to evaluate the risk associated with the emissions of VOCs from a petrochemical plants in southern Taiwan
- Used EPA's ISC3 model (based on Gaussian dispersion model) to simulate the dispersion and deposition of VOCs from this petrochemical plant to the neighboring areas, then used ArcGIS to spatially combine the population data and VOC simulation data (and further calculated risks)

- Built a framework of risk-based decision making to set the emission levels of VOCs to reduce people's exposure and the risk of experiencing health problems
- Presented in conference: SRA 2007
- Awarded: CSU-Chico BBS Faculty Travel Funds (2007)

Environmental Justice Intern, Clean Water for North Carolina (CWFNC), Summer, 2005
- Reviewed and critiqued key state environmental policies and the federal EPA Public Participation Policy.
- Interviewed impacted communities, member organizations of the NC Environmental Justice Network, state policy officials about how those policies are actually implemented.
- Wrote a report about the survey and review of environmental justice needs for key state policies.
- Report Publication: "Achieving Environmental Justice in North Carolina Public Participation Policy" (Aug, 2005).

Volunteer, New Haven Recycles and Yale Recycling, 08/1998 – 05/2000
- Promoted recycling and conservation
- Checked trash cans (chosen randomly) and recycling bins at each entryway of residential college, then gave grades.

Volunteer, Urban Resource Initiative (URI), Summer, 1998
- Planted trees for local community of New Haven for a better and sustainable environment

RESEARCH EXPERIENCE

Postdoctoral Research

Department of Public Health Sciences, University of California, Davis, 07/01/2010 - present
Research advisor: Dr. Deborah H. Bennett and Dr. Irva Hertz-Picciotto
- Work on two projects: NIEHS-funded ***Childhood Autism Risks from Genetics and Environment (CHARGE)*** and EPA-funded ***Study of Use of Products and Exposure Related Behavior* (*SUPERB)***.
- Perform statistical and quantitative analyses with SAS to analyze collected house dust data and children's urine concentrations of metabolites.
- Conduct exposure assessment to investigate if pesticides, flame retardants, and phthalates are risk factors for children autism.
- Conduct exposure assessment to explore the relationships between children's exposure to phthalate, benzophenone-3 (oxybenzone), triclosan, and parabens, and the use of personal care products.
- Produce scholarly peer-reviewed publications of methodology and findings, and write the final reports of both projects.

Carolina Environmental Program, University of North Carolina at Chapel Hill, 01/01/2006 – 12/31/2006
Research advisor: Dr. Douglas J. Crawford-Brown
- Applied a framework of risk-based decision-making to perchlorate in drinking water. (Awarded: SRA Annual Meeting Travel Award 2006)
- Conducted a material and energy flow analysis (MEFA) to quantify the overall environmental impact of Bank of America operations, and quantitatively analyze the strategies BOA might adopt to reduce these impacts and achieve sustainability. (Report Publication: "Environmental Footprint Assessment")

Doctoral Research, 08/2000-12/2005

Department of Environmental Sciences and Engineering, School of Public Health, University of North Carolina at Chapel Hill
Research advisor: Dr. Douglas J. Crawford-Brown
- Dissertation topic: "**A framework of Risk-Based Decision Making by Characterizing Variability and Uncertainty Probabilistically: Using Arsenic in Drinking Water as an Example**".
- Conducted risk assessment for arsenic in drinking water.
- Conducted theoretical analysis on the variability and uncertainty issues of risk assessment.

- Conducted a meta-analysis to improve dose-response assessment.
- Conducted analytical and numerical analysis to build a new framework of risk-based decision-making which can be applied coherently across the regulation decisions for different contaminants.
- Presented in conferences: APPAM (2004), SRA (2004, 2005 and 2006), DESE Seminar (2005), CEP Symposium on Safe Drinking Water (2006).
- Awarded: SRA Annual Meeting Student Travel Award (2004 & 2005), UNC-CH Graduate School Travel Grants (2004), UCIS Doctoral Research Travel Awards (2002).

Master's Research

School of Forestry and Environmental Studies, Yale University, 08/1999 - 06/2000
Research advisor: Dr. Xuhui Lee
- Master's project: "**Forest Stand Dynamics and Carbon Cycle**".
- Research project: "Monitoring Forest CO_2 Uptaking"
- Used remote sensing (ERMapper) to investigate the role of forest in the uptake of CO_2.
- Awarded from Teresa Heinz Scholars for Environmental Research Program (2000) and Klemme Award (1999).

Graduate Institute of Environmental Engineering, National Taiwan University, 06/1996 - 06/1998
Research advisor: Dr. Shang-Lien Loh
- Master's thesis: "**The Loads of Air Pollutants from Urban Areas on a Neighboring Dam and its Water Quality**"
- Research Projects: "Research on Air Pollutant Deposition in Urban Areas" and "the Fate and Flow of Recyclable Materials"
- Used Gaussian's Dispersion model (ISC3) to investigate the loads of air pollutants on dam water.

TEACHING EXPERIENCE

Lecturer

Department of Environmental Studies, California State University at Sacramento
- Environmental Politics and Policy, Fall 2011

Department of Geological & Environmental Science, California State University at Chico
- Environmental Risk Assessment, Spring 2009 & 2010
- Applied Ecology, Spring 2008
- Pollution Ecology, Fall, 2007

Department of Geography & Planning, California State University at Chico
- Seminar in Applied Geography & Planning – Environmental Regulation and Policy, Fall, 2007

Department of Forestry and Environmental Resources, North Carolina State University
- Environmental Regulation, Fall, 2006

Teaching Assistant

Department of Environmental Sciences and Engineering, UNC-Chapel Hill
- Environmental Risk Assessment, Spring, 2002
- Introduction to Environmental Science, Fall, 2001
- Analysis and Solution of Environmental Problems, Fall, 2001

Lab Instructor

Department of Environmental Sciences and Engineering, UNC-Chapel Hill
- Biology for Environmental Science, Fall, 2000

Graduate Institute of Environmental Engineering, National Taiwan University
- Water Quality Analysis, Fall, 1997

AWARDS and HONORS

- CSU-Chico BBS Faculty Travel Funds, 2007
- Member of Society of Risk Analysis (SRA), 2006-2008
- SRA Annual Meeting Student Travel Award, 2004-2006
- UNC-CH Graduate School Travel Grants, 2004
- Member of Association for Public Policy Analysis and Management (APPAM), 2004-2005
- UCIS Doctoral Research Travel Awards, 2002
- Graduate Student Teaching and Research Assistantships, 2000-2005
- Teresa Heinz Scholars for Environmental Research Program, 2000
- Yale Forestry & Environmental Studies, Klemme Award, 1999

PUBLICATIONS (SELECTED LIST)

Huei-An Chu*,* Deborah H. Bennett, Irva Hertz-Picciotto, "Phthalates in relation to autism and developmental delay: Exploratory analyses from the CHARGE Study". (In preparation)

Huei-An Chu*,* Deborah H. Bennett, Irva Hertz-Picciotto, "Peronal Care Products: Possible Sources of Children Phthalate Exposure". (In preparation)

Huei-An Chu and Douglas J. Crawford-Brown, "A Probabilistic Risk Assessment Framework to Quantify the Protectiveness of Alternative MCLs for Arsenic in Drinking Water", *Journal of American Water Works Association*. (Being revised)

Huei-An Chu and Douglas J. Crawford-Brown, "Letter to the Editor: Inorganic Arsenic in Drinking Water and Bladder Cancer: A Meta-Analysis in Dose-Response Assessment", *International Journal of Environmental Research and Public Health*, 2007, 4(4), 340-341.

Huei-An Chu and Douglas J. Crawford-Brown, "Inorganic Arsenic in Drinking Water and Bladder Cancer: A Meta-Analysis in Dose-Response Assessment", *International Journal of Environmental Research and Public Health* 2006, 3(4), 316-322.

S.L. Lo and **H.A. Chu**, "Evaluation of Atmospheric Deposition of Nitrogen to the Feitsui Reservoir in Taipei", *Water Science & Technolog*y, 2006, 53(2), 337-344.

CSE Consulting and the UNC Carolina Environmental Program (CEP), "Environmental Footprint Assessment", Report for Bank of America, Aug, 2006.

Huei-An Chu, "Achieving Environmental Justice in North Carolina Public Participation Policy", Report for Clean Water for North Carolina (CWFNC), Aug, 2005.

Huei-An Chu, "Arsenic and its Health Implications", Report for University Center for International Studies Graduate Travel Awards, 2002.

PRESENTATIONS (SELECTED LIST)

Guest Speaker, "Human Health Risk Assessment – Arsenic in Drinking Water as an Example". Tunghai University, Taichuang, Taiwan. (December 16th, 2010)

Guest Speaker, "Environmental Problems in Developing Countries", Course Title: Developing Countries, Department of Economics, CSU-Chico (October 31st, 2008)

"Cumulative Risk Assessment for Volatile Organic Compounds (VOCs) from Petrochemical Plants in Southern Taiwan". Oral Presentation in Society of Risk Analysis (SRA) 2007 Annual Meeting, San Antonio, TX. (December, 2007)

Guest Speaker, "Arsenic in Drinking Water", Course Title: Environmental Geology, CSU-Chico. (November 13th, 2007)

"Risk-Based Environmental Regulation for Arsenic in Drinking Water", Oral Presentation in Department of Environmental Health Seminar, East Tennessee State University (February 2nd, 2007)

"A Framework of Risk-based Decision Making by Characterizing Variability and Uncertainty Probabilistically: Using Arsenic in Dinking Water as an Example", Oral Presentation in Society of Risk Analysis (SRA) 2006 Annual Meeting, Baltimore. MD. (December, 2006)

"A New Policy Tool to Choose Water Quality Goals under Uncertainty", Poster Presentation in Society of Risk Analysis (SRA) 2006 Annual Meeting, Baltimore. MD. (December, 2006)

"A framework of Risk-Based Decision Making by Characterizing Variability and Uncertainty Probabilistically: Using Arsenic in Drinking Water as an Example", Oral Presentation for National Center for Environmental Assessment (NCEA), Environmental Protection Agency (EAP). (October 26th, 2006)

"Probabilistic Risk Assessment for Arsenic in Drinking Water", Poster Presentation in Carolina Environmental Program (CEP) 2006 Symposium on Safe Drinking Water, Chapel Hill, NC. (March, 2006)

"Probabilistic Risk and Margins of Safety for Water Borne Arsenic", Poster Platform Presentation in Society of Risk Analysis (SRA) 2005 Annual Meeting, Orlando, FL. (December, 2005)

"Using Meta-Analysis in Dose-Response Analysis – Risk Assessment of Arsenic in Drinking Water as an Example", Poster Platform Presentation in Society of Risk Analysis (SRA) 2004 Annual Meeting, Palm Springs, CA. (December, 2004)

DECLARATION OF
Christopher Dennis, PG,CHg

I, **Christopher B. Dennis**, declare as follows:

1. I am presently employed by the California Energy Commission for the in the Environmental Office of the Siting, Transmission and Environmental Protection Division as an Engineering Geologist.

2. My professional qualifications and experience are attached hereto and incorporated by reference herein.

3. I helped prepare the Staff Testimony on **Soil and Water Resources** for the Palmdale Energy Project based on my independent analysis of the Application for Certification and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: August 17, 2016 Signed: C.B.D.

At: Sacramento, California

CHRISTOPHER DENNIS, JD, PG, CHg

EXPERIENCE SUMMARY

Mr. Dennis is a licensed Professional Geologist and Certified Hydrogeologist with the State of California, and a California Qualified Stormwater Practioner/Developer. Mr. Dennis has over 22 years of professional technical and management experience. Fourteen of those years, he worked in private industry as a consultant. For the last seven years, he has worked in the Energy Commissions Siting, Transmission and Environmental Protection Division. Mr. Dennis has been a portfolio manager for several major oil companies and the East Bay Municipal Utility District. He actively managed Unocal CERT, ExxonMobil, and ChevronTexaco pipeline, service station, bulk fueling, and terminal sites.

EDUCATION/REGISTRATION/CERTIFICATIONS

Pepperdine Law School, Certificate in Dispute Resolution, 1997
Whittier College of Law, J.D., 1996
California State University, Fullerton, B.S. Geology, 1989
Certified Hydrogeologist, State of California #963
Professional Geologist, State of California #7184
Qualified Stormwater Practioner/Developer #767
OSHA-SARA 40-Hour Hazardous Waste Activity Training 29 CFR 1910.120

PROFESSIONAL HISTORY

2007 to Current California Energy Commission, Engineering Geologist
2004 to 2007 Science Applications International Corporation, Senior Geologist
2004 to 2004 Bay Consulting Services, LLC, Principal
2001 to 2004 Cambria Environmental Technology, Inc., Office Manager, Senior Geologist
2000 to 2001 Alisto Engineering, Inc, Senior Geologist
1998 to 2000 Alton Geoscience-TRC, Inc., Senior Geologist
1993 to 1995 GeoResearch, Inc., Project Manager
1990 to 1993 AeroVironment, Inc., Staff Geologist
1989 to 1990 Applied Geosciences, Inc., Technician

2007 to Current, California Energy Commission, Sacramento, CA
Engineering Geologist
Siting, Transmission, and Environmental Protection Division

One of the primary functions of the Energy Commission is CEQA review of license applications to build and operate power plants 50 MW and greater in California. In the Energy Commission's Engineering Office, Mr. Dennis helps fulfill this function by working through and managing a wide variety of CEQA and environmental policy issues. The product of this effort is expressed in expert testimony and staff analysis for siting new power plants and power plant compliance activity. His testimony and analyses cover soil and water resource management, waste management, geological hazards, and paleontological resource management. He participates as a technical speaker at public workshops as needed.

He has worked on simple-cycle, combined cycle, cogeneration, geothermal, and large-scale thermal solar power plants, and is familiar with most of the major power plants in construction and operation in California today. He has conducted construction and operation compliance inspections at many of these plants. Mr. Dennis also works on the Energy Commission's water policy, having help bring it to the foreground with his final staff assessment for the Abengoa Solar project license. When issues involving Energy Commission or state policy, Mr. Dennis participates in meetings with his deputy director where he provides input on his assessments and recommendations.

A list of power plant siting cases for which he has authored assessments, in whole or in part follows: Abengoa Solar (Solar Thermal), Chevron USA (Natural Gas), CPV Sentinel (Natural Gas), Imperial Solar

(Solar Thermal), Ivanpah SEGS (Solar Thermal), Palmdale Hybrid (Natural Gas-Solar Thermal), Quail Brush (Natural Gas), Rio Mesa SEGF (Solar Thermal), and San Joaquin Solar (Solar Thermal-Biomass). Mr. Dennis also works on power plant construction and operation compliance, some of which are: Abengoa Solar, Colusa, CPV Sentinel, Elk Hills, geothermal power plants, Henrietta, Inland Empire, Ivanpah SEGS, La Paloma, Marsh Landing, MountainView, TID Almond, SEGS III-VII, SEGS VII & IX, and Sutter.

Mr. Dennis has developed a broad knowledge of CEQA/NEPA impact analysis and mitigation involving water resources, water quality, soil resources, erosion hazards, geologic resources and hazards, paleontological resources, and waste management. The assessments he has authored involve basin-wide water management, basin overdraft, water quality, water conservation, recycled water, water transfers, groundwater recharge, flood potential, and wind/water soil erosion. He has worked on groundwater basin modeling, basin water balance estimates, and evaluations of groundwater drawdown impacts to groundwater quality, biology, and other groundwater users. He has also evaluated potential impacts from geologic hazards related to faults, earthquake related ground shaking, landslides, subsidence, compressive and expansive soils, and flood potential.

Mr. Dennis manages the Energy Commission's Quarterly Fuel and Energy Reporting (QFER) program for the water use and wastewater generation of all power plants 20 MW and greater in California. He designed the forms used to collected the QFER water and wastewater data and developed a database to manage the data collected, and through the course of this data collection effort, developed constructive working relationships with plant operators. The QFER water and wastewater information collected is used by news agencies, federal and state agencies, and members of the public.

Mr. Dennis trains and manages students to assist him with the QFER data collection and power plant construction and operation compliance oversight. He has been frequently asked to act as the Unit Supervisor when the supervisor is away on vacation, and works with other Energy Commission employees and government agencies on focused tasks and to resolve issues.

2004 to 2007, Science Applications International Corporation, Sacramento, CA
Senior Geologist/Project Manager
Consultant for Chevron, Northern California

Mr. Dennis managed environmental compliance for several former crude oil and Bunker C pipeline right-of-way and pump stations sites within the Central California region. He consolidated all groundwater monitoring and sampling for the portfolio into one program and managed that program. He developed and implemented new written field QA/QC procedures for the entire portfolio of sites, and developed and implemented an analytical laboratory evaluation plan. He also initiated low-flow groundwater sampling from wells and the use of pre-packed filter screens in open boreholes to reduce water turbidity in samples collected, allowing laboratory detection limits to be low enough for polynuclear aromatic hydrocarbon impacted groundwater risk-assessment evaluation. He initiated a crude oil remediation study for the portfolio. Mr. Dennis also developed workplans and conducted subsurface soil and groundwater investigations and prepared reports documenting the results of those investigations. He developed a soil vapor survey workplan and installed multiple completion soil vapor wells. He also worked with a GIS team to incorporate all pertinent site data into a web-based GIS and geo-reference the GIS as appropriate. This portfolio required a significant amount of front-end planning and coordination. Mr. Dennis developed and managed all site budgets and billing, and performed annual staff reviews. As a senior project manager, Mr. Dennis was the geologist in responsible-charge for the work performed by other geologist in the office and while conducting work in the field.

2004 to 2004, Bay Consulting Services, LLC, Rocklin, CA
Consultant/Principal Owner

Mr. Dennis developed the company from a concept to a viable business. Provided environmental consulting services for Chevron Corp. projects and other environmental companies. Completed several closure requests with Tier I/II risk analysis. Conducted company billing and accounting.

2001 to 2004, Cambria Environmental Technology, San Ramon and Rocklin, CA
Senior Geologist/Office Manager
Consultant for Chevron and East Bay Municipal Utility District

Mr. Dennis started Cambria's Rocklin office and grew that office to a staff of over 12 in less than a year through initiative and hard work. He worked as a liaison for the client and regulators, developed and managed all site budgets and billing, and performed annual staff reviews, hiring, and employment termination.

Chevron, Northern California. Mr. Dennis managed environmental compliance for a portfolio of 40 to 60 Chevron Corp. service stations and bulk fuel plants in Northern California. He developed workplans and conducted subsurface soil and groundwater investigations for these sites, some of which were located in the sensitive Lake Tahoe area. Each site was unique with its own operational history and hydrogeologic conditions. He achieved regulatory closure of over 30 Chevron sites by application of active remediation and by demonstration that attenuation processes would naturally cleanup the refined fuel products in the soil and groundwater.

To bring these sites to regulatory closure, Mr. Dennis initially prepared workplans to develop an understanding of the site history, hydrogeologic conditions, and to identify the extent, concentration, and type of fuel product in the subsurface associated with the site. The workplans included regulatory record searches, aerial photographs evaluations, the design of soil borings and groundwater monitoring well networks for subsurface geology and aquifer characterization. Mr. Dennis then conducted site investigations pursuant to these regulatory approved workplans.

The site investigations included the drilling soil borings, logging of soil borings, and the collection of soil samples from the vadose zone, capillary fringe, and saturated zones for chemical and physical analyses and grab-groundwater samples for chemical analyses. Based on these results and field judgment, Mr. Dennis was responsible for the completion of soil vapor extraction wells and groundwater monitoring wells in accordance with industry guidelines and best professional practice. He also was the geologist in responsible-charge for the preparation of reports that evaluated the data collected and made conclusions and recommendations based on the results of the evaluation. As a senior project manager, Mr. Dennis was the geologist in responsible-charge for the work performed by other geologist in the office and while conducting work in the field.

Mr. Dennis helped develop and received State Underground Storage Tank (UST) Fund pre-approved for approximately 100 low-risk ChevronTexaco sites as part of a management transfer initiative. He also worked with Caltrans on a freeway (CA I-80) expansion project that required excavation and dewatering beneath a former Chevron site. Mr. Dennis worked with Caltrans to build into the Caltrans request for bid specifications for handling petroleum impacted excavated soils and water. As a result of this effort, the expansion project is now complete and the former Chevron site remediated.

East Bay Municipal Utility District, Northern California. Mr. Dennis brought to Cambria a three-year, $275K/yr maximum EBMUD contract. The contract focused on pre-trenching activity soil sampling/analysis for potential contaminant identification and soil disposal. He developed a small group of professionals to manage this portfolio. As part of this project, Mr. Dennis managed several EPA SW-846 statistical soil analysis projects at District landfill sites with volumes up to approximately 180,000 cubic yards of landfilled soil. He created and surveyed statistical grids on the landfills and characterized the soil for removal to Class III or Class II landfills. He also conducted site investigations and quarterly groundwater monitoring projects at EBMUD facilities at the Camanche and Pardee Reservoirs.

2000 to 2001, Alisto Engineering, Lafayette, CA
Senior Geologist/Project Manager
Consultant for Caltrans and Industrial Facilities

Caltrans, Northern California. Mr. Dennis conducted site investigations at Caltrans sites and conducted statistical analyses of the soil from the shoulders of several Caltrans highways in Southern California. He performed the statistical analyses to determine hazard levels of lead in the soil, which would assist in soil management planning in proposed highway construction corridors. The statistical analyses were performed on sample populations ranging from approximately 80 to 300.

Industrial Facilities, Northern California. Mr. Dennis also conducted site investigations at several industrial sites in Northern California. He developed storm water pollution prevention plans (SWPPPs) for development projects in downtown San Jose and a Caltrans project along CA I-680. Mr. Dennis worked as a liaison for clients and regulators, and developed and managed all site budgets and billing for both the industrial facilities and Caltrans projects.

1998 to 2000, Alton Geoscience-TRC, Concord, CA
Senior Geologist/Project Manager
Consultant for ExxonMobil and Quick Stop Markets

ExxonMobil and Quick Stop Markets, Northern California. Mr. Dennis managed environmental compliance for a portfolio of ExxonMobil and Quick Stop Markets service station and bulk fuel plant sites. He developed workplans and conducted subsurface soil and groundwater investigations. Mr. Dennis achieved regulatory closure of over 30 of these sites by application of active remediation and demonstration that attenuation processes would naturally cleanup the refined fuel products in the soil and groundwater. Site investigations included the drilling and logging of soil borings, and collection of soil samples from the vadose, capillary fringe, and saturated zones for chemical and physical analyses and grab-groundwater samples were collected for chemical analyses. Based on these results and field judgment, Mr. Dennis was responsible for the completion of soil vapor extraction wells and groundwater monitoring wells in accordance with industry guidelines and best professional practice. He was also responsible for the preparation of reports that evaluated the data collected and made conclusions and recommendations based on the results of the evaluation. Mr. Dennis also managed the application of high vacuum, dual-phase (soil vapor and groundwater) extraction at several of these sites.

Notably, after two years of negotiations, technical presentations, and meetings, Mr. Dennis secured the recession of a RWQCB cleanup and abatement order and site closure for a former bulk plant on the sensitive Napa River. This bulk fuel plant was one of several along the river and where the tidal influences on the river affected the petroleum product in the groundwater. Plumes of liquid and dissolved phase hydrocarbons were present in the groundwater at adjacent sites and at the subject site.

1993 to 1995, Project Manager, GeoResearch, Long Beach, CA
Staff Geologist/Project Manager
Consultant for Unocal CERT

Unocal CERT, Southern California. Mr. Dennis managed environmental compliance for a portfolio of Unocal CERT projects in Southern California. He developed workplans and conducted subsurface soil and groundwater investigations for these sites. He frequently utilized mobile laboratories to assist in the placement of soil borings, vapor extraction, and groundwater wells. He conducted risk assessments, site assessments, tanks pulls, station demolitions, aquifer and vapor extraction tests, and remediation system designs and installations.

1990 to 1993 Staff Geologist, AeroVironment, Monrovia, CA
Staff Geologist/Project Manager
Consultant for Industrial Sites and Air Force Base Projects

Industrial Sites and Air Force Base Projects, Southern California. Mr. Dennis managed industrial projects and participated on government projects as a project geologist. He was a team leader during field documentation over 400 former homestead sites at Edwards AFB using GPS technology. This documentation included well locations, archaeological finds, and biological concerns. Mr. Dennis helped develop a database to manage all the data collected. He also conducted groundwater sampling according to AFCEE protocols and conducted soil-vapor and geophysical surveys at Vandenberg AFB. He was a member of the design team of a mobile soil-vapor laboratory that housed a gas chromatograph for sample analysis, and was lead designer of an insitu soil-vapor sample collection system. Mr. Dennis also managed two field teams for monitoring landfill vapor emissions and subsurface migration at active San Bernardino and Riverside County operated landfills, wrote the standard operating procedures for the fieldwork, conducted field training, and prepared quarterly AQMD reports. He also developed the contract for and managed quarterly groundwater monitoring and sampling at the Powerine Oil Refinery in Santa Fe Springs.

PUBLICATIONS

2007 and 2011 Integrated Energy Policy Report, California Energy Commission (one of many authors)
California Energy Commission Final Staff Assessments
Numerous Phase I Environmental Site Assessments
Numerous Groundwater Monitoring Reports
Numerous Site Investigation Workplans
Numerous Site Investigation and Remediation Reports

AWARDS

California Energy Commission Superior Accomplishment Award, 2010 and 2014

DECLARATION OF
Nancy Fletcher

I, **Nancy Fletcher**, declare as follows:

1. I am presently employed by the California Energy Commission in the Engineering Office of the Siting Transmission& Environmental Protection Division as an Air Resources Engineer.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I helped prepare the staff testimony on **Air Quality/Greenhouse Gas** and **Traffic and Transportation** for the Palmdale Energy Project based on my independent analysis of the Application for Certification and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: 9-2-2016 Signed: 

At: Sacramento, California

NANCY L. FLETCHER

nancy.fletcher@energy.ca.gov

PROFESSIONAL EXPERIENCE

CALIFORNIA ENERGY COMMISSION

Air Resources Engineer (**02/12-Present):** Perform air quality review of new power plant applications and amendments for existing plants, analyze project impacts on air quality including the impacts of greenhouse gases with respect to climate change, perform thermal plume analysis, determine project conformance with applicable federal, state and local laws, ordinances, rules and standards, investigate and recommend appropriate mitigation measures, prepare staff assessments and technical testimony, develop and monitor air quality compliance plans, and develop, recommend and implement planning and policy initiatives for the Energy Commission and the State.

YOLO-SOLANO AIR QUALITY MANAGEMENT DISTRICT

Associate Air Quality Engineer (01/07-01/12): Performed air quality analysis for Authority to Construct, Permit to Operate, Federal Operating Permit, and Emission Reduction Credit applications, reviewed analysis for consistency with local, state and federal regulations, developed and amended local rules and regulations, performed health risk assessments, managed public outreach, conducted public workshops, incorporated state and federal statues into policy, performed inspections for a full range of manufacturing, industrial, commercial and agricultural facilities, supported source testing, and chaired a working group with other local agencies designed to provide a forum for information sharing for consistent engineering analysis and rule development.

Assistant Engineer (08/04-01/06): Developed and amended local rules, drafted a model ordinance, attended local planning meetings to provide technical support, conducted public workshops, performed public outreach, developed standard procedures and policies, performed database QA/QC, reviewed permits and re-evaluated as necessary.

Engineer Technician (02/01-01/02): Prepared reports, updated records, researched and compiled information from files and databases, answered public inquiries and processed public information requests.

BLOCK ENVIRONMENTAL SERVICES

Environmental Engineer (03/00-02/01): Developed Risk Management Programs, performed Phase I site assessments, produced Health and Safety Plans, coordinated multi-agency remediation projects, conducted indoor air quality analysis, completed property investigations, updated the website, and provided support for a local environmental organization.

UNIVERSITY OF CALIFORNIA, BERKELEY

Laboratory Assistant (05/99-03/00): Researched alkali-silica reactions in concrete. Analysis included microscopy and x-ray diffraction.

Engineering Aide (01/00-02/00*)*: Evaluated the denitrification process in wetlands. Laboratory work included ion chromatography.

Teacher's Assistant (08/99-12/99): Prepared course materials, directed labs, led discussions, held office hours, lectured, and graded coursework.

EDUCATION AND CERTIFICATES

UNIVERSITY OF CALIFORNIA, BERKELEY

B.S. Environmental Engineering Science, Geology Minor, May 2000
Approved Cluster: Pollutant Transport and Exposure

Engineer-In-Training, 24 hr HAZWOPER, UC Extension Courses -Introduction to Greenhouse Gas Management, Careers in Public Health, and Aspiring Supervisor Skills, ARB and CAPCOA Trainings.

DECLARATION OF
Alvin Greenberg, Ph.D.

I, **Alvin Greenberg, Ph.D.** declare as follows:

1. I am presently a consultant to the California Energy Commission, Siting, Transmission, and Environmental Protection Division.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I helped prepared the staff testimony on **Hazardous Materials Management and Worker Safety/Fire Protection** for the modified **Palmdale Energy Project** (08-AFC-09C), based on my independent analysis of the Petition for Amendment dated July 27, 2015 and supplements hereto, responses to staff data requests, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

   I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: Aug. 10, 2016 Signed: _____

At: San Rafael, California

Risk Science Associates

37 Mt. Whitney Dr., Suite A, San Rafael, Ca. 94903
office 415-472-6056 cell 415-302-0438
e-mail agreenberg@risksci.com

Alvin Greenberg has a B.S. from the University of Illinois, Urbana, and a Ph.D. from the University of California San Francisco. He conducted postdoctoral research in neurotoxicology and served as an Assistant Professor at UCSF. He also attended the prestigious Lovelace Institute of Inhalation Toxicology in 1980 and is Board Certified as a Qualified Environmental Professional (QEP). Dr. Greenberg was formerly Chair of the Bay Area Air Quality Management District Hearing Board, a former Member of the State of California Occupational Health and Safety Standards Board (appointed by the Governor), and former Assistant Deputy Chief for Health, California OSHA.

Dr. Greenberg's expertise in risk assessment has led to his appointment as a member of several state and federal advisory committees, including the Cal/EPA Department of Toxic Substances Control Program Review Committee, the DTSC Integrated Site Mitigation Committee, the California State Water Resources Control Board Bay Protection and Toxic Cleanup Program Advisory Committee, the California EPA Advisory Committee on Stochastic Risk Assessment Methods, the U.S. EPA Workgroup on Cumulative Risk Assessment, the Cal/EPA Peer Review Committee of the Health Risks of Using Ethanol in Reformulated Gasoline, and the California Air Resources Board Advisory Committee on Diesel Emissions.

Dr. Greenberg has considerable experience and ability to manage and prepare CEQA and NEPA documentation for many projects, including gas-fired and solar power plants. In his work under contract to the California Energy Commission, He has authored and defended at Evidentiary Hearing over 150 CEQA-equivalent Staff Assessments for power plant siting cases in California over a 23-year period, including EIRs and EISs for eight solar power plants or solar/gas hybrids in the Southern California desert. He was responsible for preparing this documentation in the areas of Hazardous Materials Management, Worker Safety/Fire Protection, Public Health and Safety, and Waste Management.

Since January 2005, he has trained and led an audit team conducting hazmat, safety, and security audits at power plants throughout California that are under the jurisdiction of the California Energy Commission. His unique experience in Cal-OSHA and with the CEC allows him to effectively identify safety and health hazards and recommend cost-effective solutions. Additionally, his training and experience in critical infrastructure security led to him to becoming the lead for the California Energy Commission development of a power plant vulnerability assessment methodology and model power plant security plan, reviewing and evaluating power plant security plans, testifying at hearings on power plant security, preparing a "background" report on the risks and hazards of siting LNG terminals in California, consulting for the City of Vallejo on a proposed LNG terminal and storage facility at the former Mare Island Naval Shipyard, and preparing safety and security recommendations for the proposed LNG terminal in Long Beach, CA. He has also been the lead person for the CEC in gas pipeline safety review and evaluation. He is knowledgeable about and has experience implementing

infrastructure security needs and methods and has U.S. Coast Guard Sensitive Security Information (SSI) and U.S. Department of Energy Critical Energy Infrastructure (CI) security clearances.

Perhaps just as important, Dr. Greenberg has considerable experience and expertise in risk communication, explaining issues of exposure and risk to large groups of very concerned citizens on very complex and challenging projects. He has also testified in both Superior Court and U.S. District Court as an expert witness.

DECLARATION OF
Mark R. Hamblin

I, Mark R. Hamblin declare as follows:

I am presently employed by the California Energy Commission in the Siting, Transmission and Environmental Protection (STEP) Division, Environmental Protection Office as a Planner II.

A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

I helped prepare the staff testimony on Visual Resources, for the Petition to Amend the Commission Decision for the Palmdale Energy Project based on my independent analysis of the Petition to Amend and supplements hereto, data from reliable documents and sources, and my professional experience and knowledge.

It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed therein.

I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: August 17, 2016 Signed: Mark R. Hamblin

At: Sacramento, California

MARK RUSSELL HAMBLIN

Professional Experience

California Energy Commission, 1516 9th St., Sacramento CA 95814-5504
Planner II November 2000 to present
Prepares an independent technical analysis in the area(s) of land use planning, traffic & transportation, and visual resources pertaining to the potential siting of natural gas fired power generation plants and solar power facilities. Provides recommendations to the Energy Commission. Reviews information provided by the applicant and other sources to assess the environmental effects of energy facility proposals as required by the California Environmental Quality Act (CEQA), and the California Energy Commission siting regulations. Evaluates project in accordance with federal, state and local laws, ordinances, regulations, standards; coordinates proposal with federal, state and local agencies. Conducts field studies; oversees technical consultant(s); participates in public workshop(s); presents sworn testimony during evidentiary hearings. Performs compliance monitoring for projects approved by the Energy Commission ensuring that power plants are constructed and operated according to the conditions of certification of their license.

Yolo County Planning and Public Works Department, 292 W. Beamer St., Woodland CA 95695
Associate Planner June 1992 to October 2000
Advised and assisted individuals in the processing of land use planning requests (general plan amendments, conditional use permits, subdivision maps, etc.); reviewed the request for consistency with state zoning and planning law (e.g., CEQA, the Subdivision Map Act, Williamson Act, etc.), the county General Plan, the county government code for presentation in a staff report before for the county planning commission and/or county board of supervisors; served as board of supervisors liaison and planning department staff person to citizen and inter-agency committees (county airport advisory committee, county habitat conservation plan steering committee, and community general plan citizen advisory committee(s); drafted zoning ordinances and regulations; prepared environmental assessment documents in accordance with the National Environmental Policy Act (NEPA); hired and supervised consultants; served as county zoning administrator; conducted zone code enforcement; reviewed building plans for issuance of permits; answered questions at the public counter, or over the telephone regarding land use and development issues in the county.

Yolo County Community Development Agency, 292 W. Beamer St., Woodland CA 95695
Assistant Planner January 1991 to June 1992
Advised and assisted individuals in the processing of land use planning requests; reviewed the request for consistency with state zoning and planning law, the county

General Plan and county government code; presented the information pertaining to the land use planning request in a staff report for consideration by the county planning commission; drafted zoning ordinances; supervised consultants; conducted zone code enforcement; reviewed building plans for issuance of permits; answered questions at the public counter, or over the telephone regarding land use and development in the county.

Tulare County Planning and Development Department, Civic Center, Rm. 105, Visalia, CA 93291
Planning Technician II March 1988 to January 1990
Advised and assisted individuals in the processing of land use planning requests; reviewed request for consistency with state zoning and planning law, the county General Plan, and county government code, analyzed the information for presentation in a staff report before the county zoning administrator, site plan review committee, or planning commission; conducted zone code enforcement; reviewed building plans for issuance of permits; answered questions at the public counter and over the telephone regarding land use planning and development in the county.

Education

University of California, Davis Extension. Davis, California. Course work in California Land Use Planning and the California Environmental Quality Act 1988 to 1995.

Cosumnes River College. Sacramento, California. Course work in television and radio broadcasting 1990 to 1991.

California State University, Bakersfield. Bakersfield, California. Master of Public Administration; August 1988. Concentration in Public Policy. Course work in Business Administration and Political Science.

California State University, Sacramento. Sacramento, California. Bachelor of Science in Public Administration; May 1984. Concentration in Human Resources Management.

Porterville College. Porterville, California. Associate in Arts Social Science; May 1982. Course work in Administration of Justice.

Awards

2009 Superior Accomplishment Award – Recognition of Outstanding Contribution in the training of staff new to the Environmental Protection Office, Community Resources Unit and unfamiliar with the unit's analytical methodologies and approaches in the areas of land use, visual resources, and traffic/transportation. Awarded by California Energy Commission.

2001 Superior Accomplishment Award – Recognition of Outstanding Performance and Contribution as a team member of the 21 Day, 4, 6, and 12 month processes team. Awarded by California Energy Commission.

2001 Superior Accomplishment Award – Recognition of Outstanding Performance and Contribution as a team member of the expedited 4 Month Application for Certification/Small Power Plant Exemption Team. Awarded by California Energy Commission.

2000 Yolo County Planning Commission Resolution - Appreciation of Service for nearly 10 years of service to the Yolo County Planning Commission and employment at the Yolo County Planning and Community Development Agency.

DECLARATION OF
MARK HESTERS

I, Mark Hesters, declare as follows:

1. I am presently employed by the California Energy Commission in the Strategic Transmission Planning and Corridor Designation Office of the Siting, Transmission, and Environmental Protection Division as a Senior Electrical Engineer.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I prepared the staff testimony on Transmission System Engineering for the Petition for Amendment for the Palmdale Energy Project based on my independent analysis of the Petition to Amend and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: 8/20/16 Signed: _____

At: Sacramento, California

Mark Hesters

916-654-5049
mark.hesters@energy.state.ca.us

Qualifications

- Analyzed the reliability impacts of electric power plants for nine years.
- As an expert witness, produced written and oral testimony in numerous California Energy Commission proceedings on power plant licensing.
- Expertise in power flow models (GE PSLF and PowerWorld), production cost models (GE MAPS), Microsoft word-processing, spreadsheet and database programs.
- Contributing author to many California Energy Commission reports.
- Represented the Energy Commission in the development of electric reliability and planning standards for California.

Experience

Senior Electrical Engineer

2005-Present California Energy Commission, Sacramento, CA

- Program manager of the transmission system engineering analysis for new generator Applications of Certification.
- Lead the development of transmission data collection regulations.
- Overhauled the transmission data adequacy regulations for the Energy Commission's power plant certification process.
- Participated in the analysis of regional transmission projects.
- Technical lead for Commission in regional planning groups.
- Energy Commission representative to the Western Electric Coordinating Council Operations Committee.

Associate Electrical Engineer

1998–2005 California Energy Commission, Sacramento, CA

- Lead transmission systems analyst for power plant licensing under 12-month, 6-month and 21-day licensing processes.
- Provided expert witness testimony on the potential transmission impacts of new power plants in California Energy Commission licensing hearings.
- Authored chapters for California Energy Commission staff reports on regional transmission issues.
- Studied the economics of transmission projects using electricity production simulation tools.
- Analyzed transmission systems using the GE PSLF and PowerWorld load flow models.
- Collected and evaluated transmission data for California and the Western United States

Electric Generation Systems Specialist

1990–1998 California Energy Commission, Sacramento, CA

- Lead generation planner for southern California utilities.
- Analyzed electric generation systems using complex simulation tools.
- Provided analysis on the impact of resource plans on air quality and electricity costs for California Energy Commission reports.
- Developed modeling characteristics for emerging technologies.
- Evaluated resource plans.

Education

1985–1989 University of California at Davis Davis, CA

- B.S., Environmental Policy Analysis and Planning

DECLARATION OF
John Hope

I, **John Hope**, declare as follows:

1. I am presently employed by **California Energy Commission** in the **Environmental Protection Office** of the **Energy Facilities Siting Division** as a **Planner II**.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I prepared the staff testimony on **Alternatives**, for the **Palmdale Energy project**, based on my independent analysis of the Application for Certification and supplements hereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issues addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: 7/1/16 Signed: _____

At: Sacramento, California

JOHN HOPE

1516 9th Street, MS 40
Sacramento, California 95814

(916) 654-7119
john.hope@energy.ca.gov

Land Use and Environmental Planner
John Hope has sixteen years' experience with current and long-range land use planning and environmental planning. He has served the public interest through evaluating economic, social, and environmental issues in communities. He is a skilled advocate effective in presenting professional planning knowledge to interest groups, the public, and political affiliations.

PROFESSIONAL EXPERIENCE

CALIFORNIA ENERGY COMMISSION, Sacramento, California
Environmental Planner II, December 2011 to Current

As part of the Siting, Transmission and Environmental Protection (STEP) division - Environmental Office, I prepare environmental documentation for proposed energy facilities for the Commission as required by the California Environmental Quality Act (CEQA). Specifically, I write technical analyses for facility siting cases and planning studies in the areas of socioeconomics, environmental justice, land use, traffic and transportation, and visual resources, along with and formulate solutions and mitigation unique to each individual energy facility. I provide expert technical expertise and serve as a member of inter-disciplinary team that evaluates potential environmental and socioeconomic effects of proposed power plants, policies, and plans for energy development in order to satisfy the requirements of the Warren-Alquist Act and CEQA.

AECOM, Sacramento, California
Noise Analyst, February 2010 to July 2011

I served as assistant project manager, environmental planner, or air quality/noise analyst for various CEQA/NEPA documents. My work focused on preparing environmental setting and impact analysis sections, such as land use, traffic, public services, for projects related to infrastructure improvements, residential development, fairgrounds, industrial expansion, business parks, mixed-use developments, and economic appraisal. I used various modeling techniques along with SoundPLAN, a software-based noise prediction modeling program, to assess project-generated noise levels in an environment. Through the use of SoundPLAN, I graphically mapped and visually evaluated project-generated noise levels based on principles of acoustics. I also used SoundPLAN to model noise maps, design traffic noise mitigation, and predict combined noise levels. My experience in long-range planning also involved preparation of various elements for general plans and community plans.

EDAW | AECOM, Sacramento, California
Associate Environmental Planner, September 2004 to June 2009

I wrote technical sections and managed environmental documents that analyze and describe to the public the potential environmental impacts of implementing development projects, including needed on-site and offsite infrastructure. I supervised preparation of environmental documents utilizing information from the client (i.e., state, county, city) and other professionals (e.g., air quality consultant, traffic engineers) to conduct environmental impact analysis of development projects. I also wrote sections and conducted research for general plans and specific plans. I worked as part of a team in preparing these documents to meet the requirements of state and federal permit regulations. I diligently maintained budgets and worked within stringent schedules as part of managing preparation of environmental and community planning documents with local agencies, cities and counties, and environmental specialists. I prepared scopes of work and proposals for new work opportunities.

STANTEC CONSULTING, Sacramento, California
Project Planner, July 2002 to August 2004

I was responsible for providing land planning and environmental impact analysis in environmental engineering firms with various environmental remediation projects throughout northern California. I conducted hands-on oversight of remediation projects to assess the onsite environmental impacts and analyzed their successfulness. I provided my

proficient writing skills through the preparation of site reports related to remediation projects. I was relied upon to provide my land planning, environmental impact analysis, and entitlement processing expertise.

I was also responsible for providing assistance to land developers through the entitlement process including preparing development applications, preparing due diligence reports, and representation of the project to the public-at-large. I assisted cities and counties with the preparation of environmental documents and the processing of proposed land development projects. I managed the implementation of land development projects including large residential subdivisions, commercial development, public facilities, and business parks by coordinating efforts being pursued by other associates including surveyors, engineers, environmental specialists, public agencies, and the developer themselves. I also wrote technical sections that analyzed the environmental impacts associated with large infrastructure improvement projects and prepared the environmental document articulating the team's findings. Co-workers relied upon me to provide land use and environmental planning expertise towards a team effort.

PACIFIC MUNICIPAL CONSULTANTS, Rancho Cordova, California
Assistant Planner, July 1999 to July 2002

As part of my work experience I evaluated proposed development projects, provided code enforcement, and assisted the public-at-large. I gained experience in long-range planning from diligent researching, and writing technical sections for General Plans and environmental documents.

As part of a team effort, I was responsible for the expedited review and management of proposed development applications through the entitlement process and conducting environmental review while working as a land use planner for the City of Elk Grove. I was responsible for processing and reviewing current planning projects applications such as subdivision maps, use permits, design review applications, staff level discretionary review, and other entitlements as assigned by the Community Development Director. As part of this process, I evaluated proposed projects with the requirements of the municipal code and General Plan, presented development projects, and portrayed issues surrounding the project to decision makers and the public through writing staff reports and articulating my professionalism to Planning Commissions and City Councils. As time went on, I worked my way up for the opportunity to process larger and more complicated development projects.

In addition, I worked on the City of Elk Grove's first General Plan by writing and analyzing all the quantitative and statistical data for the Housing element and administered public meetings and workshops. I wrote the draft Housing Element, started the State certification process with the Department of Housing and Community Development, and assisted with the preparation of other required elements of the General Plan. I also utilized GIS software for manipulating and visually presenting information related to the community.

I gained experience with the environmental impact review process which resulted from analyzing and comprehending technical studies and incorporating their information by writing technical sections for environmental documents and I coordinated the implementation of mitigation monitoring and reporting programs. As my experience with the environmental review process grew, my work ethic allowed me to increase my responsibilities as related to more environmentally controversial projects.

EDUCATION

California Polytechnic State University, San Luis Obispo
Bachelor of Sciences, City and Regional Planning

This program provided a hands-on experience which allowed me to execute environmental impact assessments and site analysis, create site designs, research planning law and ordinances, present to several public and private groups, create graphic presentations, and conduct hands-on field research for specific projects located along the California central coast. I gained knowledge of various land use design concepts through hands-on draft work with computers and graphic tools.

DECLARATION OF
Steven Kerr

I, Steven Kerr, declare as follows:

1. I am presently employed by the California Energy Commission in the Siting and Compliance Office of the Energy Facilities Siting Division as an Energy Resources Specialist III (Supervisory).

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I prepared the staff testimony on Land Use for Palmdale Energy Project based on my independent analysis of the Palmdale Energy Project Amendment and supplements thereto, data from reliable documents and sources, and staff's and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: 8/18/16 Signed: S. A. Kerr

At: Sacramento, California

Steven Kerr

Professional Experience:

California Energy Commission — Sacramento, CA
January 2012-Present — *Energy Resources Specialist III*

- Supervise the preparation of alternatives, land use, and socioeconomics staff analyses.
- Review power plant applications and amendments for alternatives, land use, socioeconomic, land use, transportation, and visual impacts.
- Evaluate projects in accordance with CEQA, the California Energy Commission siting regulations, and federal, state and local laws, ordinances, regulations, standards (LORS).
- Participate in public workshops and hearings regarding proposals.
- Write environmental analysis documents.

Thomas P. Kerr Inc. — Sacramento, CA
August 2011-January 2012 — *Property Manager*

- Management of properties and assets throughout California and Oregon.
- Assist in the preparation of mobile home park closure impact report for Port of San Luis.
- Use various software applications to produce and review billing and financial records.
- Work with local agencies to coordinate infrastructure improvements.

Ground(ctrl) — Sacramento, CA
February 2010-August 2011 — *Director of Customer Support*

- Coordinate and provide customer support for A-list musical artist fan clubs, online stores, e-mail marketing, ticketing, aggressive online marketing, and much more.
- Resolve escalated customer support issues, credit card disputes, and Better Business Bureau cases.
- Supervise and train customer support team members and interns.

City of Sacramento — Sacramento, CA
General Services Department — *Customer Service Representative*
July 2009-February 2010

- Perform concurrently multiple customer service related duties for all City of Sacramento departments by phone/email.
- Interpret and apply City regulations and procedures as applicable to billing, fees, and collections.
- Learn and explain the organization, procedure and operation details of the City.
- Use a variety of business software applications and assess maps.

City of Sacramento — Sacramento, CA
Development Services Department — *Assistant Planner*
February 2007-July 2009

- Project manager for various residential, commercial, industrial, and office development projects.
- Assist customers with zoning, design review, preservation, environmental, subdivision code, and sign questions, both at the public counter and by phone/email.
- Provide customers with required entitlement information, fee estimates, and accept applications for proposed development projects.
- Review applications and plans for consistency with city codes, general plan, and applicable community plans, specific plans and planned unit development guidelines.
- Present projects at community meetings and work with neighborhood association leaders on controversial projects.
- Write staff reports and conditions of approval.
- Present projects at Zoning Administrator, Planning Commission, and City Council public hearings.
- Research development and entitlement histories of parcels.

City of Atascadero — Atascadero, CA
Community Development Department — *Planning Intern*
March 2005-June 2006

- Prepare environmental review documents.
- Review business licenses and building permits.
- Draft letters and staff reports.
- Respond to questions from the public on planning and zoning related issues.
- Access and update information in GIS and Excel

Education:

2000-2005 California State Polytechnic University, San Luis Obispo, CA
Bachelor of Science in City and Regional Planning

DECLARATION OF
SHAHAB KHOSHMASHRAB

I, **SHAHAB KHOSHMASHRAB**, declare as follows:

1. I am presently employed by the California Energy Commission in the **ENGINEERING OFFICE** of the Siting, Transmission, and Environmental Protection Division as a **SENIOR MECHANICAL ENGINEER**.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I prepared the staff testimony on **Power Plant Reliability** for the **Palmdale Energy Project** based on my independent analysis of the Amendment and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issues addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony, and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: 8/17/16 Signed: _____

At: Sacramento, California

DECLARATION OF
SHAHAB KHOSHMASHRAB

I, **SHAHAB KHOSHMASHRAB**, declare as follows:

1. I am presently employed by the California Energy Commission in the **ENGINEERING OFFICE** of the Siting, Transmission, and Environmental Protection Division as a **SENIOR MECHANICAL ENGINEER**.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I prepared the staff testimony on **Power Plant Efficiency** for the **Palmdale Energy Project** based on my independent analysis of the Amendment and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issues addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony, and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: 8/17/16 Signed: _____

At: Sacramento, California

DECLARATION OF
SHAHAB KHOSHMASHRAB

I, **SHAHAB KHOSHMASHRAB**, declare as follows:

1. I am presently employed by the California Energy Commission in the **ENGINEERING OFFICE** of the Siting, Transmission, and Environmental Protection Division as a **SENIOR MECHANICAL ENGINEER**.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I prepared the staff testimony on **Facility Design** for the **Palmdale Energy Project** based on my independent analysis of the Amendment and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issues addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony, and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: 8/17/16 Signed: _____

At: Sacramento, California

DECLARATION OF
SHAHAB KHOSHMASHRAB

I, **SHAHAB KHOSHMASHRAB**, declare as follows:

1. I am presently employed by the California Energy Commission in the **ENGINEERING OFFICE** of the Siting, Transmission, and Environmental Protection Division as a **SENIOR MECHANICAL ENGINEER**.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I prepared the staff testimony on **Noise and Vibration** for the **Palmdale Energy Project** based on my independent analysis of the Amendment and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issues addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony, and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: 8/17/16 Signed: _____

At: Sacramento, California

Shahab Khoshmashrab, P.E.
Senior Mechanical Engineer

Professional Experience

2001-Current—Senior Mechanical Engineer – Siting, Transmission, and Environmental Protection Division – California Energy Commission

- Perform analysis of, and address complex engineering issues related to, generating capacity, power plant reliability, energy efficiency, noise and vibration, jurisdictional determination, and the mechanical, civil, electrical, and structural aspects of power plants' licensing, construction, and operation.

- Review and evaluate projects to ensure compliance of power plants and related facilities with applicable laws, ordinances, regulations, and standards and California Environmental Quality Act.

- Assist the California Energy Commission in policy making related to electricity generation.

1998-2001—Structural Engineer – Rankin & Rankin

Engineered concrete foundations, structural steel and sheet metal of various building structures including energy related structures such as fuel islands. Performed energy analysis/calculations of such structures and produced both structural plans and detailed shop drawings using AutoCAD.

1995-1998—Manufacturing Engineer – Carpenter Advanced Technologies

Managed manufacturing projects of various mechanical components used in high tech medical and engineering equipment. Wrote and implemented QA/QC procedures and occupational safety procedures. Conducted developmental research of the most advanced manufacturing machines and processes including writing of formal reports. Developed project cost analysis. Developed/improved manufacturing processes.

Education

- California State University, Sacramento-- Bachelor of Science, Mechanical Engineering
- Registered Professional Engineer (Mechanical), California
  License No. M 32883, Exp. 9/30/2016

DECLARATION OF
Eric Knight
Environmental Office Manager

I, Eric Knight, declare as follows:

1. I am presently employed by the California Energy Commission in the Environmental Office of the Siting, Transmission, and Environmental Protection Division as an Energy Resources Specialist III (Managerial).

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I prepared the staff testimony on Biological Resources and Traffic and Transportation for the Palmdale Energy Project based on my independent analysis of the Petition to Amend and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: 9/2/16 Signed: _____

At: Sacramento, California

Eric Knight
Energy Resources Specialist III (Managerial)

Professional Experience
Nearly 18 years of experience in permitting of energy facilities and preparing environmental documentation in compliance with the California Environmental Quality Act (CEQA).

Environmental Office Manager (Office Manager II/Energy Resources Specialist III (Managerial)
Siting, Transmission, and Environmental Protection Division, CA Energy Commission
August 2009-present

Responsible for planning, organizing and directing the activities of the staff of the Environmental Office. Office staff are primarily responsible for preparing environmental impact analyses in the areas of land use, transportation, visual resources, socioeconomics, alternatives, biological resources, and cultural resources as required by CEQA, for thermal electric generating facilities (50 MWs and greater) and related facilities (including electric transmission lines and natural gas and water supply pipelines); identifying feasible measures to mitigate significant impacts; and providing expert witness testimony at evidentiary hearings. Responsible for quality control of all Office work products, including ensuring staff's analyses are complete, accurate, and defensible. Advise the Division Deputy Director, Executive Director, and Commissioners on a broad range of issues related to energy facility siting and the Office's responsibilities. Represent the Office/Siting Division in meetings, workshops, and hearings with energy facility applicants, project owners, intervenors, federal, state, and local agency representatives, Native American tribes, interest groups, Commissioners, and the public. Review and analyze proposed legislation related to the Division's programs.

Siting & Dockets Office Manager (Office Manager I)
Siting, Transmission, and Environmental Protection Division, CA Energy Commission
June 2008-August 2009

Was responsible for planning, organizing and directing the activities of the staff of the Siting & Dockets Office, which included project managers and project assistants assigned to power plant licensing cases and the staff responsible for maintaining the Energy Commission's regulatory and non-regulatory official records (Dockets). The Siting Office is responsible for coordinating the environmental and engineering assessments of proposed energy facilities conducted by the technical offices (Environmental, Engineering, and Transmission) of the Siting Division. Advised the Division Deputy Director, Executive Director, and Commissioners on a broad range of issues related to energy facility siting and the Office's responsibilities. Represented the Office/Siting Division in meetings, workshops,

and hearings with energy facility applicants, intervenors, federal, state, and local agency representatives, interest groups, and the public.

Siting Program Manager (Planner III)
Energy Facilities Siting Division, Siting & Compliance Office, CA Energy Commission
February 2008-June 2008

Was responsible for managing the Energy Facilities Siting Program and supervising and directing the work of project managers overseeing the Siting staff's review and analysis of power plant siting cases. Represented the Division in meetings, workshops, and hearings with project applicants, intervenors, federal, state, and local agency representatives, interest groups, and the public. Advised the Siting & Compliance Office Manager and Deputy Director on technical, procedural, and legislative issues.

Community Resources Unit Supervisor (Planner III)
Energy Facilities Siting Division, Environmental Office, CA Energy Commission
January 2007-February 2008

Was responsible for supervising and directing the work of technical staff in the Community Resources Unit and consultants performing environmental impact assessments of power plants and related facilities as required by CEQA and the Warren-Alquist Act. The Unit was responsible for preparing environmental impact assessments in the areas of land use/agricultural resources, traffic and transportation, visual resources, and socioeconomics; identifying feasible measures to mitigate significant impacts and ensure compliance with applicable laws, ordinances, regulations and standards; and presenting expert witness testimony at evidentiary hearings. Was responsible for quality control of products originating from the Unit, including ensuring staff's analyses were complete, accurate and defensible, and completed on schedule. As Unit Senior, was responsible for completing the most complex analyses and addressing the most difficult technical issues related to the Unit's responsibilities. Advised the Environmental Office Manager and Division Deputy Director on technical, procedural, and legislative issues.

Energy Commission Specialist II
Special Projects Office, Fuels & Transportation Division, CA Energy Commission
July 2006-January 2007

Provided recommendations on complex, sensitive, and technical problems related to energy infrastructure assessments, particularly liquefied natural gas (LNG) projects. Was responsible for leading the Special Projects Office's LNG assessment activities. Was responsible for briefings for management, Commissioners (Natural Gas Committee), and the LNG Interagency Working Group on LNG assessment activities and projects. Was responsible for preparing reports, correspondence, and presentations related to LNG proposals. Represented the Energy Commission at the "LNG: When East Meets West - The Unfolding of the LNG Trade in the Pacific" conference.

Project Manager (Planner II)
Energy Facility Siting Division, Siting Office, CA Energy Commission
November 2004-July 2006

Was responsible for managing the Siting Division staff's review and analysis of Applications for Certification to construct and operate thermal electric power plants and related facilities. Was responsible for briefings for the Executive Director, Division Deputy Director, Office Managers, Supervisors, and technical staff on the schedule, strategy, progress, and issues throughout the siting case. Provided direction to project team members and was responsible for ensuring quality control on all published staff products, including the staff's assessment covering 22 environmental and engineering technical disciplines. Was responsible for organizing, scheduling, and conducting public workshops and preparing correspondence.

Environmental Planner (Planner I/II)
Energy Facility Siting Division, Environmental Office, CA Energy Commission
October 1998-November 2004

Was primarily responsible for preparing independent analyses of the visual, land use, and transportation impacts of power plant projects and related facilities. Evaluated project compliance with applicable laws, ordinances, regulations and standards, and identified feasible measures to mitigate significant adverse impacts as required by CEQA. Other duties included preparing data requests, conducting field visits, participating in public workshops, preparing written testimony, presenting expert witness testimony at hearings before the Commissioners, and monitoring compliance with conditions of certification in the Final Commission Decision.

Assistant Project Manager (Energy Analyst)
Energy Facility Siting Division, Siting & Permit Assistance Unit, CA Energy Commission
June 1995-October 1998

Worked with project manager to promote local government use of an urban planning tool emphasizing energy efficiency. Authored a chapter to the National Wind Coordinating Committee's handbook *Permitting of Wind Energy Facilities*. Assisted in the preparation of several Energy Commission publications, including the *Energy Aware Planning Guide II: Energy Facilities* and *The Energy Yardstick: Using PLACE^{3}S to Create More Sustainable Communities*.

Program Technician
California Department of Toxic Substances Control
June 1994-June 1995 (Student Assistant, March 1993-January 1994)

Provided regulatory assistance to hazardous waste generators, transporters and storage facility operators. Compiled an instructions manual for telephone hotline staff to refer to while assisting hazardous waste handlers and the general public. Issued identification numbers to hazardous waste generators. Entered facility information into the department's database of hazardous waste handlers.

Student Intern
Sacramento Valley Toxics Campaign
January 1992-June 1992

Filed public record requests with state and federal agencies. Conducted research and authored an article for the campaign newsletter. Helped to organize community meetings, press conferences and public outreach events.

Education
Bachelor of Arts – Environmental Studies, California State University, Sacramento, 1993
Minor – Government, CSUS, 1993

Professional Education (Partial List)
Advanced CEQA, UC Davis Extension, May 2016
Expert Witness and CEQA Training, CEC Chief Counsel's Office, 2014 and 2011
EIR/EIS Preparation and Review, UC Davis Extension, October 2009
Defensible CEQA Documents, Lorman Education Services, August 2007
Airports and Land Use Compatibility Planning, UC Davis Extension, April 2007
Managing LNG Risks, ioMosaic Corporation, November 2006
Applied Project Management, DTS Training Center, May 2006
CEQA Workshop, Association of Environmental Professionals, Feb. 2004 and 1999
CEQA Overview and Update, UC Davis Extension, June 1998
Land Use Planning for Environmental Professionals, UC Davis Extension, May 1996
Introduction to ArcView and Avenue (GIS), ESRI, August 1995 and May 1998

DECLARATION OF
Ellen LeFevre

I, Ellen LeFevre, declare as follows:

1. I am presently employed by the California Energy Commission in the Environmental Office of the Siting Transmission and Environmental Protection Division as a Planner I.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I prepared the staff testimony on Socioeconomics for the Palmdale Energy Project based on my independent analysis of the Palmdale Energy Project Amendment and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: 8/10/16 Signed: Ellen LeFevre

At: Sacramento, California

Ellen LeFevre

(916) 651-2907

Ellen.lefevre@energy.ca.gov

Education:

Sacramento State
Degree: Bachelor of Science in Geology with minor in Anthropology

American River College
Degree: Associate in Science in Mathematics with emphasis in General Science

University of California, Santa Cruz
Studied Biology and Chemistry

Work Experience:

Planner I
California Energy Commission, State of California

- Evaluate and analyze environmental and socioeconomic effects of proposed energy facilities to ensure the requirements of the Warren-Alquist Act and California Environmental Quality Act are satisfied.
- Prepare socioeconomic, environmental justice, and land use assessments for proposed and existing energy facility sites.
- Coordinate and work with federal, state, regional, and local governments regarding energy-related issues and to assure their input into the Commission power plant siting process.
- Evaluate the licensee's compliance with conditions of certification for power plant facilities.

Associate Personnel Analyst
Department of Alcoholic Beverage Control, State of California

- Administer/lead the administration of exams which include the development of job analyses, exam questions with consultation of Subject Matter Experts, and serve as chairperson on exam panels.
- Conduct classification studies/surveys and prepare formal memoranda and reports.
- Review proposed personnel actions for compliance with regulations and allocations.
- Interpret and apply civil service laws, rules, and procedures.
- Advise and consult with managers on progressive discipline issues.

Fieldwork and Research Experience:

Advanced Field Geology

- Utilize advanced principles and methods of geologic mapping, interpretation, and geologic report writing for selected field areas in southeastern California.

Field Geology and Field Techniques

- Utilize a variety of geologic field methods including descriptions of rocks, geologic mapping, observation, interpretation, and geologic report writing.
- Use topographic and geologic maps, stratigraphic columns and cross sections, and compass and GPS instruments.

Structural Geology

- Complete detailed field descriptions, mapping, and interpretation of geologic structures.
- Utilize techniques of taking detailed field notes, geologic map and cross section construction, stereonet analysis, and report writing.

USGS East Bay Seismic Experiment

- Setup seismometers at specific locations in and around CSU East Bay campus.

Sacramento State American River Restoration

- Record various measurements of rock size, location, and water samples.

Key Skills and Abilities

Statistical Analysis
Report writing (technical and analytical)
Microsoft Word, Excel, and Power Point
ESRI ArcGIS

DECLARATION OF
MELISSA MOURKAS

I, Melissa Mourkas, declare as follows:

1. I am presently employed by the California Energy Commission in the Environmental Protection Office of the Siting, Transmission, and Environmental Protection Division as a Planner II.

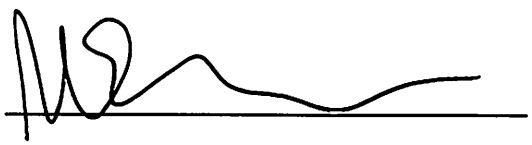
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I prepared the staff testimony on Cultural Resources related to the Built Environment for the Palmdale Energy Project Amendment based on my independent analysis of the Petition to Amend and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony regarding the Built Environment is valid and accurate with respect to the issue addressed therein.

5. I am personally familiar with the facts and conclusions related to the Built Environment in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: 8/10/2016 Signed: 

At: Sacramento, California

MELISSA MOURKAS

EDUCATION

MASTER OF ARTS, LANDSCAPE DESIGN & PLANNING, 1994
CONWAY SCHOOL OF LANDSCAPE DESIGN, CONWAY, MASSACHUSETTS

Graduate landscape design program providing professional training in site design and land-use planning. Curriculum emphasis is on sustainable landscape planning and design. Graduate projects included: Master Plan for a 45-acre historic resort, original landscape designed by F.L. Olmsted and Performance Standards for a proposed industrial park.

BACHELOR OF ARTS, HISTORY OF ARCHITECTURE & ART, 1981
SCRIPPS COLLEGE, CLAREMONT, CALIFORNIA

Major studies in Art and Architectural History, Urban Development. Senior thesis: documentation and analysis of the innovative residential designs and construction techniques of California modern architect Rudolf M. Schindler. Minor studies in Art and the Humanities.

PROFESSIONAL EXPERIENCE/QUALIFICATIONS

- Licensed Landscape Architect, California # 5139
- Qualified Architectural Historian, Secretary of the Interior's Standards for Historic Preservation, Code of Federal Regulations, 36 CFR Part 61.

PLANNING AND HISTORIC PRESERVATION:

April 2010 to Present: Planner II, California Energy Commission, Siting, Transmission and Environmental Protection Division. Provide technical environmental analysis of proposed energy facilities and development. Review of EIR/EIS documents prepared by other agencies under NEPA. Specific tasks include: the assessment of potential impacts of new electric power plants on both Visual and Cultural Resources; identification of suitable mitigation measures under CEQA; preparation of written testimony; participation in public workshops; presentation of sworn testimony during evidentiary hearings, and project monitoring to ensure compliance with local, state and federal environmental laws and regulations. Cultural Resources specialty in the built environment, architectural and landscape history. Section 106 review of federally-funded energy efficiency upgrades under Programmatic Agreement with California OHP.

2008-2014: Member, City of Sacramento Preservation Commission (Chair 2013-2014)

2005 to 2008: Assistant Planner, Historic Preservation Office, City of Sacramento, CA
Responsible for design review and approval for private and public development projects involving rehabilitation, preservation and restoration of historic resources and districts under CEQA. Prepared staff reports for Preservation Commission and Council, and coordinated with other planning staff on concurrent entitlements. Staff liaison on municipal development projects involving historic resources.

LANDSCAPE ARCHITECTURE:

1994 to Present: Landscape Architecture and Design. Experience in landscape architecture, landscape construction estimating, site planning, historic landscapes and landscape master plans. Provide landscape architecture and consulting services to private clients, public organizations, contractors, and design firms. Preparation of Cultural Landscape Reports. Frequent speaker to various groups on landscape design, construction and cultural landscapes.

DECLARATION OF
LAIPING NG

I, Laiping Ng, declare as follows:

1. I am presently employed by the California Energy Commission in the Transmission Evaluation and Planning Office of the Siting, Transmission, and Environmental Protection Division as an Associate Electrical Engineer.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I prepared the staff testimony on Transmission System Engineering, for the Palmdale Energy Project Amendment based on my independent analysis of the Petition to Amend and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: 8/10/2016 Signed: Laiping Ng

At: Sacramento, California

Laiping Ng
Associate Electrical Engineer

Education:

Master of Science: Electrical Engineering - Power
California State University, Sacramento

Bachelor of Science: Electrical Engineering - Power
California State University, Sacramento

Power Certificate – EPRI

Experience:

April 1999 – Present:

- Review and evaluate electrical transmission system sections of the application to ensure that the transmission engineering aspects of the power plant, switchyards, substations, and the related facilities comply with applicable laws, ordinances, regulations, and standards (LORS).

- Prepare written analysis, which address the issues of the adequacy of proposed projects to meet applicable LORS.

- Perform load flow studies and fault analysis.

- Coordinate with CAISO, WSCC and other regulatory agencies and coordinate with utilities companies in the review and evaluation of the power plant siting process.

May 1991 – April 1999:

- Prepared engineering bid specifications for recommended lighting and HVAC projects. Evaluated contractor bids and recommended contractors to customers. Reviewed RFPs and RFQs. Evaluated, selected, and managed engineering consultants. Administrated and coordinated contracts.

- Designed electrical systems for indoor and outdoor lighting and lighting controls. Assisted in design cooling systems and controls for school buildings and office buildings. Reviewed and checked electrical lighting designs and drawings. Analyzed designs and made recommendations for effective actions.

- Performed facility energy audits and field surveys on schools, offices, hospitals and county jail facilities to identify energy efficiency improvements and cost estimate with respect to lighting and HVAC systems. Inspected lighting and HVAC system equipment installation.

- Worked in a Nonresidential Energy Efficiency Standards development team. Prepared and updated Standards concentrating on interior building illumination and indoor and outdoor flood lighting.

DECLARATION OF

Obed Odoemelam, Ph.D.

I, Obed Odoemelam declare as follows:

1. I am presently employed by the California Energy Commission in in the Transmission & Environmental Protection Division as a Staff Toxicologist.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I helped prepare the staff testimony on Transmission Line Safety and Nuisance for the Palmdale Hybrid Power Project based on my independent analysis of the Application for Certification and supplements hereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: 8/11/16 Signed: Odoemelam

At: Sacramento, California

RESUME

DR. OBED ODOEMELAM

EDUCATION:

1979-1981 University of California, Davis, California. Ph.D., Ecotoxicology

1976-1978 University of Wisconsin, Eau Claire, Wisconsin. M.S., Biology.

1972-1976 University of Wisconsin, Eau Claire, Wisconsin. B.S., Biology

EXPERIENCE:

1989
The Present: California Energy Commission. Staff Toxicologist.

Responsible for the technical oversight of staffs from all Divisions in the Commission as well as outside consultants or University researchers who manage or conduct multi-disciplinary research in support of Commission programs. Research is in the following program areas: Energy conservation-related indoor pollution, power plant-related outdoor pollution, power plant-related waste management, alternative fuels-related health effects, waste water treatment, and the health effects of electromagnetic fields. Serve as scientific adviser to Commissioners and Commission staff on issues related to energy conservation. Serve on statewide advisory panels on issues related to multiple chemical sensitivity, ventilation standards, electromagnetic field regulation, health risk assessment, and outdoor pollution control technology. Testify as an expert witness at Commission hearings and before the California legislature on health issues related to energy development and conservation. Review research proposals and findings for policy implications, interact with federal and state agencies and industry on the establishment of exposure limits for environmental pollutants, and prepare reports for publication.

1985-1989 California Energy Commission.

Responsible for assessing the potential impacts of criteria and noncriteria pollutants and hazardous wastes associated with the construction, operation and decommissioning of specific power plant projects. Testified before the Commission in the power plant certification process, and interacted with federal and state agencies on the establishment of environmental limits for air and water pollutants.

1983-1985 California Department of Food and Agriculture.

Environmental Health Specialist.

Evaluated pesticide registration data regarding the health and environmental effects of agricultural chemicals. Prepared reports for public information in connection with the eradication of specific agricultural pests in California.

DECLARATION OF

Tia Mia Taylor, Energy Analyst, Biological Resources, STEP Division

I, Tia Mia Taylor, declare as follows:

1. I am presently employed by the California Energy Commission in the Biological Resources Office of the Siting Transmission and Environmental Protection Division as an Energy Analyst.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I prepared the staff testimony on Biological Resources for the Palmdale Energy Project based on my independent analysis of the Palmdale Hybrid Power Project Amendment and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: 8/17/2016 Signed: Tia Mia A. Taylor

At: Sacramento, California

Tia Mia Taylor

Objective

To build upon and utilize my customer service/communication skills and gain further experience in the State government.

Education

Bachelor of Science in Environmental & Resource Science, University of California Davis, Davis, CA. (June 2010)
Associate of Science in Mathematics & Physical Science and also Liberal Arts, American River College, Sacramento, CA. (June 2007)
Overall GPA: 3.40

Skills

- Proficient at *Microsoft Word, Excel, Power Point & Outlook*
- Incredible aptitude for *analytical analysis, critical thinking & problem solving*
- Produces *quality work* while being *both self-sufficient & a team player*
- *Customer Service oriented* with *exceptional communication skills* in multiple environments
- Excels at *research & technical writing targeting specific audience*
- Proactively *seeks to master knowledge & resources* related to the job

Experience

Energy Analyst, *California Energy Commission, Sacramento, CA. (May 2015 to Present)*
- Vital contributor to the well-being of California's biological resources and energy industry by assisting in the approval of new energy plants, monitoring progress of construction and operation while ensuring impacts on biological resources are less than significant
- Oversees multiple statewide power plants with respect to biological resources, including Humboldt Bay Generating Station, Roseville Energy Park and Otay Mesa Energy Center, etc. to assure their adherence to our Biological Conditions of Certification
- Reviews progress of mitigation required for certain power plant projects and assesses whether success criterion has been achieved for each annual monitoring period

Employment Coordinator, *State Dept. of Rehabilitation, Fair Oaks, CA. (July 2014 to May 2015, and Santa Ana, CA.[August 2012 to July 2014])*
- Managed personal caseload instructing DOR's consumers with job placement services that were individualized to fit consumer needs
- Created/Approved all authorizations for job services and acted as the public liaison for the DOR office, negotiated OJT contracts with companies, and supervised state vendors that provide job placement services
- Presented original power points to large audiences and produced a variety of written documents
- Conducted job club based on curriculum developed independently covering a wide range of soft, interpersonal, job search and interviewing skills.

Resource Teacher, *Bright Horizons, Hutchinson Child Development Center, Davis, CA. (January 2012 to June 2012)*
- Was a substitute teacher providing age appropriate activities, conversation, and behavioral guidance/conduct to children age 3 months to 5 years old

Kohl's Point of Sales Associate, *Kohl's Department Stores, Point West Location, Sacramento, CA. (November 2010 to January 2011, April 2011 to June 2012)*
- Created an exceptional experience for Kohl's customers at the front registers / Customer Service desk and ranked 5th among all employees for opening the most Kohl's Credit Card accounts in 2011

NWS Volunteer, *National Weather Service (NWS) / California Department of Water Resources (DWR), Sacramento, CA. (June 2009 to March 2010)*
- Updated an in-depth online Weather/Forecast Resource Guide and developed a Dam Catalog database for use in case of dam failures.

Intern, *Office of the Mayor, Sacramento, CA. (Summer 2006)*
- Attended City Council & Climate Action Committee meetings, assisted with city projects, and conducted research on green city projects in the US

Leadership/ Association Memberships

Past VP for the Sacramento Chapter of the American Meteorological Society, Toastmaster's International, National Resources Defense Council (NRDC), The National Wildlife Federation (NWF), Saluki Club of Greater San Francisco

References are available on request.

DECLARATION OF
Ellen Townsend-Hough,
Associate Mechanical Engineer

I, **Ellen Townsend-Hough**, declare as follows:

1. I am presently employed by the California Energy Commission in the Engineering Office of the Siting Transmission and Environmental Protection Division as an Associate Mechanical Engineer.

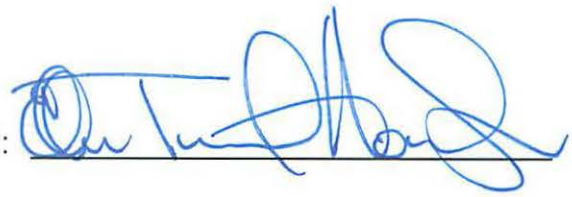
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I prepared the staff testimony on Waste Management for the Palmdale Energy Project based on my independent analysis of the Petition to Amend and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: 6/30/16 Signed: 

At: Sacramento, California

Ellen Townsend-Hough
Associate Mechanical Engineer

SUMMARY

I am a chemical engineer with 32 years of mechanical engineering experience. I have a working knowledge of the California Environmental Quality Act. I have working knowledge of the National Environmental Policy Act. My strengths are in analyzing and performing complex environmental engineering analyses, in areas such as Waste Management, Hazardous Materials Management, and Worker Safety, for electric generating stations. I worked as a policy advisor for a California Energy Commission Commissioner. I am also an US Environmental Protection Agency Environmental Justice trainer.

One of the primary functions of the Energy Commission is CEQA review of license applications to build and operate power plants 50 MW and greater in California. In the Energy Commission's Engineering Office, I fulfill this function by working through and managing a wide variety of CEQA and environmental policy issues. The product of this effort is expressed in expert testimony and staff analysis for siting new power plants and power plant compliance activity. This testimony and analyses cover, waste management. I participate as a technical speaker at public workshops as needed.

I have worked on simple-cycle, combined cycle, cogeneration, geothermal, and large-scale thermal solar power plants, and is familiar with most of the major power plants in construction and operation in California today. I have conducted construction and operation compliance inspections at many of these plants.

I have knowledge of CEQA/NEPA impact analysis and mitigation involving waste management. The assessments I has authored waste management, worker safety, fire protection, hazardous materials and public health.

Power Plant/Utility Experience
California Energy Commission,

A list of power plant siting cases for which I have authored assessments, in whole or in part follows: Abengoa Solar (Solar Thermal), Chevron USA (Natural Gas), CPV Sentinel (Natural Gas), Ivanpah SEGS (Solar Thermal), Carlsbad Energy Center (Natural Gas), Quail Brush (Natural Gas),Pio Pico (Natural Gas), Hidden Hills (Solar Thermal), Genesis (Solar Thermal), Rio Mesa SEGF (Solar Thermal), Huntington Beach Energy Project, Alamitos Energy Project, Puente Power Plant and San Joaquin Solar (Solar Thermal-Biomass).

I also work on power plant construction and operation compliance, some of which are: Abengoa Solar, Colusa, Carlsbad, Canyon, Genesis, Elk Hills, various geothermal power plants, Henrietta, Inland Empire, Ivanpah SEGS, La Paloma, Marsh Landing, Mountain View, TID Almond, SEGS III-VII, SEGS VII & IX, and Sutter.

EDUCATION

Bachelor of Science, Chemical Engineering
Drexel University, Philadelphia Pennsylvania
1981

Continuing Education
Hazardous Material Management Certificate, University California Davis

Urban Redevelopment and Environmental Law, University of California Berkley
Analytical Skills, California Department of Personnel Administration (DPA) Training Center
Legislative Process/Bill Analysis, DPA Training Center
Federally Certified Environmental Justice Trainer
Community Emergency Response Team Certified

PROFESSIONAL EXPERIENCE

Technical Analysis and Presentation

- Performs mechanical engineering analysis of designs for complex mechanical engineering analysis of designs for systems such as combustion chambers and steam boilers, turbine generators, heat transfer systems, air quality abatement systems, cooling water tower systems, pumps and control systems

- Review and process compliance submittals in accordance with the California Environmental Quality Act, the Warren Alquist Act, the Federal Clean Air Act and the California and Federal Occupational Health and Safety Acts to assure compliance of projects

- Provide licensing recommendations and function as an expert witness in regulatory hearings.

- Provide waste management and sustainability analysis on construction, demolition and operation of power plant design.

- Provide public health impact analysis to assess the potential for impacts associated with project related air toxic/non-criteria pollutant emissions.

- Evaluate the potential of public exposure to pollutant emissions during routine operation and during incidents due to accidents or control equipment failure

- Provide an engineering analysis examining the likelihood of compliance with the design criteria for power plants and also examine site specific potential significant adverse environmental impacts

Technical Proficiencies

- Establish mitigation that reduces the potential for human exposure to levels which not result in significant health impact or risk in any segment of the exposed population.
- Conduct environmental audits and inspections of electrical generating stations during construction and operation to assure compliance with Commission decisions.
- Evaluate and prescribe Fire Protection Systems. Technical liaison with local fire departments.
- Review and evaluate the pollution control technology applied to thermal power plants and other industrial energy conversion technologies.
- Operating Systems: MS Windows Server
- Networking: Local Area Network (LAN)
- Software: MS Office (WORD, EXCEL, POWERPOINT)

Policy Advisor

- Provided policy, administrative and technical advice to the Commissioner Robert Pernell. My work with the Commissioner focused on the policy and environmental issues related to the Commission's power plant licensing, research and development and export programs.

- Track and provide research on varied California Energy Commission (CEC) programs. Prepare analysis of economic, environmental and public health impacts of programs, proposals and other Commission business items.

- Represent Commissioner's position in policy arenas and power plant siting discussions.

- Write and review comments articulating commission positions before other regulatory bodies including Air Resources Board, California Public Utilities Commission, and the Coastal Commission.

DECLARATION OF

Eric W. Veerkamp
Planner III, Project Manager-Energy Facility Siting

I, Eric W. Veerkamp, declare as follows:

1. I am presently employed by the California Energy Commission in the Compliance Office of the Siting Transmission and Environmental Protection Division as a Compliance Project Manager (Planner III).

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I served as the Project Manager for preparation of the environmental review document(s) and prepared the Compliance section for the Palmdale Energy Project (PEP) based on my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: 8/18/2016 Signed: 

At: Sacramento, California

Eric.veerkamp@energy.ca.gov; 916-661-8458

ERIC W. VEERKAMP

Planner III, Energy Facility Siting

EDUCATION
B.S. Business Administration (Human Resources Mgmt.); Minor in Environmental Studies

PROF. AFFILIATIONS
American Institute of Certified Planners (AICP) [currently inactive], American Planning Association (APA), Association of Professionals (AEP), Toastmaster International (past member)

COMMUNITY INVOLVEMENT
California Academic Decathlon volunteer, 2009, 2010; St. Robert School parent volunteer, Fall Festival Chair 2010-2015, Bill Glass Behind the Walls prison ministry teammate 2005-2015, active BloodSource donor

PLANNER III, PROJECT MANAGER, ENERGY FACILITY SITING

California Energy Commission (June 2011 – Present)

I am currently serving as the Compliance Project Manager on the Palmdale Energy Project major amendment, assisting staff to protect and preserve biological and cultural resources, water and air quality standards, among others, and to increase energy efficiency while minimizing harmful emissions and adverse impacts on the environment. I am also currently providing compliance oversight for Huntington Beach Energy Project construction (currently in the demolition phase). My compliance project management responsibilities also include oversight of operational projects, including Genesis, Sunrise Power, Huntington Beach, and Russell City.

PLANNER II, ENERGY FACILITY SITING

California Energy Commission (September 2010 – June 2011)

In 2011, I drafted the CEQA equivalent Land Use section for the Hydrogen Energy California (HECA) project, and the CEQA equivalent analysis for the Transmission Line Alternatives, supplementing the Traffic and Transportation Section for the Palmdale Project. I was also assigned to write Traffic and Transportation, Visual, Land Use, and Socioeconomic analyses.

INDEPENDENT CONTRACTOR

EData Corporation. (2010)

I drafted CEQA sections for the proposed Jamul Indian Village commercial project (casino) in San Diego County, including Traffic and Transportation Alternatives Analysis, Visual Resources, and Land Use. I reviewed and responded to public agency comments on the National Environmental Policy Act Environmental Impact Statement for the proposed Soboba Tribal gaming facility, San Diego County.

SENIOR ASSOCIATE

Raney Planning & Management, Inc. (2006 – 2010)

Throughout 2006-2010, I worked as an environmental specialist preparing CEQA environmental documents; I served the City of Wheatland as contract planning staff; and I worked as the Housing Element Project Manager (2008-2010) for the Laurin Division of Raney. Clients included the Cities of Calexico, El Centro, Brawley, Colfax, Hollister, and Oroville. Also while working as part of the Laurin team, I performed multi-family residential appraisals, and managed prevailing wage contracts. My accomplishments include preparing an award winning City-wide Visioning document for the City of Wheatland, and a growth management rating system for the City of Hollister.

Eric.veerkamp@energy.ca.gov; 916-661-8458

DECLARATION OF

Dave Vidaver,
Electric Generation System Program Specialist II

I, Dave Vidaver, declare as follows:

1. I am presently employed by the California Energy Commission in the Supply Analysis Office of the Energy Assessments Division as a Electric Generation System Program Specialist II.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I prepared the staff testimony on Air Quality and Alternatives for the Palmdale Energy Project based on my independent analysis of the Palmdale Energy Project and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: August 9, 2016 Signed: David Vidaver

At: Sacramento, California

Dave Vidaver
Supply Analysis Office
Energy Assessments Division
California Energy Commission
(916) 654-4656
david.vidaver@energy. ca.gov

Employment (all with the California Energy Commission)

Electric Generation System Program Specialist II, Electricity Analysis Office 2011 – present

> Senior analyst responsible for evaluation of procurement, resource adequacy and renewable generation development policies, potential impacts of generation resource development on greenhouse gas emissions.

Electric Generation System Specialist III, Electricity Analysis Office, 2005 - 2011

> Supervisor of Procurement and Resource Adequacy Unit, supervise nine staff responsible for evaluating utility procurement and resource adequacy, combined heat and power and distributed generation issues, role of aging and once-through cooled power plants, compiling and maintaining office databases.

Energy Commission Specialist II, Demand Analysis Office, 2005

> Monitoring near-term load growth at utility and regional level across the WECC; assessing load-temperature relationships for California and major western utilities and long-term changes in temperatures and load-temperature relationships.

Electric Generation System Specialist II, Electricity Analysis Office 2002 – 2005

> Supervisor of Electricity System Modeling Unit; supervised four staff responsible for studies of resource adequacy, market price forecasts, emissions and fuel use studies, assessments of market conditions, role of aging power plants; contributing and principal author of numerous reports, papers, and presentations,

Electric Generation System Specialist I, Electricity Analysis Office, 1998 – 2002

> Simulation modeling of WECC for studies of resource adequacy, market price forecasts, emissions and fuel use studies; assessments of market conditions; contributing and principal author of numerous papers, reports and presentations.

Education

BA, Political Science, University of California, Berkeley
MS, Agricultural Economics, University of California, Davis

Additional Information

Member of the Northwest Power and Conservation Council's Generation Resource Committee, which characterizes the cost and performance of generation technologies for studies undertaken in support of the Council's 5-year power plans; numerous reports at conferences and symposia on topics ranging from natural gas demand in California's electricity sector to implementation of resource adequacy measures in California during 2001- 2004; participant in collaborative proceedings with CPUC (resource adequacy, long-term procurement).

PALMDALE ENERGY PROJECT (08-AFC-9C)
Petition to Amend the Final Commission Decision
FINAL STAFF ASSESSMENT

PREPARATION TEAM

Executive Summary ..... Eric W Veerkamp

Introduction ..... Eric W Veerkamp

Project Description ..... Eric W Veerkamp

Environmental Assessment

Air Quality ..... Nancy Fletcher

Biological Resources ..... Tia Mia Taylor and Eric Knight

Cultural Resources ..... Matthew Braun and Melissa Mourkas

Hazardous Materials Management ..... Alvin Greenberg, Ph. D.

Land Use ..... Steven Kerr

Noise and Vibration ..... Shahab Khoshmashrab

Public Health ..... Huei-An (Ann) Chu,Ph. D. and Alvin Greenberg,Ph. D.

Socioeconomics ..... Ellen LeFevre

Soil and Water Resources ..... Christopher Dennis, P.G., C.Hg.

Traffic and Transportation ..... James Adams and Eric Knight

Transmission Line Safety and Nuisance ..... Obed Odoemelam, Ph.D.

Visual Resources ..... Mark R. Hamblin

Waste Management ..... Ellen Townsend-Hough

Worker Safety and Fire Protection ..... Alvin Greenberg,Ph. D.

Engineering Assessment

Facility Design ..... Shahab Khoshmashrab

Geology and Paleontology ..... Christopher Dennis P.G., C.Hg.

Power Plant Efficiency ..... Shahab Khoshmashrab

Power Plant Reliability ..... Shahab Khoshmashrab

Transmission System Engineering ..... Laiping Ng and Mark Hesters

Alternatives ..... John Hope and David Vidaver

Compliance Conditions and Monitoring Plan ..... Eric Veerkamp

Project Assistant .. Marichka Haws, Raquel Rodriguez, Alicia Campos and Cenne Jackson