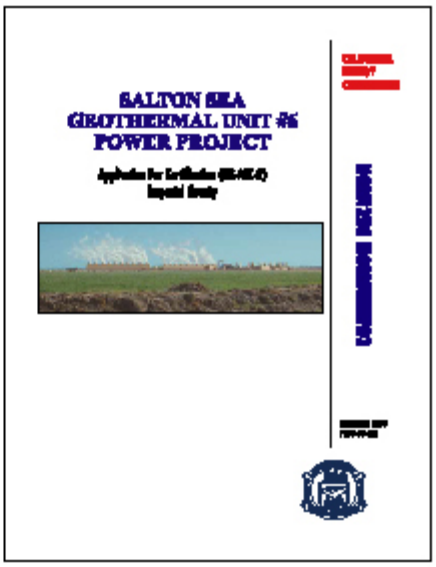
CALIFORNIA
ENERGY
COMMISSION

SALTON SEA GEOTHERMAL UNIT #6 POWER PROJECT

Application For Certification (02-AFC-2)
Imperial County

COMMISSION DECISION

DECEMBER 2003
P800-03-021



CALIFORNIA ENERGY COMMISSION

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EXECUTIVE SUMMARY:

The Energy Commission Committee recommends approval of the Salton Sea Unit 6 project, near the southeast shore of the Salton Sea, in the unincorporated area of Imperial County, California, together with the following highlighted measures to mitigate potential environmental and community impacts:

ENERGY RESOURCES:	✓ The renewable energy project will provide capacity and energy to California's electric market and will provide needed generating capacity to Imperial Irrigation District's customers.
AIR QUALITY:	✓ The power plant will use state-of-the-art Best Available Control Technology to minimize emissions. ✓ Complete offsets will be used to compensate for any pollutant for which the Imperial County Air Pollution Control District is non-attainment.
WATER RESOURCES:	✓ The project will primarily use geothermal brine for process and cooling water, supplemented with approximately 293 acre-feet per year of fresh water. All wastewater, including storm water will be reinjected into the geothermal resource.
LAND USE:	✓ The project is located in an area zoned Heavy Industrial Agricultural, Geothermal. ✓ The project will provide compensatory agricultural lands to mitigate the loss of productive agricultural land.
SOCIOECONOMICS	✓ Project capital costs are between $255 and $405 million. ✓ Construction will create 467 peak construction jobs and a total payroll of $30 million. ✓ Operation requires 69 new positions.
TRAFFIC & TRANSPORTATION	✓ Safety measures, including development of a construction traffic control and implementation plan.

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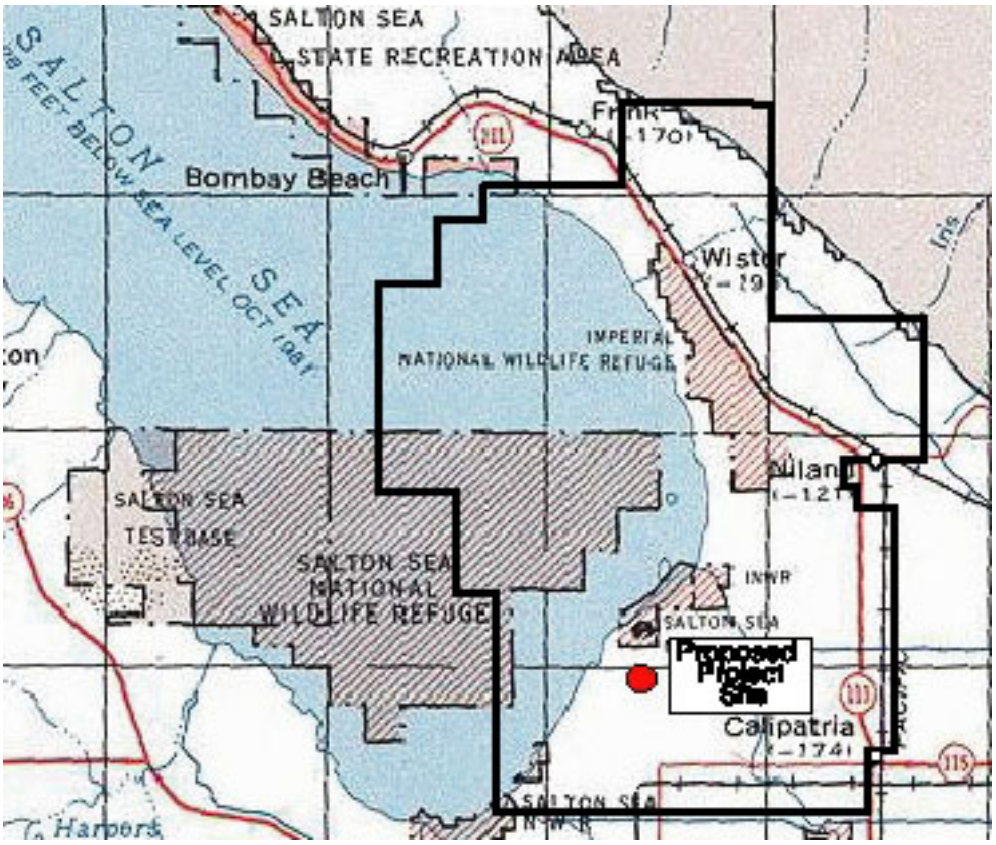
PROJECT DESCRIPTION

On July 29, 2002 CE Obsidian Energy, LLC (CEOE) filed an Application for Certification (AFC) with the California Energy Commission seeking approval to construct and operate the Salton Sea Unit #6 (SSU6) project, a 185 megawatt (MW) net output geothermal steam powered electric generation facility.

The SSU6 Project site is in the Imperial Valley, approximately 1,000 feet southeast of the southern reach of the Salton Sea, within the unincorporated area of Imperial County, California. The Imperial Valley is the southwest part of the Colorado Desert that merges northwestward into the Coachella Valley near the northern shore of the Salton Sea. The region is characterized by agriculture and geothermal power production. The town of Niland is approximately 7.5 miles to the northeast and the town of Calipatria is approximately 6.1 miles to the southeast of the plant site. The Sonny Bono Salton Sea Wildlife Refuge (Refuge) Headquarters is approximately 4,000 feet from the plant site. The Alamo River and New River are approximately 4.8 miles southwest and 2.7 miles east of the plant site, respectively.



The proposed power plant would be located on approximately 80 acres (Plant Site) of a 160-acre parcel owned by the applicant. The plant site will be located on the north half of the block bounded by McKendry Road to the north, Severe Road to the west, Peterson Road to the south, and Boyle Road to the east. The construction support area, including laydown and parking, will utilize approximately 24 acres and will be located immediately adjacent and south of the plant site. The plant site, construction laydown and parking areas are currently agricultural land.

The Salton Sea geothermal power plants rely upon steam extracted from geothermal brine brought to the plant sites through production wells strategically drilled to maximize use of the resource, without depleting or reducing the natural pressures from the field. To accomplish this, specialized facilities are needed to extract the necessary steam at appropriate pressures for turbine operation, and then return the spent brine back to the subsurface resource. The

process involves conditioning the steam for turbine use, utilizing condensed and cooled water from the process for cooling, and conditioning the residual brine for reinjection to the field at selected locations. The SSU6 will accomplish these tasks utilizing the following described project components.

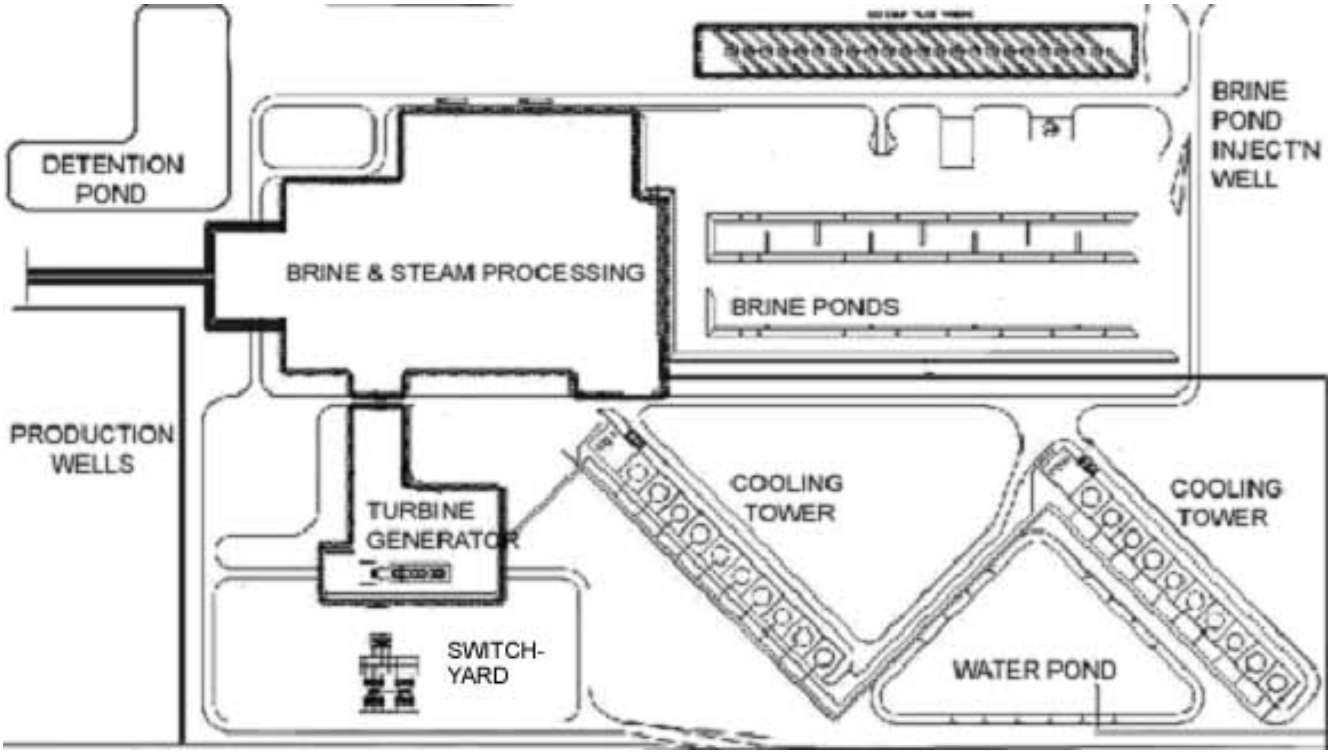
RESOURCE PROCESSING FACILITY (RPF)

The RPF extracts geothermal brine, produces steam to power the turbine, and reinjects the spent and reconditioned brine back into the formation. This is accomplished through the 10 production wells on 5 well pads, and the seven brine injection wells on 3 well pads. Brine is carried through specialized raised pipelines from the production wellheads and back to the injection wellheads. Two plant injection wells also are part of the RPF, one for injecting cooling tower blow-down, and the other for use in reinjecting aerated brine accumulated in the brine pond.

A brine/steam handling system will extract high pressure (300 psi), standard pressure (120 psi), and low pressure (20 psi) steam, bypassing the steam through separators and crystallizers to extract dissolved solids, then through scrubbers and demisters to clean and condition the steam for turbine use. A similar process train is employed for each of the operating pressure steam streams. All heat-depleted brine then flows through an additional flash system to reduce pressure to near-atmospheric pressure, and then through a clarifier system and a solids dewatering system, conditioning the brine, removing suspended solids, adding treated water to control brine quality, and then sending the cooled depleted brines back to the injection well system.

POWER GENERATION FACILITY (PGF)

The PGF facilities include the turbine generator system, heat rejection system, H_2S abatement/carbon adsorber system and two cooling towers, each with 10 cells. The three-pressure turbine is direct-coupled to a totally enclosed water and air cooled synchronous-type generator with a nominal (gross) rating of 200 MW. The plant parasitic load reduces output to a net 185 MW.



Wells and Well Pads

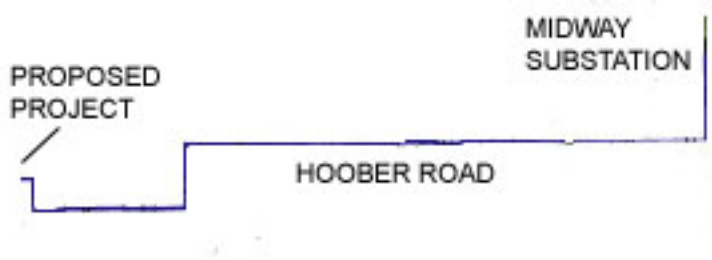
There will be 10 production wells on five production well pads each connected by above-ground pipelines to the RPF. These wells and pads are located very close to the main facility and the combined length of production pipelines will be approximately one mile. Seven new injection wells located on three injection well pads will be connected to the RPF by approximately three miles of pipelines. The eight new production and injection well pads will average 5.2 acres in size.

Linear Facilities

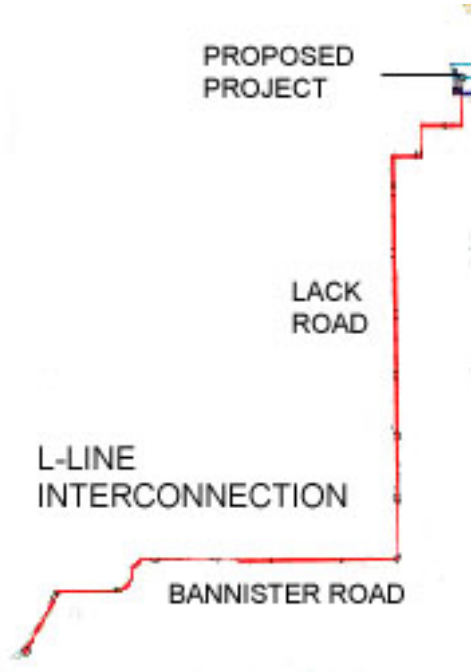
Production pipelines will conduct hot brine from the wellheads to the RPF, and injection pipelines will return conditioned, depleted brine to the injection wells. Total pipeline length will be approximately four miles, and will consist of 24 or 30-inch pipe elevated to approximately three feet above grade.

Fresh water for the project will be IID canal water delivered through a 500-foot buried pipe from the Vail 4A lateral to the service water pond. The water is then used primarily for dilution of geothermal brine prior to reinjection and for potable use after treatment in an on-site reverse osmosis (RO) unit. Projected average use is approximately 293 acre-feet per year. Extremely hot summer conditions, occurring approximately 5 days per year, could require some canal water be used to augment water condensed from steam extraction for use in plant cooling.

Two electric transmission interconnection lines are planned totaling 31 miles of new single-circuit 161 kV line. One line will interconnect at the IID Midway substation 15-miles to the east of the site.



Another will interconnect with the existing IID L-line approximately 16 miles southwest. The L-line interconnection will loop into the existing L-line via a new switchyard located on Bannister Road, approximately twelve miles from the project site. This interconnection will then cross approximately 2.8 miles of Bureau of Land Management (BLM) land requiring approval of the route through amendment to the California Desert Conservation Area Plan (CDCA).



An approximately seven and one half-mile route paralleling State Highway 86 and interconnecting with the L-line after it leaves the BLM lands, is included in the project as a "non-federal lands" alternative. The IID has denoted several of its main transmission lines by letter designations. The L-line is an existing line connecting the Avenue 58 and El Centro substations.

Construction Laydown Area

An approximate 24-acre construction laydown and parking, located south of the proposed site. Both the project site and laydown area are currently in agricultural use.

Construction Schedule

The overall project schedule is expected to take at least 26 months. Construction and startup of the power plant from the start of site mobilization to commercial operation is expected to take at least 20 months. The construction timeframe is expected to begin in late 2003 and end during the winter of 2005-2006. The construction schedule is based upon a single-shift, eight-hour workday, and a five-day workweek.

Recommended Mitigation for Other Jurisdictions

To ensure no impacts to the environment on matters not subject to our jurisdiction, the Commission recommends that Imperial County, the California Division of Oil, Gas, and Geothermal Resources, and the Bureau of Land Management incorporate in their respective permits the Conditions of Certification identified in the Air Quality, Biology, Cultural Resources, Geology, Noise and Water Quality/Soils sections of this Decision.

AIR QUALITY

This section examines the potential air quality impacts of criteria air pollutants resulting from construction and operation of the SSU6 Project. Criteria air pollutants are those for which a federal or state ambient air quality standard has been established to protect public health. They include ozone, nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), precursor organic compounds (POC), hydrogen sulfide (H_2S), and particulate matter less than 10 microns in diameter (PM_{10}).

SUMMARY OF THE EVIDENCE

The Project site is located within the Imperial County Air Pollution Control District (District). The Project area is designated attainment for the federal and state NO_2 and SO_2 standards, unclassified for federal and state CO standards, unclassified for the state H_2S standard, and non-attainment for the federal and state ozone and PM_{10} standards.

The District worked with the CEC staff to determine whether the Project's emissions would cause significant air quality impacts and to identify appropriate mitigation measures.

1. District's Final Determination of Compliance

   On September 8, 2003, the District released its Final Determination of Compliance (FDOC). The FDOC concluded that the SSU6 Project will comply with all applicable air quality requirements and imposes certain conditions necessary to ensure compliance. Pursuant to Commission regulations, the conditions contained in the FDOC are incorporated into this Decision. The FDOC was accepted by stipulation.

2. California Environmental Quality Act (CEQA) Requirements

   The CEC not only reviews compliance with District rules but also evaluates potential air quality impacts according to CEQA requirements. The CEQA Guidelines provide a set of significance criteria to determine whether a project will:

   (1) conflict with or obstruct implementation of the applicable air quality plan;

   (2) violate any air quality standard or contribute substantially to an existing or projected air quality violation;

   (3) result in a cumulatively considerable net increase of any criteria pollutant for which the region is non-attainment for state or federal standards;

   (4) expose sensitive receptors to substantial pollutant concentrations; and

   (5) create objectionable odors affecting a substantial number of people. (Cal. Code Regs., tit. 14,/15000 et seq., Appendix G.).

Staff witness, William Walters, testifies that the SSU6 Project will cause two potentially significant impacts. During the 14-day commissioning activities coming before normal operations, Staff analysis indicates that exceedances of the CAAQS for H_2S would be expected for five (5) hours at Obsidian Butte, and one (1) hour at Rock Hill, but no exceedance would be expected to occur at any residential areas surrounding the project site. Staff therefore has made the determination that initial commissioning will create temporary significant impacts.

The Staff has also determined that the ammonia emissions, which are estimated to be approximately 2,700 tons per year, have the potential during normal operation to create significant secondary particulate impacts. Staff has assumed that Imperial County is not ammonia rich because of the more polluted border region, and because adjacent highly populated air basins result in transported impacts to the site. Staff noted that the ammonia to nitrate/sulfate particulate mole ratio in San Joaquin Valley is almost twice that in Imperial County, which could suggest that either Imperial County is not ammonia rich (as is San Joaquin Valley) or that ammonia emissions participate in secondary pollutant formation in Imperial County (to a greater extent than San Joaquin Valley).

The Applicant's witness, Paul E. Neil, testified that he disagrees with Staff regarding the significance of the commissioning and ammonia impacts. He stated that with regard to commissioning, projects normally exceed air quality standards during the temporary period of construction and commissioning.

Mr. Neil also noted that the Applicant would offset its H_2S emissions during the commissioning period, and therefore mitigate the potential impact. The District has also required submission of a commissioning plan, and the District has determined that the Project is consistent with all applicable rules and regulations. Further, determination criteria for a significant impact requires a project to "create objectionable odors affecting a substantial number of people", which has not been shown by Staff.

With regard to the ammonia impacts, Mr. Neil testified that he disagrees with Staff's assumption that the Project area is ammonia lean for the following reasons:

1. USEPA considers the West to be ammonia rich.
2. CARB considers the rural counties of California to be ammonia rich.
3. The District considers the County to be ammonia rich.
4. CEC Staff has considered every other project to be located in an ammonia rich area, even those located in South Coast urban areas such as the Mountain View and El Segundo Projects.
5. Applicant demonstrates with District/CARB emission inventories that the area is ammonia rich.

Mr. Neil also noted that he disagrees with Staff's assumption that even in an ammonia rich environment any increase in ammonia will cause an increase in particulate matter for the following reasons:

- Inconsistent with past assessments of ammonia emissions. CEC Staff has routinely noted that ammonia emissions will not necessarily result in additional secondary PM_{10} formation.
- Discussions with personnel involved with ammonia nitrate air quality studies confirmed that changes in ammonia concentration did not lead to changes in particulate concentrations in an ammonia rich area.

Staff has presented a credible, hypothetical case that under certain circumstances of ammonia-lean, high relative humidity, and low temperature conditions that some ammonia

may contribute to particulate formation in a chemical reaction that is also reversible. Staff cannot quantify the amount of particulate formed by this process, so that, for example, a certain amount of PM_{10} offsets could be required.

For purposes of CEQA, the Commission needs more than a mere possibility that this chemical reaction might take place as a result of project operations in a way that could contribute to PM_{10} violations and thus create a significant impact. The Commission is not ignoring the possibility, but our record does not demonstrate convincingly that the concurrence of all the conditions necessary for this particulate formation is supported by meteorological and other data for this project location. Consequently, Staff's suggested Condition of Certification AQC-13, by which Staff had called for mandatory ammonia reductions, is amended by the Commission to require the Applicant to routinely investigate advances in ammonia control technology and report to the Commission, without requiring that it be installed.

The Commission notes that the District has imposed three commissioning conditions in its FDOC. The Commission finds that the notification and commissioning monitoring and mitigation plan will render any potential H_2S commissioning impacts less than significant, particularly given the very limited period of commissioning and the limited area potentially affected.

MITIGATION

☑ The Project Owner shall prepare a Commissioning Plan including public noticing and H_2S monitoring and mitigation program during commissioning. Conditions: **AQ-1, AQ-2 & AQ-3**

The evidentiary record demonstrated that potential air quality impacts, besides those discussed above, are expected to be well below all applicable state and federal standards for all pollutants except PM_{10}. For PM_{10}, existing concentrations in the project area already exceed the state standard.

The operational air quality impacts would be mitigated by using the most effective emission control technologies available, by purchasing Emission Reduction Credits (ERCs) that will offset or compensate for the Project's emissions and by implementing a PM_{10} mitigation plan. The SSU6 Project was designed with the following emission control technologies:

- LO-CAT H_2S Control System with a projected efficiency of 99.5% for the noncondensable gases. An H_2S scavenging unit, after the LO-CAT System, will further reduce H_2S emissions.
- Carbon Absorption System for the control of benzene with a projected efficiency of 90 percent for the noncondensable gases.
- High efficiency drift control eliminators rated at 0.0005% for the cooling towers.
- Oxidizer box H_2S control system with a projected efficiency of 90% for the cooling tower off-gassing.

Mr. Neil further testified that the Applicant would mitigate the air quality impacts by purchasing ERCs. The SSU6 Project will also provide emission reductions sufficient to mitigate the project PM_{10} emissions of 55 tons per year of PM_{10} based on the project emissions. Commissioning, well flow testing, and normal emissions would all be offset.

The proposed mitigation package will provide reductions in emissions of directly emitted PM_{10}, PM_{10} precursors, and other pollutants that will mitigate both the ambient air quality and the public health impacts of the PM_{10} emissions from the SSU6 Project. In addition, the Applicant would mitigate H_2S impacts with ERCs from a nearby geothermal power plant (Leathers). Approximately 39.9 tons of H_2S ERCs would be obtained from the addition of controls to Leathers Power Plant. The ERCs would cover commissioning, well flow testing, temporary and normal operations. As a result of this review, with the Conditions of Certification recommended by the ICAPCD and the Staff, the Project construction and operation will not result in any significant adverse air quality impacts.

The Staff also conducted an independent analysis of the Project's potential air quality impacts. Staff analysis included modeling for direct and indirect impacts during construction, commissioning and during project operation. Staff also modeled for fumigation impacts (the mixing of various emissions under specific adverse meteorological conditions), visibility impacts, and cumulative impacts of the Project.

As a result of its independent analysis, Staff determined that the SSU6 Project, with the implementation of the measures contained in the Conditions of Certification, will not, either alone or in combination with other identified projects in the area, cause or contribute to any new or existing violations of applicable ambient air quality standards.

The Commission concludes that, with the implementation of the Air Quality Conditions of Certification, the SSU6 Project will be constructed and operated in compliance with all applicable laws, ordinances, regulations, and standards. The Applicant has agreed to all of the Staff recommended Conditions of Certification as modified by Staff to reflect the Final Determination of Compliance

FINDINGS AND CONCLUSIONS

Based on the evidence of record, we find as follows:

1. The proposed Salton Sea Unit 6 Project is located in the Salton Sea Air Basin within the jurisdiction of the Imperial County Air Pollution Control District.
2. The area is classified non-attainment for the state ozone and PM_{10} standard and also non-attainment for the federal and state ozone standard. For all other criteria pollutants, it is designated attainment, unclassified or attainment/unclassified.
3. Construction and operation of the SSU6 Project will result in emissions of criteria pollutants.
4. The SSU6 Project will employ the best available control technology (BACT) to control project emissions of criteria pollutants.
5. The Air Pollution Control Officer for the Imperial County Air Pollution Control District has issued a Final Determination of Compliance (FDOC) for the Project.

6. Implementation of the Conditions of Certification will ensure that the SSU6 Project will not result in any significant adverse impacts to air quality.
7. With the Conditions of Certification, the project will be constructed and operated in Compliance with all applicable federal, state, and local laws, ordinances, regulations, and standards governing air quality.

With the implementation of the Conditions of Certification below, the SSU6 Project will not create any significant direct, indirect, or cumulative adverse air quality impacts and will conform with all applicable laws, ordinances, regulations, and standards relating to air quality.

CONDITIONS OF CERTIFICATION

CONSTRUCTION CONDITIONS OF CERTIFICATION

AQ-C1 The project owner shall fund all expenses for an on-site air quality construction mitigation manager (AQCMM) who shall be responsible for maintaining compliance with conditions **AQ-C2** through **AQ-C4** for the entire project site and linear facility construction. The on-site AQCMM shall have full access to areas of construction of the project site and linear facilities, and shall have the authority to appeal to the CPM to have the CPM stop any or all construction activities as warranted by applicable construction mitigation conditions. The on-site AQCMM shall have a current certification by the California Air Resources Board for Visible Emission Evaluation prior to the commencement of ground disturbance. The on-site AQCMM shall not be terminated without written consent of CPM.

Verification: At least 60 days prior to the start of ground disturbance, the project owner shall submit to the CPM for approval, the name, current ARB Visible Emission Evaluation certificate, and contact information for the on-site AQCMM.

AQ-C2 The project owner shall provide a construction mitigation plan (CMP) for approval, which shows the steps that will be taken, and reporting requirements to ensure compliance with conditions **AQ-C3** through **AQ-C4**.

Verification: At least 60 days prior to start any ground disturbance, the project owner shall submit the construction mitigation plan to the CPM for approval. The CPM will notify the project owner of any necessary modifications to the plan within 30 days from the date of receipt. Otherwise, the plan shall be deemed approved.

AQ-C3 The on-site AQCMM shall submit to the CPM, in the monthly compliance report (MCR), a construction mitigation report that demonstrates compliance with the following mitigation measures:

(a) All unpaved roads and disturbed areas in the project and linear construction sites shall be watered until sufficiently wet to comply with the dust mitigation objectives of **AQ-C4**. The frequency of watering can be reduced or eliminated during periods of precipitation.

(b) The main access and egress routes to and from the SSU6 main construction site for construction employees and delivery trucks shall be paved prior to the initiation of construction. All internal power plant roads shall be paved as early as possible.

Construction employees and delivery drivers shall use paved roads to access and leave the main construction site.

(c) No vehicle shall exceed 10 miles per hour within the construction site.

(d) The construction site entrances shall be posted with visible speed limit signs.

(e) All 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) No construction vehicles can enter the construction site except through the treated entrance roadways. Gravel pads shall be installed at all access points to prevent tracking of mud on to public roadways.

(h) Construction areas adjacent to and above grade from any paved roadway shall be provided with sandbags or other measures as specified in the Storm Water Pollution Prevention Plan to prevent run-off to the roadway.

(i) All paved roads within the construction site shall be swept twice daily.

(j) At least the first 500 feet of any public roadway exiting from the construction site shall be swept twice daily. The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden.

(k) All soil storage piles and disturbed areas that remain inactive for longer than 10 days shall be covered, or be treated with appropriate dust suppressant compounds.

(l) All vehicles that are used to transport solid bulk material and that have potential to cause visible emissions shall be provided with a cover, or the materials shall be sufficiently wetted and loaded onto the trucks in a manner to provide at least one foot of freeboard. Bedliners shall be used in bottom-dumping haul vehicles.

(m) Wind erosion control techniques, such as wind breaks, water/chemical dust suppressants and vegetation, shall be used on all construction areas that may be disturbed. Any windbreaks used to comply with this condition shall remain in place until the soil is stabilized or permanently covered with vegetation.

(n) Deleted. See **AQ-C4**.

(o) Diesel Fired Engines

(1) All diesel-fueled engines used in the construction of the facility shall be fueled only with ultra-low sulfur diesel, which contains no more than 15 ppm sulfur, as soon as it is available at a terminal that by road is no more than 35 miles from the project site.

(2) All diesel-fueled engines used in the construction of the facility shall have clearly visible tags issued by the on-site AQCMM that shows the engine meets the conditions set forth herein.

(3) All large construction diesel engines and drill rig engines, which have a rating of 50 hp or more shall meet, at a minimum, the Tier 1 CARB/USEPA certified standards for off-road equipment unless certified by the on-site AQCMM that a certified engine is not available for a particular item of equipment. In the event a Tier 1 CARB/USEPA certified engine is not available for any off-road engine larger than 50 hp, that engine shall be equipped with a catalyzed diesel particulate filter (soot filter), unless certified by engine manufacturers or the on-site AQCMM that the use of such soot filters is not practical for the specific engine type. For the purposes of this condition, a Tier 1 diesel engine is "not available" or the use of such soot filters is "not practical' if the AQCMM in applying recognized industry practice certifies that:

- The Tier 1 diesel engine is not available. For purposes of this condition, "not available" means that a Tier 1 diesel engine certified by either CARB or USEPA is: (i) not in existence at any location for use by the project owner at or near the time project construction commences; (ii) in existence but the construction equipment is intended to be on-site for ten (10) days or less or (iii) not available for a particular piece of equipment.

- Despite the project owner's best efforts, use of the soot filter is not practical. For the purposes of this condition, "not practical" means any of the following: (i) the use of the soot filter is excessively reducing normal availability of the construction equipment due to increased downtime for maintenance and/or reduced power output due to an excessive increase in backpressure; (ii) the soot filter is causing or is reasonably expected to cause significant engine damage; (iii) the soot filter is causing or is reasonably expected to cause a significant risk to workers or the public; (iv) the construction equipment is intended to be on-site for ten (10) days or less or (v) other good cause approved by the CPM.

(p) The construction mitigation measures shall include necessary fugitive dust control methods required to maintain compliance with District Rule 800. Where there are similar measures the more stringent requirement shall apply. Where there is an actual conflict between these measures and a substantive control measure requirement of Rule 800, the Rule 800 requirement shall apply.

(q) For backfilling during earthmoving operations, water backfill material or apply dust palliative to maintain material moisture or to form a crust when not actively handling; cover or enclose backfill material when not actively handling; if required mix backfill soil with water prior to moving; dedicate water truck or large hose to backfilling equipment and apply water as needed; water to form a crust on soil immediately following backfilling; empty loader bucket slowly; minimize drop height from loader bucket.

(r) During clearing and grubbing, pre-wet surface soils where equipment will be operated; stabilize surface soil with dust palliative unless immediate construction is to continue; and use water or dust palliative to form a crust on soil immediately following clearing/grubbing.

(s) While clearing forms, use single stage pours where allowed; use water spray, sweeping and/or industrial shop vacuum to clear forms; and avoid use of high pressure air to blow soil and debris from the form.

(t) During cut and fill activities, pre-water with sprinklers or wobblers to allow time for penetration; pre-water with water trucks or water pulls to allow time for penetration.

(u) Post a publicly visible sign with the telephone number to contact regarding dust complaints. The Project Owner shall respond and take corrective action with 24 hours.

(v) Building pads should be laid as soon as possible after grading unless seeding or soil binders are used.

(w) The project owner shall require that well drilling and maintenance personnel observe reduced travel speed requirements on unpaved roadways that are under the control of CEOE and shall enforce this requirement.

Observations of visual dust plumes in excess of the dust mitigation objectives of **AQ-C4** would indicate that the existing mitigation measures are not resulting in effective mitigation. The AQCMM shall implement the following procedures for additional mitigation measures if the AQCMM determines that the existing mitigation measures are not resulting in effective mitigation:

I. The AQCMM shall direct more aggressive application of the existing mitigation methods within 15 minutes of making such a determination.

II. The AQCMM shall direct implementation of additional methods of dust suppression if step a) specified above, fails to result in adequate mitigation within 30 minutes of the original determination.

III. The AQCMM shall direct a temporary shutdown of the source of the emissions if step II, specified above, fails to result in effective mitigation within one hour of the original determination. The activity shall not be restarted until the implemented dust control mitigation is effective or, due to changed conditions, unnecessary. The owner/operator may appeal to the CPM any directive from the AQCMM to shutdown a source, provided that the shutdown shall go into effect within one hour of the original determination unless overruled by the CPM before that time.

Verification: In the MCR, the project owner shall provide the CPM a copy of the construction mitigation report and any diesel fuel purchase records, which clearly demonstrates compliance with condition **AQ-C3**.

AQ-C4 No construction activities are allowed to cause any visible plumes which have the potential to leave the project site, are in excess of 200 feet beyond the centerline of the construction of linear facilities, or are within 100 feet upwind of any regularly occupied structures not owned by the project owner.

Verification: The on-site AQCMM shall conduct a visible emission evaluation at the construction site fence line, or 200 feet from the center of construction activities at the linear facility, or adjacent to occupied structures each time he/she sees excessive fugitive dust from the construction or linear facility site. The records of the visible emission evaluations shall be maintained at the construction site and shall be provided to the CPM on the monthly construction report.

AQ-C5 The project owner shall submit to the CPM for review and approval any modification proposed by either the project owner or issuing agency to any project air permit.

Verification: The project owner shall submit 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-C6 The project owner shall submit to the CPM and Air Pollution Control Officer (APCO) Quarterly Operations Reports, no later than 30 days following the end of each calendar quarter, that include Operations and emissions information as necessary to demonstrate compliance with all operating Conditions of Certification. The Quarterly Operations Report will specifically note or highlight incidents of noncompliance.

Verification: The project owner shall submit the Quarterly Operations Reports to the CPM and APCO no later than 30 days following the end of each calendar quarter.

AQ-C7 All diesel-fueled engines used in the operation and maintenance of the facility shall be fueled only with ultra-low sulfur diesel, which contains no more than 15 ppm sulfur, as soon as it is available at a terminal that by road is no more than 35 miles from the plant site.

Verification: The project owner shall maintain records of fuel purchases, or other, records indicating the fuel sulfur content of the diesel fuel being used at the site and shall make them available for inspection on request by the CPM.

AQ-C8 In addition to a LO-CAT system abating H_2S in the process, the project owner shall install a polishing system that uses a solid bed H_2S removal scavenger system.

Verification: Prior to initial commissioning the owner/operator shall provide design drawings of the polishing system to the District and the CEC CPM.

AQ-C9 As a means to decrease maximum impacts below the California ambient H_2S standard during transient conditions, the project owner shall move the four vent tanks to the emergency relief tank (ERT) location. The ERTs shall be removed from the project equipment, and the relocated vent tanks will be called vent relief tanks (VRTs). The steam routed to the VRTs will be a mix of SP, LP and HP steams. The VRT stack heights shall be 80-feet in height above grade level.

Verification: Prior to initiation of construction the owner/operator shall provide design layout drawings of the vent relief tanks and stacks, or other suitable proof of the stack height, to the District and the CEC CPM.

AQ-C10 As a means to decrease maximum impacts below the California ambient H_2S standard during well flow tests, the project owner shall limit the brine flow rate to 0.8 million pounds per hour during normal well flow testing for both the production wells and injection wells. In the event that large amounts of drilling mud are present in the well during test flow, brine flow rate may be temporarily increased up to 1.2 million pounds per hour.

Verification: A summary of brine flow rates during normal well flow testing for both production wells and injection wells shall be included in each Quarterly Operations Report.

AQ-C11 The project owner shall provide through chemical monitoring and mass balance, or other means approved by the CPM, quarterly PM_{10} emission estimates for the SSU6 plant to demonstrate that the annual operational emissions are no more than 13.71 tons/year on a rolling 12-month basis.

Verification: The project owner/operator shall provide the CPM with a proposed PM_{10} emission estimation methodology within 30 days of the start of commercial operations and shall provide the PM_{10} emissions estimates in the Quarterly Operations Report.

AQ-C12 The project owner shall provide through chemical monitoring and mass balance, or other means approved by the CPM, quarterly ammonia emission estimates for the SSU6 plant.

Verification: The project owner/operator shall provide the CPM with a proposed ammonia emission estimation methodology within 30 days of the start of commercial operations and shall provide the SSU6 ammonia emissions estimates in the Quarterly Operations Report.

AQ-C13 The project owner shall provide an Ammonia Control Technology and Alternative Water Source Report to the CEC on advances in ammonia control technologies and availability of new alternative cooling water sources.

Verification: The Ammonia Control Technology and Alternative Water Source Report shall be submitted to the CPM by December 15th of the calendar year that is three years after the completion of the initial commissioning of the plant, and update it every five years thereafter.

AQ-C14 The emissions of particulate matter less than 10 microns (PM_{10}) from the Cooling Towers shall not exceed 2.91 lbs/hr, and the drift eliminator shall be designed to limit drift to no more than 0.0005% of the circulating water flow.

Verification: The project owner shall provide copies of the cooling tower specifications and a vendor warranty of the drift efficiency to the CPM 60 days prior to cooling tower equipment delivery on-site.

AQ-C15 Compliance with the Cooling Towers PM_{10} emission limit shall be determined by circulating water sample analysis by independent laboratory within 60 days of commercial operation and quarterly thereafter.

Verification: The results and field data collected from cooling tower blowdown water samples analysis shall be submitted to the CPM as part of the Quarterly Operations Reports.

DISTRICT CONDITIONS

Commissioning Period Conditions

The following Conditions AQ-1 through AQ-3 shall apply during commissioning period only.

AQ-1 At least 60 days before commissioning, the project owner shall submit a Commissioning Plan. The Plan shall include the following:

1. A public noticing of the commissioning.
2. An H_2S monitoring and mitigation program during the commissioning period.
3. An updated scheduling time for all start-up events as proposed in AIR QUALITY Table 20 Plant Commissioning Schedule.

4. Reporting of all monitoring and commissioning events

Verification: At least sixty days prior to the commissioning period, the project owner/operator shall submit a Commissioning Plan to the District and the CPM. The plan shall include an H_2S monitoring and mitigation program, a schedule for all start-up events, public noticing and reporting requirements. Prior to commissioning, the project owner shall provide documentation of public noticing to the District and the CPM.

AQ-2 The Commissioning Plan may be revised if found necessary by the CPM or APCD.

Verification: The project owner shall submit the Commissioning Plan and any updates of the Plan to the District and CPM for review and approval prior to the commissioning period.

AQ-3 The Commissioning Plan must be approved by the CEC and APCD before commissioning can commence.

Verification: The project owner shall submit the Commissioning Plan and any updates or revisions of the Plan to the District and CPM for review and approval prior to the commissioning period.

SS Unit 6 Operations Specifications and Permit Limitations

Compliance

AQ-4 The facility shall be constructed to operate in compliance with the project description, and operating parameters of the Application For Determination Of Compliance and AFC Application dated July 2002, except as may be modified by more stringent requirements of law or these conditions. Non-compliance with any condition(s) or emission specification of this Permit shall be considered a violation and subject to fines and or imprisonment. This Permit does not authorize the emissions of air contaminants in excess of those allowed by USEPA (Title 40 of the Code of Federal Regulation), the State of California Division 26, Part 4, Chapter 3 of the Health and Safety Code, or the APCD (Rules and Regulations). This permit cannot be considered permission to violate applicable existing laws, regulations, rules or statutes of other governmental agencies.

Verification: The project owner shall demonstrate compliance status in the Quarterly Operations Reports.

Emission Offsets

AQ-5 The project owner shall provide, ***before*** the construction, placement or testing of any emission source(s), offsets in tons listed per source or sources listed below in TABLE A: Offsets may be in the form of ERCs (Emission Reduction Credits) owned by certified ERC holders registered with the Imperial County Air Pollution ERC Agricultural or Stationary Bank. ERCs must be transacted and validated through the APCD. New well drilling will not coincide with any other stationary emissions source for the entire project that will trigger offsets for other pollutants (other than NO_x and PM_{10}) greater than 137 lbs/day threshold. The actual calculated emissions per source has been multiplied by the ratio 1.2 to 1 to comply with offsetting ratio requirements of Rule 207 for permanent stationary sources and 1 to 1 for temporary sources.

TABLE A

SOURCE(S)	OFFSET AMOUNT	OFFSET SOURCE

SS Unit 6 (21.1 tpy) x 1.2 + temporary emissions (0.9 tpy) x1	26.21 tons H_2S	Leathers LP 38 MWe Geothermal Power Plant (70 tons/yr H_2S uncontrolled) control with Biofilters, sparging or APCD approved system
Well Flow Testing (temporary)	5.00 tons H_2S 29.8 tons PM_{10}	H_2S from Leathers LP emission control. PM_{10} from ERC Stationary or Ag Bank
SS Unit 6 PM10 (permanent) (Mitigation agreement July 24, 2003)	19.6 tons PM_{10}	ERC Stationary or Ag Bank
Commissioning (temporary)	8.7 tons H_2S 5.63 tons PM_{10}	H_2S from Leathers LP emission control. PM_{10} from ERC Stationary or Ag Bank

Verification: The project owner/operator must submit all H_2S ERC documentation to the District and the CPM prior to the start of construction. At least 30 days prior to project commissioning, the project owner shall identify and surrender the permanent and commissioning operations PM_{10} ERCs to the District in the amount shown above and shall provide the CPM with documentation of the ERC surrender. Until such time as the project owner has committed traditional stationary source ERCs to cover the entire permanent offset burden, the project owner shall annually provide to the CPM and the District the agricultural burn secession ERCs being used to offset the project's PM_{10} emissions prior to each calendar or operational year, as required by the District. The project owner shall identify and surrender the well flow testing PM_{10} ERCs to the District as required in the District permit.

On or Before a Permit to Operate for Unit 6 Can Be Issued

AQ-6 The project owner shall install and have in operation a biofilter system, sparging system, or other APCD approved system at the Leathers LLC power plant capable of reducing 25.3 tons/yr (5.77 lbs/hr) of H_2S at all times.

Verification: The project owner/operator shall make arrangements for periodic inspections of the Leathers LLC power plant by representatives of the District, CARB, USEPA and CEC.

AQ-7 The total emissions rate of Leathers LLC H_2S shall not exceed 17.03 lbs/hr after the installation of the bio-filtrations system.

Verification: The project owner/operator shall submit records of compliance as part of the Quarterly Operations Reports.

AQ-8 The project owner shall obtain PM_{10} offsets in the total amount of 19.6 tons PM_{10} per operating year. Offsets may be obtained through the APCD's Stationary Source and/or Agricultural Burning Emission Reduction Credits (ERCs) Bank list registered with the APCD. The Project owner shall have ERC Certificates in their possession totaling a minimum of 19.6 tons PM_{10} at all times during the operation of SS Unit 6. The Project owner shall surrender 19.6 tons PM_{10} ERC certificate(s) to the APCD prior to initial startup and annually thereafter.

Verification: At least 30 days prior to project commissioning, the project owner shall identify and surrender PM_{10} ERCs in the amount shown above. Until such time as the project owner has committed traditional stationary source ERCs to cover the entire offset burden, the project owner shall annually provide to the CPM and the District the agricultural burn cessation ERCs being used to offset the project's PM10 emissions prior to each calendar or operational year, as required by the District.

AQ-9 The Leather's LLC Permit to Operate # 1927E H_2S emission rate shall be revised to reflect **AQ-7** above.

Verification: The project owner/operator shall maintain the latest version of the Leathers' LLC Permit to Operate on site for the duration of the SS Unit 6 operating lifetime, or until H_2S offsets from a different source have been obtained, and shall be provided to District or CPM upon request.

Standby Internal Combustion Engines

AQ-10 Temporary or permanent internal combustion engines for this project shall not exceed the engine emissions specifications listed for this project. Upon proper notice and findings by the APCO, the project owner shall replace or modify IC engines or apply the use of secondary emissions control measures as directed by the APCO.

Verification: The project owner/operator shall submit records of compliance as part of the Quarterly Operations Reports.

AQ-11 Stationary Standby IC Engines shall be limited to operate not more than 100 hours per year for maintenance purposes.

Verification: The project owner/operator shall submit records of compliance as part of the Quarterly Operations Reports.

AQ-12 All IC Engines shall be equipped with diesel flow and hour meters.

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, USEPA and CEC.

AQ-13 The IC engines shall not discharge into the atmosphere any visible emissions (which is 20% opacity or greater) other than visible water vapor, for a period or periods aggregating more than three minutes in any one hour.

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, USEPA and CEC.

AQ-14 The project owner shall maintain logs on the premises showing hours of operation and routine repairs of the engines.

Verification: The project owner shall make the logs available for inspection by representatives of the District, CARB, USEPA and CEC.

Well Drilling

AQ-15 The project owner shall submit to the APCD fuel usage and hours of operation records.

Verification: The project owner/operator shall submit fuel usage and hours of operation to the District and CPM no later than 30 days after completion of well drilling.

Geothermal Power Plant Startups

AQ-16 Upon plant startups, the project owner shall

- Notify APCD of the time duration of the anticipated startup.
- Vent high pressure steam to condenser as soon as technically feasible during startup.

- Notify APCD upon completion of startup.

Verification: The project owner/operator shall notify the District and CPM seven (7) days prior to an anticipated startup, including both the estimated time and duration of the startup. The project owner/operator shall notify the District and CPM within three (3) days after completion of a startup. The project owner/operator shall make the site available for inspection by representatives of the District, CARB, USEPA and CEC.

Geothermal Power Plant Emissions Standards

AQ-17 Under normal operations, the Project owner shall not exceed a plant wide total emission rate of the following:

Hydrogen Sulfide (NCG + CT Offgassing + DWH)	6.48 lbs/hr
Hydrogen Sulfide (NCG + CT Offgassing + DWH)	4.81 lbs/hr over a 24 hour average
Hazardous Organics (NCG + CT Offgassing + DWH)	0.180 lbs/hr over a 24 hour average
NCG = exhaust from H_2S abatement system CT Offgassing = cooling tower offgassing DWH = Dilution Water Heater Stacks	

Verification: The project owner/operator shall submit records of compliance as part of the Quarterly Operations Reports.

Geothermal Steam Venting Emissions Standards

AQ-18 Noncondensible gases from the high pressure steam shall be directed to the hydrogen sulfide abatement and carbon absorption units at all times.

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, USEPA and CEC.

AQ-19 Emissions of uncontrolled standard and low pressure noncondensible shall be calculated from most recent source tests.

Verification: The project owner/operator shall submit records of compliance as part of the Quarterly Operations Reports.

Monitoring

AQ-20 The project owner shall install and maintain in good working order an APCD approved continuous H_2S in-stack monitor and flow gas meter at the H_2S control system exhaust. The flow gas meter and in-stack monitor shall meet all specification, calibration, accuracy and quality assurance checks as set forth by the manufacturer. The monitor shall be equipped with a data logger capable of recording the continuous gas flow (SCFM) and H_2S concentrations in PPBv/ PPMv and lbs/hr.

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, EPA and CEC.

AQ-21 The project owner shall submit to the APCD an approved performance test protocol. Testing shall not be conducted without prior APCD approval.

Verification: Thirty (30) days prior to performance testing the owner/operator shall provide a written test and emissions calculation protocol for District and CPM review and

approval. The approved protocol shall be in place when written notice for the initial performance tests is submitted. Written notice of the performance 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 performance tests shall be submitted to the District and CPM within forty-five (45) days after testing.

AQ-22 The project owner shall establish and submit an approved monitoring protocol and method(s) for monitoring and calculating cooling tower (offgassing) H_2S offgassing and benzene emissions from carbon absorption unit.

Verification: Thirty (30) days prior to initial commissioning the project owner shall submit a monitoring protocol and method(s) for monitoring and calculating cooling tower H_2S offgassing and benzene emissions from carbon absorption unit for District and CPM review and approval. The approved monitoring protocol shall be in place prior to the end of the initial commissioning period.

AQ-23 Unless waived by the APCO, the project owner shall perform annual source testing at (1) the LOCAT/Solid bed H_2S scavenger unit/Carbon adsorption exhaust for H_2S and Benzene emissions+ total speciated organic emissions+ total speciated metals; (2) at the cooling tower cells exhaust for H_2S and ammonia and benzene emissions+ total speciated organic emissions+ total speciated metals, and (3) the Dilution Water Heater (DWH) exhaust emissions for H_2S and benzene emissions+ total speciated organic emissions+ total speciated metals and total PM_{10}.

Verification: The annual source test report shall be submitted to the District and CPM as part of the Quarterly Operations Reports. Each annual source test report shall either include the results of the initial compliance test and supplemental source tests for the current year or document the date and results of the last such tests.

AQ-24 Source tests shall be conducted at no less than 85% power capacity of the plant.

Verification: The project owner/operator shall submit records of compliance as part of the Quarterly Operations Reports.

AQ-25 The project owner shall provide the necessary scaffolding and access for source testing.

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, USEPA and CEC.

AQ-26 In-stack monitoring equipment shall be available for inspection by the APCD at all times.

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, USEPA and CEC.

AQ-27 The project owner shall measure and submit to the APCD monthly, in an approved format, the H_2S concentrations from the continuous H_2S monitor and benzene concentrations from the carbon absorption Unit(s).

Verification: The data required in this Condition shall be submitted to the APCD monthly and shall be provided to the CPM in the Quarterly Operations Reports.

AQ-28 The project owner shall submit to the APCD the H_2S concentration (ppmv) and H_2S mass flow (lb/hr) measured at the non-condensable gas line before the abatement on a monthly basis. The project owner shall measure the efficiency of the cooling tower oxidizer boxes by measuring the flow rate and H_2S concentration of the condensate inlet and the H_2S outlet of the oxidizer boxes on a weekly basis and; the project owner shall measure the pH and temperature of the condensate at the inlet of the oxidizer boxes on a weekly basis. All sampling and analysis shall be performed on the same day. The project owner shall source test all cooling tower shrouds annually.

Verification: The data required in this condition shall be submitted to the APCD monthly and shall be provided to the CPM in the Quarterly Operations Reports.

Ambient H_2s Monitoring

AQ-29 The project owner shall, with the cooperation of APCD and CARB, install and support an approved ambient H_2S monitor and supporting equipment at an Ambient Air Quality Station located near Salton Sea Geothermal area. The monitor shall meet all specification, calibration, accuracy and quality assurance check as set forth by the manufacturer. The monitor shall be equipped with a data logger capable of recording the continuous H_2S concentrations in PPB/PPMV.

Verification: The project owner shall make the monitoring site available for inspection by representatives of the District, CARB, USEPA and CEC, and shall make the monitoring data available to the CPM in hardcopy or electronic format upon request.

AQ-30 The monitor shall be in full operation no later than flow testing of the first production well for the SS Unit 6 project.

Verification: The project owner shall make the monitoring site available for inspection by representatives of the District, CARB, USEPA and CEC. The project owner shall inform the CPM within 15 days after the ambient monitoring site becomes operational.

Reporting Requirements

AQ-31 The project owner shall notify the APCD before plant startups.

Verification: The project owner/operator shall notify the District and the CPM at least seven (7) days prior to an anticipated startup, including both the estimated time and duration of the startup.

AQ-32 The project owner shall notify the APCD at least 48 hours before any official source tests. All official tests shall be witnessed by an APCD official.

Verification: The project owner/operator shall notify the District and the CPM at least 48 hours prior to any official source test. The project owner/operator shall provide to the CPM the name of the APCD official who witnessed the source test in the source test report required under condition **AQ-33**.

AQ-33 The project owner shall submit source test results to the APCD no later than 30 days after the initial performance test. All source tests after the performance test shall be submitted no later than February 28th of the subsequent year for the preceding year results.

Verification: Copies of the required source tests shall be submitted to the CPM and the District simultaneously by the schedule required in this condition.

AQ-34 The project owner shall submit to the APCD monthly, the benzene mole concentrations, mass rate (lbs/hr) and total NCG gas flow rate (SCFM and lbs/hr) from the carbon absorption units no later than 15 days the subsequent month for the preceding month and; the project owner shall submit to the APCD monthly, the continuous H_2S concentration (PPMv) and Mass (lbs/hr) no later than 15 days the subsequent month for the preceding month

Verification: The APCD required monthly concentration and flow data shall be provided to the CPM in the Quarterly Operations Reports.

AQ-35 The project owner shall submit annual fuel consumption and hours of operation of diesel standby equipment no later than February 28th of each year for the subsequent year use.

Verification: The project owner/operator shall submit to the CPM the annual fuel consumption and hours of operation of diesel standby equipment in the Quarterly Operations Report for each fourth quarter.

AQ-36 The project owner shall notify the APCD of all emissions exceedances and breakdowns within 24 hours of the occurrences.

Verification: The project owner/operator shall comply with the notification requirements of the District and submit written copies of these notification reports to the CPM and the APCO as part of the Quarterly Operations Reports.

Control And Monitoring Equipment Maintenance

AQ-37 The H_2S and carbon absorption control, and drift eliminators and or other future control devices and monitoring equipments shall be maintained in good working and operating at its maximum control efficiency level specified in accordance to the operating instructions.

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, USEPA and CEC.

AQ-38 The Project owner shall keep a sufficient supply of catalyst, reagents and carbon for immediate system replenishment.

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, USEPA and CEC.

RECOMMENDATIONS FOR OTHER AGENCIES WITH JURISDICTION OVER WELL DRILLING/WELL FLOW ACTIVITIES

The following conditions can and should be implemented by the appropriate responsible agencies approving the geothermal resource wells, pads and associated pipelines:

1. The well flow testing shall be completed as expeditiously as possible.
2. All future well flow operations (i.e. post initial commissioning) shall be permitted and properly offset as required under District Rule 207[1].

[1] The District has informed staff that any future (i.e. post initial commissioning) well flow tests will require air quality permitting and will need to be offset based on the daily emission offset thresholds contained in District Rule 207 with the project's normal operating emissions

3. All future well drilling operations shall be permitted and properly offset as required under applicable District rules and policies.

4. Well drilling activities shall use engines that meet or exceed the following EPA offroad engine emission standards:

DATE OF WELL DRILLING OPERATION	EPA OFFROAD ENGINE STANDARD
Prior to 2010	Tier 1
2010 to 2015	Tier 2
2015 to 2020	Tier 3
After 2020	Tier 4

Alternatively, prior to 2010, well drilling activities shall be controlled in accordance with the construction mitigation agreement made between CEOE and CURE (CEOE and CURE 2003) as follows:

> All large drill rig engines, which have a rating of 100 hp or more, shall be equipped with catalyzed diesel particulate filters (soot filters) that achieve the maximum control efficiency commercially feasible, unless certified by engine manufacturers that the use of such devices is not practical for specific engine types.

5. By no later than 2006, well drilling diesel engines shall be required to use ultra-low (15 ppm) sulfur diesel fuel.

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considered as part of the total. Staff has determined that this offset procedure would require the future well flow testing PM_{10} emissions to be offset at more than a 1:1 offset ratio. Future well flow testing H_2S emissions are not expected to cause significant impacts and do not require mitigation under CEQA.

BIOLOGY

BIOLOGY—GENERAL

The proposed Salton Sea Unit 6 (SSU6) geothermal power plant is located on an 80-acre parcel along the northern portion of the block bounded by McKendry Road to the north (where the main entrance will be placed), Severe Road to the west, Peterson Road to the south, and Boyle Road to the east. The immediately surrounding area is still predominantly agriculture and 20-foot high gravel berms on the north and west boundaries, separate the project site from surrounding areas. The power plant's northern perimeter be will planted with trees to screen the view from the Sonny Bono Salton Sea National Wildlife Refuge.

The site will be accessed during construction and operation from State Highway 86 and Bannister Road or Sinclair Road from Highway 111. During peak construction the project will add 930 vehicle trips per day along McKendry Road and 930 trips to Boyle Road. This number of vehicle trips is an order of magnitude higher than is experienced now (1000 percent increase). Other local roads may experience about a 30 percent increase in vehicle trips. The maximum speed on all unpaved roadways in the project area during construction and operation of the project is 15 miles per hour.

Switching Station

The proposed SSU6 switching station is located on the west side of State Highway 86 at the intersection of Bannister Road. The station is next to a large wash where signs of coyote, bobcat and kit fox were detected in February 2002. The station and towers are both sited well outside of the wash, and a jurisdictional delineation determined there would be no impacts to waters of the U.S associated with construction of the switching station. A permit under Section 404 of the Clean Water Ac, therefore, would not be required.

Linear Facilities

In addition to the power plant site, several linear facilities also will be constructed as part of the project. Transmission lines will be built on single-pole steel structures ranging from 100 to 125 feet high. All brine pipelines would be elevated above the ground and would be encased in insulation. All well pads would be cleared and graveled.

L-Line Transmission Line

The proposed L-Line interconnection is a 16-mile route along existing roads to the point where Bannister Road connects to State Highway 86, and then connects to the switching station. From this point, the transmission line follows an s-shaped route around the southern edge of a sanitary landfill to interconnect on BLM lands with the existing L-Line. Many of the roads have existing distribution and transmission lines in their shoulders, and the southern edge of Salton Sea is a web of drains, laterals, and irrigation canals operated by Imperial Irrigation District.

CE Obsidian Energy LLC performed avian flyover studies to determine the need for bird flight diverters on both of the proposed transmission lines. (Bird flight diverters are designed to make the small grounding wire connecting the tops of transmission line poles more visible.) The survey found bird use of the area varied based on location, and even within a single location, there are a variety of species.

The proposed L-Line route would cross the New River at approximately milepost 5 near Foulds Road. The IID Midway interconnection crosses the Alamo River at approximately milepost 5 near Dewey Road. The project proposes aboveground crossings of the New River and Alamo River. At these crossings mature tamarisk dominates the shoreline, but no sensitive species have been reported from these stands. Surrounding the river crossings are lands used for agriculture and as dairy farms.

The wetlands near the corner of Lack and Lindsey Road (near L-Line Milepost 2.5) were consistently occupied by California brown pelicans during the summer of 2002, with estimates of 12 to 40 individuals present on any given day. There are currently powerlines along this corner connecting Salton Sea Units 1 and 2 and several water pumps to the electrical grid.

An alternative transmission line was proposed along State Highway 86. This route would be the same proposed L-Line route to the intersection of Bannister Road and State Highway 86. This alternative would connect to the switching station, then follow the highway corridor to its intersection with the L-Line, about 7.5 miles to the northwest. The alternative route would cross both agricultural and residential lands if located on the east side, and creosote scrub if located on the west side. No significant bird use of this area was found.

IID Midway Transmission Line

The proposed IID Midway transmission line route is 15 miles long, and travels south from the plant site, then east, and then north again along existing roads. The route crosses agricultural lands, dairy farms, and the California State Prison, Calipatria before terminating at the existing Midway substation.

Brine Supply and Injection Pipelines and Wellheads

The brine supply (production) and injection pipelines corridors traverse primarily agricultural land and are centered on paved and gravel roads. Production well pipelines OB1, OB2, OB4 and OB5 do not cross any wetland or drainage features. The production well pipeline for OB3 crosses a wetland at McKendry Road. The injection well pipelines cross drainage channels and approximately 100 acres of agricultural land would be permanently lost during construction of the pipeline corridors.

The production wellheads for OB1 and OB2 would be located within an approximately 60-acre parcel of agricultural lands north of the power plant site. The entire parcel is currently leased to the Refuge on a month-by-month basis. The area also serves as overflow parking during some Refuge events. The areas north, east and west of the plot are freshwater marshland that support Yuma clapper rail. The north wetlands were created by the USACE and CDFG (Union Pond) and are separated from the parcel by a 4-foot berm. The west marshland is part of the Salton Sea shoreline, and is separated from the parcel by a 20-foot berm.

Production wellhead OB3 would be located on the southern end of Obsidian Butte. The well pad would disturb a 300 feet by 700 feet area (4.8 acres). Obsidian Butte is a disturbed area used by Imperial Irrigation District for gravel mining. The construction of this well pad will not result in new disturbance. The islands to the southwest of Obsidian Butte, about 1,000 feet from the wellhead site, have been used as loafing areas by California brown pelicans according to Refuge staff. The production pipeline from wellhead OB3 will cross a wetland

feature on either side of McKendry Road, which will result in an estimated the loss of 0.4 acres of federal jurisdictional features and 0.4 acres of CDFG jurisdictional features.

The brine production wellheads OB4 and OB5 would be located on actively farmed land near the power plant facility. No unique resources were identified near these wellheads or the associated production pipelines.

The injection wellheads for SSU6 are proposed within agricultural lands to the south and east of the proposed power plant site. Injection well pipelines would cross drainage canals. While these canals occasionally accumulate cattails, they are routinely cleared of all vegetation by IID and no Yuma clapper rails or other birds have been detected to date. Burrowing owl pairs have been found near the injection wellhead locations. (SA Biological Res., p. 4.2-14-19)

Protected Species Impact

For the purpose of this analysis, the Commission reviewed all federally and state-listed species, species proposed for listing under the California and Federal Endangered Species acts, federal species of concern, state species of special concern, and plant species designated as rare, threatened, or endangered (List 1B or List 2) by the California Native Plant Society Inventory of Rare and Endangered Plants of California.

Rare Plants

Peirson's Milk-vetch. Peirson's milk-vetch is found on the slopes and hollows of mobile sand dunes, usually in the lee of the prevailing winds. The closest recorded occurrence of Peirson's milk-vetch is Kane Spring, which is on the west side of the Salton Sea. Suitable habitat is lacking in the immediate area of the project. No impact to this species is expected to occur in the project vicinity. (FSA Biological Res., p. 4.2-8-9.)

Fisheries

Desert Pupfish. The Desert pupfish was listed as a California endangered species in 1980; the USFWS listed this species as endangered and designated critical habitat in 1986 because of habitat alteration, the introduction of exotic species and contaminants, and other habitat impacts. The species was once endemic to the Colorado River and numerous springs throughout the Salton Sink, but is presently found only in the Salton Sea and some of its tributaries. Researchers have been surveying for this species intensively since 1980 and found they are using several of the laterals, agricultural drains, and shoreline pools. Surveys in the 1990s did not consistently detect Desert pupfish in the Salton Sea area. No impacts to this species are expected so long as soil erosion Best Management Practices are followed as prescribed Soil and Water Resources Conditions of Certification. (FSA Biological Res., p. 4.2-9-27)

Reptiles

Flat-tailed horned lizard. The USFWS determined in January 2003 that the listing of the flat-tailed horned lizard was not warranted. This species is a state Species of Special Concern. Although native creosote bush scrub is present along the L-Line interconnection route, habitat along the route is not considered suitable for flat-tailed horned lizard. The area lacks sandy soils, and there are many off-highway vehicle disturbances that preclude lizards. However, where the L-Line interconnection crosses BLM lands, there will be some temporary disturbance of creosote scrub habitat which is considered potential flat-tailed horned lizard habitat. Therefore, mitigation will be required in the form of payment into a compensation

program developed by the Flat-tailed Horned Lizard Management Oversight Group. (FSA Biological Res., p. 4.2-13-25.)

MITIGATION:

☑ The project owner shall provide funding to the Bureau of Land Management (BLM) for impacts to flat-tailed horned lizard as prescribed by the *Flat-tailed Horned Lizard Rangewide Management Strategy - Appendix 4 Compensation Formula*. Condition: **BIO-22.**

Birds

Pelicans. The federally and state-listed endangered California brown pelican regularly occurs in the Salton Sea area. The migrants usually begin to arrive in June and depart by late fall. Highest densities are found from July to September. American white pelicans, a state Species of Special Concern, use the area as a migratory stop over in spring and fall, and some individuals may spend the winter. Both species use the open water portion of the Salton Sea for resting and feeding. Tens of thousands of pelicans use Mullet Island (about 4 miles north of Obsidian Butte). A California brown pelican loafing area is located along the islands south and west of Obsidian Butte. California brown pelicans were consistently seen in spring 2003 along the Salton Sea shoreline at the corner of Lack and Lindsey Roads.

Yuma Clapper Rail. On March 11, 1967, the Yuma clapper rail was designated as federally endangered. The Yuma clapper rail is a year-round resident and breeds in marsh habitats around the southeastern portion of the Salton Sea. The preferred habitat is mature cattail-bulrush stands with shallow water, although they will forage in adjacent agricultural areas. These secretive birds find mates and defend territories in the dense marsh habitat by using calls. Rails call primarily near dawn and dusk, or during times of morning and evening civil twilight[2]. The Applicant completed surveys for Yuma clapper rail along the OB3 pipeline route, and noted several individuals were present in the project area. The majority of rails (94 of 97 found) are using Refuge lands which are managed to promote dense cattails. Six areas near the Refuge have been identified as habitat. A very small percentage of the local area is suitable nesting habitat due to the dominance of agriculture and the active removal of cattails within irrigation canals to improve water supplies.

During construction, the noise levels from the power plant to the nearest sensitive receptor, Yuma clapper rail habitat, would range from 47 dBA to 105 dBA, and most activities would occur during daylight hours. The amount of noise is dependent on distance from the habitat (located on the north and northwest from the power plant site), and the type of equipment in use. CE Obsidian Energy LLC has proposed that approximately 5 to 10 dBA reductions could be achieved if temporary barriers were constructed that blocked the line-of-sight between the noise source and receiver. The composite site noise from power plant construction could range from 78 to 89 dBA. The overall expected noise level at 1,000 feet is estimated be 78 dBA, which means noise at the nearest sensitive receptor (650 feet) could be 82 dBA.

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[2] According to the U.S. Naval Observatory civil twilight "is defined to begin in the morning, and to end in the evening when the center of the Sun is geometrically 6 degrees below the horizon. This is the limit at which twilight illumination is sufficient, under good weather conditions, for terrestrial objects to be clearly distinguished; at the beginning of morning civil twilight, or end of evening civil twilight, the horizon is clearly defined and the brightest stars are visible under good atmospheric conditions in the absence of moonlight or other illumination. In the morning before the beginning of civil twilight and in the evening after the end of civil twilight, artificial illumination is normally required to carry on ordinary outdoor activities. Complete darkness, however, ends sometime prior to the beginning of morning civil twilight and begins sometime after the end of evening civil twilight."

One of the loudest noises expected from project construction is pile driving, which is expected to occur at the power plant site during months 8 through 12 inclusive. Noise levels during conventional pile driving that exceed 85 dBA at any frequency may force these bird species to abandon nests or stop feeding. To mitigate all pile driving noise impacts to a less than significant level, noise from pile-driving must be less than 60 dBA at the nearest Yuma clapper rail site during the daybreak (morning civil twilight) and sunset hours during the mating season or pile driving must be restricted to those months outside the mating season. CE Obsidian Energy LLC shall develop a Noise and Vibration Assessment and Abatement Plan to attenuate construction noise to a level that is acceptable to the resource agencies.

Pile driving and use of heavy equipment could cause vibrations that can be an annoyance to ground-nesting birds. Pile driving is only anticipated for steam turbine foundations, but the plant equipment may also need piles depending on final geotechnical analysis. The vibration from a typical pile driver is estimated to be 72 VdB (vibration level in decibels) at 1,000 feet which is the annoyance criterion for areas where people sleep. Vibrations from heavy equipment would be lower than pile driving, reaching approximately 26 to 55 VdB at 1,000 feet. CE Obsidian Energy LLC has agreed to schedule pile-driving outside of the shorebird breeding season, but it would be more appropriate to schedule it outside of the nesting season. The avoidance of vibration impacts during the nesting period would eliminate concerns about nest-abandonment by listed species such as the Yuma clapper rail, and would protect the many ground-nesting migratory shorebirds that use the shoreline of the Salton Sea.

During plant commissioning, a series of steam blows would take place at the power plant to test the production and injection pipelines. Steam blows can last from one day to one week, and three are anticipated for the project. Steam blows create a constant noise that can last for up to 72 hours. The project proposes to include a silencer on the steam blows to reduce the sound level to 74 dBA at 100 feet. The closest Yuma clapper rail habitat is 1,500 feet from the location of the steam blow, and sound pressures at 1,500 feet would be around 50 dBA. Because the steam blows could occur at any time of year, and are a constant noise source, a steam-blow attenuated to 74 dBA or lower at 100 feet is required by staff to ensure avoidance of impacts to Yuma clapper rail during the mating and nesting season.

California Black Rail. The California black rail is a state-listed threatened species that has scattered occurrences in the Salton Sink. Black rails require dense vegetation cover, but the vegetation types utilized at the Salton Sea have not been described. General surveys in 2002 did not detect black rail within the project area, and surveys by applicant's consultants also did not detect birds. The Refuge lists the black rail as occasionally using the area, normally less than five individuals per season.

Mountain plover is a state Species of Concern, but is no longer being considered for federal protection. Current estimates are that Imperial Valley provides wintering habitats for about one-half of the global population. Mountain plover predominately use either alfalfa fields grazed by sheep or cattle, fallow fields of any crop type, and also use recently burned Bermuda grass fields and sprouting wheat fields. The amount of suitable habitat in the Imperial Valley varies slightly across the landscape and over time, but about 500,000 acres of the Salton Sea Basin is in grass seed production, hay and pasture and about 155,000 acres is in wheat which makes the majority of the basin suitable for mountain plover. The species is documented within the project area.

Western Burrowing Owl. Western burrowing owls, a state Species of Concern, inhabit open areas such as grasslands, pastures, coastal dunes, desert scrub, and the edges of agricultural fields. They use rodent burrows or construct burrows in semi-compacted soil in the slopes of drainage canals next to agricultural fields. Burrowing owls are abundant in this portion of the state, and they were found along almost the entire length of the transmission line routes. Overall, there have been at least 100 sightings of burrowing owls within 1,800 feet of the project features. The Fish and Game Commission received a petition to list the western burrowing owl as an endangered or threatened species on April 3, 2003. A recommendation denying the petition is expected to be issued by the Commission before the end of 2003. (FSA Biological Res., p. 4.2-19-28).

Transmission Line Impacts

Several sensitive bird species were seen flying perpendicular to the transmission line routes during the avian flyover surveys. There is evidence that distribution lines pose collision hazards for California brown pelicans, but it is unclear if there is a collision hazard from transmission lines (which are much taller and heavier gauge). The proximity of open water to the transmission line will be the best indicator of where the hazard occurs. The segment of L-line interconnection between milepost 1 and milepost 3 is less than 1,000 feet from the shoreline of the Salton Sea. The proposed transmission lines cross the New River and Alamo River, which have segments of riparian vegetation and are used extensively by migrating birds. CE Obsidian Energy LLC has proposed to place bird flight diverters on any lines where avian collisions are expected, including the New River and Alamo River. No impacts are expected after the installation of bird flight diverters, but the implementation of a bird flight diverter monitoring plan can measure the effectiveness of marking the lines and suggest remedial actions if any unexpected impacts occur.

MITIGATION:

- ☑ The project owner shall develop and implement a CPM approved Worker Environmental Awareness Program (WEAP) in which each of its employees, as well as employees of contractors and subcontractors who work on the project site or any related facilities during site mobilization, ground disturbance, grading, construction, operation and closure are informed about sensitive biological resources associated with the project. Condition: **BIO-4.**
- ☑ The project owner shall submit two copies of the proposed Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) to the CPM for review and approval, and to California Department of Fish and Game (CDFG) and U.S. Fish and Wildlife Service (USFWS) for review and comment, and shall implement the measures identified in the approved BRMIMP. Condition: **BIO-5.**
- ☑ The project owner shall acquire an Incidental Take Permit and a Streambed Alteration Agreement from the California Department of Fish and Game (CDFG) (per Sections 600 and 2081(b) of the Fish and Game Code; California Endangered Species Act) if required and incorporate the terms and conditions into the project's BRMIMP. Conditions: **BIO-7 and BIO-8.**
- ☑ The project owner shall provide a copy of the Biological Opinion per Section 7 of the federal Endangered Species Act obtained from the U. S. Fish and Wildlife Service. The terms and conditions contained in the Biological Opinion shall be incorporated into the project's BRMIMP. Condition: **BIO-10.**

- ☑ The project owner shall prepare a detailed Noise and Vibration Assessment and Abatement Plan based on the final design of the facility to determine the most practicable measures to reduce/mitigate construction noise and vibration impacts. Condition: **BIO-16.**
- ☑ The project owner shall install an agency-approved marker on the grounding wire of the proposed transmission lines. These markers shall be placed and maintained on the highest-bird-use portions of the proposed transmission lines. Monitoring of the entire 31 miles of proposed transmission line, and sections of unmarked but comparable transmission line in the study area, shall be implemented for the first two years of operation, and may continue for up to ten years (to determine effectiveness of remedies) if impacts are found to be excessive by a working group of interested agency personnel. Condition: **BIO-17.**
- ☑ The project owner shall survey for burrowing owl activities on the 80-acre parcel and along the transmission lines prior to site mobilization to assess owl presence. The project owner shall evaluate the potential impact to each burrowing owl occurrence using impact criteria reviewed by the CDFG and USFWS and approved by the CPM. Condition: **BIO-19.**
- ☑ Foraging habitat which is permanently destroyed shall be replaced at 0.5:1 (ratio of mitigation acreage to impact acreage) and managed for the protection of burrowing owls. Condition: **BIO-25.**

Effect on Sensitive Habitat

Wetland Losses

The power plant and laydown areas are not located in or near any surface waters or federally protected wetlands or other jurisdictional waters and therefore, there is no direct loss of this sensitive habitat. There is no change in the open water habitat in Salton Sea as a result of the project, and no impacts are expected.

The jurisdictional wetlands impacted by the project are related to the installation of OB3 pipeline and road expansion (McKendry Road) and the installation of transmission line access roads and spur roads between the switching station and the L-line. The pipeline crossing the McKendry Road segment would be designed as a double-walled pipeline, encased in concrete, isolated by block valves at the wellhead and along the pipeline, and would be monitored both externally by daily visual inspections, and internally by pressure monitors. The 0.18 acres of federal jurisdictional areas and the 0.3 acres of CDFG jurisdictional areas are broken down by habitat type below:

- 0.05 acres of brackish marsh;
- 0.03 acres of other waters of the U.S. in the form of open water;
- 0.02 acres of desert sink scrub;
- 0.08 acre ephemeral desert wash; and
- 0.3 acres of tamarisk scrub.

CE Obsidian Energy has submitted an application to the U.S. Army Corps of Engineers (USACE) to obtain a permit under Section 404 of the Clean Water Act for the fill of degraded wetlands. CE Obsidian Energy also has requested a water quality certification under Section

401 of the Clean Water Act from the Regional Water Quality Control Board. CE Obsidian Energy LLC proposed to mitigate the impact to jurisdictional wetlands by creating or enhancing 0.8 acres of habitat. Furthermore, CE Obsidian Energy LLC has provided a preliminary Wetland Mitigation Plan that offsets the impacts to desert scrub and tamarisk scrub with land managed for wildlife use. The USFWS consulted with USACE under Section 7 of the federal Endangered Species Act regarding installation of pipeline and concluded in its Biological Opinion that no take of a federally listed species would occur if construction takes place as described and outside of the Yuma clapper rail breeding season. A Fish and Game Code Section 1603 permit may be required from the CDFG, but the CDFG has not made a determination on the project. Construction within the wetland area will be subject to the conditions of the USACE permit, which will incorporate the USFWS Section 7 Biological Opinion. CE Obsidian Energy LLC has agreed to provide the safest (least risk) design possible for the wetland pipeline crossing. No impact is expected after implementation of the permit terms and the restoration or creation of wetland habitat.

Of the combined four mile length of production and injection pipelines, only about 0.25 miles crosses areas that are marsh or wetland habitat. CE Obsidian Energy LLC proposes to build the portion of pipeline that crosses jurisdictional wetland in a double-walled pipe, but the remainder would be in single walled pipe. If either the production or injection pipelines were to rupture and spill (estimated volume between 200 to 400 gallons), there may be direct or indirect impacts to sensitive aquatic resources depending on size of the spill and location relative to drains, wetlands, or other sensitive habitat. CE Obsidian Energy LLC has provided a draft Brine Spill Contingency Plan that covers agency notification and clean-up at the facility and takes into account the sensitive biological resources in the area.

Riparian Habitat Losses

The project's transmission lines cross two major rivers. Both the New River and Alamo River contain riparian habitat and are used by numerous birds for migration corridors. There would be little or no habitat loss from the transmission line towers because they are located on upland areas and no mitigation is requested by staff. The transmission lines would span over the riparian areas at a height of 100 to 125 feet, which is much higher than the existing vegetation and therefore will not require trimming the height of the vegetation. (FSA Biological Res., p. 4.2-28-30; FSA Addendum, Biological Res., p. 4.2-18.)

MITIGATION:

- ☑ The project owner shall acquire a Streambed Alteration Agreement from the CDFG (per Section 1600 of the Fish and Game Code) if required, and incorporate the biological resource related terms and conditions into the project's BRMIMP. Condition: **BIO-8.**
- ☑ The project owner shall acquire the Regional Water Quality Control Board Section 401 state Clean Water Act certification or a waiver if required, and incorporate the biological resource related terms and conditions into the project's BRMIMP. Condition: **BIO-9.**
- ☑ The project owner shall provide evidence of compliance with the U.S. Army Corps of Engineers Section 404 program of the federal Clean Water Act. The biological resources related terms and conditions contained in the permit shall be incorporated into the project's BRMIMP. Condition: **BIO-10.**
- ☑ The project owner shall submit copies of the conservation easement relating to the restoration and creation of wetland habitat, if required by the U.S. Army Corps of Engineers permit conditions. Condition: **BIO-24.**

Brine Pipeline and Wellheads

The construction of production wells OB1 and OB2 on lands north of the power plant site will place people and equipment within close proximity (200 feet) of wetlands known to contain Yuma Clapper rail, and which may contain black rail. The applicant has agreed to do construction at production wells OB1 and OB2 outside of the period when Yuma clapper rails are vocal and defending nest territories, and the County should incorporate this restriction into their permit. The construction of OB3 well head on Obsidian Butte would place people and equipment near (1000 feet) a California brown pelican loafing area, and an area that has been used for nesting. The applicant agreed to schedule shut-down maintenance of production well OB3 outside of the shore-bird breeding season.

The construction of the production and injection well pads and pipelines (except OB3 and its pipeline) would result in habitat losses to mountain plovers. The permanent loss from the proposed project is limited to the footings of the pipelines and the concrete cover on the well pad which removes both types of mountain plover habitat. The County should calculate this loss during well pad and pipeline construction (or as soon as final construction drawings are available) and require the applicant offset these losses with actively managed lands (e.g., grazed or burned periodically) which are suitable for mountain plover. The County should include a buffer around these facilities to account for wildlife avoidance of these features in their impact calculations. The impact to burrowing owls would be the same as noted for the power plant site.

The construction of the production and injection well pads and pipelines (except OB3 and its pipeline) would result in habitat losses to burrowing owls. Several burrowing owls were detected near the injection well heads. The County should require pre-construction surveys and compensation for any losses in a manner that is consistent with Condition of Certification **BIO-19** and **BIO-25**.

MITIGATION:

- ☑ The project owner shall manage their construction, operations, and emergency response to limit impacts to biological resources. Conditions: **BIO-12, BIO-13, BIO-16, BIO-20 (and BIO-C1, BIO-C2, BIO-C3, AND BIO-C7)**
- ☑ The project owner shall survey for burrowing owl activities on the 80-acre parcel and along the transmission lines prior to site mobilization to assess owl presence. The project owner shall evaluate the potential impact to each burrowing owl occurrence using impact criteria reviewed by the CDFG and USFWS and approved by the CPM. Condition: **BIO-19 (and BIO-C4).**
- ☑ Foraging habitat which is permanently destroyed shall be replaced at 0.5:1 (ratio of mitigation acreage to impact acreage) and managed for the protection of burrowing owls. Condition: **BIO-25 (and BIO-C5).**
- ☑ Impacts to mountain plover habitat, loss of hunting opportunities, and loss of Lea Act lands should be mitigated with equitable habitat in the County permit. Conditions: **BIO-C6, BIO-C8, BIO-C9**.

Air Emissions

Certain national parks and wilderness areas are referred to as Class I areas and are given special protection under the Clean Air Act from visibility and air impacts. Joshua Tree National Park (Park) contains a Class I wilderness area 35 miles to the north of the power plant. Modeling found the nitrogen deposition rate at the Park was 0.00198 kg/ha-yr. Because this is not a combustion fuel power plant, the amount of nitrogen deposition would be quite low compared to similar siting cases which could also impact the Park [3]. The modeled nitrogen and sulfur deposition rates at all the National Park and Wilderness areas were lower than the deposition analysis thresholds (DAT)[4] used by the National Park Service and USFWS to trigger a management concern for deposition from a single source, and no impact is expected (FSA Biological Res., p. 4.2-28-31-32.)

CUMULATIVE IMPACTS

Two projects were identified near the SSU6 project. These projects are linear in nature, the Baja Pipeline and the improvements to State Route 76/111 expressway. The Baja Pipeline was completed in September 2002, and no cumulative impacts from noise, traffic, or lighting are expected. State Route 76/111 does not cross components of the proposed project, and the construction may not occur concurrently with the project, so no cumulative impacts from noise, traffic, or lighting are expected. Active projects related to the improvement of salinity at the Salton Sea are small in scale and isolated from the proposed project, so no cumulative impacts from noise, traffic, or lighting are expected.

The Imperial Irrigation District (IID) is involved in large scale water transfers that may require the fallowing of agricultural lands throughout the area. The area currently contains over 500,000 acres in agriculture and IID is opposed to fallowing because of the impact on the local economy. It is uncertain at this time if IID's proposal will result in fallowing land, but if IID goes forward with fallowing, the loss of the 173 acres from the proposed project would be very small when compared to IID's plan. The remaining agricultural lands would be evaluated in IID's CEQA documents, and IID must determine whether there are adequate agricultural lands for wildlife protected by CDFG and USFWS in the area. At this point, the IID will be considering the loss of agricultural lands from the proposed project when it makes its CEQA determination in the future, and no cumulative losses to wildlife are expected from this proposed project. (FSA Biological Res., p. 4.2-34)

FINDINGS

With the implementation of the Conditions of Certification, below, the project conforms with applicable laws, ordinances, regulations and standards related to biological resources, and all potential impacts to biological resources will be mitigated to a level of insignificance. To mitigate potential impacts to insignificance on matters not subject to our jurisdiction, the Commission recommends that, for wellhead, well pad, and pipeline permitting, Imperial County incorporate Conditions **BIO-1, 2, 3, 4, 8, 9, 11, 13, 14, 15, 16, 18, 19 & 20**. For transmission line permitting, the Commission recommends that Imperial County and the BLM incorporate Conditions **BIO-4, 13, 17, 18, 19 & 22**.

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[3] A >500 MW natural gas fired power plant, over 30 miles distant from Joshua Tree National Park, has a nitrogen deposition of approximately 0.009 kg/ha-yr and sulfur deposition of approximately 0.0001 kg/ha-yr.

[4] The DAT for the western United States is 0.005 for both pollutants.

CONDITIONS OF CERTIFICATION

Designated Biologist and Biological Monitor(s) Selection

BIO-1 The project owner shall submit the resume(s), including contact information, of the proposed Designated Biologist and any Biological Monitor(s) to the Compliance Project Manager (CPM) for approval.

Verification: The project owner shall submit the resume and contact information for the Designated Biologist and Biological Monitor(s) to the CPM at least 60 days prior to the start of any site (or related facilities) mobilization. The Designated Biologist must have a through understanding of the Conditions of Certification, the federal and state permits, and the monitoring procedures established in the BRMIMP. Site and related facility activities shall not commence until an approved Designated Biologist is available to be on site and to train all Biological Monitors. Biological Monitor(s) training shall include familiarity with the Conditions of Certification, the federal and state permits, and the monitoring procedures established in the BRMIMP.

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; and
3. At least one year of field experience with biological resources found in or near the project area.

The Biological Monitor(s) shall have a background in biology and be approved by the CPM.

If a Designated Biologist needs to be replaced, the specified information of the proposed replacement must be submitted to the CPM at least ten working days prior to the termination or release of the preceding Designated Biologist. In an emergency, the project owner shall immediately notify the CPM and submit the qualifications of a short-term replacement. The CPM shall approve the short-term replacement within one business day. The short-term replacement shall have all the duties and rights of a Designated Biologist while a permanent Designated Biologist is proposed to the CPM for consideration.

Designated Biologist and Biological Monitor(s) Duties

BIO-2 The project owner shall ensure that the Designated Biologist and Biological Monitor(s) shall perform the following during any site (or related facilities) mobilization, ground disturbance, grading, construction, operation, and closure activities:

1. Advise the project owner's Construction and Operation Managers on the implementation of the biological resources Conditions of Certification;

2. Be available to supervise or conduct mitigation, monitoring, and other biological resources compliance efforts, particularly in areas requiring avoidance or containing sensitive biological resources, such as wetlands and special status species or their habitat;

3. Clearly mark sensitive biological resource areas and inspect these areas at appropriate intervals for compliance with regulatory terms and conditions;

4. 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 (parking lots) for animals in harms way;
5. Notify the project owner and the CPM of any non-compliance with any biological resources Condition of Certification; and
6. Respond directly to inquiries of the CPM regarding biological resource issues.

Verification: The project owner shall ensure that the Designated Biologist and Biological Monitor(s) maintain written records of the tasks described above, and summaries of these records shall be submitted in the Monthly Compliance Reports (MCR).

During project operation, the Designated Biologist shall submit record summaries in the Annual Compliance Report.

Designated Biologist and Biological Monitor(s) Authority

BIO-3 The project owner's Construction/Operation Manager shall act on the advice of the Designated Biologist or Biological Monitor(s) to ensure conformance with the biological resources Conditions of Certification.

If required by the Designated Biologist or 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 as sensitive or which may affect a sensitive area or species.

The Designated Biologist and Biological Monitor(s) shall:

1. Require a halt to all activities in any area when it is determined that there would be an adverse impact to sensitive species if the activities continued;
2. Inform the project owner and the Construction/Operation Manager when to resume activities; and
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 halt.

Verification: The project owner shall ensure that the Designated Biologist notifies the CPM immediately (and no later than the following morning of 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

BIO-4 The project owner shall develop and implement a CPM approved Worker Environmental Awareness Program (WEAP) in which each of its employees, as well as employees of contractors and subcontractors who work on the project site or any related facilities during site mobilization, ground disturbance, grading, construction, operation and closure are informed about sensitive biological resources associated with the project.

The WEAP must:

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 is made available to all participants;
2. Discuss the locations and types of sensitive biological resources on the project site and adjacent areas. Personnel shall be advised that handling of flat-tailed horned lizards by anyone is prohibited by State law without a permit;
3. Present the reasons for protecting these resources;
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 they received training and shall abide by the guidelines.

The specific program can be administered by video by a competent individual(s) acceptable to the Designated Biologist.

Verification: At least 60 days prior to the start of any site (or related facilities) mobilization, the project owner shall provide to the CPM two copies of the WEAP and all supporting written materials prepared or reviewed by the Designated Biologist and a resume of the person(s) administering the program.

The project owner shall provide in the MCR 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.

The signed training acknowledgement forms from construction shall be kept on file by the project owner for a period of at least six months after the start of commercial operation.

During project operation, signed statements for active project 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 (BRMIMP)

BIO-5 The project owner shall submit two copies of the proposed Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) to the CPM for review and approval, and to California Department of Fish and Game (CDFG) and U.S. Fish and Wildlife Service (USFWS) for review and comment, and shall implement the measures identified in the approved BRMIMP.

The final BRMIMP shall identify;

1. All biological resources mitigation, monitoring, and compliance measures proposed and agreed to by the project owner;
2. All biological resources Conditions of Certification identified in the Commission's Final Decision;
3. All biological resource mitigation, monitoring and compliance measures required in federal agency terms and conditions, such as those provided in the USFWS Biological Opinion and Bureau of Land Management (BLM) Right-of-Way permit;
4. All biological resources mitigation, monitoring and compliance measures required in other state agency terms and conditions, such as those provided in the CDFG Incidental Take Permit and Streambed Alteration Agreement and Regional Water Quality Control Board permits;
5. All biological resources mitigation, monitoring and compliance measures required in local agency permits, such as site grading and landscaping requirements;
6. All sensitive biological resources to be impacted, avoided, or mitigated by project construction, operation and closure;
7. All required mitigation measures for each sensitive biological resource;
8. Required habitat compensation strategy, including provisions for acquisition, enhancement, and management for any temporary and permanent loss of sensitive biological resources;
9. A detailed description of measures that shall be taken to avoid or mitigate temporary disturbances from construction activities;
10. 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;
11. Aerial photographs, at an approved scale, of all areas to be disturbed during project construction activities - one set prior to any site or related facilities mobilization disturbance and one set subsequent to completion of project construction. Include planned timing of aerial photography and a description of why times were chosen;
12. Duration for each type of monitoring and a description of monitoring methodologies and frequency;
13. Performance standards to be used to help decide if/when proposed mitigation is or is not successful;
14. All performance standards and remedial measures to be implemented if performance standards are not met;
15. A discussion of biological resources related facility closure measures;
16. A process for proposing plan modifications to the CPM and appropriate agencies for review and approval; and
17. A copy of all biological resources permits obtained.

Verification: The project owner shall provide the specified document at least 60 days prior to start of any site (or related facilities) mobilization.

The CPM, in consultation with the CDFG, the USFWS and any other appropriate agencies, will determine the BRMIMP's acceptability within 45 days of receipt.

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 CDFG, the USFWS and appropriate agencies to ensure no conflicts exist.

Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval, a written report identifying which items of the 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.

Closure Plan Measures

BIO-6 Deleted. Refer to General Conditions of Compliance for closure.

Incidental Take Permit

BIO-7 The project owner shall acquire an Incidental Take Permit from the California Department of Fish and Game (CDFG) (per Section 2081(b) of the Fish and Game Code; California Endangered Species Act) if required and incorporate the terms and conditions into the project's BRMIMP.

Verification: At least 30 days prior to the start of any site or related facilities mobilization activities, the project owner shall submit to the CPM a copy of the CDFG Incidental Take Permit (if required).

Streambed Alteration Agreement

BIO-8 The project owner shall acquire a Streambed Alteration Agreement from the CDFG (per Section 1600 of the Fish and Game Code) if required, and incorporate the biological resource related terms and conditions into the project's BRMIMP.

Verification: At least 30 days prior to the start of any site or related facilities mobilization activities, the project owner shall submit to the CPM a copy of the CDFG Streambed Alteration Agreement (if required).

Regional Water Quality Control Board Certification

BIO-9 The project owner shall acquire the Regional Water Quality Control Board Section 401 state Clean Water Act certification or a waiver if required, and incorporate the biological resource related terms and conditions into the project's BRMIMP.

Verification: At least 30 days prior to the start of any site or related facilities mobilization activities, the project owner shall provide the CPM with a copy of the Regional Water Quality Control Board's certification or waiver.

Federal Biological Opinion

BIO-10 The project owner shall provide a copy of the Biological Opinion per Section 7 of the federal Endangered Species Act obtained from the U. S. Fish and Wildlife Service. The terms and conditions contained in the Biological Opinion shall be incorporated into the project's BRMIMP.

Verification: At least 30 days prior to the start of any site or related facilities mobilization activities, the project owner shall submit to the CPM a copy of the U. S. Fish and Wildlife Service's Biological Opinion.

U. S. Army Corps of Engineers Section 404 Permit

BIO-11 The project owner shall provide evidence of compliance with the U.S. Army Corps of Engineers Section 404 program of the federal Clean Water Act. The biological resources related terms and conditions contained in the permit shall be incorporated into the project's BRMIMP.

Verification: At least 30 days prior to the start of any site or related facilities mobilization activities, the project owner shall submit to the CPM evidence of compliance with the U.S. Army Corps of Engineers Section 404 program of the federal Clean Water Act.

Preventative Design Mitigation Features

BIO-12 The project owner shall modify the project design to incorporate all feasible measures that avoid or minimize impacts to the local biological resources such as the following.

1. Design, install, and maintain transmission line poles, access roads, pulling sites, and storage and parking areas to avoid identified sensitive resources and preferentially use previous pull sites or already disturbed locations;
2. Avoid wetland loss to the extent possible when placing facility features;
3. Design, install, and maintain facilities to prevent brine spills from endangering adjacent properties and waterways that contain sensitive habitat;
4. Schedule disposal of brine within brine ponds as expeditiously as possible;
5. Design, install, and maintain facility lighting to prevent side casting of light towards wildlife habitat;
6. Insulate production and injection well pipelines and flanges;
7. Prescribe a road sealant that is non-toxic to wildlife and plants and use only fresh water when adjacent to wetlands, rivers, or drainage canals;
8. Equip steam blow piping with a temporary silencer that quiets the noise of steam blows to no greater than 74 dBA measured at a distance of 100 feet. Orient the silencer to maximize the noise reduction achieved in occupied Yuma clapper rail habitat to the north and northwest of the project site (i.e., Union Pond, McKendry Pond and Obisidean Butte).
9. Shield pile driving equipment to maximize noise reduction in the occupied Yuma clapper rail habitat to the north and northwest of the project site (i.e., Union Pond, McKendry Pond and Obsidian Butte.

10. Design, install, and maintain transmission lines and all electrical components to reduce the likelihood of electrocutions of large birds by following the Avian Power Line Interaction Committee (APLIC)'s *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996*;

11. Route the reject reverse osmosis water to the service water pond in lieu of the brine ponds, and

12. All mitigation measures and their implementation methods shall be included in the BRMIMP.

Verification: All mitigation measures and their implementation methods shall be included in the BRMIMP.

Construction Mitigation Management to Avoid Harassment or Harm

BIO-13 The project owner shall manage their construction site, and related facilities, in a manner to avoid or minimizes impacts to the local biological resources.

Typical measures are:

1. Install a temporarily fence and provide wildlife escape ramps for construction areas that contain steep walled holes or trenches if outside of an approved, permanent exclusionary fence. The temporary fence shall be constructed of materials that are approved by USFWS and CDFG. The ramps shall be located at not greater than 1,000-foot intervals and shall be sloped less than 45 degrees. All animals discovered in trenches shall be allowed to escape voluntarily (by escape ramps or temporary structures), without harassment, before construction activities resume, or be removed from the trench or hole by a qualified biologist and allowed to escape unimpeded;

2. Make certain all food-related trash is disposed of in closed containers and removed at least once a week.

3. Prohibit feeding of wildlife by staff or contractors;

4. Prohibit non-security related firearms or weapons from being brought to the site;

5. Prohibit pets from being brought to the site;

6. Minimize use of rodenticides and herbicides in the project area;

7. Advise all employees, contractors, and visitors of the need to adhere to speed limits and to avoid any animals, including burrowing owls, which may be encountered on or crossing the roads to and from the project site. The maximum speed on unpaved roads or on paved roads within 300 feet of occupied sensitive species habitat (such as on McKendry Road west of Boyle road and Lack Road between Kuns and Lindsey Roads) shall be restricted 15 miles per hour or lower during construction.

8. Inspect all construction pipes, culverts, or similar structures with a diameter of four inches or greater for sensitive species (such as burrowing owls) prior to movement of pipe or pipe burial. Cap all pipes with a diameter of four inches or greater if they are to be left in trenches overnight or in storage areas outside of the construction laydown area;

9. For the section of pipeline between production well OB3 and the power plant site, empty the concrete-lined pipe at the power plant site. For all remaining sections, empty concrete lined pipe into designed evaporation and percolation ponds;

10. Report all inadvertent deaths of sensitive species to the appropriate project representative. Injured animals shall be reported to USFWS and CDFG and the project owner shall follow instructions that are provided by USFWS and CDFG. All incidences of wildlife injury or mortality resulting from project-related vehicle traffic on roads used to access the project shall be reported in the MCR.

11. Implement standard mitigation measures for the flat-tailed horned lizard detailed in the *Flat-tailed Horned Lizard Rangewide Management Strategy-Appendix 3* for work in flat-tailed horned lizard habitat.

12. Confine construction activities to the plant, well pad, or pipeline side of any existing or constructed barriers (such as roads or levees) to reduce the potential disruption associated with human presence within occupied sensitive species habitat.

13. Transmission line construction within 1 mile of the intersection of Lack and Lindsey Roads shall not be conducted at night or when wind speeds exceed 15 miles per hour.

Verification: All mitigation measures and their implementation methods shall be included in the BRMIMP.

Pre-Construction Monitoring to Avoid Harassment or Harm

BIO-14 The project owner shall provide a baseline survey proposal in the BRMIMP. The CPM, in consultation with the CDFG, Refuge, the USFWS and any other appropriate agencies, will determine the acceptability of the baseline survey protocol(s), the survey area(s) and the Designated Biologist's prescription(s) for potential impacts.

Prior to mobilization, the project owner shall conduct baseline surveys for special status species at a level that establishes the occurrence and abundance of species. In addition, mapping of suitable habitat types will be completed for any special status species that potentially occur, but are not present at the time of the baseline survey. Mapping of suitable habitat types will also be completed for any species that can not be surveyed for because of protocol restrictions. The baseline surveys shall cover appropriate habitats within one-mile of the plant site and within 1,000 feet of all linear facilities, unless other areas are deemed more appropriate. Protocol level surveys for Yuma clapper rails shall be conducted by qualified individuals at Union Pond, McKendry Pond, and the adjacent parts of the Vail 5 drain prior to the start of any construction within 0.5 mile of these sites.

The Designated Biologist shall make recommendations to the project owner to avoid or minimize impacts to the special status species based on completed baseline surveys and any protocol level surveys.

Verification: The baseline survey proposal shall include a list of target species and the survey techniques to be used. The list of target species must, at a minimum, include California brown pelicans, mountain plover, burrowing owl, Yuma clapper rail, California black rail, and flat-tailed horned lizard. In addition, a proposal for mapping suitable habitats shall, at a minimum, include Yuma clapper rail and mountain plover habitat. The baseline survey

proposal shall establish indices (e.g., propensity for flight) for comparison with other monitoring efforts. The baseline survey proposal shall include the survey locations and their distance from the site or linear facilities. The baseline survey proposal shall identify actions that can be taken to avoid or minimize impacts to the special status species (such as restricting construction to certain months or marking sensitive areas).

The project owner shall provide copies of agency-approved survey protocols in the BRMIMP. At a minimum, the project owner shall include a copy of the agency-approved survey protocol for California black rail and Yuma clapper rail in the event that the baseline surveys show these species are mating or nesting within 1,000 feet of the proposed project. The BRMIMP shall identify at least two southern California or western Arizona biologists that hold a USFWS permit for surveying these species and include their contact information.

Results of the baseline surveys must be submitted to the CPM, USFWS, CDFG and Refuge no later than thirty (30) days prior to the start of mobilization. The protocol survey results shall be submitted to the CPM, USFWS, CDFG and Refuge no more than ten (10) days after completion and at least twenty (20) days prior to mobilization.

Construction Monitoring to Avoid Harassment or Harm

BIO-15 The project owner shall perform monitoring throughout construction to ensure construction-related impacts remain at or below levels of significance set forth in the BRMIMP. The monitoring results shall be compared to the pre-construction baseline surveys' indices and to other local population values.

The project owner shall provide a monitoring proposal and indices for comparison to pre-construction baseline survey work within the BRMIMP. Monitoring must include any sensitive species located during the pre-construction baseline survey and any areas identified as suitable habitat. Protocol level surveys shall be completed for appropriate habitats within 1,000 feet of the plant site and within 1,000 feet of all linear facilities or within specified areas in the Salton Sea Basin during each year that construction is occurring and for the year following construction. The CPM, in consultation with the CDFG, Refuge, the USFWS and any other appropriate agencies, will determine the acceptability of the monitoring protocol(s) and survey area(s).

Verification: The project owner shall provide the results of the construction monitoring in the MCR or annual compliance reports, as appropriate. Protocol survey results shall be compiled into a separate report and submitted within four (4) weeks of completion. The construction monitoring results shall be compared by the designated biologist in the MCR to pre-construction indices established in the BRMIMP (e.g., increased number of flights) and to other local population values collected by the project owner or other entities.

Noise and Vibration Management to Avoid Harassment or Harm

BIO-16 The project owner shall prepare a detailed Noise and Vibration Assessment and Abatement Plan based on the final design of the facility to determine the most practicable measures to reduce/mitigate construction noise and vibration impacts. At a minimum, the Noise and Vibration Assessment and Abatement Plan shall address measures to:

1. Reduce site grading and clearing, pile-driving and steam-blow noise levels using measures that have the maximum sound attenuation effect practicable (e.g., beyond

78 dBA L_{eq}[5]) at the occupied habitat areas during the Yuma clapper rail mating and nesting season (February 15 to August 31);

2. Ensure overall noise levels at the power plant site during the mating season of Yuma clapper rails (February 15 to August 31), will not exceed the threshold of 60 dBA Leq hourly at occupied habitat areas for one-half hour before and one hour after after sunrise and one hour before and one-half hour after sunset; and

3. Ensure site grading and clearing and pile-driving vibrations levels are equal or less than 72 VdB at the northern and western boundaries of the power plant site during the Yuma clapper rail nesting season (June 1 to August 31); The project owner will conduct noise monitoring at the edge of project boundaries facing occupied listed species breeding habitat to verify compliance with any applicable noise restrictions. Other noise and vibration avoidance measures can be considered for approval by the CPM in consultation with involved agencies.

Verification: The project owner shall submit two copies of the Noise and Vibration Assessment and Abatement Plan to the CPM for review and approval and one copy to the CDFG, Refuge, and USFWS for review and comment 60 days prior to start of any site (or related facilities) mobilization. The Noise and Vibration Assessment and Abatement Plan shall identify all noise and vibration sources by construction phase, the location of all biologically related sensitive receptors, and the noise and vibration levels expected after the implementation of mitigation. The CPM, in consultation with the CDFG, Refuge, USFWS and any other appropriate agencies, will determine the Noise and Vibration Assessment and Abatement Plan's acceptability within 45 days of receipt.

The project owner shall, at a minimum, appoint a person(s) to collect weekly noise measurements at the original Noise Measurement Locations ML2, ML3 and ML4 for a 1-hour period. The results shall be utilized as follows:

- If noise measurement is outside of Yuma clapper rail mating and nesting season (September 1 to February 14) and exceeds 60 dBA Leq at the edge or within occupied habitat, it shall be highlighted in the data table for the MCR and the reasons for the noise level (if known) described.

- If a noise measurement is within Yuma clapper rail mating and nesting season (February 15 to August 31) and exceeds 60 dBA Leq hourly at the edge or within occupied habitat, then pieces of construction equipment shall be stopped, moved, or quieted such that resultant noise levels are less than 60 dBA. Construction work need only be stopped or quieted for one-half hour before and 1 hour after sunrise and 1 hour before and one-half hour after sunset. If 24-hour construction is required, every person on the agency call list shall be notified as to the expected noise level, the equipment in use, and the remedial actions that are recommended (if any). The remedial action(s) should be implemented after approval by agency staff.

The noise measurements and any remedial actions taken shall be described in the MCR.

[5] Energy Commission staff believes that the Biological Opinion used the metric "Lmax" where the metric "Leq" was intended. As of 12-8-03 the applicant is discussing this with USFWS verifying the correct metric for sound attenuation to be applied.

Overhead Transmission Line Monitoring to Avoid Harassment or Harm

BIO-17 The project owner shall install an agency-approved marker on the grounding wire of the proposed transmission lines. These markers shall be placed and maintained on the highest-bird-use portions of the proposed transmission lines (initially Mileposts M10 to L13). Monitoring of the entire 31 miles of proposed transmission line, and sections of unmarked but comparable transmission line in the study area, shall be implemented for the first two years of operation, and may continue for up to ten years (to determine effectiveness of remedies) if impacts are found to be excessive by a working group of interested agency personnel. Remedial actions to address collision deaths shall be included in a Bird Collision Deterrent Proposal and Monitoring Plan. The project owner must implement the CPM-approved remedial actions where ever high bird use and evidence of bird collisions are found during post-construction monitoring, and measure the effectiveness of the remedial measure for reducing impacts for at least one year following their implementation.

Verification: The project owner shall submit two copies of a Bird Collision Deterrent Proposal and Monitoring Plan (BCDM Plan) to the CPM for review and approval and one copy to the CDFG, Refuge, and USFWS for review and comment 60 days prior to start of transmission line mobilization. The BCDM Plan shall identify all Species of Concern, the threshold used for determining impacts, the proposed type and spacing of markers, the post-construction monitoring plan, and remedial actions. The first monitoring report shall be due to the CPM, Refuge, CDFG and USFWS three months after completion of the transmission line construction, and the second monitoring report shall be due to the same parties at six months. A two-year summary report which summarizes all actions taken, compiles all the monitoring data, and includes an evaluation of effectiveness of the markers is due two years after the completion of the transmission line construction. A working group of interested agency personnel shall meet after submittal of the second monitoring report to determine if remedial actions need to be implemented and the timeline for their completion. The project owner must implement the CPM-approved remedial actions following the timelines set by the working group of interested agencies. The BCDM shall include remedial actions such as marking of unmarked transmission line segments that show high bird use and collisions during the post construction monitoring, decreasing the spacing of markers on marked lines, and alternative transmission line routes. Maintenance and replacement of markers for the life of the transmission line will be required for all areas determined in the two-year summary report to have high bird use and evidence of bird collisions. The CPM, in consultation with the CDFG, the Refuge, the USFWS and any other appropriate agencies, will determine the BCDM Plan's acceptability within 30 days of receipt.

Re-vegetation for Construction Impacts

BIO-18 The project owner shall contour all temporary disturbance areas and allow them to re-vegetate with pre-disturbance species. Invasive exotic species (as defined by the U.S. Department of Agriculture) shall be precluded from establishing themselves in the temporary disturbance areas through implementation of a three-year post-construction weed removal program. Every three years for a period of nine years following construction, the project owner shall evaluate the need for control of exotic species in areas disturbed by construction of the power plant and its associated facilities.

Verification: The project owner shall provide a brief report of temporary disturbance conditions at the end of the project construction in the BRMIMP Closure Report. Annual

reporting of weed abatement shall be provided to the CPM in the annual reporting for nine years post-construction, or until such time as the CPM determines it is no longer needed.

Survey and Provide Habitat Compensation for Burrowing Owls

BIO-19 The project owner shall survey for burrowing owl activities on the 80-acre parcel and along the transmission lines prior to site mobilization to assess owl presence. The project owner shall evaluate the potential impact to each burrowing owl occurrence using impact criteria reviewed by the CDFG and USFWS and approved by the CPM. The impact criteria will be based on type of activity, length of activity, distance maintained from the burrowing owl(s), and time of year. For impact determinations which require monitoring of burrowing owls, a credentialed biologist approved by the CPM must do the monitoring.

The project owner shall protect at least 6.5 acres of suitable land for each impacted pair of owls or impacted unpaired resident bird (as determined by the CPM-approved impact criteria). For each occupied burrowing owl burrow that must be destroyed, existing unsuitable burrows on the protected lands shall be enhanced (e.g., cleared of debris or enlarged) or new burrows installed at a ratio of 2:1. If habitat is made unsuitable (e.g., the evicted owls leave the area), 6.5 acres of habitat per pair would be provided. For example, if pre-construction surveys find 17 occupied owl burrows within the project's footprint, and monitoring determined 17 burrowing owl pairs left the area, the project owner must create 34 new or improve 34 existing burrows and provide 110.5 acres of protected land. The actual requirement will be determined after the CPM reviews the burrowing owl pre-construction surveys and monitoring. Avoidance is preferred over mitigation of impacts.

Verification: At least 60 days prior to site mobilization, the project owner shall provide to the CPM for review and approval, and to the USFWS and CDFG for review and comment, the impact criteria that will be used to evaluate construction, maintenance, and operational impacts to burrowing owls. The project owner must submit to the CPM for approval the resume of any biologist (s) that will perform the burrowing owl monitoring at least one week prior to their assignment to start monitoring. If burrowing owl monitoring is needed, then a summary report completed by the Designated Biologist and all original data sheets shall be included in the MCR. At least 15 days prior to site mobilization, the project owner shall provide the CPM, USFWS, Refuge, and CDFG with the burrowing owl survey results. Burrowing owl surveys are valid only for 30 days.

Based on the number of burrowing owls identified as potentially impacted, the project owner shall identify the amount of land it intends to protect 15 days prior to construction. The project owner shall fund the acquisition and long-term management of the compensation lands in a form acceptable to the CEC and CDFG (e.g., provide a letter of credit or establish an escrow account) 15 days prior to construction. The project owner shall propose land for purchase or protection with a description of habitat types and propose a management and monitoring plan 90 days prior to commercial operation. The land protection proposal and management fund(s) shall be approved by the CPM and reviewed by CDFG.

The project owner shall rectify any under-funded amounts in the acquisition and long-term management account(s) at least 60 days prior to commercial operation. At least 30 days prior the start of commercial operation, the project owner shall submit to the CPM two copies of the relevant legal paperwork that protects lands in perpetuity (e.g., a conservation easement as filed with the Imperial County Recorder), a final land management and monitoring plan,

and documents which discuss the types of habitat protected on the parcel. If a private mitigation bank is used, the project owner shall provide a letter to the CPM from the approved land management organization stating the amount of funds received, the amount of acres purchased and their location, and the amount of funds dedicated to long term monitoring or management at least 60 days prior to commercial operation. If fund remain after performance of all habitat compensation obligations, the monies in the letter of credit or escrow account will be returned to the project owner with written approval of the CPM.

All mitigation measures and their implementation methods shall be included in the BRMIMP.

Emergency Management to Avoid Harassment or Harm

BIO-20 The project owner shall prepare and submit an agency notification list for emergency events which involve the rupture or spill of brine fluids at the facility. The project owner shall obtain and then follow the recommendations resulting from the agency notification for avoiding harassment or harm to biological resources.

Verification: The project owner shall provide the agency notification list to the CPM for approval at least 60 days prior to start of commercial operation. The agency notification list shall be incorporated into the BRMIMP. The project owner shall report in the annual compliance report any agency notifications and whether the agency recommendations were followed.

County Permit for Wellheads, Pads and Brine Pipelines

BIO-21 The project owner shall submit a copy of the Imperial County permit for the wellheads, pads and brine pipelines. The biological resource related terms and conditions contained in the permit shall be incorporated in the project's BRMIMP.

Verification: At least 30 days prior to the start of any site or related facilities mobilization activities, the project owner shall submit to the CPM a copy of the Imperial County permit and any related documents which discuss biological resources.

Compensation for Impacts to Flat-tailed Horned Lizard Habitat

BIO-22 The project owner shall provide funding to the Bureau of Land Management (BLM) for impacts to flat-tailed horned lizard as prescribed by the *Flat-tailed Horned Lizard Rangewide Management Strategy - Appendix 4 Compensation Formula*.

Verification: At least 30 days prior to the start of any transmission line mobilization activities, the project owner shall submit to the CPM proof of payment to the BLM.

Landscaping Plan

BIO-23 The project owner shall develop and submit a Landscaping Plan for the project.

Verification: At least 90 days prior to the installing the landscaping, the project owner shall submit a copy of the landscape plan to the CPM for review and approval and to the CDFG, Refuge, and USFWS for review and comment. The landscaping plan shall clearly identify all plant species (and their variety) to be installed and the anticipated irrigation schedule. Preference shall be given to native plants.

Conservation Easement for Wetland

BIO-24 The project owner shall submit copies of the fee title and/or conservation easement relating to the restoration and creation of wetland habitat prior to the start of the first Yuma

clapper rail breeding season that follows the initiation of fill operations along McKendry Road. The project owner shall provide an endowment to fund management of the land to achieve the targeted functions and values described in the U.S. Army Corps of Engineers permit.

Verification: Within 30 days before the start of commercial operation, the project owner shall submit to the CPM two copies of the conservation easement, as recorded with the Imperial County Recorder and any related documents that discuss the types of habitat restored or created on the parcel.

Provide Habitat Compensation for Permanent Disturbance to Burrowing Owl Habitat

BIO-25 Foraging habitat which is permanently destroyed shall be replaced at 0.5:1 (mitigation:impacts) and managed for the protection of burrowing owls. Based on these ratios, the project owner must protect and manage 42.65 acres of land for burrowing owls (40 acres for the power plant site and 2.65 acres for the transmission line pads). The mitigation amount can be reduced if mitigation land for the same burrowing owls is also being provided under Condition of Certification BIO-19.

Verification: At least 15 days prior to site mobilization, the project owner shall provide the CPM, USFWS, Refuge, and CDFG with the burrowing owl survey results. If burrowing owls are present where a permanent facility will be placed or within 300 feet of a permanent facility, the project owner shall identify the amount of land they intend to protect 15 days prior to construction. The project owner shall fund the acquisition and long-term management of the compensation lands in a form acceptable to the CEC and CDFG (e.g., provide a letter of credit or establish an escrow account) 15 days prior to construction. The land protection proposal and management fund(s) shall be approved by the CPM and reviewed by CDFG. The project owner shall propose land for purchase or protection with a description of habitat types and propose a management and monitoring plan at least 90 days prior to commercial operation.

The project owner shall rectify any underfunded amounts in the acquisition and long-term management account(s) at least 60 days prior to commercial operation. At least 30 days prior to commercial operation, the project owner shall submit to the CPM two copies of the relevant legal paperwork that protects lands in perpetuity (e.g., a conservation easement as filed with the Imperial County Recorder), a final management and monitoring plan, and documents which discuss the types of habitat protected on the parcel. If a private mitigation bank is used, the project owner shall provide a letter to the CPM from the approved land management organization stating the amount of funds received, the amount of acres purchased and their location, and the amount of funds dedicated to long term monitoring or management 60 days prior to commercial operation. If funds remain after performance of all habitat compensation obligations, the monies in the letter of credit or escrow account will be returned to the project owner with written approval of the CPM.

All mitigation measures and their implementation methods shall be included in the BRMIMP.

Operational Management to Avoid Harassment or Harm

BIO-26 The operation of the power plant and transmission lines shall be conducted to avoid harassment and harm to sensitive biological resources. At a minimum, maintenance and operations personnel shall follow the following guidance:

1. Regular transmission line maintenance within 1 mile of the intersection of Lack and Lindsey Roads shall not be conducted at night or when wind speeds exceed 15 miles per hour;

2. The project owner shall develop a reporting procedure for observations by land owners along the transmission lines of bird strikes or the presence of carcasses that may have resulted from transmission line strikes.

3. The project owner and Imperial Irrigation District's maintenance personnel shall observe the areas under power transmission lines during the course of their duties to informally monitor for birds that have struck the transmission lines.

4. Advise all employees, contractors, and visitors of the need to adhere to speed limits. The maximum speed on unpaved roads or on paved roads within 300 feet of occupied sensitive species habitat (such as on McKendry Road west of Boyle road and Lack Road between Kuns and Lindsey Roads) shall be restricted 15 miles per hour or lower during operations.

Verification: All mitigation measures and their implementation methods shall be included in the BRMIMP. The project owner shall report in the annual compliance report any agency notifications and whether the agency recommendations were followed, and shall include a copy of any reports sent to the U.S. Fish and Wildlife Service in compliance with the Federal Biological Opinion.

RECOMMENDATIONS FOR OTHER AGENCIES WITH JURISDICTION OVER WELL DRILLING/WELL FLOW ACTIVITIES

The following conditions can and should be implemented by the appropriate responsible agencies approving the geothermal resource wells, pads and associated pipelines:

Preventative Design Mitigation Features

BIO-C1 The project owner shall modify the project design to incorporate all feasible measures that avoid or minimize impacts to the local biological resources including:

1. Ensure the pipeline is built in a manner that is consistent with the description provided in CEC Data Response 24 and any materials provided to USFWS, and adopt the USFWS measure to construct outside the breeding season
2. Install only one shielded 500-watt fixture per well pad, unless the safety requirements require additional shielded lighting for additional wells on a single pad.
3. Construct well pad cellars to prevent wildlife entry or entrapment.
4. Retain existing debris piles on Obsidian Butte until construction of OB3 is complete.

Verification: All mitigation measures and their implementation methods shall be included in the BRMIMP.

Construction and Operation Management to Avoid Harassment or Harm

BIO-C2 The project owner shall manage their construction site and perform operation functions in a manner to avoid or minimizes impacts to the local biological resources.

Typical measures are:

1. Plan construction at production wells OB1 and OB2 outside of the period when Yuma clapper rails are vocal and defending nest territories.
2. Plan maintenance activities related to well heads (e.g., coil cleaning or redrilling) during daylight hours and outside of the shorebird breeding season (March through July);

   Schedule shut-down maintenance of production well OB3 outside of the shore-bird breeding season and monitor noise levels and manage construction activities to ensure noise levels do not exceed 78 dBA in sensitive habitats.

   Take the prescribed actions found in an Emergency Response Plan (which should be reviewed by a qualified biologist and the interested agencies) when emergency repairs to production well OB3 are necessary.

Verification: All mitigation measures and their implementation methods shall be included in the BRMIMP.

Noise and Vibration Management to Avoid Harassment or Harm

BIO-C3 The project owner shall prepare a detailed Noise and Vibration Assessment and Abatement Plan based on the final design of the facility to determine the most practicable measures to reduce/mitigate construction noise and vibration impacts. At a minimum, the Noise and Vibration Assessment and Abatement Plan shall address measures to attenuate the noise from construction, operations, and maintenance at wellhead OB1 and OB2 to less than 60 dBA at all Yuma Clapper rail habitat if maintenance actions take place during Yuma clapper mating and nesting season (February 15 to August 31), or require that all planned maintenance take place outside of this timeframe.

The project owner shall include a construction noise and vibration monitoring protocol. Other noise and vibration avoidance measures can be considered for approval by the CPM in consultation with involved agencies.

Verification: The project owner shall submit two copies of the Noise and Vibration Assessment and Abatement Plan to the CPM for review and approval and one copy to the CDFG, Refuge, USFWS for review and comment 90 days prior to start of any site (or related facilities) mobilization. The Noise and Vibration Assessment and Abatement Plan shall identify all noise and vibration sources by construction phase, the location of all biologically related sensitive receptors, and the noise and vibration levels expected after the implementation of mitigation. The CPM, in consultation with the CDFG, Refuge, USFWS and

any other appropriate agencies, will determine the Noise and Vibration Assessment and Abatement Plan's acceptability within 45 days of receipt.

The noise measurements and any remedial actions taken shall be described in the MCR. All mitigation measures and their implementation methods shall be included in the BRMIMP.

Survey and Provide Habitat Compensation for Impacts to Burrowing Owls

BIO-C4 The project owner shall survey for burrowing owl activities at the production and injection wellheads and along the pipeline routes prior to site mobilization to assess owl presence. The project owner shall evaluate the potential impact to each burrowing owl occurrence using impact criteria reviewed by the CDFG and USFWS and approved by the CPM. The impact criteria will be based on type of activity, length of activity, distance maintained from the burrowing owl(s), and time of year. For impact determinations that require monitoring of burrowing owls, the monitoring must be done by a credentialed biologist approved by the CPM.

The project owner shall protect at least 6.5 acres of suitable land for each impacted pair of owls or impacted unpaired resident bird (as determined by the CPM-approved impact criteria). For each occupied burrowing owl burrow which must be destroyed, existing unsuitable burrows on the protected lands shall be enhanced (e.g., cleared of debris or enlarged) or new burrows installed at a ratio of 2:1. For example, if pre-construction surveys find 17 occupied owl burrows within the project's footprint, and monitoring determined 17 burrowing owl pairs were impacted, the project owner must create 34 new or improve 34 existing burrows and provide 110.5 acres of protected land. The actual requirement will be determined after the CPM reviews the burrowing owl pre-construction surveys and monitoring. Avoidance is preferred over mitigation of impacts.

Verification: At least 60 days prior to site mobilization, the project owner shall provide to the CPM for review and approval, and to the USFWS and CDFG for review and comment, the impact criteria that will be used to evaluate construction, maintenance, and operational impacts to burrowing owls. The project owner must submit to the CPM for approval the resume of any biologist (s) that will perform the burrowing owl monitoring at least one week prior to their assignment to start monitoring. If burrowing owl monitoring is needed, then a summary report completed by the Designated Biologist and all original data sheets shall be included in the MCR. At least 15 days prior to site mobilization, the project owner shall provide the CPM, USFWS, Refuge, and CDFG with the burrowing owl survey results. Burrowing owl surveys are valid only for 30 days.

Based on the number of burrowing owls identified as potentially impacted, the project owner shall identify the amount of land it intends to protect 15 days prior to construction. The project owner shall fund the acquisition and long-term management of the compensation lands in a form acceptable to the CEC and CDFG (e.g., provide a letter of credit or establish an escrow account) 15 days prior to construction. The project owner shall propose land for purchase or protection with a description of habitat types and propose a management and monitoring plan 90 days prior to commercial operation. The land protection proposal and management fund(s) shall be approved by the CPM and reviewed by CDFG.

The project owner shall rectify any underfunded amounts in the acquisition and long-term management account(s) at least 60 days prior to commercial operation. At least 30 days prior the start of commercial operation, the project owner shall submit to the CPM two copies of the relevant legal paperwork that protects lands in perpetuity (e.g., a conservation easement as filed with the Imperial County Recorder), a final land management and monitoring plan, and documents which discuss the types of habitat protected on the parcel. If a private mitigation bank is used, the project owner shall provide a letter to the CPM from the approved land management organization stating the amount of funds received, the amount of acres purchased and their location, and the amount of funds dedicated to long term monitoring or management at least 60 days prior to commercial operation. If fund remain after performance of all habitat compensation obligations, the monies in the letter of credit or escrow account will be returned to the project owner with written approval of the CPM.

All mitigation measures and their implementation methods shall be included in the BRMIMP.

Provide Habitat Compensation for Permanent Disturbance to Burrowing Owl Habitat

BIO-C5 Foraging habitat which is permanently destroyed shall be replaced at 0.5:1 (mitigation:impacts) and managed for the protection of burrowing owls. Based on this ratio and AFC information, the project owner shall protect and manage 68.25 acres of land for burrowing owls (13.1 acres for the production wells, 7.7 for the injection wells, and 47.45 acres for the brine pipelines). The actual requirement will be determined after the CPM reviews the burrowing owl pre-construction surveys, final construction drawings, and revegetation plans. The mitigation amount can be reduced if mitigation land for the same burrowing owls is also being provided under Condition of Certification BIO-19.

Verification: At least 15 days prior to site mobilization, the project owner shall provide the CPM, USFWS, Refuge, and CDFG with the burrowing owl survey results. If burrowing owls are present where a permanent facility will be placed or within 300 feet of a permanent facility, the project owner shall identify the amount of land they intend to protect 15 days prior to the start of construction. The project owner shall fund the acquisition and long-term management of the compensation lands in a form acceptable to the CEC and CDFG (e.g., provide a letter of credit or establish an escrow account) 15 days prior to construction. The land protection proposal and management fund(s) shall be approved by the CPM and reviewed by CDFG. The project owner shall propose land for purchase or protection with a description of habitat types and propose a management and monitoring plan at least 90 days prior to commercial operation.

The project owner shall rectify any underfunded amounts in the acquisition and long-term management account(s) at least 60 days prior to commercial operation. At least 30 days prior to commercial operation, the project owner shall submit to the CPM two copies of the relevant legal paperwork that protects lands in perpetuity (e.g., a conservation easement as filed with the Imperial County Recorder), a final management and monitoring plan, and documents which discuss the types of habitat protected on the parcel. If a private mitigation bank is used, the project owner shall provide a letter to the CPM from the approved land management organization stating the amount of funds received, the amount of acres purchased and their location, and the amount of funds dedicated to long term monitoring or management 60 days prior to commercial operation. If funds remain after performance of all

habitat compensation obligations, the monies in the letter of credit or escrow account will be returned to the project owner with written approval of the CPM.

All mitigation measures and their implementation methods shall be included in the BRMIMP.

Provide Habitat Compensation for Permanent Disturbance to Mountain Plover Habitat

BIO-C6 Calculate the habitat loss during well pad and pipeline construction (or as soon as final construction drawings are available) and offset these losses with actively managed lands (e.g., grazed or burned periodically) which are suitable for mountain plover. In calculating habitat loss, include a buffer around these facilities to account for wildlife avoidance of these features.

Verification: At least 15 days prior to site mobilization, the project owner shall provide the CPM, USFWS, Refuge, and CDFG with the mountain plover survey results. If Mountain plover habitat is present where a permanent facility will be placed, the project owner shall identify the amount of land they intend to protect 15 days prior to construction. The project owner shall fund the acquisition and long-term management of the compensation lands in a form acceptable to the CEC and CDFG (e.g., provide a letter of credit or establish an escrow account) 15 days prior to construction. The land protection proposal and management fund(s) shall be approved by the CPM and reviewed by CDFG. The project owner shall propose land for purchase or protection with a description of habitat types and propose a management and monitoring plan at least 90 days prior to commercial operation.

The project owner shall rectify any underfunded amounts in the acquisition and long-term management account(s) at least 60 days prior to commercial operation. At least 30 days prior to commercial operation, the project owner shall submit to the CPM two copies of the relevant legal paperwork that protects lands in perpetuity (e.g., a conservation easement as filed with the Imperial County Recorder), a final management and monitoring plan, and documents which discuss the types of habitat protected on the parcel. If a private mitigation bank is used, the project owner shall provide a letter to the CPM from the approved land management organization stating the amount of funds received, the amount of acres purchased and their location, and the amount of funds dedicated to long term monitoring or management 60 days prior to commercial operation. If fund remain after performance of all habitat compensation obligations, the monies in the letter of credit or escrow account will be returned to the project owner with written approval of the CPM.

All mitigation measures and their implementation methods shall be included in the BRMIMP.

Emergency Management to Avoid Harassment or Harm

BIO-C7 The project owner shall prepare and submit an agency notification list for emergency events which involve the rupture or spill of brine fluids from wellheads or brine pipelines. The project owner shall obtain and then follow the recommendations resulting from the agency notification for avoiding harassment or harm to biological resources.

Verification: The project owner shall provide the agency notification list to the CPM for approval at least 60 days prior to start of commercial operation. The agency notification list shall be incorporated into the BRMIMP. The project owner shall report in the annual

compliance report any agency notifications and whether the agency recommendations were followed.

Provide for Equitable Hunting Opportunities at OB1 and OB2

BIO-C8 If the construction of production well pads OB1 and OB3 takes place during snow geese and widgeon hunting season, then the project owner shall provide alternative parking locations for hunters. If hunting will no longer be allowed on this parcel, in order to protect the proposed production pipeline or wellheads, then the project owner shall propose replacement of this parking and/or hunting opportunity at an alternative hunting location.

Verification: At least 15 days prior to site mobilization, the project owner shall provide the CPM with the proposed location of alternative parking for hunters. If the land will no longer be used for hunting, the project owner shall fund the acquisition and long-term management of the compensation lands in a form acceptable to the CEC and Refuge (e.g., provide a letter of credit or establish an escrow account) 15 days prior to construction.

Compensate for Lea Act Land Losses

BIO-C9 The project owner shall locate and procure a lease of at least 19 acres of agricultural lands to compensate permanent habitat losses from production well pads OB1 and OB3 and their pipelines. The parcel shall be selected that facilitates management and enforcement by Sonny Bono National Wildlife staff.

Verification: At least 15 days prior to site mobilization, the project owner shall provide the CPM with evidence of consultation with the Refuge for impacts to Lea Act Lands. The location of the lands to compensate for Lea Act land losses shall be described in the annual compliance report.

LAWS, ORDINANCES, REGULATIONS & STANDARDS

BIOLOGY

APPLICABLE LAW	DESCRIPTION
FEDERAL	
Endangered Species Act of 1973 (16 USC, Section 1531 et seq.) and implementing regulations, (CFR, Section 17.1 et seq.)	Designates and provides for protection of threatened and endangered plants and animals and their critical habitat.
National Environmental Policy Act (NEPA) of 1969 (42 USC Section 4341 et seq.) and implementing regulations (40 CFR Parts 1500-1508)	NEPA must be addressed if an Environmental Impact Statement (EIS) would be required for a Federal action/permit that would have a significant effect on the environment.
Section 404 of the Clean Water Act (33 USC Section 404 et seq.)	Prohibits the discharge of dredged or fill material into waters of the United States without a permit. A 404 Nationwide permit 12 is applicable for utility line placement near waters of the U.S. causing temporary discharge of material.
Executive Order 11990, Protection of Wetlands	Requires governmental agencies take action to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out their responsibilities.
STATE	
California Endangered Species Act of 1984, (Fish and Game Code, Section 2050 et seq.)	Protect California's endangered and threatened species.
LOCAL	
Imperial County General Plan, Conservation and Open Space Element	Establishes standards to promote the protection, maintenance, and use of the County's natural resources.

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CULTURAL RESOURCES

CULTURAL RESOURCES—GENERAL

This analysis discusses cultural resources, which are defined as the structural and cultural evidence of the history of human development and life on earth. Cultural resources may be found on the ground surface or buried beneath the surface. Evidence of California's early occupation is becoming increasingly vulnerable due to the ongoing development and urbanization of the state. Potential cultural resources are identified through records searches and field surveys.

Since project development and construction usually entail surface and sub-surface disturbance of the ground, the proposed project has the potential to adversely affect both known and unknown cultural resources. Direct impacts are those which may result from the immediate disturbance of resources, whether from vegetation removal, vehicle travel over the surface, earth-moving activities, or excavation. Indirect impacts are those which may result from increased erosion due to site clearance and preparation, or from inadvertent damage or vandalism to exposed resource materials due to improved accessibility. Cumulative impacts to cultural resources may occur if increasing amounts of land are cleared and disturbed for the development of multiple projects in the same vicinity as the proposed project.

Prehistoric

Prehistoric archaeological resources are those resources relating to prehistoric human occupation and use of an area; these resources may include sites and deposits, structures, artifacts, rock art, trails, and/or any other traces of Native American human behavior. In California, the prehistoric period has been determined to pre-date 10,000 years before present (B.P.) and which extended well into the 18th century with the initiation of the Mission Period (ca. 1769) and the first Euro-American (Spanish) settlement of California.

The San Dieguito Complex (a group of artifacts and subsistence remains that are characteristic of a specific period of time and geographic area) was originally thought to represent Early Holocene (12,000 to 8,000 BP [years before present, computed from 1950]) big game hunters who lived around the pluvial lakes in the Great Basin and Colorado Desert. More recent research indicates these people were likely highly mobile hunter-gatherers who exploited a wider range of animal and plant foods. The San Dieguito Complex is represented in the archaeological record entirely by lithic technology (stone tools), which consists of well-made projectile points, bifacial blades and knives, scrapers, scraper planes, and choppers. San Dieguito sites consist of lithic scatters, rock features, cleared circles, and trails and are usually found on terraces overlooking drainages and along the shorelines of the former pluvial lakes such as Lake Cahuilla.

Only a small amount of archaeological material is known from the Salton Trough for the long period of time known as the Desert Archaic or Pinto-Amargosa period between about 8,000 BP and about 1500 BP. Large bifacial dart points continue in use, but there is also an increasing variety of expedient and formed flaked lithic tools. Milling equipment, indicating use of plant seed resources, also appears during this period. Some food storage is indicated by the presence of stone-lined cache pits at Indian Hill Rockshelter and Tahquitz Canyon. The sparse occupation during the middle Holocene may be related to extremely arid climatic conditions and fluctuations in the level of Lake Cahuilla.

The Late Prehistoric Period in the Colorado Desert has been the Yuman period and is now more often referred to as the Patayan pattern. Patayan I dates from A.D. 500 to A.D. 1050 and is marked by the introduction of the bow and arrow, indicated archaeologically by the presence of small arrow points. Ceramics appear during the end of Patayan I and are the indicator for Patayan II (A.D. 1050 to A.D. 1500). Bands of people used a series of temporary camps in a seasonal round as they moved between the valleys of the Peninsular Ranges to the west and the shores of Lake Cahuilla. Fish and migratory waterfowl were important lake resources. Desert resources included mesquite and saltbush. Patayan III after A.D. 1500 is associated with the recession of Lake Cahuilla. Fish was an important resource, as indicated by large amounts of fish bone found in sites along the receding shorelines of Lake Cahuilla. Stone fish traps were used on the west side of Lake Cahuilla during both Patayan II and Patayan III.

Historic

Historic archaeological resources are those materials usually associated with Euro-American exploration and settlement and the beginning of written historical records. Historic resources may also include archaeological deposits, sites, structures, traveled ways, artifacts, documents, and/or any other evidence of human activity. Prior to 1998, federal and state requirements identified historic resources as being greater than fifty years of age. Amendments to CEQA have removed the references to the fifty-year designation, while the federal regulations maintain the requirement.

Spanish missionaries began their exploration of California and development of the missions in 1769, starting in San Diego and ending with the missions in San Rafael and Sonoma established in 1823. Mission San Diego was the first mission, founded in 1769. The San Diego Mission later established an *asistencia*, or mission outpost, at Santa Isabel in the Peninsular Range. In 1779, 1,500 Tipai-Ipai lived near the San Diego Mission and in 1821 450 lived near the Santa Ysabel *asistencia*. The Spanish did not establish any permanent outposts in the Imperial Valley. The earliest Spanish exploration of this area occurred in 1774 when Juan Bautista de Anza led an expedition across the Anza Borrego Desert to the California coast to find an overland route to the missions. The next year Anza guided a group of 240 colonists and soldiers from Sonora along this route and founded the Spanish settlement at San Francisco (CEOE 2002d:2-6).

After Mexico became independent from Spain in the early 1830s, the Mexican government closed the missions. Former mission lands were granted to soldiers and other Mexican citizens for use as cattle ranches. However, no Mexican land grants were made in the arid Imperial Valley.

Alta California became part of the United States in 1848 as a result of the Treaty of Guadalupe Hidalgo between Mexico and the United States. Although major intercontinental transportation routes from Los Angles to the east via Yuma passed through the Imperial Valley (the Butterfield Stage Route along the western side of the valley from 1858 to 1861 and the Southern Pacific Railroad along the east side after 1878), the valley remained unsettled during the American Period until a system of irrigation canals was completed to provided water for agriculture in the early twentieth century.

In the 1890s a civil engineer named C. R. Rockwood and George Chaffey, who had previously constructed successful irrigation systems in the Ontario area of San Bernardino

County and in Australia, began planning and financing an irrigation system for the Imperial Valley using Colorado River water. The two men formed the California Development Company and the Imperial Land Company, which were financed by investors. These companies bought land and built irrigation canals. Water was diverted from the Colorado River into the canal system in 1901 and, by the end of the year, 1,500 acres were under cultivation around Calexico. As more canals were built, the population increased rising to 12,000 by 1905.

The canals soon became full of silt that caused people to open the canals at their lower ends to provide drainage. The combination of the canal openings and a series of Colorado River floods in 1904 and 1905 resulted in a major flow of Colorado River water through the Imperial Valley. By the time the flow was stopped in February 1907, the Salton Sea had been formed. As a result of the floods, 13,000 acres of formerly cultivated land were unusable.

After the dissolution of the California Development Company in 1909 as a result of financial losses due to the floods, there was no valley-wide organization to finance and develop the irrigation system. Thirteen small water companies existed until 1921 when the valley-wide Imperial Irrigation District was formed. New arrivals during the 1910s purchased land in one of the 13 water districts and extensively altered and leveled the land so that water from the canals would efficiently irrigate their land. The principal agricultural activities during this period were growing alfalfa, raising hogs, and dairying. A series of small towns developed north of Calexico during this period to supply the needs of the newly-arrived farmers. These included Brawley (1908), Westmorland (1910), Niland (1913), and Calipatria (1914).

The problem of soil salinity, caused by salts in the irrigation water which remained in the soil as the water evaporated, was solved when the Imperial Irrigation District finished a system of canals that drained water from fields into the Salton Sea in 1929. Risk and uncertainty were further reduced when the Hoover Dam and the All American Canal were completed in the 1930s. The Hoover Dam prevented any further flooding from the Colorado River and the All American Canal, constructed between 1933 and 1938 and opened in 1940, rerouted Colorado River water from an earlier route through Mexico to a route entirely within the United States. These improvements resulted in a second wave of settlement in the 1930s and 1940s. Many of the farmsteads in the project area were begun at this time. Many more crops were also introduced at this time and included cantaloupes, citrus, grapes, wheat, beets, asparagus, and cotton. Currently, 3,000 miles of irrigation and drainage canals serve 500,000 acres of cultivated land, yielding nearly $1 billion in agricultural products.

Ethnic Heritage

Ethnographic resources are those resources important to the heritage of a particular ethnic or cultural group, such as Native Americans, Hawaiian, Eskimo, African, European, or Asian immigrants. They may include traditional resource collecting areas, ceremonial sites, topographic features, cemeteries, shrines, or ethnic neighborhoods and structures. Ethnographic resources also include personal biographical data, interview data, and collections or oral histories relating the lifeways of previous generations.

The study area was within the territory used by the Tipai-Ipai, also known as the Diegueño and the Kumeyaay. The Tipai-Ipai language is Diegueño and belongs to the Yuman language family of the Hokan stock. The Tipai-Ipai occupied the coast from the San Luis River south and their territory extended inland from the coast across the Peninsular Range to the Salton

Trough. The eastern boundary was the Chocolate Mountains and Sand Hills between the Salton Trough and the Colorado River.

Most Tipai-Ipai settlements were campsites occupied during the seasonal round. Bands usually spent the winter together and dispersed in the spring. Winter villages were located in sheltered areas at lower elevations. Most shelters were dome shaped or gable shaped with a pole framework covered with thatch or earth. Windbreaks were used during the summer. Caves and bark-roofed slab huts were used in the mountains. Acorns harvested in the mountains in the fall were a major food source. Other important plants were agave, yucca, cactus fruits, grass seeds, and mesquite pods. Deer, rabbits, rodents, and birds supplemented the diet. Inland groups traded acorns, agave, mesquite and gourds for salt, dried fish and shellfish, and abalone shells from the coast.

RESOURCES INVENTORY

Literature and Records Search

CE Obsidian Energy LLC conducted a cultural resources literature search and reviewed site records and maps for the project area at the Southeast Information Center of the California Historic Resources Information System (CHRIS) located at the Imperial Valley College Desert Museum. The record search included an area extending for one mile around the Unit 6 site and the project linear routes.

As a result of the record search, 83 previously recorded sites and 18 isolated prehistoric artifacts were identified as being located between 200 and 1200 meters of the project site and associated linear routes. Of the 83 sites, 75 were prehistoric, seven were historic, and one was prehistoric and historic.

No previously recorded cultural resources are located on the parcel proposed for the SSU6. Previously recorded cultural resources located within 100 feet of the project linear routes, including the alternate L-Line interconnection, consist of three prehistoric artifact scatters (CA-IMP-4931, CA-IMP-6415, and CA-IMP-6416), four trail segments (CA-IMP-900, CA-IMP-902, CA-IMP-903, and CA-IMP-5108) recorded on an 1859 survey carried out by the United States Geological Survey, one canal (the Westside Main Canal) dating to the historic period (CA-IMP-7834; P-13-008303), and one prehistoric isolated artifact (IMP-6436-I). One other prehistoric artifact scatter, CA-IMP-7804, was reported as being located within 100 feet of the L-Line Interconnection route. However, a subsequent survey completed after the route was staked on the ground showed that this previously recorded site is not within 100 feet of the L-Line Interconnection route. One of the artifact scatters (CA-IMP-4931) and all four trail segments are located along the L-Line Interconnection route. The L-Line Interconnection route and the alternate L-Line Interconnection route cross the Westside Main Canal. The other two artifact scatters (CA-IMP-6415, and CA-IMP-6416), and the isolate are located along the alternate L-Line Interconnection route which runs parallel to this historic canal. A subsequent survey completed after the route was staked on the ground showed that one additional previously recorded site, a campsite (CA-IMP-6549), is within 100 feet of the Alternate L-Line Interconnection route. No previously recorded cultural resources are located along the IID Midway Interconnection route.

Field Surveys

CE Obsidian Energy LLC conducted an intensive pedestrian archaeological survey of the property proposed for the SSU6 and the associated linear routes in January 2002. During the current survey, a more diffuse scatter of similar artifacts was noted.

Three new prehistoric sites (designated BB-1, BB-2, and KH-1) were recorded. BB-1 is a small diffuse scatter of debitage with both obsidian and metavolcanic flakes. The site area has been disturbed by erosion from an alluvial wash and by modern earth moving activities. BB-2 is also a diffuse lithic scatter. The site area has been disturbed by erosion from an alluvial wash. KH-1 consists of a scatter of debitage and other materials.

CEOE recorded and evaluated ten structures from the historic period along the L-Line Interconnection route. These include a possible residence, a railway segment, Calipatria Prison, and a farmstead.

The location of the Bannister Switchyard, some of the transmission towers (L14, SB2, and possibly L13), and any additional laydown or construction areas, or access roads that are necessary for construction of these transmission towers are outside of the survey areas covered by URS. The area for the Bannister Switchyard was surveyed and is documented in the inventory and testing report prepared for Imperial Irrigation District by ASM Affiliates. A small site, IID-5, was recorded in this area. The site contains a small hearth and a few scattered artifacts. The site is highly disturbed by grading, and there do not appear to be any subsurface components. However, transmission tower locations L14, SB2, and possibly L13 and any additional laydown or construction areas, or access roads that are necessary for construction of these transmission towers have not had a cultural resources survey.

The two lithic scatters (CA-IMP-6415, and CA-IMP-6416) along the alternate L-Line interconnection could not be relocated during the survey. CE Obisidian Energy LLC recorded and evaluated five structures from the historic period along this route. These were mostly farmsteads.

The alternate route parallel with State Route 86 and north of Bannister Road was resurveyed by the Imperial Irrigation District (IID) after the transmission line routes were staked on the ground (IID 2003a). Two new prehistoric archaeological sites, a campsite (IID-1) and a hearth feature (IID-2), also were recorded along the alternate route. One additional previously recorded site, a campsite (CA-IMP-6549), is located near the end of this route. The IID survey also recorded one new isolated artifact.

No archaeological sites were identified during the survey of the IID Midway Interconnection route. One isolated artifact, a primary chert flake, was recorded along this route. A feature from the historic period, a portion of the J Lateral Water Conveyance System, consisting of two concrete culverts, was also recorded. Some sections of the culvert are stamped with the date 1949 while other newer sections bear the date 1982.

The brine production wellhead OB3 would be located on the southern end of Obsidian Butte. A large portion of Obsidian Butte is a disturbed area used for gravel mining. The construction of this well pad would not result in new disturbance. The brine pipeline would parallel the south side of the dirt access road from the quarry area to McKendry Road.

Obsidian Butte is a known source of obsidian used by Native Americans to make flaked stone tools throughout southern California during the latter part of the Late Prehistoric period.

Although two small areas around the base of Obsidian Butte have been recorded as sites (CA-IMP-452 and CA-IMP-6638), Obsidian Butte as a whole has not been recorded as an archaeological site. The Obsidian Butte obsidian source consists of a central dome of rhyolite which rises about 90 feet above the surrounding alluvial valley floor, and a surrounding area of about 40 acres of rhyolite flow with chunks of rhyolitic obsidian covered by a weathered light gray pumice mantle. Soon after obsidian Butte was formed by volcanic activity, it was covered by the waters of Lake Cahuilla, as indicated by rounded pumice clasts and seven wave cut benches on the east slope of the dome. Prehistoric Native Americans only had access to the obsidian source when Lake Cahuilla was low or dry. The most extensive use of the obsidian source appears to have been during the Patayan II and III periods after A.D. 1200.

The southern and eastern slopes of the dome were covered with pumice and ash sand and gravel that has been removed and used as fill material. Currently, Imperial Irrigation District owns Obsidian Butte. There is a large graded area south of the butte and a gravel pit and disturbed area east of the butte. Although some of the obsidian source area has lost integrity, there are still large intact areas of obsidian chunks around the base of the butte. It is likely that if the entire area were surveyed, more quarry areas containing hammerstones and obsidian reduction flakes would be recorded, similar to the two already noted (4-IMP-452 and 4-IMP-6638).

PROJECT RELATED IMPACTS

Only impacts to eligible cultural resources sites can be potentially significant. Of the resources that could be impacted by the project, only Obsidian Butte and the “Obsidian Butte Lithic Scatter” meet the CRHR eligibility requirements. Impact to the “Obsidian Butte Lithic Scatter” would consist of construction of a pipeline from Well Pad OB-3 to the power plant to the east of Obsidian Butte. The pipeline will be constructed aboveground and will be supported by 20 pipe supports at 30 foot intervals. Each support will consist of two piles, each 14 inches in diameter, which will be driven into the ground. The pipeline will cross an area that contains the “Obsidian Butte Lithic Scatter,” recorded during survey for the SSU6 project. The route for the pipeline would parallel the existing access road. The north edge of the site is about 3 meters (10 feet) south of the existing access road. The widening of the access road and the berm along the south side of the road is expected to materially impair the eligibility of the “Obsidian Butte Lithic Scatter” recommended eligible for the CRHR under criterion 4, unless the pipeline and road can avoid the site.

Energy Commission staff consulted with Native American tribes regarding their concerns. Some groups indicated that there is a Traditional Cultural Place in the vicinity of the project area. Although a Traditional Cultural Place is not within the expansion area, the Native American tribes expressed a concern about impacts. Obsidian Butte would be impacted by diminishing aspects of integrity (setting, feeling, and association) under criterion 1. The power plant is proposed between ¼ and ½ mile of the important portions of Obsidian Butte. Most of Obsidian Butte is elevated, making the proposed plant, well OB-3, and the brine supply pipeline clearly visible. Past development in the area has removed a portion of the butte. Consequently, the construction of the power plant, well OB-3, and the brine supply pipeline would alter the setting, feeling and association of Obsidian Butte in such a way that the integrity of the resource would be diminished. Although there will be a change in setting, feeling, and association, the impact is not expected to materially impair Obsidian Butte’s

eligibility to the CRHR under crietion 1. The Native America Tribes expressed a desire to have an ethnographic study completed for the project vicinity. Condition of Certification, CUL-10, is proposed by staff to require preparation of an ethnographic study in accordance with the request of Native American representatives to mitigate the impact of the project to the setting, feeling and association of Obsidian Butte as a traditional cultural place and as a sacred place. The ethnographic study would provide the cultural background documenting the importance of Obsidian Butte, a record of the resource including boundaries, and recommendations for eligibility for the CRHR and management of the resource.

Native Americans also requested that access to the Native American quarry area be restricted. This area is outside of the project area and is land owned by Imperial Irrigation District (IID). Staff encourages IID to implement measures to restrict access to this area so that Native Americans can continue to use the area in a traditional manner. Staff also encourages IID to discuss concerns with the Native American groups and consider additional enhancements of the Obsidian Butte that would assist Native Americans in continuing their traditional practices. Native American individuals and tribes are encouraged to discuss with the Imperial County Planning Department the implementation of the Imperial County General Plan Land Use Element Goal 9 to preserve Obsidian Butte as a significant cultural resource.

The transmission tower locations for L14, SB2 and possibly L13 have not had a cultural resources survey. Without identifying whether resources exist in these areas, impacts can not be identified. If archeological sites exist in these areas and the pole locations can not be modified, then the resources would have to be evaluated for eligibility to the CRHR. If any identified resources are determined to be eligible for the CRHR or if human remains are present, then mitigation would need to be implemented to reduce the impact to less than significant.

Because project-related site development and construction would entail subsurface disturbance of the ground, the proposed project has the potential to adversely affect previously unknown cultural resources. Six archaeological sites were identified in the record search that could not be located during the survey. In addition 28 archeological sites and features, objects, buildings, or structures are known to be located in the vicinity of the proposed project. These include 15 historic-era buildings and structures. Some archeological deposits near the project area contain human remains. This indicates a potential to encounter previously unknown historic and prehistoric resources during project construction. Cultural resources monitoring would ensure identification of resources during construction and would be consistent with the Imperial County General Plan Geothermal and Transmission Element standards.

MITIGATION

☑ The Project Owner will designate a cultural resource specialist who will monitor excavation and, in the event of an unanticipated discovery, provide for the handling and curation of any recovered cultural resources. Conditions: **CUL-1** through **CUL-10**

CUMULATIVE IMPACTS

Cumulative impacts to cultural resources in the project vicinity may occur if subsurface archaeological deposits are affected by other projects in the same vicinity as the proposed project. There are no other proposed projects in the vicinity of the SSU6 project.

FINDING

With the implementation of the Conditions of Certification, below, the project conforms to applicable laws related to cultural resources and all potential cultural resource impacts will be mitigated to insignificance. To mitigate potential impacts to insignificance on matters not subject to our jurisdiction, the Commission recommends that, for well pad/pipeline and transmission line permitting, Imperial County and the BLM both incorporate Conditions **CUL-1, 2, 3, 4, 5, 6, & 7,** and for Imperial County only Conditions **CUL- 8 & 11,** and for the BLM only Conditions **CUL-9 & 10**.

CONDITIONS OF CERTIFICATION

CUL-1 Prior to the start of ground disturbance, the project owner shall obtain the services of a Cultural Resources Specialist (CRS), and one or more alternates, if alternates are needed, to manage all monitoring, mitigation and curation activities. The CRS may elect to obtain the services of Cultural Resource Monitors (CRMs) and other technical specialists, if needed, to assist in monitoring, mitigation and curation activities. The project owner shall ensure that the CRS evaluates any cultural resources that are newly discovered or that may be affected in an unanticipated manner for eligibility to the California Register of Historic Resources (CRHR). No ground disturbance shall occur prior to CPM approval of the CRS, unless specifically approved by the CPM.

Cultural Resources Specialist

The resume for the CRS and alternate(s) shall include information demonstrating that the minimum qualifications specified in the U.S. Secretary of Interior Guidelines, as published in the Code of Federal Regulations, 36 CFR Part 61 are met. In addition, the CRS shall have the following qualifications:

1. The technical specialty of the CRS shall be appropriate to the needs of the project and shall include, a background in anthropology, archaeology, history, architectural history or a related field; and
2. At least three years of archaeological or historic, as appropriate, resource mitigation and field experience in California; and
3. The resume of the CRS shall include the names and telephone numbers of contacts familiar with the work of the CRS on referenced projects, and demonstrate that the CRS has the appropriate education and experience to accomplish the cultural resource tasks that must be addressed during ground disturbance, grading, construction and operation. In lieu of the above requirements, the resume shall demonstrate to the satisfaction of the CPM, that the proposed CRS or alternate has the appropriate training and background to effectively implement the conditions of certification.

Cultural Resources Monitor

CRMs shall have the following qualifications:

1. a BS or BA degree in anthropology, archaeology, historic archaeology or a related field and one year experience monitoring in California; or

2. an AS or AA degree in anthropology, archaeology, historic archaeology or a related field and four years experience monitoring in California; or
3. enrollment in upper division classes pursuing a degree in the fields of anthropology, archaeology, historic archaeology or a related field and two years of monitoring experience in California.

Cultural Resources Technical Specialists

The resume(s) of any additional technical specialists, e.g. historic archeologist, historian, architectural historian, physical anthropologist; shall be submitted to the CPM for approval.

Verification: The project owner shall submit the resume for the CRS, and alternate(s) if desired, to the CPM for review and approval at least 45 days prior to the start of ground disturbance.

At least 10 days prior to a termination or release of the CRS, the project owner shall submit the resume of the proposed new CRS to the CPM for review and approval.

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 resource monitoring required by this condition. If additional CRMs are obtained during the project, the CRS shall provide additional letters to the CPM identifying the CRMs and attesting to the qualifications of the CRM, at least five days prior to the CRM beginning on-site duties. At least 10 days prior to beginning tasks, the resume(s) of any additional technical specialists shall be provided to the CPM for review and approval.

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 of certification.

CUL-2 Prior to the start of ground disturbance, the project owner shall provide the CRS and the CPM with maps and drawings showing the footprint of the power plant and all linear facilities. Maps shall include the appropriate USGS quadrangles and a map at an appropriate scale (e.g., 1:2000 or 1" = 200') for plotting individual artifacts. 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 submittals and in consultation with the CRS approve those that are appropriate for use in cultural resources planning activities.

If construction of the project would proceed in phases, maps and drawings, not previously provided, shall be submitted prior to the start of each phase. Written notification identifying the proposed schedule of each project phase shall be provided to the CRS and CPM.

At a minimum, the CRS shall consult weekly with the project construction manager to confirm area(s) to be worked during the next week, until ground disturbance is completed.

The project owner shall notify the CRS and CPM of any changes to the scheduling of the construction phases. No ground disturbance shall occur prior to CPM approval of maps and drawings, unless specifically approved by the CPM.

Verification: The project owner shall submit the subject maps and drawings at least 40 days prior to the start of ground disturbance. The CPM will review submittals in consultation with the CRS and approve maps and drawings suitable for cultural resources planning activities.

If there are changes to any project related footprint, revised maps and drawings shall be provided at least 15 days prior to start of ground disturbance for those changes.

If project construction is phased, if not previously provided, the project owner shall submit the subject maps and drawings 15 days prior to each phase.

A current schedule of anticipated project activity shall be provided to the CRS on a weekly basis during ground disturbance and also provided in each Monthly Compliance Report (MCR).

The project owner shall provide written notice of any changes to scheduling of construction phases within five days of identifying the changes.

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 the CRS, to the CPM for approval. The CRMMP shall identify general and specific measures to minimize potential impacts to sensitive cultural resources. Copies of the CRMMP shall reside with the CRS, alternate CRS, each monitor, and the project owner's on-site manager. No ground disturbance shall occur prior to CPM approval of the CRMMP, unless specifically approved by the CPM.

The CRMMP shall include, but not be limited to, the following elements and measures.

1. A proposed general research design that includes a discussion of research questions and testable hypotheses applicable to the project area. A refined research design will be prepared for any resource where data recovery is required.
2. The following statement shall be added to the Introduction: Any discussion, summary, or paraphrasing of the conditions in this CRMMP is intended as general guidance and as an aid to the user in understanding the conditions and their implementation. If there appears to be a discrepancy between the conditions and the way in which they have been summarized, described, or interpreted in the CRMMP, the conditions, as written in the Final Decision, supercede any interpretation of the conditions in the CRMMP. (The Cultural Resources Conditions of Certification are attached as an appendix to this CRMMP.)
3. Specification of the implementation sequence and the estimated time frames needed to accomplish all project-related tasks during ground disturbance, construction, and post-construction 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 discussion of the inclusion of Native American observers or monitors, the procedures to be used to select them, and their role and responsibilities.

6. A discussion of all avoidance measures (such as flagging or fencing), to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during construction and/or operation, and identification of areas where these measures are to be implemented. The discussion shall address how these measures would be implemented prior to the start of construction and how long they would be needed to protect the resources from project-related effects.
7. A discussion of the requirement that all cultural resources encountered shall be recorded on a DPR form 523 and mapped (may include photos). In addition, all archaeological materials collected as a result of the archaeological investigations (survey, testing, data recovery) shall be curated in accordance with The State Historical Resources Commission's "Guidelines for the Curation of Archaeological Collections," into a retrievable storage collection in a public repository or museum. The public repository or museum must meet the standards and requirements for the curation of cultural resources set forth at Title 36 of the Federal Code of Regulations, Part 79.
8. A discussion of any requirements, specifications, or funding needed for curation of the materials to be delivered for curation and how requirements, specifications and funding shall be met. If archaeological materials are to be curated, the name and phone number of the contact person at the institution. This shall include information indicating that the project owner will pay all curation fees and state that any agreements concerning curation will be retained and available for audit for the life of the project.
9. A discussion of the availability and the designated specialist's access to equipment and supplies necessary for site mapping, photographing, and recovering any cultural resource materials encountered during construction.
10. A discussion of the proposed Cultural Resource Report (CRR) which shall be prepared according to Archaeological Resource Management Report (ARMR) Guidelines.

Verification: The project owner shall submit the subject CRMMP at least 30 days prior to the start of ground disturbance. Per ARMR Guidelines the author's name shall appear on the title page of the CRMMP. Ground disturbance activities may not commence until the CRMMP is approved, unless specifically approved by the CPM. A letter shall be provided to the CPM indicating that the project owner would pay curation fees for any materials collected as a result of the archaeological investigations (survey, testing, data recovery).

CUL-4 The project owner shall submit the Cultural Resources Report (CRR) to the CPM for approval. The CRR shall be written by the CRS and shall be provided in the ARMR format. The CRR shall report on all field activities including dates, times and locations, findings, samplings and analysis. All survey reports, Department of Parks and Recreation (DPR) 523 forms and additional research reports not previously submitted to the California Historic Resource Information System (CHRIS) and the State Historic Preservation Officer (SHPO) shall be included as an appendix to the CRR.

Verification: The project owner shall submit the subject CRR within 90 days after completion of ground disturbance (including landscaping). Within 10 days after CPM approval, the project owner shall provide documentation to the CPM that copies of the CRR have been provided to the SHPO, the CHRIS and the curating institution (if archaeological materials were collected).

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. The training may be presented in the form of a video. 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. Information that the CRS, alternate CRS, and CRMs have the authority to halt construction to the degree necessary, as determined by the CRS, in the event of a discovery or unanticipated impact to a cultural resource;
4. 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;
5. An informational brochure that identifies reporting procedures in the event of a discovery;
6. An acknowledgement form signed by each worker indicating that they have received the training; and
7. 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 specifically approved by the CPM.

Verification: The project owner shall provide in the Monthly Compliance Report the WEAP Certification of Completion form of persons 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 shall monitor ground disturbance full time in the vicinity of the project site, linear facilities and ground disturbance at laydown areas or other ancillary areas to ensure there are no impacts to undiscovered resources and to ensure that known resources are not impacted in an unanticipated manner. In the event that the CRS determines that full-time monitoring is not necessary in certain locations, a letter or e-mail providing a detailed justification for the decision to reduce the level of monitoring shall be provided to the CPM for review and approval prior to any reduction in monitoring.

CRMs shall keep a daily log of any monitoring or cultural resource activities and the CRS shall prepare a weekly summary report on the progress or status of cultural resources-related activities. The CRS may informally discuss cultural resource monitoring and mitigation activities with Energy Commission technical staff.

The CRS and the project owner shall notify the CPM by telephone or e-mail of any incidents of non-compliance with the conditions of certification and/or applicable LORS upon becoming aware of the situation. The CRS shall also recommend corrective action to resolve the problem or achieve compliance with the conditions of certification.

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 of certification.

A Native American monitor shall be obtained to monitor ground disturbance in areas where Native American artifacts may be discovered or disturbed. Informational lists of concerned 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 to be monitored.

Verification: During the ground disturbance phases of the project, if the CRS wishes to reduce the level of monitoring occurring at the project, a letter or e-mail identifying the area(s) where the CRS recommends the reduction and justifying the reductions in monitoring shall be submitted to the CPM for review and approval. Documentation justifying a reduced level of monitoring shall be submitted to the CPM at least 24 hours prior to the date of planned reduction in monitoring.

During the ground disturbance phases of the project, the project owner shall include in the MCR to the CPM copies of the weekly summary reports prepared by the CRS regarding project-related cultural resources monitoring. Copies of daily logs shall be retained and made available for audit by the CPM.

Within 24 hours of recognition of a non-compliance issue with the conditions of certification and/or applicable LORS, the CRS and the project owner shall notify the CPM by telephone of the problem and of steps being taken to resolve the problem. The telephone call shall be followed by an e-mail or fax detailing the non-compliance issue and the measures necessary to achieve resolution of the issue. Daily logs shall include forms detailing any instances of non-compliance. In the event of any non-compliance issue, a report written no sooner than two weeks after resolution of the issue that describes the issue, resolution of the issue and the effectiveness or the resolution measures, shall be provided in the next MCR.

One week prior to ground disturbance in areas where there is a potential to disturb or discover Native American artifacts, the project owner shall send notification to the CPM identifying the person(s) retained to conduct Native American monitoring. The project owner shall also provide a plan identifying the proposed monitoring schedule and information explaining how Native Americans who wish to provide comments will be allowed to comment. 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.

CUL-7 The project owner shall grant authority to halt construction to the CRS, alternate CRS and the CRMs in the event previously unknown cultural resource sites or materials are encountered, or if known resources may be impacted in a previously unanticipated manner (discovery). Redirection of ground disturbance shall be accomplished under the direction of the construction supervisor in consultation with the CRS.

In the event cultural resources are found or impacts can be anticipated, the halting or redirection of construction shall remain in effect until 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 eligibility and recommendations for mitigation of any cultural resources discoveries whether or not a determination of significance has been made.
2. The CRS, the project owner, and the CPM have conferred and determined what, if any, data recovery or other mitigation is needed; and
3. Any necessary data recovery and mitigation has been completed.

Verification: 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 construction activities in the vicinity of a cultural resource 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.

CUL-8 If a federal action requires Section 106 Compliance, the project owner shall ensure that a copy of the right of way grant and copies of correspondence from the Bureau of Land Management (BLM) to the project owner are provided to the CPM.

Verification: Within two weeks of the granting of the right of way by the BLM, copies of the right-of-way grant shall be provided to the CPM. Within two weeks of the project owner receiving correspondence from the BLM regarding the right of way, the project owner shall provide copies of the correspondence to the CPM.

CUL-9 Prior to ground disturbance in the affected locations, the project owner shall ensure that a cultural resources survey is completed for proposed transmission tower locations L13, L14, and SB2 and any additional laydown or construction areas, or access roads that are necessary for construction of these transmission towers. The survey shall extend to 50 feet on each side of the center line of proposed linear facilities and shall include a 100 foot circumference around the proposed transmission tower locations.

If archeological deposits or human remains are identified within any of these areas, the project owner shall provide plans that ensure the archaeological deposit or human remains are avoided. If the location of the transmission towers, laydown or construction areas or access roads can not be modified to avoid archeological deposits, then the project owner shall determine whether the deposits are eligible for the CRHR and shall provide a report evaluating the deposit to the CPM for review and approval. If an eligible archeological deposit or human remains are identified in any of these areas, the project owner shall develop and implement prior to ground disturbance, mitigation measures approved by the CPM.

Verification: At least 30 days prior to ground disturbance in the area of L13, L14, and SB2 or any associated laydown or construction areas or access roads, the project owner shall submit a cultural resource survey report for the transmission towers and ancillary areas to the CPM for review and approval. If any archeological deposits are identified in the locations of the

towers and ancillary areas, then an evaluation report shall be submitted to the CPM for review and approval. If an eligible archeological deposit or human remains are identified in any of these areas, the project owner shall develop and implement CPM approved mitigation measures, prior to ground disturbance.

CUL-10 The project owner shall ensure that a cultural anthropologist meeting the Secretary of Interior's Standards prepares a study of the ethnographic area that contains the Salton Sea Unit 6 Project for review and approval by the CPM. After permitting, the project owner shall provide a Scope of Work (SOW) to the CPM identifying aspects of the ethnographic study for review and approval. The SOW may identify additional individuals or groups that shall be included in the consultation. The scope of the study will focus on the area of the project with an emphasis on Obsidian Butte. Consultation shall be with the Cahuilla, Fort Mohave, and Quechan Tribes and other interested groups as identified through the consultation with the Native American Heritage Commission. The report shall also provide a cultural background documenting the importance of Obsidian Butte, a record of the resource including boundaries, and recommendations for eligibility for the CRHR and management of the resource, if applicable. Following the start of commercial operation of the power plant, the project owner shall provide a draft copy of the ethnographic study to the CPM for review and approval. The draft will be considered final upon CPM approval. Copies of the final ethnographic study shall be submitted to the CPM and other institutions agreed to by the involved Native American groups.

Verification: No later than 30 days after the start of ground disturbance, a copy of the SOW of the ethnographic study shall be submitted to the CPM for review and approval.

Within six months following the start of commercial operation of the power plant, the project owner shall provide a copy of the ethnographic study of the project area (with request for confidentiality, if needed), along with any associated maps, to the CPM for review and approval.

CUL-11 Prior to ground disturbing activities in the area of the Obsidian Butte Lithic Scatter, a protective fence shall be erected between the Obsidian Butte Lithic Scatter and the construction area. The fenced area shall be designated as a "Do not enter" area. The fence shall be constructed a minimum of 25 feet outside the recorded boundary of the Obsidian Butte Lithic Scatter. During the periods of ground disturbance and construction in this area, the CRS or CRM shall inspect the area to ensure that the fence is maintained in good condition and that no ground disturbing activities occur within the area designated as "Do not enter". If the Obsidian Butte Lithic Scatter can not be avoided, prior to any ground disturbing activities within the recorded boundaries of the Obsidian Butte Lithic Scatter, the project owner shall ensure that details of the proposed data recovery program are included in the CRMMP or as an addendum to the CRMMP and provided to the Imperial County Planning Department for review and approval and a copy shall be provided to the CPM. The data recovery program shall be implemented and completed prior to ground disturbing activities in the recorded area of the Obsidian Butte Lithic Scatter. The data recovery program shall include surface collection, testing for subsurface deposits, and systematic excavation and collection of samples of subsurface deposits sufficient to recover the information values contained in the site.

Verification: If the lithic scatter can not be avoided by fencing pursuant to this condition, at least thirty days prior to ground disturbing activities in the area of the Obsidian Butte Lithic Scatter, the CRMMP or and addendum to the CRMMP with details of the proposed data recovery program shall be provided to the Imperial County Planning Department for review and approval and a copy shall be provided to the CPM.

LAWS, ORDINANCES, REGULATIONS & STANDARDS

CULTURAL RESOURCES

APPLICABLE LAW	DESCRIPTION
FEDERAL	
National Historic Preservation Act 916 USC 470, et seq.)	Applicable if federal permits are required, Federal funding provided, or lands owned by Federal government. Requires consultation with lead Federal agency, SHPO, & Advisory Council on Historic Preservation.
36 CFR 61 Appendix A	Professional qualification standards/procedures for state and local government historic preservation programs/cultural resources management.
STATE	
California Environmental Quality Act (CEQA) Guidelines (Sections 15064.5 & 15126.4)	Construction may encounter archaeological resources.
Health & Safety Code 7050.5	If potential Native American human remains are encountered, coroner notifies Native American Heritage Commissioner within 24 hours.
Public Resources Code Section 5097.9	If Native American human remains are encountered, the Native American Heritage Commissioner assigns Most Likely Descendent.

GEOLOGY

GEOLOGY—GENERAL

The proposed SSU6 is located within the Colorado Desert geomorphic province at the southern end of the Salton Sea in Imperial County, California. This area within the Colorado Desert is characterized by a structural depression known as the Salton Trough, the San Andreas Fault system, and other major faults. The Salton Trough is characterized by flat topography, generally below mean sea level (MSL) adjacent to the Salton Sea, with the Chocolate Mountains to the east and the Superstition Hills to the west. Major geologic units in the vicinity of the site include the Pleistocene Brawley Formation and Holocene Lake Cahuilla Beds. The Pleistocene Brawley Formation consists of tectonically deformed cemented lacustrine sediments, including silts and clays. The Holocene Lake Cahuilla Beds consist of flat-lying lacustrine sediments including sandy deltaic and beach deposits, silt, and clay associated with ancient Lake Cahuilla. During the Pleistocene and Holocene, the Salton Trough area was periodically inundated by floodwaters from the Colorado River flowing in from the south.

Geotechnical exploration at the site by the Applicant generally encountered variable lean clay, silt, silty sand, and clayey sand lacustrine (lake) deposits. Portions of these soil units were interbedded. The fine-grained soils, including lean clay and silt, were generally classified as brown, soft to firm, and as exhibiting low to medium plasticity. The coarse-grained soils, including silty sand and clayey sand, were generally classified as brown, medium dense, and as exhibiting low plasticity. The lacustrine deposits were encountered to 77-1/2 feet, the maximum depth of exploration.

The site lies within Salton Sea Known Geothermal Resource Area (KGRA), an area in which the U. S. Department of the Interior has recognized significant geothermal resource potential. The site also lies in an area zoned A-3-G, agriculture with a geothermal overlay, as designated by Imperial County (Imperial County, 1993). In 1981, a Master Environmental Impact Report was approved by Imperial County to expand the geothermal zoning overlay that is required for the construction of geothermal operations. (FSA Geology, etc., p. 5.2-2, -3).

Earthquake

Energy Commission staff reviewed the California Geological Survey (CGS) publication *Fault Activity Map of California and Adjacent Areas with Locations and Ages of Recent Volcanic Eruptions*, dated 1994 (CGS, 1994), *Geologic Map of California – Salton Sea Sheet* (Jennings, 1967), *Alquist-Priolo Zones* (CGS, 2000), *Preliminary Geologic Map of the California – Baja California Border Region* (CGS, 1984), and (International Conference of Building Officials [ICBO], 1998). The project is located within Seismic Zone 4 as delineated on Figure 16-2 of the CBC. *Maps of Known Active Fault Near-source Zones in California and Adjacent Parts of Nevada*

The closest known active fault is the Brawley Fault, located approximately 1/2 mile east of the site. The plant site, well pads, and portions of the associated linear

facilities are within the Brawley Seismic Zone (ICBO, 1998). CEC staff has calculated an estimated deterministic peak horizontal ground acceleration for the plant site in the range of 0.41g. This estimate is based upon a moment magnitude 6.4 earthquake on the Brawley Fault. A second active fault, the Elmore Ranch Fault, is located approximately 4 miles to the northwest. Staff has calculated an estimated deterministic peak ground acceleration for the Elmore Ranch Fault in the range of 0.33g. This estimate is based on a moment magnitude 6.6 earthquake on the Elmore Ranch Fault. Other active faults within the vicinity of the site, include the San Andreas Fault (Southern and Coachella segments), the San Jacinto Fault (Superstition Hills, Superstition Mountain, and Coyote Creek segments), and the Imperial Fault. The *CBC* designates a minimum design ground acceleration of 0.4g for the entire project. The closest known pre-Holocene fault is located approximately 15-1/2 miles northeast of the site (Morton, 1966).

The projected surface trace of the closest known deep blind fault within the geothermal reservoir is located approximately 3,000 feet southeast of the plant site and is crossed by the injection well line and L-line and Midway Interconnection electrical transmission lines. Since the plant site is not located within 50 feet of an active fault as defined by the Alquist-Priolo Act, fault trenching is not required.

There are no current standards that require linear facilities to be designed to resist fault rupture or liquefaction, even when these facilities cross an active fault (Anderson, 2001). However, Imperial County does require utilities to submit an operation plan "*describing the effects of failures at the fault and the various emergency facilities and procedures which exist to assure that failure does not threaten public safety*" (Imperial County, 1993).

Seismicity accompanying fluid injection is known to have occurred at Rangely, Colorado and the Rocky Mountain Arsenal, near Boulder, Colorado. The magnitudes of earthquakes generated in this manner are typically quite low. Seismicity at these locations was most likely due to high pressure waste fluid injection. In the SSU6 injection field, significant pressure increases due to fluid injection are unlikely (WESTEC Services, 1981). Since low pressures are used in re-injecting geothermal fluids, the potential for seismicity related to fluid injection is low.

The seismic design criteria specified in the AFC simply identify the UBC sections that would be used when designing buildings and structures (UBC Section 10B3.6.1). Design and construction of the project should conform to the California Building Code (2001) requirements outlined in Conditions **GEN-1, GEN-5,** and **CIVIL-1** under **FACILITY DESIGN** and would reduce the impact of strong seismic ground shaking to less than significant. (FSA Geology, etc., p. 5.2-4, -7.)

MITIGATION:

☑ The Project Owner shall prepare a Geotechnical Report pursuant to the California Building Code to fully describe the geologic conditions of the power plant site and pipeline route. Conditions: **GEN-1, GEN-5 & CIVIL-1**.

Instability

Liquefaction

Liquefaction is a nearly complete loss of soil shear strength that can occur during a seismic event. During the seismic event, cyclic shear stresses cause the development of excessive pore water pressure between the soil grains, effectively reducing the internal strength of the soil. This phenomenon is generally limited to unconsolidated, clean to silty sand (up to 35 percent non-plastic fines) and very soft silts lying below the ground water table. The higher the ground acceleration caused by a seismic event, the more likely liquefaction is to occur. Severe liquefaction can result in catastrophic settlements of overlying structural improvements and lateral spreading of the liquefied layer when confined vertically but not horizontally. Since the site is underlain by interbedded, saturated silty sands, and the depth to ground water is approximately 4 feet; the potential for liquefaction is high; however, the potential for catastrophic liquefaction is probably much lower.

Subsidence

Ground subsidence can occur when ground water is drawn down by irrigation activities such that the effective unit weight of the soil mass is increased, which in turn increases the effective stress on underlying soils, resulting in consolidation/settlement of the underlying soils. Subsidence may also be caused by regional tectonic processes, withdrawal of geothermal fluids, and injection of fluids at a lower temperature than the field temperature. Typically, these forms of subsidence affect a large area.

Regional tectonic subsidence may result in approximately 1.6 inches of subsidence annually (Lofgren, 1987) over the Salton Trough area with a maximum of 2 inches occurring near the Salton Sea and decreasing to near zero near the U.S. / Mexico border (Imperial County, 1993). Localized subsidence data collected by the Applicant from their survey network shows up to 2.4 inches of subsidence across the plant site from 1989 to 1999. This equates to about 0.25 inch annually, well below the regional figures. The subsidence across the plant site is the combined result of tectonic and geothermal production related subsidence. Thermal reservoir compaction of 1.8 feet to 4.5 feet was estimated for a proposed 49 MW geothermal power plant in 1981 located approximately 1 mile east of the proposed SSU6 plant site; however, the report also stated, “it is difficult to predict what fraction, if any, of the reservoir compaction will translate into surface vertical movement” (WESTEC Services, 1981). Subsidence has not caused any perceived damage to the irrigation systems in the Imperial Valley over the 60-year history of irrigation (LLNL, 1980). Possible reasons for no impact to the irrigation system in the Imperial Valley are the low rate of movement and very small changes in slope (LLNL, 1980).

Since the SSU6 will reinject spent geothermal fluids with injection wells, subsidence due to tectonic processes affects a large area, and production wells are located distant from the plant, total subsidence is expected to result in a low potential for settlement that would significantly impact the plant and surrounding areas. If the project were under Imperial County’s jurisdiction, a conditional use permit to operate the SSU6 would be required that includes the annual monitoring of subsidence to

determine the baseline and subsidence elevations at the project site in the context of the Imperial Valley monitoring data that is coordinated by the Imperial County Public Works Department. Should the natural subsidence and any project-induced subsidence be identified as severe enough to result in off-site impacts, the County would then require that further actions be considered to mitigate subsidence impacts to an appropriate level. Such measures include, but are not limited to, increasing the injection volume into the geothermal resource and grading of irrigated areas affected by the subsidence by the Applicant. Therefore, Condition of Certification GEO-1 will continue the collection of data in this area of the Imperial Valley, which will assure that any subsidence in the future at the site will not result in a significant impact to surrounding areas.

Expansive Soils

Soil expansion occurs when clay-rich soils, with an affinity for water, exist in-place at a moisture content below their plastic limit. The addition of moisture from irrigation, capillary tension, water line breaks, etc. causes the clay soils to collect water molecules in their structure, which, in turn, causes an increase in the overall volume of the soil. This increase in volume can correspond to movement of overlying structural improvements. As reported in the boring logs, the site generally is underlain by silty sand, clayey sand, silt, and lean clay soils (Geotechnics, 2002). A low to medium potential for expansion may be present in the clayey sand and lean clay soils given the limited geotechnical testing data available.

Slope Failure

Landslides typically involve rotational slump failures within surficial soils/colluvium and/or weakened bedrock that are usually implemented by an increase of the material's moisture content above a layer, which exhibits a relatively low strength. Debris-flows are shallow landslides that travel downslope very rapidly as muddy slurry. Since the site, transmission lines, and geothermal pipeline areas are generally topographically flat, the potential for landslides is negligible. (SA Geology, etc., pp. 5.2-5, -7.)

MITIGATION:

☑ The Project Owner shall perform liquefaction, subsidence, and expansive soils analyses. Condition: **GEN-5.**

GEOLOGIC AND MINERAL RESOURCES

Exploration and modeling of the geothermal reservoir has been performed by the applicant using the computer program TETRAD. Numerous test, production, and injection wells have been drilled since 1972 to characterize and utilize the geothermal resource. Geothermal reservoir modeling by the Applicant was based upon available data and was used to minimize the impact from SSU6 operations on the geothermal reservoir and existing Salton Sea geothermal facilities. Locations and depths of both production and injection wells were reportedly optimized using the TETRAD model.

Volcanic Activity

Volcanic activity typically involves eruptions of lava, pyroclastics, or tephra that may be non-explosive or explosive depending upon the geologic setting. Structures and populations adjacent to centers of volcanic activity may be severely impacted by the sudden onset of volcanic activity. The U. S. Geological Survey has mapped the plant site area and portions of the linear facilities as a combined flowage hazard zone, or an area adjacent to explosive volcanoes or vents. Since the SSU6 plant site is adjacent to Obsidian Butte, a volcanic vent active in the late Pleistocene and a part of the Salton Buttes, the potential for impact to the SSU6 plant site is high from volcanic activity.

GEOLOGIC, MINERALOGIC, AND PALEONTOLOGIC RESOURCES

A review of applicable geologic maps and reports for this area was conducted. Based on this review, there are no known mineralogic resources located at or immediately adjacent to the proposed SSU6 site. However, Obsidian Butte represents a significant geologic resource. Obsidian Butte is a small volcanic glass dome that is part of the Salton Buttes and is a popular stop during geologic field trips. Minor pumice and aggregates were mined in the past within the Salton Buttes, but mining has since been abandoned. The production well pad on Obsidian Butte will not result in closure or access restrictions to the area. Large quantities of CO_2 gas were produced from shallow wells northeast of the plant site from 1933 to 1954 for the production of dry ice. The plant site is also located within a known geothermal resource area as designated by the U. S. Geological Survey. Based upon a review of available information, Staff determined that the proposed SSU6 has a low potential to impact geologic or mineralogic resources. (FSA Geology, etc., p. 5.2-7, -8.)

FOSSILS - PALEONTOLOGY

CE Obsidian Energy LLC conducted a paleontologic resources field survey and a sensitivity analysis for the project and linear facility improvements to support the SSU6. No significant fossil localities were identified at the SSU6 site or directly under the associated linear facilities. However, fossils were found in similar geologic units (Lake Cahuilla Beds) adjacent to the proposed linear facilities and within 1 mile of the plant site. Surficial geologic units were assigned a “high” sensitivity rating, with respect to potentially containing paleontological resources. The underlying Brawley Formation, which may be excavated for foundations and utilities at the plant site and electrical transmission towers, was also assigned a “high” sensitivity rating with respect to potentially containing paleontological resources.

A literature search conducted at the San Bernardino County Museum (SBCM) and the Regional Paleontologic Locality Inventory (RPLI) verified that there are no known paleontological resources at the plant site, but determined the Lake Cahuilla Beds and the Brawley Formation have a “high” sensitivity rating with respect to potentially containing paleontological resources, and that a mitigation plan would be necessary. Based on review of available information, the proposed SSU6 project has high

potential to contain significant paleontological resources. (FSA Geology, etc., p. 5.2-8.)

MITIGATION:

☑ Procedures for the recovery of unknown paleontological resources at the power plant site and pipeline route will prevent a significant impact to paleontological resources. Conditions: **PAL-1** to **PAL-7**.

FLOODS

Tsunamis and seiches are earthquake-induced waves, which can inundate low-lying areas adjacent to large bodies of water. The proposed site is situated approximately 227 feet to 232 feet below mean sea level and approximately 1,000 feet southeast of the Salton Sea with an approximate surface elevation of 227 feet below mean sea level. The Gulf of California is located approximately 120 miles to the southeast of the site with higher ground elevations present in-between. As a result, the potential for tsunamis from the Gulf of California to affect the site is considered low, but the potential for seiches from the Salton Sea to affect the site is considered high. No other large bodies of water are present near the plant site or associated linear facilities.

CUMULATIVE IMPACTS

CEQA Guideline requires the cumulative impact analysis of an EIR to whether a project's incremental effect is cumulatively considerable. That analysis determines whether there are past, present, or probable future projects producing related or cumulative impacts. As evidence in the record, neither the Staff nor CE Obsidian Energy LLC analyses identified any past, present, or probable future projects from which the Commission could assess the potential for cumulative impact potential due to other possible projects. (FSA Geology, etc., p. 5.2-8, -9.)

FINDINGS

With the implementation of the Conditions of Certification, below, the project conforms to applicable laws related to geological and paleontological resources, all potential adverse impacts to geologic and paleontological resources will be mitigated to insignificance, and the public is not exposed to geological hazards. To mitigate potential impacts to insignificance on matters not subject to our jurisdiction, the Commission recommends that, for well pad/pipeline permitting, Imperial County and the Division of Oil, Gas and Geothermal Resources both incorporate Conditions **GEO-1, & PAL-1,** and for Imperial County only Conditions **PAL-2** through **7**.

CONDITIONS OF CERTIFICATION

General Conditions of Certification with respect to Geology are covered under Conditions of Certification **GEN-1, GEN-5**, and **CIVIL-1** in the **FACILITY DESIGN** section. Conditions of Certification for Paleontology are as follows:

GEO-1 The project owner shall comply with the seismic and subsidence monitoring standards set forth in the Imperial County General Plan, Geothermal and Transmission Element.

Verification: At least 30 days prior to the start of construction, the Project Owner shall submit a seismic and subsidence monitoring plan to the Imperial County Public Works Department for review and approval. The Project Owner shall submit a letter to the CPM showing evidence of review by the Imperial County Public Works Department that the plan meets the above referenced requirements. In addition, after start of commercial operation the Project Owner shall submit to the County an annual report outlining the seismic and subsidence monitoring performed during the previous year as required by the above referenced requirements. Evidence that the report has been accepted as adequate by the County shall be provided to the CPM annually.

PAL-1 The project owner shall submit to the CPM for review and approval, the resumé and qualifications of its Paleontological Resource Specialist (PRS). If the approved PRS is replaced prior to completion of project mitigation and report, the project owner shall obtain CPM approval of the replacement. The project owner shall submit to the CPM to keep on file, resumés of the qualified Paleontological Resource Monitors (PRMs). If a PRM is replaced, the resumé shall also be provided to the CPM.

The PRS resumé shall include the names and phone numbers of references. The resumé shall also demonstrate to the satisfaction of the CPM, the appropriate education and experience to accomplish the required paleontological resource tasks.

As determined by the CPM, the PRS shall meet the minimum qualifications for a vertebrate paleontologist as described in the Society of Vertebrate Paleontology (SVP) guidelines of 1995.

The experience of the PRS shall include the following:

- institutional affiliations or appropriate credentials and college degree;
- ability to recognize and collect fossils in the field;
- local geological and biostratigraphic expertise;
- proficiency in identifying vertebrate and invertebrate fossils and;
- 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 the project as he or she deems necessary. PRMs shall have the equivalent of the following qualifications:

1. BS or BA degree in geology or paleontology and one year experience monitoring in California;

2. AS or AA in geology, paleontology or biology and four years experience monitoring in California; or
3. Enrollment in upper division classes pursuing a degree in the fields of geology or paleontology and two years of monitoring experience in California.

Verification: At least 60 days prior to the start of ground disturbance, the project owner shall submit a resumé for review and approval as well as a statement of availability of its designated PRS for on-site work.

At least 20 days prior to ground disturbance, the project owner shall provide a letter with resumés naming anticipated PRMs for the project and stating that the identified PRMs meet the minimum qualifications for paleontological resource monitoring required by the condition. If additional PRMs are obtained during the project, the PRS shall provide additional letters and resumés to the CPM. The letter shall be provided to the CPM no later than one week prior to the monitor beginning on-site duties.

At least 10 working days prior to the termination or release of the PRS, the project owner shall submit the resume of the proposed new PRS to the CPM for review and approval. 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 PRS is proposed to the CPM for consideration.

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 laydown 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 the plan and profile drawings for the utility lines would normally be acceptable for this purpose. The plan drawings should show the location, depth, and extent of all ground disturbances and can be of such as scale that 1 inch = 40 feet to 1 inch = 100 feet range. If the footprint of the power plant or linear facility changes, the project owner shall provide maps and drawings reflecting these changes to the PRS and CPM.

If construction of the project will proceed 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. Prior to work commencing 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 during the next week, until ground disturbance is completed.

Verification: 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.

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 or restart of ground disturbance.

If there are changes to the scheduling of the construction phases, the project owner shall submit a letter to the CPM within five days of identifying the changes.

PAL-3 The project owner shall ensure that the PRS prepares, and the project owner shall submit to the CPM for review and approval, a Paleontological Resources Monitoring and Mitigation Plan (PRMMP) to identify general and specific measures to minimize potential impacts to significant paleontological resources. Approval of the PRMMP by the CPM shall occur prior to any ground disturbance. The PRMMP shall function as the formal guide for monitoring, collecting, and sampling activities and may be modified with CPM approval. This document shall be used as a basis for discussion in the event that on-site decisions or changes are proposed. The project owner shall ensure that copies of the CPM-approved PRMMP are distributed to the PRS, all PRMs, the project owner's on-site construction manager, and the CPM.

The PRMMP shall be developed in accordance with the guidelines of the Society of the Vertebrate Paleontology (SVP, 1995) and shall include, but not be limited to, the following:

1. Assurance that the performance and sequence of project-related tasks, such as any literature searches, pre-construction surveys, worker environmental training, fieldwork, flagging or staking; construction monitoring; mapping and data recovery; fossil preparation and collection; identification and inventory; preparation of final reports; and transmittal of materials for curation will be performed according to the 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. A discussion of the locations of where the monitoring of project construction activities is deemed necessary, and a proposed schedule for the monitoring and sampling;
5. A discussion of the procedures to be followed in the event of a significant fossil discovery, halting construction, resuming construction, and how notifications will be performed;
6. 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;

7. Procedures for inventory, preparation, and delivery for curation into a retrievable storage collection in a public repository or museum, which meets the Society of Vertebrate Paleontology standards and requirements for the curation of paleontological resources;

8. Identification of the institution that has agreed to receive any 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,

9. 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 CPM-approved PRMMP to the CPM. The PRMMP shall include an affidavit of authorship of the PRMMP by the PRS, and acceptance of the project owner evidenced by a signature.

PAL-4 Prior to ground disturbance and for the duration of construction, the project owner and the PRS shall prepare and conduct weekly CPM-approved training for all project managers, construction supervisors and workers who are involved with or operate ground disturbing equipment or tools. Workers shall not excavate in sensitive units prior to receiving CPM-approved worker training. Worker training shall consist of an initial in-person PRS training prior to ground disturbance. Following the initial in person training, a CPM-approved video or in-person training may be used for new employees. The training program may be combined with other training programs prepared for cultural and biological resources, hazardous materials, or any other areas of interest or concern.

The Worker Environmental Awareness Program (WEAP) shall address the potential to encounter paleontological resources in the field, the sensitivity and importance of these resources, and the legal obligations to preserve and protect such resources.

The training shall include:

1. A discussion of applicable laws and penalties under the law;

2. Good quality photographs or physical examples of vertebrate fossils that may be expected in the area shall be provided;

3. Information that the PRS or PRM has the authority to halt or redirect construction in the event of a discovery or unanticipated impact to a paleontological resource;

4. Instruction that employees are to halt or redirect work in the vicinity of a find and to contact their supervisor and the PRS or PRM;

5. An informational brochure that identifies reporting procedures in the event of a discovery;

6. A Certification of Completion of WEAP form signed by each worker indicating that they have received the training; and

7. A sticker that shall be placed on hard hats indicating that environmental training has been completed.

Verification: At least 30 days prior to ground disturbance, the project owner shall submit to the CPM the proposed WEAP including the brochure with the set of reporting procedures the workers are to follow.

At least 30 days prior to ground disturbance, the project owner shall submit the script and final video to the CPM for approval if the project owner is planning on using a video for interim training.

If an alternate paleontological trainer is requested by the owner, the resumé and qualifications of the trainer shall be submitted to the CPM for review and approval. Alternate trainers shall not conduct training prior to CPM authorization.

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 offered that month. The MCR shall also include a running total of all persons who have completed the training to date.

PAL-5 The project owner shall ensure that the PRS and PRM(s) monitor, (consistent with the PRMMP), all construction-related grading, excavation, trenching, and augering in areas where potentially fossil-bearing materials have been identified. 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 different from the accepted schedule presented in the PRMMP shall be proposed in a letter or e-mail from the PRS and the project owner to the CPM prior to the change in monitoring. The letter or e-mail shall be submitted to the CPM for review and approval and shall include the justification for the change in monitoring.

2. The project owner shall ensure that the PRM(s) keeps a daily log of monitoring 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 project owner and 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. Either the project owner or the PRS shall notify the CPM within 24-hours (or Monday morning in the case of a weekend) of a significant find of fossil materials or a halt of construction activities due to the discovery of fossil materials.

The project owner shall ensure that the PRS prepares a summary of the monitoring and other paleontological activities that will be included in the 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, etc. A section of the report will include the geologic units or subunits encountered; descriptions of sampling within each unit; and a list of identified fossils. A final section of the report will address any issues or concerns about the project relating to paleontological monitoring including any incidents of non-compliance and any changes to the monitoring plan that have been approved by the CPM. If no monitoring took place during the month, the project owner shall include an explanation in the summary as to why monitoring was not conducted.

Verification: The project owner shall ensure that the PRS submits the summary of monitoring and paleontological activities in the MCR. When feasible, the CPM shall be notified 10 days in advance of any proposed changes in monitoring different from the plan identified in the PRMMP. If there is an unforeseen change in monitoring, the notice shall be given as soon as possible prior to implementation of the change.

PAL-6 The project owner, through the PRS, shall ensure that all components of the PRMMP are adequately performed throughout project construction.

Verification: The project owner shall maintain in their compliance file, copies of signed contracts or agreements with the PRS and other qualified research specialists. The project owner shall maintain these files for a period of three years after completion and approval of the CPM-approved Paleontological Resources Report (PRR) (See PAL-7). The project owner shall be responsible for payment of 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 submitted to the CPM.

PAL-7 The project owner shall ensure preparation of a 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 submitted to the CPM for review and approval.

The report shall include, but is not limited to, a description and inventory of recovered fossil materials; a map showing the location of paleontological resources encountered; determinations of sensitivity and significance; and a statement by the PRS that project impacts to paleontological resources have been mitigated below the level of significance.

Verification: Within 90 days of completion of ground disturbing activities, including landscaping, the project owner shall submit the PRR under confidential cover to the CPM.

Certification of Completion of Worker Environmental Awareness Program

SALTON SEA UNIT 6 (02-AFC-2)

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, Paleontology and Biological Resources for all personnel (i.e. construction supervisors, crews and plant operators) working on-site or at related facilities. By signing below, the participant indicates that they understand and shall abide by the guidelines set forth in the Program materials. Include this completed form in the Monthly Compliance Report.

NO.	EMPLOYEE NAME	COMPANY	SIGNATURE
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Cul Trainer: _____ Signature:_____ Date: ___/___/____

Paleo Trainer: _____ Signature:_____ Date: ___/___/____

Bio Trainer: _____ Signature:_____ Date: ___/___/____

LAWS, ORDINANCES, REGULATIONS & STANDARDS

GEOLOGY

APPLICABLE LAW	DESCRIPTION
FEDERAL	
There are no Federal LORS related to geological hazards and resources.	N/A
STATE	
Uniform Building Code	Specifies acceptable design criteria for storage and open excavation with respect to seismic design and load bearing capacity.
California Building Code 1195	Specifies acceptable design criteria for storage and open excavation with respect to seismic design and load-bearing capacity.
LOCAL	
Imperial County Conditional Use Permit	Establishes performance standards and specific conditions for the exploration and development of geothermal resources.

PALEONTOLOGICAL RESOURCES

APPLICABLE LAW	DESCRIPTION
FEDERAL	
There are no applicable LORS for this section.	
STATE	
California Environmental Quality Act	Defines significant impacts on a fossil site. Project construction might encounter fossil site/remains.
Public Resource Code Section 5097.5	Defines any unauthorized disturbance or removal of fossil site/remains on public land as a misdemeanor. Project construction might encounter fossil site/remains; construction workers might remove fossil remains.
Warren-Alquist Act	Requires CEC to evaluate energy facility siting in unique areas of scientific concern. Project construction might encounter fossil site/remains.
LOCAL	
There are no applicable LORS for this section.	

HAZARDOUS MATERIALS

HAZARDOUS MATERIALS—GENERAL

The purpose of this analysis is to determine if the proposed project will cause a potential significant impact on the public as a result of the transportation, use, handling, storage, or disposal of hazardous materials at the proposed facility.

This analysis does not address potential exposure of workers to hazardous materials used at the proposed facility. (See **WORKER SAFETY**) There are specific regulations applicable to protection of workers in general the standards for exposure and methods used to protect workers are very different than those applicable to the general public. Employers must inform employees of hazards associated with their work and workers accept a higher level of risk than the general public in exchange for compensation. Workers are thus not afforded the same level of protection normally provided to the public. Further, special protective equipment and training can be used to protect workers and reduce the potential for health impacts associated with the handling of hazardous materials. Application of this type of mitigation would not be appropriate for the general public.

STORAGE & USE

A variety of hazardous materials are proposed for storage and use during the construction of the project and for routine plant operation and maintenance. Most of these hazardous materials are stored in small quantities, such as corrosion inhibitors and water conditioners. However, these materials pose no significant potential for off-site impacts as a result of the quantities on-site, their relative toxicity, and/or their environmental mobility.

No substances are proposed to be stored on site in sufficient quantities and concentration to qualify as a regulated substance in either the Cal-ARP Program or a federal-regulated substance under Section 112(r) of the Clean Air Act. For example, the hydrochloric acid used in the project's brine handling process is a 32 percent solution, which is below the Cal-ARP program level of 37 percent that would be expected to result in an offsite consequence. Because no hazardous materials to be stored at the project site trigger Cal-ARP or Section 112(r) of the Clean Air Act requirements, risk management plans will not be required for any process at the SSU6 site.

There is no potential for offsite consequences due to an accidental release of geothermal steam from either the well-head or the steam lines leading from the well-head to the facility due to the fact that the H_2S-concentration of the raw steam is 22 ppm, below the toxic endpoint level of 30 ppm. Any unconfined release of this source steam would only become more dilute as it mixed with air and moved downwind.

After the brine/steam is flashed before going to the steam turbine, the H_2S concentration is increased because of the relatively high volatility of the H_2S gas. Thus, there can be a question of the potential for impacts if this post-flash steam is accidentally released. This post-flash steam is present in the steam lines that lead to the H_2S control equipment.

A modeling analysis of an accidental release from a geothermal steam line leading to the H_2S control equipment (where the H_2S concentration is highest, approximately 3400 ppm) was performed. That analysis assumed that the automatic sensing–and-shutdown systems would

close-off the release within one minute. The results of that analysis indicated that there would be no impacts beyond the facility's fence line.

To address the question of whether it is reasonable to rely on automatic shutdown valves to limit the duration of a release from the post-flash steam line to one-minute duration, an evaluation of the probability that the shutdown system might fail to operate properly if ever called upon was conducted by Staff.

Failure rates (i.e.: events of spurious valve operation) have been found to be between 0.24 to 3.8 failures per million hours of operation. These data are based upon older valve designs (designed, manufactured, and put into service before 1989). It is a reasonable assumption to conclude that valves of more recent design, built using newer materials (i.e. stainless steel) would have improved failure rates.

This improvement in functional design combined with the CE Obsidian Energy LLC's operational plans to perform a weekly test actuation of the valves to ensure they are working properly, should reduce the expected failure rate to a level at least as low as the lower end of the observed data, i.e.: 0.24 failures per million hours of operation.

In that case, to have an unmitigated pipeline rupture, there would have to be a failure of the pipeline combined with a simultaneous failure of the shut-off valve. The probability of pipeline failure is estimated to be 80×10^{-6} per year. The probability of failure of the shutoff valve is estimated by staff to be 1.4×10^{-3} per year. The simultaneous probability of this combined event is then 1.1×10^{-7} per year. For there to be offsite impacts, the above failure would be combined with the worst-case F-stability weather conditions which occur approximately 20 percent of the time. To reach offsite sensitive receptors, the prevailing wind would have to blow the plume in their particular direction (a probability of approx 0.02). The resulting combined likelihood of all these combined events is 5×10^{-10}, far below the CEC's de minimus criterion of 1×10^{-6}. Hence, an automatic shutdown failure does not represent a significant risk of off-site impact. (SA Hazardous Materials, pp. 4.4-5-6)

MITIGATION

- ☑ The Project Owner shall not store and use amounts of acutely hazardous materials in excess of proposed quantities. Condition: **HAZ–1**
- ☑ The Project Owner will provide a Business Plan and Safety Management Plan and Risk Management Plan (RMP) if required by the local regulatory agency. Condition: **HAZ-2**

Other Materials

During construction, the only hazardous materials proposed for use include gasoline, fuel oil, hydraulic fluid, lubricants, solvents, cleaners, sealants, welding flux, paint, and paint thinner. Any impact of spills or other releases of these materials would be limited to the site due to the small quantities involved.

CUMULATIVE IMPACTS

Although the presence of the SSU6 will increase the amounts of hazardous materials in the local project area, the quantities present and mitigating measures proposed will result in no expected significant cumulative impacts. (FSA Hazardous Materials, pp. 4.4-6)

FINDINGS

With the implementation of the Conditions of Certification, below, the project conforms to applicable laws related to hazardous materials management and all potential adverse impacts related to hazardous materials management will be mitigated to insignificance.

CONDITIONS OF CERTIFICATION

HAZ-1 The project owner shall not use any hazardous material in any quantity or strength not listed in AFC Table 5.14-1 unless approved in advance by the CPM.

Verification: The project owner shall provide to the (CPM), in the Annual Compliance Report, a list of all hazardous materials contained at the facility.

HAZ-2 The project owner shall provide a Risk Management Plan RMP (if required by local regulatory body) to appropriate local administering agencies and the CPM for review at the time the RMP is first submitted to the U.S. Environmental Protection Agency (EPA). A Hazardous Materials Business Plan HMBP (which shall include the proposed building chemical inventory as per the UFC) shall also be submitted to appropriate local administering agencies for review and to the CPM for review and approval prior to construction of hazardous materials storage and containment structures. The project owner shall include all recommendations of the local administering agencies and the CPM in the final HMBP. A copy of the final RMP, including all comments, shall be provided to appropriate local administering agencies and the CPM once it receives EPA approval.

Verification: At least 30 days prior to the commencement of construction of hazardous materials storage and containment structures, the project owner shall provide the final plans (RMP and HMBP) listed above to the CPM for approval.

LAWS, ORDINANCES, REGULATIONS & STANDARDS

HAZARDOUS MATERIALS

APPLICABLE LAW	DESCRIPTION
FEDERAL	
Clean Air Act (40 CFR 68)	Requires a RMP if listed hazardous materials are stored above threshold quantities (TQ).
Clean Water Act (40 CFR 112)	Requires preparation of an SPCC plan if oil is stored above TQ.
SARA Title III, Section 302	Requires certain planning activities when EHSs are present in excess of TQ. Aqueous ammonia to be used onsite in excess of TQ.
SARA Title III, Section 311	MSDSs to be kept onsite for each hazardous material. Required to be submitted to SERC, LEPC and local fire department.
SARA Title III, Section 313	Requires annual reporting of releases of hazardous materials.
49 CFR 171-177	Governs the transportation of hazardous materials, including the marking of the transportation vehicles.
STATE	
Health & Safety Code §25500, et seq. (Waters Bill)	Requires preparation of HMBP if hazardous materials are handled or stored in excess of threshold quantities.
Health & Safety Code §25531, et seq.	Requires registration of facility with local authorities and preparation of RMP if hazardous materials stored or handled in excess of threshold quantities.
CCR Title 8, Section 5189	Facility owners are required to implement safety management plans to ensure safe handling of hazardous materials.
California Building Code	Requirements regarding the storage and handling of hazardous materials.
California Government Code, Section 65850.2	Restricts issuance of COD until facility has submitted a RMP.
LOCAL	
None.	

LAND USE

LAND USE—GENERAL

Land uses are controlled and regulated by a system of plans, policies, goals, and ordinances that are adopted by the various jurisdictions with land use authority over the area encompassed by the proposed project.

The Salton Sea Unit 6 (SSU6) is to be built on a 80-acre portion of an approximately 160-acre parcel located within the block bounded by McKendry Road on the north, Boyle Road on the east, Severe Road on the west, and Peterson Road on the south. The site is 228 feet below sea level, located approximately 7 miles west of State Highway 111 and 10 miles north of State Highway 86.

The parcel is currently being used for row crops and is surrounded by agriculture. The town of Niland is approximately 7.5 miles northeast, and the town of Calipatria is approximately 6.1 miles southeast of the plant site. The Sonny Bono Wildlife Refuge Headquarters is approximately 4,000 feet from the plant site. Nine geothermal power plants are within a 2-mile radius of the proposed plant site. Units 1, 2, 3, 4 and 5 Geothermal Power Plants lie to the southwest, while the Vulcan and Hoch geothermal power plants are to the east. The Elmore and Leathers facilities are to the northwest of the project site.

Land uses surrounding the site include large parcel agriculture, open space and recreational uses. Specific surrounding uses are described as follows:

- North: Immediately north of the project site are open space/recreation uses such as fishing and bird viewing (i.e., the Refuge) and a small parking area where Production Well Pad OB2 would be placed. In addition, a residence and office associated with the Refuge is approximately 4,000 feet northeast of the project site. The Salton Sea is north of the open space/ recreational area.
- South: Agricultural land.
- East: Agricultural land.
- West: The Sonny Bono Wildlife Refuge Center/open space.

Other uses in the vicinity of the site include residential, commercial developments, and agriculturally related facilities in the community of Calipatria. The Calipatria State Prison is located east of the community, approximately 7.5 miles from the SSU6 site.

Row crop agriculture exists along the project's electric transmission line route from the project site to the Bannister substation.

The production and injection supply line for the project would cross irrigated agricultural land, open space/recreational, and industrial areas.

The SSU6 project will also require the L-Line Interconnection which would be a new 15-mile single-circuit 161-kV transmission line that would include the placement of approximately 79 new steel transmission poles, with a span of approximately 1,000 feet between poles. This interconnection will tie in to the Imperial Irrigation District's existing line west of the SSU6 plant site. The interconnection line continues approximately 12 miles south along Lack

Road and west along Bannister Road, to a new proposed switchyard west of Highway 86. A double circuit line then crosses approximately 2.8 miles of land administered by the BLM to loop into the L-Line southwest of the Bannister/Highway 86 intersection.

If not within a designated corridor, then a California Desert Conservation Area (CDCA) Plan Amendment would be required. The portion of the L-Line that runs through Bureau of Land Management (BLM) land would not be located within a designated corridor. The project must secure the necessary right-of-way requirements from BLM through an amendment to the CDCA Plan. This process has been initiated by BLM.

Existing land uses within 0.5 miles of the transmission route includes agricultural, residential, Highway 86 and open space/recreational and residences.

CE Obsidian Energy LLC has identified an alternative route segment for the L-Line Interconnection. The alternative would avoid use of a 2.8-mile segment running through BLM land, through use of a route along State Highway 86 for approximately 7.5 miles to the intersection of State Highway 86 and the L-Line. Existing land uses along this route include agricultural, residential, open space, and State Highway 86.

Extraction and injection of the fluids required for plant operation would be provided via 10 new geothermal wells on 5 well pads and seven brine injection wells on three well pads. The well pads are west, north, and south of the SSU6 site. Except for one production well pad, all well pads are adjacent to existing roads. The pad not adjacent to an existing road (OB3) would require construction of a permanent access road.

The General Plan land use designation for Production Well Pads OB-2 and OB-3 is Recreation/Open Space, while other pads are designated for Agriculture. Well pads OB-1 through OB-3 are zoned Open Space/GOZ (Geothermal Overlay Zone), and well pads OB-2 through OB-5 are zoned Heavy Agriculture/GOZ. Existing land uses within 0.5 miles of the proposed well pad locations include agricultural, open space/recreational and industrial.

Both production and injection fluid processes associated with the SSU6 facility would require the use of above ground transmission pipelines from the production well pads to the project site, as well as to the injection well pads. The proposed pipeline routes are parallel and adjacent to existing roads.

Existing land uses within 0.5 miles of the production and injection well pipelines include agricultural, open space/recreational, and industrial. Land use designations and zoning for the pipelines are similar to the associated well pads described in the well pad section above.

An approximate 500-foot buried 10-inch steel water supply pipeline is required to connect to the service water pond within the facility. Water will piped in directly from the existing Vail 4A laterals (gate 460) on the east side of Boyle Road, adjacent to the berm on the southeastern edge of the facility. A 25-foot right-of-way would be required for construction of the pipeline. Existing land uses within 0.5 miles of the proposed water line include agricultural areas.

An approximate 2,500 square foot area of land owned by Imperial Irrigation District (IID) will be used for the siting of a switch yard, control house and communication tower. The site is located on Bannister Road, just west of State Route 86. Existing land uses within 0.05 miles of the switching station include scrub lands and the Safety Kleen Landfill, located

approximately.75 miles west of the switching station. The site was previously used as a soils borrow area for levee construction by IID.

According to the Guidelines to the California Environmental Quality Act (CEQA), a project may have a significant effect on land use and planning if a proposed project would:

- conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect;
- disrupt or divide the physical arrangement of an established community; or
- convert Prime Farmland, Farmland of Statewide Importance, or Unique Farmland to non-agricultural use.

A project may also have a significant impact on land use if it would create unmitigated noise, dust, public health hazard or nuisance, traffic, or visual impacts or when it precludes or unduly restricts existing or planned future uses. (SA Land Use p. 4.5-4, 5)

GENERAL/SPECIFIC PLANS

Under California State planning law, each incorporated City and County must adopt a comprehensive, long-term General Plan that governs the physical development of all lands under its jurisdiction. The general plan is a broadly scoped planning document and defines large-scale planned development patterns over a relatively long timeframe.

The General Plan consists of a statement of development policies and must include a diagram and text setting forth the objectives, principles, standards and proposals of the document. At a minimum, a General Plan has seven mandatory elements including Land Use; Circulation; Housing; Conservation; Open Space; Noise and Safety.

Imperial County administers the State required general plan as a group of documents organized by geographic areas and subject matter and has included an optional Geothermal and Transmission element in its Plan (Government Code, § 65301 & § 65303).

The Land Use Element addresses the types and locations of land uses (e.g., residential, industrial, commercial, infrastructure such as roads, wastewater treatment, and utility facilities) that the County Supervisors consider appropriate for the long-range outlook of the General Plan.

The Geothermal/Transmission Element, amended in 1993 provides the latest knowledge about local geothermal resources, current development, and transmission of geothermal energy. It also provides a framework for review and approval of geothermal projects in the County.

The Imperial County Land Use Ordinance (Title 17 of the Imperial County General Code) establishes land use zones in the unincorporated area. In each specific land use zone, the types of development, dimensions for buildings, and open spaces are regulated for the purpose of implementing the general plan of the county. The purposes of these regulations are protecting existing development, encouraging beneficial new development, and preventing overcrowding and congestion. (FSA Land Use p. 4.5-7-9)

ZONING ORDINANCES

Division 1, Chapter 6, Section 90106.00 of the Imperial County Land Use Ordinance requires a written permit for construction of any facility below the minus 227-foot contour along any portion of the Salton Sea. This permit would need to be secured if the County was the permitting agency for the project. In this instance with the Energy Commission being the permitting agency, staff worked with the Imperial County Planning/Building Department staff to incorporate the conditions that it would normally impose.

Imperial County Land Use Ordinance Title 9, Division 16, Chapter 4 requires development permits for special flood hazard areas. Chapter 3, Section 91603.00 establishes this requirement for all areas of special flood hazards (including lands located at or near the Salton Sea and lying at or below the -200 foot elevation contour). The County determined that this permit would be applicable if it was the lead agency. (FSA Land Use, p. 4.5-9)

EXISTING/PLANNED USES

The project would be constructed on an 80-acre portion of a 160-acre agriculturally designated parcel owned by CE Obsidian Energy LLC.

Of the various zoning districts in the County's Zoning Ordinance, the Heavy Industrial Agriculture, Geothermal "A-3-G" zoning classification in which the project site is located, is the most appropriate zoning for a power plant, which is intended to provide for public utility facilities. Power plants are specifically listed as a compatible use in the "A-3-G" zone classification, subject to a conditional permit, which the County would process if it were the lead agency. The project complies with all of the applicable development standards (lot, and yard requirements) set forth in the Land Use Ordinance for the "A-3-G" Zone. Staff worked with the Imperial County Planning/Building Department in clarifying conditions of certification to insure compliance with local LORS.

Existing land uses in the vicinity of the site consist of large acreage agricultural lands and agricultural related operations, the Sonny Bono Salton Sea National Wildlife Refuge and existing geothermal power plant facilities. Recreational users of the Salton Sea (approximately 1,000 feet from the facility) and the Sonny Bono Salton Sea National Wildlife Refuge (approximately 2,500 feet from the facility), could be affected by air quality impacts and the visual impacts of the potential plume from the proposed facility. As travelers on State Highway 111 and 115 approximately 5 miles from the project site, McKendry Road users could be similarly affected by visual impacts of the facility.

The SSU6 project's construction and operation phase would not preclude residents and other users of the recreational facilities located in Imperial County from pursuing community activities.

The project is consistent with: 1) the County's land use designation and zoning for the site; 2) the current development pattern for the area established by Imperial County ; 3) the General Plan and Land Use Ordinance, and; 4) the SSU6 is an allowed and compatible use for the area. The proposed geothermal resource development will be compatible with the surrounding agricultural operations, and the open space/recreational activities occurring at the nearby wildlife refuge. The existing geothermal facilities in the vicinity are compatible with surrounding uses, and SSU6 will be similar.

The project's construction would result in the conversion of 96-acres of land classified “Prime Farmland and Farmlands of Statewide Importance[6]“ by the California Department of Conservation. The 96-acres consist of the project site, production/well pad sites, and the production/injection well pipelines, which would be located above ground. This loss and conversion of productive agricultural land is potentially significant impact under CEQA. In order to help offset the project-related impacts from the loss of irrigated, productive agricultural land, Condition of Certification **LAND-6** requires that the CE Obsidian Energy LLC, in coordination with Imperial County: 1) mitigate for this impact by contributing funds to Imperial County for a 1:1 purchase of prime agricultural land for permanent farming use and/or easement purchases; 2) establish a local agricultural land trust or 3) contribute funds to a statewide agricultural land trust. With the implementation of **LAND-6,** the project is compatible with existing and planned land uses in the Salton Sea area, and impacts would be less than significant.

In a letter dated May 5, 2003, Mr. Jurg Heuberger, Planning Director for Imperial County, referred to a water transfer program being considered by IID, and State and Federal water agencies. Mr. Heuberger recommended that **LAND-6** be deferred until the water transfer has occurred to avoid harming either the agricultural industry or the County’s interest. In a recent discussion between the Imperial County Agricultural Commissioner’s Office and Staff, the Commissioner’s staff noted that the agreements between the State and Federal agencies and IID are still in the preliminary stages of discussion, and that it could be some time before an agreement is reached. Therefore, the implementation of **LAND-6** is the appropriate mitigation at this time to offset the loss of prime agricultural land. The lands are currently clearly irrigated, productive agricultural lands. The possibility that their status might change in the future due to the loss of irrigation water is not relevant to this environmental analysis, which CEQA requires be undertaken on the basis of the status at the time the analysis begins.

The water supply and transmission line alignments would temporarily affect land currently being used in agricultural production. The topsoil in these areas would be removed during the construction period, and temporarily converted to non-agricultural use by this project. Soil surface would be returned to the original grades and agricultural use upon completion of construction activities. Therefore, no existing farmlands would be permanently converted to non-agricultural use for the SSU6's water supply and transmission line facilities. The impacts would be less than significant.

The production/injection pipelines will be installed above ground and would affect land currently being used in agricultural production. The topsoil in these areas would be graded and compacted and converted to a non-agricultural use by this project. Therefore, existing farmland would be permanently converted to non-agricultural use for the SSU6's production /injection pipelines. The impacts would be significant requiring mitigation for the loss of prime agricultural land. In order to help offset the project's production/injection pipeline impacts, **LAND-6** requires that the Applicant mitigate for the loss of prime farmland.

As discussed earlier in this report, both the proposed IID Midway Line transmission line route, the L-Line Interconnection, and the alternative route would be installed within dedicated right-

[6] Under CEQA, conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance are considered significant environmental impacts requiring mitigation.

of-ways along local roads and/or State Highway 86. They would not affect adjacent farmland activities. (FSA Land Use p. 4.5-9-11)

CUMULATIVE IMPACTS

Cumulative land use impacts may occur when a project has effects that are individually limited but cumulatively considerable when viewed together with effects of existing, pending or foreseeable residential, commercial, and industrial projects.

The proposed project is consistent with the County of Imperial's (County) long-range land use policies for this geothermal/industrially-designated area as expressed in the General Plan. Conformance with the General Plan is the primary consideration in determining a project's potential to contribute to adverse cumulative land use impacts. Therefore, projects that are consistent with the County's long-range land use policies are not viewed as adverse from a cumulative impact perspective. The General Plan sets forth the County's long-range vision for the physical development of the unincorporated areas, and other plans for infrastructure and public services are based on this long-range vision.

The General Plan envisions both long-term agriculture and continuation of geothermal development in the site vicinity. At this time, there are no other project proposals in the vicinity of the SSU6 project. The project is consistent with the County's long-range planning policies for geothermal development in this area, therefore cumulative land use impacts are not considered significant. Although the project will contribute to the cumulative loss of agricultural land in the County, the Applicant will be mitigating for the impact of conversion of prime farmland.

The proposed project is not expected to make a significant contribution to regional impacts related to new development and growth, such as population immigration, the resultant increased demand for public services, and expansion of public infrastructure such as water pipelines to serve residential development. (FSA Land Use, p. 4.5-12)

FINDINGS

1. The project is consistent with the County's land use designation and zoning for the site.
2. In order to reduce the potentially significant impact to a level of insignificance under CEQA, the CE Obsidian Energy LLC must comply with Condition of Certification **LAND-6** in providing a mitigation fee for the loss of prime agricultural land.
3. The project would not disrupt or divide the physical arrangement of an established community. The communities of Calipatria and Niland are approximately 6 miles and 7.5 miles away respectively from the subject property.
4. The project would not preclude or unduly restrict existing or planned land uses. The project would not preclude or unduly restrict the conduct of agricultural land uses on neighboring properties.
5. With mitigation, operation of the project would not cause any significant noise, dust, public health, traffic, or visual impacts to nearby land uses, nor would the operation of the SSU6 contribute substantially to any cumulative land use impacts.

CONDITIONS OF CERTIFICATION

LAND-1 The project owner shall comply with the minimum design and performance standards for the "A-3-G" Zone set forth in the Imperial County Land Use Ordinance.

Verification: At least 30 days prior to the start of construction, the project owner shall submit written documentation, including evidence of review by the Imperial County Planning/Building Department that the project meets the above standards.

LAND-2 The project owner shall comply with the parking standards established by the Imperial County Land Use Ordinance (Title 9, Division 4).

Verification: At least 30 days prior to start of construction, the project owner shall submit to the CPM, written documentation, including evidence of review by Imperial County Planning/Building Department that the project conforms to all applicable parking standards.

LAND-3 The project owner shall ensure that any signs erected (either permanent or for construction only) comply with the outdoor advertising regulations established by the Imperial County Land Use Ordinance (Title 9, Division 4).

Verification: At least 30 days prior to start of construction, the project owner shall submit to the CPM, written documentation, including evidence of review by Imperial County, that all erected signs will conform to the Land Use Ordinance.

LAND-4 The project owner shall provide the Director of the Imperial County Planning/Building Department for review and comment and the CPM for review and approval, descriptions of the final lay down/staging areas identified for construction of the project. The description shall include:

(a) Assessor's Parcel numbers;
(b) addresses;
(c) land use designations;
(d) zoning;
(e) site plan showing dimensions;
(f) owner's name and address (if leased); and,
(g) duration of lease (if leased); and, if a discretionary permit was required, copies of all discretionary and/or administrative permits necessary for site use as lay down/staging areas.

Verification: The project owner shall provide the specified documents at least 30 days prior to the start of any ground disturbance activities.

LAND-5 The project owner shall provide to the CPM for approval, a site plan with dimensions showing the locations of the proposed buildings and structures in compliance with the minimum yard area requirements (setbacks) from the property line as stipulated in the Imperial County Land Use Ordinance.

Verification: Thirty (30) days prior to the start of construction, the project owner shall submit a site plan showing that the project conforms to all applicable yard area requirements as set forth in the Imperial County Land Use Ordinance.

LAND-6 The project owner shall mitigate for the loss of 96-acres at a one-to-one ratio for the conversion of prime farmland as classified by the California Department of Conservation, to a non-agricultural use, for the construction of the power generation facility.

Verification: The project owner will provide a mitigation fee payment (payment to be determined) to an Imperial County agricultural land trust, or a statewide agricultural land trust, within 30 days following the construction start, as set forth in a prepared Farmlands Mitigation Agreement.

The project owner shall provide in the Monthly Compliance Reports a discussion of any land and/or easements purchased in the preceding month by the trust with the mitigation fee money provided, and the provisions to guarantee that the land managed by the trust will be farmed in perpetuity. This discussion must include the schedule for purchasing 96 acres of prime farmland and/or easements within five years of start of construction as compensation for the 96 acres of prime farmland to be converted by the SSU6.

LAND-7 The project owner shall provide to the CPM, copies of the BLM Right-of Way grant and Plan Amendment for the CDCA.

Verification: Thirty (30) days prior to the start of any project-related construction the project owner shall submit copies of the BLM right-of-way grant and documentation that a Plan Amendment for the CDCA was approved.

LAWS, ORDINANCES, REGULATIONS & STANDARDS

LAND USE

APPLICABLE LAW	DESCRIPTION
FEDERAL	
United States Bureau of Land Management, California Desert Conservation Area Plan (CDCA)	Addresses the use of public lands in the southeast desert portion of California.
STATE	
LOCAL	
Imperial County General Plan	Establishes the County's land use plan, zoning ordinance, and zoning district.
Imperial County General Plan/Land Use Element	Describe specific land uses allowed within the County.
Imperial County Zoning Ordinances	Implements the General Plan.

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NOISE

NOISE—GENERAL

The construction and operation of any power plant create noise, or unwanted sound. Construction noise is a temporary phenomenon. Construction noise levels heard offsite would vary from hour to hour and day to day, depending on the equipment in use and the operations being performed. Construction noise is usually considered a temporary phenomenon.

Construction of the SSU6 Project is expected to last approximately 19 to 20 months. Construction of an industrial facility such as a power plant is typically noisier than permissible under usual noise ordinances. In order to allow the construction of new facilities, construction noise during certain hours of the day is commonly exempt from enforcement by local ordinances. The County General Plan Noise Element restricts general construction work to the hours of 7 a.m. to 7 p.m. on weekdays, and 9 a.m. to 5 p.m. on Saturdays; work on Sundays and holidays is prohibited. Construction noise is further limited to 75 dB L_{eq} at the nearest receptor. The General Plan Geothermal/Transmission Element sets limits on the noise that can be created by well drilling activities, but allows drilling to progress 24 hours per day.

Power Plant Construction

Power plant construction noise (excluding steam blows and pile driving) at the nearest residence would vary from 41 to 56 dBA for normal work. (Steam blows and pile driving would be louder; see below). This is considerably quieter than the Noise Element limit of 75 dBA L_{eq}. This equals or may slightly exceed the daytime ambient L_{eq} levels at this residence, which range from 45 to 56 dBA. Such noise levels would be barely noticeable under most conditions.

Power plant construction noise (excluding steam blows and pile driving) at the nearest portions of the wildlife refuge would be greater than at the residence. The center of the project site, from which most of the power plant construction noise can be assumed to emanate, lies within 1,500 feet of a wetland north of the intersection of McKendry and Severe Roads, and within 2,500 feet of Union Pond, which is on lands managed by the Refuge. The projected construction noise levels would result in levels at the wetland from 50 to 65 dBA. This is marginally within the 60 dBA limit specified by the USFWS.

Well Pad Development

The residence at the Refuge headquarters is the nearest sensitive human receptor to any well pad; production well pad OB1 lies approximately 2,500 feet SW of this residence. CE Obsidian Energy LLC has predicted the noise that would result from developing the wells at OB1 at 75 to 79 dBA at a distance of 100 feet; at the residence, this would attenuate to 46 to 51 dBA. Translating this to a CNEL value yields approximately 58 dBA, which is less than the limit of 60 dBA CNEL established in the General Plan Geothermal/Transmission Element. Since this work would be short term, no significant adverse impact is expected.

Wellpad OB1 lies approximately 400 feet south of Union Pond, and wellpad OB2 lies approximately 600 feet east of the wetland at McKendry and Severe Roads. The greatest impact on wildlife from well pad development would most likely be on Union Pond. The

predicted noise would result in levels at Union Pond of roughly 64 to 68 dBA. This exceeds the 60 dBA limit set by the USFWS. However, no adverse noise impacts on wildlife should occur due to wellpad development, since CE Obsidian Energy LLC has committed to limiting construction on wellpads OB1, OB2 and OB3 (those nearest the Refuge) to the non-breeding season of affected species.

Steam Blows

Typically, the loudest noise encountered during construction, inherent in building any project incorporating a steam turbine, is created by the steam blows. After erection and assembly of the steam system, the piping and tubing that comprises the steam path has accumulated dirt, rust, scale and construction debris such as weld spatter, dropped welding rods and the like. If the plant were started up without thoroughly cleaning out these systems, all this debris would find its way into the steam turbine, quickly destroying the machine.

In order to prevent this, before the steam system is connected to the turbine, the steam line is temporarily routed to the atmosphere. High pressure steam is then allowed to escape to the atmosphere through the steam piping. This flushing action, referred to as a steam blow, is quite effective at cleaning out the steam system. At the end of this procedure, the steam line is connected to the steam turbine, which is then ready for operation. The project's steam blows will occur three times, each one lasting from one day to one week.

Such steam blows could produce noise as loud as 118 dBA at a distance of 100 feet. In order to reduce disturbance from steam blows, CE Obsidian Energy LLC proposes to equip the steam blow piping with a silencer that would reduce noise levels by 44 dBA, such that the steam blow noise levels at the nearest sensitive human receptor are predicted to be 50 dBA. The ambient L_{90} (background) noise level during the quietest hours of the night averages 36 dBA. The resultant 14 dBA increase due to steam blows would likely be quite annoying to the residents. Therefore, CE Obsidian Energy LLC has proposed to offer to relocate the residents during the duration of the steam blows.

Another concern is steam blow noise impacts on wildlife, specifically protected bird species.[7] It has been determined that subjecting the Yuma clapper rail to noise levels above 60 dBA during mating or nesting seasons can be detrimental. CE Obsidian Energy LLC has specifically acknowledged the need to meet this limit and predicts that the silenced steam blow will subject the nearest sensitive Yuma clapper rail habitat to 58 dBA, resulting in no significant impact.

Pile Driving

CE Obsidian Energy LLC predicts that noise from pile driving at the power plant site could reach 71 dBA at the Refuge residence. Pile driving for pipe supports for the brine supply pipeline from well pad OB3 would produce noise impacts at the Refuge residence of 67 dBA. Noise levels at the nearest Yuma clapper rail nesting site (the wetland at McKendry and Severe Roads) may be as high as 82 dBA.

As discussed above, subjecting the Yuma clapper rail to levels above 60 dBA during the mating and nesting season is not allowable. To avoid unacceptable impacts on this protected species, staff recommended and CE Obsidian Energy LLC agreed that pile driving be performed using a quieter process, or be avoided during the mating and nesting seasons.

[7] The Imperial County General Plan Noise Element specifically lists riparian birds as potential sensitive receptors (Imperial 2001, § II.C).

Linear Facilities

New off-site linear facilities would include two electrical interconnection lines to an existing transmission line and an existing substation, piping carrying geothermal brine from the 10 production wells to the power plant, piping conveying spent brine from the power plant to the seven reinjection wells, and a pipeline conveying canal water to the power plant site for use in spent brine dilution and as potable water.

Construction of linear facilities typically moves along at a rapid pace, thus not subjecting any one receptor to noise impacts for more than two or three days. To provide reasonable protection from undue noise, the County's General Plan Noise Element (Imperial 2001) sets a limit for construction noise of 75 dBA (8-hour average) at the nearest sensitive receptor. The Noise Element further restricts construction to certain hours of the day and days of the week.

The sensitive human receptor nearest to the geothermal brine pipelines and the canal water supply pipeline is the residence at the Refuge headquarters. CE Obsidian Energy LLC predicts that noise from construction of these pipelines will reach only 51 dBA at the residence, which is well within the 75 dBA limit described above, and is not significantly greater than the daytime ambient noise level of 45 to 56 dBA at the residence. In addition, CE Obsidian Energy LLC proposes to work on these linear facilities only during daytime hours.

The brine production pipelines from wellpads OB1, OB2 and OB3 would pass near (sometimes within 50 feet) Yuma clapper rail habitat. Their construction, including the pile driving projected to support the pipeline between the west end of McKendry Road and Obsidian Butte, would likely produce significant adverse impacts on wildlife, if conducted during the breeding season. Pile driving noise levels at the adjacent Yuma clapper rail habitat could be nearly 105 dBA. CE Obsidian Energy LLC has committed to schedule this work to avoid the breeding season of affected species.

The electrical transmission interconnection lines would pass near several residences. The IID Midway line would pass within one-half mile of residences along Hoober Road; noise impacts at these residences would range from 35 to 55 dBA, well below the 75 dBA limit specified in the County's Noise Element. The L-Line interconnection line would be routed within 150 feet of several residences along Lack and Bannister Roads, potentially producing intermittent noise levels at these residences from 60 to 80 dBA. Averaged over eight hours, this noise would be less than the 75 dBA limit in the Noise Element, and construction on the line would be limited to daytime hours. These short-term noise impacts will be tolerable to residents, and are thus less than significant. (FSA Noise, p. 4.6-8-13)

MITIGATION:

- ☑ The Project Owner will notify neighboring residents and business owners of impending construction at the power plant site together with a telephone number to report any undesirable noise conditions. Condition: **NOISE-1**.
- ☑ Additionally, the Project Owner will create a noise complaint process through which it will attempt to resolve all noise complaints. Condition: **NOISE-2**.
- ☑ The project owner shall equip steam blow piping with a temporary silencer and shall utilize quiet pile driving techniques. Alternatively, the project owner may schedule pile driving so that it does not occur during the mating season (from March 1 to August 31). Condition: **NOISE-4**.

- ☑ Prior to conducting the first steam blows, the Project Owner shall notify the Sonny Bono National Wildlife Refuge headquarters and offer to temporarily relocate the occupants for the duration of the steam blows. Condition: **NOISE-5**.
- ☑ Heavy equipment operation and noisy construction work relating to any project features that lie within 300 feet of residentially zoned property shall be restricted to Monday through Friday from 7 a.m. to 7 p.m., Saturday from 9 a.m. to 5 p.m., and no work on Sunday and Holidays. Condition: **NOISE-8**.

Operation: During its operating life, the project will represent essentially a steady, continuous noise source day and night. The noise emitted by power plants during normal operations is generally broadband, steady state in nature. Occasional short-term increases in noise level will occur as steam relief valves open to vent pressure, or during startup or shutdown, as the plant transitions to and from steady-state operation. At other times, such as when the plant is shut down for lack of dispatch or for maintenance, noise levels will decrease.

The primary noise sources of the project will include the steam turbine generator, the evaporative cooling towers, and, occasionally, the emergency diesel generators. The noise emanating from a power plant during normal operation is generally broadband, steady state in nature.

CE Obsidian Energy LLC performed acoustical calculations to determine the project's noise impacts on sensitive receptors, and to identify any necessary mitigation measures. Power plant noise at the residence at the Wildlife Refuge headquarters would not exceed 39 dBA L_{eq}. This represents an increase of only 3 dBA above the lowest four-hour average background noise level at the residence of 36.3 dBA L_{90}, a barely perceptible increase unlikely to draw complaints from residents. CE Obsidian Energy LLC has asked that the project be permitted to produce noise levels at the Refuge Headquarters residence of 41 dBA, an increase of 5 dBA over the average background level; such an increase would not be likely to annoy and is a reasonable level.

For a continuous noise source such as a power plant, 41 dBA L_{eq} is equivalent to 47 dBA CNEL, significantly less than the 60 dBA considered in the Noise Element Noise/Land Use Compatibility Guidelines for residential areas, and thus in compliance with this LORS. This level of 41 dBA is also less than the nighttime residential property line noise limit of 45 dBA specified both in the Noise Element and in the County's Noise Ordinance (Imperial 1998, § 90702.00), thus complying with these LORS.

This same noise level, at the wildlife habitat nearest the power plant (the wetland approximately 1,500 feet NW of the power plant), would be approximately 50 dBA. This is significantly less than the 60 dBA threshold set by the USFWS, and represents an insignificant impact on wildlife.

CE Obsidian Energy LLC commits to installing the emergency diesel generators in an acoustical enclosure that will control noise emanations to 70 dBA at a distance of 50 feet, which results in a predicted noise levels at the residence of approximately 38 dBA, an inaudible level. Levels at the wetland would be about 47 dBA, an insignificant impact.

Tonal and Intermittent Noises

One possible source of annoyance would be strong tonal noises. Tonal noises are individual sounds (such as pure tones) that, while not louder than permissible levels, stand out in sound quality. Intermittent noises would include machinery whine, and steam relief valves venting during startup, shutdown or unplanned unit trips.

Linear Facilities

All water and brine piping will be effectively silent during operation. Noise effects from the electrical interconnection line typically do not extend beyond the right-of-way easement of the line, and will thus be inaudible to any receptors. Noise from the brine production wellheads, caused by fluid flow through the wellhead valves, will not exceed 25 dBA at the residence at the Wildlife Refuge headquarters; this would be inaudible to human receptors. At the habitat area nearest a wellhead (Union Pond, near wellpad OB1), the wellhead noise level would be approximately 38 dBA, of no concern. (FSA Noise, p. 4.6-8-15)

MITIGATION:

- ☑ 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 to plant operation to exceed 41 dBA L_{eq} measured at the residence at the Sonny Bono National Wildlife Refuge headquarters nor will generate new pure tonal noise. These mitigation measures will be verified by the Project Owner conducting noise monitoring after the project reaches a sustained output of 80 percent or greater. Condition: **NOISE-6**.
- ☑ The Project Owner will conduct an "after" comparative community noise survey once the power plant achieves full operation to determine if the project conforms to applicable daytime and nighttime noise limitations. If necessary, the Project Owner will perform additional noise mitigation to achieve applicable noise limitations. Condition: **NOISE-6**.

VIBRATION

The operating components of a geothermal power plant consist of a high-speed steam turbine, and various pumps. CE Obsidian Energy LLC estimated that any equipment vibration would be imperceptible at a distance of 300 feet from the plant. Energy Commission staff agrees with this estimate, and concludes that groundborne vibration from the SSU6 Project will be undetectable by any likely receptor, human or animal.

Airborne vibration (low frequency noise) can rattle windows and objects on shelves, and can rattle the walls of lightweight structures. CE Obsidian Energy LLC predicts that the project's airborne vibration would be imperceptible at a distance of 1,000 feet from the plant. Therefore, no impact at any likely human receptor is expected. It is unknown what the impacts of such vibration would be on birds nesting nearby (as near as 1,500 feet), but given the low amplitude, these impact are expected to be inconsequential. (FSA Noise, p.4.6-15)

CUMULATIVE IMPACTS

No other new or proposed noise-producing development near the project site was identified which might cause cumulative impacts exceedances of applicable noise standards or criteria. (FSA Noise, p. 4.6-16)

FINDINGS

With the implementation of the Conditions of Certification, below, the project conforms to applicable laws related to noise and all potential noise impacts will be mitigated to insignificance. To mitigate potential impacts to insignificance on matters not subject to our jurisdiction, the Commission recommends that, for wellhead, well pad and pipeline permitting, Imperial County and the Division of Oil, Gas & Geothermal Resources both incorporate Conditions **NOISE-1, 2, 3, 6 & 8**.

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 mile of the site and 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. 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 CPM a statement, signed by the project manager, stating that the above notification has been performed, and describing the method of that notification, verifying that the telephone number has been established and posted at the site, and giving that telephone number.

NOISE COMPLAINT PROCESS

NOISE-2 Throughout the construction and operation of the project, the project owner shall document, investigate, evaluate, and attempt to resolve all project-related noise complaints. The project owner or authorized agent shall:

- Use the Noise Complaint Resolution Form or functionally equivalent procedure acceptable to the CPM, to document and respond to each noise complaint;
- Attempt to contact the person(s) making the noise complaint within 24 hours;
- Conduct an investigation to determine the source of noise related to the complaint;
- If the noise is project related, take all feasible measures to reduce the noise at its source; and
- Submit a report documenting the complaint and the actions taken. The report shall include: a complaint summary, including final results of noise reduction efforts; and if obtainable, a signed statement by the complainant stating that the noise problem is resolved to the complainant's satisfaction.

Verification: Within five days of receiving a noise complaint, the project owner shall file a copy of the Noise Complaint Resolution Form, with the local jurisdiction and the CPM, documenting the resolution of the complaint. If mitigation is required to resolve a complaint, and the complaint is not resolved within a 3-day period, the project owner shall submit an updated Noise Complaint Resolution Form when the mitigation is implemented.

NOISE-3 The project owner shall submit to the CPM for review and approval a noise control program. The noise control program shall be used to reduce employee exposure to high 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. The project owner shall make the program available to OSHA and Cal-OSHA upon request.

STEAM BLOW AND PILE DRIVING MANAGEMENT

NOISE-4 The project owner shall equip steam blow piping with a temporary silencer that quiets the noise of steam blows to no greater than 74 dBA measured at a distance of 100 feet. The project owner may conduct steam blows continuously, 24 hours per day, until completed.

The project owner shall ensure that noise from pile driving, measured at the occupied Yuma Clapper rail habitat at the northern and western boundaries of the power plant site, does not exceed 60 dBA L_{eq} hourly one-half hour before and one hour after daybreak (morning civil twilight) and sunset during the mating and breeding season (February 15 through August 31). Alternatively, the project owner may schedule pile driving so that it does not occur during the mating and nesting season (from February 15 to August 31).

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.

At least 15 days prior to first pile driving, the project owner shall submit to the CPM a description of the pile driving technique to be employed, including calculations showing its projected noise impacts at the northern and western boundaries of the power plant site. Alternatively, this submittal may entail a description of the pile driving schedule, demonstrating that it does not occur between March 1 and August 31.

STEAM BLOW NOTIFICATION

NOISE-5 Prior to the first steam blow, the project owner shall notify the occupants of the residence at the Sonny Bono National Wildlife Refuge headquarters facility. The project owner shall offer to temporarily relocate the occupants of that residence for the duration of the steam blows, and shall perform this relocation upon their acceptance.

The notification may be in the form of a letter to the residence, a telephone call, a flier or other effective means. The notification shall include a description of the purpose and nature of the steam blow, the proposed schedule, the expected sound levels, and the explanation that it is a one-time operation and not a part of normal plant operations.

Verification: The project owner shall notify the occupants of the residence at the Sonny Bono National Wildlife Refuge headquarters facility at least 15 days prior to the first steam blow, and extend the offer to temporarily relocate them. Within five days of notifying these entities, the project owner shall send a letter to the CPM confirming that they have been notified of the planned steam blow activities, including a description of the method(s) of that

notification. This letter shall also include evidence of an offer to temporarily relocate the residents of the residence described above, and evidence of their acceptance or refusal.

NOISE RESTRICTIONS

NOISE-6 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 to plant operation to exceed 41 dBA L_{eq} measured at the residence at the Sonny Bono National Wildlife Refuge headquarters.

No new pure-tone components may be introduced. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints. Steam relief valves shall be adequately muffled to preclude noise that draws legitimate complaints.

When the project first achieves a sustained output of 80 percent or greater of rated capacity, the project owner shall conduct a 25-hour community noise survey at the monitoring site near the residence at the Sonny Bono National Wildlife Refuge headquarters. This survey during power plant operation shall also include measurement of one-third octave band sound pressure levels at each of the above locations to ensure that no new pure-tone noise components have been introduced.

If the results from the noise survey indicate that the power plant noise level (Leq) at the affected receptor exceeds the above value for any given hour during the 25-hour period, mitigation measures shall be implemented to reduce noise to a level of compliance with this limit.

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 first achieving a sustained output of 80 percent or greater of rated capacity. Within 30 days after completing the survey, the project owner shall submit a summary report of the survey to the Imperial County Planning Department, and 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 limits, 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-7 Following the project first achieving a sustained output of 80 percent or greater of rated capacity, the project owner shall conduct an occupational noise survey to identify the noise hazard areas in the facility.

The survey shall be conducted by a qualified person in accordance with the provisions of Title 8, California Code of Regulations, sections 5095-5099 (Article 105) and Title 29, Code of

Federal Regulations, section 1910.95. The survey results shall be used to determine the magnitude of employee noise exposure.

The project owner shall prepare a report of the survey results and, if necessary, identify proposed mitigation measures 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-8 Heavy equipment operation and noisy construction work relating to any project features that lie within 300 feet of residentially zoned property shall be restricted to the times of day delineated below:

Monday through Friday	7 a.m. to 7 p.m.
Saturday	9 a.m. to 5 p.m.
Sunday and Holidays	Not allowed

Heavy equipment operation and noisy construction work relating to any project features that would cause noise levels at the northern and western boundaries of the power plant site to exceed 60 dBA L_{eq} shall be restricted as specified in Condition of Certification **NOISE-4**, above.

Haul trucks and other engine-powered equipment shall be equipped with adequate mufflers. Haul trucks shall be operated in accordance with posted speed limits. Truck engine exhaust brake use shall be limited to emergencies.

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.

LAWS, ORDINANCES, REGULATIONS & STANDARDS

NOISE

APPLICABLE LAW	DESCRIPTION
FEDERAL	
EPA 1974 Noise Guidelines	Guidelines for State and Local Governments
HUD Circular 1390.2	Directions for noise levels at construction site boundaries not to exceed 65 dBA for 9 hours in a 24-hour period.
29 CFR Section 1910.95 (OSHA Health and Safety Act of 1970)	Exposure of workers to over an 8-hour shift should be limited to 90 dBA.
Federal Transit Administration	Guidelines for vibration standards.
STATE	
California Vehicle Code §23130 and 23130.5	Regulates vehicle noise limits on California Highways.
8 CCR §5095 et seq. (Cal-OSHA)	Sets employee noise exposure limits. Equivalent to Federal OSHA standards.
LOCAL	
Imperial County General Plan, Noise Element	Establishes noise performance standards.
Imperial County General Plan, Geothermal/Transmission Element	Establishes noise performance standards.
Imperial County Noise Ordinance	Establishes sound level limits by zoning districts.

PUBLIC HEALTH

PUBLIC HEALTH—GENERAL

Operating the proposed power plant would emit toxic air pollutants and possibly expose the general public and workers to these pollutants as well as the criteria pollutants associated with facility operations. The purpose of this public health analysis is to determine whether a significant health risk would result from public exposure to the pollutants routinely emitted during project operations. The issue of possible worker exposure is addressed in the **WORKER SAFETY** section. Exposure to electric and magnetic fields (EMF) is addressed in the **TRANSMISSION LINE SAFETY AND NUISANCE** section.

The exposure of primary concern in this section is to pollutants for which no air quality standards have been established. These are known as non-criteria pollutants, toxic air pollutants, or air toxins. Those for which ambient air quality standards have been established are known as criteria pollutants. The criteria pollutants are also identified in this section because of their potentially significant contribution to the total pollutant exposure in any given area. Furthermore, the same control technologies may be effective for controlling both types of pollutants when emitted from the same source.

CONSTRUCTION HEALTH RISKS

Construction-phase impacts are those from human exposure to:

(a) the windblown dust from site grading and other construction-related activities and

(b) emissions from the heavy equipment and vehicles to be used for construction.

The procedures for minimizing such dust generation [**AQ-C3 & AQ-C4**] are addressed in the **AIR QUALITY** section while the requirements for soil remediation are specified in the **WASTE MANAGEMENT** section, if contaminated soil is encountered during construction.

CE Obsidian Energy LLC is subject to Conditions of Certification to address construction equipment emissions. The measures to mitigate these emissions have been specified in Conditions **AQ-C3**. Since chronic health impacts are usually not expected from equipment emissions within the relatively short construction periods, only acute health effects could be significant with respect to the toxic exhaust emissions of concern in this analysis. Mitigation measures specified in Condition **AQ-C3** are sufficient to reduce these potential acute health effects to insignificance.

CANCER RISKS

According to present understanding, cancer from carcinogenic exposure results from biological effects at the molecular level. Such effects are currently assumed possible from every exposure to a carcinogen. Therefore, Energy Commission staff and other regulatory agencies generally consider the likelihood of cancer as more sensitive than the likelihood of non-cancer effects for assessing the environmental acceptability of a source of pollutants. This accounts for the prominence of theoretical cancer risk estimates in the environmental risk assessment process.

For any source of specific concern, the potential risk of cancer is obtained by multiplying the exposure estimate by the potency factors for the individual carcinogens involved. Health

experts generally consider a potential cancer risk of one in a million as the *de minimis* level, which is the level below which the related exposure is negligible (meaning that project operation is not expected to result in any increase in cancer). The Commission has established a significance level at ten in one million. For risks calculated between *de minimus* and significant, further mitigation could be recommended after consideration of issues related to the limitations of the risk assessment process. (FSA Public Health, 4.7-4)

CE Obsidian Energy LLC conducted a refined health risk assessment for the project-related non-criteria pollutants of potential significance. This assessment was conducted according to procedures specified in the 1993 California Air Pollution Control Officer's Association (CAPCOA) guidelines for sources of this type. The screening level assessment uses conservative assumptions to avoid underestimating actual risks. The cancer risk estimates from this analytical approach represent only the upper bound on this risk.

CE Obsidian Energy LLC calculated a maximum incremental lifetime cancer risk (PMI) to be 2.88 in one million, approximately 0.3 miles east of the SSU6 project site. The total worst case individual cancer risk (MEI) is calculated to be 1.07 in one million at a location approximately 2 miles east of the project site. (FSA Public Health, p. 4.7-10, 11)

NON-CANCER RISK

CE Obsidian Energy LLC's health risk assessment reviewed non-criteria pollutants with respect to non-cancer effects. A chronic hazard index of 0.156 was calculated for the project's non-carcinogenic pollutants considered together. Their acute hazard index was calculated to be 0.881. These indices are well below the levels of potential health significance (hazard index 1.0), suggesting that no significant health impacts would likely be associated with the project's non-criteria pollutants. (FSA Public Health, Public Health Table 2, p. 4.7-11)

COOLING TOWERS

In addition to toxic air contaminants, the possibility (however remote) exists for bacterial growth to occur in the cooling tower, including Legionella. Legionella is a type of bacteria that grows in water (optimal temperature of 37° C) and causes Legionellosis, otherwise known as Legionnaires' Disease. Untreated or inadequately treated cooling systems in the United States have been correlated with an outbreak of Legionellosis. These outbreaks are usually associated with building heating, ventilating, and air conditioning (HVAC) systems; but it is possible for growth to occur in an industrial cooling tower. In fact, Legionella bacteria have been found in drift droplets. The U.S. Environmental Protection Agency (U.S. EPA) published an extensive review of Legionella in a human health criteria document. The U.S. EPA noted that Legionella survival is enhanced by symbiotic relationships with other microorganisms, particularly in biofilms, and that aerosol-generating systems such as cooling towers can aid in the transmission of Legionella from water to air. Numerous outbreaks of Legionellosis have been linked to cooling towers and evaporative condensers in hospitals, hotels, and public buildings, clearly establishing these water sources as habitats for Legionella.

Health experts have not found a concentration of this bacterium which would not present some risk of infection to the public, that is, a concentration in water below which would be deemed totally "safe". Evidence supports the fact that despite water temperature and biocide control, a thin "bio-film" can form on the inside walls of piping and serve to protect the bacteria from the biocide and temperature variations. Additional chemical additives,

mechanical removal, and/or “back-flushing” of the system can be used to remove this bio-film. Despite these facts, it is clear than outbreaks of Legionnaire’s Disease caused by Legionella bacteria are rare and are due most likely to sources other than modern industrial cooling towers that utilized biocides and that if biofilm formation is under control, Legionella will be restricted to negligible levels.

In order to ensure that Legionella growth is kept to a minimum, thereby protecting both nearby workers as well as members of the public, Staff has proposed Condition of Certification **PUBLIC HEALTH-1**. The condition would require the project owner to prepare and implement a biocide and anti-biofilm agent monitoring program to ensure that proper levels of biocide and other agents are maintained within the cooling tower water at all times, that periodic measurements of Legionella levels are conducted, and that periodic cleaning is conducted to remove bio-film buildup. With the use of an aggressive antibacterial program coupled with routine monitoring and biofilm removal, the chances of Legionella growing and dispersing would be reduced to insignificance.

MITIGATION:

☑ The Project Owner shall implement a Cooling Water Management Plan to ensure that the potential for bacterial growth in cooling water is kept to the minimum. Condition: **PUBLIC HEALTH-1**

CUMULATIVE IMPACTS

The maximum impact location occurs where pollutant concentrations from the SSU6 project would theoretically be the highest. Even at this location, no significant change in lifetime risk to any person is expected, and the increase of 2.88 in one million does not represent any real contribution to the average lifetime cancer risk of 250,000 in one million. Modeled facility-related residential risks are lower at more distant locations, and actual risks are expected to be much lower, since worst-case estimates are based on conservative assumptions, and overstate the true magnitude of the risk expected. Therefore, the incremental impact of the additional risk posed by the SSU6 Project in not considered to be either significant or cumulatively considerable.

The worst-case long-term non-cancer health impact from the project (0.156 hazard index) is well below the significance level of 1.0 at the location of maximum impact. Similarly, the worst-case acute health impact of 0.881 is below the significance level of 1.0. At these levels, cumulative health impacts are expect to be less than significant. As with cancer risk, acute and long-term hazards would be lower at all other locations and cumulative impacts at other locations would also be less than significant.

Even in the unlikely event that worst-case emissions from an existing facility were to coincide both geographically and temporally with SSU6 emissions at the location of maximum impact, the overall health outlook would not change for anyone. Thus, the SSU6 project will not result in any significant cumulative cancer or non-cancer health impacts.

FINDING

With the implementation of the Conditions of Certification below and in other sections of this Decision, the project conforms with applicable laws related to public health, and all potential adverse impacts to public health will be mitigated to insignificance.

CONDITION OF CERTIFICATION

PUBLIC HEALTH-1 The project owner shall develop and implement a cooling towers Biocide Use, Biofilm Prevention, and Legionella Control Program to ensure that the potential for bacterial growth is controlled. The Program shall be consistent with staff's "Biocide Monitoring Program Guidelines" or the Cooling Tower Institute's "Best Practices for Control of Legionella" guidelines.

Verification: At least 30 days prior to the commencement of cooling tower operations, the project owner shall submit the Biocide Use, Biofilm Prevention, and Legionella Control Program to the CPM for review and approval.

LAWS, ORDINANCES, REGULATIONS & STANDARDS

PUBLIC HEALTH

APPLICABLE LAW	DESCRIPTION
FEDERAL	
Clean Air Act, §109 and 301(a). 42 USC §7401 et seq. and 40 CFR 50	Established air quality standards to protect the public health from exposure to air pollutants.
Clean Air Act §112(g), 42 USC §7412, and 40 CCR 63	Requires review of new or modified sources prior to promulgation of the standard and establishes emissions standards for HAP from specific source types.
STATE	
Health and Safety Code §25249.5 et seq. (Safe Drinking Water and Toxic Enforcement Act -–Proposition 65)	Requires posting of facilities that have chemicals known to cause cancer and public notification of significant risks.
Health and Safety Code §39650-39625	Provides for a special statewide program directed by the ARB to evaluate the risks associated with emissions of chemicals designated as TAC and to develop and mandate methods to control these emissions.
Health and Safety Code §44300 et seq. (Air Toxics “Hot Spots” Information and Assessment Act –AB2588)	Requires facilities that emit listed criteria or toxic pollutants to submit emissions inventories to the local air district. Such facilities may also be required to conduct a health risk assessment.

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SOCIOCECONOMICS

SOCIOECONOMICS—GENERAL

The socioeconomic impact analysis evaluates the potential direct and cumulative project-induced impacts on community services and/or infrastructure including schools, medical and protective services and related community issues such as environmental justice.

The project site is located in an agricultural area south of the Salton Sea in central Imperial County, near the cities of Calipatria, Niland, Westmorland, Brawley, and El Centro. These communities are within a one-hour one-way commute distance of the power plant site

EMPLOYMENT

Construction of the proposed project would be completed in 26 months. The project would require a peak number of 467 workers in month 19 of the construction period.

A total of 3,600 laborers are projected to be available within Imperial County. Other crafts such will be needed for the project such as steamfitters, etc. The applicant estimates that the average non-local component for construction may be 40 percent or 106 workers, and for operations non-local operators would be 10 percent or seven workers. Most non-local construction workers would stay in hotels/temporary housing during the week returning to their families on weekends, and no in-migration is expected as a result of project-related construction activities. Therefore, no significant impacts are expected as a result of construction-related population increases.

Sixty nine (69) permanent employees would be required for operation of the proposed facility. CE Obsidian Energy LLC anticipates that 62 permanent employees would be hired from the existing local labor force, resulting in as few as seven operational employees would come from outside the local labor force. With year 2000's population of 142,361 in the Imperial County, any potential permanent employees drawn from outside the region would result in a negligible increase to the total population. Therefore, any potential population in-migration impacts resulting from the operational workforce would be insignificant. (AFC § 5.92.1.1; FSA Socioeconomics p. 4.8-4)

HOUSING

There are 43,891 total housing units in the unincorporated Imperial County and an additional 20,929 housing units in the incorporated communities. The vacancy rate for permanent and rental housing averages approximately 5.9 to 7.1 percent. During project construction, it is expected that most construction workers are within 1 to 2 hours commuting distance of the proposed project site, and therefore would not need to move into the area for the duration of construction. However, in the event that construction workers temporarily relocate to the study area during peak construction periods, an ample number of housing units are available in the study area. In addition to the available housing units, there are over 960 motel and hotel rooms within commuting distance of the proposed project site. Therefore, no construction-related impacts are expected on the local housing supply. (AFC § 5.9.1.4; FSA Socioeconomics pp. 4.8-4)

SCHOOLS

Neither temporary construction workers nor operational employees are expected to move to and/or bring families to the Calipatria Union School District. Thus, there is not expected to be any impact on the need for school facilities. (AFC § 5.9.2.1.8; FSA Socioeconomics p. 4.8-6)

MITIGATION:

☑ The project owner shall pay the one-time statutory school facility development fee as required at the time of filing for the in-lieu building permit with the Imperial County Planning/Building Department. Condition: **SOCIO-1**

UTILITY/PUBLIC SERVICES

The project would rely on both onsite fire protection systems and local fire protection services. The onsite fire protection system provides the first line of defense for small fires. In the event of a major fire, fire support services including trained firefighters and equipment for a sustained response would be required from the Calipatria Fire Department Fire District. (FSA Socioeconomics, p. 4.14-4)

The Imperial County Sheriff's Department provides law enforcement services for the project area with 75 full time officers. The nearest Sheriff Substation in located in Niland, approximately seven mile from the project site. The El Centro substation is located approximately 40 miles from the project site and is staffed 24-hours a day, 7 days a week. The overall response time to the project site is expected to be 10 minutes (AFC, p. 5.9-5; FSA Socioeconomic, p. 4.8-6).

There are two hospitals in Imperial County. Pioneers Memorial Hospital in Brawley is the closest and is about 22 miles from SSU6 with 105 doctors/physicians and 100 beds. El Centro Regional Medical Center is in El Centro about 30 miles away. El Centro Regional Medical Center has 107 beds and 137 doctors/physicians. The El Centro Regional Medical Center is currently undergoing expansion with a new building expected to be completed 2003. The new building will be jointly used by the ICU (Intensive Care Unit), DOU (Definitive Observation Unit), and the Med-Surgery (Medical Surgery) unit. Increases in demand for emergency medical services and hospitals would be small due to the short-term nature of construction and the small-expected increase in population during operation and construction. (AFC, p. 5.9-5; FSA Socioeconomics pp. 4.8-7)

ECONOMY/GOVERNMENT FINANCE

The estimated construction payroll for the proposed project would be approximately $30 million. Along with the construction payroll, it is expected that approximately $100 million would be spent within the local economy on material and supplies over 2 years. In addition, construction activity would result in secondary economic impacts (i.e., indirect and induced employment due to the purchase of goods and services by firms involved with construction, and induced employment due to construction workers spending their income within the counties). There are $17 million in secondary (indirect and induced) local income impacts. The increase in workers and their wages would result in a positive fiscal and economic impact on the local area.

During operation, the proposed project is expected to employ approximately 69 people in full-time, onsite positions, which would generate an annual operation payroll of $5.9 million, resulting in a permanent increase in tax revenues and local and regional spending by the operations staff for the life of the project. Annual expenditures by CE Obsidian Energy LLC for supplies and materials are estimated to be approximately $17 million, of which a portion is anticipated to be spent locally. These expenditures are expected to help generate additional jobs within the area, and additional spending. The operation of the proposed project would result in the creation of 104 indirect and induced permanent jobs that would occur within the economic region. The indirect and induced impacts from the additional 104 jobs would result from annual expenditures on payroll of $5.9 million, as well as equipment and materials budget of $17 million during operation. Construction and operation of the project would result in a positive fiscal and economic impact on the local area.

The initial capital cost of the project is estimated to between $255 and $405 million. The estimated value of materials and supplies that will be purchased locally during construction is $100 million. The local sales tax expected to be generated during construction is $7.75 million.

The project would have an estimated assessed value of $265 million, which would generate $2.9 million in property taxes. (AFC p. 5.9-9; FSA Socioeconomics p. 4.8-5)

ENVIRONMENTAL JUSTICE

Presidential Executive Order 12898, entitled "Federal Actions to address Environmental Justice (EJ) in Minority Populations and Low-Income Populations," focuses federal attention on the environment and human health conditions of minority communities and calls on agencies to achieve environmental justice as part of this mission. The order requires the US Environmental Protection Agency (EPA) 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.

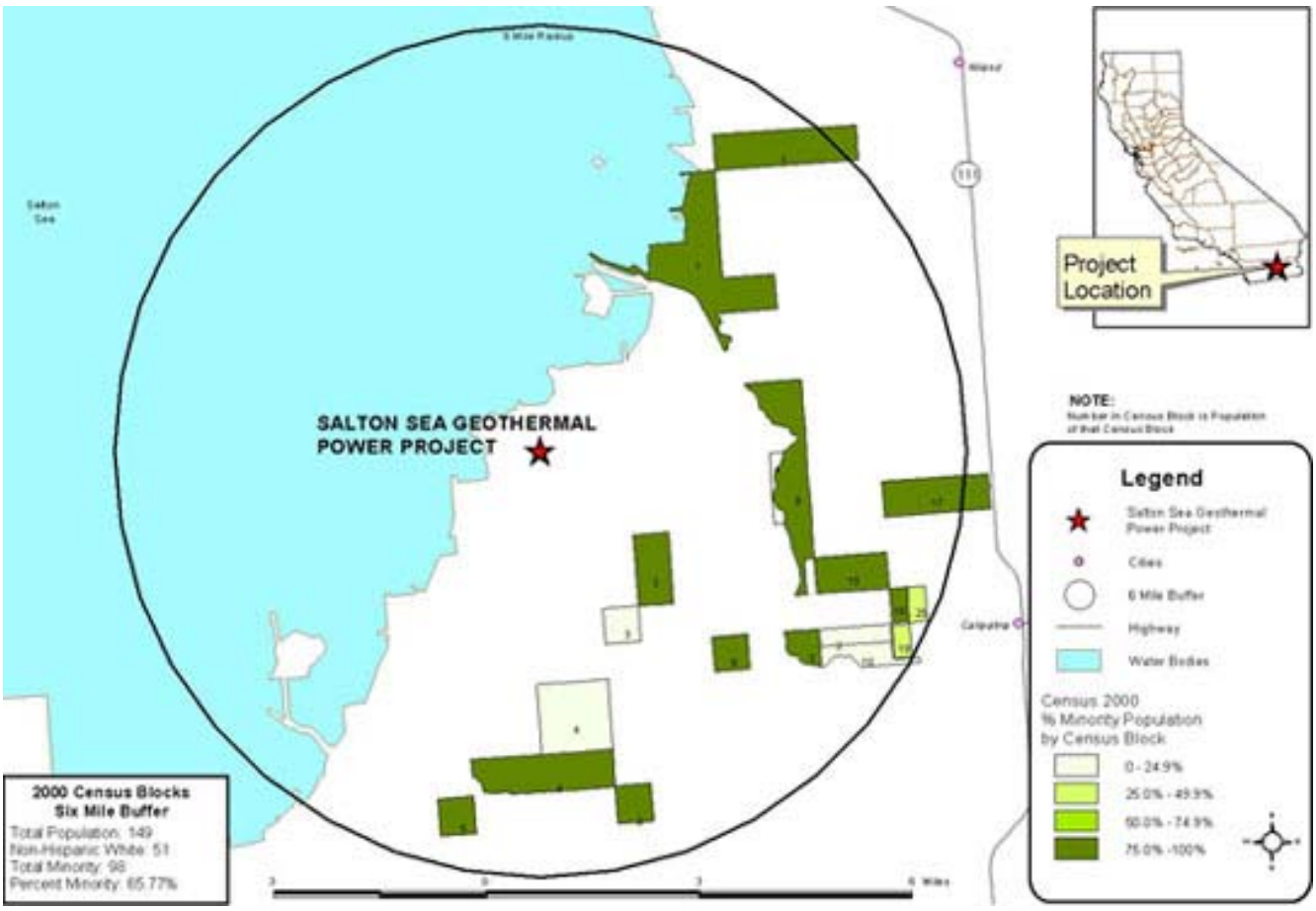
For all siting cases, the Energy Commission follows the U.S. Environmental Protection Agency's guidance in conducting a two-step environmental justice analysis. The analysis assesses:

- Whether the population in the area potentially affected by the proposed project is more than 50 percent minority and/or low-income, or has a minority or low-income population percentage that is meaningfully greater than the percent of minority or low income in the general population, or other appropriate unit of geographic analysis; and
- Whether significant environmental impacts are likely to fall disproportionately on the minority and/or low-income population.

Commission staff determined the affected area for this environmental justice analysis to be the area within a six-mile radius of the proposed project site. This area corresponds to the area analyzed for potential air quality and public health impacts.

Updated census tract data were reviewed to assess the demographic profile within a six-mile radius of the proposed power plant site. On the basis of this data, the area within a six-mile radius is 65.77 percent minority population.

Federal guidance does not give a percentage of population threshold to determine when a low-income population becomes recognized for an environmental justice analysis. The Energy Commission uses the same greater than 50 percent threshold that is used for minority populations, as well as a “meaningfully greater” percentage population. Staff found only 18.55 percent of the population below the poverty level in local census tracts.



No identified significant direct or cumulative adverse socioeconomic impacts result from the construction or operation of the project within the subject area identified in this analysis. The SSU6 will be built in a rural area, will not physically alter a community, and will largely utilize a local labor force that would not create any new significant demands on community infrastructure and services. Therefore, there are no socioeconomic environmental justice issues related to this project. (AFC § 5.9-10-11; FSA Socioeconomics pp. 4.8-8-9)

CUMULATIVE IMPACTS

Construction of the SSU6 project is expected to occur between the last quarter of 2003 and the last quarter of 2005, with peak construction activity occurring in the first part of 2005. Three projects were identified in the area; however, only two projects had concurrent construction schedules with the SSU6 project. Since construction would begin in 2004 and end in 2007, most construction of the State Route 78/111 Expressway (Brawley Bypass) would not coincide with construction of the SSU6 project. The expressway project is also located 12 to 15 miles from the SSU6 Project. Due to the nature of the expressway project, it is likely that both projects would require different types of skilled labor, and the concurrent construction schedules would not deplete certain types of trade labor and equipment even on a temporary basis. Cumulative impacts would not be considered significant.

Construction activities associated with the Imperial Irrigation District Water Conservation and Transfer Project/Habitat Conservation Plan are anticipated to begin by the end of 2003 and be on-going. Although the SSU6 project would be constructed concurrent with some of these construction activities, cumulative impacts would not be considered significant because these projects will require skilled workers from different crafts. There is no concurrent power/generating construction projects planned in the project vicinity.

Because the SSU6 would not result in any significant adverse socioeconomic impacts to population, housing, or public services, No significant cumulative socioeconomic impacts would occur. (AFC §5.9-11; FSA Socioeconomics p. 4.8-7-8)

FINDINGS

The project would not cause a significant adverse direct or cumulative impact on housing, employment, schools, public services or utilities. The project would have a temporary benefit to the adjacent areas in terms of an increase in local jobs and commercial activity during the construction of the facility. The construction payroll and project expenditures would also have a positive effect on the local and county economies. The estimated benefits from the project include increases in the affected area's sales taxes, employment, property taxes, and sales of services, manufactured goods, and equipment. Overall, the project will have a positive socioeconomic impact on the area.

With the implementation of the Conditions of Certification, below, the project conforms to applicable laws related to socioeconomics and all potential adverse socioeconomic impacts will be mitigated to insignificance.

CONDITIONS OF CERTIFICATION

SOCIO-1: The project owner shall pay the one-time statutory school facility development fee as required at the time of filing for the in-lieu building permit with the Imperial County Planning/Building Department.

Verification: The project owner shall provide proof of payment of the statutory development fee in the next Monthly Compliance Report following the payment.

LAWS, ORDINANCES, REGULATIONS & STANDARDS

SOCIOECONOMICS

APPLICABLE LAW	DESCRIPTION
FEDERAL	
Executive Order 12898	Executive Order 12898, "Federal Actions to address Environmental Justice (EJ) in Minority Populations and Low-Income Populations," focuses federal attention on the environment and human health conditions of minority communities and calls on agencies to achieve environmental justice as part of this mission. The Order requires the US Environmental Protection Agency (EPA) 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.
STATE	
California Government Code sec. 65995-65997	Includes provisions for levies against development projects in school districts. The local Unified School District will implement school impact fees based on new building square footage.
LOCAL	
None	

TRAFFIC & TRANSPORTATION

TRAFFIC—GENERAL

The project is anticipated to take 26 months of construction to complete. The project would also require the construction of 31 miles electrical transmission lines. These lines will originating at project site, with one line going approximately 15 miles east to Imperial Irrigation District's Midway substation and the other line going 16 miles southwest to IID's new Bannister Switchyard. Other project linear facilities include well pads and piping and a 500 foot buried fresh water supply line. These other linear features are relatively short and located close to the SSU6 project site.

The construction of the power plant and linear features causes additional trips by construction workers and delivery trucks to and from the sites, increasing daily traffic volumes on the freeways and local streets. The potential impact of the project is measured by the Level of Service (LOS) of the surrounding roadway segments and intersections based upon average daily traffic volume. LOS is measured in a range from LOS A to LOS F. A LOS of A refers to little or no congestion, whereas LOS F is heavy congestion with significant delays and significantly reduced travel speeds. (AFC §5.10.1.2; FSA Traffic & Transportation, p. 4.10-6)

CONGESTION

Construction:

Commuting Workers: The project would require an average workforce at the site of 265 workers per month over the 20 months to construct the facility. The peak construction month (Month 14), the workforce would reach an estimated 467 workers at the plant site.

This traffic analysis assumes a worst-case scenario in which each worker would make two trips per day during peak traffic hours (one round trip from home to the site and back). Assuming each construction worker drives a separate vehicle, the average of 265 workers would result in the construction workforce generating approximately 530 (i.e., 2 times 265) vehicle trips per day on average and 934 (i.e., 2 times 467) vehicle trips per day during the peak construction period.

The majority of the workforce for this project is expected to come from within Imperial County. The preferred commuting route for construction workers would be primarily from SH-111 west on Sinclair Road, south on Gentry road, west on McKendry Road and south on Boyle Road to the site; and secondarily from SH-78/86 east on Bannister Road, north on Forrester and Gentry Roads, west on McKendry Road, and south on Boyle Road to the site. Most construction trucks would follow the route from SH -111 to Sinclair Road.

The projected LOS for highways and local roads in the project vicinity would be LOS A or B and that at one intersection, Gentry Road/McKendry Road, the construction period LOS would change from A to C during the AM peak traffic period; all other intersections would be at LOS A or B during AM and PM peak traffic periods during construction. Therefore, the projected LOS levels would in most cases be at LOS A or B, and would not fall below LOS C for any of these points of study, thus meeting the County's minimum traffic service standard of LOS C.

The Imperial County Planning/Building Department has reviewed the Preliminary Staff Assessment, and the County Public Works Department has reviewed the Application for Certification. Imperial County is of mixed opinion on the project's traffic impact. The County Planning Department has stated that "…there will be no significant impacts on local traffic due to the construction or operation of the proposed power plant, specifically at the intersection of Gentry Road and McKendry Roads and is not a significant environmental impact."

However, the County Public Works Department has stated that the average daily trip count for Gentry Road in July 2000 was 1885, rather than the 1350 trips reported in the AFC, and therefore the projected peak hour LOS values for the Gentry Road/McKendry Road intersection would be C-. Staff assumes that the County Public Works Department is referring to the projected construction period LOS value at this intersection during the AM peak traffic period. In the County Public Works staff's opinion, since this LOS value is less than the County's standard of LOS C, this intersection would require mitigation. The Public Works Department has stated that the County would request improvements at the Gentry/McKendry intersection. Staff assumed that the Public Works Department's assessment of existing traffic data and projected LOS values is correct and reasonable. Condition **TRANS-2** and **TRANS-5** would assure compliance with County mitigation requirements.

Because Boyle Road is a local two-lane road, there could be peak hour traffic crossing-related delays and conflicts at or near the entrance of the private access road that would connect the laydown area to Boyle Road. The construction traffic control and implementation plan that would be required by **TRANS-5** would need to demonstrate resolution of any such problems.

Truck Traffic: In addition to worker traffic, truck traffic would deliver equipment and construction material such as concrete, wire, pipe, cable, and steel. Deliveries would also include hazardous materials to be used during construction such as gasoline, diesel fuel, oil, and lubricants.

Truck deliveries would average 10 round trips per day, with the peak being 18 round trips per day. Truck deliveries were assumed to occur during the normal construction hours between 7:00 a.m. and 5:00 p.m., Monday through Friday. To evaluate the worst case scenario, it was assumed that the delivery trucks would arrive and depart during peak traffic hours.

Truck deliveries would follow the route from SH -111 to Sinclair Road. As stated above, with the exception of the Gentry/McKendry intersection, the projected LOS for the roadways affected by the project would remain at A or B. (AFC §5.10.2.2.1; FSA Traffic & Transportation p. 4.10-8-10)

Well Pads

Five well pads with two wells for each pad, for a total of 10 production wells, and seven injection wells on three new injection well pads would be constructed. Traffic impacts caused by the construction of these wells would be insignificant due to the short distance of the wells to the SSU6 site.

Linear Facilities

Transmission Lines

The project's proposed L-Line Interconnection would run south from SSU6 for 16 miles to the Imperial Irrigation District's (IID) existing “L” line. This line would be constructed for 14 miles along Lack Road and Bannister Road. The IID Midway Interconnection would be constructed from SSU6 for 15 miles east generally along Hoober road to the existing Midway Substation. The Applicant has identified an alternative L-Line Interconnection route which would replace the last 2.8 miles of this route through Bureau of Land Management (BLM) lands with a route north along SH-86 for approximately 7.5 miles to the intersection of SH-86 and the L-Line. This alternative would allow the Applicant to avoid using the BLM land for transmission line construction.

Both transmission line routes would cross many roads. Temporary staging areas would be used when a transmission line construction area is distant from the project site. The locations of these staging areas have yet to be determined. These temporary staging areas, to be located on private property, would also be used for construction worker parking. Traffic impacts during construction along access routes could be caused by use of heavy equipment, trucks, and workers' vehicles. The construction traffic control and implementation plan required by **TRANS-5** would need to mitigate the effect of these impacts to the extent necessary.

Production and Injection Pipelines

Geothermal steam production pipelines would be constructed to connect the well pads to the project. These pipelines would cross six roads near the project site. Injection pipelines would be constructed from the project to the injection wells, crossing five roads. Construction of the production and injection pipelines across roads would cause short term interruption of traffic. The construction traffic control and implementation plan required by **TRANS-5** would need to mitigate the impact of these interruptions to the extent necessary and practical.

Parking and Laydown Areas

Temporary construction worker parking at the main project site would be located south of the project site adjacent to Boyle Road. The approximately 5.5 acre parking space would be adequate at the peak of construction with carpooling. If the worst case scenario of having to provide parking for 467 workers’ vehicles (without carpooling) were to occur, Staff believes that the Applicant-owned site is large enough to allow for expansion of the lot if necessary. The construction laydown area would be located on the south side of the proposed power plant site.

Operation

Operation of the power plant is expected to require a labor work force of approximately 69 full-time employees. Based on the relatively low number of full-time employees at SSU6 and current uncongested traffic conditions, it is anticipated that the traffic generated would be easily accommodated by the existing roadway system.

Deliveries to the project site are expected for on-going maintenance of the plant. There would be a minimum of 32 delivery, hazardous waste (e.g., oily rags, brine solids, and sulfur byproducts), and nonhazardous waste hauling trips daily during the operations period, with more trips made on irregular schedules reaching as many as 54 trips per day.

There would be at least 39 hazardous materials and waste truck trips weekly during project operation. Adoption of **TRANS-3** would ensure that necessary permits and licenses are secured for the transport of hazardous materials. The resulting LOS on local roadways would remain unchanged from the existing LOS. (AFC § 5.10.2; FSA Traffic & Transportation, p. 4.9-12, 14)

MITIGATION

- ☑ The Project Owner's shall prepare a Traffic Control Plan. Condition: **TRANS-5**.
- ☑ The Project Owner shall repair affected public rights-of-way to original or near original condition that have been damaged due to construction activities conducted for the project and its associated facilities. Condition: **TRANS-6**.

SAFETY

Construction

Some construction truck deliveries would include hazardous materials, but there would be no use of acutely hazardous materials during construction. The transportation and handling of hazardous substances associated with the project can increase roadway hazard potential. These potential impacts can be mitigated to insignificance by compliance with federal and State standards established to regulate the transportation of hazardous substances.

The California Department of Motor Vehicles specifically licenses all drivers who carry hazardous materials. Drivers are required to check for weight limits and conduct periodic brake inspections. Commercial truck operators handling hazardous materials are also required to take instruction in first aid and procedures on handling hazardous waste spills. Drivers transporting hazardous waste are required to carry a manifest, which is available for review by the California Highway Patrol at inspection stations along major highways.

The California Vehicle Code and the Streets and Highways Code (Sections 31600 through 34510) are equally important in ensuring that the transportation and handling of hazardous materials are done in a manner that protects public safety. Enforcement of these statutes is under the jurisdiction of the California Highway Patrol.

The transportation and handling of hazardous substances associated with the project can increase roadway hazard potential. The handling and disposal of hazardous substances is also addressed in the Waste Management, Worker Safety and Fire Protection, and Hazardous Materials sections of this report. Potential impacts of the transportation of hazardous substances can be mitigated to insignificance by compliance with federal and State standards established to regulate the transportation of hazardous substances. (FSA Traffic & Transportation, p. 4.10-11)

MITIGATION

- ☑ Caltrans permits control vehicle size and weight. Condition: **TRANS-1**.
- ☑ Hazardous materials haulers must be specially licensed by the California Highway Patrol. Condition: **TRANS-2;**
- ☑ Construction-impacted roadways will be restored to their pre-construction condition. Condition: **TRANS-6**.

The handling and disposal of hazardous substances are also addressed in the **HAZARDOUS MATERIALS** and **WASTE MANAGEMENT** sections.

Aviation

Because of the distance of the project site from the nearest airport and the height of project facilities, the FAA does not need to review this project. There are no airports in the vicinity of the project site, and the project would not be within the safety zones of any airport. Therefore the Imperial County Airport Land Use Commission (ALUC) will not review the total project but has reviewed the construction of the 125-foot high IID transmission line and poles that would extend 16 miles south and westward from the project site to the existing 161 kV "L"-line and 15 miles eastward to the Midway Substation. The ALUC has found the proposed new transmission line and poles to be consistent with the Airport Land Use Compatibility Plan with the condition that warning devices in the form of high-density, orange balls be attached to the portion of the transmission lines adjacent to a private airstrip and under the low-level military route. It is assumed that the ALUC's condition regarding warning devices refers to the portions of the transmission line in the vicinity of these two airstrips. It is assumed that the ALUC reviewed this information regarding the military route in the determination of its condition.

MITIGATION

☑ The Project Owner shall provide appropriate evidence of compliance with the airport land use commission's regulations and conditions. Condition: **TRANS-7**.

PARKING

Construction

Temporary construction worker parking at the main project site would be located south of the project site adjacent to Boyle Road. The approximately 5.5 acre parking space would be adequate at the peak of construction with carpooling. If the worst case scenario of having to provide parking for 467 workers' vehicles (without carpooling) were to occur, staff believes that the applicant-owned site is large enough to allow for expansion of the lot if necessary. The construction laydown area would be located on the south side of the proposed power plant site.

Operation: Adequate on-site parking is available for the twenty new power plant personnel. (SA Traffic & Transportation, p. 4.10-13, -14.)

MITIGATION

☑ The Project Owner's shall prepare a Traffic Control Plan. Condition: **TRANS-5**.

CUMULATIVE IMPACTS

The site is located in a rural area of Imperial County that does not experience heavy traffic flow. There are 4 proposed projects that would result in additional construction traffic. Construction impacts from these projects would be temporary and local, and would not cause significant cumulative impacts due to their distance from proposed project construction. Furthermore, the proposed project would also not add to growth-inducing impacts in the area

due to the low number of operational employees. (AFC § 5.10.3; FSA Traffic & Transportation, p. 4.10-14, -15.)

FINDINGS

With the implementation of the Conditions of Certification, below, the project conforms to applicable laws related to traffic and transportation and all potential adverse traffic and transportation impacts will be mitigated to insignificance.

CONDITIONS OF CERTIFICATION

TRANS-1 The project owner shall comply with the California Department of Transportation (Caltrans) and other relevant jurisdictions limitations on vehicle sizes and weights. In addition, the project owner or its contractor shall obtain necessary transportation permits from Caltrans and all relevant jurisdictions for roadway use.

Verification: In the Monthly Compliance Reports (MCRs), the project owner shall submit copies of any permits received during that reporting period. In addition, 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-2 The project owner or its contractor shall comply with Caltrans and other relevant jurisdictions limitations for encroachment into public rights-of-way and shall obtain necessary encroachment permits from Caltrans and all relevant jurisdictions.

Verification: In the MCRs, the project owner shall submit copies of permits received during the reporting period. In addition, 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-3 The project owner shall ensure that permits and/or licenses are secured from the California Highway Patrol and Caltrans for the transport of hazardous materials.

Verification: The project owner shall include in its Monthly Compliance Reports, copies of all permits/licenses acquired by the project owner and/or subcontractors concerning the transport of hazardous substances.

TRANS-4 During construction of the power plant and all related facilities, the project shall develop a parking and staging plan for all phases of project construction to enforce a policy that all project-related parking occurs on-site or in designated off-site parking areas.

Verification: At least 60 days prior to start of site mobilization, the project owner shall submit the plan to the (City and/or County) for review and comment, and to the CPM for review and approval.

TRANS-5 The project owner shall consult with Imperial County, and prepare and submit to the CPM for approval a Construction Traffic Control Plan and Implementation Program which addresses the following issues:

- Timing of heavy equipment and building materials deliveries;
- Redirecting construction traffic with a flag person;
- Signing, lighting, and traffic control device placement, if required;
- Need for construction work hours and arrival/departure times outside of peak traffic periods;
- Insure access for emergency vehicles to the project site;
- Temporary travel lane closure; and
- Access to adjacent residential and commercial property during the construction of all linear facilities.

Verification: At least 30 days prior to site mobilization, the project owner shall provide to the CPM a copy of the referenced documents.

TRANS-6 The project owner shall repair affected public rights-of-way (e.g., highway, road, bicycle path, pedestrian path, etc.) to original or near original condition that have been damaged due to construction activities conducted for the project and its associated facilities.

Prior to start of site mobilization, the project owner shall notify the affected local jurisdiction(s) and Caltrans (if applicable) about their schedule for project construction. The purpose of this notification is to request the local jurisdiction(s) and Caltrans to consider postponement of public right-of-way repair or improvement activities until after project construction has taken place and to coordinate construction related activities associated with the applicable identified local jurisdiction or Caltrans project(s) with the project owner.

Verification: Prior to the start of site mobilization, the project owner shall photograph, or videotape the public right-of-way segment(s) to be used during construction. The project owner shall provide the CPM, the affected local jurisdiction(s), and Caltrans (if applicable) with a copy of these images.

Within 60 calendar days after completion of construction, the project owner shall meet with the CPM, the affected local jurisdiction(s) and Caltrans (if applicable) to identify sections of public right-of-way to be repaired, to establish a schedule to complete the repairs and to receive approval for the action(s). Following completion of any public right-of-way repairs, the project owner shall provide to the CPM a letter signed by the affected local jurisdiction(s) and Caltrans stating their satisfaction with the repairs.

TRANS-7 The project owner shall provide appropriate evidence of compliance with the airport land use commission's regulations and conditions (e.g., Airport Land Use Compatibility Plan, etc.) for the project and any associated facilities located within an airport planning boundary of a public use airport or military air facility.

Verification: The project owner shall submit to the ALUC information as required demonstrating compliance with the ALUC's recommended condition.

At least 30 calendar days prior to start of commercial operation, the project owner shall provide a copy of the ALUC's signed written determination prepared for the project to the CPM for review and approval.

LAWS, ORDINANCES, REGULATIONS & STANDARDS

TRAFFIC & TRANSPORTATION

APPLICABLE LAW	DESCRIPTION
FEDERAL	
49 CFR §171-177	Governs the transportation of hazardous materials, including the marking of the transportation vehicles.
14 CFR §77.13(2)(i)	Requires applicant to notify FAA of any construction greater than an imaginary surface as defined by the FAA.
14 CFR 77.17	Requires applicant to submit Form 7460-1 to the FAA.
14 CFR §§77.21, 77.23 & 77.25	Regulations which outline the obstruction standards which the FAA uses to determine whether an air navigation conflict exists.
STATE	
California State Planning Law, Government Code §65302	Requires each city and county to adopt a General Plan consisting of seven mandatory elements to guide its physical development, including a circulation element.
CA Vehicle Code §35780	Requires approval for a permit to transport oversized or excessive load over state highways.
CA Vehicle Code §31303	Requires transporters of hazardous materials to use the shortest route possible.
CA Vehicle Code §32105	Transporters of inhalation hazardous materials or explosive materials must obtain a Hazardous Materials Transportation License.
California Department of Transportation Traffic Manual, Section 5-1.1	Requires Traffic Control Plans to ensure continuity of traffic during roadway construction.
LOCAL	
Imperial County, General Plan, Circulation and Scenic Highway Element	Establishes goals and policies for transportation improvements and usage.
Imperial County Airport Land Use Commission	Establishes goals and policies for land developments that affect airspace.
Imperial County Zoning Ordinances	Establishes goals and policies for transportation improvements and usage.

VISUAL RESOURCES

VISUAL RESOURCES—GENERAL

Visual resources analysis has an inherent subjective aspect. However, the use of generally accepted criteria for determining impact significance and a clearly described analytical approach aid in developing an analysis that can be readily understood.

The CEQA Guidelines defines a "significant effect" on the environment to mean a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including...objects of historic or aesthetic significance (Cal. Code Regs., tit.14, § 15382).

Appendix G of the CEQA Guidelines, under Aesthetics, lists the following four questions to be addressed regarding whether the potential impacts of a project are significant:

1. Would the project have a substantial adverse effect on a scenic vista?
2. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?
3. Would the project substantially degrade the existing visual character or quality of the site and its surroundings?
4. Would the project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

OBJECTIONABLE APPEARANCE

Construction: Construction of the proposed power plant and linear facilities would cause temporary adverse visual impacts due to the presence of equipment, materials, and workforce. Construction would involve the use of cranes, heavy construction equipment, temporary storage and office facilities, and temporary laydown/staging areas. Construction would include site clearing and grading, trenching, construction of the actual facilities, and site and rights-of-way cleanup and restoration. The proposed project construction would occur over a 26-month period. Construction would occur during a single-shift, 10 hour day, five days a week. Due to the relatively short-term nature of project construction, the adverse visual impacts that would occur during construction would not be significant. However, this conclusion assumes that complete restoration of construction areas and rights-of-way is accomplished. Condition of Certification **VIS-1** would ensure that the visual impacts associated with project construction remain less than significant. (FSA Visual Res., p. 4.12-14.)

SWITCHYARD CONSTRUCTION IMPACTS

Construction of the switchyard would cause minor adverse visual impacts due to the presence of equipment, materials and workforce. Construction would include site clearing and grading, trenching, construction of the actual facilities and rights-of way cleanup. The switchyard construction would occur over a three month period. Due to the relatively short-term nature of the construction of this linear, the adverse visual impacts that would occur due to construction would not be significant. Condition of Certification **VIS-1** would ensure that the

visual impacts associated with the switchyard construction remain less than significant. (FSA Visual Resources, pp. 4.12-21.)

MITIGATION:

- ☑ The Project Owner shall screen the pipeline construction areas, including material equipment storage areas, from residential viewers. Condition: **VIS-1.**

Operation: As noted earlier, the most visible features of the proposed project would include the 99-foot tall steam turbine generator and crane, eight 55-foot tall crystallizers, two 58-foot tall cooling tower arrays approximately 700 feet long, two 45-foot tall dilution water heaters, and four 45-foot tall emergency relief tanks.

KOP 1—Entrance to national wildlife refuge

The proposed project as viewed from KOP 1 is approximately 600 feet west of the entrance to the Refuge Headquarters and is what viewers at the entrance to the Refuge headquarters would see. An evaluation of the potential view of the project when visitors approach and enter the refuge is presented. Due to the presence of trees, the project would only be visible for a very short period of time.

The rural agricultural landscape visible from KOP 1 is dominated by the flat, horizontal form of the valley floor, the existing geothermal unit in the middleground (one-half mile from the viewpoint), and the mountain range in the background. The proposed project would introduce the prominent geometric forms and vertical and horizontal lines of the various structures and stacks. These structural characteristics would be consistent with the forms and lines related to the existing geothermal plants. The proposed tan color of the project structures would blend in with color of existing geothermal plants but would contrast with green color of the agricultural fields in the local area.

From KOP 1 the vertical structures and stacks and horizontal structures (lower quality landscape features) would disrupt the view of portions of the mountain range in the background (higher quality landscape features). However, this noticeable view disruption would be of short duration as a vehicle's position relative to the project site changes. Also, most of the mountain range would be visible and the berm and trees along the north side of the irrigation canal would block much of the view quickly for viewers entering the Refuge Headquarters.

The moderate visual change that would be perceived from KOP 1 would cause an adverse but less than significant visual impact. (FSA Visual Resources, pp. 4.12-14, -15.)

KOP 2 –Red Island Recreation Area

The proposed project as viewed from KOP 2 is from the Red Island Recreation Area, about two miles north of the project site. The presence of Rock Hill between KOP-2 and the site would partially screen the new geothermal unit. The proposed project would introduce another geothermal unit with geometric forms and vertical and horizontal lines into the view to the south from KOP-2. These structural characteristics would be consistent with the existing forms and lines established by the adjacent geothermal unit. The project structures would contrast with the forms and lines of the Salton Sea and the Cargo Muchacho Mountain

Range which are flat and horizontal. Because of the distance to the project site from this KOP, the tan color of the structures would blend in with surrounding land features.

The landscape visible from KOP 2 is dominated by the Recreational Area in the foreground and the Salton Sea in the middle and background. In addition, the mountain ranges in the background are a noticeable feature of the landscape from this KOP. The proposed power plant facilities would not be spatially prominent because of the low profile on the horizon and the mountains in the background. Also, the scale of these introduced forms and structural masses would be substantially the same as other developed features in the immediate project vicinity. The project would appear subordinate to the overall landscape.

From KOP 2 the proposed project structures (lower quality landscape features) would not disrupt the view of the Salton Sea or the mountain range in the background because the project is two miles away and would appear low on the horizon.

When considered within the context of the overall existing landscape, the visual change that would be perceived from KOP 2 would cause an adverse but less than significant visual impact. (FSA Visual Resources, pp. 4.12-15, -16.)

KOP 3 – Utility Building on Lack Road

KOP 3 is from a utility building on the west side of Lack Road, approximately three miles from the project site. This KOP also represents the view for motorists traveling northbound on Lack Road, and residences about three to four miles farther south on Lack Road. The most obvious change to the landscape would be the introduction of a new transmission line and supporting steel poles along Lack Road for approximately six miles. The rural agricultural landscape visible from KOP 3 is dominated by the flat, horizontal form of the valley floor, including Lack Road, agricultural fields, and the vertical form of roadside utility poles.

The project would introduce the horizontal form of the transmission lines and several prominent vertical electric transmission steel poles. These structural characteristics would be somewhat consistent with the existing forms and lines established by the adjacent utility line, although inconsistent with the generally horizontal agricultural land. The resulting structural mass would be noticeably greater than that of the existing wood pole utility line along the west side of Lack Road. The gray color of the steel poles would contrast highly with the tan and brown color of the Chocolate Mountains, and moderately with the blue sky.

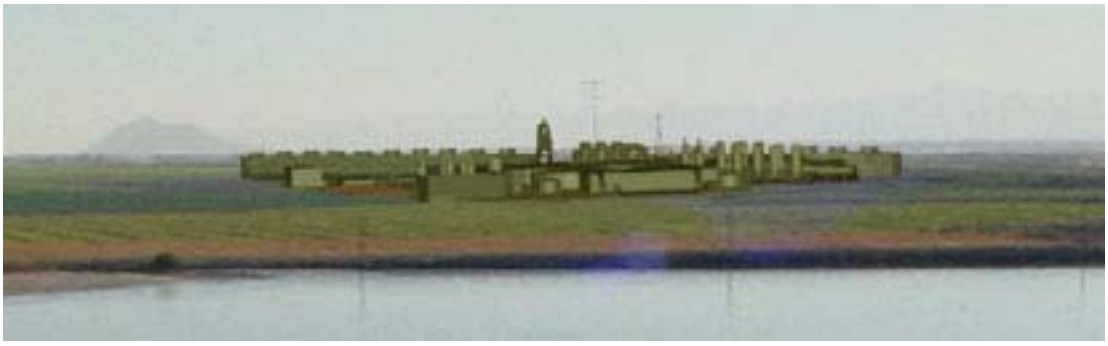
The project transmission line and steel poles would be spatially prominent for viewers traveling on Lack Road and the occupants of the residences along Lack Road. The scale of the new steel poles relative to existing utility lines would range from low for distant steel poles to moderate for steel poles closer to the viewer. The sky and mountain range backdrop to the nearest steel poles and line would contribute to their structural prominence. If steel poles were located near the residences, they would dominate the existing landscape features.

From KOP 3 the proposed transmission line and steel poles closest to Lack Road would disrupt a small portion of the view of the sky and valley floor near the horizon line. The steel poles, particularly the ones close to the residences on Lack Road, would disrupt the viewshed and divide the sky.

When considered within the context of the existing landscape, the visual change that would be perceived from KOP 3 would cause an adverse but just less than significant visual impact. (FSA Visual Resources, pp. 4.12-16, -17.)

KOP 4–View from Rock Hill

KOP 4 is on top of Rock Hill. The simulation is looking south toward the project site about one mile away. The most obvious change to the landscape would be the introduction of a new and larger geothermal unit in a predominately rural agricultural area, with other geothermal units, adjacent to the Salton Sea. The simulation shows plumes from the existing projects on a dry day when the temperature was approximately 85ºF, and the plume for the SSU6 would occur when the temperature was about 60ºF. The SSU6 plume would be somewhat smaller on a day when the temperature is 85ºF.



The rural landscape from KOP 4 is dominated by the Salton Sea in the fore and middleground, the large expanse of open space agricultural land in the middle and background, and the Cargo Muchacho Mountain range and Signal Mountain in the background. The proposed project would be spatially prominent, in the center of the view for viewers looking at Signal Mountain and the mountain range to the south. The mountain range and agricultural backdrop to the project would reduce the structural prominence of the proposed facilities. The scale of the project would appear co-dominate with the existing landscape features.

From KOP 4, the full length and form of the new geothermal unit structures (lower quality landscape features) would be visible. The proposed project would block a substantial portion of the view of agricultural fields and the horizontal landscape to the south from KOP 4. Vertical structural elements would break up the view of the Cargo Muchacho Mountains to a small extent. Any additional viewer disruption of the surrounding mountains would be perceived as an adverse visual change (USFWS 2003).

When considered within the context of the overall moderate to high visual sensitivity, and the moderate overall visual change, the project would, without mitigation, cause an adverse and significant impact from KOP 4.

Staff has proposed Condition of Certification **VIS-2** requiring vegetative screening, to mitigate this impact to a less than significant level. (See Figure below; FSA Visual Resources, pp. 4.12-17, -18.)

KOP 5 Transmission Line Crossing of SR-86

KOP 5 shows a visual simulation of the interconnection transmission line crossing SR-86 about 12 miles southwest of the project site. The site of the simulation is about 600 feet south of the highway crossing. The major change to the landscape would be the introduction of the new transmission lines and supporting steel poles. The poles would be substantially larger than the existing utility poles that run along side SR-86.

The proposed project would introduce the prominent vertical forms of transmission line poles and the horizontal oriented transmission lines. This would contrast with horizontal forms and line of the desert landscape in the fore and midground, and the Santa Rosa Mountains in the background. The silver/gray color of the new poles would contrast highly with the brown utility poles, tan desert floor, dark mountains, and contrast moderately with the blue sky.

The rural landscape visible from KOP 5 is dominated by SR-86 and the flat desert landscape in the fore and middleground, with the Santa Rosa Mountain range in the background. An existing utility line and poles runs along the north side of SR-86. The project transmission line and poles would cross over the highway and would be spatially prominent within motorists' primary view direction. The sky backdrop to the transmission poles and line would contribute to their structural prominence. The transmission poles would be spatially dominant within motorists primary view direction. The scale of the new poles and line would briefly appear dominant in the view for viewers traveling on SR-86.

From KOP 5, the transmission line and steel poles would disrupt a small portion of the view of the landscape and sky. Motorists traveling in either direction would notice the transmission poles a mile or two before arriving at KOP 5. The poles would appear larger as motorists approached the area where the line crosses SR-86. The poles would disrupt a small portion of the view of the landscape for a short period of time until motorists passed underneath the transmission line.

When considered within the context of the existing landscape and viewing characteristics, the visual change would cause an adverse but just less than significant visual impact. (FSA Visual Resources, pp. 4.12-18, -19.)

KOP 6 - Transmission Line Crossing of Sr-111

KOP 6 presents a visual simulation of the interconnection transmission line crossing SR-111 about six miles east of the project site. The viewpoint depicted in the simulation is about 600 feet south of the highway crossing. The major change to the landscape would be the introduction of the new transmission lines and vertical supporting steel poles. The poles would be substantially larger than the existing utility poles that run along the eastside of SR-111. The silver/gray color of the new poles would contrast highly with the brown utility poles, and tan desert floor, and contrast moderately with the blue sky.

The rural landscape visible from KOP 6 is dominated by SR-111 and the flat desert landscape in the fore and midground, with the Chocolate Mountain range in the background. The project transmission line and poles would cross over the highway and would be spatially prominent within motorist's primary view direction. The sky backdrop to the transmission poles and lines would contribute to their prominence. The scale of the new poles and lines would briefly appear dominant relative to desert landscape, Santa Rosa Mountains and the total view.

From KOP 6, the transmission lines and poles would block a small portion of the view of the landscape and sky. Motorists traveling in either direction would notice the transmission poles. The poles would disrupt the view of a small portion of the landscape for a short period of time until motorists passed underneath the transmission lines. The poles would cause a small degree of disruption of the scenic vista of desert landscape and Santa Rosa Mountains as motorists approached the transmission line crossing.

When considered within the context of the existing landscape and viewing characteristics, the visual change would cause an adverse but less than significant visual impact. (FSA Visual Resources, pp. 4.12-19, -20.)

Linear Facilities

The proposed project involves associated facilities such as the interconnection transmission lines, injection and production wells, and associated pipelines. This analysis will discuss the potential visual impacts related to these facilities.

Interconnection Transmission Lines

The project would have two interconnection transmission lines; one single-circuit line will proceed southwest for 16 miles, cross SR-86 and connect with the IID's L-Line transmission line south of Bannister Road. The second single-circuit transmission line would head south and east of the project for 15 miles, cross SR-111 and connect to the existing IID Midway 230 kV substation. CE Obsidian Energy LLC intends to build the new transmission lines parallel to existing linear facilities to the extent possible. The potential impacts of these two transmission line crossings are presented in discussions on KOP 5 and KOP 6 above.

Switchyard

The switchyard site is in a flat, sandy, desert-like area with berms and shrub vegetation next to the highway. In the background to the east is the Chocolate Mountains, and to the west are the Santa Rosa Mountains. The visual quality is low to moderate. Motorists on SR-86 anticipate a foreground to middleground rural agricultural landscape view with mountains in the background. There are exiting utility lines running parallel to the highway. A new switchyard, 300 feet off the highway could be viewed as a mildly adverse visual change. The equipment would take up a space 100' by 300' with most structures being less than 30 feet. The communication dish would be approximately 80 feet high.

The visibility of the switchyard is moderate, the number of travelers is high (ADT 8,100), but the switchyard equipment is relatively narrow and unobtrusive. The duration of the view is low to moderate because vehicles traveling at approximately 60 mph would see the switchyard for a brief period of time. For motorists on SR-86, the visual quality, and brief viewer exposure result in an adverse but insignificant impact.

Switchyard Operation Impacts: The proposed switchyard would introduce vertical and horizontal lines exhibited by the switching stations and related equipment and buildings. This would contrast with the horizontal forms and line of the desert landscape in the fore and middleground, and the Chocolate Mountains in the background. It would blend in somewhat with the existing utility lines. The color of the switchyard is white and black which contrast with the tan, green and blue colors of the desert, vegetation and sky, respectively.

The rural landscape around the switchyard site is dominated by SR-86 and the flat desert landscape in the fore and middleground, with the Chocolate Mountains to the east, and the Santa Rosa Mountains to the west. An existing utility line runs along the north side of SR-86. The switchyard would be spatially prominent as motorists approached the site. The sky backdrop to the linear would contribute to its structural prominence. The switchyard would be spatially co-dominant within motorists primary view direction. The scale of the new facility would briefly appear co-dominant.

The switchyard would disrupt a small portion of the view of the landscape and sky. Motorists traveling in either direction would notice the facility as they approach the site. The switchyard would disrupt a small portion of the view of the landscape for a short period of time until motorists passed by the facility.

When considered within the context of the low to moderate sensitivity of the existing landscape and viewing characteristics, the low to moderate visual change would cause an adverse but less than significant impact. (FSA Visual Resources, pp. 4.12-21, -22.)

Production/Injection Wells and Associated Pipelines

The proposed project involves production and injection wells that capture the geothermal effluent for extracting steam and minerals, and for returning the brine solution to the subsurface where it migrates back to the production area. There would be 10 production wells on five well pads that would be within approximately 1,000 feet of the power plant. One of the injection well pads is proposed to be located on Obsidian Butte. The fluid would flow through above ground pipes, three feet above ground, to the power plant.

Six injection wells on three well pads would be located within two miles of the power plant. The brine effluent would be transported from the plant to the injection wells via three-mile long, 24-or 30-inch diameter above ground pipes about three feet above grade. The production and injection wells are approximately 15 feet high.

The wells and pipelines would be visible to motorists and agricultural workers in the local area, particularly if they are encased in shiny aluminum jackets or are painted with reflective paint. The production wells are located in a relatively remote corner of the agricultural area. Obsidian Butte is owned by IID and is used as a gravel source. The wells may partially disrupt part of the panoramic view. Given the size of the wells and pipelines, and the relatively low number of residents and motorists, the visual change would be low to

moderate. Therefore, the visual impact would be adverse but less than significant. (FSA Visual Resources, pp. 4.12-22.)

Mitigation

Staff determined that with the Applicant's proposed mitigation measures and Staff's proposed conditions of certification, the proposed project would not cause adverse and significant visual impacts. Staff also believes that with full, effective, and timely implementation of all of Conditions of Certification, the project would conform with all applicable laws, ordinances, regulations, and standards. (FSA Visual Resources, pp. 4.12-35.)

MITIGATION

- ☑ The Project Owner shall treat project structures in colors to minimize visual intrusion and contrast. Condition: **VIS-2.**
- ☑ The Project Owner shall provide landscaping that is effective in partially screening the project structures. Condition: **VIS-3.**

LIGHTING

The proposed project would be located in a rural agricultural area, which has relatively minimal existing night lighting except for clusters of lights at the existing geothermal power plants. The proposed project would require nighttime lighting for operational safety and security though the project would not be required to have FAA beacons. Lighting would be directed on site to avoid back-scatter, and shielded from public view to the extent practicable. High illumination areas not occupied on a regular basis would be provided with switches or motion detectors to light these areas only when occupied.

Glare from night lighting is currently generated by existing geothermal units and the incremental increase from the new power plant is not expected to significantly increase night lighting, back-scatter light, or glare. However, the applicant states that during construction, slightly higher amounts of back-scatter lighting may be apparent to a nearby observer (CEOE 2002a, pg. 5.12-12). Condition of certification **VIS-4** would reduce offsite light trespass to a minimum. (FSA Visual Res., pp. 4.12-23)

MITIGATION

- ☑ The project owner shall design and install all permanent lighting such that light bulbs and reflectors are not visible from public viewing areas, lighting does not cause reflected glare, and illumination of the project, the vicinity, and the nighttime sky is minimized. Condition: **VIS-4.**

CUMULATIVE IMPACTS

Cumulative impacts to visual resources could occur where project facilities or activities (such as construction) occupy the same field of view as other built facilities or impacted landscapes. It is also possible that a cumulative impact could occur if a viewer's perception is that the general visual quality of an area is diminished by the proliferation of visible structures (or construction effects such as disturbed vegetation), even if the new structures are not within the same field of view as the existing structures. The significance of the cumulative impact would depend on the degree to which (1) the viewshed is altered; (2) visual access to scenic resources is impaired; (3) visual quality is diminished; or (4) the project's visual contrast is

increased. Staff has not identified any other planned project in the viewshed that may contribute to cumulative impacts.

As discussed above, there are nine geothermal units within a two-mile radius. The project area has been altered over time by the incremental introduction of visually degrading elements until the quality and sensitivity of the views has been substantially diminished.

The County of Imperial designation for the project site and surrounding area is agricultural with a geothermal overlay (A-G-3). The SSU6 would add to the number of visible structures (power plant, transmission lines and poles) in the viewshed from KOPs 1, 3, and 4. The proposed project would be located prominently, along with other existing geothermal projects, in the view to the south from KOP 4 (Rock Hill). The proposed geothermal unit would appear larger than the existing units. The addition of the proposed project to area views would further degrade visual quality. From KOP 4, the overall visual impact of the proposed project combined with existing geothermal projects would be cumulatively considerable, and thus significant. The proposed project would also add lighting to a nighttime landscape that is already significantly impacted by the lights of the existing geothermal units.

The impact of project structures will be reduced to less than significant with appropriate painting (Condition of Certification **VIS-2**). The impact from project plumes was found to be less than significant. With implementation of the Applicant's proposed lighting mitigation, consistent with Condition of Certification **VIS-4**, the project's contribution to the significant cumulative lighting impact would be less than significant.

With implementation of the above mitigation measures, the proposed project would still result in a cumulatively considerable visual impact due to its appearance and location in the landscape as viewed from KOP 4. However, with implementation of staff's proposed tree planting on the north side of the project (Condition of Certification **VIS-3)**, the project's contribution to the cumulative impact would be reduced to a less than cumulatively considerable (less than significant impact) level. (FSA Visual Res., p. 4.12-27, -28.)

VISIBLE PLUMES

The Commission conducted an independent modeling analysis of project water vapor plumes associated with the proposed cooling tower and dilution water heater stacks.

Cooling Towers

A plume frequency threshold of 10 percent of seasonal (November through April) daylight no rain/fog high visual contrast (i.e. "clear") hours analysis is used to determine potential plume impact significance.

For this project the meteorological data set used in the analysis categorizes total sky cover and opaque sky cover in six categories. Staff has included in the "clear" category a) all hours with total sky cover categorized as clear b) half of the hours with sky cover categorized as scattered or broken. Hours with total sky cover categorized as overcast, partially obscured or obscured were not considered "clear" hours.

The rationale for including these three sky cover categories is as follows: a) plumes typically contrast most with sky under clear conditions and, when total sky cover is equal to or less than 10 percent, clouds either do not exist or they make up such a small proportion of the sky

that conditions appear to be virtually clear; and b) for a substantial portion of the time when total sky cover is 20-100 percent and the opacity of sky cover is relatively low (equal to or less than 50 percent), clouds do not substantially reduce contrast with plumes; staff has estimated that approximately half of the hours meeting the latter sky cover and sky opacity criteria can be considered high visual contrast hours and are included in the “clear” sky definition.

The modeling results predicted a plume frequencies of less than 10 percent of seasonal daylight “clear” hours. Therefore, no visual impacts are expected from the cooling tower plumes. (FSA Visible Plumes, p. 4.11-23, -24.)

Dilution Water Heater

The Combustion Stack Visible Plume (CSVP) model was used to estimate the worst-case potential plume frequency, and provide data on predicted plume length, width, and height for the dilution water heater exhausts. These results of this modeling effort confirm that visible plume formation occurs under all meteorological conditions. The largest plumes would form at night or early morning and during the cold weather months.

A visual simulation of the proposed project is presented with a 10th percentile dilution water heater plume as it would appear to viewers from Rock Hill.

Because the dilution water heater plumes exceed the 10 percent frequency threshold for conducting an impact assessment, staff evaluated the impact of the 10th percentile plume on viewers from KOP 4, the top of Rock Hill.

As discussed earlier, the overall sensitivity for viewers at KOP 4 is moderate to high. The dimensions of the dilution water heater plumes at the 10th percentile for seasonal daytime clear hours are 439 feet long, 275 feet high, and 72 feet wide. Dilution water heater plumes would be similar in size to the dilution water heater plumes from existing projects more than half of the daylight hours. Due to a typical low horizon haze, plumes viewed from the elevated position at the top of Rock Hill would have moderate to high contrast with the Cargo Muchacho Mountains and the sky. Because of the unobstructed panoramic views from Rock Hill to the south, view disruption caused by the dilution water heater plumes from KOP 4 would be low to moderate. The dilution water heater plumes would appear co-dominant in the view from KOP 4 more than 90 percent of the time. Therefore, considering the moderate to

high overall sensitivity, co-dominance of the plumes, moderate to high contrast and low to moderate view disruption, the visual impact of the dilution water heater plumes would be adverse but less than significant from KOP 4. (FSA Visible Plumes, p. 4.11-23, -26.)

FINDINGS

With the implementation of the Conditions of Certification, below, the project conforms to applicable laws related to visual resources and potential adverse visual resource impacts will be mitigated to a level of insignificance.

CONDITIONS OF CERTIFICATION

VIS-1 The project owner shall ensure that visual impacts of project construction are adequately mitigated. To accomplish this, the project owner shall require the following as a condition of contract with its contractors to construct the proposed project:

1. Laydown areas for linear facility construction shall be screened if they are visible from residences or adjacent roads within one-half mile. All evidence of construction activities, including ground disturbance due to staging and storage areas, shall be removed and remediated upon completion of construction to its pre-construction condition. Any vegetation removed in the course of construction will be replaced on a 1-to-1. Such replacement planting shall be monitored for a period of three years to ensure survival. During this period, all dead plant material shall be replaced.

2. The project owner shall submit a plan to the CPM for review and approval for screening laydown areas and restoring the surface conditions of any staging and storage areas and rights of way disturbed during construction of underground pipelines,. The plan shall include returning laydown and linear facility work areas to the original grade, contouring and revegetation.

3. The project owner shall not implement the restoration plan until receiving written approval from the CPM.

Verification: At least ninety (90) days prior to beginning implementation of surface restoration of construction impacts, including construction of linear facilities, the project owner shall submit the restoration plan to the CPM for review and approval.

If the CPM notifies the project owner that any revisions of the restoration plan are needed before the CPM will approve the plan, within thirty (30) days of receiving that notification, the project owner shall submit to the CPM a revised plan.

The project owner shall notify the CPM within seven (7) days after completing the surface restoration that it is ready for inspection.

VIS-2 Prior to start of commercial operation, the project owner shall treat project structures, buildings, production and injection wells and related pipelines, and fences visible to the public such that: their colors minimize visual intrusion and contrast by blending with the landscape; and their surfaces do not create excessive glare. A specific treatment plan shall be developed for CPM approval to ensure that the proposed colors do not unduly contrast with the surrounding landscape colors. The plan shall be submitted sufficiently early to ensure that

any pre-colored buildings, structures, and linear facilities will have colors approved and included in bid specifications for such buildings or structures. Prior to submittal of the plan to the CPM, the project owner shall submit the plan to Imperial County for review and comment. The submittal to the CPM should include the County's comments. The treatment plan shall include:

1. specifications, and 11" x 17" color simulations, of the treatment proposed for use on project structures, including structures treated during manufacture;
2. a list of each major project structure, building, tank, and fence specifying the color(s) proposed for each item;
3. samples of each proposed treatment and color on the materials to which they are to be applied for major structures;
4. documentation that a non-reflective finish will be used on all project elements visible to the public;
5. a detailed schedule for completion of the treatment; and
6. a procedure to ensure proper treatment maintenance for the life of the project.

After approval of the plan by the CPM, the project owner shall implement the plan according to the schedule and shall ensure that the treatment is properly maintained for the life of the project. The project owner shall install tubular steel transmission line structures in transmission corridors whenever possible, and away from residences to the extent possible. The steel poles should be coated with a neutral gray finish. The project owner shall install non-specular conductors.

For any structures that are treated during manufacture, the project owner shall not specify the treatment of such structures to the vendors until the project owner receives notification of approval of the treatment plan by the CPM.

The project owner shall not perform the final treatment on any structures until the project owner receives notification of approval of the treatment plan from the CPM.

Verification: At least ninety (90) days prior to ordering the first structures that are color treated during manufacture, the project owner shall submit its proposed plan to the CPM for review and approval and to Imperial County for review and comment.

If the CPM notifies the project owner that any revisions of the plan are needed before the CPM will approve the plan, within thirty (30) days of receiving that notification, the project owner shall submit to the CPM a revised plan.

Not less than thirty (30) days prior to the start of commercial operation, the project owner shall notify the CPM that all structures treated during manufacture and all structures treated in the field are ready for inspection.

The project owner shall provide a status report regarding treatment maintenance in the Annual Compliance Report.

VIS-3 To partially screen views of the power plant from visitors to Rock Hill, native trees (e.g., palo verde, ironwood and mesquite) shall be strategically planted in sufficient density to partially screen project structures. The project owner shall work with Imperial County to widen

the McKendry Road berm for the length of the project site and to plant the specified trees along the south side of the widened section on the top of the berm. If this approach is proven not to be practicable, the project owner shall provide a written explanation to the CPM along with a plan for tree planting along the north boundary within the project site.

The project owner shall submit a tree planting plan to Imperial County, the Salton Sea Refuge manager, and USFWS for review and comment and to the CPM for review and approval. The submittal to the CPM shall include the County's comments. The Plan shall include:

1. a detailed diagram showing the location and type of each tree to be planted;
2. a description of the size and age of each tree type at time of planting;
3. a description of how the trees will be watered and for how long to ensure they survive; and
4. a description of how and when dead trees will be replaced for the life of the project.
5. The project owner shall not implement the plan until the project owner receives approval of the submittal from the CPM. However, the planting must be completed by start of project operation.

Verification: Prior to start of commercial operation and at least ninety (90) days prior to tree planting, the project owner shall submit the tree planting plan to Imperial County, the Refuge manager, and USFWS for review and comment, and to the CPM for review and approval.

If the CPM notifies the project owner that revisions of the submittal are needed before the CPM will approve the submittal, within thirty (30) days of receiving that notification, the project owner shall prepare and submit to the CPM a revised submittal.

The project owner shall notify the CPM within seven (7) days after completing tree planting, that the trees are ready for inspection.

VIS-4 Prior to start of commercial operation, the project owner shall design and install all lighting such that light bulbs and reflectors are not visible from public viewing areas and illumination of the vicinity and the nighttime sky is minimized during both project construction and operation. The project owner shall develop and submit a lighting plan for the project to the CPM for review and approval. The lighting plan shall include:

1. lighting shall be designed so that during both construction and operation, highly directional, exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated and so that backscatter to the nighttime sky is minimized. The design of this outdoor lighting shall be such that the luminescence or light source is shielded to prevent light trespass outside the project boundary, consistent with operational safety and security;
2. high illumination areas not occupied on a continuous basis such as maintenance platforms shall be provided with switches or motion detectors to light the area only when occupied; and
3. a lighting complaint resolution form shall be used by plant operators, to record all lighting complaints received and to document the resolution of those complaints. All records of lighting complaints shall be kept in the on-site compliance file.

Verification: At least 90 days prior to ordering any permanent exterior lighting, the project owner shall contact the CPM to discuss the documentation required in the lighting mitigation plan.

At least 60 days prior to ordering any permanent exterior lighting, the project owner shall submit to the CPM for review and approval and to the Imperial County for review and comment a plan that describes the measures to be used and that demonstrates that the requirements of this condition will be satisfied. The submittal to the CPM shall include the County's comments. The project owner shall not order any exterior lighting until receipt of CPM approval of the lighting mitigation plan.

At least thirty (30) days prior to start of commercial operation, the project owner shall notify the CPM that the lighting has been completed and is ready for inspection.

The project owner shall document any complaints about permanent lighting using the lighting complaint resolution form and provide a copy along with a discussion of resolution measures taken in the Annual Compliance Report for that year.

LAWS, ORDINANCES, REGULATIONS & STANDARDS

VISUAL RESOURCES

APPLICABLE LAW	DESCRIPTION
FEDERAL	
NA	There are no applicable Federal LORS for the section of visual.
STATE	
California Environmental Quality Act (CEQA)	Protects resources of aesthetic significance.
LOCAL	
Imperial County General Plan	Establishes goals pertaining to the appearance and enhancement of visual quality.

WASTE MANAGEMENT

CONSTRUCTION WASTE MANAGEMENT—GENERAL

Different types of wastes will 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. These wastes are designated as hazardous or non-hazardous according to the toxic nature of their respective constituents. This analysis assesses the adequacy of the waste management plan with respect to handling, storage and disposal of these wastes in the amounts estimated for the project.

EXCAVATION

A Phase I Environmental Site Assessment (ESA) conducted according to American Society for Testing and Materials (ASTM) standards was completed and submitted as part of the AFC. Historical aerial photography shows the project site had been used for agriculture since 1953. The Phase I ESA performed for the power plant identified potential areas of concern, including various concrete slabs, existing geothermal wells, and potential pesticide and herbicide contamination, and recommended that an additional evaluation may need to be performed. CE Obsidian Energy LLC has noted that given the proposed industrial development on the site, neither a Phase II ESA nor remediation would be required (CEOE 2002a, p. 5.13-2). The Applicant's consultant reviewed over twenty national and state databases through the Vista Site Assessment Plus Report for the evaluation of the proposed project site. The proposed project site is not listed in the Vista Site Assessment Plus Report (CEOE 2002a, Appendix O).

California Unions for Reliable Energy (CURE 2003) asserted that in the past, levies in the area had been constructed in part with filter cake (residual solids that have been removed from the geothermal brine fluid). Staff spoke with Michele Ochs of the Colorado River Basin Regional Water Quality Control Board, who verified that past owners of geothermal projects in the Salton Sea area may have used filter cake encased in cement blocks for such construction, but indicated that there is very little documentation of the levies and no maps that indicate exactly where these particular levies are located, although she is sure that SSU6 is located at least a mile away from any levies that are suspected of containing filter cake encased in cement (Ochs 2003).

MITIGATION:

☑ The Project Owner shall retain the services of a registered engineer or geologist to be available for consultation during soil excavation and grading activities in the event of contaminated soils are encountered. Condition: **WASTE-1.**

☑ If contaminated soils are encountered, the registered engineer or geologist shall inspect the site, determine the need for sampling to identify the nature and extent of the contamination, and recommend a remediation plan in a report to the project owner and CPM. Contaminated soils will be tested and, if appropriate, treated or disposed at the appropriate landfill. Condition: **WASTE-2.**

☑ The Project Owner shall obtain a hazardous waste generator identification number from the Department of Toxic Substances Control prior to generating any hazardous waste and

report any impending waste management related enforcement actions to the CPM. Conditions: **WASTE-3** and **WASTE-4.**

CONSTRUCTION WASTES

Preparation and construction of the power plant will generate both hazardous and non-hazardous wastes. The non-hazardous component of the construction-related wastes will include waste paper, wood, glass, scrap metal, and plastics, from packing materials, waste lumber, excess concrete, insulation materials, and non-hazardous chemical containers. Management of these wastes will be the responsibility of the contractors. These wastes will be segregated, where practical, for recycling. Those that cannot be recycled will be placed in covered containers and removed on a regular basis by a certified waste handling contractor for disposal at a Class II or III facility.

The relatively small quantities of hazardous materials to be generated during this construction phase will mainly consist of used oil, waste paint, spent solvents, materials, used or batteries, and cleaning chemicals. These wastes will be recycled or disposed of at licensed hazardous waste treatment or disposal facilities. The construction contractor will be considered the generator of the hazardous waste produced during construction and will be responsible for compliance with applicable federal and state regulations regarding licensing, personnel training, accumulation limits, reporting requirements, and record keeping. The Applicant has committed to preparing and submitting a construction waste management plan to assure the appropriate handling of wastes. (AFC Section 5.13-4, p. 5.13-12; FSA Waste Mgt., p. 4.13-9.)

MITIGATION:

☑ The Project Owner shall prepare a construction waste management plan to assure the appropriate handling of wastes. Condition: **WASTE-5**.

NON-HAZARDOUS WASTES

Under normal operating conditions, the typical, solid non-hazardous wastes will include routine maintenance-related trash, office wastes, empty containers, broken or used parts, and used packaging materials and air filters. Some of the wastes will be recycled to minimize the quantity to be disposed of in a landfill. The non-recyclables will be disposed of at a non-hazardous waste disposal facility.

The proposed project would generate 120 tons per day of filter-cake wastes. The brine filter-cakes are composed of solids extracted from the geothermal brine fluid. Also, 2.5 tons per day of solid waste, the majority of which would be elemental sulfur, would come from the H_2S abatement system. Both the filter-cake and the H_2S abatement waste would be tested for hazardous substances and, if found to be hazardous, disposed of in a Class I landfill (CEOE 2002a, p. 5.13-6). For the proposed facility for example, such wastes are expected to be negligible compared to the capacity available Class III landfills. (AFC Table 5.13-3; FSA Waste Mgt., p. 4.13-6.)

Typical sanitary wastes will be discharged to a septic tank, which will be pumped out by a licensed contractor for disposal. The wastewater from the clarifier effluent and cooling water blowdown would be discharged to injection wells for disposal and replenishment of the

geothermal resource. Storm water from chemical storage, feed areas, reverse osmosis (RO) reject water, and oxygenated brine effluent in the clarifier would go the brine pond before being discharged to a dedicated injection well. The remaining liquid wastes are cooling tower wash-down and blow-down, chemical feed area drainage, and general plant drainage, which would be disposed by use of reinjection wells. (AFC p. 5.13-7; FSA Waste Mgt., p. 4-13-5.)

Hazardous Wastes

Hazardous wastes anticipated to be generated during routine project operation include waste lubricating oil, used oil filters, laboratory waste, oily rags and absorbents, and used acidic and alkaline chemical cleaning wastes (potentially containing high concentrations of heavy metals). A list the anticipated hazardous wastes along with their origin, composition, estimated quantity, hazard class, and disposal method was presented in the AFC. (AFC Table 5.13-3) Most of the wastes would be generated in relatively small quantities and would be recycled by certified recyclers. Acidic and alkaline cleaning wastes would be disposed of offsite.

The brine pond solids would constitute the largest percentage of waste at approximately 16,700 tons per year. (AFC p. 5.13-8) Brine pond solids and scale found in pipes, clarifiers, and separators during maintenance shutdowns would be disposed of as hazardous waste in a Class I landfill. The drilling waste and H_2S abatement waste would be tested and, if found hazardous, would be disposed of in a Class I landfill. (AFC p. 5.13-8-9; FSA Waste Mgt., p. 4.13-6-7.)

MITIGATION:

- ☑ The Project Owner shall report any potential enforcement action related to waste management. Condition: **WASTE-4**
- ☑ The Project Owner shall prepare an operational waste management plan. Condition: **WASTE-5**

DISPOSAL CAPACITY

The minimal amounts of non-hazardous waste generated from the proposed project, on the order of 25 - 40 cubic yards per week during construction, would be disposed of in a Class III waste disposal site. The applicant lists four landfills that can be used for disposal of the proposed project's solid waste. (AFC p. 5.13-15) The sites have permitted capacity from 5.1 tons per day to 22 tons per day. Thus, the total amount of non-hazardous waste generated from project construction and operation would use only a small fraction of the available Class III landfills' capacity. This potential impact is less than significant. The majority of non-hazardous waste from the proposed project would be disposed of in a Class II landfill.

The non-hazardous drilling wastes, sulfur byproducts, and filter-cake would be disposed of in the Class II Monofill Facility. In September 2003, a new cell would be permitted to begin operation. The cell is permitted to accept 510 tons per day of solid waste. The cell will operate until 2012; therefore there is no short-term capacity problem for disposal of the project-related wastes. The project is expected to operate beyond 2012; therefore, sulfur byproducts and filter cake would continue to be generated. The Monofill Facility has already permitted 160 acres of land for landfill use and will continue to add landfill capacity as needed. (AFC p. 5.13-7; FSA Waste Mgt., p. 4.13-6-7) If additional capacity is not

constructed at the Monofill Facility beyond 2012, the waste could be disposed of in a Class I landfill. (AFC, p. 5.13-7; FSA Waste Mgt., p. 4.13-7)

The AFC lists three Class I landfills in California that are permitted to accept hazardous waste: at Chemical Waste Management in King's County, Buttonwillow in Kern County, and Westmoreland in Imperial County. (AFC, Table 5.13-2; FSA Waste Mgt., p. 4.13-7) In total, there is an excess of 21.9 million cubic yards of remaining hazardous waste disposal capacity at these landfills, with remaining operating lifetimes up to the year 2078. The amount of hazardous waste transported to these landfills has decreased in recent years due to source reduction efforts by generators, and the transport of waste out of state that is hazardous under California law, but not federal law.

Empty hazardous material containers, used and waste lube oil, spent lead batteries, spent alkaline batteries and hydraulic fluids are some of the hazardous waste that would be recycled (AFC, Tables 5.13-1 and 5.13-3). The volume of hazardous waste from the project requiring off-site disposal would be a very small fraction (less than 0.01 percent) of the existing combined capacity of the three Class I landfills, and would not significantly impact the capacity or remaining life of any of these facilities.

CUMULATIVE IMPACTS

The quantities of non-hazardous and hazardous waste generated during construction and operation of the project would add to the total quantities of waste generated in Imperial County and the State of California. However, because (a) the waste would be generated in small quantities, (b) recycling efforts would be prioritized wherever practical, and (c) capacity is available in a variety of disposal facilities, these added quantities would not result in significant waste management impacts to any hazardous or non-hazardous landfill.

One hundred and twenty-three tons per day of filter-cake and sulfur wastes would be produced by the project until approximately 2035. The Monofill Facility is scheduled to be in operation until 2012. As mentioned above, the Monofill Facility has obtained 160 acres of land permitted for a landfill. If the class II facility is not available to accept the waste from the project, disposal at a Class I landfill would be a feasible option. (FSA Waste Mgt., p. 4.13-7)

FINDING

With the implementation of the Conditions of Certification, below, the project conforms to applicable laws related to waste management and all potential adverse impacts related to waste management will be mitigated to insignificance.

CONDITIONS OF CERTIFICATION

WASTE-1 The project owner shall provide the resume of a Registered Professional Engineer or Geologist, who shall be available for consultation during soil excavation and grading activities, to the CPM for review and approval. The resume shall show experience in remedial investigation and feasibility studies.

The Registered Professional Engineer or Geologist shall be given full authority by the project owner to oversee any earth moving activities that have the potential to disturb contaminated soil.

Verification: At least 30 days prior to the start of site mobilization the project owner shall submit the resume to the CPM for approval.

WASTE-2 If potentially contaminated soil is unearthed during excavation at either the proposed site or linear facilities as evidenced by discoloration, odor, detection by handheld instruments, or other signs, the Registered Professional Engineer or Geologist shall inspect the site, determine the need for sampling to confirm the nature and extent of contamination, and file a written report to the project owner and CPM stating the recommended course of action.

Depending on the nature and extent of contamination, the Registered Professional Engineer or Geologist shall have the authority to temporarily suspend construction activity at that location for the protection of workers or the public. If, in the opinion of the Registered Professional Engineer or Geologist, significant remediation may be required, the project owner shall contact (as appropriate) representatives of the Regional Water Quality Control Board, the Imperial County Fire Prevention Department, and the California Department of Toxic Substances Control for guidance and possible oversight.

Verification: The project owner shall submit any final reports filed by the Registered Professional Engineer or 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-3 The project owner shall obtain a hazardous waste generator identification number from the Department of Toxic Substances Control prior to generating any hazardous waste.

Verification: The project owner shall keep its copy of the identification number on file at the project site and notify the CPM via the Monthly Compliance Report of its receipt.

WASTE-4 Upon becoming aware 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 to be taken against the project itself, or against any waste hauler or disposal facility or treatment operator with which the owner contracts.

Verification: The project owner shall notify the CPM in writing within 10 days of becoming aware of an impending enforcement action. The CPM shall notify the project owner of any changes that would be required in the manner in which project-related wastes are managed.

WASTE-5 The project owner shall prepare a Construction Waste Management Plan and an Operation Waste Management Plan for all wastes generated during construction and operation of the facility, respectively, and shall submit both plans to the CPM for review and approval. The plans shall contain, at a minimum, the following:

- A description of all waste streams, including projections of frequency, amounts generated and hazard classifications; and
- Methods of managing each waste, including treatment methods and companies contracted with for treatment services, waste testing methods to assure correct

classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/reduction plans.

Verification: No less than 30 days prior to the start of site mobilization, the project owner shall submit the Construction Waste Management Plan to the CPM.

The Operation Waste Management Plan shall be submitted to the CPM no less than 30 days prior to the start of project operation. The project owner shall submit any required revisions within 20 days of notification by the CPM.

In the Annual Compliance Reports, the project owner shall document the actual waste management methods used during the year compared to the planned management methods.

LAWS, ORDINANCES, REGULATIONS & STANDARDS

WASTE MANAGEMENT

APPLICABLE LAW	DESCRIPTION
FEDERAL	
42 U.S.C. §§6901-6992k, RCRA Subtitle C and D	Regulates non-hazardous and hazardous wastes. Laws implemented by the State.
40 CFR 260, et seq.	Implements regulations for RCRA Subtitle C and D. Implemented by the US EPA by delegating to the State.
Federal Clean Water Act, 33 U.S.C. §1251 et seq.	Regulates wastewater discharges to surface waters of the US. NPDES program administered at the State level.
STATE	
Public Resources Code §40000 et seq. (California Integrated Waste Management Act)	Implements RCRA regulations for non-hazardous waste.
Water Code §13000, et seq. (Porter-Cologne Water Quality Control Act	Regulates wastewater discharges to surface and groundwaters of California. NPDES program implemented by State Water Resources Control Board.
22 CCR §66262.34	Regulates accumulation periods for hazardous waste generators. Typically hazardous waste cannot be stored on-site for greater than 90 days.
Health & Safety Code §25100 et seq. (California Hazardous Waste Control Law)	Regulates hazardous waste handling/storing. Implemented by the Imperial County Department of Public Health, Environmental Services/Imperial County Fire Protection Department.
LOCAL	
None	

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WATER QUALITY & SOILS

WATER QUALITY—GENERAL

This section analyzes potential effects on water quality and soil resources that could result from construction and operation of the project, specifically focusing on the potential for erosion and sedimentation, and degradation of surface and groundwater quality. Flooding is addressed in the **GEOLOGY** section of this decision. Solid waste and contaminated soil disposal is discussed in the **WASTE MANAGEMENT** section.

EROSION & SEDIMENTATION

Accelerated wind and water-induced erosion may result from earthmoving activities associated with construction of the proposed project. Activities that expose and disturb the soil leave soil particles vulnerable to detachment by wind and water. Prolonged periods of precipitation, or high intensity and short duration runoff events coupled with earth disturbance activities, can result in on-site erosion eventually increasing the sediment load within nearby receiving waters. Where soils would be disturbed during construction, the surface would be void of vegetation and would have the highest potential for erosion.

The proposed SSU6 Project would convert approximately 173 acres from agricultural use to industrial use. IID's water service area covers approximately 484,000 acres of agricultural land, meaning that the project would take approximately 0.0004 percent of the agricultural land in this area out of production.

A geothermal brine spill could adversely impact the soils surrounding pipelines. If a surface spill were to reach lands currently farmed, the soil would be rendered hypersaline and most likely unsuitable for agricultural purposes. It is likely that if a spill were to occur, such disturbance would be temporary, lasting only as long as remediation measures required. These measures are not expected to include permanent controls. The amount of this disturbance would vary depending on the volume of brine released and the area affected.

CE Obsidian Energy LLC provided preliminary Storm Water Pollution Prevention Plans (SWPPP) for the construction and operation phases of the SSU6 Project. Plans approved by the CEC Compliance Project Manager (CPM) would be required prior to any earthmoving activities and power plant operation, respectively. These plans would require the implementation of Best Management Practices (BMPs) to reduce potential erosion and sedimentation impacts. Approval and implementation of appropriate plans prior to any earthmoving activities would mitigate erosion and sedimentation impacts to less than significant levels.

The project would also entail the discharge of fill to an inundated area adjacent to the Salton Sea and associated jurisdictional waters to widen an existing road and install a pipeline crossing. CE Obsidian Energy LLC has applied for a Clean Water Act Section 401 Permit with the CRBRWQCB and a Clean Water Act Section 404 Permit with the U.S. Army Corps of Engineers.

These permits would require the Applicant to implement BMPs to minimize and/or mitigate impacts to jurisdictional waters and associated biota. These BMPs would be included in the Erosion and Sedimentation Control Plans that would be required as part of certification.

MITIGATION:

- ☑ Prior to site clearing and grading, the project owner shall prepare erosion control and stormwater pollution prevention plans to contain and process runoff and to prevent or contain any spill or leak of construction materials onto soils or into runoff waters. Conditions: **SOIL & WATER-1, 2, & 3**
- ☑ Prior to the start of site mobilization activities associated with any project element, including linear and off-site facilities, the project owner shall obtain a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (USACE) for the road widening and pipeline installation between the west end of McKendry Road and Obsidian Butte, and also for the construction of the Bannister switchyard if deemed necessary by USACE. Condition: **SOIL & WATER -4**
- ☑ Prior to the start of site mobilization activities associated with any project element, including linear and off-site facilities, the project owner shall obtain a Section 401 Certification from the Colorado River Basin RWQCB for the road widening and pipeline installation between the west end of McKendry Road and Obsidian Butte, and also for the construction of the Bannister switchyard if a Section 404 permit is deemed necessary for those activities by USACE. Condition: **SOIL & WATER-5**

WASTEWATER

The project would dispose of most waste streams through the use of injection wells. Seven injection wells would reinject spent brine, drilled to depths between 8,500 and 8,800 feet. These wells would be cased to depths between 3,650 and 5,250 feet.

One dedicated injection well would inject cooling tower washdown and blowdown, and another would inject liquids from the brine ponds. These wells would be designed to discharge those waste streams at depths between 1,200 and 2,250 feet.

After steam has been flashed from the geothermal brine and solids are handled, it would pass through the clarifiers and would be reinjected at an annual average rate of 19,201 gpm. Approximately 433 gpm of liquid waste from the thickener, which includes filter press filtrate, and liquid from bermed areas around plant equipment would be injected with the spent brine.

When necessary during non-standard conditions such as maintenance or injection shut down, the brine would be directed to the two brine ponds and would eventually be reinjected through the dedicated brine pond well. The ponds are sized to hold 548,000 cubic feet of brine (approximately 4.1 million gallons), allowing for two feet of freeboard.

Approximately 983 gpm of cooling tower blowdown would be injected through the dedicated cooling tower blowdown well.

Domestic waste would be directed to a septic tank, which would be pumped out as necessary. (FSA Soil & Water, p. 4.14-15, 20.)

The regulations under the Resource Conservation Recovery Act (40 CFR 261.4(b)) exempt “drilling fluids, produced waters, and other water associated with development and production of crude oil, natural gas, or geothermal energy” from the definition of hazardous waste. Furthermore, because the aquifer is valuable only for purposes of geothermal energy

production, Staff would not expect any significant impacts resulting from reinjection of these streams. Injection of these streams would also serve to replenish the geothermal supply.

Class V geothermal injection wells are regulated by the EPA, but authority is delegated to the Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) in California. (FSA Soil & Water, p. 4.9-20.)

MITIGATION:

- ☑ The project owner shall provide a copy of the Underground Injection Control (UIC) permit issued by the California Department of Oil, Gas, and Geothermal Resources (DOGGR) for the construction and operation of the brine and wastewater disposal injection wells. The project shall not construct or discharge to these wells without the final permit in place or without emergency/temporary authorization from DOGGR or U.S. EPA Region IX. The project shall provide on a continuing basis, copies of all monitoring or other reports, as well as any changes made to the permit by DOGGR related to the operation of these wells. The project shall not operate without a valid UIC permit. Condition: **SOIL & WATER-7**
- ☑ The project owner shall obtain Waste Discharge Requirements (WDRs) issued by the Colorado River Basin RWQCB for the operation of the project's brine ponds. Condition: **SOIL & WATER-8**

CUMULATIVE IMPACTS

Construction and operational activities related to the project may cause an increase in cumulative wind and water erosion to soils affected by these activities. However, implementation of the NPDES stormwater requirements would ensure that the project would not result in significant cumulative erosion and sedimentation impacts. (FSA Soil & Water, p. 4.9-23.)

WATER RESOURCES—GENERAL

The proposed SSU6 Project would produce a net 185 MW, and consist of a geothermal Resource Production Facility (RPF), a geothermal-powered Power Generation Facility (PGF), and associated linear and on-site facilities. The RPF would include extraction wells, brine and steam handling facilities, solids handling facilities, two brine ponds, injection wells, and steam polishing equipment. The PGF would include a condensing turbine/generator set, gas removal and abatement systems, and a heat rejection system. The project would require approximately 293 AFY of fresh water during an average year, but could require up to 987 AFY if the brine were to reach a salinity of 25.0 percent.

Ten production wells would produce the geothermal brine, from which steam is extracted and utilized as fuel in the PGF process. These production wells are generally located to the northwest of the plant facility. Once solids are removed to appropriate levels, a portion of the treated brine would be used as makeup water in the cooling towers for heat rejection by evaporation.

Process wastewater would be reinjected back into the geothermal aquifer to the southeast of the plant facility to facilitate the renewable quality of the resource. When necessary, the brine would be pumped to one of two lined brine ponds for storage prior to reinjection or disposal.

Stormwater would be routed to an evaporation/percolation pond located in the northwest corner of the project site. The pond is designed to hold runoff from a 10-year, 24-hour storm event. In the event of a 100-year, 24-hour storm event, the system is designed to direct excess runoff to the service water pond if necessary to prevent stormwater discharge off-site. Stormwater routed to the service water pond may then be used to process heat-depleted brine.

The project would also consist of various linear facilities to serve the project. A total of approximately one mile of cement-lined carbon-steel pipelines would bring the geothermal brine from the production wells to the facility, and a total of approximately three miles of cement-lined carbon steel pipelines would direct the spent brine to the injection wellheads. Five hundred feet of buried pipeline would carry fresh water to the project's service water pond from the Imperial Irrigation District (IID) delivery system. (FSA Soil & Water Resources, pp. 4.9-7-8)

WATER SUPPLY

The primary water demand for the project is for cooling tower makeup. This water demand is satisfied by condensate from steam extracted from the geothermal brine. The project would also require fresh water to dilute and cool the brine prior to reinjection. CE Obsidian Energy LLC submitted information showing that fresh water augmentation for cooling purposes may be required under certain operating circumstances. This demand would be met by the delivery of 293 acre-feet per year (AFY) to the project by IID and the CE Obsidian Energy LLC has contracted a supply of up to 1000 AFY with IID to meet fresh water demands under varying conditions. The IID water will be delivered to the project via a buried 500-foot pipeline that would tie into the existing IID delivery system.

This water demand is based on the design salinity of 23.5 percent for the geothermal brine, derived from analysis of TDS trends of current production wells tapping the geothermal aquifer. The fresh water would be used to cool and dilute the brine to make it suitable for reinjection to the geothermal aquifer. If the brine were to reach a salinity of 25.0 percent, which is the worst-case scenario and is believed to be unlikely, the project would require water at a rate of 987 AFY.

CE Obsidian Energy LLC provided a summary of historical data regarding the TDS concentrations of the brine from the Salton Sea KGRA. The summary stated that the TDS of the brine in the Region 1, Region 2 and Elmore areas remains virtually constant according to the 14-year historical data. Some production wells in the area even trend downward. Only one production well near the Leathers plant revealed an increase in TDS levels. At the Leathers plant, where dilution water is required, water demand has remained essentially steady over the past three years.

Above a salinity of 23.3 percent, "the required dilution water is provided by plant condensate and augmented by fresh water as needed." CE Obsidian Energy LLC has noted that fresh water demand does not fluctuate according to ambient thermal conditions at salinities below 23.8 percent. Because the expected salinity is 23.5 percent, the fresh water demand of the

project is expected to be relatively constant at 293 AFY. However, when ambient temperatures exceed 113°F and salinity exceeds 23.8 percent, fresh water may be required to augment cooling at the facility. Estimate of the cooling water deficit at 113 ºF is zero, and at 121 ºF (the local record high temperature) the deficit could be up to 1.7 acre-feet/day. Over the last 57 months, the temperature in the area exceeded 113 ºF an average of 5.47 days per year. Therefore, during the average year, 2.9 AFY of fresh water would be used to augment cooling.

Baseline Determination

The project would take 173 acres of farmland out of production as a result of development project and associated facilities. CE Obsidian Energy LLC provided an IID estimate of the water use at the site to be approximately five AFY per acre of irrigated land. This factor multiplied by 173 acres indicates a total of 865 AFY of water use would be offset by converting that land to industrial use. Subtracting the project's average annual water use (293 AFY) from that figure, result in a net savings of 572 AFY of fresh water for IID. If the plant operated with a geothermal brine salinity of 25.0 percent for an entire year (requiring 987 AFY), which is unlikely, the project would increase IID's current fresh water deliveries by 122 AFY.

However, the baseline water use of five AFY/acre was derived from IID water delivery data from 1887-1995. To establish an appropriate CEQA baseline, Staff has acquired historical water delivery data from IID from Gates 459 and 460, both of which currently serve the parcel of land on which the project would be located. This data is from the years 1996 to 2002, for a total of seven years of data, with no zero water use years or other such data gaps.

As stated above, the five AFY/acre water use estimate results in a water use of 865 AFY for the parcel. However, the average annual water use calculated by Staff using the historical data yielded a result of 759 AFY.

In addition, the water delivery contract between the CE Obsidian Energy LLC and IID would use 763 AFY as a threshold for changes in the cost of water. If water use for the project is below 763 acre-feet during any year, the rate for water delivery would be based on the industrial rate for IID supply. If water use exceeds 763 acre-feet, the price of acre-foot 764 and above in any given year is priced at the conservation rate, which is higher, to assist IID in implementing conservation measures.

Based on this evidence, using the 759 AFY figure as a baseline for historical water use at the site is appropriate.

Water Use/Conservation

The project would have no adverse impacts on fresh water supply until the point that it exceeds the baseline, which will only occur when the salinity of the geothermal brine is elevated.

The project would use an annual average of 293 AFY. When compared against the baseline of 759 AFY, this means that the project would reduce the water needed to be delivered to the site by approximately 466 AFY on an average annual basis. If the plant operated with a geothermal brine salinity of 25.0 percent for an entire year (requiring 987 AFY), which is the worst possible case, and is also unlikely, the project would increase IID's current fresh water deliveries by 228 AFY.

In an average year, the project would require use of fresh water at approximately 1.6 acre-feet per MW of capacity, which is very water-efficient compared to nearly four to five times that for a standard combined-cycle, wet-cooled plant per megawatt of capacity. During the average year, the project would free up fresh water resources in the area. Therefore, this project causes no significant impacts on fresh water supply.

The project will store fresh water in a lined earthen surface pond, with an estimated average loss of approximately 20 AFY and a maximum loss of approximately 30 AFY to evaporation due to high temperatures in the region. This is unnecessary and is avoidable.

In response to discussions regarding the need to mitigate this loss, CE Obsidian Energy LLC proposed that their Water Supply Agreement with IID has a means to mitigate such losses and proposed that IID charge the project the higher conservation rate for an additional 30 AFY (rather than the industrial rate that would otherwise be charged for that water). The joint mitigation proposal between California Unions for Reliable Energy and CE Obsidian Energy LLC recommends that the CE Obsidian Energy LLC, in coordination with IID and the Energy Commission, develop a conservation program "that will result in the conservation of 30 acre-feet per year".

Salton Sea Impacts

For the purposes of this project with regard to water resources, the most likely nexus between the project and an impact to the Salton Sea is the reduction of agricultural runoff. The Sea currently receives approximately 90 percent of its annual inflow (which totals approximately 1.36 million AFY) from various forms of agricultural runoff. It can be assumed that the current agricultural use on the proposed project site contributes runoff to drains that eventually reach the Sea.

Estimating how much water will reach the Sea from on-site runoff is extremely difficult, as it depends on many factors including irrigation methods, crop types and design, as well as drainage methods. Imperial County's Salton Sea Anomaly Master EIR estimates that "approximately one-third of the water imported into the valley by the IID becomes drainage water, which enters the Salton Sea," however, not all of that water is used for irrigation. To evaluate the worst-case scenario, staff will use the unlikely but extremely conservative value of 100 percent drainage to the Salton Sea.

For CEQA evaluation purposes, it was determined an average historical water use at the site of approximately 759 AFY. Assuming that all irrigation water applied to the site ends up in the Salton Sea, if the project is not licensed and the status quo is preserved, the Salton Sea will continue to receive approximately 759 AFY from that particular parcel.

The project will use IID fresh water primarily for dilution of the geothermal brine prior to reinjection (although it will be utilized elsewhere in the process). Therefore, the fresh water used by the project will not be made available to the Sea because it will be reinjected into the geothermal aquifer, which is not known to have a hydrogeologic link to the Sea.

If the worst case years were to occur, the project would use 987 AFY, meaning that the inflow to Salton Sea under the assumptions stated here will decrease by that same amount. Because the Sea receives an inflow of approximately 1.36 million AFY, even the worst case deprives the Sea of a fraction of a percent of the annual inflow (approximately 0.07 percent).

The Redlands Institute estimates that the Salton Sea would dry up in approximately ten years if it stopped receiving any inflow. Taking away 0.07 percent of the 1.36 million AFY inflow would not significantly reduce the time in which the Sea would dry up absent of other flows. During an average year, the impact to the Salton Sea would be approximately one-third of the worst-case scenario. Therefore, no anticipate significant adverse water supply impacts to the Salton Sea resulting from the project are expected.

Alternative Water Sources

The project will not use a significant amount of fresh water for cooling under average conditions. The fresh water use of the project will mainly be used to handle and condition the brine for reinjection. The brine distillate, which is non-potable, will be used for cooling water, and is excluded as a drinking water source by the CRBRWQCB. However, State Water Resources Control Board Policy 75-58 states that the use of high quality fresh inland water for cooling, process water and other non-potable uses when recycled water is available is a waste or unreasonable use of fresh water. Therefore, due to the average use of 293 AFY of fresh water for non-potable use, an analysis of alternative water sources is provided below.

The use of recycled water in lieu of IID fresh water would free up fresh water resources for use in other applications. The most likely source for recycled supply would be the City of Westmorland. The City's newly upgraded wastewater treatment plant produces approximately 0.5 million gallons per day (560 AFY) of treated recycled water. 560 AFY would be adequate for non-cooling process water under average conditions for an entire year, however, this would not be adequate under high-demand periods for the project.

Use of this supply would require the construction of an approximately 8.5-mile pipeline as well as additional treatment facilities to bring the water to a level of purity appropriate for use by the project. CE Obsidian Energy LLC has voiced concerns with the use of recycled water in the facility as disinfectants used in the treatment process may pose a risk to some equipment used at the plant.

As described above, the TDS concentrations of the local ground water range from approximately 1,000 to 3,000 mg/L. The proposed fresh water supply from IID has an estimated TDS of 600 mg/L. Because the primary function of the fresh water supply is to dilute the geothermal brines to aid in reinjection, TDS becomes an important component in determining the feasibility of alternatives. The project would most likely then require an average supply greater than 293 AFY if local ground water were used for the project. The shallow aquifers near the site (within the upper 500 feet) have transmissivities (the rate at which water can travel through the soil) of less than 10,000 gallons per day per foot. This yield is probably too low to fill the needs of the project (180 gpm), especially given the fact that more water would likely be needed as compared to the IID supply. Local ground water is thought to contribute approximately 4 percent of the Salton Sea's annual recharge; use of this source would most likely reduce that contribution to some extent.

Cooling Water Supply

The project would use approximately 4,289 gpm of steam condensate for evaporative cooling. This water originates in the geothermal aquifer, with total dissolved solids (TDS) concentrations of approximately 235,000 milligrams per liter (mg/L).

The Safe Drinking Water Act defines Underground Sources of Drinking Water as aquifers with water having TDS concentrations of less than 10,000 mg/L. Aquifers containing ground waters known to be a source of geothermal energy are also exempted from consideration as a potential drinking water supply by the CRBRWQCB. Due to the high TDS values of the brine, it is generally unfit for most uses outside of geothermal applications.

This water would best be categorized as “brackish water from natural sources” as it relates to State Water Resources Control Board Policy 75-58, which is the primary guidance for assigning priority of water use for power plant cooling in the state. This water is suitable for cooling purposes and is available in sufficient quantity to cool the plant. In addition, CE Obsidian Energy LLC has proposed using this water at a minimum of 20 cycles of concentration in the cooling towers to ensure optimum use of condensate make-up water supplies. On January 21, 2003 the Committee assigned to the project made a finding of sufficient geothermal resource for the project.

Water Quality

Improper wastewater disposal can lead to soil, surface and ground water degradation, and impairment of beneficial uses.

Injection/Production Wells and Brine Handling

While not a wastewater stream, the produced brine is saturated with very high levels of chemicals and could adversely impact local water quality if improperly handled.

There is limited ground water quality information currently available in the area. However, as part of the Title 27 regulations that would regulate the brine ponds if the project is licensed, ground water data is currently being generated by the Applicant, which would establish a baseline for regional ground water quality. This baseline would be used in conjunction with monitoring wells also required by Title 27 to detect any releases from the ponds if a leak were to occur.

If a geothermal brine spill or brine pond release were to occur, it could pose a threat to ground water quality, as the high salinity of the brine is far above that which naturally occurs in local shallow aquifers. These spills, if not contained, could travel to either agricultural drains, which eventually reach the Salton Sea, or they could travel directly to the Sea. Additional inputs of salts, as well as some metals such as lead or arsenic, to the Sea could lead to further impacts on local biological resources. If the spills were to reach agricultural canals they could adversely impact agricultural resources by adding large amounts of salts to irrigation water.

The shallow ground water in the project vicinity is not used for municipal or industrial purposes, and is not deemed suitable for agriculture by the CRBRWQCB in their Basin Plan for Region 7. Therefore, an unmitigated spill would most likely have no short-term impact on local fresh water supplies, and long term impacts on groundwater would be minimal.

In addition, the low vertical permeabilities (or transmissivities) of the soil would aid in inhibiting the flow of surface spills toward ground water aquifers if spills were handled properly and in a timely manner. Percolation tests performed in conjunction with the Geotechnical Investigation included in the AFC cited percolation rates between 1.3 and

2.6 gallons per day at the site. These tests were performed on the Holtville silty clay, wet soil type, which is the same soil type underlying all but about 600 meters of injection pipelines and all but about 900 meters of production pipelines. The other soil types that would be traversed by the brine pipelines all have lower potentials for rapid permeability than the Holtville silty clay, wet soil type.

In 2001, 120,799 gallons of brine were released in 23 spills from the CE Obsidian Energy LLC's current operations. Many of these spills involved volumes less than 1,000 gallons, but they range as high as 60,000 gallons. These spills, while a small fraction of the estimated 23 billion gallons of brine processed by these facilities, are nevertheless a significant volume of brine with respect to potential degradation of water quality.

To ensure proper handling of the brine, the Applicant has proposed two primary mitigation measures. However, it can be reasonably assumed that even with a stringent monitoring and maintenance program in place, an unexpected release of geothermal brine could occur at some point during the life of the project. In addition to the proposed mitigation measures, Staff has proposed additional mitigation to ensure that proper spill contingencies are addressed.

Waste Injection

CE Obsidian Energy LLC is proposing to inject cooling tower blowdown, spent brine, and other process wastewaters back into the geothermal aquifer. The regulations under the Resource Conservation Recovery Act (40 CFR 261.4(b)) exempt "drilling fluids, produced waters, and other water associated with development and production of crude oil, natural gas, or geothermal energy" from the definition of hazardous waste. Furthermore, because the aquifer is valuable only for purposes of geothermal energy production, and no significant impacts resulting from reinjection of these streams are expected. Injection of these streams would also serve to replenish the geothermal supply.

Class V geothermal injection wells are regulated by the EPA, but authority is delegated to the Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) in California.

Production and Injection Well Drilling and Design

The drilling and design of the production and injection wells present a high potential for local water quality impacts. Proper methods must be employed to satisfy DOGGR regulations to protect the well and the surrounding environment.

The method of drilling and design of the wells would sufficiently protect the surrounding environment and comply with relevant Public Resources Code regulations. The project would be required to receive an Underground Injection Control (UIC) permit from DOGGR prior to operation of the injection wells.

Brine Ponds

Occasionally, the project may encounter upset conditions, such as major vessel leak until isolation is achieved, loss of solids removal capability, or draining of major vessels for maintenance. During these periods, the spent brine would be pumped to the two brine ponds. Because of the chemical characteristics of the spent brine (TDS approximately 316,000 mg/L), a release of this brine into the local ground water aquifers could significantly impact local ground water quality. To minimize the chance of release through seepage, the project

will employ high-density polyethylene (HDPE) liners for the ponds, will be required to observe all Title 27 regulations related to waste management units, and will be required to receive Waste Discharge Requirements from the CRBRWQCB. CE Obsidian Energy LLC has initiated coordination with the CRBRWQCB and a licensed is expected to be issued.

Road Widening and Pipeline Installation Activities

Road widening activities could result in sedimentation or other water quality threats.

The project would require widening of the existing access road to Obsidian Butte and the installation of a pipeline crossing. In order to provide a route for drilling rigs to get to Obsidian Butte, the 10-foot road surface would have to be widened by 15 feet, making the road 25-feet wide.

A pipeline to bring the produced brine to the site would follow a similar route, requiring disturbance of a 600-foot length of land along the south side of the widened road. Twenty pipe supports would be required, installed at intervals of 30 feet.

These activities would impact 0.05 acres of brackish marsh, 0.03 acres of other waters of the U.S., 0.02 acres of desert sink scrub, and 0.33 acres of tamarisk scrub, and would result in the creation of 81 cubic yards of fill.

CE Obsidian Energy LLC has applied for a Clean Water Act Section 404 Permit with the U.S. Army Corps of Engineers to regulate these activities. CE Obsidian Energy LLC will be required to receive the permit prior to site mobilization. The Army Corps has indicated that the permit would not be completed until the CE Obsidian Energy LLC has provided a conceptual mitigation plan.

The project would also entail construction activities associated with the Bannister switchyard. The initial plan was to create fill within the wash that parallels Bannister Road, however, the current plan is to carefully maneuver equipment through the wash rather than fill it to create access roads. At this time, the project does not need a Section 404 permit for these activities, but if it is determined by the Army Corps that one is necessary, CE Obsidian Energy will be required to receive one.

CE Obsidian Energy LLC has also applied for a Clean Water Act Section 401 Permit with the CRBRWQCB to assure that any sedimentation or other water quality threats that may arise during road widening activities or pipeline installation would be adequately addressed and properly mitigated.

Domestic Waste

Domestic and sanitary waste would be directed to a septic tank. This tank would be pumped out as necessary. There are no domestic-use ground water wells in the project area. Staff does not expect significant impacts to water quality resulting from the septic waste system.

Subsidence

Subsidence can result in impacts to surface structures if it occurs to a large extent. In the project vicinity a major concern is potential impacts to the local network of water canals for both delivery and drainage. If subsidence were to occur in certain areas, water canals could begin to flow in different directions, which could impact proper conveyance of supply and drainage.

Data compiled by the applicant from 1989 to 1999 shows subsidence across the site to range from approximately 0.8 inches (20 mm) to 2.4 inches (60 mm). Regional tectonic subsidence may result in approximately 1.6 inches of subsidence annually over the Salton Trough area. Since the project will reinject spent geothermal fluids with injection wells, subsidence due to geothermal fluid withdrawal is expected to result in a low potential for damaging localized differential settlement. (FSA Soil & Water Resources, pp. 4.9-8-23.)

MITIGATION:

- ☑ The project's use of service ponds will create an average loss of up to 30 acre-feet/year (AFY) of fresh water through evaporation. To offset the loss of fresh water, the project owner shall pay the elevated conservation rate for 30 AFY fresh water supply to IID on an annual basis to account for the loss of such supply. Condition: **SOIL &WATER-6**.
- ☑ The project owner shall obtain Waste Discharge Requirements (WDRs) issued by the Colorado River Basin RWQCB for the project's mud sumps. Condition: **SOIL & WATER-9**.
- ☑ Prior to production of brines from the geothermal aquifer, the project owner shall receive approval for an Emergency Response Plan in consultation with appropriate agencies to ensure proper notification and mitigate any potential impacts resulting from an accidental brine release. Condition: **SOIL & WATER-10.**
- ☑ The on-site septic system shall be designed according to the applicable county standards. The project owner shall submit the final designs for the septic system to the CPM for review and approval, and to the Imperial County Environmental Health Services, County Health Department for comment. Condition: **SOIL & WATER-11.**
- ☑ The project shall not use any fresh water supplies in addition to water supplied by IID as proposed during these proceedings. Condition: **SOIL & WATER-12.**
- ☑ The project owner shall provide certification by a California registered civil engineer or architect that the floodproofing methods for the project meet the floodproofing criteria in Section 74301(c)(2) of the Imperial County Flood Damage Prevention Regulations. Condition: **SOIL & WATER-13/**
- ☑ The project owner shall participate in regional subsidence monitoring conducted by Imperial County and the California Division of Oil, Gas and Geothermal Resources (DOGGR). Condition: **SOIL & WATER-14.**

CUMULATIVE IMPACTS

The project would be required to comply with the general NPDES requirements that establish storm water effluent limitations and monitoring and reporting requirements for construction and operation activities. Storm Water Pollution Prevention Plans reviewed and approved by the CEC CPM would be required prior to the start of construction or operation activities. Compliance with these requirements in addition to the project's proposed design should avoid any significant cumulative impacts to surface hydrology.

In addition, the project would be improving an existing eight-foot berm surrounding the project site. As such, the project would not add any new diversions or impediments to the 100-year flood plain that are not already in place. No significant cumulative impacts for downstream or on-site flooding are expected.

Groundwater

Water supply provided by local ground water has not been proposed. Therefore, the project should have no significant cumulative impact on ground water resources.

Soil Erosion and Sedimentation

Construction and operational activities related to the project may cause an increase in cumulative wind and water erosion to soils affected by these activities. However, implementation of the NPDES stormwater requirements would ensure that the project would not result in significant cumulative erosion and sedimentation impacts.

Water Supply

Based on the uncertainty of the current fresh water situation in the region, undue strain on local fresh water resources could become a cumulative impact.

Built-in measures to mitigate any further strain in fresh water use caused by the project consist of taking currently irrigated agricultural lands out of production. With a historical water use at the site averages approximately 759 AFY, the project would use 293 AFY of fresh water supplied by IID on an average annual basis, meaning that during average annual conditions. The project would conserve approximately 466 AFY of IID fresh water by taking previously irrigated land out of agricultural production.

Because the project reduces fresh water use on its parcel, the project would not significantly contribute to cumulative impacts on fresh water supply.

Salton Sea Water Supply

The future of the Salton Sea is uncertain at this point. There is still disagreement as to how the Sea will be managed in the future, if at all. One of the major obstacles to finalizing a Colorado River water plan is determining responsibility for impacts to the Salton Sea. Impacts to the Sea's supply would most likely result from transferring water from IID's service area, where the Sea would receive inflows from irrigation runoff, to San Diego or Metropolitan Water District, where the water would not be made available to the Sea. Water leaves the Sea only through evaporation, which is relatively constant. If the Sea loses inflows, it could shrink, making it more saline and inhospitable to biota.

However, as stated above, the project will reduce the Sea's inflow by approximately 0.07 percent. This is an insignificant reduction; therefore the project is not expected to contribute to cumulative impacts to the Salton Sea.

Water Quality

Improper wastewater disposal or handling can lead to soil, surface and ground water degradation, and impairment of beneficial uses. However, the design and mitigation proposed should prevent further degradation of already impacted surface and groundwater supplies. The project will not cause cumulative impacts to water quality.

Subsidence

Subsidence can result in impacts to surface structures if it occurs to a large extent. In the project vicinity, a major concern is potential impacts to the local network of water canals for both delivery and drainage. If subsidence were to occur near canals, these water delivery

canals could begin to flow in different directions, which could impact proper conveyance of the water supply and drainage.

The existing geothermal plants in the Salton Sea Geothermal Field currently extract approximately 27 million pounds of brine per hour (pph), while reinjecting 20.5 million pph. This calculates to a 76 percent reinjection rate. The project would extract 12-13 million pph and reinject about 9.7 million pph, for a reinjection rate between 75 and 81 percent.

Taking the high end of extraction (13 million pph) for the proposed project, approximately 40 million pph would be extracted from the Salton Sea Geothermal Field with 30.2 pph reinjected. The reinjection rate for the field would total approximately 76 percent if this project were licensed and extracted at the higher rate, which is approximately the same rate of reinjection currently. If the project withdraws brine at the lower 12 million pph, the reinjection rate for the field would increase to approximately 77 percent. In either case, the cumulative impacts of brine withdrawal would be less than significant.

Imperial County and DOGGR currently have a strategy in place to monitor the region for settlement or bulges due to geothermal extraction or injection. This plan includes surveys that measure the land level elevations with accuracy levels of 1/100th of an inch. CE Obsidian Energy LLC is required to participate in this monitoring program in order to assist in detecting any subsidence caused by the geothermal developments before they can pose a threat to local resources. If subsidence is detected, measures can be taken to reduce any potential significant impacts. (FSA Soil & Water Resources, pp. 4.14-23-25.)

FINDINGS

With the implementation of the Conditions of Certification, below, the project conforms to applicable laws related to water resources and all potential water resource impacts will be mitigated to insignificance. To mitigate potential impacts to insignificance on matters not subject to our jurisdiction, the Commission recommends that, for wellhead, well pad and pipeline permitting, Imperial County incorporates Conditions **SOIL & WATER-1, 2, 3, 4, 5, 9, 10, 13, & 14,** and the Division of Oil, Gas and Geothermal Resources incorporates only Conditions **SOIL & WATER-7 & 10**.

CONDITIONS OF CERTIFICATION

SOIL & WATER-1: The project owner shall comply with all of the requirements of the General NPDES Permit for Discharges of Storm Water Associated with Construction Activity. The project owner shall develop and implement a Storm Water Pollution Prevention Plan (SWPPP) for the construction of the entire project. Prior to beginning any site mobilization associated with any project element, the project owner shall submit to the CPM a copy of the Notice of Intent for Construction accepted by the Colorado River Basin RWQCB and obtain Energy Commission CPM approval of the construction activity SWPPP for SSU6.

Verification: No later than 60 days prior to the start of site mobilization for any project element, the project owner shall submit a copy of the SWPPP required under the General NPDES Permit for Discharges of Storm Water Associated with Construction Activity to Imperial County for review and comment, and to the CPM for review and approval. The SWPPP will include copies of the Notice of Intent for Construction accepted by the RWQCB and any permits for SSU6 that specify requirements for the protection of stormwater or water

quality. Approval of the SWPPP by the CPM must be obtained prior to site mobilization for any project element.

SOIL & WATER-2: The project owner shall comply with all of the requirements of the General NPDES Permit for Discharges of Storm Water Associated with Industrial Activity. The project owner shall develop and implement a Storm Water Pollution Prevention Plan (SWPPP) for the operation of SSU6. The project owner shall submit to the CPM a copy of the Notice of Intent for Operation accepted by the Colorado River Basin RWQCB and obtain approval of the General Industrial Activities SWPPP from the Energy Commission CPM prior to commercial operation of the SSU6.

Verification: No later than 60 days prior to the start of commercial operation, the project owner shall submit to the CPM a copy of the SWPPP required under the General NPDES Permit for Discharges of Storm Water Associated with Industrial Activity to Imperial County for review and comment, and to the CPM for review and approval. The operational SWPPP shall include copies of the Notice of Intent for Operation accepted by the RWQCB and any permits for SSU6 that specify requirements for the protection of stormwater or water quality. Approval of the operational SWPPP by the CPM must be obtained prior to start of commercial operation.

SOIL & WATER-3: Prior to beginning any site mobilization activities for any project element, the project owner shall obtain CPM approval for a site-specific Drainage, Erosion and Sedimentation Control Plan that addresses all project elements. The plan shall address revegetation and be consistent with the grading and drainage plan as required by **Condition of Certification CIVIL-1**.

Verification: No later than 60 days prior to the start of any site mobilization for any project element, the project owner shall submit the Drainage, Erosion and Sedimentation Control Plan to the CPM for review and approval. No later than 60 days prior to start of any site mobilization, the project owner shall submit a copy of the plan to Imperial County for review and requesting any comments be provided to the CPM within 30 days. The plan must be approved by the CPM prior to start of any site mobilization activities.

SOIL & WATER-4: Prior to the start of site mobilization activities associated with any project element, including linear and off-site facilities, the project owner shall obtain a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (USACE) for the road widening and pipeline installation between the west end of McKendry Road and Obsidian Butte, and also for the construction of the Bannister switchyard if deemed necessary by USACE.

Verification: No later than thirty (30) days prior to the start of site mobilization activities associated with any project element, including linear and off-site facilities, the project owner shall submit to the CPM a copy of the Clean Water Act Section 404 permit from USACE for the project.

SOIL & WATER-5: Prior to the start of site mobilization activities associated with any project element, including linear and off-site facilities, the project owner shall obtain a Section

401 Certification from the Colorado River Basin RWQCB for the road widening and pipeline installation between the west end of McKendry Road and Obsidian Butte, and also for the construction of the Bannister switchyard if a Section 404 permit is deemed necessary for those activities by USACE.

Verification: No later than thirty (30) days prior to the start of site mobilization activities associated with any project element, including linear and off-site facilities, the project owner shall submit to the CPM a copy of the Section 401 Certification from the Colorado River Basin RWQCB for the project.

SOIL & WATER-6: The project's use of service ponds will create an average loss of up to 30 acre-feet/year (AFY) of fresh water through evaporation. To offset the loss of fresh water, the project owner shall pay the elevated conservation rate for 30 AFY fresh water supply to IID on an annual basis to account for the loss of such supply.

Verification: No later than thirty (30) days prior to power plant operation, the project owner shall provide verification that the project and IID have agreed upon the payment of the conservation rate for 30 AFY on an annual basis. Verification should be in the form of a written contract that demonstrates this pay schedule is valid. Verification must be received prior to power plant operation and shall be provided on an annual basis, reported in the Annual Compliance Report for the life of the project.

SOIL & WATER-7: The project owner shall provide a copy of the Underground Injection Control (UIC) permit issued by the California Department of Oil, Gas, and Geothermal Resources (DOGGR) for the construction and operation of the brine and wastewater disposal injection wells. The project shall not construct or discharge to these wells without the final permit in place or without emergency/temporary authorization from DOGGR or U.S. EPA Region IX. The project shall provide on a continuing basis, copies of all monitoring or other reports, as well as any changes made to the permit by DOGGR related to the operation of these wells. The project shall not operate without a valid UIC permit.

Verification: No later than fifteen (15) days prior to the construction of the injection wells, the project owner shall submit copies of the final UIC permit to the CPM. All copies of permit changes and monitoring or other reports must be received within thirty (30) days of their submittal to DOGGR.

SOIL & WATER-8: The project owner shall obtain Waste Discharge Requirements (WDRs) issued by the Colorado River Basin RWQCB for the operation of the project's brine ponds.

Verification: No later than sixty (60) days prior to any wastewater discharge to the brine ponds, the project owner shall obtain and provide a copy of the WDRs issued by the Colorado River Basin RWQCB for the project's discharge to the brine ponds to the CPM. Any change to the design, construction, or operation of the ponds permitted by the WDRs will be noticed in writing to both the CPM and the Colorado River Basin RWQCB during both construction and/or operation. The project owner will notify the Energy Commission in writing of any changes to the WDRs that are instituted by either the project owner or the Colorado River Basin RWQCB, including WDRs permit renewal. The project owner will provide the

CPM with the annual monitoring report summary required by the WDRs, and will fully explain any violations, exceedances, enforcement actions, or corrective actions.

SOIL & WATER-9: The project owner shall obtain Waste Discharge Requirements (WDRs) issued by the Colorado River Basin RWQCB for the project's mud sumps.

Verification: No later than thirty (30) days prior to the use of mud sumps associated with drilling activities, the project owner shall obtain and provide a copy of final WDRs issued by the Colorado River Basin RWQCB for the project's mud sumps to the CPM. Any change to the design, construction, or operation of the mud sumps permitted by the WDRs will be noticed in writing to both the CPM and the Colorado River Basin RWQCB during their use. The project owner will notify the Energy Commission in writing of any changes to the WDRs that are instituted by either the project owner or the Colorado River Basin RWQCB. The project owner will provide the CPM with any reporting or monitoring required by the WDRs, and will fully explain any violations, exceedances, enforcement actions, or corrective actions.

SOIL & WATER-10: Prior to production of brines from the geothermal aquifer, the project owner shall receive approval for an Emergency Response Plan in consultation with appropriate agencies to ensure proper notification and mitigate any potential impacts resulting from an accidental brine release.

Verification: No later than thirty days (30) days prior to production of brines from the geothermal aquifer, the project owner shall consult with appropriate agencies and submit an Emergency Response Plan to the CPM for approval. Approval of the final plan by the Energy Commission CPM must be obtained prior to the production of brines from the geothermal aquifer.

SOIL & WATER-11: The on-site septic system shall be designed according to the applicable county standards. The project owner shall submit the final designs for the septic system to the CPM for review and approval, and to the Imperial County Environmental Health Services, County Health Department for comment.

Verification: No later than thirty (30) days prior to commencement of septic system construction activities, the project owner shall submit the final designs for the septic system to the CPM for review and approval, and to the Imperial County Environmental Health Services, County Health Department for comment. The project owner shall obtain CPM approval of the final plans prior to commencement of septic system construction activities.

SOIL & WATER-12: The project shall not use any fresh water supplies in addition to water supplied by IID as proposed during these proceedings.

Verification: After operation has begun, the project owner shall provide to the CPM in the annual compliance report a record of the monthly IID fresh water deliveries to the project. The project owner shall file an amendment with the CPM should another source of fresh water be deemed necessary, or should the project require more than the 1000 AFY of IID fresh water as described in the will-serve letter provided during these proceedings.

SOIL & WATER-13: The project owner shall provide certification by a California registered civil engineer or architect that the floodproofing methods for the project meet the floodproofing criteria in Section 74301(c)(2) of the Imperial County Flood Damage Prevention Regulations.

Verification: No later than thirty (30) days prior to start of commercial operation, the project owner shall provide certification by a registered civil engineer or architect that the floodproofing methods for the project meet the floodproofing criteria in Section 74301(c)(2) of the Imperial County Flood Damage Prevention Regulations to the CPM for review and approval and to Imperial County for review. This verification must be provided prior to the start of commercial operation.

SOIL & WATER-14: The project owner shall participate in regional subsidence monitoring conducted by Imperial County and the California Division of Oil, Gas and Geothermal Resources (DOGGR).

Verification: No later than thirty (30) days prior to start of commercial operation, the project owner shall reach an agreement with Imperial County and DOGGR that incorporates the SSU6 project into current subsidence monitoring efforts. Verification of this agreement shall be provided in writing and shall be submitted to the CPM for review and approval prior to commercial operation. The project's participation shall be reported and summarized in the Annual Compliance Report for the life of the project.

LAWS, ORDINANCES, REGULATIONS & STANDARDS

WATER RESOURCES

APPLICABLE LAW	DESCRIPTION
FEDERAL	
Clean Water Act 33 U.S.C. § 1251 et seq.	Restoration and maintaining the chemical, physical, and biological integrity of the waters of the United States.
STATE	
State Water Resources Control Board Policy 75 – 78; California Water Code, Sections 461 and 13552, and by Water Commission Resolution 77-1	SWRCB Resolution 75-58, discourages the use of fresh inland water for power plant cooling and prioritizes the source water of power plant cooling water: (1) wastewater discharge to the ocean, (2) ocean water, (3) brackish water from natural sources or irrigation return flow, (4) inland waste waters of low TDS, and, lastly, (5) other inland waters.
Public Resources Code, Division 3, Chapter 4, §3700-3776	§3700-3776 establishes requirements for geothermal well construction, use, and destruction and review/approval authority of DOGGR.
California Constitution, Article X, § 2	§ 2 requires that state water resources be pt to beneficial use to the fullest extent possible.
LOCAL	
Imperial Count Land Use Code, Division 16, Chapter 3	Chapter 3 establishes areas of special flood hazards, including the area around the Salton Sea.
Imperial Count Land Use Code, Division 16, Chapter 4	Chapter 4 establishes development permit requirements for special flood hazard areas.
Imperial Count Land Use Code, Division 17, Chapter 1	Chapter 1 establishes regulations to facilitate the beneficial use of the geothermal resource to prevent wasteful or detrimental uses, and to protect the public, property and the environment from adverse impacts of the resources use.

ALTERNATIVES

ALTERNATIVES—GENERAL

The Energy Commission's Power Plant Siting Regulatory Program is a "certified regulatory program" under CEQA. With regard to the "Alternatives" analysis required in a certified siting proceeding, the CEQA Guidelines (Cal. Code Regs., tit. 14, §15252) state that the environmental documentation shall include either:

- Alternatives to the activity and mitigation measures to avoid or reduce any significant or potentially significant effects that the project might have on the environment, or
- A statement that the agency's review of the project showed that the project would not have any significant or potentially significant effects on the environment and therefore no alternatives or mitigation measures are proposed to avoid or reduce any significant effects on the environment. This statement shall be supported by a checklist or other documentation to show the possible effects that the agency examined in reaching this conclusion."

The Energy Commission staff presented information in its Staff Assessment on the "feasibility of available site and facility alternatives to the applicant's proposal that substantially lessen the significant adverse impacts of the proposal on the environment" (Cal. Code Regs., tit. 20, §1765). Staff also analyzed whether there are any feasible alternative designs or alternative technologies, including the "no project alternative," that may be capable of reducing or avoiding any potential impacts of the proposed project while achieving its major objectives.

ALTERNATIVE SITES

Consistent with the CEQA Guidelines, the consideration of alternative sites was guided by whether most project objectives could be accomplished at alternative sites and whether locating the project at an alternative site would substantially lessen any identified potential impacts of the project (Cal. Code Regs., tit. 14 §15126.6(a)).

According to the Application for Certification (AFC), the Applicant chose the proposed site for the following reasons (CEOE, § 3.2.2, pps. 3-3 to 3-5. 2002a):

- the proposed area has proven geothermal reserves;
- the location allows a well field and plant site layout providing the necessary energy production using available acreage, at the closest well spacing possible without undue interference between wells, while sustaining production over the life of the project;
- the location allows taking advantage of the blind fault that bisects the Salton Sea geothermal field, allowing hot brine to be extracted northwest of the fault, while cooled spent brine is reinjected south of the fault without impacting the hotter production zone, and utilizes the minimal spacing between wells supporting the project;
- the location would develop the remaining acreage on the shallow western end of the field that is still on land, between the developed part of the field and the hotter part of the field under the Salton Sea, currently inaccessible but providing pressure support for the developed part of the field;

- the portion of the main blind fault is considered a sealing fault or diffusion boundary preventing temperature interference from the reinjected brine to the production wells;
- the location allows well placement that insures production for the life of the project without interfering with the production at other operating geothermal plants;
- the project would be consistent with the A-3-G (heavy agriculture with a geothermal overlay) existing and planned land uses.

Based on analysis of the SSU6 AFC, the Energy Commission has determined the project's objectives as:

- continued development of the shallow, land-based western zone of the geothermal region currently occupied by power plants;
- generation of approximately 185 MW of load-serving capability in a location with access to Imperial Irrigation Districts (IID) electricity distribution infrastructure;
- location near a water source for use in dilution of reinjected brine;
- capacity to service the 20-year contract with IID for the provision of approximately 170 MW; and
- commercial operation by late 2005.

CE Obsidian Energy LLC did not present any alternative sites in the AFC's Alternatives section (6.0) due to the uniquely situated plant and well pad sites and the KGRA. Staff identified two potential alternative sites (the adjacent agricultural field and the Dry Ice Plant site). These alternative sites were evaluated using screening criteria presented below.

1. the site should avoid or substantially lessen one or more of the potentially significant effects of the project;
2. the site should have access to IID transmission lines accessing key load pockets, preferably through the L-line, and the Midway substation to meet electricity transmission reliability objectives;
3. the site would need sufficient space to construct and operate a geothermal generating facility of this size including a minimum 50-acre parcel of land to accommodate the power plant facilities, approximately 5 acres each for up to eight well pads, appropriate pipeline rights of way; and
4. the site should be within a reasonable distance of reliable sources of geothermal brine, of sufficient volume and temperature, to supply the steam for a project of this size and an available water supply; and
5. the site should have access to appropriate electrical transmission interconnections.

SITE 1 ADJACENT AGRICULTURAL LAND

The adjacent property also owned by CE Obsidian Energy LLC, could hold the proposed project. It is the other half of the 160-acre parcel that would be partially developed by the

SSU6 project. This land is appropriately zoned (A-3-G). This location would have similar access to the same geothermal layer proposed for development, would allow for use of the proposed wells, pads and electrical transmission routes, and the same fresh water supply.

In addition, this location may be able to reduce the potential noise impact on the Wildlife Refuge-managed lands adjacent to and north of the proposed site, Yuma clapper rail habitat. The Alternate site 1 also may further reduce impacts from project infrastructure to the visual assets seen from the Rock Hill (KOP-4) view site discussed in the Visual Resources section of the FSA.

Location of geothermal plant infrastructure is dependent upon a number of factors, including some sub-surface characteristics not evident from the surface. The current engineering of the site location was done to insure balanced flow of brine from each off the production wells, minimizing the need for mechanical pressure balancing of the brine supply. In addition, for safety reasons, shorter and relatively balanced pipeline segments provide for more safety during planned and emergency shutdowns, protecting both the environment, and the plant equipment. The balancing of the current design can be seen by the location of the wells in relation to the proposed project site. Additionally, the bottom-hole locations of proposed wells are based on detailed geophysical testing and exploratory drilling.

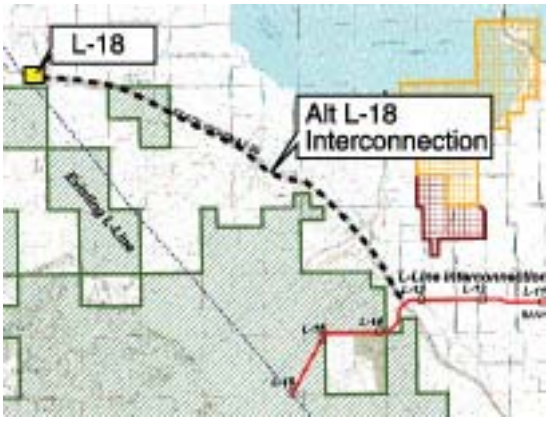
SITE 2 CARBON DIOXIDE (CO_2) WELLS AND DRY ICE PLANT SITE

This site has sufficient undeveloped acreage for the project and is within the Salton Sea Known Geothermal Resource Area. It is approximately three miles west-southwest of the town of Niland, and is between the shore of the Salton Sea and State Highway 111. The site was developed in the 1950's as a dry-ice plant to take advantage of the large CO_2 source discovered during early geothermal exploration in the area. This site has potential advantages that include reduction of noise impacts to the Yuma clapper-rail habitat which is adjacent to the proposed project site, visual impacts at the Sonny Bono Wildlife Refuge (Refuge) areas of Rock Hill (KOP-4) and Red Hill, and air quality impacts from H_2S during commissioning to the Rock Hill and Obsidian Butte. While the site is a greater distance from the Refuge, it is closer to the town of Niland. There may be more residences in the vicinity of Site 2 than at the proposed project site and air quality impacts could occur. Scenic views from the highway and at nearby public recreational areas at the Salton Sea beach line may be negatively affected by a facility at Site 2.

While sufficient undeveloped land is at this site, the ownership of the property needed to insure an appropriate project site is currently not known. Access to water for the project, transmission line rights of way and suitable interconnection sites are also unknown. However, the interconnection routes would be longer than those proposed at the current SSU6 location. Geophysical exploration of the area lags behind that done at the current proposed site, and would not utilize the known resources of the currently developed and explored segment of the KGRA as does the proposed project. Impacts to traffic and transportation may increase as there are fewer access points, and distances to off-site disposal locations for both construction and operational materials are greater. The location is near the Imperial Valley Waterfowl Management Area.

ALTERNATIVE TRANSMISSION LINE ROUTE

Should the BLM choose not to allow the L-Line interconnection to cross the 2.8 mile section of federal lands, the alternative would be a longer route, paralleling State Highway 86 (SH 86) north for approximately 7.5 miles to a point where SH-86 and an IID right-of-way intersects the existing L-Line on non-federal lands.



This would avoid the need for the BLM-managed land, and avoid amending the CDCA. Presence of endangered species in the area would necessitate consultation with USFWS through the Endangered Species Act. This route is 4.7 miles longer than the preferred route and it would affect additional private and public property. This may result in increasing economic impacts to the public as Imperial Irrigation District is a publicly-owned utility with operating costs borne through rate structures.

ALTERNATIVE TECHNOLOGY

Energy Commission staff compared various alternative technologies to the proposed project, scaled to meet the project's objectives. CEQA guidelines state that the alternatives discussion need not consider alternatives that are either infeasible or do not avoid significant environmental impacts. Staff considered several alternative generation technologies including a plant that burns fossil fuels. Gas fired, solar, wind, biomass and hydropower are briefly discussed below.

Gas-Fired Power Plant

Most recent power projects are powered by natural gas-fired turbines, with additional power produced by steam turbine generators in combined-cycle plants. It is appropriate to contrast the criteria pollutants emitted by the SSU6 project with characteristics of gas-fired plants of similar capacity. Recent Energy Commission reviews of similar capacity combined-cycle (C-C) gas turbine plants provide a basis for comparison with the SSU6. Table 1 lists the upper limits for emissions from the Pico Power Project, the Walnut Energy Center and Salton Sea Unit 6.

Table 1:.Compared Emissions From Gas-Fired Power Projects (Tons/Year)

	NO_x	CO	POC/VOC	PM_{10}*	SO_2	H_2S	NH_3
250 MW C-C[1]	70.2	100	17.4	67	8.7	trace	128.5
147 MW C-C[2]	43	48	11.9	32.8	2.92	trace	73
185 MW SSU6	3.7	10.24	2.24	13.71	.043	21.11	2,754

[1] Walnut Energy Center ; [2] Pico Power Project
* Direct Emission

The comparison above is based upon normal operations, and excludes construction and commissioning emissions, and assumes base-load operation.

Gas-fired plants also require large amounts of water for cooling (1057 acre-feet per year for Pico), while SSU6 uses the steam, recondensed after driving the turbine, as makeup water for the cooling towers. To supplement this source, and to dilute the brine for reinjection, SSU6 may use an additional 293 acre-feet annually. The table above indicates that NOx emissions are higher for gas-fired plants, but these are usually mitigated through emission reduction credits. The Imperial County Air Pollution Control District has indicated that only 10 tons of offsets are available for this purpose.

Conservation and Demand-Side Management

Conservation and demand-side management (DSM) include a variety of approaches, including energy efficiency and conservation, building and appliance standards, load management and fuel substitution. Public Resources Code Section 25305(c) states that conservation, load management, or other demand reducing measures reasonably expected to occur shall be explicitly examined in the Energy Commission's energy forecasts and shall not be considered as alternatives to a proposed facility during the siting process. Since 1975, the displaced peak demand from these efforts has been roughly the equivalent of eighteen 500-MW power plants. At a state level, the annual impact of building and appliance standards has increased steadily, from 600 MW in 1980 to 5,400 MW in 2000, as more new buildings and homes are built under increasingly efficient standards. Savings from energy efficiency programs implemented by utilities and state agencies have also increased (from 750 MW to 3,300 MW). Recent demand reducing proposals from the Governor and Legislature have proven to have an impact by reducing consumption by an average of 3,500 MW during the summer of 2001. In addition, voluntary conservation measures adopted by residential and commercial/industrial users led to a 7.5 percent drop in electricity use throughout the state as of August 2001, but that dropped to 1.5 percent in October 2001. There was a 0.7 percent increase in energy used in February 2002 compared to February 2001. However, in comparison to February 2000, there was a 5.5 percent decrease in energy consumption in February 2002.

Solar Generation

There are two types of solar generation: solar thermal power and photovoltaic (PV) power generation.

Solar thermal power generation involves the conversion of solar radiation to thermal energy, which is then used to run a conventional steam power system. Solar thermal is a viable alternative to conventional generation systems and, depending on the technology, is suited to either distributed generation on the kilowatt scale or to centralized power generation on scales up to several hundred MW. Solar thermal systems utilize three designs to generate electricity: parabolic trough concentrating collectors, power tower/heliostat configurations, and parabolic dish collectors. Parabolic trough and power tower systems typically run conventional power units, such as steam turbines, while parabolic dish systems power a small engine at the focal point of the collector.

PV power generation involves the direct conversion of light to electricity. PV is best suited to distributed generation uses rather than centralized power generation. PV is the most capital intensive of any alternative generation technology. PV power systems consist of solar electric

modules (built from PV cells) assembled into arrays of varying sizes to produce electric power proportional to the area of the array and the intensity of the sunlight. PV arrays can be mounted on either the ground or on buildings. They can be installed on dual-purpose structures such as covered parking lots.

Current solar generation technologies require large land areas in order to generate 200 MW of electricity. Specifically, assuming location in an area receiving maximum solar exposure such as desert areas of Imperial County, central receiver solar thermal projects require approximately five acres per MW, so 200 MW would require approximately 1000 acres, or over 10 times the amount of land area taken by the proposed plant site and linear facilities. One square kilometer of PV generation (400 acres) can produce 100 MW of power, so 200 MW would require approximately 800 acres or over 10 times the amount of land area required for the proposed SSU6 project.

Although air emissions are significantly reduced or eliminated for solar facilities, these facilities can have significant visual effects. Solar generation results in the absence or reduction in air pollutant emissions, and visible plumes. Water consumption for solar generation is substantially less than for a geothermal or natural gas fired plant because there is no thermal cooling requirement. In addition, the large avian populations, migratory bird pathways, and relatively large populations of threatened or endangered birds in the Salton Sea area, and Imperial Valley would require careful analysis of habitat reduction or relocation impacts from either solar or PV generation at scale.

Like all technologies generating power for sale into the State's power grid, solar thermal facilities and PV generation require near access to transmission lines. Large solar thermal plants must be located in desert areas with high direct normal insolation, and in these remote areas, transmission availability is limited. Additionally, solar energy technologies cannot provide full-time availability due to the natural intermittent availability of sunlight. Therefore, solar thermal power and photovoltaic power generation would not successfully meet the project objectives of developing 185 MW of load serving electrical generation.

Wind Generation

Wind carries kinetic energy that can be used to spin the blades of a wind turbine rotor and an electrical generator, which then feeds alternating current into the utility grid. Most state-of-the-art wind turbines operating today convert 35 to 40 percent of the wind's kinetic energy into electricity. Modern wind turbines represent viable alternatives to large bulk power fossil power plants as well as small-scale distributed systems. The range of capacity for an individual wind turbine today ranges from 400 watts up to 3.6 MW. California's 1,700 MW of wind power represents 1.5 percent of the state's electrical capacity.

Although air emissions are significantly reduced or eliminated for wind facilities, these facilities can have significant visual effects. Wind turbines have also caused bird mortality (especially for raptors) resulting from collision with rotating blades, although this effect is more noted in the Altamont Pass area than in other parts of the state. The large avian populations, migratory bird pathways, and relatively large populations of threatened or endangered birds in the area near the Salton Sea, and Imperial Valley would require careful analysis of utilizing wind resources.

Wind resources require large land areas in order to generate 200 MW of electricity. Depending on the size of the wind turbines, wind generation "farms" generally can require

between five and 17 acres to generate one megawatt. A 200 MW project would therefore require between 1,000 and 3,400 acres. Although 7,000 MW of new power wind capacity could cost-effectively be added to California's power supply, the lack of available transmission access is an important barrier to wind power development. California has a diversity of existing and potential wind resource regions that are near load centers such as San Francisco, Los Angeles, San Diego and Sacramento. However, wind energy technologies cannot provide full-time availability due to the natural intermittent availability of wind resources. Therefore, wind generation technology would not meet the project's goal, which is to provide load-serving capacity.

Biomass Generation

Biomass generation uses a waste vegetation fuel source such as wood chips (the preferred source) or agricultural waste. The fuel is burned to generate steam. Biomass facilities generate substantially greater quantities of air pollutant emissions than geothermal or natural gas burning facilities. In addition, biomass plants are typically sized to generate less than 20 MW, which is substantially less than the 200 MW gross output of the SSU6 project. At the peak of the biomass industry, 66 biomass plants were in operation in California, but as of 2001, only about 30 direct-combustion biomass facilities were in operation.

In order to generate 200 MW, ten 20 MW biomass facilities would be required. These power plants would have air quality and waste management impacts of their own.

Hydropower

While hydropower does not require burning fossil fuels and may be available in California, this power source can cause significant environmental impacts, due primarily to the inundation of many acres of potentially valuable habitat and the interference with fish movements during their life cycles. In addition, planning and permitting time is on the order of 10 years for a hydropower facility. As a result, it is extremely unlikely that new large hydropower facilities could be developed and permitted in California within the next several years (Aspen 2001). Though IID currently owns 85 MW of hydroelectric generation capacity, it does not seem practical to expand that capacity by 185 MW in the near term.

Cost Comparisons of Electricity Generation Technologies

Cost comparisons using direct levelized cost across varied technologies have been published as part of the California Energy Commission's Integrated Energy Policy Report. It is useful to consider these costs when comparing technological approaches diversifying sources of power generation. Factors such as operational mode, size of output, availability, and capacity are often a function of developing markets, technological advances, and energy source or fuel. The following information is an abbreviated table drawn from the IEPR Appendix B:

Table 3:.Technology Costs*

TYPE OF FACILITY	FUEL SOURCE	OPERATING MODE	GROSS CAPACITY (MW)	DIRECT COST LEVELIZED (CENTS/KWH)
Combined Cycle	Natural Gas	Baseload	500	5.18
Wind	Wind	Intermittent	100	4.93
Hydropower	Water	Load-Following, Peaking	100	6.04
Solar-Parabolic	Sun	Load-Following	110	21.53

Trough				
Geothermal-Flash	Geothermal Water	Baseload	50	4.52
* From:.California Energy Commission Integrated Energy Report, Comparative Cost of California Central Station Electricity Generation Technologies Report, Appendix B, June 5, 2003.				

Conclusion Regarding Alternative Technologies

Alternative generation typically has specific resource needs, environmental impacts, permitting difficulties, and intermittent availability. Therefore, these technologies do not fulfill a basic objective of the proposed project to provide baseload operation and load-serving capability in order to ensure a reliable supply of electricity for Imperial Irrigation District customers and California. With the exception of a natural gas-fired plant none can operate as a baseload facility. Consequently, these alternate technologies do not represent feasible alternatives to the proposed project.

EMISSION REDUCTION TECHNOLOGIES

There are no technically or cost-effective means of eliminating the short-term impacts that may arise during the 15-day commissioning period. These emission impacts are short term impacts to a CAAQS standard primarily based upon detectable odor.

Ammonia emission reduction has been explored (see **AIR QUALITY**). It is difficult to determine an accurate conversion rate to PM_{10}, clarifying the secondary impact of the ammonia emissions from SSU6. Available means of reducing the ammonia emitted are not highly effective, and are currently cost or availability prohibitive. (FSA Alternatives, pp. 3-7-11)

“NO PROJECT” ALTERNATIVE

CEQA Guidelines and Energy Commission regulations require consideration of the “no project” alternative. This alternative assumes that the project is not constructed, and compares that scenario to the proposed project. A determination is made whether the “no project” alternative is superior, equivalent, or inferior to the proposed project.

If the SSU6 facility were not constructed, the proposed site would continue to be leased for agricultural production. In addition, the site would continue to provide an undeveloped buffer as habitat for birds, and recreational land management of the adjacent Wildlife Refuge. (FSA Alternatives, p. 3-6,-7)

FINDINGS

The Commission has analyzed alternatives to the project design and related facilities, alternative technologies, and the “no project” alternative. An alternative site would not substantially lessen the potential impacts of the project, which are mitigated to insignificance by the Conditions of Certification. The Commission does not believe that alternative technologies (gas-fired, solar, wind, biomass, geothermal, and hydropower) present feasible alternatives to the proposed project. The “no project” alternative will not meet need for reliable electricity. Therefore, the “no project” alternative is inferior to the proposed project.

EFFICIENCY

EFFICIENCY—GENERAL

CEQA Guidelines state that the environmental analysis "…shall describe feasible measures which could minimize significant adverse impacts, including where relevant, inefficient and unnecessary consumption of energy" (Cal. Code Regs., tit. 14, §15126.4(a)(1)). Appendix F of the Guidelines further suggests consideration of such factors as the project's energy requirements and energy use efficiency; its effects on local and regional energy supplies and energy resources; its requirements for additional energy supply capacity; its compliance with existing energy standards; and any alternatives that could reduce wasteful, inefficient and unnecessary consumption of energy (Cal. Code Regs., tit. 14, § 15000 et seq., Appendix F).

CE Obsidian Energy LLC proposes to construct and operate the 185 MW (nominal net output) SSU6, a merchant class geothermal-powered generating facility, selling baseload power to the Imperial Irrigation District (IID) and the power market. The SSU6 Power Generating Facility would consist of one geothermal power block, including a condensing steam turbine/generator set, the gas removal and abatement systems, and the heat rejection system. The steam turbine would be a multi-casing, triple-pressure, exhaust flow condensing turbine. The Resource Production Facility would provide geothermal fluid from production wells through above ground pipelines to the steam handling system, where the steam would be separated from the liquid phase (flashed).

The SSU6 would use geothermal resources in the form of steam, consuming substantial amounts of energy. However, according to the State Department of Commerce, Division of Oil, Gas and Geothermal Resources, CEC staff and the Committee, sufficient resources exist to supply the SSU6 for its designed 30-year life.

Geothermal power plants produce electric power by expanding steam in the steam turbine. This steam comes from heated, pressurized brine in the ground. Geothermal resources are considered renewable if the quantities of water and heat used are being replaced continuously. Water recharge can occur from rainfall, subterranean drainage, or human efforts. Heat recharge occurs when there is sufficient heat, near enough to the surface, to replace that used in power generation. The geothermal resource available at the Salton Sea Known Geothermal Resource Area (the Salton Sea KGRA) can be considered renewable because a magma intrusion near the surface provides heat recharge, and subterranean and surface drainage from an area of 8,360 square miles provides water recharge.

The Applicant proposes to use a high efficiency, triple-pressure steam turbine. The geothermal fluid would be conveyed to the steam handling system where steam would be separated from the brine in three flashes, producing high-pressure, standard-pressure and low-pressure steam for use in the turbine. Chemically stabilized brine flows from the steam handling system to the solids handling system where solids are removed, after which the brine is injected back into the ground. The turbine uses the steam produced at all three pressures to generate power, the most efficient steam turbine configuration possible. In the older, less efficient geothermal power plants currently operating at the Salton Sea, steam is produced in two pressures, high and low. Before entering the steam turbine, the high-pressure steam is throttled down to the pressure of the low-pressure steam, where it is mixed

with the rest of the low-pressure steam. Only this low-pressure (low energy content) steam is expanded in the turbine to generate power, and much of the energy in the higher pressure (higher energy content) steam is wasted. The proposed steam turbine uses steam far more efficiently than the older machines.

Alternative Generating Technologies

Alternative generating technologies for the SSU6 are considered in the AFC. Conventional boiler and steam turbine, combined cycle combustion turbine, simple cycle combustion turbine, natural gas, coal, oil, solar, wind, hydroelectric, biomass, nuclear and municipal solid waste technologies are all considered. Geothermal generating technology decreases reliance on natural gas and oil, and increases reliance on renewable energy sources. Given the project's objectives and location, alternative generating technology is not preferable.

Alternative Heat Rejection System

The Applicant proposes to employ an evaporative cooling system (mechanical draft, counter flow cooling towers) as the means for rejecting power cycle heat (mainly condensate heat). An alternative heat rejection system would utilize an air-cooled condenser.

The local climate in the Salton Sea area is characterized by high temperatures and low relative humidity (low wet-bulb temperature). In low temperatures and high relative humidity (low dry-bulb temperature), the air-cooled condenser performs relatively efficiently compared to the evaporative tower. However, at the SSU6 project area (low wet-bulb temperature and high dry-bulb temperature) the air-cooled condenser performance is relatively poor compared to that of an evaporative cooling tower. Furthermore, the performance of the heat rejection system affects the performance of the steam turbine, impacting turbine efficiency. At the SSU6 project site, evaporative cooling would be considerably more effective than the air-cooled condenser, resulting in higher steam turbine efficiency. (FSA Efficiency, p. 5.3-3, 4)

FINDING

Without Conditions of Certification, the project conforms to applicable laws related to efficiency; and all potential adverse impacts regarding the efficient consumption of energy will be mitigated to insignificance by other Conditions of Certification of this Decision.

CONDITIONS OF CERTIFICATION

None

LAWS, ORDINANCES, REGULATIONS & STANDARDS

EFFICIENCY

APPLICABLE LAW	DESCRIPTION
STATE	
Title 14, California Code of Regulations, § 15126.4(a)(1)	CEQA Guidelines state that the environmental analysis "…shall describe feasible measures which could minimize significant adverse impacts, including where relevant, inefficient and unnecessary consumption of energy" (Cal. Code Regs., tit. 14, § 15126.4(a)(1)). Appendix F of the Guidelines further suggests consideration of such factors as the project's energy requirements and energy use efficiency; its effects on local and regional energy supplies and energy resources; its requirements for additional energy supply capacity; its compliance with existing energy standards; and any alternatives that could reduce wasteful, inefficient and unnecessary consumption of energy (Cal. Code Regs., tit. 14, § 15000 et seq., Appendix F).

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FACILITY DESIGN

FACILITY DESIGN – GENERAL

The Warren-Alquist Act requires the commission to "prepare a written decision.…which includes:

> (a) Specific provisions relating to the manner in which the proposed facility is to be designed, sited, and operated in order to protect environmental quality and assure public health and safety, [and]
>
> (d)(1) Findings regarding the conformity of the proposed site and related facilities…with public safety standards…and with other relevant local, regional, state and federal standards, ordinances, or laws…" (Pub. Resources Code, § 25523).

Facility Design encompasses the civil, structural, mechanical and electrical engineering aspects of the project. The Facility Design analysis verifies that the project has been described in sufficient detail to provide reasonable assurance that it can be designed and constructed in accordance with all applicable laws and regulations, and in a manner that protects environmental quality and assures public health and safety.

This analysis also examines whether special design features should be considered during final design to deal with conditions unique to the site that could influence public health and safety, environmental protection or the operational reliability of the project. This analysis further identifies the design review and construction inspection process and establishes conditions of certification that will be used to ensure compliance with applicable laws and regulations and any special design requirements.

Under Section 104.2 of the California Building Code (CBC), the building official is authorized and directed to enforce all the provisions of the CBC. For all energy facilities certified by the Energy Commission, the Energy Commission is the building official and has the responsibility to enforce the code. In addition, the Energy Commission has the power to render interpretations of the CBC and to adopt and enforce rules and supplemental regulations to clarify the application of the CBC's provisions.

The Energy Commission's design review and construction inspection process is developed to conform to CBC requirements and ensure that all facility design conditions of certification are met. As provided by Section 104.2.2 of the CBC, the Energy Commission appoints experts to carry out the design review and construction inspections and act as delegate CBO's on behalf of the Energy Commission. These delegate agents typically include the local building official and independent consultants hired to cover technical expertise not provided by the local official. The project owner, through permit fees as provided by CBC Sections 107.2 and 107.3, pays the costs of the reviews and inspections. While building permits in addition to the Energy Commission certification are not required for this project, the project owner pays in-lieu permit fees, consistent with CBC Section 107, to cover the costs of reviews and inspections.

The Energy Commission has developed conditions of certification to ensure compliance with applicable laws and regulations and protection of the environment and public health and safety. Some of these conditions address the roles, responsibilities and qualifications of CE

Obsidian Energy LLC's engineers responsible for the design and construction of the project. Engineers responsible for the design of the civil, structural, mechanical, and electrical portions of the project are required to be registered in California, and to sign and stamp each submittal of design plans, calculations, and specifications submitted to the CBO. These conditions require that no element of construction proceed without prior approval from the CBO. They also require that qualified special inspectors be assigned to perform or oversee special inspections required by the applicable LORS.

While the Energy Commission and delegate CBO have the authority to allow some flexibility with construction activities, these conditions are written to require that no element of construction of permanent facilities, which is difficult to reverse, may proceed without prior approval of plans from the CBO. For those elements of construction that are not difficult to reverse and are allowed to proceed without approval of the plans, the Applicant shall have the responsibility to fully modify those elements of construction to comply with all design changes that result from the CBO's plan review and approval process.

CONDITIONS:

- ☑ CE Obsidian Energy LLC shall construct the project using the most recent California Building Code with the oversight and approval of the local Chief Building Official; shall assign California registered engineers to the project; and shall pay necessary in-lieu permit fees. Conditions: **GEN-1** through **GEN-8.**
- ☑ CE Obsidian Energy LLC shall submit grading plans and erosion/sedimentation control plans, perform inspections and submit as-built plans for approval. Conditions: **CIVIL-1, CIVIL-3** & **CIVIL-4**.
- ☑ If appropriate, the resident engineer shall stop construction if unknown, adverse geologic conditions are encountered. Condition: **CIVIL-2.**
- ☑ For earthquake safety of major structures, foundations, supports, anchorages, and tanks, the Project Owner will submit appropriate lateral force calculations, designs and plans to the Chief Building Official for approval. In addition, to ensure the safety of storage tanks, some of which contain hazardous materials, the Project Owner will submit plans and specifications to the Chief Building Official for approval. Conditions: **STRUC-1** through **STRUC-4**.
- ☑ To ensure the safety of piping and pressure vessels, some of which transport or store hazardous materials, CE Obsidian Energy LLC will submit plans and specifications to the Chief Building Official for approval. Heating and air conditioning equipment, as well as plumbing, will be reviewed and inspected by the Chief Building Official. Conditions: **MECH-1** through **MECH-3**.
- ☑ For electric systems or components of 480 volts or higher, CE Obsidian Energy LLC shall submit plans to the Chief Building Official for approval. Conditions: **ELEC-1**.

Finding

With the implementation of the Conditions of Certification, below, the project conforms to applicable laws related to facility design and related engineering fields.

CONDITIONS OF CERTIFICATION

GEN-1 The project owner shall design, construct and inspect the project in accordance with the 2001 California Building Standards Code (CBSC) (also known as Title 24, California Code of Regulations), which encompasses the California Building Code (CBC), California Building Standards Administrative Code, California Electrical Code, California Mechanical Code, California Plumbing Code, California Energy Code, California Fire Code, California Code for Building Conservation, California Reference Standards Code, and all other applicable engineering LORS in effect at the time initial design plans are submitted to the CBO for review and approval. (The CBSC in effect is that edition that has been adopted by the California Building Standards Commission and published at least 180 days previously.) All transmission facilities (lines, switchyards, switching stations and substations) are handled in Conditions of Certification in the **Transmission System Engineering** section of this document.

In the event that the initial engineering designs are submitted to the CBO when a successor to the 2001 CBSC is in effect, the 2001 CBSC provisions identified herein 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.

Verification: Within 30 days after receipt of the Certificate of Occupancy, the project owner shall submit to the CPM a statement of verification, signed by the responsible design engineer, attesting that all designs, construction, installation and inspection requirements of the applicable LORS and the Energy Commission's Decision have been met in the area of facility design. The project owner shall provide the CPM a copy of the Certificate of Occupancy within 30 days of receipt from the CBO [2001 CBC, Section 109 – Certificate of Occupancy].

GEN-2 Prior to submittal of the initial engineering designs for CBO review, the project owner shall furnish to the CPM and to the CBO a schedule of facility design submittals, a Master Drawing List and a Master Specifications List. 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 when requested.

Verification: At least 60 days (or project owner and CBO approved alternative timeframe) prior to the start of rough grading, the project owner shall submit to the CBO and to the CPM the schedule, the Master Drawing List and the Master Specifications List of documents to be submitted to the CBO for review and approval. These documents shall be the pertinent design documents for the major structures and equipment listed in **Facility Design Table 1** 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.

Table 1: Major Structures and Equipment List

EQUIPMENT/SYSTEM	QUANTITY (PLANT)
Steam Turbine (ST) Foundation and Connections	1
Steam Turbine Generator Foundation and Connections	1
Steam Condenser and Auxiliaries Foundation and Connections	1
Condensate (HP) Hotwell Pumps Foundation and Connections	2
Condensate (SP/LP) Hotwell Pumps Foundation and Connections	2
Condensate Storage Tank Foundation and Connections	1
Filter Press System Structure, Foundation and Connections	1
Thickener Foundation and Connections	2
Brine Production Wellpads	5
Brine Injection Wellpads	3
Purge Water Pumps (HP/SP/LP) Foundation and Connections	6
Main Transformer Foundation and Connections	1
Counterflow Cooling Tower Foundation and Connections – 10 cells each	2
Vertical Circulating Water Pumps Foundation and Connections	6
Blowdown Pumps Foundation and Connections	2
Cooling Tower Wetdown Pumps Foundation and Connections	2
Auxiliary Cooling Water Pumps Foundation and Connections	2
Benzene Abatement Structure, Foundation and Connections	1
H_2S Abatement Structure, Foundation and Connections	1
NCG Removal System Structure, Foundation and Connections	1
Steam Vent Tank Foundation and Connections	4
Waste Water Collection System Foundation and Connections	1
Main Injection Pumps Foundation and Connections	4
Fire Protection System	1
Injection Booster Pump Foundation and Connections	4
Brine Pond Pumps Foundation and Connections	2
Generator Breakers Foundation and Connections	3
Transformer Breakers Foundation and Connections	3
Wellhead Separators Foundation and Connections	4
SP Crystallizers Foundation and Connections	4
LP Crystallizers Foundation and Connections	4
Atmospheric Flash Tanks Foundation and Connections	4
Dilution Water Heater/Pumps Foundation and Connections	2
Scrubbers Foundation and Connections	6
Demisters Foundation and Connections	6
Primary Clarifiers Foundation and Connections	2
Secondary Clarifiers Foundation and Connections	2

EQUIPMENT/SYSTEM	QUANTITY (PLANT)
Vacuum System Foundation and Connections	4
Electric Motor Driven Fire Pump Foundation and Connections	1
Diesel Engine Fire Pump Foundation and Connections	1
Firewater Storage Tank Foundation and Connections	1
Compressed Air System Foundation and Connections	2
HCI Tank Foundation and Connections	1
Emergency Relief Tanks Structure, Foundation and Connections	4
Seed Pumps Foundation and Connections	4
Control Room Structure, Foundation and Connections	1
RO/Potable Water Systems	2
Drainage Systems (including sanitary drain and waste)	1 Lot
High Pressure and Large Diameter Piping and Pipe Racks	1 Lot
HVAC and Refrigeration Systems	1 Lot
Temperature Control and Ventilation Systems (including water and sewer connections)	1 Lot
Building Energy Conservation Systems	1 Lot
Substation/Switchyard, Buses and Towers	1 Lot
Electrical Duct Banks	1 Lot

GEN-3 The project owner shall make payments to the CBO for design review, plan check and construction inspection based upon a reasonable fee schedule to be negotiated between the project owner and the CBO. These fees may be consistent with the fees listed in the 2001 CBC [Chapter 1, Section 107 and Table 1-A, Building Permit Fees; Appendix Chapter 33, Section 3310 and Table A-33-A, Grading Plan Review Fees; and Table A-33-B, Grading Permit Fees], adjusted for inflation and other appropriate adjustments; may be based on the value of the facilities reviewed; may be based on hourly rates; or may be as otherwise agreed by the project owner and the CBO.

Verification: The project owner shall make the required payments to the CBO in accordance with the agreement between the project owner and the CBO. The project owner shall send a copy of the CBO's receipt of payment to the CPM in the next Monthly Compliance Report indicating that the 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 a resident engineer (RE), to be in general responsible charge of the project [Building Standards Administrative Code (Cal. Code Regs., tit. 24, § 4-209, Designation of Responsibilities)]. All transmission facilities (lines, switchyards, switching stations and substations) are handled in Conditions of Certification in the **Transmission System Engineering** section of this document.

The RE may delegate responsibility for portions of the project to other registered engineers. Registered mechanical and electrical engineers may be delegated responsibility for mechanical and electrical portions of the project respectively. A project may be divided into

parts, provided each part is clearly defined as a distinct unit. Separate assignment of general responsible charge may be made for each designated part.

The RE shall:

1. Monitor construction progress of work requiring CBO design review and inspection to ensure compliance with LORS;
2. Ensure that construction of all the facilities subject to CBO design review and inspection conforms in every material respect to the applicable LORS, these Conditions of Certification, approved plans, and specifications;
3. Prepare documents to initiate changes in the approved drawings and specifications when directed by the project owner or as required by conditions on the project;
4. Be responsible for providing the project inspectors and testing agency(ies) with complete and up-to-date set(s) 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 as not conforming to the approved plans and specifications.

The RE shall have the authority to halt construction and to require changes or remedial work, if the work does not conform to applicable requirements.

If the RE or the delegated engineers are reassigned or replaced, the project owner shall submit the name, qualifications and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer.

Verification: At least 30 days (or project owner and CBO approved alternative timeframe) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, the resume and registration number of the RE and any other delegated engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the RE and other delegated engineer(s) within five days of the approval.

If the RE or the delegated engineer(s) are 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-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) a civil engineer; B) a soils engineer, or a geotechnical engineer or a civil engineer experienced and knowledgeable in the practice of soils engineering; and C) 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: D) 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; E) a mechanical engineer; and F) an electrical engineer. [California Business and Professions Code section 6704 et seq., and sections 6730, 6731 and 6736 requires 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 Conditions of Certification in the **Transmission System Engineering** section of this document.

The tasks performed by the civil, mechanical, electrical or design engineers may be divided between two or more engineers, as long as each engineer is responsible for a particular segment of the project (e.g., 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 [2001 CBC, Section 104.2, Powers and Duties 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 Report, Geotechnical Report or Soils Report 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 design, stamp, and sign all plans, calculations and specifications for proposed site work, civil works and related facilities requiring design review and inspection by the CBO. At a minimum, these include: grading, site preparation, excavation, compaction, construction of secondary containment, foundations, erosion and sedimentation control structures, drainage facilities, underground utilities, culverts, site access roads and sanitary sewer systems; and

3. Provide consultation to the RE during the construction phase of the project and recommend changes in the design of the civil works facilities and changes in 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 Report, Geotechnical Report or Soils Report containing field exploration reports, laboratory tests and engineering analysis detailing the nature and extent of the soils that may be susceptible to liquefaction, rapid settlement or collapse when saturated under load [2001 CBC, Appendix Chapter 33,

Section 3309.5, Soils Engineering Report; Section 3309.6, Engineering Geology Report; and Chapter 18, Section 1804, Foundation Investigations];

3. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with the requirements set forth in the 2001 CBC, Appendix Chapter 33; Section 3317, Grading Inspections; (depending on the site conditions, this may be the responsibility of either the soils engineer or engineering geologist or both); and

4. Recommend field changes to the civil engineer and RE.

This engineer shall be authorized to halt earthwork and to require changes if site conditions are unsafe or do not conform with predicted conditions used as a basis for design of earthwork or foundations [2001 CBC, section 104.2.4, Stop orders].

C. The engineering geologist shall:

1. Review all the engineering geology reports and prepare 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 2001 CBC, Appendix Chapter 33; Section 3317, Grading Inspections; (depending on the site conditions, this may be the responsibility of either the soils engineer or engineering geologist or both).

D. The design engineer shall:

1. Be directly responsible for the design of the proposed structures and equipment supports;

2. Provide consultation to the RE during design and construction of the project;

3. Monitor construction progress to ensure compliance with engineering LORS;

4. Evaluate and recommend necessary changes in design; and

5. Prepare and sign all major building plans, specifications and calculations.

E. The mechanical engineer shall be responsible for, and sign and stamp a statement with, each mechanical submittal to the CBO, stating that the proposed final design plans, specifications, and calculations conform with all of the mechanical engineering design requirements set forth in the Energy Commission's Decision.

F. The electrical engineer shall:

1. Be responsible for the electrical design of the project; and

2. Sign and stamp electrical design drawings, plans, specifications, and calculations.

Verification: At least 30 days (or project owner and CBO approved alternative timeframe) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, resumes and registration numbers of the responsible civil engineer, soils (geotechnical) engineer and engineering geologist assigned to the project.

At least 30 days (or project owner and CBO approved alternative timeframe) 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 2001 CBC, Chapter 17 [Section 1701, Special Inspections; Section 1701.5, Type of Work (requiring special inspection)]; and Section 106.3.5, Inspection and observation program. All transmission facilities (lines, switchyards, switching stations and substations) are handled in Conditions of Certification in the **Transmission System Engineering** section of this document.

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 RE. All discrepancies shall be brought to the immediate attention of the RE for correction, then, if uncorrected, to the CBO and the CPM for corrective action [2001 CBC, Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector]; and
4. Submit a final signed report to the RE, CBO, and CPM, stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans and specifications and the applicable provisions of the applicable edition of the CBC.

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).

Verification: At least 15 days (or project owner and CBO approved alternative timeframe) 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 the corrective action required [2001 CBC, 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 be submitted to the CBO for review and approval. The discrepancy documentation shall reference this Condition of Certification and, if appropriate, the 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. When the work and the "as-built" and "as graded" plans conform to the approved final plans, the project owner shall notify the CPM regarding the CBO's final approval. The marked up "as-built" drawings for the construction of structural and architectural work shall be submitted to the CBO. Changes approved by the CBO shall be identified on the "as-built" drawings [2001 CBC, Section 108, Inspections]. The project owner shall retain one set of approved engineering plans, specifications and calculations at the project site or at another accessible location during the operating life of the project [2001 CBC, Section 106.4.2, Retention of Plans].

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 final approved engineering plans, specifications and calculations as described above, the project owner shall submit to the CPM a letter stating that the above documents have been stored and indicate the storage location of such documents.

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 Report, Geotechnical Report or Foundation Investigations Report required by the 2001 CBC [Appendix Chapter 33, Section 3309.5, Soils Engineering Report; Section 3309.6, Engineering Geology Report; and Chapter 18, Section 1804, Foundation Investigations].

Verification: At least 15 days (or project owner and CBO approved alternative timeframe) 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 [2001 CBC, Section 104.2.4, Stop 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 2001 CBC, Chapter 1, Section 108, Inspections; Chapter 17, Section 1701.6, Continuous and Periodic Special Inspection; and Appendix Chapter 33, Section 3317, Grading Inspection. 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 [2001 CBC, Appendix Chapter 33, Section 3317.7, Notification of Noncompliance]. 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 facilities, the project owner shall obtain the CBO's approval of the final "as-graded" grading plans and final "as-built" plans for the erosion and sedimentation control facilities [2001 CBC, Section 109, Certificate of Occupancy].

Verification: Within 30 days of the completion of the erosion and sediment control mitigation and drainage facilities, the project owner shall submit to the CBO 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. The project owner shall submit a copy of this report 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 1** of Condition of Certification **GEN-2**, above, the project owner shall submit to the CBO for design review and approval the proposed lateral force procedures for project structures and the applicable designs, plans and drawings for project structures. Proposed lateral force procedures, designs, plans and drawings shall be those for the following items (from **Table 1**, above):

1. Major project structures;
2. Major foundations, equipment supports and anchorage;
3. Large field fabricated tanks;
4. Turbine/generator pedestal; and
5. Switchyard structures.

Construction of any structure or component shall not commence 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 (i.e., 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 [2001 CBC, Section 108.4, 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 at least 60 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of on-site fabrication and installation of each structure, equipment support, or foundation [2001 CBC, Section 106.4.2, Retention of plans; and Section 106.3.2, Submittal documents]; and

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 [2001 CBC, Section 106.3.4, Architect or Engineer of Record].

Verification: At least 30 days (or project owner and CBO approved alternative timeframe) prior to the start of any increment of construction of any structure or component listed in **Facility Design Table 1** of Condition of Certification **GEN-2** above, the project owner shall

submit to the CBO, with a copy to the CPM, the responsible design engineer's signed statement that the final design plans, specifications and calculations conform with all of the requirements set forth in the Energy Commission's Decision.

If the CBO discovers non-conformance with the stated requirements, the project owner shall resubmit the corrected plans to the CBO within 20 days of receipt of the non-conforming submittal with a copy of the transmittal letter to the CPM.

The project owner shall submit to the CPM a copy of a statement from the CBO that the proposed structural plans, specifications and calculations have been approved and are in conformance with the requirements set forth in the applicable engineering LORS.

STRUC-2 The project owner shall submit to the CBO the required number of sets of the following documents related to work that has undergone CBO design review and approval:

1. Concrete cylinder strength test reports (including date of testing, date sample taken, design concrete strength, tested cylinder strength, age of test, type and size of sample, location and quantity of concrete placement from which sample was taken, and mix design designation and parameters);
2. Concrete pour sign-off sheets;
3. Bolt torque inspection reports (including location of test, date, bolt size, and recorded torques);
4. Field weld inspection reports (including type of weld, location of weld, inspection of non-destructive testing (NDT) procedure and results, welder qualifications, certifications, qualified procedure description or number (ref: AWS); and
5. Reports covering other structural activities requiring special inspections shall be in accordance with the 2001 CBC, Chapter 17, Section 1701, Special Inspections; Section 1701.5, Type of Work (requiring special inspection); Section 1702, Structural Observation and Section 1703, Nondestructive Testing.

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 [2001 CBC, Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector]. The NCR shall reference the Condition(s) of Certification and the applicable CBC chapter and section. Within five days of resolution of the NCR, the project owner shall submit a copy of the corrective action to the CBO and the CPM.

The project owner shall transmit a copy of the CBO's approval or disapproval of the corrective action to the CPM within 15 days. If disapproved, the project owner shall advise the CPM, within five days, the reason for disapproval, and the revised corrective action to obtain CBO's approval.

STRUC-3 The project owner shall submit to the CBO design changes to the final plans required by the 2001 CBC, Chapter 1, Section 106.3.2, Submittal documents and Section 106.3.3, Information on plans and specifications, including the revised drawings, specifications, calculations, and a complete description of, and supporting rationale for, the proposed changes, and shall give to the CBO prior notice of the intended filing.

Verification: On a schedule suitable to the CBO, the project owner shall notify the CBO of the intended filing of design changes, and shall submit the required number of sets of revised drawings and the required number of copies of the other above-mentioned documents to the CBO, with a copy of the transmittal letter to the CPM. The project owner shall notify the CPM, via the Monthly Compliance Report, when the CBO has approved the revised plans.

STRUC-4 Tanks and vessels containing quantities of toxic or hazardous materials exceeding amounts specified in Chapter 3, Table 3-E of the 2001 CBC shall, at a minimum, be designed to comply with the requirements of that Chapter.

Verification: At least 30 days (or project owner and CBO approved alternate timeframe) 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 1**, Condition of Certification **GEN-2**, above. Physical layout drawings and drawings not related to code compliance and life safety need not be submitted. The submittal shall also include the applicable QA/QC procedures. Upon completion of construction of any such major piping or plumbing system, the project owner shall request the CBO's inspection approval of said construction [2001 CBC, Section 106.3.2, Submittal Documents; Section 108.3, Inspection Requests; Section 108.4, Approval Required; 2001 California Plumbing Code, Section 103.5.4, Inspection Request; Section 301.1.1, Approval].

The responsible mechanical engineer shall stamp and sign all plans, drawings and calculations for the major piping and plumbing systems subject to the CBO design review and approval, and submit a signed statement to the CBO when the said proposed piping and plumbing systems have been designed, fabricated and installed in accordance with all of the applicable laws, ordinances, regulations and industry standards [Section 106.3.4, Architect or Engineer of Record], which may include, but are not limited to:

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

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

The CBO may deputize inspectors to carry out the functions of the code enforcement agency [2001 CBC, Section 104.2.2, Deputies].

Verification: At least 30 days (or project owner and CBO approved alternative timeframe) prior to the start of any increment of major piping or plumbing construction listed in **Facility Design Table 1**, 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 the 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 the 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 said installation [2001 CBC, Section 108.3, Inspection 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 project owner and CBO approved alternative timeframe) 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 said 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 [2001 CBC, Section 108.7, Other Inspections; Section 106.3.4, Architect or Engineer of Record].

Verification: At least 30 days (or project owner and CBO approved alternative timeframe) 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 electrical equipment and systems 480 volts and higher, listed below, with the exception of underground duct work and any physical layout drawings and drawings not related to code compliance and life safety, the project owner shall submit, for CBO design review and approval, the proposed final design, specifications and calculations [CBC 2001, Section 106.3.2, Submittal documents]. 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 [2001 CBC, Section 108.4, Approval Required, and Section 108.3, Inspection Requests]. All transmission facilities (lines, switchyards, switching stations and substations) are handled in Conditions of Certification in the **Transmission System Engineering** section of this document.

Final plant design plans to include:

1. one-line diagrams for the 480 volt and higher systems; and
2. system grounding drawings.

Final plant calculations to 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 480 volt and higher systems;
6. system grounding requirements; and
7. lighting energy calculations.

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 timeframe) 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.

LAWS, ORDINANCES, REGULATIONS & STANDARDS

FACILITY DESIGN

APPLICABLE LAW	DESCRIPTION
Title 24, California Code of Regulations, which adopts the current edition of the California Building Code (CBC); the 2001 CBC for design of structures; American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code; and National Electrical Manufacturers Association (NEMA) standards.	The applicable LORS for each engineering discipline, civil, structural, mechanical and electrical, are included in the application as part of the engineering appendix, Appendix N.

RELIABILITY

RELIABILITY—GENERAL

Presently, there are no laws, ordinances, regulations or standards (LORS) that establish either power plant reliability criteria or procedures for attaining reliable operation. However, the Energy Commission must make findings as to the manner in which the project is to be designed, sited and operated to ensure safe and reliable operation (Cal. Code Regs., tit. 20, § 1752(c)). In past proceedings, the Commission has taken the approach that a project is acceptable if it does not degrade the reliability of the utility system to which it is to be connected. Thus, a project should exhibit reliability at least equal to that of other power plants on that system.

PLANT AVAILABILITY

The North American Electric Reliability Council (NERC) keeps industry statistics for availability factors. NERC continually polls utility companies throughout the North American continent on project reliability. NERC reported an availability factor of 91.00 percent for geothermal units for the years 1996 through 2000 (FSA Reliability, p. 5.4-6). The triple-pressure, condensing steam turbine technology planned for the project has been on the market for many years, and can be expected to exhibit typically high availability. In fact, these new, machines can be expected to outperform the fleet of various, mostly older steam turbines that make up the NERC statistics. The brine handling and treatment technology to be employed in the project has been under development by CEOE and its predecessors for several decades, and has proven reliable.

CE Obsidian Energy LLC proposes to operate the project full time with only scheduled shutdown for maintenance. Based on CE Obsidian Energy LLC's assessment, the project would have an availability factor 95 percent or higher. (FSA Reliability, p. 5.4-1, AFC § 4.1, 6.2.3.1)

Acceptable reliability can be accomplished by providing adequate redundancy of critical components. Equipment availability will be ensured by use of CE Obsidian Energy LLC's quality assurance/ quality control (QA/QC) programs during design, procurement, construction and operation of the plant, and by providing for adequate maintenance and repair of the equipment and systems.

CE Obsidian Energy LLC has provided an outline of the expectations for quality control from the design concept phase through project commissioning. Qualified engineers, licensed in California, will perform design. Equipment will be purchased from qualified suppliers that employ an approved QC program. Designs will be checked and equipment inspected upon receipt; installation will be inspected and systems tested. To ensure such implementation, appropriate Conditions of Certification are included in **FACILITY DESIGN**.

MAINTAINABILITY

A generating facility called on to operate in baseload service for long periods of time must be capable of being maintained while operating. A typical approach for achieving this is to provide redundant examples of those pieces of equipment most likely to require service or repair. CE Obsidian Energy LLC plans to provide appropriate redundancy of function for the

project. The standard and low-pressure crystallizer trains will be redundant, allowing full plant output to be maintained when one of the trains is taken out of service (FSA Reliability, p. 5.4-3, AFC § 4.2.1). Redundancy will be provided in the steam turbine subsystems where practical (FSA Reliability, p. 5.4-3, AFC § 4.2.2). Further, the plant's distributed control system (DCS) will be fully redundant with automatic tracking and switchover capability in case of primary microprocessor failure. Four 33 percent parallel ejector trains featured in the gas removal system will be available, allowing one train to be isolated for maintenance while maintaining plant operation at full capacity with the other three trains. Enough wells will be drilled to provide production and injection capacity so that full plant output can be maintained while wells are being individually worked over (FSA Reliability, p. 5.4-4, AFC § 4.2.1). The plant instrument air system will be equipped with redundant systems.

CE Obsidian Energy LLC proposes to establish a plant maintenance program typical of the industry. Equipment manufacturers provide maintenance recommendations with their products; CE Obsidian Energy LLC will base its maintenance program on these recommendations. In light of these plans, the project will be adequately maintained to ensure acceptable reliability.

FUEL AVAILABILITY

According to the State Department of Commerce, Division of Oil, Gas and Geothermal Resources (DOGGR), the Salton Sea Geothermal Field is believed to supply sufficient resources in commercial quantities for the life of the SSU6 (DOGGR 2002, FSA Reliability, p. 5.4-4.)

WATER AVAILABILITY

The SSU6 would be designed to be self-sufficient with regard to water supply to the greatest extent practical (AFC §§ 5.4.1.1, 3.3.4.2). Water produced from the condensate steam in the power cycle would supply the needed makeup water for the plant's heat rejection system. Additionally, this condensate would supply much of the water necessary to decrease the concentration of brine for ease of re-injection. This water would constitute over 95 percent of the facility's water need. Fresh water from the IID canal system would provide the balance. For further discussion of water supply, see **Soil and Water Resources**. (FSA Reliability, p. 5.4-4.)

NATURAL DISASTERS

Natural forces can threaten the reliable operation of a power plant. High winds and tsunamis (tidal waves) will not likely represent a hazard for this project, but flooding, seismic shaking (earthquake) and seiches (waves in inland water bodies) present credible threats to reliable operation. Site elevation ranges from 232 feet below mean sea level to 227 feet below mean sea level. The site is within the 100-year flood plain. To mitigate the flood hazard, the applicant plans to construct a berm around the entire facility with a top of berm elevation of –220 feet. CE Obsidian Energy LLC also proposes to design the drainage plan for the project site to prevent flooding of the facilities by a 100-year, 24 hour storm event, in accordance with the Imperial County Flood Control requirements (FSA Reliability p. 5.4-5; AFC §§ 4.3.1.2, 5.2.1, 5.4.4.1). In light of compliance with the flood control requirements and the mitigation measures proposed by the Applicant, concerns with the power plant functional reliability due to flooding events will be mitigated to less than significant.

The site lies within Seismic Zone 4. The project will be designed and constructed to the latest appropriate seismic design criteria of the California version of the Uniform Building Code. By being constructed to built to the latest, upgraded seismic design criteria, this project will likely perform at least as well as, and perhaps better than, existing plants in the electric power system. This Decision contains Conditions of Certification to ensure the project is constructed in conformity with the latest California Building Code. See also **FACILITY DESIGN**. (FSA Reliability, p. 5.4-5)

A wave created by earthquake shaking in an enclosed body of water is called a seiche. The possibility may exist for a seiche to occur in the Salton Sea (FSA Reliability, p. 5.4-5). The proposed site is situated nearly at the Salton Sea level and approximately 1,000 feet southeast of the Salton Sea. Therefore, it is possible for flooding from a seiche to affect the site. However, there are no records of seiches occurring during recent earthquakes in the Imperial Valley. Because of the Applicant's proposal to mitigate the possible impact of a seiche, such as raising the embankment height along the western side of the site and/or ground improvement, concerns with the power plant functional reliability due to seiches events will be mitigated to less than significant. (FSA Reliability, p. 5.4-5; AFC §§ 5.2.1.4.5, 5.2.4.4)

FINDING

The project conforms to applicable laws related to reliability without Conditions of Certification

LAWS, ORDINANCES, REGULATIONS & STANDARDS

RELIABILITY

APPLICABLE LAW	DESCRIPTION
None	

TRANSMISSION LINE SAFETY & NUISANCE

TRANSMISSION LINE SAFETY & NUISANCE—GENERAL

The Warren-Alquist Act requires the Commission to "prepare a written decision" … which includes:

- Specific provisions relating to the manner in which the proposed facility is to be designed, sited, and operated in order to protect environmental quality and assure public health and safety, [and]
- (d)(1) Findings regarding the conformity of the proposed site and related facilities…with public safety standards…and with other relevant local, regional, state and federal standards, ordinances, or laws…" (Pub. Resources Code, § 25523).

The proposed project would deliver energy to the Imperial Irrigation District (IID) transmission system via two new 161 kV overhead transmission lines. One interconnection would connect to the new IID Bannister Switching Station. The existing 161 kV "L" line would loop in and out through the IID Bannister Switching Station. The other 161 kV circuit would connect to the IID Midway Substation. In case both segments of the "L" line are out of service, the 15-mile 161 kV line that terminates at the Midway substation would serve as an additional interconnection.

ELECTRIC & MAGNETIC FIELDS

The possibility of health effects from exposure to electric and magnetic fields has increased public concern in recent years about living near high-voltage lines. Both fields occur together whenever electricity flows, hence the general practice of considering exposure to both as EMF exposure. The available evidence, as evaluated by California Public Utilities Commission (CPUC) and other regulatory agencies, has not established that such fields pose a significant health hazard to exposed humans.

However, the Energy Commission considers it important, as does the CPUC, to note that while such a hazard has not been established from the available evidence, the same evidence does not serve as proof of a definite lack of a hazard. Therefore, in light of present uncertainty, it is appropriate to reduce such fields where feasible, until the issue is better understood.

In California, CPUC (Decision 93-11-013) has determined that only no-cost or low-cost measures are presently justified in any effort to reduce power line fields below levels existing before the present health concern arose. The CPUC has further determined that such reduction should be made only in connection with new or modified lines. It requires each electric utility within its jurisdiction to establish EMF-reducing measures and incorporate such measures into the designs for all new or upgraded power lines and related facilities within their respective service areas. Designing the proposed project lines according to existing IID field strength-reducing guidelines would constitute compliance with the CPUC requirements for line field management.

The proposed project would be located on an 80-acre portion of a 160-acre land parcel approximately 1,000 feet southeast of the Salton Sea in the unincorporated area of Imperial County, California. The related switchyard would be located about 12.5 miles away along the

L-line interconnection on Bannister Road. The actual project site is in the northern half of the block bounded by McKendry Road to the north, Severe Road to the west, Peterson Road to the south, and Boyle Road to the east. The town of Niland is approximately 7.5 miles to the northeast, with the town of Calipatria approximately 6.1 miles to the southeast. The site is in a region of mostly open spaces, agricultural lands, and geothermal energy production, with nine geothermal power plants located within a 2-mile-radius.

There are relatively few residences along the routes of the proposed lines, with the nearest ones being between 150 feet and 0.5 miles distant. The one residence about which specific concern was expressed by the owner was determined by the applicant to be located approximately 200 feet from the centerline of the project line at issue. At such a distance, any line-related field impacts, or human exposures, are expected to be within normal background residential levels, which are not a part of the present concern over long-term human exposures, or interference with radio-frequency communication. The only project-related EMF exposures of potential significance are the short-term exposures to plant workers, regulatory inspectors, maintenance personnel, approved guests, or individuals in transit across the project's lines. These types of exposures are short term and well understood as not significantly related to the present health concern. Additionally Condition TLSN-3 provides for validation of the proposed line design. (AFC § 4.3.4.3 & 4.3.4.4; FSA T-line Safety & Nuisance, p. 4.11-9 & 10.)

CONDITION:

- ☑ CE Obsidian Energy LLC shall construct the transmission line in accordance with the CPUC's EMF-reducing guidelines. Condition: **TSLN-1.**
- ☑ CE Obsidian Energy LLC will conduct before and after field strength measurements to ensure EMF-reducing guidelines are met. Condition: **TLSN-4.**

AVIATION SAFETY

The closest airport to the proposed project and related facilities is an airstrip 6 miles southwest in the city of Calipatria. This airstrip is used mostly for crop dusting operations and is too far from the project to pose a collision hazard to utilizing aircraft. The nearest commercial airport is the Imperial County Airport, located approximately 20 miles southeast of the project, where it is too far for the project's lines to pose a collision hazard to utilizing aircraft, according to the previously noted FAA criteria. While an FAA "Notice of Construction or Alteration" would not be required for the proposed lines, CE Obsidian Energy LLC would contact the FAA about the current proposal, as is standard industry practice. (AFC § 4.3.3.4; FSA T-line Safety & Nuisance, p. 4.11-8)

RADIO & TV INTERFERENCE

Radio and TV interference is most commonly caused by irregularities (such as nicks and scrapes on the conductor surface), sharp edges on suspension hardware and other irregularities around the conductor surface. Such interference is usually only a concern for lines of 345 kV or greater. CE Obsidian Energy LLC's proposed 161 kV transmission lines would use low corona conductor design, construction, and maintenance methods that should minimize the potential for such interference.

No significant communications interference is expected, as with the existing IID 161 kV lines designed according to IID guidelines. Since the proposed lines are to be located entirely on-site, away from area residences, no communication interference is expected from the project. Nonetheless, Federal Communications Commission (FCC) regulations require each project owner to ensure mitigation of any such communication interference, if it occurs, to the satisfaction of the affected individual. See Condition **TLSN-3**. (AFC § 5.6.2; SA T-line Safety & Nuisance pp. 4.10-2, 3 & 9)

AUDIBLE NOISE

As with radio and TV interference, the low-corona conductors proposed for the proposed transmission lines will minimize the potential for audible noise. Thus, the new transmission lines will not add significantly to existing background noise levels in the project area. (AFC § 4.3.4.1; FSA T-line Safety & Nuisance p.p. 4.11-8-9)

FIRE HAZARD

Standard fire prevention and suppression measures for all IID lines would be implemented for the proposed project 161kV lines. The applicant's intention to ensure compliance with the clearance-related aspects of GO-95 would be an important part of this compliance approach (CEOE 2002a, page 4-15). IID's fire prevention practices for high-voltage lines would be implemented in compliance with Title 14, California Code of Regulations, section 1250. Staff recommends Condition of Certification **TLSN-4** to ensure implementation.

(FSA T-line Safety & Nuisance, p. 4.11-9)

SHOCKS

CE Obsidian Energy LLC intents to construct the new lines according to the CPUC's GO-95 requirements against hazardous shocks from direct or indirect contact by utility workers or the public with the overhead energized line. Since the proposed transmission line will be grounded according to IID requirements, they do not pose a significant risk of on-site nuisance shock. Ensuring GO-95-required ground clearance, as with all CE Obsidian Energy LLC lines, will minimize the potential for electrical charging for which such grounding is necessary. Therefore, the proposed transmission line does not pose a hazardous or nuisance shock risk on site. Condition **TLSN-1** and **TLSN-5** ensure implementation of the necessary mitigation measures. (AFC § 4.3.4.2; FSA T-line Safety & Nuisance p.p. 4.11-9)

CUMULATIVE IMPACTS

The strengths of electric and magnetic fields from the proposed line were calculated (and will be required) to be measured to factor-in the interactive effects of all area lines. These calculated field strengths, therefore, reflect the cumulative exposure of an individual to fields from all lines within the impact area of the proposed lines. They reflect the implementation of the field-reducing guidelines incorporated in CE Obsidian Energy LLC field designs. The actual contribution from the proposed line will be assessed from field strength measurements required in Condition **TLSN-3**. Thus, there are no significant impacts. (FSA T-line Safety & Nuisance p.p. 4.11-10)

FINDING

With the implementation of the Conditions of Certification, below, the project conforms to applicable laws related to transmission line safety.

CONDITIONS OF CERTIFICATION

TLSN-1 The project owner shall ensure that the proposed 161 kV lines are designed and constructed according to the requirements of CPUC's GO-95, GO-52, the applicable sections of Title 8, California Code of Regulations section 2700 et seq., and IID's EMF reduction guidelines arising from CPUC Decision 93-11-013.

Verification: Thirty days before starting construction of the SSU6 transmission lines or related structures and facilities, the project owner shall submit to the CPM a letter signed by a California registered electrical engineer affirming compliance with this requirement.

TLSN-2 The project owner shall ensure that every reasonable effort will be made to identify and correct, on a case-specific basis, any complaints of interference with radio or television signals from operation of the project-related lines and associated switchyards.

The project owner shall maintain written records for a period of five years, of all complaints of radio or television interference attributable to operation of the plant and the corrective action taken in response to each complaint. Complaints not leading to a specific action or for which there was no resolution should be noted and explained. The record shall be signed by the project owner and also the complainant, if possible, to indicate concurrence with the corrective action or agreement, with the justification for a lack of action.

Verification: All reports of line-related complaints shall be summarized for the project-related lines and included for the first five years of plant operation in the Annual Compliance Report.

TLSN-3 The project owner shall ensure engagement of a qualified consultant to measure the strengths of the line electric and magnetic fields before and after the lines are energized. Measurements should be made according to IEEE measurement protocols at the representative points within and along the edges of the rights-of-way for which the applicant provided field strength estimates.

Verification: The project owner shall file copies of the pre-and post-energization measurements with the CPM within 30 days after completion of the measurements.

TLSN-4 The project owner shall ensure that the right-of-way of the project-related lines are kept free of combustible material according to existing IID practices reflecting compliance with the provisions of Section 4292 of the Public Resources Code and Section 1250 of Title 14 of the California Code of Regulations.

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

TLSN-5 The project owner shall ensure that all permanent metallic objects within the right-of-way of the project-related lines are grounded according to industry standards.

Verification: At least 30 days before the line is energized, the project owner shall transmit to the CPM a letter confirming the intention to comply with this condition.

LAWS, ORDINANCES, REGULATIONS & STANDARDS

TRANSMISSION LINE SAFETY AND NUISANCE

APPLICABLE LAW	DESCRIPTION
FEDERAL	
14 CFR Part 77 – Objects Affecting the Navigation Space	Provides regulates that specify the criteria used by the FAA for determining whether a Notice of Proposed Construction or Alteration is required for potential obstruction hazards.
Title 47 CFR §15.25	Prohibits operation of any devices producing force fields that interfere with radio communications, even if such devices are not intentionally designed to produce radio-frequency energy.
STATE	
CPUC General Order 52	Governs the construction and operation of power and communications lines
CPUC General Order 95	Specifies criteria for overhead line construction, clearance, grounding for shock protection and tree trimming requirements for fire protection.
Title 14 CCR §1250	Specifies utility-related measures for fire protection.
Title 8 CCR, §2700 et seq.	Establishes requirements and standards for safely installing, operating and maintaining electrical installations and equipment.
LOCAL	
There are no applicable Local LORS for this area.	

TRANSMISSION SYSTEM ENGINEERING

TRANSMISSION SYSTEM ENGINEERING—GENERAL

The Transmission System Engineering (TSE) analysis identifies whether the transmission facilities associated with the proposed project conform to all applicable laws, ordinances, regulations, and standards required for safe and reliable electric power transmission. It also assesses whether the applicant has accurately identified all interconnection facilities required as a result of the project.

Additionally, under the California Environmental Quality Act (CEQA), the Energy Commission must conduct an environmental review of the "whole of the action," that may include any new or modified transmission facilities required for the project's interconnection to the electric grid but not within the licensing jurisdiction of the Energy Commission.

CE Obsidian Energy LLC proposes to connect their project into the Imperial Irrigation District (IID) transmission system via two new 161 kV lines. IID would design, construct and own the interconnection facilities including towers, lines, and the Bannister switch yard. One interconnection would connect to the new IID Bannister Switching Station. The existing 161 kV "L" line would loop in and out through the IID Bannister Switching Station. The other 161 kV circuit would connect to the IID Midway Substation. In case both segments of the "L" line are out of service, the 15-mile 161 kV line that terminates at the Midway substation would serve as an additional interconnection.

The SSU6 is a geothermal power generating facility to be located in the area of the existing Salton Sea geothermal power units near Niland, California. The SSU6 will consist of one steam turbine generator (STG) with a nominal output of approximately 200 MW. The expected net output of the plant, after station service usage will be approximately 185 MW. The generating unit will be connected to a dedicated 260 MVA step-up transformer and the high voltage terminals of the transformer will be connected to the 161 kV bus.

The SSU6 will be interconnected to IID grid via two 161 kV single circuits. One interconnection will be a 16-mile single circuit connected to the L-line at Bannister switching station. The other interconnection will be a 15-mile single circuit connected at Midway substation. The interconnection at Midway substation would be a direct inter-tie between the SSU6 and IID's existing M-line. (AFC pp. 3-32-35; FSA pp. 5.5-1-9)

GRID PLANNING

The System Impact Study (SIS) was performed by IID at the request of the CE Obsidian Energy to identify the transmission system impacts caused by the SSU6 project on the IID's 161kV system and the systems of the SCE, WAPA, APS and SDG&E. The SIS included a Power Flow Study, Short Circuit Study, and Dynamic Stability Analysis. The study modeled the proposed SSU6 for a net output of 185 MW. The base cases included all approved IID, SCE, WAPA, APS and SDG&E projects, modeled major transmission system path flows, and the proposed queue generation projects before the on-line date of the SSU6. The detailed study assumptions have been described in the SIS. The Power Flow studies were conducted with and without the SSU6 connected to the IID grid at the Bannister switching station and Midway substation using a 2005 Heavy Summer base case under normal (N-0), Cal-ISO Category B (N-1) and Category C (N-2) contingency conditions. The Power Flow study

assessed the project's impact on thermal loading of the transmission lines and equipment. Dynamic stability studies were conducted with the SSU6 using the 2005 Heavy Summer base case to determine whether the SSU6 would create instability in the system following certain selected outages. Short circuit studies were conducted with and without the SSU6 to determine if the SSU6 would result in overstressing existing substation facilities.

The study normally includes a Load Flow study, Transient Stability study, Post-transient Load Flow study, and Short Circuit study. The study is focused on thermal overloads, voltage deviations, system stability (evaluating excessive oscillations in generators and transmission system, voltage collapse, loss of loads or cascading outages), and short circuit duties. The study must include normal conditions (i.e., non-emergency) and also account for all credible contingency/emergency conditions. Emergency conditions include the loss of a single system element (N-1) such as a transmission line, transformer, or a generator and the simultaneous loss of two system elements (N-2), such as two transmission lines or a transmission line and a generator. In addition to the above analysis, the studies may be performed to verify whether sufficient active or reactive power is available in the area system or area sub-system to which the new generator project would be interconnected. The SIS is followed by supplemental studies conducted by the transmission owner with details provided in a Final Facility Study and a thermal contingency analysis with and without the project for 2005 *heavy* summer and spring conditions. No significant negative impacts with the project operating at 185 MW were identified for heavy summer normal and contingency operation conditions. Thus, adding the project's 185 MW to IIDs system would not cause overloads.

The results of these studies are presented below. (FSA pp. 5.5-1-9)

1. The load flow analysis identifies some overload violations for which adequate Mitigation measures have been identified. The stability studies indicated that the SSU6 project has no adverse impact on system stability.
2. Post transient analysis identified no post transient voltage deviation criteria violation.
3. The three-phase short circuit duty analysis indicated that the 185 MW SSU6 generation project marginally increases the pre-project short circuit duty but is still under the breaker interrupting capacity.
4. The addition of SSU6 and related transmission lines will increase operator flexibility for maintaining the transmission system during steady state and contingency conditions.

CONDITION:

☑ CE Obsidian Energy LLC shall construct its transmission facilities in accordance with CPUC GO – 95 or an equivalent standard and utility industry/Cal-ISO standards. Conditions: **TSE-1 to TSE-8.**

CUMULATIVE IMPACTS

No proposed power plants are currently being reviewed by the Energy Commission that may cause cumulative impacts in conjunction with the SSU6 project. (FSA pp. 5.5-5.)

FINDING

With the implementation of the Conditions of Certification, below, the project conforms to applicable laws related to transmission system engineering.

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: At least 60 days (or a lesser number of days mutually agreed to by the project owner and the CBO) 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 Prior to the start of construction the project owner shall assign an electrical engineer and at least one of each of the following to the project: 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 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 a civil engineer or 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, 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 in conformance with 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 earthwork and to require changes; if site conditions are unsafe or do not conform with predicted conditions used as a basis for design of earthwork 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: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) 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. (1998 CBC, 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 shall reference this condition of certification.

The project owner shall submit a copy of the CBO's approval or disapproval of any corrective action taken to resolve a discrepancy to the CPM within 15 days of receipt. If disapproved, the project owner shall advise the CPM, within five days, the reason for disapproval, and 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 increment of construction until plans for that increment 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: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) 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, outlet line and termination, including a copy of the signed and stamped statement from the responsible electrical engineer attesting to compliance with the 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, including the requirements listed below. The project owner shall submit the required number of copies of the design drawings and calculations as determined by the CBO.

(a) The SSU6 will be interconnected to IID grid via two 161kV single circuits. One of the proposed interconnection would be a 16-mile single circuit connected to the L-line at Bannister switching station. The new Bannister switching station shall be a three-breaker ring bus configuration. The other interconnection would be a 15-mile single circuit 161kV Line connected at the Midway substation.
(b) The power plant switchyard and 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”, Cal-ISO standards, National Electric Code (NEC) and related industry standards.
(c) Breakers and busses in the power plan switchyard and other switchyards, where applicable, shall be sized to comply with a short-circuit analysis.
(d) 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.
(e) The project conductors shall be sized to accommodate the full output from the project.
(f) Termination facilities shall comply with applicable SGD&E interconnection standards.

The project owner shall provide to the CPM:

i) The final Detailed Facility Study (DFS) including a description of facility upgrades, operational mitigation measures, and/or Special Protection System (SPS) sequencing and timing if applicable,

ii) Executed project owner and IID Facility Interconnection Agreement.

Verification: At least 60 days prior to the start of construction of transmission facilities (or a lesser number of days mutually agree to by the project owner and CBO, the project owner shall submit to the CBO for approval:

1. Design drawings, specifications and calculations conforming with CPUC General Order 95 or NESC, Title 8, Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", NEC, applicable interconnection standards and related industry standards, for the poles/towers, foundations, anchor bolts, conductors, grounding systems and major switchyard equipment.
2. For each element of the transmission facilities identified above, the submittal package to the CBO shall contain the design criteria, a discussion of the calculation method(s), a sample calculation based on "worst case conditions"[8] 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 NESC, Title 8, California Code of Regulations, Articles 35, 36 and 37 of the, "High Voltage Electric Safety Orders", NEC, applicable interconnection standards, and related industry standards.
3. Electrical one-line diagrams signed and sealed by the registered professional electrical engineer in responsible charge, a route map, and an engineering description of equipment and the configurations covered by requirements **TSE-5** a) through f) above.
4. The final DFS, including a description of facility upgrades, operational mitigation measures, and/or SPS sequencing and timing if applicable, shall be provided concurrently to the CPM.

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

Verification: At least 60 days prior to the construction of transmission facilities, the project owner shall inform the CBO and the CPM of any impending changes which may not conform to requirements of **TSE-5** and request approval to implement such changes.

TSE-7 The project owner shall provide the following Notice to the California Independent System Operator (Cal-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 Cal-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 ISO Outage Coordination Department.

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

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

TSE-8 The project owner shall be responsible for the inspection of the transmission facilities during and after project construction, and any subsequent CPM and CBO approved changes thereto, to ensure conformance with CPUC GO-95 or NESC, Title 8, CCR, Articles 35, 36 and 37 of the, "High Voltage Electric Safety Orders", applicable interconnection standards, NEC and related industry standards. In case of non-conformance, the project owner shall inform the CPM and CBO in writing, within 10 days of discovering such non-conformance and describe the corrective actions to be taken.

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

(a) "As built" engineering description(s) and one-line drawings of the electrical portion of the facilities signed and sealed by the registered electrical engineer in responsible charge. A statement attesting to conformance with CPUC GO-95 or NESC, Title 8, California Code of Regulations, Articles 35, 36 and 37 of the, "High Voltage Electric Safety Orders", and applicable interconnection standards, NEC, related industry standards, and these conditions shall be provided concurrently.

(b) An "as built" engineering description of the mechanical, structural, and civil portion of the transmission facilities signed and sealed by the registered engineer in responsible charge or acceptable alternative verification. "As built" drawings of the electrical, mechanical, structural, and civil portion of the transmission facilities shall be maintained at the power plant and made available, if requested, for CPM audit as set forth in the "Compliance Monitoring Plan".

(c) A summary of inspections of the completed transmission facilities, and identification of any nonconforming work and corrective actions taken, signed and sealed by the registered engineer in charge.

LAWS, ORDINANCES, REGULATIONS & STANDARDS

TRANSMISSION SYSTEM ENGINEERING

APPLICABLE LAW	DESCRIPTION
FEDERAL	
There are no applicable Federal LORS	
STATE	
CPUC General Order 95, Rules for Overhead Electric Line Construction.	Formulates uniform requirements for construction of overhead lines
Western Electricity Coordinating Council (WECC)	Provides the performance standards used in assessing reliability of the interconnected system.
North American Electric Reliability Council (NERC)	Provides policies, standards, principles and guides to assure the adequacy and security of the electric transmission system.
Cal-ISO Reliability Criteria	Provides policies, standards, principles and guides to assure the adequacy and security of the California interconnected electric transmission system
LOCAL	
There are no applicable Local LORS for this area.	

WORKER SAFETY

WORKER SAFETY—GENERAL

The requirements for worker and fire protection are enforced through Federal, State, and local regulations. The State of California Department of Industrial Relations is charged with the responsibility for administering the Cal/OSHA plan. Effective implementation of worker safety programs at a facility is essential to the protection of workers from workplace hazards. These programs are documented through project-specific worker safety plans. Industrial workers at the proposed facility will operate equipment, handle hazardous materials, and face other workplace hazards that may result in accidents or serious injury. The worker safety and fire protection measures proposed for this project are designed to either eliminate or minimize such hazards through special training, use of protective equipment or implementation of procedural controls.

Fire support services to the site would be under the jurisdiction of the Imperial County Fire Department, which has a contract with the Calipatria City Fire Department to provide needed services. The closest fire station is located at 125 North Park Ave, Calipatria, which is approximately 7 miles away. The response time to the project site is estimated to be between 10 and 12 minutes.

The Calipatria Fire Department is assigned as the off-site hazardous materials first responder for the project from the North Park Avenue Station, and their response time is estimated to be between 10 and 12 minutes.

FIRE PROTECTION

Staff reviewed the information provided in the AFC regarding available fire protection services and equipment to determine if the project would adequately protect workers and if it would affect the fire protection services in the area. The project would rely on both onsite fire protection systems and local fire protection services. The onsite fire protection system provides the first line of defense for small fires. Incipient fires would first be responded to by plant personnel who will be trained to the 40-hour OSHA Responder Training level.

During construction, an interim fire protection system would be in place. The permanent facility fire protection system would be placed in service as early as possible during the construction phase.

Permanent fire suppression elements include both fixed and portable fire extinguishing systems. A 300,000-gallon firewater tank would supply firewater for the project site, via a 10-inch firewater pipe. The firewater pumping system consists of two fire pumps driven by electric motors and one diesel fired fire pump. This system would provide more than an adequate quantity of fire-fighting water to yard hydrants, hose stations, and water spray and sprinkler systems. Fire hydrants and fixed suppression systems would be supplied from the underground firewater loop piping system (AFC, § 3.3.4.8).

This fire water supply and an on-site firewater pumping system would provide more than an adequate quantity of fire-fighting water to yard hydrants, hose stations, and water spray and

sprinkler systems. The motor-driven fire pump would be capable of supplying maximum water demand for any automatic sprinkler system plus water for fire hydrants and hose stations.

Fire hydrants and hose stations would supplement the plant fire protection system using water from the plant underground firewater system. Fire hydrants with hose houses would be placed in accordance with NFPA and local fire codes.

CE Obsidian Energy LLC would be required to provide the final Fire Protection and Prevention Program to the CPM and to the Imperial County Fire Department, prior to construction and operation of the project, to confirm the adequacy of the proposed fire protection measures. (FSA Worker Safety/Fire Protection, p. 4.14-10)

CONDITION:

☑ The project owner shall submit fire protection plans for the construction and operation of the project. Conditions**: WORKER SAFETY-1, WORKER SAFETY-2**.

SAFETY & INJURY PREVENTION

Industrial environments are potentially dangerous. Workers could be exposed to chemical spills, hazardous waste, fires, moving equipment, and confined space entry and egress problems. It is important to have well-defined facility-specific policies and procedures, training, and hazard recognition and control to minimize work place hazards and to protect workers from unavoidable hazards. Energy Commission staff has reviewed CE Obsidian Energy LLC's proposed measures for protection of workers during construction and operation of the proposed project. These measures are described below. These measures are adequate to protect workers from work place hazards associated with the proposed project and to comply with applicable laws.

Construction: During the construction phase of the project, workers will be exposed to hazards typical of construction of a power plant facility. Construction Safety Orders are published at Title 8 of the California Code of Regulations beginning with section 1502 (8 CCR § 1502, et seq.). These requirements are promulgated by Cal/OSHA and are applicable to the construction phase of the project. The Construction Injury and Illness Prevention Program will include the following:

- A Construction Safety Program;
- A Construction Personal Protective Equipment Program;
- A Construction Exposure Monitoring Program;
- A Construction Emergency Action Plan; and
- A Construction Fire Protection and Prevention Plan.

Additional programs include General Industry Safety Orders (8 CCR § 3200-6184), Electrical Safety Orders (8 CCR §2299-2974) and Unfired Pressure Vessel Safety Orders (8 CCR § 450-544). The AFC includes adequate outlines of each of the above programs. Prior to construction of the project, detailed programs and plans will be provided pursuant to the condition of certification **WORKER SAFETY-1**.

CONDITION:

☑ CE Obsidian Energy LLC shall prepare a Construction Safety and Health Program for the review and approval of Cal/OSHA. Condition: **WORKER SAFETY-1.**

Operation: Upon completion of construction and prior to operation, CE Obsidian Energy LLC shall prepare the Operations and Maintenance Safety and Health Program pursuant to regulatory requirements of Title 8 of the California Code of Regulations, which will include the following programs and plans:

- An Operation Injury and Illness Prevention Plan;
- An Emergency Action Plan;
- Hazardous Materials Management Program;
- Operations and Maintenance Safety Program;
- Fire Protection and Prevention Program (8 CCR § 3221); and;
- Personal Protective Equipment Program (8 CCR §§ 3401-3411

Additional programs also include General Industry Safety Orders (8 CCR § 3200-6184), Electrical Safety Orders (8 CCR §2299-2974) and Unfired Pressure Vessel Safety Orders (8 CCR § 450-544). The AFC includes adequate outlines of each of the above programs. Cal/OSHA will review CE Obsidian Energy LLC's program and provide comments as a result of a consultation request. A Cal/OSHA representative will complete a physical survey of the site, analyze work practices, and assess those practices that may likely result in illness or injury.

CONDITION:

☑ CE Obsidian Energy LLC shall prepare an Operations Safety and Health Program for the review and approval of Cal/OSHA. Condition: **WORKER SAFETY-2.**

FINDING

With the implementation of the Conditions of Certification, below, the project conforms to applicable laws related to worker safety.

CONDITIONS OF CERTIFICATION

WORKER SAFETY-1 The project owner shall submit to the CPM a copy of the Project Construction Injury and Illness Prevention Program, containing the following:

- A Construction Safety Program;
- A Construction Personal Protective Equipment Program;
- A Construction Exposure Monitoring Program;
- A Construction Emergency Action Plan; and
- A Construction Fire Protection and Prevention Plan.

The Safety Program, the Personal Protective Equipment Program, and the Exposure Monitoring Program shall be submitted to the CPM for review and comment concerning compliance of the program with all applicable Safety Orders. The Construction Fire Protection

and Prevention Plan and Emergency Action Plan shall be submitted to the Imperial County Fire Department for review and comment prior to submittal to the CPM.

Verification: At least 30 days prior to site mobilization, the project owner shall submit to the CPM for review and approval a copy of the Project Construction Injury and Illness Prevention Program. The project owner shall provide a letter from the Imperial County Fire Department stating that they have reviewed and commented on the Construction Fire Protection and Prevention Plan 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;
- An Emergency Action Plan;
- Hazardous Materials Management Program;
- Operations and Maintenance Safety Program;
- Fire Protection and Prevention Program (Cal Code Regs., tit. 8,§ 3221); and;
- Personal Protective Equipment Program (Cal Code Regs., tit. 8,§§ 3401-3411).

The Operation Injury and Illness Prevention Plan, Emergency Action Plan, and Personal Protective Equipment Program shall be submitted by the project owner to the Cal/OSHA Consultation Service, for review and comment concerning compliance of the program with all applicable Safety Orders. The Operation Fire Protection Plan and the Emergency Action Plan shall also be submitted by the project owner to the City of Calipatria Fire Department for review and acceptance.

Verification: At least 30 days prior to the start of operation, the project owner shall submit to the CPM a copy of the final version of the Project Operations and Maintenance Safety & Health Program. It shall incorporate Cal/OSHA Consultation Service's comments, stating that they have reviewed and accepted the specified elements of the proposed Operations and Maintenance Safety and Health Plan.

LAWS, ORDINANCES, REGULATIONS & STANDARDS

WORKER SAFETY AND FIRE PROTECTION

APPLICABLE LAW	DESCRIPTION
FEDERAL	
Title 29 CFR §651 et seq.	Established the Occupational Safety and Health Act of 1970 to protect the health and safety of workers
Title 29 CFR §1910 et seq.	Contains the minimum occupational health and safety standards for general industry in the U.S.
Title 29 CFR §1926 et seq.	Contains the minimum occupational health and safety standards for construction industry in the U.S.
Title 29 CFR §1952.170-1952-175 et seq.	Gives California full enforcement responsibility for relevant federal occupational health and safety standards.

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GENERAL CONDITIONS

INTRODUCTION

The project General Conditions Including Compliance Monitoring and Closure Plan (Compliance Plan) have been established as required by Public Resources Code section 25532. The plan provides a means for assuring that the facility is constructed, operated, and closed in compliance with air and water quality, public health and safety, environmental and other applicable regulations, guidelines, and conditions adopted or established by the California Energy Commission (Energy Commission) and specified in the written decision on the Application for Certification or otherwise required by law.

The Compliance Plan is composed of elements that:

1. set forth the duties and responsibilities of the Compliance Project Manager (CPM), the project owner, delegate agencies, and others;
2. set forth the requirements for handling confidential records and maintaining the compliance record;
3. state procedures for settling disputes and making post-certification changes;
4. 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;
5. establish requirements for facility closure plans; and
6. specify conditions of certification that follow each technical area that contain the measures required to mitigate any and all potential adverse project impacts associated with construction, operation, and closure to an insignificant level. Each specific condition of certification also includes a verification provision that describes the method of assuring that the condition has been satisfied.

GENERAL CONDITIONS OF CERTIFICATION

DEFINITIONS

To ensure consistency, continuity, and efficiency, the following terms, as defined, apply to all technical areas, including Conditions of Certification:

SITE MOBILIZATION

Site mobilization is defined as moving trailers and related equipment onto the site, usually accompanied by min or ground disturbance, grading for the trailers and limited vehicle parking, trenching for construction utilities, installing utilities, grading for an access corridor, and other related activities. Ground disturbance, grading, etc. for site mobilization are limited to the portion of the site necessary for placing the trailers and providing access and parking for the occupants. Site mobilization is for temporary facilities and is, therefore, not considered construction.

GROUND DISTURBANCE

Ground disturbance is an onsite activity that results in the removal of soil or vegetation, boring, trenching, or alteration of the site surface. This does not include driving or parking a passenger vehicle, pickup truck, or other light vehicle, or walking on the site.

GRADING

Grading is an onsite activity conducted with earth-moving equipment that results in alteration of the topographical features of the site such as leveling, removal of hills or high spots, or moving of soil from one area to another.

CONSTRUCTION

Construction is onsite work to install permanent equipment or structures for any facility. [Warren-Alquist Act section 25105] Construction does **not** include the following:

a. the installation of environmental monitoring equipment;

b. a soil or geological investigation;

c. a topographical survey;

d. any other study or investigation to determine the environmental acceptability or feasibility of the use of the site for any particular facility; or

e. any work to provide access to the site for any of the purposes specified in a., b., c., or d.

START OF COMMERCIAL OPERATION[9]

For compliance monitoring purposes, "commercial operation" is that phase of project development which begins after the completion of start-up and commissioning, where the power plant has reached steady-state production of electricity with reliability at the rated capacity.

COMPLIANCE PROJECT MANAGER RESPONSIBILITIES

A Compliance Project Manager (CPM) will oversee the compliance monitoring and shall be responsible for:

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

2. resolving complaints;

3. processing post-certification changes to the conditions of certification, project description, and ownership or operational control;

4. documenting and tracking compliance filings; and

5. ensuring that the compliance files are maintained and accessible.

[9] A different definition of "Start of Commercial Operation," may be included in the Air Quality (AQ) section (per District Rules or Federal Regulations). In that event, the definition included in the AQ section would only apply to that section.

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

All project compliance submittals are submitted to the CPM for processing. Where a submittal required by a condition of certification requires CPM approval, the approval will involve all appropriate staff and management.

The Energy Commission has established a toll free compliance telephone number of **1-800-858-0784** for the public to contact the Energy Commission about power plant construction or operation-related questions, complaints or concerns.

Pre-Construction and Pre-Operation Compliance Meeting

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

Energy Commission Record

The Energy Commission shall maintain as a public record, in either the Compliance file or Docket file, for the life of the project (or other period as required):

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

PROJECT OWNER RESPONSIBILITIES

It is the responsibility of the project owner to ensure that the general compliance conditions and the conditions of certification are satisfied. The general compliance conditions regarding post-certification changes specify measures that the project owner must take when requesting changes in the project design, compliance conditions, or ownership. Failure to comply with any of the conditions of certification or the general compliance conditions may result in reopening of the case and revocation of Energy Commission certification, an administrative fine, or other action as appropriate.

COM-1, Unrestricted Access

The CPM, responsible Energy Commission staff, and delegate agencies or consultants, shall be guaranteed and granted unrestricted access to the power plant site, related facilities,

project-related staff, and the files and records maintained on site, for the purpose of conducting audits, surveys, inspections, or general site visits. Although the CPM will normally schedule site visits on dates and times agreeable to the project owner, the CPM reserves the right to make unannounced visits at any time. All visitors must follow the Owner's standard safety requirements such as wearing appropriate equipment and observing safety rules when inspecting the site.

COM-2, Compliance Record

The project owner shall maintain project files onsite, or at an alternative site approved by the CPM, for the life of the project unless a lesser period of time is specified by the conditions of certification. The files shall contain copies of all "as-built" drawings, all documents submitted as verification for conditions, and all other project-related documents.

COM-3, Compliance Verification Submittals

Each condition of certification is followed by a means of verification. The verification describes the Energy Commission's procedure(s) to ensure post-certification compliance with adopted conditions.

Verification of compliance with the conditions of certification can be accomplished by:

1. reporting on the work done and providing the pertinent documentation in monthly and/or annual compliance reports filed by the project owner or authorized agent as required by the specific conditions of certification;
2. providing appropriate letters from delegate agencies verifying compliance;
3. Energy Commission staff audits of project records; and/or
4. Energy Commission staff inspections of mitigation or other evidence of mitigation.

A cover letter from the project owner or authorized agent is required for all compliance submittals and correspondence pertaining to compliance matters. **The cover letter subject line shall identify the involved condition(s) of certification by condition number and include 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.

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

All submittals shall be addressed as follows:

Compliance Project Manager
Docket Number
California Energy Commission
1516 Ninth Street (MS-2000)
Sacramento, CA 95814

If the project owner desires Energy Commission staff action by a specific date, they shall so state in their submittal and include a detailed explanation of the effects on the project if this date is not met.

COM-4, Pre-Construction Matrix and Tasks Prior to Start of Construction

The project owner shall submit to the CPM, prior to commencing construction, a compliance matrix addressing only those conditions that must be fulfilled before the start of construction. This matrix shall be included with the project owner's **first** compliance submittal, and shall be submitted prior to the first pre-construction meeting, if one is held. It will be in the same format as the compliance matrix referenced below.

Construction shall not commence until the pre-construction matrix is submitted, all pre-construction conditions have been complied with, and the CPM has issued a letter to the project owner authorizing construction. Various lead times (e.g., 30, 60, 90 days) for submittal of compliance verification documents to the CPM for conditions of certification are established to allow sufficient staff time to review and comment and, if necessary, allow the project owner to revise the submittal in a timely manner. This will ensure that project construction may proceed according to schedule.

Failure to submit compliance documents within the specified lead-time may result in delays in authorization to commence various stages of project construction.

Verification lead times (e.g., 90, 60 and 30-days) associated with start of construction may require the project owner to file submittals during the certification process, particularly if construction is planned to commence shortly after certification.

It is important that the project owner understand that the submittal of compliance documents prior to project certification is at the owner's own risk. In such a situation, any approval by Energy Commission staff is subject to change based upon the Commission Decision

COMPLIANCE REPORTING

There are two different compliance reports that the project owner must submit to assist the CPM in tracking activities and monitoring compliance with the terms and conditions of the Commission Decision. During construction, the project owner or authorized agent shall 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.

COM-5, Compliance Matrix

A compliance matrix shall be submitted to the CPM with each monthly and annual compliance report. The compliance matrix is intended to provide the CPM with the current status of all compliance conditions in a spreadsheet format. The compliance matrix must identify:

1. the technical area;
2. the condition number;
3. a brief description of the verification action or submittal required by the condition;

4. the date the submittal is required (e.g., 60 days prior to construction, after final inspection, etc.);
5. the expected or actual submittal date;
6. the date a submittal or action was approved by the Chief Building Official (CBO), CPM, or delegate agency, if applicable;
7. the compliance status of each condition (e.g., “not started,” “in progress” or “completed” (include the date); and
8. the project’s preconstruction and construction milestones, including dates and status (if milestones are required).

Satisfied conditions do not need to be included in the compliance matrix after they have been identified as satisfied in at least one monthly or annual compliance report.

COM-6, Monthly Compliance Report

The first Monthly Compliance Report is due one month following the Energy Commission business meeting date on which the project was approved, unless otherwise agreed to by the CPM. The first Monthly Compliance Report shall include an initial list of dates for each of the events identified on the **Key Events List. The Key Events List form is found at the end of this section.**

During pre-construction and construction of the project, the project owner or authorized agent shall submit an original and five copies (or amount specified by Compliance Project Manager) of the Monthly Compliance Report within 10 working days after the end of each reporting month. Monthly Compliance Reports shall be clearly identified for the month being reported. The reports shall contain, at a minimum:

1. a summary of the current project construction status, a revised/updated schedule if there are significant delays, and an explanation of any significant changes to the schedule;
2. documents required by specific conditions to be submitted along with the Monthly Compliance Report. Each of these items must be identified in the transmittal letter, and should be submitted as attachments to the Monthly Compliance Report;
3. an initial, and thereafter updated, compliance matrix which shows 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 which 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 with, or permits issued by, other governmental agencies during the month;
8. a projection of project compliance activities scheduled during the next two months. The project owner shall notify the CPM as soon as any changes are made to the project construction schedule that would affect compliance with conditions of certification;
9. a listing of the month’s additions to the on-site compliance file;
10. any requests, with justification, to dispose of items that are required to be maintained in the project owner’s compliance file; and

11. a listing of complaints, notices of violation, official warnings, and citations received during the month, a description of the resolutions of any resolved complaints, and the status of any unresolved complaints.

COM-7, Annual Compliance Report

After construction is complete, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports. The reports are for each year of commercial operation and are due to the CPM each year at a date agreed to by the CPM. Annual Compliance Reports shall be submitted over the life of the project unless otherwise specified by the CPM. Each Annual Compliance Report shall identify the reporting period and shall contain the following:

1. an updated compliance matrix which shows the status of all conditions of certification (fully satisfied and/or closed conditions do not need to be included in the matrix after they have been reported as closed);
2. a summary of the current project operating status and an explanation of any significant changes to facility operations during the year;
3. documents required by specific conditions to be submitted along with the Annual Compliance Report. Each of these items must be identified in the transmittal letter, and should be submitted as attachments to the Annual Compliance Report;
4. a cumulative listing of all post-certification changes approved by the Energy Commission or cleared by the CPM;
5. an explanation for any submittal deadlines that were missed, accompanied by an estimate of when the information will be provided;
6. a listing of filings made to, or permits issued by, other governmental agencies during the year;
7. a projection of project compliance activities scheduled during the next year;
8. a listing of the year's additions to the on-site compliance file;
9. an evaluation of the on-site contingency plan for unplanned facility closure, including any suggestions necessary for bringing the plan up to date [see General Conditions for Facility Closure addressed later in this section]; and
10. a listing of complaints, notices of violation, official warnings, and citations received during the year, a description of the resolution of any resolved complaints, and the status of any unresolved complaints.

COM-8, Construction and Operation Security Plan

At least 14 days prior to commencing construction, a site-specific Security Plan for the construction phase shall be submitted to the CPM for review and approval. At least 30 days prior to the initial receipt of hazardous materials on-site, a site-specific Security Plan for the operational phase shall be submitted to the CPM for review and approval.

Construction Security Plan

The Construction Security Plan shall include the following:

1. site fencing enclosing the construction area;

2. use of security guards;
3. check-in procedure or tag system for construction personnel and visitors;
4. protocol for contacting law enforcement and the CPM in the event of conduct endangering the facility, its employees, its contractors, or public, conduct which is a pre-incident indicator of endangering the facility, its employees, its contractors, or public, or an emergency; and
5. evacuation procedures.

Operations Security Plan

The Operations Security Plan shall include the following:

1. permanent site fencing and security gate;
2. evacuation procedures;
3. protocol for contacting law enforcement and the CPM in the event of conduct endangering the facility, its employees, its contractors, or public, conduct which is a pre-incident indicator of endangering the facility, its employees, its contractors, or public, or emergency;
4. fire alarm monitoring system;
5. site personnel background checks, including employee and routine on-site contractors [Site personnel background checks are limited to ascertaining that the employee's claims of identity and employment history are accurate]. All site personnel background checks shall be consistent with state and federal law regarding security and privacy;
6. site access for vendors; and
7. requirements for Hazardous Materials vendors to prepare and implement security plans as per 49 CFR 172.800 and to ensure that all hazardous materials drivers are in compliance with personnel background security checks as per 49 CFR Part 1572, Subparts A and B.
8. In addition, the Operations Security Plan shall include one or more of the following in order to ensure adequate perimeter security:
   a) security guards;
   b) security alarm for critical structures;
   c) perimeter breach detectors and on-site motion detectors; and
   d) video or still camera monitoring system.

Verification: The Project Owner shall fully implement the security plans and obtain CPM approval of any substantive modifications to the Security Plan. The CPM may authorize modifications to these measures, or may recommend additional measures depending on circumstances unique to the facility, and in response to industry-related security concerns.

COM-9, Confidential Information

Any information that the project owner deems confidential shall be submitted to the Energy Commission's Docket with an application for confidentiality pursuant to Title 20, California Code of Regulations, section 2505(a). Any information, that is determined to be confidential shall be kept confidential as provided for in Title 20, California Code of Regulations, section 2501 et. seq.

COM-10, Department of Fish and Game Filing Fee

Pursuant to the provisions of Fish and Game Code Section 711.4, the project owner shall pay a filing fee in the amount of $850. The payment instrument shall be provided to the Energy Commission's Project Manager (PM), not the CPM, at the time of project certification and shall be made payable to the California Department of Fish and Game. The PM will submit the payment to the Office of Planning and Research at the time of filing of the notice of decision pursuant to Public Resources Code Section 21080.5.

COM-11, Reporting of Complaints, Notices, and Citations

Prior to the start of construction, the project owner must send a letter to property owners living within one mile of the project site and the linear facilities notifying them of a telephone number to contact project representatives with questions, complaints, or concerns. If the telephone is not staffed 24 hours per day, it shall include automatic answering system with date and time stamp recording. All recorded inquiries shall be responded to within 24 hours. The telephone number shall be posted at the project site and made easily visible to passersby during construction and operation. The telephone number shall be provided to the CPM who will post it on the Energy Commission's web page at:

http://www.energy.ca.gov/sitingcases/power_plants_contacts.html

Any changes to the telephone number shall be submitted immediately to the CPM who will update the web page.

In addition to the monthly and annual compliance reporting requirements described above, the project owner shall report and provide copies of all complaint forms, notices of violation, notices of fines, official warnings, and citations, within 10 days of receipt, to the CPM. Complaints shall be logged and numbered. All complaints shall be recorded on the complaint form, such as Attachment A.

FACILITY CLOSURE

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

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

CLOSURE DEFINITIONS

Planned Closure

A planned closure occurs at the end of a project's life, 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 remains accountable for implementing the on-site contingency plan. It can also include unplanned closure where the project owner is unable to implement the contingency plan, and the project is essentially abandoned.

GENERAL CONDITIONS FOR FACILITY CLOSURE

COM-12, Planned Closure

In order to ensure that a planned facility closure does not create adverse impacts, a closure process that provides for careful consideration of available options and applicable laws, ordinances, regulations, standards, and local/regional plans in existence at the time of closure, will be undertaken. To ensure adequate review of a planned project closure, the project owner shall submit a proposed facility closure plan to the Energy Commission for review and approval at least twelve months prior to commencement of closure activities (or other period of time agreed to by the CPM). 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, local/regional plans in existence at the time of facility closure, and applicable conditions of certification.

In the event that there are significant issues associated with the proposed facility closure plan's approval, or the desires of local officials or interested parties are inconsistent with the

plan, the CPM shall hold one or more workshops and/or the Energy Commission may hold public hearings as part of its approval procedure.

In addition, prior to submittal of the proposed facility closure plan, a meeting shall be held between the project owner and the Energy Commission CPM for the purpose of discussing the specific contents of the plan.

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 Energy Commission approval of the facility closure plan is obtained.

COM-13, Unplanned Temporary Closure/On-Site Contingency Plan

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 that 60 days (or other time agreed to by the CPM) prior to commencement of commercial operation. The approved plan must be in place prior to commercial operation of the facility and shall be kept at the site at all times.

The project owner, in consultation with the CPM, will update the on-site contingency plan as necessary. The CPM may require revisions to the on-site contingency plan over the life of the project. In the annual compliance reports submitted to the Energy Commission, the project owner will review the on-site contingency plan, and recommend changes to bring the plan up to date. Any changes to the plan must be approved by the CPM.

The on-site contingency plan shall provide for taking immediate steps to secure the facility from trespassing or encroachment. In addition, for closures of more than 90 days, unless other arrangements are agreed to by the CPM, the plan shall provide for removal of hazardous materials and hazardous wastes, draining of all chemicals from storage tanks and other equipment and the safe shutdown of all equipment. (Also see the analysis 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 twelve 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).

COM-14, Unplanned Permanent Closure/On-Site Contingency Plan

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 unlikely 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.

CBO DELEGATION AND AGENCY COOPERATION

In performing construction monitoring of the project, Commission staff acts as, and has the authority of, the Chief Building Official (CBO). Commission staff may delegate CBO responsibility to either an independent third party contractor or the local building official. 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.

Commission staff may also seek the cooperation of state, regional and local agencies that have an interest in environmental control 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.

Moreover, to ensure compliance with the terms and conditions of certification and applicable LORS, delegate agencies are authorized to take any action allowed by law in accordance with their statutory authority, regulations, and administrative procedures.

NONCOMPLIANCE COMPLAINT PROCEDURES

Any person or agency may file a complaint alleging noncompliance with the conditions of certification. Such a complaint will be subject to review by the Energy Commission pursuant to Title 20, California Code of Regulations, section 1230 et seq., 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 current law or regulations.

Informal Dispute Resolution Procedure

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 this procedure for resolving a dispute. Disputes may pertain to actions or decisions made by any party including the Energy Commission's delegate agents.

This procedure may precede the more formal complaint and investigation procedure specified in Title 20, California Code of Regulations, section 1230 et seq., 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 procedure 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 referred to the full Energy Commission for consideration via the complaint and investigation process. The procedure for informal dispute resolution is as follows:

Request for Informal Investigation

Any individual, group, or agency may request that the Energy Commission 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 and, within seven working days of the CPM's request, provide a written report of the results of the investigation, including corrective measures proposed or undertaken, to the CPM. Depending on the urgency of the noncompliance matter, the CPM may conduct a site visit and/or request the project owner to provide an initial report, within 48 hours, followed by a written report filed within seven days.

Request for Informal Meeting

In the event that either the party requesting an investigation or the Energy Commission staff is not satisfied with the project owner's report, investigation of the event, or corrective measures undertaken, either party may submit a written request to the CPM for a meeting

with the project owner. Such request shall be made within 14 days of the project owner's filing of its written report. Upon receipt of such a request, the CPM shall:

1. immediately schedule a meeting with the requesting party and the project owner, to be held at a mutually convenient time and place;
2. secure the attendance of appropriate Energy Commission staff and staff of any other agencies with expertise in the subject area of concern, as necessary;
3. conduct such meeting in an informal and objective manner so as to encourage the voluntary settlement of the dispute in a fair and equitable manner; and
4. after the conclusion of such a meeting, promptly prepare and distribute copies to all in attendance and to the project file, a summary memorandum which fairly and accurately identifies the positions of all parties and any conclusions reached. If an agreement has not been reached, the CPM shall inform the complainant of the formal complaint process and requirements provided under Title 20, California Code of Regulations, section 1230 et seq.

Formal Dispute Resolution Procedure-Complaints and Investigations

If the project owner, Energy Commission staff, or the party requesting an investigation is not satisfied with the results of the informal dispute resolution process, such party may file a complaint or a request for an investigation with the Energy Commission's General Counsel. Disputes may pertain to actions or decisions made by any party including the Energy Commission's delegate agents. Requirements for complaint filings and a description of how complaints are processed are in Title 20, California Code of Regulations, section 1230 et seq.

The Chairman, upon receipt of a written request stating the basis of the dispute, may grant a hearing on the matter, consistent with the requirements of noticing provisions. The Energy Commission shall have the authority to consider all relevant facts involved and make any appropriate orders consistent with its jurisdiction (Cal. Code Regs., tit. 20, §§ 1232-1236).

POST CERTIFICATION CHANGES TO THE ENERGY COMMISSION DECISION: AMENDMENTS, INSIGNIFICANT PROJECT CHANGES AND VERIFICATION CHANGES

The project owner must petition the Energy Commission pursuant to Title 20, California Code of Regulations, section 1769, in order to delete or change a condition of certification, modify project design, operation or performance requirements, and to transfer ownership or operational control of the facility.

A petition is required for **amendments** and for **insignificant project changes** as specified below. 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 Docket in accordance with Title 20, California Code of Regulations, section 1209.

The criteria that determine which type of approval process applies are explained below.

AMENDMENT

A proposed project modification will be processed as an amendment if it alters the intent or purpose of a condition of certification, has potential for significant adverse environmental impact, or may violate applicable laws, ordinances, regulations or standards. The full Commission must approve formal amendments. The project owner shall file a petition in accordance with Title 20, California Code of Regulations, section 1769 (a).

Change of ownership or operational control also requires that the project owner files a petition, and obtains full Commission approval, pursuant to section 1769 (b).

INSIGNIFICANT PROJECT CHANGE

If a proposed modification does not alter the intent or purpose of a condition of certification, does not have potential for significant adverse environmental impact, does not violate applicable laws, ordinances, regulations, or standards, or does not result in an ownership change, it will be processed in accordance with Section 1769(a)(2). In this regard, as specified in Section 1769(a)(2), Commission approval is not required.

The CPM shall file a statement that staff has made such a determination with the Commission Docket and mail a copy of the statement to every person on the project's post-certification mailing list.

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 in section 1769 (a) (2). If an objection is received, the petition must be processed as a formal amendment to the final decision and must be approved by the full Commission at a noticed business meeting or hearing.

VERIFICATION CHANGE

The proposed change will be processed as a verification change if it involves only the language in the verification portion of the condition of certification. This procedure can only be used to change verification requirements that are of an administrative nature, usually the timing of a required action. In the unlikely event that verification language contains technical requirements, the proposed change must be processed as an amendment. The CPM may initiate a verification change.

COM-6, KEY EVENTS LIST

PROJECT: **Salton Sea Geothermal Unit #6 Power Project**

DOCKET #: **02-AFC-02**

COMPLIANCE PROJECT MANAGER: **Connie Bruins**

EVENT DESCRIPTION	DATE
Certification Date/Obtain Site Control	
Online Date	
POWER PLANT SITE ACTIVITIES	
Start Site Mobilization	
Start Ground Disturbance	
Start Grading	
Start Construction	
Begin Pouring Major Foundation Concrete	
Begin Installation of Major Equipment	
Completion of Installation of Major Equipment	
First Combustion of Gas Turbine	
Start Commercial Operation	
Complete All Construction	
TRANSMISSION LINE ACTIVITIES	
Start T/L Construction	
SYNCHRONIZATION WITH GRID AND INTERCONNECTION	
COMPLETE T/L CONSTRUCTION	
FUEL SUPPLY LINE ACTIVITIES	
Start Gas Pipeline Construction and Interconnection	
COMPLETE GAS PIPELINE CONSTRUCTION	
WATER SUPPLY LINE ACTIVITIES	
Start Water Supply Line Construction	
Complete Water Supply Line Construction	

ATTACHMENT A
COMPLAINT REPORT/RESOLUTION FORM

PROJECT NAME: **SALTON SEA GEOTHERMAL UNIT #6 POWER PROJECT** AFC Number: **02-AFC-02**
COMPLAINT LOG NUMBER _____ Complainant's name and address: Phone number:
Date and time complaint received: Indicate if by telephone or in writing (attach copy if written): Date of first occurrence:
Description of complaint (including dates, frequency, and duration):
Findings of investigation by plant personnel: Indicate if complaint relates to violation of Energy Commission requirement: Date complainant contacted to discuss findings:
Description of corrective measures taken or other complaint resolution: Indicate if complainant agrees with proposed resolution: If not, explain: Other relevant information:
If corrective action necessary, date 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: Date:

(Attach additional pages and supporting documentation, as required.)

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ADOPTION ORDER

ORDER NO. 03-1217-07

The Commission adopts this Decision on the CE Obsidian Energy LLC Salton Sea Unit 6 Project and incorporates the Presiding Member's Proposed Decision. This Decision is based upon the record of the proceeding (Docket No. 02-AFC-02).

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

1. The Conditions of Certification contained in this Decision, if implemented by the project owner, ensure that the whole of the project will be designed, sited and operated in conformity with applicable local, regional, state, and federal laws, ordinances, regulations, and standards, including applicable public health and safety standards, and air and water quality standards.
2. Implementation of the Conditions of Certification contained in the accompanying text will ensure protection of environmental quality and assure reasonably safe and reliable operation of the facility. The Conditions of Certification also assure that the project will neither result in, nor contribute substantially to, any significant direct, indirect, or cumulative adverse environmental impacts.
3. Existing governmental land use restrictions are sufficient to adequately control population density in the area surrounding the facility and may be reasonably expected to ensure public health and safety.
4. The record does not establish the existence of any environmentally superior alternative site.
5. The record assesses all potential environmental impacts associated with the 185 MW project.
6. To ensure no significant impacts to the environment on matters not subject to our jurisdiction, the Commission recommends that Imperial County, the California Division of Oil, Gas, and Geothermal Resources, and the Bureau of Land Management incorporate in their respective permits the Conditions of Certification identified in this Decision. Those agencies can and should adopt the recommended measures.
7. This Decision contains measures to ensure that the planned, temporary, or unexpected closure of the project will occur in conformance with applicable laws, ordinances, regulations, and standards.
8. The proceedings leading to this Decision have been conducted in conformity with the applicable provisions of Commission regulations governing the consideration of an Application for Certification and thereby meet the requirements of Public Resources Code, sections 21000 et seq. and 25500 et seq.

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

1. The Application for Certification of the CE Obsidian Energy LLC's Salton Sea Unit 6 project, as described in this Decision, is hereby approved, and a certificate to construct and operate the project is hereby granted.

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

3. The Commission hereby adopts the Conditions of Certification, Compliance Verifications, and associated dispute resolution procedures as part of this Decision in order to implement the compliance monitoring program required by Public Resources Code section 25532. All Conditions in this Decision take effect immediately and apply to all construction and site preparation activities including, but not limited to, ground disturbance, site preparation, and permanent structure construction.

4. This Decision is adopted, issued, effective, and final on December 17, 2003.

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

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

7. The Executive Director of the Commission or delegatee shall transmit a copy of this Decision and appropriate accompanying documents as provided by Public Resources Code section 25537 and California Code of Regulations, title 20, section 1768.

Dated: December 17, 2003

ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

WILLIAM J KEESE,
Chairman

ROBERT PERNELL,
Commissioner

ARTHUR H. ROSENFELD,
Commissioner

Absent
JAMES D. BOYD
Commissioner

JOHN L. GEESMAN,
Commissioner