IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES
PLANNING / BUILDING INSPECTION / ECONOMIC DEVELOPMENT / PLANNING COMMISSION / A.L.U.C.

JURG HEUBERGER AICP, CEP, CBO
PLANNING & DEVELOPMENT SERVICES DIRECTOR

DOCKET	
02-AFC-2C	
DATE	OCT 28 2010
RECD.	NOV 15 2010

October 28, 2010

CE Obsidian Energy, LLC.
7030 Gentry Road
Calipatria, CA 92233

CAL-Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

Re: **Conditional Use Permit #10-0004**
APN 020-110-008-000

Dear Applicant:

This is to advise you that the Planning Commission has set a hearing to make a determination on your project, in the Board of Supervisors Chambers, 940 Main Street, El Centro, California, at their meeting on **November 10, 2010 starting at 9:00 a.m.**

It is recommended that you be present to answer questions and make any presentation you may desire. It is necessary that you or a representative be present in order for the Planning Commission to take any action.

Sincerely,

for

DARRELL GARDNER, Interim Director
Planning & Development Services Department

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PLANNING COMMISSION AGENDA

COUNTY OF IMPERIAL

COMMISSIONERS:

Chairman: Rudy Schaffner
Vice Chairman: Carson Kalin

Dennis Bergh
Sergio Cabanas
Dave Gaddis
Josie Godinez

Robert Herrera
Norm Niver
Russell Roben

INTERIM PLANNING DIRECTOR – DARRELL GARDNER

HEARING DATE: **November 10, 2010**
HEARING LOCATION **940 MAIN STREET, BOARD ROOM, EL CENTRO, CALIFORNIA**

ITEM	TIME	PROJECT DESCRIPTION	DECISION		
			Y	N	C
I.	9:00 a.m.	ROLL CALL			
II.		PLEDGE OF ALLEGIANCE			
III.		APPROVAL OF MINUTES OF OCTOBER 27, 2010			
		PUBLIC HEARINGS:			
1.		With regard to the public hearing to consider Conditional Use Permit #06-0003 as submitted by County Sanitation District 2 of Los Angeles County/Mesquite Regional Landfill proposing to amend the existing Mesquite Regional Landfill CUP #1036-91 to include the following: 1) Up to approximately 4,000 tons per day of municipal solid waste via truck starting with 15 trucks/day; 2) travel restrictions on Highway 78 would be revisited to potentially allow truck transport during peak travel weekends; 3) dispose of treated ash from various facilities in Southern California via truck or rail on property described as Section 7, Lots 7-8, Southeast ¼, East ½ of Southwest ¼, & Section 8, South ½, & Section 15, Lots 2-6 & 10-12, & Sections 16-18 all, & Section 19, Northeast ¼, East ½, Northwest ¼, Northeast ¼, Southwest ¼, North ½, Southeast ¼, Lots 1-3 & 5-8, & Section 20, North ½, North ½, Southwest ¼, Lots 1-5, & Section 21, Lots 3-5 & 6, Tract 38, Entire Portion north of Highway 78 R/W, Township 13 South, Range 19 East, SBB&M. (Assessor's Parcel Number 039-340-027-000, (6330 East Highway 78, Brawley), (Supervisorial District #5), [Richard Cabanilla, Planner IV at (760) 482-4236, extension 4313]			
2.		With regard to the public hearing to consider Conditional Use Permit #10-0004 as submitted by CE Obsidian Energy LLC proposing to construct in phases three geothermal flash power plants, 53-MW each (total 159 MW's), to include four on-site plant injection well pads, three production pads, associated pipelines and nine injection well pads and associated pipelines off the plant sites on approximately 160-acres, northwest of the City of Calipatria on property described as Southwest ¼ of Section 33, Township 11 South, Range 13 East, SBBM. Assessor's Parcel Number 020-110-008-000, (1011 West McKendry Road, Calipatria), (Supervisorial District #4), [Richard Cabanilla, Planner IV at (760 482-4236, extension 4313].			
3.		With regard to the public hearing to consider Parcel Map #02448 as submitted by Salton Sea Component Energy, LLC proposing subdivide 231.39 acre parcel into two (2) parcels: Parcel 1 being 79.97 acres and parcel 2 being 151.42 acres for potential sale. No development of site proposed at time of sale. Property described as Parcel 2 of Parcel Map #02427 recorded in Book 13 Pages 39 & 40 of Parcel Maps filed in the office of the County Recorder of Imperial County. Assessor's Parcel Number 020-100-045-000, (343 West McDonald Road, Niland), (Supervisorial District #4), [Joe Hernandez, Planner II, extension 4947].			
4.		With regard to the public hearing to consider Lot Line Adjustment #00247 as submitted by Marlin E. Medearis proposing to adjust the property line between two parcels. Parcel A/1 currently has 112.15+/- acres of existing agriculture land-use. Parcel B/2 has 47.15+/- acres of existing agriculture use with no dwelling units on both parcels. Access to Parcel A/1 and Parcel B/2 if from Forrester Road on property described as the North ½ of the Northwest ¼ of Tract 180, Township 13 South, Range 13 East, SBB&M. Assessor's Parcel Number 035-050-022-000 and 035-050-002-000, (5501 Forrester Road, Westmorland), (Supervisorial District # 4), [Kenny Taylor, Planner I, extension 4336].			

PROJECT REPORT

TO: PLANNING COMMISSION **AGENDA DATE: November 10, 2010**

FROM: Planning & Development Services Dept. **AGENDA TIME: 9:00 A.M./No. 2**

PROJECT TYPE: CE Obsidian Energy (CUP 10-0004) SUPERVISOR DIST: 4

LOCATION: 1011 W McKendry Road APN: 020-110-008-000

Calipatria, CA 92233 PARCEL SIZE: 160 acres

GENERAL PLAN (existing) Agriculture GENERAL PLAN (proposed) N/A

ZONE (existing) A-3-G ZONE (proposed) N/A

GENERAL PLAN FINDINGS: ☐ CONSISTENT ☐ INCONSISTENT ☐ MAY BE/FINDINGS

PLANNING COMMISSION DECISION: **HEARING DATE:** 11/10/2010

☐ APPROVED ☐ DENIED ☐ OTHER

PLANNING DIRECTORS DECISION: **HEARING DATE:**

☐ APPROVED ☐ DENIED ☐ OTHER

ENVIROMENTAL EVALUATION COMMITTEE DECISION: **HEARING DATE:** 09/23/2010

INITIAL STUDY: 10-0006

☐ NEGATIVE DECLARATION ☐ MITIGATED NEG. DECLARATION ☐ EIR

DEPARTMENTAL REPORTS / APPROVALS:

PUBLIC WORKS	☐ NONE	☒ ATTACHED
AG / APCD	☒ NONE	☐ ATTACHED
E.H.S.	☒ NONE	☐ ATTACHED
FIRE / OES	☐ NONE	☒ ATTACHED
OTHER	(See Attached)	

REQUESTED ACTION:

It is recommended that you conduct a public hearing, that you hear all the proponents and opponents of the proposed project. Staff would then recommend that you take the following actions:

(1) Accept the CEC's Draft Staff Assessment as the CEQA environmental documentation for the County's Conditional Use Permit (CUP);

(2) Make the attached findings; and,

(3) Approve CUP #10-0004 subject to all conditions and authorize the Planning & Development Services Department to sign the contract upon receipt of the signed copy from the Permittee.

FINDINGS - CONDITIONAL USE PERMIT

90203.09

The authority may approve or conditionally approve an application only if it finds all of the following:

A. The proposed use is consistent with the goals and policies of the adopted County General Plan.

B. The proposed use is consistent with the purpose of the zone or sub-zone within which the use will be located.

C. The proposed use is listed as a use within the zone or sub-zone or is found to be similar to a listed conditional use according to the procedures of Section 90203.10.

D. The proposed use meets the minimum requirements of this Title applicable to the use and complies with all applicable laws, ordinances and regulations of the County of Imperial and the State of California.

E. The proposed use will not be detrimental to the health, safety, and welfare of the public or to the property and residents in the vicinity.

F. The proposed use does not violate any other law or ordinance.

G. The proposed use is not granting a special privilege.

PROJECT SUMMARY

The applicant, CE Obsidian Energy, LLC, currently possesses a California Energy Commission license issued in 2005 to construct a 215-MW geothermal flash plant, originally called the Salton Sea Unit #6. The proposed project is reduce the size of this original power plant into three (3) 53-MW plants using single-flash technology (total 159 MW's on 160 acres).

In 2003, the County issued a Conditional Use Permit (CUP #02-0028) for the production/injection well pads/wells, pipelines and brine handling facilities.

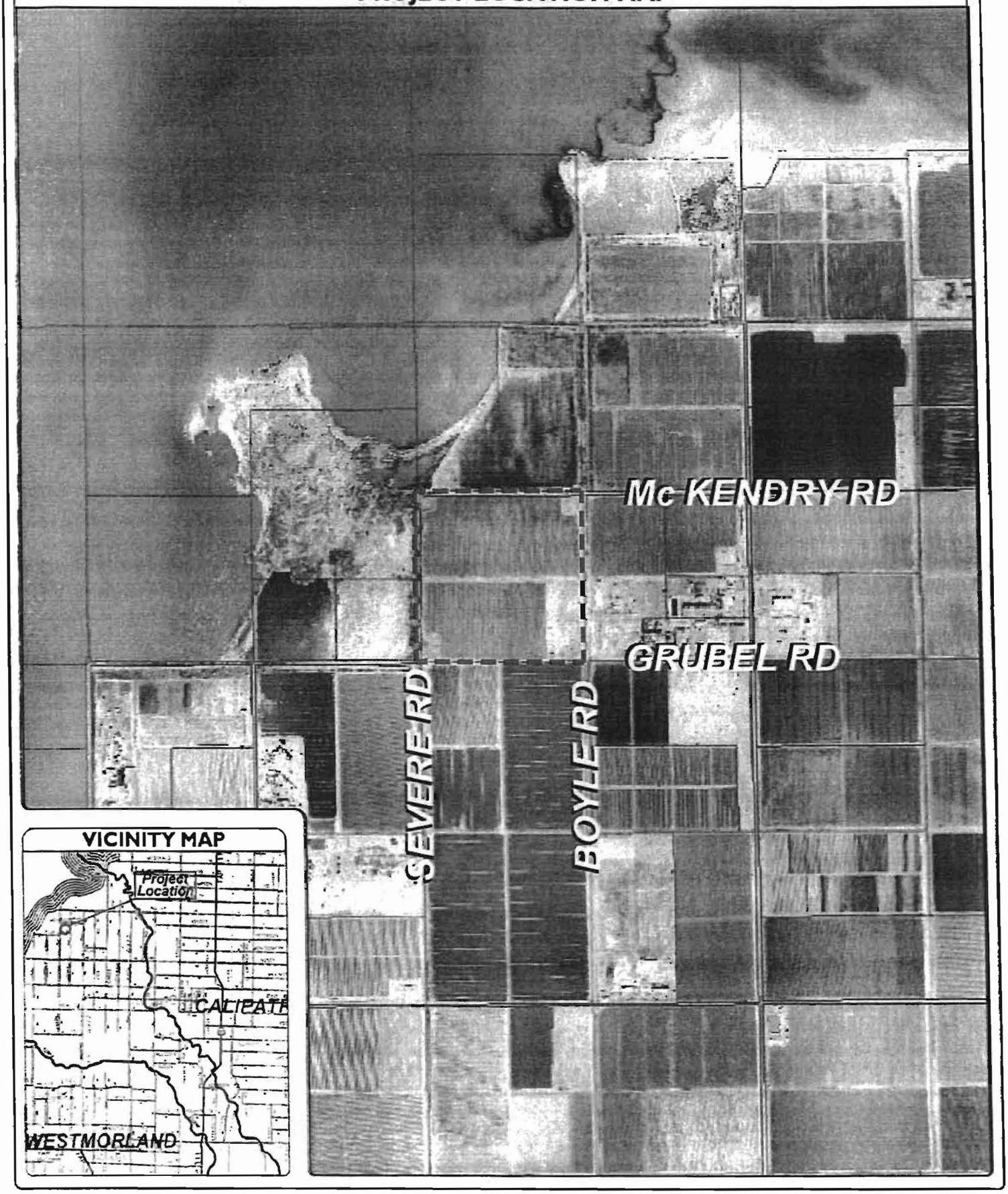
In July 2009, the applicant requested that the name of the Salton Sea Unit #6 project to be called Black Rock Units #1, #2 and #3. As was handled in 2003, the California Energy Commission is the CEQA "Lead Agency" and has jurisdiction over power plant facilities and transmission infrastructure over 50-MW's.

The three plants will be phased into operation and the County's approval is for the installation and operation of four on-site plant injection well pads (average size 4.7 acres with 3 on-site and 1 located on a separate well pad drilling to approximately 8,725 feet), three on-site production well pads with three production wells on each pad (average size 6.6 acres drilling to approximately 7,400 feet), and three off-site injection well pads with three injection wells on each pad and associated pipelines to and from the power plants.

The three flash plants are to be located south of McKendry Road, west of Boyle Road, and east of Severe Road.

As in 2003, the County is utilizing the CEC's "Staff Analysis" to meet CEQA environmental review requirements for processing the CUP. The CEC's conditions of approval are hereby incorporated by reference into the County's approval process.

PROJECT LOCATION MAP



PLANNING & DEVELOPMENT SERVICES DEPARTMENT

BLACK ROCK UNITS #1, #2, & #3
CONDITIONAL USE PERMIT #10-0004
020-110-008-000

When Recorded Return To:

Imperial County Planning & Development Services Dept.
801 Main Street
El Centro, California 92243

DRAFT

AGREEMENT FOR
CONDITIONAL USE PERMIT #10-0004
CE OBSIDIAN ENERGY LLC

This agreement is hereby made and entered into on this ___day of _____ 2010, by and between CE Obsidian Energy, LLC, hereinafter referred to as the Permittee, and the COUNTY OF IMPERIAL, a political subdivision of the State of California, (hereinafter referred to as "COUNTY").

RECITALS

WHEREAS, Permittee is the owner, lessee or successor-in-interest in certain land in Imperial County with the proposed geothermal power plant site to be located on an approximately 190-acre portion of the SW ¼ of Section 33, including well pads, brine pipelines, and borrow area on adjacent properties, approximately 6.1 miles northwest of the City of Calipatria, APN 020-110-008-000, within Township 11 South, Range 13 East, SBB&M.

WHEREAS, Permittee has applied to the County of Imperial for a Conditional Use Permit #10-0004 (the "Project") for resource production/injection facilities to include the construction and operation of four on-site plant injection well pads, three production well pads, and associated above-ground brine pipelines for these wells and brine steam handling facilities with ancillary support facilities that will generate a total of 159 MW's (three 53-MW Black Rock Units #1, #2 and #3 power plants) of electricity to be generated into the grid system.

CE Obsidian Energy LLC, intends to fully comply with all of the terms and conditions of the Project as specified in this Conditional Use Permit, except to the extend that such terms and conditions are in conflict with any condition of certification of the California Energy Commission in Docket No. 02-AFC-2, as amended, in which case the conditions of certification shall control. This amended project is being reviewed and to be approved by the California Energy Commission.

GENERALCONDITIONS:

The "GENERAL CONDITIONS" are shown by the letter "G". These conditions are conditions that are either routinely and commonly included in all Conditional Use Permits as "standardized conditions and/or are conditions that the Imperial County Planning Commission has established as a requirement on all CUP's for consistent application and enforcement. The Permittee is hereby advised that the General Conditions are as applicable as the SITE SPECIFIC conditions.

G-1 GENERAL LAW:

The Permittee shall comply with all local, state and/or federal laws, rules, regulations, ordinances, and/or standards (LORS) as they may pertain to the Project whether specified herein or not.

G-2 PERMITS/LICENSES:

The Permittee shall obtain any and all local, state and/or federal permits, licenses, and/or other approvals for the construction and/or operation of the Project. This shall include, but not be limited to, local requirements for Health, Building, Sanitation, ICAPCD, Public Works, County Sheriff, Fire Protection/Office of Emergency Services, California Energy Commission, Regional Water Quality Control Board, California Division of Oil, Gas and Geothermal Resources, Bureau of Land Management, among others. Permittee shall likewise comply with all such permit requirements. Additionally, Permittee shall submit a copy of such additional permit and/or licenses to the Planning & Development Services Department within 30 days of receipt, including amendments or alternatives thereto, when requested.

G-3 RECORDATION:

This permit shall not be effective until it is recorded at the Imperial County Recorders Office and payment of the recordation fee shall be the responsibility of the Permittee. If the Permittee fails to pay the recordation fee within six (6) months from the date of approval, this permit shall be deemed null and void.

G-4 CONDITION PRIORITY:

The Project shall be constructed and operated as described in the Conditional Use Permit application, the Environmental Assessment, or equivalent document of the California Energy Commission, the project description, the California Energy Commission's conditions of certification in Docket No. 02-AFC-2, as amended, and as specified in these conditions. Where a conflict occurs, the California Energy Commission conditions of certification for the power plants shall govern and take precedence.

G-5 INDEMNIFICATION:

As a condition of this permit, Permittee agrees to defend, indemnify, hold harmless, and release the County, its agents, officers, attorneys, and employees from any claim, action, or proceeding brought against any of them, the purpose of which is to attack, set aside, void, or annul the permit or adoption of the environmental document which accompanies it. This indemnification obligation shall include, but not be limited to, damages, costs, expenses, attorneys fees, or expert witness fees that may be asserted by any person or entity, including the Permittee, arising out of or in connection with the approval of this permit, whether there is concurrent, passive or active negligence on the part of the County, its agents, officers, attorneys, or employees. This indemnification shall include Permittee's actions involved in drilling, construction, operation or abandonment of the permitted activities.

G-6 INSURANCE:

The Permittee shall secure and maintain liability in tort and property damage, insurance at a minimum of $1,000,000 or proof of financial responsibility to protect persons or property from injury or damage caused in any way by drilling, construction, or operation of permitted facilities. The Permittee and operator shall required that proper Workers' Compensation insurance cover all laborers working on such facilities, e.g. during drilling, construction and operational activities as required by the State of California. The Permittee shall also secure liability insurance and such other insurance as may be required by the State and/or Federal Law. Evidence of such insurance shall be provided to the County prior to commencement of any activities authorized by this permit, e.g. a Certificate of Insurance is to be provided to the Planning & Development Services Department by the insurance carrier and said insurance and certificate shall be kept current for the life of the permitted project. Certificate(s) of insurance shall be sent directly to the Planning & Development Services Department by the insurance carrier and shall name the Department as a recipient of both renewal and cancellation notices.

G-7 INSPECTION AND RIGHT OF ENTRY:

The County reserves the right to enter the premises to make appropriate inspection(s) and to determine if the condition(s) of this permit are complied with. The owner or operator shall allow authorized County representative access upon the presentation of credentials and other documents as may be required by law to:

(a) Enter at reasonable times upon the owner's or operator's premises where a permitted facility or activity is located or conducted, or where records must be kept under the conditions of the permit;

(b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;

(c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under the permit, and,

(d) Sample or monitor, at reasonable times, for the purpose of assuring permit compliance or, otherwise authorized by law, any substances or parameters at any location.

G-8 SEVERABILITY:

Should any condition(s) of this permit be determined by a Court or other agency with proper jurisdiction to be invalid for any reason, such determination shall not invalidate the remaining provision(s) of this permit.

G-9 PROVISION TO RUN WITH THE LAND/PROJECT:

The provisions of this project are to run with the land/project and shall bind the current and future owner(s), successor(s)-in-interest, assignee(s) and/or transferee(s) of said project. Permittee shall not without prior notification to the Planning & Development Services Department assign, sell or transfer, or grant control of project or any right or privilege therein. The Permittee shall provide a minimum of 60 days written notice prior to such proposed transfer becoming effective. The permitted use identified herein is limited for use upon the permitted properties described herein and may not be transferred to another parcel.

G-10 TIME LIMIT:

Unless otherwise specified within the specific conditions, this permit shall be limited to a maximum of three (3) years from the recordation of the CUP. The CUP may be extended for successive three (3) year period(s) by the Planning Director upon a finding by the Planning & Development Services Department that the project is in compliance with all conditions of the CUP as stated herein and any applicable Land Use regulation of the County of Imperial. If an extension if necessary, the Permittee shall file a written extension request with the Planning Director at least sixty (60) days prior to the expiration date of the permit. Such an extension request shall include the appropriate extension fee. If the original approval was granted by the Planning Commission and/or the Board of Supervisors, such an extension shall only be considered by the approving body, after a noticed public hearing. Nothing stated or implied within this permit shall constitute a guarantee that an extension will be granted. An extension may not be granted if the project is in violation of any one or all of the conditions or if there is a history of non-compliance with the permit conditions.

G-11 COST:

The Permittee shall pay any and all amounts determined by the County Planning & Development Services Department to defray any and all cost(s) for the review of reports, field investigations, monitoring, and other activities directly related to the enforcement/monitoring for compliance of this Conditional Use Permit, County Ordinance or any other applicable law. All County Departments, directly involved in the monitoring/enforcement of this project may bill Permittee under this provision, however said billing shall only be through and with the approval of the Planning & Development Services Department.

G-12 REPORTS/INFORMATION:

If requested by the Planning Director, Permittee shall provide any such documentation/report as necessary to ascertain compliance with the Conditional Use Permit. The format, content and supporting documentation shall be as required by the Planning Director.

G-13 DEFINITIONS:

In the event of a dispute the meaning(s) or the intent of any word(s), phrase(s) and/or conditions or sections herein shall be determined by the Planning Commission of the County of Imperial. Their determination shall be final unless an appeal is made to the Board of Supervisors within the required time.

G-14 MINOR AMENDMENTS:

The Planning Director may approve minor changes or modification(s) to the design, construction, and/or operation of the Project provided said changes are necessary for the project to meet other laws, regulations, codes, or conditions of the CUP and provided further, that such changes will not results in any additional environmental impacts.

G-15 SPECIFICITY:

The issuance of this permit does not authorizes the Permittee to construct or operate the Project in violation of any state, federal, local law nor beyond the specified boundaries of the project as shown the application/project description/permit, nor shall this permit allow any accessory or ancillary use not specified herein. This permit does not provide any prescriptive right or use to the Permittee for future addition and or modifications to the Project.

G-16 NON-COMPLIANCE (ENFORCEMENT & TERMINATION):

Should the Permittee violate any condition herein, the County shall give notice of such violation. If Permittee does not act to correct the identified violation, and after having given reasonable notice and opportunity, the County may revoke the permit.

(a) If the Planning Commission finds and determines that the Permittee or successor-in-interest has not complied with the terms and conditions of the CUP, or cannot comply with the terms and conditions of the CUP, or the Planning Commission determines that the permitted activities constitute a public nuisance, the Planning Director shall provide Permittee with notice and a reasonable opportunity to comply with the enforcement or abatement order.

(b) If after receipt of the order (1) Permittee fails to comply, and/or (2) Permittee cannot comply with the conditions set forth in the CUP, then the matter shall be referred to the

Planning Commission for permit modification suspension, or termination, or to the appropriate prosecuting authority.

G-17 GENERAL WELFARE:

All construction, drilling, testing, and operations shall be conducted with consistency with all laws, conditions, adopted County policies, plans and the application so that the Project will be in harmony with the area and not conflict with the public health, safety, comfort, convenience, and general welfare.

G-18 PERMITS OF OTHER AGENCIES INCORPORATED:

Permits granted by other governmental agencies in connection with the Project are incorporated herein by reference. The County reserves the right to apply conditions of those permits, as the County deems appropriate; provided however, that enforcement of a permit granted by another governmental agency shall require concurrence by the respective agency. Permittee shall provide to the County, on request, copies and amendments of all such permits.

G-19 HEALTH HAZARD:

If the County Health Officer determines that a significant health hazard exists to the public, the Health Officer may require appropriate measures and the Permittee shall implement such measures to mitigate the health hazard. If the hazard to the public is determined to be imminent, such measures may be imposed immediately and may include temporary suspension of permitted activities, the measures imposed by the County Health Officer shall not prohibit the Permittee from requesting a special Planning Commission meeting, provided Permittee bears all related costs.

G-20 APPROVALS AND CONDITIONS SUBSEQUENT TO GRANTING PERMIT:

Permittee acceptance of this permit shall be deemed to constitute agreement with the terms and conditions contained herein. Where a requirement is imposed in this permit that Permittee conduct a monitoring program, and where the County has reserved the right to impose or modify conditions with which the Permittee must comply based on data obtained therefrom, or where Permittee is required to prepare specific plans for County approval and disagreement arises, the Permittee, operator and/or agent, the Planning Director or other affected party, to be determined by the Planning Director, may request that a hearing be conducted before the Planning Commission whereby they may state the requirements which will implement the applicable conditions as intended herein. Upon receipt of a request, the Planning Commission shall conduct a hearing and make a written determination. The Planning Commission may request support and advice from a technical advisory committee. Failure to take any action shall constitute endorsement of staff's determination.

SITE SPECIFIC CONDITIONS:

S-1 AUTHORIZED SCOPE OF ACTIVITIES:

The Permittee may construct the following facilities in compliance with the County's General Plan, Geothermal/Alternative Energy and Transmission Element, and Land Use Ordinance and all other applicable local, state, and federal laws, ordinances, regulations and standards (LORS), to include the State-approved mitigation measures and conditions that are incorporated herein by reference:

(a) Drilling, well flow testing, steam blow, temporary emissions, well testing stack, construction equipment emissions, and operation of three on-site production well pads with three production wells on each pad (average pad size 6.6 acres to approximately 7,400 feet) for a total of nine on-site production wells and associated piping; four on-site plant injection well pads (average size 4.7 acres with 3 on-site and 1 located on a separate well pad to approximately 8,725 feet) and associated piping; three off-site injection well pads with three injection wells on each pad for a total of nine off-site injection wells and associated piping;

(b) Construction and maintenance of the production/injection pipelines to and from the power plant and well pads transiting from one on-site well ad to another on-site/off-site well pad are subject to County jurisdiction;

(c) Drilling, well flow testing, steam blow, temporary emission, well testing stack, construction equipment emissions, and operation of the production and injection wells and associated pipelines;

(d) Operation of pumps, steam vent tanks, valves, control mechanisms, associated gathering/distribution pipelines, flow monitoring and other necessary appurtenances to the above.

(e) Appropriate re-drilling and re-working of the production wells, injection wells, coil tubing clean-out and well flow activities is permitted when necessary and other replacement wells may be drilled deemed necessary over the life of the Project.

(f) This permit authorizes the drilling of the wells at locations shown in the application. Any well "spudded" but not completely abandoned, in accordance with the requirements of the California Division of Oil, Gas and Geothermal Resources (CDOGGR), shall count as being a well being maintained regardless of its use.

(g) Except as specifically authorized in the permit, supplemental activities which required additional major equipment or facilities will require separate permits. The County, in issuing a permit, in no way assures, or otherwise vests any right, with respect to the issuance of a permit or permits for supplemental activities.

S-2 AESTHETICS:

The Permittee shall design and maintain all permanent structures to be harmonious in appearance and compatible with the surrounding area and the existing ten geothermal power plant facilities and comply with the State-approved plans for screening and restoration of laydown areas, facility painting and treatment plan, landscaping plan, lighting mitigation plan, incorporated herein by reference.

S-3 AIR QUALITY:

All permitted facilities and installations shall meet all applicable Imperial County Air Pollution Control District (ICAPCD) requirements under the new source review rule and applicable State-approved conditions incorporated herein by reference.

S-4 ARCHAEOLOGICAL, CULTURAL & PALEONTOLOGICAL RESOURCES:

The Permittee shall prepare, implement and monitor the State-approved Cultural Resources Monitoring and Mitigation Plan and Paleontological Resources Report, incorporated herein by reference, for potential impacts from the well pad and/or pipeline construction and/or operational activities. If any unusual specimens of bone, stone, or ceramic are discovered during construction of the permitted facilities, all construction affecting the discovery site, shall cease until a qualified Cultural Resource Specialist (CRS) retained by the Permittee and approved by the County and State CPM, reviews the specimens. The recommendations of the CRS, as approved by the CPM, related to the discovery shall be complied with prior to resuming construction.

S-5 BIOLOGICAL RESOURCES:

The Permittee's Designated Biologist shall coordinate with the CPM, the U.S. Fish & Wildlife Service (USF&WS) and the California Department of Fish and Game (CDF&G) for the preparation, implementation and monitoring activities of the Biological Resources Mitigation, Implementation and Monitoring Plan (BRMIMP), incorporated herein by reference, for the protection of biological resources.

(a) The Permittee shall implement the State-approved Worker Environmental Awareness Program (WEAP) to address the potential for various on-site environmental resources and impacts on the permitted facilities.

(b) The Permittee shall utilize a concrete-lined carbon steel pipe contained within a second, outer carbon steel pipeline to carry brine over any identified wetland(s). Any necessary pipeline(s) shall be isolated by block valves at the wellhead and along the pipeline, and monitored both externally, by daily visual inspections, and internally by pressure monitors. These pipeline(s) shall also be subject to ultrasonic monitoring for corrosion. The pipeline shall contain emergency stop valves that are remotely actuated using Rexa actuators and can be controlled either remotely from the continuously manned control room or from the well-site local control panel.

(c) The Permittee shall schedule construction of Production Well Pads outside the breeding season as contained in the State-approved permits and/or the USF&WS Biological Opinion.

(d) The Permittee shall utilize well pad lighting that is shielded to direct light downward onto the well pad equipment. Plant site lighting shall be directed inward toward the facilities to minimize offsite lighting impacts. All general lighting shall be shielded and focused downward. Task lighting shall be switched to facilitate maintenance activities, but will be switched off unless needed. All minimum lighting requirements specified by local, state and federal Occupational Safety and Health Administration regulations shall be implemented.

(e) The Permittee shall have any proposed transmission lines located within one (1) mile from the Salton Sea shoreline be equipped with bird diverters.

(f) The Permittee shall use pile driver shield enclosures on all pile driving equipment to contain noise created by pile drivers during construction of the Project.

S-6 BRINE CHEMISTRY:

Permittee shall conduct brine chemistry tests which shall include but not be limited to, analysis for hydrogen sulfide, mercury, arsenic, fluoride, boron, ammonia, strontium, iron, zinc, barium, lithium, lead, copper, and chromium. The results of such tests shall be provided to the County and State upon request. To the extent information contained in said test results are propriety in nature such information shall not be released to the public.

S-7 COMMENCEMENT OF WORK:

Permittee shall commence construction of the permitted activities or provide substantial evidence of substantial progress within twenty-four (24) months from the effective date of this permit, i.e. recordation date.

S-8 CONSTRUCTION STANDARDS:

The power plant and other structures shall be built in accordance with the County Building Code requirement applicable to "Seismic Zone D". All structures and facilities shall be designed in accordance with the publication entitled "Recommended Lateral Force Requirements and Commentary by the Structural Engineers Association of California". The structural components of the permitted facilities shall be reviewed by the Building Official/Planning Director. Building permits shall be procured for all non-electric utility facilities from the County prior to commencement of any construction.

S-9 DUST EMISSIONS:

Fugitive dust emissions shall be controlled by ICAPCD-approved dust control measures, e.g. watering, clean gravel, or application of soil stabilizers on well site access roads and well sites, posting and enforcing of reduced speed travel on unpaved roadways as required by the APCD and CE Obsidian Energy LLC that are under its control, and limiting of public access to the well sites and other unpaved areas to control PM-10 emissions shall be by signage indicating the areas are private property and unauthorized access is prohibited.

S-10 EMERGENCY RESPONSE/ACTION PLAN:

An Emergency Response/Action Plan shall be prepared covering possible emergencies, e.g. blow-outs, major fluid spills, earthquakes, fires, floods and other emergencies. At all times, there shall be at least one employee either on the facility premises or on call (i.e., available to respond to an emergency by reaching the facility within a short period of time) with the responsibility of coordinating all emergency response measures. This Emergency Coordinator shall be thoroughly familiar with all aspects of the facility's Emergency Response/Action Plan, all operations and activities at the facility, location of all records within the facility and the facility layout. This person shall have the authority to commit the resources needed to carry out the contingency plan. Adequate personnel and equipment shall be available to respond to emergencies and to insure compliance with the conditions of the permit.

(a) The Emergency Response/Action Plan shall be prepared in consultation with, but not be limited to, the California Energy Commission/CPM, Regional Water Quality Control Board (RWQCB), Imperial County Office of Emergency Services, California Department of Fish and Game, CDOGGR, Department of Toxic Substances Control, Bureau of Land Management, U.S. Fish & Wildlife Service, and local emergency service agencies, and other appropriate state and county agencies. The plan shall include a notification list of response agencies which shall be notified immediately upon the discovery of a reportable unauthorized discharge and the list shall include: Imperial Fire/Office of Emergency Services, Planning & Development Services Department, Environmental Health Services/Health Department, RWQCB, Imperial Irrigation District (IID), CDF&G, Department of Public Works (DPW), Sheriff's office, Department of Toxic Substances Control, California Highway Patrol, BLM, and USF&WS, as applicable.

(b) The Permittee shall provide adequate safety devices against the hazard of fire and explosion for activities that involve the use and storage of flammable, explosive or highly corrosive or reactive materials as well as adequate fire-fighting and fire suppression equipment and devices standard in the industry with compliance with applicable state and local laws as determined by the Imperial County Fire Chief.

(c) The Permittee shall implement all State-approved worker safety and fire protection programs and plans that are incorporated herein by reference.

S-11 FIRST AID:

Appropriate first aid provisions for facility operations shall be made for emergency response during project construction and operation with appropriate first aid training for project employees. During construction, drilling, testing clean-out and work over, a member of each working crew shall be trained in basic first aid and supplied with necessary medical equipment to respond to emergencies as provided for in the Emergency Response/Action Plan required hereinabove.

S-12 GEOTECHNICAL:

The Permittee shall conduct all geotechnical investigations of soil characteristics affecting the permitted facilities by qualified persons at the Permittee's expense and any soil reports shall be made available to the County and other applicable state entities.

S-13 GEOTHERMAL INDUSTRIAL COMMITTEE:

Permittee shall participate in and provide information to the "Geothermal Industrial Committee" formed by the County and information on project development to be provided to the Imperial County Planning Commission upon request.

S-14 INDUCED SEISMICITY:

Permittee shall participate in the County's seismic monitoring program and, in connection therewith, submit a plan for Public Works Department approval, and shall implement the plan as approved. The plan shall include a seismic monitoring system which shall be in operation a minimum of six (6) months prior to commencing production activities. Data from the monitoring program and analysis thereof shall be submitted to the Department of Public Works in accordance with the approved plan.

(a) If evidence of detrimental seismicity, induced by project operations is indicated, changes in operations, including possible cessation of operations, may be ordered by the Department of Public Works, after consultation with the California Division of Oil, Gas and Geothermal Resources.

(b) The Permittee shall report annually or as designated by DPW and the reports shall not be made available to a third party without specific approval of the Permittee.

S-15 LAND USE:

The Permittee shall prepare an appropriate parking plan for the permitted facilities, any signs require compliance with the Land Use Ordinance provisions, provide the necessary laydown/staging areas for permitted facilities, and the appropriate mitigation for the conversion of farmland and any wetlands for the permitted facilities.

S-16 MAINTENANCE OF WATER QUALITY:

The Permittee shall have a water quality monitoring program acceptable to the RWQCB and implement its requirements. The Permittee shall insure that all sumps and brine holding ponds for permitted facilities shall be constructed and maintained so that permeability does not exceed 1 X 10 -6 cm/sec.

S-17 NOISE STANDARDS:

Permittee shall comply with the State-approved BRMIMP and County standards, including but not limited to, a baseline noise survey and subsequent surveys as well as the following:

(a) Diesel equipment used for drilling within 1,000 feet of any residence or biological resource shall have hospital-type mufflers. Well venting and testing at permitted facilities shall be accompanied by the use of an effective muffling device or "silencer".

(b) Heavy truck traffic, well site preparation, and pipe stacking shall be limited to the hours between 7:00 a.m. and 7:00 p.m., Monday through Friday, Saturday 9 a.m. to 5 p.m., and no construction on Sunday and Holidays, for any wells within 1,000 feet of any residence or biological resource. Exceptions may be made during the summer hours to minimize effects of heat with notice to the County Planning Director and approval thereof.

(c) Hydroblasers used in descaling operations when used within 1,000 feet of a residence or biological resource shall be limited to 7:00 a.m. and 7:00 p.m., Monday through Friday, Saturday 9 a.m. to 5 p.m. and no construction on Sunday and Holidays.

(d) The maximum permitted continuous sound level shall be as provided in the conditions of certification in BIO-16 measured at the nearest human or biological receptor outside the permitted facilities using the "A" scale and measured with a sound level meter and associated octave band analyzer. The level may be exceeded by ten percent (10%) if the noise is intermittent and during daylight hours.

(e) Impulse sounds such as sudden steam venting shall be controlled by discharge through a muffler or other sound attenuating system, as appropriate.

(f) Drill pipes shall be racked and/or made up between the hours of 7 a.m. and 7 p.m., Monday through Friday, Saturdays 9 a.m. to 5 p.m. and no work on Sunday and Holidays, for wells within 1,000 feet of a residence or biological resource with exceptions where sound proofing is provided or during summer hours to minimize the effects of heat with notice to the County Planning Director and approval thereof.

(g) Haul trucks and other engine-powered equipment shall be muffled and operated within posted speed limits with engine exhaust brake use limited to emergencies.

(h) The Permittee shall limit the noise of steam blows to no greater than 74 dB(A) measured at a distance of 100 feet, but may conduct steam blows continuously 24 hours per day until completed.

(i) Permittee may propose and the Planning Director may approve modification of the above measures, provided that after such modification, the permitted activities still complies with the applicable noise standards.

S-18 ODOR CONTROL:

The Permittee shall control hydrogen sulfide and other non-condensable emissions to insure that quantities released as a result of the production and injection wells, well pad maintenance and associated facilities do not exceed the mandatory standards. The Permittee shall control all harmful or noxious emissions and the odors shall be controlled to insure that quantities or air contaminants released as a result of the permitted facilities do not exceed State or Federal standards, or constitute a public nuisance.

S-19 OPERATIONS:

Permittee shall have a responsible agent on-site whose name, title, e-mail address and telephone number shall be provided to the California Energy Commission/CPM, Department of Toxic Substances Control, Department of Public Works, Fire/OES, Environmental Health Services/Health Department, Sheriff's Department and Planning & Development Services Department.

S-20 PLAN APPROVALS:

Permittee shall submit to the County and State, any architectural, landscaping and lighting plans prior to construction of the permitted facilities to include painting of structures, planting of trees and/or vegetation and shall receive all approvals prior to commencing construction of the permitted facilities. Approval shall not unreasonably be withheld so long as the plans are consistent with the State/CPM-approved plans, incorporated herein by reference.

S-21 PROTECTION OF WILDLIFE:

The Permittee shall implement mitigation measures approved by the federal, state trustee agencies, and affected local agencies to discourage or prevent wildlife and avian entry into any brine ponds. Well cellars shall be designed to prevent wildlife entry and entrapment and brine pipelines shall be constructed so as not to become a barrier to wildlife movement.

S-22 PERMITS:

Except as specifically authorized in this permit, separate permits shall be required for such supplemental activities, e.g. direct heat applications, mineral recovery and/or geothermal resource recovery projects requiring additional major facilities.

S-23 PROJECT DESIGN:

The following shall be the Project design:

(a) All expansion loops in brine pipelines shall be horizontal except where requested in writing by the owners of surface rights within five hundred feet (500') of a proposed loop, or where design constraints require otherwise.

(b) Marking and lighting of drill rigs at permanent facilities shall be maintained in accordance with Federal Aviation Administration regulations.

(c) All facility access and parking areas shall be constructed to standards approved by the DPW.

(d) Shrubs, trees and ground cover shall be planted and maintained to compliment the appearance of permitted facilities, in accordance with any landscaping plan approved by the County Planning Director.

(e) All permitted activities shall provide for the minimum feasible surface land usage that preserves farmland and wildlife habitat and be compatible with existing uses wherever possible.

(f) All equipment, pipes, tanks and lines used at the production and injection facilities to handle, transfer, pump, or store geothermal fluids or hazardous materials shall be maintained in a manner that prevents leaking and spilling, e.g. effective performance, adequate funding, operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures, with the operation of back-up or auxiliary facilities when necessary to achieve compliance with the permit conditions.

(g) All geothermal drilling sites and ponds shall be as small as possible, i.e. no larger than 6.6 acres on farmable land with exceptions considered on a well-by-well basis.

(h) All geothermal drilling and production sites shall protect as much as possible, the fragile ecological balance of any wetlands by assuring that natural resources will be considered in their location with consideration given to intermittent noise levels which may affect wildlife.

(i) Every permitted facility shall be designed to retain the maximum amount of usable agricultural land and the site shall not interfere with the irrigation and drainage pattern, and shall comply with the requirements and regulations of the Imperial Irrigation District. Production and injection well pads and well sites shall be constructed adjacent to existing roads in so far as possible and well density shall be justified in accordance with good Reservoir Engineering Practices.

(j) All permanent sumps, brine ponds, waste holding ponds, and any other pond, shall be designed and constructed to meet sound engineering standards and the regulations and requirements of the RWQCB under the supervision of a California-licensed Civil Engineer.

(k) All geothermal well sites shall have a durable sign having a surface of not less than two square feet and not more than six square feet bearing the current name and number of the well; emergency telephone number of agent; name and/or insignia of the Permittee and the owner. This sign shall be displayed at all times from the commencement of drilling operations until the well has been abandoned.

(l) Drilling operations shall be diligently pursued until each well is completed or abandoned. All drilling equipment including the derrick shall be removed from the site as soon as practicable after completion of any well. All unattended well sites shall be enclosed by a steel chain-link type fence, six feet high, with no opening below such fence greater than four inches and the gate to be placed at a non-hazardous location and shall be locked at all times.

(m) Within sixty (60) days after the completion of the drilling of a well, all drilling wastes shall be removed from the drilling site and disposed of in accordance with County and State regulations.

(n) Prior to abandonment, it shall be the Permittee's responsibility to comply with all regulations of the CDOGGR regarding protecting both surface and subsurface resources. Any brine holding ponds on farmland shall be purged of brine, the salts removed from the dikes and bottoms and the berms then leveled to the satisfaction of the landowners and the County Planning Director.

(o) Permittee and the IID shall utilize all applicable California Building Code requirements for all power transmission lines.

(p) Permittee shall comply with the approved State California Energy Commission's "Conditions of Certification" along with the CEC's recommendations for the County's CUP with the most stringent condition(s) to be applied to the Black Rock Units #1, #2 and #3 power plants.

S-24 RE-INJECTION:

Fluids equivalent to 70% of produced fluids by mass and on an annual basis, shall be injection back into the reservoir subject to the requirements of the CDOGGR and such information obtained from the monitoring program under seismicity and subsidence and other sources. If significant subsidence or other detriments attributable to the permitted activities is revealed, corrective measures or changes may be ordered by the County in coordination with the State. Permittee, in cooperation with the CDOGGR and the County, shall develop and propose corrective measures for approval within a reasonable time. Permittee shall execute the measures as approved by the County and State. Corrective measures may include, but not limited to, a modified injection rate or altered

injection depth, re-leveling of affected areas, or reduction or total cessation of geothermal activities.

S-25 REPORTING:

The Permittee shall furnish to the County, within a reasonable time, any relevant reports/information which the County requires for monitoring purposes to determine whether cause exists for revoking this permit, or to determine compliance with this permit. The Permittee shall submit all required reports to the Planning Director, County Planning & Development Services Department, 801 Main Street, El Centro, CA 92243, and a copy of these reports to the Compliance Project Manager, 02-AFC-2, California Energy Commission, 1516 Ninth Street (MS-2000), Sacramento, CA 95814, as necessary.

S-26 SPILLS AND RUNOFF:

The Permittee shall design and construct the permitted facilities to prevent spills from endangering adjacent properties and waterways, and to prevent runoff from any source being channeled or directed in an unnatural way so as to cause erosion, siltation, or other detriments. A system of pressure and flow sensing devices, and regular inspection of all brine pipelines capable of detecting leaks and spills, shall be instituted and maintained. The Permittee shall provide and maintain all necessary blowout prevention equipment in accordance with the CDOGGR requirements.

S-27 SUBSIDENCE:

Permittee shall participate in the County's subsidence detection program and, in connection therewith, submit a plan for Department of Public Works approval, showing the proposed locations of benchmarks. Monuments shall connect with the County's geothermal subsidence detection network. Benchmarks installed shall conform to County standards. Surveying shall be performed to National Geodetic Survey (NGS) standards and all field surveying shall conform to such standards.

(a) Permittee shall perform surveying on an annual basis except that the Director of Public Works may require such surveying at different intervals if he deems it necessary. All work shall be performed under the supervision of a surveyor licensed to practice surveying in the State of California.

(b) All field surveying data, e. g. forms and instrument checks, along with an adjustment of said data and analysis, all in conformity with the NGS standards, shall be submitted for review and approval to the DPW within two months of completion of field work.

(c) If the DPW determines good reason exists to require additional surveying, the County reserves the right to require such work to be accomplished at the expense of the Permittee. The County further reserves the right to approve the consultant or firm to accomplish the work.

(d) If evidence of detrimental subsidence, induced by project operations, is indicated, after consultation with the CDOGGR, State/CPM and the Permittee, changes

in operations, including possible cessation of operations, may be ordered by the County and State/CPM.

(e) The Project shall pay its fair share of maintenance of the first order level circuit backbone lines.

S-28 SYSTEM CLOSURE AND SITE RESTORATION:

The Permittee shall prepare, implement and monitor the State-approved Compliance, Monitoring and Closure Plan (CMCP), incorporated herein by reference, when the operation of the permitted facilities herein authorized has ceased, all facilities shall be dismantled, all wells capped or abandoned as required by the County and CDOGGR and the land involved be made compatible with the surrounding uses or as requested by the landowner and as agreed to by the County Planning Director. A Bond, or other acceptable surety, in the amount of $2.5 million dollars, or other forms of security acceptable to Imperial County, in addition to that of the amount set by the California Division of Oil, Gas and Geothermal Resources, shall be filed with the County that guarantees restoration of the land to its condition prior to the permitted well pad and brine pipeline development. Upon completion of such site restoration, the Bond or other surety shall be released by the County.

S-29 TRAFFIC SAFETY:

The Permittee shall obtain all encroachment permits and consider traffic safety in transporting equipment and materials to the permitted facilities to include temporary signs warning motorists on adjacent roadways and flagmen shall be used when a drilling rig or other equipment are being brought to and taken from production and injection well pads and/or geothermal brine pipelines on-site and off-site. (Reference Public Works Letter, date May 14, 2010).

(a) McKendry Road is classified as Local Road requiring sixty (60) feet of right-of-way, being thirty (30) feet from existing centerline. It is requested that sufficient right-of-way be provided to meet this road classification.

(b) Grubel Road is classified as a Local Road requiring sixty (60) feet of right-of-way being thirty (30) feet from existing centerline. It is requested that an irrevocable offer of right-of-way be provided to meet this road classification for the extension of Grubel Road from Severe Road to Boyle Road.

(c) Severe Road is classified as a Local Road requiring sixty (60) feet of right-of-way being thirty (30) feet from existing centerline. It is requested that an irrevocable offer of right-of-way be provided to meet this road classification.

(d) Gentry Road is classified as a Major Collector requiring eighty four (84) feet of right-of-way being forty two (42) feet from existing centerline. It is requested that an irrevocable offer of right-of-way be provided to meet this road classification. Right-of-way requirements will be imposed in the event that the exploratory wells provide successful, location of injection well is located along the project frontage road and under the CUP process for the future Geothermal Power Plant.

(e) Boyle Road is classified as a Local Road requiring sixty (60) feet of right-of-way, being thirty (30) feet from existing centerline. It is requested that sufficient right-of-way be provided to meet this road classification.

(f) A record of survey delineating leased area must be provided.

(g) Traffic to be generated by the proposed project should be provided to determine the impacts to County road facilities. A traffic study may be required for this department's review and approval.

(h) The applicant shall furnish a Drainage and Grading Plan/Study to provide for property grading and drainage control, which shall also include prevention of sedimentation of damage to off-site properties. The Study/Plan shall be submitted to the Department of Public Works for review and approval. The applicant shall implement the approved plan. Employment of the appropriate Best Management Practices (BMP's) shall be included.

(i) An encroachment permit shall be secured from the Department of Public Works for any and all new, altered or unauthorized existing driveway(s) to access the properties through surrounding roads.

(j) A Transportation Permit shall be required from road agency(s) having jurisdiction over the haul route(s) for any hauls of heavy equipment and large vehicles which impose greater than legal loads on riding surfaces, including bridges.

(k) The project will require a National Pollutant Discharge Elimination System (NPDES) permit and Notice of Intent (NOI) from the Regional Water Quality Control Board (RWQCB) prior to County approval of on-site grading plan.

(l) All on-site traffic area shall be hard surfaced to provide all weather access for fire protection vehicles. The surfacing shall the Department of Public Works and Fire/OES Standards as well as those of the Air Pollution Control District (APCD).

(m) All solid and hazardous waste shall be disposed of in an approved solid waste disposal site in accordance with existing County, State and Federal regulations.

(n) All permanent structures, including above ground piping abutting public roads shall be located outside the ultimate right-of-way. Additionally, locations of instruments and appurtenances cannot pose a traffic safety hazard.

The Permittee shall coordinate the movement of any required oversize loads on County roads with the DPW, on State Highways with CALTRANS as well as the El Centro CHP office and such transportation of oversized equipment should be minimized as much as possible.

The Permittee shall be required to obtain any necessary rights-of-way on property under the lease and control of the Permittee and to provide any necessary road work as deemed necessary by the DPW.

The Permittee shall coordinate with DPW, and the California Energy Commission's survey/analysis corridors contained in the conditions of certification for the proper location

of all off-site brine production and injection pipelines that are needed within the existing dedicated rights-of-way for consideration of the existing and any future road needs.

The Permittee shall coordinate the painting of all pipelines with the County and State and be landscaped to blend with in the existing environment as discussed above.

The Permittee shall insure that all pipelines be constructed above-grade for appropriate maintenance, leak detection, and allow for wildlife movement.

The Permittee shall file for an encroachment permit for any work or proposed work in the County road right-of-way.

The Permittee shall coordinate the maintenance of unpaved roads used for construction activities and obtain approvals from the County Department of Public Works.

S-30 WATER CONSERVATION:

The Permittee shall develop and implement in consultation with the Imperial Irrigation District and State/CPM, a project specific conservation program that could result in the conservation of IID water supplies. The water conservation program shall be implemented beginning at the commencement of commercial operation of the Project.

S-31 WATER COURSE CROSSINGS:

The Permittee shall provide one or more of the following techniques to decrease the potential for spills on or near water courses, e.g. surface water canals, drains, or other water crossings as follows:

(a) Pipes shall be constructed of industrial standard designation of "extra heavy" with a thickness of at least 50% greater than that used for other sections of pipe.

(b) "Block valves" shall be installed at both sides of the crossing.

(c) An automatic injection pump shut off and check valve system to immediately stop fluid flow shall be installed on injection pipelines.

(d) Design of facilities shall protect surface and groundwater quality, e.g. handling of on-site drainage and de-watering activities shall not adversely affect adjacent properties.

(e) Other spill prevention measures, proposed by the Permittee and approved by the County and State shall be implemented.

S-32 WATER FACILITIES:

The Permittee shall have all permitted water facilities conform to an applicable General NPDES Permit for Discharges of Water Associated with Construction and Industrial Activity, Waste Discharge Requirement for permitted facilities as well as developing and

implementing the applicable Storm Water Pollution Prevention Plan for the permitted facilities.

(a) The Permittee shall prepare and implement the State-approved Drainage, Erosion and Sedimentation Control Plan relating to the permitted facilities.

(b) The Permittee shall obtain the applicable Clean Water Act, Section 404 permit from the Army Corps of Engineers for any linear and off-site permitted facilities.

(c) The Permittee shall obtain all applicable Section 401 Certifications from the RWQCB for the project.

S-33 WASTE DISPOSAL:

The Permittee shall insure that all wastes, liquid or solid, which are found by the State-approved Registered Engineer or Geologist, shall be disposed to in compliance with appropriate local, state, and federal regulations, in effect or subsequently duly-enacted.

(a) Any discharge of wastes into surface water shall meet all requirements of the Regional Water Quality Control Board, e.g. National Pollution Discharge Elimination System permit restrictions to include a water quality monitoring program. Wastes not re-injected shall be disposed of in a manner approved by applicable law.

(b) All solid wastes shall be disposed of in any approved solid waste disposal site in accordance with County, State and Federal regulations. However, nothing herein is intended to prohibit the extraction of resources from geothermal wastes or materials.

NOW THEREFORE, County hereby issues the Conditional Use Permit #10-0004, and Permittee hereby accepts such permit upon the terms and conditions set forth herein.

IN WITNESS THEREOF, the parties hereto have executed this Agreement the day and year first written.

PERMITTEE

_____ _____

Authorized Representative Date
CE Obsidian Energy, LLC

COUNTY OF IMPERIAL, a political subdivision of the STATE OF CALIFORNIA

_____ _____

Date

Planning Director

PERMITTEE NOTARIZATION

Dated_____

STATE OF CALIFORNIA

COUNTY OF _____} S.S.

On _____ before me, _____ a Notary Public in and for said County and State, personally appeared _____, who proved to on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal

Signature_____

ATTENTION NOTARY: Although the information requested below is OPTIONAL, it could prevent fraudulent attachment of this certificate to unauthorized document.

Title or Type of Document_____
Number of Pages_____Date of Document_____
Signer(s) Other Than Named Above_____

Dated_____

COUNTY NOTARIZATION

STATE OF CALIFORNIA

COUNTY OF IMPERIAL } S.S.

On _____ before me, _____ a Notary Public in and for said County and State, personally appeared _____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal

Signature_____

ATTENTION NOTARY: Although the information requested below is OPTIONAL, it could prevent fraudulent attachment of this certificate to unauthorized document.

Title or Type of Document_____
Number of Pages_____Date of Document_____
Signer(s) Other Than Named Above_____

PROJECT REPORT

TO: ENVIRONMENTAL EVALUATION COMMITTEE **AGENDA DATE: September 23, 2010**

FROM: PLANNING & BUILDING DEPARTMENT **AGENDA TIME 1:30 PM/No. 4**

"INFORMATIONAL ITEM"

PROJECT TYPE: CE Obsidian Energy (CUP 10-0004) SUPERVISOR DIST 4

LOCATION: 1011 W McKendry Road APN: 020-110-008-000

Calipatria, CA 92233 PARCEL SIZE: 160 acres

GENERAL PLAN (existing) Agriculture GENERAL PLAN (proposed) N/A

ZONE (existing) A-3-G ZONE (proposed) N/A

GENERAL PLAN FINDINGS ☒ CONSISTENT ☐ INCONSISTENT ☐ MAY BE/FINDINGS

PLANNING COMMISSION DECISION: HEARING DATE: _____

☐ APPROVED ☐ DENIED ☐ OTHER

PLANNING DIRECTORS DECISION: HEARING DATE: _____

☐ APPROVED ☐ DENIED ☐ OTHER

ENVIROMENTAL EVALUATION COMMITTEE DECISION: HEARING DATE: Sept. 23, 2010

INITIAL STUDY: **#10-0006**

☐ NEGATIVE DECLARATION ☐ MITIGATED NEG. DECLARATION ☐ EIR

DEPARTMENTAL REPORTS / APPROVALS:

PUBLIC WORKS	☐ NONE	☒ ATTACHED
AG / APCD	☒ NONE	☐ ATTACHED
E.H.S.	☒ NONE	☐ ATTACHED
FIRE / OES	☒ NONE	☐ ATTACHED
OTHER	(See Attached)	

REQUESTED ACTION:

SEE ATTACHED

Planning & Building Dev. Services Department
801 MAIN ST., EL CENTRO, CA.., 92243 760-482-4236
(Darrell Gardner, Interim Director)
DEB\S:\APN FILES\020\110\08\PROJREPEEC (CUP10-0004) 08-31-10.doc

EEC ORIGINAL PKG

CONDITIONAL USE PERMIT

I.C. PLANNING & DEVELOPMENT SERVICES DEPT.
801 Main Street, El Centro, CA 92243 (760) 482-4236

- APPLICANT MUST COMPLETE ALL NUMBERED (black) SPACES – Please type or print -

1. PROPERTY OWNER'S NAME CE Obsidian Energy, LLC	EMAIL ADDRESS Steve.Larsen@Calenergy.com	
2. MAILING ADDRESS 1111 South 103rd Street, Omaha,NE	ZIP CODE 68124-1000	PHONE NUMBER 760-348-4221
3. APPLICANT'S NAME STEVE LARSEN C/O CE Obsidian Energy, LLC	EMAIL ADDRESS Steve.Larsen@Calenergy.com	
4. MAILING ADDRESS (Street / P O Box, City, State) 7030 Gentry Road, Calipatria, CA	ZIP CODE 92233	PHONE NUMBER 760-348-4221
4. ENGINEER'S NAME TBD CA. LICENSE NO.	EMAIL ADDRESS	
5. MAILING ADDRESS (Street / P O Box, City, State)	ZIP CODE	PHONE NUMBER

6. ASSESSOR'S PARCEL NO. Plant Site: 020-110-08	SIZE OF PROPERTY (in acres or square foot) 160 acres	ZONING (existing) A-3-G, M-2-G

7. PROPERTY (site) ADDRESS Plant site is located in the block bounded by McKendry, Severe, Peterson, and Boyle roads

8. GENERAL LOCATION (i.e. city, town, cross street) Unincorporated Imperial County; See Attachment A

9. LEGAL DESCRIPTION See Attachment B

PLEASE PROVIDE CLEAR & CONCISE INFORMATION (ATTACH SEPARATE SHEET IF NEEDED)

10. DESCRIBE PROPOSED USE OF PROPERTY (list and describe in detail) See Attachment A for a detailed description.

11. DESCRIBE CURRENT USE OF PROPERTY Agricultural/industrial; See Attachment A for more details.

12. DESCRIBE PROPOSED SEWER SYSTEM N/A

13. DESCRIBE PROPOSED WATER SYSTEM See Attachment A.

14. DESCRIBE PROPOSED FIRE PROTECTION SYSTEM See Attachment A.

15. IS PROPOSED USE A BUSINESS? [X] Yes [ ] No

IF YES, HOW MANY EMPLOYEES WILL BE AT THIS SITE? 69 during operations

I / WE THE L EGAL OWNER (S) OF THE ABOVE PRO PERTY CERTIFY THAT THE INFORMATION SHOWN OR STATED HEREIN IS TRUE AND CORRECT.

Steve Larsen — Print Name — 1/25/10 — Date

Signature

Print Name — Date

Signature

REQUIRED SUPPORT DOCUMENTS

A. SITE PLAN

B. FEE

C. OTHER

D. OTHER

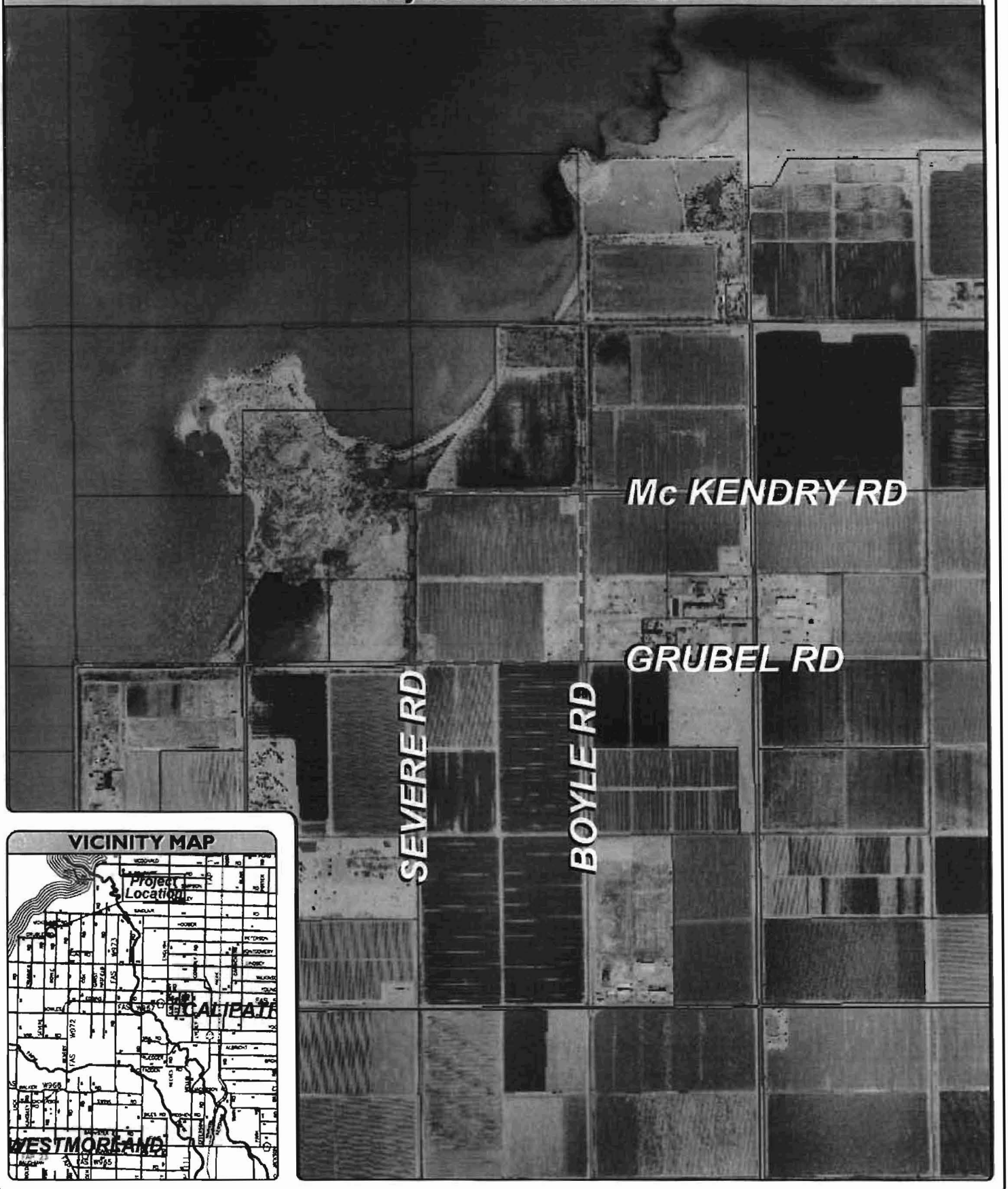
APPLICATION RECEIVED BY:	R. CABANILLA	DATE	2/3/10
APPLICATION DEEMED COMPLETE BY:		DATE	
APPLICATION REJECTED BY:		DATE	
TENTATIVE HEARING BY:		DATE	
FINAL ACTION: [ ] APPROVED [ ] DENIED		DATE	

REVIEW / APPROVAL BY OTHER DEPT'S required.
[ ] P. W. (SEE LISTING)
[ ] E. H. S.
[ ] A. P. C. D.
[ ] O. E. S.
[ ]
[ ]

CUP # $11,000.00

EEC ORIGINAL PKG

PROJECT LOCATION MAP



PLANNING & DEVELOPMENT SERVICES DEPARTMENT
801 MAIN ST., EL CENTRO, CA 92243
(760) 482-4236 FAX: (760) 353-8338

BLACK ROCK UNITS #1, #2, & #3
CONDITIONAL USE PERMIT #10-0004
020-110-008-000

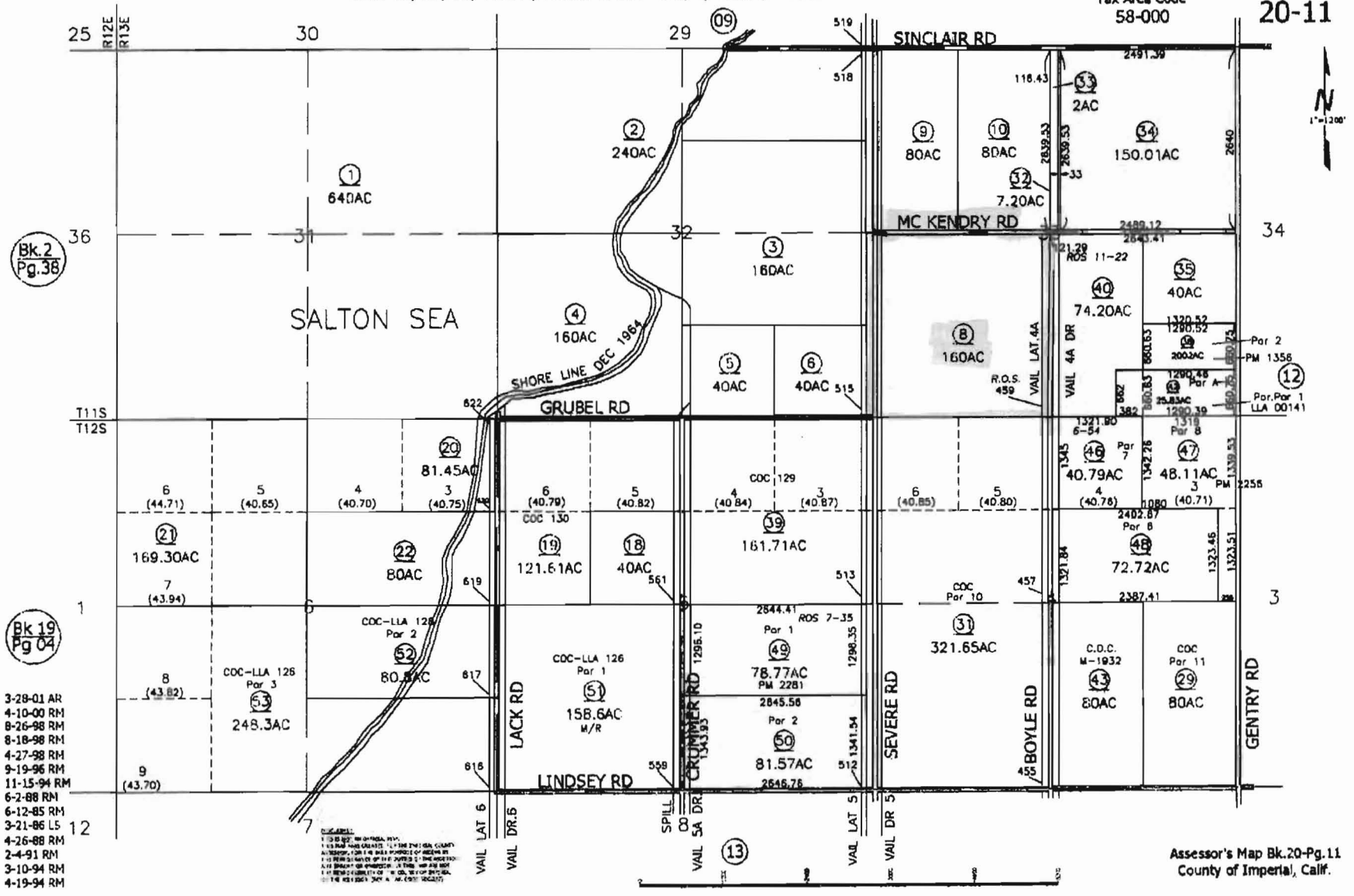
EC ORIGINAL PKG

North

SEC. 31, 32, 33, T.11S., R.13E. & SEC. 4, 5, 6, T.12S., R.13E.

Tax Area Code
58-000

20-11



Assessor's Map Bk.20-Pg.11
County of Imperial, Calif.

EEC ORIGINAL PKG

CH2M HILL
2485 Natomas Park Drive
Suite 600
Sacramento, CA 95833
Tel 916-920-0300
Fax 916-920-8463

CH2MHILL

January 22, 2010

Imperial County
Department Planning & Development Services
801 Main Street
El Centro, CA 92243
Attention: Richard Cabanilla

RECEIVED
FEB 09 2010
IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES

RE: CE Obsidian Energy, LLC
Black Rock 1-3 Conditional Use Permit Application

Dear Richard Cabanilla:

CH2M HILL is submitting the attached Conditional Use Permit (CUP) application package, on behalf of CE Obsidian Energy, LLC (Applicant/CEOE), for the Black Rock 1-3 (BR 1-3) project. This application is for the approval to install and operate four onsite plant injection well pads, three production well pads, and associated pipelines, plus nine injection well pads and associated pipelines located off the plant site.

The California Energy Commission (CEC) is the California Environmental Quality Act (CEQA) Lead Agency for permitting and environmental review for thermal electric generating facility that comprises BR 1-3. The CEC has jurisdiction over the amended facility as its net generation capacity of 159 MW exceeds CEC's statutory 50 MW threshold. CEC also has CEQA jurisdiction over the transmission line to the power grid to the first point of interconnection, and interconnection of the water supply. In addition to the CEC's jurisdiction, Imperial County and the California Division of Oil and Gas and Geothermal Resources (DOGGR) have permitting jurisdiction over the plant injection wells as well as the brine production and injection wells. Imperial County also regulates air quality and has jurisdiction over the project's construction and operational air emissions. The portions of BR 1-3 subject to Imperial County and DOGGR are shown on figures included with this application package.

Included with this letter are 30 printed copies of the CUP Executive Summary, 30 electronic copies of the CUP on compact diskette, 7 printed copies of the complete CUP application and a check for the application fee in the amount of $11.000.00. Attachment A of this application package includes a discussion of existing conditions and a preliminary evaluation of BR 1-3 in accordance with the CEQA Guidelines.

Required and optional materials for this CUP application are shown in the following table.

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BLACK ROCK 1-3 APPLICATION MATERIALS

Application or Optional Item	Where in the Application Materials
Completed Conditional Use Permit Application Form	Attached
Supplement to Conditional Use Permit Application, including detailed Project Description and Environmental Information	Attachment A
Description of: Use of the property, current use of property, proposed sewer system, proposed water system, proposed fire protection system, number of employees	Attachment A
Figures: Figure 1 Regional Map Figure 2 Plant Site and Surrounding Areas Figure 3 Assessor Parcel Numbers for Geothermal Leaseholds Figure 4 Facility Layout Plan	Attachment A
Copy of Imperial County's CUP-02-0028 (Salton Sea Unit 6 wells and brine handling facilities)	Reference CD
Copy of CEC Amendment Petition for BR 1-3	Reference CD
Fees	Check attached

Source: Imperial County Conditional Use Permit Application Form

We look forward to working with the County. Please feel free to contact me directly at (916) 286-0207 if you have questions regarding this application package or require additional information. Thank you for your assistance.

Sincerely,

CH2M HILL

Jerry Salamy
Principal Project Manager

cc: Doug Hackley/CEOE
Mike Fawdry/CEOE
Matt Trask/CEC

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CONDITIONAL USE PERMIT

I.C. PLANNING & DEVELOPMENT SERVICES DEPT.
801 Main Street, El Centro, CA 92243 (760) 482-4236

- APPLICANT MUST COMPLETE ALL NUMBERED (black) SPACES – Please type or print -

1. PROPERTY OWNER'S NAME CE Obsidian Energy, LLC	EMAIL ADDRESS Steve.Larsen@Calenergy.com	
2. MAILING ADDRESS 1111 South 103rd Street, Omaha,NE	ZIP CODE 68124-1000	PHONE NUMBER 760-348-4221
3. APPLICANT'S NAME STEVE LARSEN C/O CE Obsidian Energy, LLC	EMAIL ADDRESS Steve.Larsen@Calenergy.com	
4. MAILING ADDRESS (Street / P O Box, City, State) 7030 Gentry Road, Calipatria, CA	ZIP CODE 92233	PHONE NUMBER 760-348-4221
4. ENGINEER'S NAME TBD CA. LICENSE NO.	EMAIL ADDRESS	
5. MAILING ADDRESS (Street / P O Box, City, State)	ZIP CODE	PHONE NUMBER

6. ASSESSOR'S PARCEL NO. Plant Site: 020-110-08	SIZE OF PROPERTY (in acres or square foot) 160 acres	ZONING (existing) A-3-G, M-2-G

7. PROPERTY (site) ADDRESS Plant site is located in the block bounded by McKendry, Severe, Peterson, and Boyle roads

8. GENERAL LOCATION (i.e. city, town, cross street) Unincorporated Imperial County; See Attachment A

9. LEGAL DESCRIPTION See Attachment B

PLEASE PROVIDE CLEAR & CONCISE INFORMATION (ATTACH SEPARATE SHEET IF NEEDED)

10. DESCRIBE PROPOSED USE OF PROPERTY (list and describe in detail) See Attachment A for a detailed description.

11. DESCRIBE CURRENT USE OF PROPERTY Agricultural/industrial; See Attachment A for more details.

12. DESCRIBE PROPOSED SEWER SYSTEM N/A

13. DESCRIBE PROPOSED WATER SYSTEM See Attachment A.

14. DESCRIBE PROPOSED FIRE PROTECTION SYSTEM See Attachment A.

15. IS PROPOSED USE A BUSINESS? [X] Yes [ ] No

IF YES, HOW MANY EMPLOYEES WILL BE AT THIS SITE? 69 during operations

I / WE THE L EGAL OWNER (S) OF THE ABOVE PRO PERTY CERTIFY THAT THE INFORMATION SHOWN OR STATED HEREIN IS TRUE AND CORRECT

Steve Larsen — Print Name — Date 1/25/10

Signature

Print Name — Date

Signature

REQUIRED SUPPORT DOCUMENTS

A. SITE PLAN
B. FEE
C. OTHER
D. OTHER

APPLICATION RECEIVED BY		DATE	
APPLICATION DEEMED COMPLETE BY		DATE	
APPLICATION REJECTED BY		DATE	
TENTATIVE HEARING BY		DATE	
FINAL ACTION	[ ] APPROVED [ ] DENIED	DATE	

REVIEW / APPROVAL BY OTHER DEPT S required
[ ] P W
[ ] E H S
[ ] A P C D
[ ] O. E S
[ ]
[ ]

CUP #

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ATTACHMENT A
Supplement to Conditional Use Permit Application – CE Obsidian Black Rock Units 1-3

1.0 Background Information

CE Obsidian Energy, LLC (Applicant/CEOE) currently possesses a license from the California Energy Commission (CEC) to construct a geothermal generating plant on an 80-acre site in Imperial County, California (see Figure 1). The license for "Salton Sea Unit 6" was originally granted by the CEC in December 2003 for a 185-MW plant using multiple-flash technology. The 2003 license was amended in May 2005 to enable the plant to increase its capacity to 215 MW (referred to herein as the "original project"). Subsequent to the 2005 CEC-approved amendment, the CEC granted an extension to the Salton Sea Unit 6 (SSU6) license, deferring construction and operation until December 18, 2011.

A second Amendment Petition (Amendment Petition) to the Salton Sea Unit 6 project was submitted by the Applicant to the CEC in March 2009 to request approval for construction of three smaller geothermal plants with a combined total of 159 MW net nominal geothermal power generation using single-flash technology. The single-flash technology is simpler, requires fewer infrastructure components, and produces a significantly smaller amount of waste as compared to multiple-flash technologies. In July 2009, the Applicant requested, and was granted by CEC) to change the name of the project to Black Rock 1, 2, and 3 (BR 1-3).

Imperial County issued a Conditional Use Permit (CUP) in December 2003 for Salton Sea Unit 6 (CUP-02-0028). CUP-02-0028 covered construction and operation of 10 production wells on five well pads, seven injection wells on three well pads, associated above ground brine pipelines for these wells, and brine steam handling facilities with ancillary support systems. A copy of CUP-02-0028 and the corresponding CUP application package is included on the Reference CD (Appendix A.)

1.1 Project Jurisdiction

The CEC is the California Environmental Quality Act (CEQA) Lead Agency for permitting and environmental review for the geothermal electricity generating facility that comprises BR 1-3. The CEC has jurisdiction over the amended facility, as its net generation capacity of 159 MW falls within the CEC's jurisdiction for thermal generation facilities over 50 MW. The CEC also has jurisdiction over that portion of the transmission infrastructure to the first point of interconnection to the power grid and environmental impacts associated with the project's water use/supply.

In addition to the CEC's jurisdiction, Imperial County (County), the California Division of Oil and Gas and Geothermal Resources (DOGGR), and the Regional Quality Control Board (RWQCB) have permitting jurisdiction over the project components, and the Imperial County Air Pollution Control District (ICAPCD) has jurisdiction over project-related construction and operation air emissions. The permitting jurisdiction for the CEC, County,

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DOGGR, RWQCB, and ICAPCD, is consistent with how the permitting and environmental review was conducted for the Salton Sea Unit 6. The list of applicable regulatory agency approvals is included in Section 5.7.2 of the Amendment Petition for the Amended Salton Sea Unit 6 Project dated March 2009. The Amendment Petition, CEC staff Data Requests, and the Applicant's responses from the data adequacy phase of CEC staff review, as well as previously prepared environmental and permitting documents, are included on the Reference CD (Appendix A). The following discussion explains permitting jurisdictions for BR 1-3 components.

Imperial County

As the underlying land use authority, Imperial County is responsible for approval of those components involved with the extraction and re-injection of geothermal fluids. Pursuant to Imperial County's Zoning Ordinance, § 91701.05 Conditional Use Permits, Major Geothermal Projects may be permitted in the Geothermal Overlay Zone only CUP. Figures 2-4 of this application package identify the BR 1-3 components subject to County CUP requirements.

This CUP application for BR 1-3 requests Imperial County approval for the construction and operation of production and injection well pads, including the following features.

- Three onsite production well pads (PROD BR1 through PROD BR-3) with three production wells on each pad (PROD BR-1 [BR-11 through BR 1-3], PROD-BR-2 [BR-21 through BR-23], and PROD-3 [BR-31 through BR-33]) for a total of nine onsite production wells, and associated piping
- Four onsite plant injection well pads (BR-104 through BR-107 located on three well pads [BR-104 is located on PROD BR-1, BR-105 is located on PROD BR-3, and BR-106 and BR-107 are located on a separate well pad adjacent to PROD BR-3]), and associated piping
- Three offsite injection well pads (INJ OB-10, INJ OB-20, and INJ OB-30) with three injection wells on each pad (INJ OB-10 [BR-101 through BR-103], INJ OB-20 [BR-201 through BR-203[, and INJ OB-30 [BR-301 through BR-303]) for a total of nine offsite injection wells, and associated piping

DOGGR

Pursuant to the State of California Public Resources Code (PRC), Chapter 4, Geothermal Resources, Section 3700, the Department of Conservation, DOGGR is responsible to ensure that wells for the discovery and production of geothermal resources be drilled, operated, maintained, and abandoned in such manner as to safeguard life, health, property, and the public welfare, and to encourage maximum economic recovery. DOGGR is responsible for overseeing the drilling, operation, maintenance, plugging, and abandonment of geothermal wells on state and private lands to ensure public safety and protect underground and surface waters.

Consistent with DOGGR requirements, CEOE will secure Underground Injection Control (UIC) permits for the construction and operation of each of the brine and plant injection wells. Copies of these permits will be sent to the County.

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In addition, CEOE is expected to participate in regional subsidence monitoring conducted by Imperial County and DOGGR to evaluate the cumulative impacts of geothermal energy development in the vicinity of BR 1-3.

Colorado River Basin Regional Water Quality Control Board

Pursuant to PRC 25120, mud sumps and brine ponds are expressly excluded from the CEC licensing process. Drilling of the plant wells, production wells, and injection wells will entail the construction of six mud sumps. One mud sump will be located proximate to each (production/injection) well pad. These mud sumps are temporary structures and will be decommissioned at the conclusion of managing solids associated with the drilling program. Each production well pad will have a brine pond [total of three]. The brine ponds are permanent structures that will support plant operations. However, they will also be used to manage solids generated from the drilling program.

The Colorado River Basin Regional Water Quality Control Board (CRBRWQCB) would normally establish standards and Waste Discharge Requirements (WDRs) for operation of both the production and injection well mud sumps and brine ponds. However, PRC Section 25500 vests the CEC with sole jurisdiction for all state and local permits associated with construction and operation of the proposed geothermal power plant. Therefore, the CEC, in consultation and coordination with the CRBRWQCB, will issue in-lieu discharge requirements for the mud sumps and plant brine ponds. In addition, as shown on Figures 2-4, and as described on page 5.17-24 of the Amendment Petition, monitoring wells will be located adjacent to the brine ponds in order to comply with CRBRWQCB groundwater protection requirements.

Monitoring wells associated with the brine ponds and mud sumps also fall under the jurisdiction of the RWQCB and CEC. The BR 1-3 monitoring wells have been included in the Report of Waste Discharge (ROWD) application submitted to the CRBRWQCB on July 30, 2009, with copies transmitted to the CEC. A copy of this documentation is included in Appendix A, Reference CD.

The three brine ponds and the six mud sumps associated with the well pads will be permitted as waste management units (WMUs). In addition to the WMUs, the WDR will also address monitoring and maintenance requirements for the onsite stormwater management facility. General stormwater permits will be required for the construction of the facility.

In addition, it is expected that all CRBRWQCB compliance requirements will be embodied in the Amendment Petition's final Conditions of Certification.

Imperial County Air Pollution Control District

The Imperial County Air Pollution Control District (ICAPCD) has jurisdiction of project-related construction and operation air emissions. An application for an Authority to Construct (ATC) from the ICAPCD was previously filed for the BR 1-3 project. This application included a regulatory analysis demonstrating BR 1-3 conformance with ICAPCD applicable law, ordinances, regulations or standards regarding air quality. The ICAPCD's issuance of an ATC permit will demonstrate that conflicts or obstruction with the implementation of applicable air quality plans are not expected. In addition to the issuance of an ATC, the ICAPCD will also issue a Permit to Operate (PTO) that addresses

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conformance with air quality regulations specifically pertaining to project operations. As part of the processing of the BR1-3 CEC License Amendment, the CEC will issue additional Conditions of Certification that most likely incorporate the ICAPCD ATC and PTO conditions and contain additional conditions intended to further mitigate air quality issues to below significant levels.

1.2 Environmental Review

As described above, the CEC, as CEQA Lead Agency, is conducting the environmental review for components of BR 1-3 as described above. As part of the CEC process, a Staff Analysis will be prepared including a set of Conditions of Certification (COCs) intended to minimize potential environmental impacts and assure compliance with applicable laws, ordinances, regulations, and standards (LORS). As with Salton Sea Unit 6, it is expected that Imperial County will rely on the CEC Staff Analysis to meet CEQA environmental review requirements for processing the CUP. In addition, it is expected that the CEC staff will coordinate with the County regarding the development of an acceptable set of CUP conditions of approval.

A summary of environmental information presented as responses to the CEQA Initial Study Checklist, relating specifically to BR 1-3 components subject to the County's CUP jurisdiction, is included in the Environmental Information section of this application.

1.3 Other Permits

As described above, there are several agencies with permit jurisdiction over BR 1-3. Separate applications have been filed with each agency to comply with permitting requirements. A list of all agencies requiring permit approvals is included in the LORS section of each issue area covered under the Amendment Petition.

1.4 Schedule

CEOE anticipates that the CUP application processing will occur concurrently with CEC processing of the Amendment Petition and associated Data Requests for BR 1-3.

2.0 Location

The 160-acre BR 1-3 site is located within unincorporated area of Imperial County, California, southeast of the Salton Sea as shown on Figure 1. 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.

As shown on Figure 2, the plant site is bounded by McKendry Road to the north, Severe Road to the west, Peterson Road to the south, and Boyle Road to the east. Figure 3 identifies the Imperial County Assessor Parcel Numbers of each parcel involved with BR 1-3. The plant site is currently used for agriculture, as shown on Figure 2. Land uses in the surrounding area include existing geothermal power facilities, agriculture, and wildlife management (the Sonny Bono Salton Sea National Wildlife Refuge [Wildlife Refuge]).

Nine geothermal power plants owned and operated by CalEnergy Operating Company, LLC (the holding company for the Applicant) are located within a 2-mile radius of BR 1-3 (refer to Figure 2-2 of the Amendment Petition included in Appendix A). Geothermal Power

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Plant Units 1, 2, 3, 4, and 5 (referred to by CE Generation as Region 1) are located southwest of BR 1-3; the Vulcan and Hoch (Region 2) geothermal plants are located southeast; and the J.J. Elmore and Leathers geothermal plants are located northeast of BR 1-3.

3.0 Project Description

As described previously, BR 1-3 is composed of three geothermal electric power plants, Black Rock 1, 2, and 3 with a nominal, net output for each plant of 53 MW for a combined capacity of 159 MW. Consistent with Salton Sea Unit 6, BR 1-3 will operate as a base load facility operating continuously (i.e. 24 hours per day; 7 days per week; for approximately 50 weeks per year). The ability to operate continuously is an advantage of geothermal as a renewable energy source as compared to solar and wind resources. Geothermal power generation is therefore beneficial because its base load capability facilitates stability of the electric grid.

3.1 BR 1-3 Overview

The three BR 1-3 plants each consist of two major components; the Resource Production Facility (RPF) and the Power Generating Facility (PGF), as well as ancillary facilities. The RPF includes all the brine and steam handling facilities from the production wellheads to the injection wellheads. It also includes a brine injection system, a brine pond, steam polishing equipment designed to provide turbine-quality steam to the PGFs, and appropriate steam-venting vessels to support operations during startup/shutdown and emergency conditions. The PGF includes a condensing turbine/generator set, noncondensable gas (NCG) removal and abatement systems, and the heat rejection system. The three PGFs also share a 230-kilovolt (kV) switchyard and several power distributions centers. Other facilities common to the three PGFs include a control building, a service water pond, and other ancillary facilities.

The geothermal conversion process proposed for BR 1-3 includes the following processes.

- Hot, high-pressure geothermal fluid (brine) is extracted from the geothermal reservoir through the production wells located on the plant site.
- Brine flows to a steam handling system consisting of a flash vessel, scrubbers, and demisters.
- Steam is separated from the geothermal brine (flashed) to produce high-pressure steam that is sent to the PGF for use in the steam turbine.
- After the first flash, the brine is chemically conditioned, as needed, with hydrochloric acid to prevent scale formation in the process piping and/or injection wells, and reinjected into the formation through a series of injection wells.
- Steam from the RPF is sent to the steam turbine for power generation.
- Steam leaves the turbine generator and enters a shell-and-tube heat exchanger that condenses the steam.
- Cooling water for the heat exchanger is provided by cooling towers.

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- Each PGF will have a dedicated five-cell, mechanical draft wet cooling tower. Each cooling tower will be equipped with a high efficiency mist eliminator to minimize drift and fine particulate matter (PM_{10}) emissions.
- Water condensed in the heat exchanger is the source of approximately 95 percent of the cooling water make-up in the cooling tower on an annual basis. The remaining 5 percent of the total facility water needs will be drawn from the nearby Imperial Irrigation District (IID) canal.
- NCGs are evacuated from the heat exchanger using a vacuum pump and sent to a Regenerative Thermal Oxidizer (RTO) and scrubber system for control of hydrogen sulfide, ammonia, methane, benzene, and other trace components of the NCG stream.
- Condensate will be treated for hydrogen sulfide (H_2S) removal using the chemical oxidization system (ChemOx). This system uses a combination of chemicals to oxidize H_2S into water soluble sulfates which are discharged from the cooling tower with blowdown. This system has been successfully implemented by the applicant at several of the existing Salton Sea geothermal facilities. Refer to section 5.2.4.1 of Amendment Petition for additional details on the ChemOx system.

There are three types of wells associated with the proposed BR 1-3 RPF: 1) production wells that extract geothermal fluids; 2) injection wells that receive geothermal brine after heat and steam extraction; and 3) plant wells to manage cooling tower blow-down and aerated brine.

Nine production wells on three pads (average pad size 6.6 acres, three wells each) are proposed on the plant site, and nine injection wells on three pads (average size 4.7 acres, three wells each) are proposed off the plant site. The onsite wells are shown on Figure 4 and the offsite wells are shown on Figure 2. All wells will be directionally drilled to optimize the geothermal brine production and to minimize the well pad size. The production wells are to be drilled to an average depth of approximately 7,400 feet, while the injection wells are to be drilled to an average depth of 8,725 feet. Brine from the power generation process will be conveyed to the injection wells via aboveground, alloy piping. The routes of the injection piping are presented in Figure 4.

3.2 BR 1-3 Components Subject to Imperial County CUP Jurisdiction

- Based upon consultation with CEC and Imperial County staff, BR 1-3 components subject to Imperial County CUP requirements include those components supporting the extraction and re-injection of geothermal fluids described in Section 1.1 above.

Figures 2 through 4 show BR 1-3 and delineate the well pads and ancillary features subject to County jurisdiction. Piping for the onsite wells that exit the well pad to one of the three power block components, are considered part of the BR 1-3 power plant site. Pipelines that transit from one onsite well pad to another onsite/offsite well pad are subject to County jurisdiction.

The following sections describe these wells and piping components in more detail.

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3.2.1 Production Wells

Three onsite production well pads and associated piping are proposed for the BR 1-3 plant site. The production wells extract geothermal fluid that will get sent through the power plant portion of BR 1-3 (subject to the CEC's jurisdiction).

The nine production wells (three for each 53 MW unit on three separate well pads) will be drilled to a depth of approximately 7,400 feet, with casing set at a depth of approximately 2,500 feet. Actual depths will vary somewhat based on geology and geophysics encountered during the construction of the production wells. Numerous factors were considered in selecting well locations, including efficient use of geothermal resources, minimizing interference with existing production wells, and environmental constraints. The proposed production wells are spatially separated from injection wells to accommodate well field development and reservoir management.

Aboveground piping will be constructed at each power plant to connect the production wells with each power block. The piping will be insulated so as to minimize radiant heat loss and for worker safety. Because the production piping will be operated at near wellhead temperatures (i.e., 450°F to 480°F), a major design consideration is thermal expansion. The piping will therefore be designed by qualified mechanical engineers and constructed so as to accommodate the anticipated thermal expansion. Similar consideration will be applied to the piping connecting the RPF to the injection wells. Each production well will be instrumented with pressure and temperature sensors remotely monitored in the Project's central control room and operated consistent with established CalEnergy procedures.

3.2.2 Brine Injection System

For each nominal 53 MW geothermal power plant, three offsite injection well pads (INJ OB-10, INJ OB-20, and INJ OB-30) with three injection wells on each pad (INJ OB-10 [BR-101 through BR-103], INJ OB-20 [BR-201 through BR-203[, and INJ OB-30 [BR-301 through BR-303]) for a total of nine offsite injection wells, and associated piping will be required.

These injection wells and pads will be located to the south, southeast, and east approximately 8,000 to 10,000 feet from the BR 1-3 facility as shown in Figure 2. These wells will be drilled to an average depth 8,725 feet. The wells will be cased with high alloy casing to a depth where static subsurface temperatures are above 500°F and where the underlying geologic formation is stable. Actual injection well depths will vary based on site geology and geophysics. The injection wells are planned as low-angle slant or S-shaped well courses in order to minimize displacement from the wellhead, enhance the interception of fractures of multiple orientations, and minimize the pad area.

The brine injection wells will have an average injection rate of approximately 1.9 million pounds per hour of brine at a temperature of approximately 400°F to 420°F. The BR 1-3 proposed use of single-flash technology allows for maintaining an elevated injection temperature which minimizes brine solids formation. This minimal amount of brine solids is significantly lower than SSU6 project, which would have produced up to 200 tons per day of brine solids requiring offsite disposal.

Each brine injection system will operate in accordance with DOGGR regulations, as follows:

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- Brine from the high-pressure separator is pumped from the RPF to the remote injection well pads via an aboveground pipeline. There will be one aboveground injection pipeline per power plant.
- Two in-series booster pumps and two main injection pump trains (each capable of 100 percent total brine flow capacity) will deliver the brine to the injection wells through a corrosion resistant alloy injection pipeline.
- Each of the three, 30-inch diameter injection pipelines will be fabricated from high alloy steel to resist the slightly acidified, corrosive injection brine.
- The injection pipeline material was selected based upon successful operation of the acidified brine header on other CEOE operating plants. A similar brine injection header was installed in 2002 at Region 2 of CEOC and has been performing without any corrosion problems since that time.
- Each injection well is remotely metered for pressure, temperature, and flow rate.
- The selection of type and size of injection pumps was based on currently operating Unit 4 transfer pumps and CEOC Unit 5 injection pumps. The brine injection system pumping station will be equipped with two sets of 100 percent pump trains. Each pump train consists of a booster pump and a main injection pump in series. The pumps will be designed for the required pressure once the post-drilling testing is completed. The pumping station will include a local control panel, while main control for this pumping station will be located in the shared control building.

4.0 Environmental Information

This section presents an initial evaluation of the potential environmental impacts of the BR 1-3 components subject to the County's jurisdiction. These components include the three onsite well pads, the three offsite well pads and associated piping. The onsite well pads are shown on Figure 4 and the offsite well pads are shown on Figure 2.

4.1 CEQA Guidelines Checklist Questions and Responses

The organization of this evaluation corresponds to the questions presented in the CEQA Guidelines Checklist. The response to each criterion includes a reference to the expanded analysis presented in the Amendment Petition (included on the Reference CD in Appendix A.)

I. Aesthetics

a) Would the Project have a substantial effect on a scenic vista?

No, the presence of similar structures at existing geothermal plants in the immediate vicinity and within a two-mile radius of the BR 1-3 plant site establish the industrial character of the area, which is not subject to scenic vista qualities. See Section 5.15 of the Amendment Petition for additional details.

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b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No, there are no scenic resources in the vicinity of the BR 1-3 plant site.

c) Substantially degrade the existing visual character or quality of the site and its surroundings?

No, see response to I (a) above. BR 1-3 is not expected to degrade the existing industrial visual character of the area. See Section 5.15 of the Amendment Petition for additional details.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

No, as discussed in Sections 5.14.4.2 and 5.14.4.4 of the Amendment Petition, the minimal nighttime lighting from the BR 1-3 plant will be insignificant because of the presence of nighttime lighting from the existing geothermal plants in the area.

II. Agriculture Resources

a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

Yes, the on- and offsite injection well pads, and pipeline rights-of-way (ROW) will convert areas of Prime Farmland and Farmland of Statewide Importance to a non-agricultural use. However, Imperial County General Plan, Land Use Element, Agriculture Standards promote the compatibility of geothermal development alongside agriculture activities. These policies are intended to ensure compatibility with Williamson Act contracts. See response II (b), below and Table 5.7-6 in section 5.7.4.3, of the Amendment Petition for additional details.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No, while the on- and offsite injection well pads, and pipeline ROW will remove lands under active agricultural use subject to Williamson Act contract, the County's General Plan policies promote geothermal development alongside agriculture activities. These policies are intended to ensure compatibility with Williamson Act contracts. Section 5.7.4.3 of the Amendment Petition describes the expected minimal impacts to existing agricultural operations from the OB-1 and OB-2 well pads and associated pipelines.

c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?

No, see section 5.7.4.3 of the Amendment Petition for additional discussion.

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III. Air Quality

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

No, an application for an Authority to Construct (ATC) from the Imperial County Air Pollution Control District was previously filed for the BR 1-3 project. This application included a regulatory analysis demonstrating BR 1-3 conformance with applicable law, ordinances, regulations or standards. The Imperial County Air Pollution Control District's issuance of an ATC permit will demonstrate that conflicts or obstruction with the implementation of applicable air quality plans are not expected. Furthermore, the CEC will issue additional Conditions of Certification that will mitigate any air quality issues to below significant levels.

*b) Violate any **air quality standard** or contribute substantially to an existing or projected air quality violation?*

No, as described in Section 5.2, and specifically addressed in subsection 5.2.5.3, the Amended Project's emissions were modeled in conformance with air quality standards and subsequently determined that impacts from normal BR 1-3 air emissions will be less than significant.

*c) Result in a cumulatively considerable net increase of any **criteria pollutant** for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?*

Yes, it is expected that implementation of BR 1-3 will exceed pollutant levels for: NO_X, SO2, and CO during construction. However, no exceedance of criteria pollutants levels is expected to occur during normal operations. Implementation of mitigation measures, included as part of the set of revised COCs, is intended to minimize potential air quality impacts. See section 5.2.5.3 in the Amendment Petition for additional details.

d) Expose sensitive receptors to substantial pollutant concentrations?

No, the closest residential use to the BR 1-3 site is located approximately 0.8 miles northeast of the site (Sonny Bono Salton Sea National Wildlife Refuge Headquarters staff housing.) The second closest residence is located approximately two miles east of the site. There are no hospitals, daycare centers, or other sensitive receptors within three miles of the Project site. Therefore, implementation of BR 1-3 is not expected to expose sensitive receptors to substantial pollutant concentrations.

e) Create objectionable odors affecting a substantial number of people?

No, as presented in Table 5.2-35 of the Amendment Petition and described in Data Response 19, the Project's normal operating H2S emissions are not expected to result in a significant odor impacts. Additionally, due to the distance of potential sensitive receptors to BR 1-3, offsite odors are expected to be less than significant.

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IV. Biological Resources

a) Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

No, as proposed, the mitigation measures included as part of the set of revised COCs are intended to reduce potential temporary construction-related impacts, such as dust, lighting and noise, to special-status wildlife species, to less than significant levels. Impacts to sensitive vegetation communities or special status plants are not anticipated. See sections 5.3.4.1 and 5.3.4.2 of the Amendment Petition for additional details.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?

No, the BR 1-3 site is not located within a riparian or sensitive natural community. Further, implementation of mitigation measures, included as part of the set of revised COCs, is intended to minimize potential impacts to biological resources. See sections 5.3.4.1 and 5.3.4.2 of the Amendment Petition for additional details. In addition, a Biological Assessment was previously prepared for the Salton Sea Unit 6 Project and a Biological Opinion was issued by the US Fish and Wildlife Service (USFWS). USFWS has indicated that both of these are valid with respect to the proposed BR1-3 project. Further, the mitigation measures contained in the valid CEC license have been indicated as being adequate due to the generally reduced impacts associated with the proposed project. These documents concluded that no Incidental Take Permit was required and these documents remain in effect.

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Construction and operation of BR 1-3 are not expected to substantially impact federally protected wetlands beyond those impacts being permitted by the US Corp of Engineers through the Section 404 (of the Clean Water Act) permitting process that BR 1-3 is currently undertaking as part of the transmission line interconnection to the IID transmission system. The interconnection is subject to the Section 404 permit to address potential impacts to drainages (ephemeral washes) along the route, which ensures compliance with federal requirements for the protection of these drainages. See sections 5.3.4.1 and 5.4.3.2 of the Amendment Petition for additional discussion and Appendix A, reference CD, for a copy of the 404 permit application.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

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No, construction and operation of BR 1-3 would not interfere with wildlife movement or established wildlife corridors. See sections 5.3.4.1 and 5.4.3.2 of the Amendment Petition for additional discussion.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No, the area surrounding the BR 1-3 site is under active agricultural use and there are several other geothermal plants within 2 miles of the site. As a result, construction and operation of BR 1-3 are not expected to conflict with any local biological resources protection policies.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No, due to the agricultural and geothermal development surrounding the BR 1-3 site does not conflict with habitat conservation plans as are result of implementation of the project.

V. Cultural Resources

a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?

No, the only potential historic resources identified within the survey limits were three existing concrete lined water conveyance laterals, Vail Lateral 3-A, 4, and 4-A. See Table 5.4 6 and sections 5.4.3.7 and 5.4.4.1 of the Amendment Petition and the Data Responses for cultural resources for additional details.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?

No, impacts to archaeological resources are not expected from implementation of BR 1-3. See section 5.4.4.1 of the Amendment Petition and the Data Responses for additional details on archaeological resources.

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

No, impacts to paleontological resources are not expected from implementation of BR 1-3. Based on the review of available data and the field surveys, no fossils are known to directly underlie the proposed BR 1-3 plant site or the linear facilities' ROW. However, because of the presence of fossil sites in alluvial deposits in the general vicinity of BR 1-3, the site is considered to have a high sensitivity for producing scientifically important paleontological resources. However, implementation of mitigation measures, included as part of the set of revised COCs, are intended to reduce construction-related impacts to paleontological resources to less than significant levels. See Section 5.9.3.5 of the Amendment Petition and the Data Response package for additional discussion.

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d) Disturb any human remains, including those interred outside of formal cemeteries?

No, see response to V (b) above and section 5.4.4.1 of the Amendment Petition for additional discussion.

VI. Geology and Soils

a) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

> *i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?*
>
> *ii) Strong seismic ground shaking?*
>
> *iii) Seismic-related ground failure, including liquefaction?*
>
> *iv) Landslides?*

No, in late 2008, CalEnergy performed an extensive geotechnical investigation of the project site. Data obtained from this investigation will be used in the detailed design of the project. The project will be designed and constructed to meet California industrial building and seismic code requirements. Implementation of mitigation measures, included as part of the set of revised COCs, would reduce potential geologic impacts to less than significant levels. See sections 5.5.4.1 and 5.5.4.2 of the Amendment Petition for additional details.

b) Result in substantial soil erosion or the loss of topsoil?

No, while clearing of existing vegetation and subsequent soil disturbance during construction will likely result in short-term increases in water and wind erosion rates, the existing flat site topography and series of drainage and water conveyance berms and levies in the area of the BR 1-3 site will limit potential soil erosion impacts. Implementation of mitigation measures, included as part of the set of revised COCs, is intended to reduce potential soil erosion impacts to less than significant levels. See sections 5.12.4.1 through 5.12.6 of the Amendment Petition for additional details.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

No, as noted in response VI (a), BR1-3 will adhere to sound professional practices and comply with regulatory requirements related to geologic hazards. See sections 5.5.4.1 and 5.5.4.2 of the Amendment Petition for additional details.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

No. See response VI(a) above. See also sections 5.5.4.1 and 5.5.4.2 in the Amendment Petition for additional details.

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e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No, the project components within the County's jurisdiction do not require any septic tanks or alternative wastewater disposal systems. During construction, sanitary waste will be collected in portable, self-contained toilets. The sanitary wastes from the portable chemical toilets will be pumped out regularly by a licensed contractor and transported to a licensed wastewater treatment plant. During operations, BR 1-3 will manage sewage waste through the use of sewage holding tanks and as needed pumping/offsite disposal by a licensed contractor. The difference between a sewage holding tank and a septic system is that the septic system biologically digests waste and discharges the effluent to a leach field and the sewage holding tank system stores the wastes for future removal via pumping and offsite disposal with no release of sanitary wastes to the environment.

Potential impacts from these components are addressed in sections 5.12.4. and 5.16.4 of the Amendment Petition.

VII. Hazards and Hazardous Materials

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

No, implementation of mitigation measures, included as part of the set of revised COCs, is intended to minimize potential impacts associated with the use, handling, and transport of hazardous materials. See section 5.6.4 of the Amendment Petition for additional discussion.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

BR 1-3 has been designed so that the use or storage of acutely hazardous materials is not required for construction or operation. Consequently, there are no reasonably foreseeable chemical release scenarios that would have the potential for offsite consequences. See section 5.6.4.of the Amendment Petition for additional discussion.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No, as described in response III (d), above, and section 5.10.3.1 of the Amendment Petition, there are no hospitals, daycare centers, schools, or other sensitive receptors within a one-mile radius of the Project site.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No, the 2008 Phase I environmental site assessments (ESAs) prepared for BR 1-3 did not identify any new Recognized Environmental Conditions (REC) on the property. The 2001 Phase I ESA identified the presence of agricultural and geothermal production associated debris at the site. In response to a request for additional information from CEC, soil samples were taken and analyzed. The results of these analyses indicated no elevated risk to workers

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or the public. See section 5.6.4 of the Amendment Petition and Data Request responses for additional discussion.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

No, as discussed in Section 5.13.3.6 of the Amendment Petition, the nearest airport to the BR 1-3 site is the Cliff Hatfield Memorial Airport, located approximately 6.5 miles away in Calipatria. Because of the distance of the site from the airport and because the maximum height of Project structures is 65 feet (cooling towers), aviation-related issues are not expected to result from implementation of BR 1-3.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

No, see response VII (e) above.

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No, as discussed in Section 5.11.3.7, the Calipatria Fire Department provides fire protection and emergency response in the Project area, and would provide backup assistance to onsite fire suppression systems. The draft Amendment Petition as presented to Imperial County Department of Planning and Development Services has been reviewed by Chief Tony Rouhotas. Chief Rouhotas has indicated that the Imperial County Department of Fire Protection has no concerns regarding the proposed project. Additional correspondence from Johnny M. Romero, Deputy Fire Marshal, dated April 6, 2009, indicated that conformance with County Fire Department requirements and the 2007 California Fire Code is expected as part of the implementation of the BR 1-3 project and is also included on the reference CD (Appendix A).

The addition of BR 1-3 in the vicinity would not be expected to significantly increase the demand for fire protection and emergency response services and potential impacts are expected to be less than significant.

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

No, implementation of BR 1-3 will involve the use of hazardous and potentially flammable materials including drilling mud, cement, gasoline, diesel fuel, oil, lubricants, welding gases (e.g., acetylene, oxygen, and argon), and small quantities of solvents and paint as described in section 5.6.4.2 and 5.6.4.3. However, with the implementation of mitigation measures, included as part of the revised COCs, and compliance with all applicable local, state and federal protection regulations, potential on- and offsite fire risks will be minimized.

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VIII. Hydrology and Water Quality

a) Would the Project violate any water quality standards or waste discharge requirements?

No, see responses to XVI (a) and (c) below and section 5.17.4 of the Amendment Petition for additional discussion.

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

No, as discussed in sections 5.17.1 and 5.17.4 5.5.3.4 – Geology of the Amendment Petition, over 95 percent of the process water required by BR 1-3 will be created from steam condensed during the processing of geothermal fluids. The remaining water will be obtained from IID. The portions of BR 1-3, subject to County permit jurisdiction, will not impact groundwater supplies.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

No, as described in response XVI (c) below, implementation of the BR 1-3 will improve the existing drainage patterns. See section 5.12.4 of Amendment Petition for additional details.

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

No, see response to VIII (c) and section 5.17.4.3 of the Amendment Petition, implementation of BR 1-3 will improve current site drainage and flooding patterns.

e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

No, see responses to XVI (a) through (c) below and section 5.17.4 of the Amendment Petition for additional discussion.

f) Otherwise substantially degrade water quality?

No, consistent with responses to XVI (a) through (c) and the discussion in section 5.17 of the Amendment Petition, BR 1-3 will result in improvements to existing water quality from the implementation of stormwater control measures.

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

No, this criterion does not apply since BR 1-3 does not involve residential development.

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h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?

No, while the BR 1-3 site is located within the 100-year floodplain, as described in response VII (i), BR 1-3 will result in improvements to area roadways and site topography intended to reduce potential flooding issues to less than significant levels. See section 5.17.4 of the Amendment Petition for additional details.

i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

No, while the BR 1-3 site is located within the 100-year flood zone, the entire site will be enclosed by a berm with a top height of 220 feet below sea level and constructed with two-to-one (horizontal to vertical) sloping sides to protect the plant site from flooding. Therefore, potentially significant flood-related impacts are expected to be less than significant. See section 5.17.4 of the Amendment Petition for additional details.

j) ...or Inundation by seiche, tsunami, or mudflow?

No, see section 5.5.3.3 of the Amendment Petition for more details.

IX. Land Use and Planning

a) Would the Project physically divide an established community?

No, BR 1-3 is proposed in an area designated for geothermal production by Imperial County. The project would not physically divide an established community and therefore impacts would be less than significant. See section 5.7.4 of the Amendment Petition for additional discussion.

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

No, see response IX (a). The production and injection well pads and associated piping are subject to the Imperial County CUP requirements. In addition, BR 1-3 is located within the County's Geothermal Overlay Zone (GZO) which establishes permit requirements for new geothermal energy development. See section 5.7.4 of the Amendment Petition for additional details.

c) Conflict with any applicable habitat conservation plan or natural community conservation plan?

No, see response IV (f) above and section 5.3 of the Amendment Petition for additional details.

X. Mineral Resources

a) Would the Project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No, BR 1-3 involves the production of a known energy resource. See section 5.5.3.4 of the Amendment Petition for additional discussion.

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b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No, implementation of BR 1-3 will result in the development of geothermal energy resources. See response to IX (b) above and section 5.5.3 of the Amendment Petition for additional discussion.

XI. Noise

a) Would the project cause exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

No, due to the distance of the BR 1-3 site from sensitive receptors, as described in response III (d), exceeding noise level standards is not expected to occur. See sections 5.8.4.1 and 5.8.4.2 of the Amendment Petition for additional details.

b) Cause exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

No, due to the distance of the BR 1-3 site from sensitive receptors and as discussed in section 5.8.4 of the Amendment Petition, ground-borne vibration generated would be imperceptible at approximately 300 feet from the vibration source. As a result potential offsite vibration impacts to sensitive receptors are not expected from implementation of BR 1-3.

c) Cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

No, construction noise from implementation of BR 1-3 would be less than significant because: (1) the construction activity is temporary; (2) use of heavy equipment and noisy activities will occur during daytime hours; and (3) feasible noise abatement measures will be implemented for noise-producing equipment. Operation of the proposed facility would generate continuous noise levels 24 hours per day, seven days per week. The primary noise sources of geothermal power plants are the turbine/generator and the cooling towers, with various secondary noise sources including pumps and equipment associated with the separator. Implementation of mitigation measures, included as part of the revised COCs, and compliance with all applicable local, state and federal noise protection regulations, potential on- and offsite noise impacts would be less than significant. See sections 5.8.4.1 through 5.8.4.3 of the Amendment Petition for additional details.

d) Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

No, cumulative noise impacts from implementation of BR 1-3 combined with other past, present, and reasonably foreseeable future projects, including additional geothermal projects, are not expected from implementation of BR 1-3. See section 5.8.4.3 of the Amendment Petition for additional details.

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e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No, as discussed in section 5.13.3.6 of the Amendment Petition, the nearest airport to the BR 1-3 site is the Cliff Hatfield Memorial Airport, approximately 6.5 miles away in Calipatria. Because of the distance from the nearest airport and the maximum component height of only 65 feet (cooling towers), aviation-related issues are not expected to result from implementation of BR 1-3.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

No, see response XI (e) above. No private airstrips have been identified in the immediate project vicinity.

XII. Population and Housing

a) Would the Project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No, it is anticipated that the construction work force would commute daily to the BR 1-3 site rather than relocate. Thus, impacts to population growth are expected to be less than significant during construction. During operations, approximately 69 employees would staff the power plant. It is expected that 90 percent of the full-time staff will to commute from areas in the vicinity of cities of El Centro, Brawley, Calipatria, and Niland. The remaining 10 percent of the full-time staff are expected to commute from the cities of Indio and La Quinta, or other areas within in Riverside County. Population impacts are not anticipated to be significant. See section 5.11.4.1 of the Amendment Petition for additional details.

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

No, the project is located in areas currently used for agriculture and industrial purposes. See section 5.7 of the Amendment Petition for additional details.

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No, the construction workforce is expected to commute to the area daily rather than relocate therefore, implementation of BR 1-3 would result in a less than significant impact on the local housing supply. See section 5.11.4.1 of the Amendment Petition for additional discussion.

XIII. Public Services

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to

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maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire protection?

Police protection?

Schools?

Parks?

Other public facilities?

No, increases in area population as a result of implementation (both construction and operation) of BR 1-3 are expected to be minimal. As a result, the increase in demand for public services is expected to be less than significant. See section 5.11.4.1 of the Amendment Petition for more details.

XIV. Recreation

a) Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No, as discussed presented in section 5.11.4.2 of the Amendment Petition, implementation of BR 1-3 will not result in a substantial increase in population growth or the use of local parks or recreational facilities.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No, BR 1-3 does not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

XV. Transportation/Traffic

a) Would the Project cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

No, as discussed in Section 5.13.4.2 of the Amendment Petition, implementation of BR 1-3 will result in a temporary increase in traffic associated with movement of construction vehicles, equipment, and personnel on the transportation network serving the Project area. However, the results of the intersection service analysis indicate that all study intersections would continue to operate at acceptable levels with the addition of Project construction-related traffic. Accordingly, no significant cumulative traffic or transportation impacts are expected from implementation of the Project

b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

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No, as discussed in section 5.13.4 of the Amendment Petition, neither construction nor operation activities are expected to cause an increase in traffic that would exceed any County established level of service standard.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

No, as discussed in section 5.13.3.6 of the Amendment Petition, the nearest airport to the Project site is the Cliff Hatfield Memorial Airport, approximately 6.5 miles away in Calipatria. Because of the distance and because the maximum height of Project structures is only 65 feet (cooling towers), aviation-related impacts are expected to be less than significant.

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No, because of the low elevation of the site (currently average of 225 feet below mean sea level), as described in Section 5.13.4.2, several sections of local roadways adjacent to the plant site will be raised an average of seven feet in elevation to be 220 feet below mean sea level. In addition some portions of adjacent roadways will be paved as two-lane roadways. As a result, implementation of BR 1-3 will result in improved roadway features. See section 5.13.4.3 of the Amendment Petition for additional details regarding roadway improvements.

e) Result in inadequate emergency access?

No, see response to VII (g) above, and section 5.13.4.3 of the Amendment Petition for additional details.

f) Result in inadequate parking capacity?

No, section 5.13.4.3 of the Amendment Petition describes the proposed parking to accommodate implementation of BR 1-3.

g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

No, BR 1-3 is proposed for an area designated for geothermal production. Therefore, implementation of BR 1-3 will not result in any conflicts with adopted policies related to alternative transportation. See section 5.13.4.3 of the Amendment Petition for additional details.

XVI. Utilities and Service Systems

a) Would the Project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

No, during construction, sanitary waste will be collected in portable, self-contained toilets. The sanitary wastes from the portable chemical toilets will be pumped out regularly by a licensed contractor and transported to a sanitary wastewater treatment plant. During

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plant-upset conditions, well flow testing, or startup, produced brines will be discharged to the brine pond associated with that particular power block. These brines will be managed with the plant injection wells described above. During normal operations, the facility will be equipped with a sewage holding tank, described above in Section VI.e., which is not subject to County permit jurisdiction. See sections 5.16.4.1, 5.16.4.2, 5.17.4.2 and 5.17.4.3 of the Amendment Petition for additional information.

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No, while the project will require a construction of a water supply line and an intake structure in IID the canal system, the CEC's Staff Analysis of the Amendment Petition to date has concluded that no significant impact associated would occur from implementation of these project components. See response XVI (a) above.

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No, BR 1-3 is located in an area of very low rainfall. Any storm water discharges occurring during construction activities will be managed in accordance with the California General Storm Water Construction Permit issued by the SWRCB and implemented by the Colorado River RWQCB and implementation of a Storm Water Pollution Prevention Plan (SWPPP). Implementation of mitigation measures, included as part of the revised Conditions of Certification, and compliance with all applicable local, state and federal storm water drainage requirements would result in less than significant impacts. Further, BR 1-3 has been designed such that there will be no discharges from the plant site. Site grading will convey any runoff to the northwest corner of the site to an earthen storm water detention basin. The detention basin will be designed to contain a storm event of three inches in a 24-hour period (100-year storm conditions). Runoff will be conveyed via ditches, swales and culverts. Consistent with SWRCB requirements for geothermal facilities operations, a SWPPP for BR 1-3 operations is not required. See sections 5.17.4.2 and 5.17.2.2 of the Amendment Petition for additional details.

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Yes, an estimated 95 percent of BR 1-3's water supply needs will be provided by process generated condensate and the remaining five percent of the water supply will be provided by IID. CEOE intends to comply with the IID Interim Water Supply Policy (IWSP) for all water supplied by IID. Refer to section 5.17.4.3 of the Amendment Petition for additional discussion.

e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No, this criterion is not applicable since no wastewater treatment will be required. Sanitary waste will be directed to a sewage holding tank constructed consistent with applicable regulations. Sludge from the sewage holding tank will be periodically removed and trucked

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offsite for disposal by a licensed contractor. See response XVI (c) above and section 5.17.4.3 for additional details regarding BR 1-3 wastewater processing.

f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Yes, as discussed in section 5.16.4.1 of the Amendment Petition, the non-hazardous solid wastes (other than drilling wastes) that cannot be recycled or reused would be disposed of at a Class III landfill, expected to be the Allied Imperial Landfill located in Salton City approximately 20 miles from BR 1-3. It is expected that the disposal of construction- and operational-related solid wastes would represent only a nominal (less than 0.01 percent) increase relative to current disposal volumes at the facility. In addition, small amounts of brine solids will be sent to the Desert Valley Company's Monofill Facility (owned by a subsidiary of the applicant), located in a Class II landfill in Brawley, California. As concluded in Section 5.16.4.1 pf the Amendment Petition, the disposal of these wastes is would not significantly affect the available landfill capacity.

g) Comply with federal, state, and local statutes and regulations related to solid waste?

Yes, implementation of mitigation measures, included as part of the revised Conditions of Certification, and compliance with all applicable local, state and federal solid waste requirements would result in less than significant impacts. See section 5.16.2 of the Amendment Petition for additional discussion.

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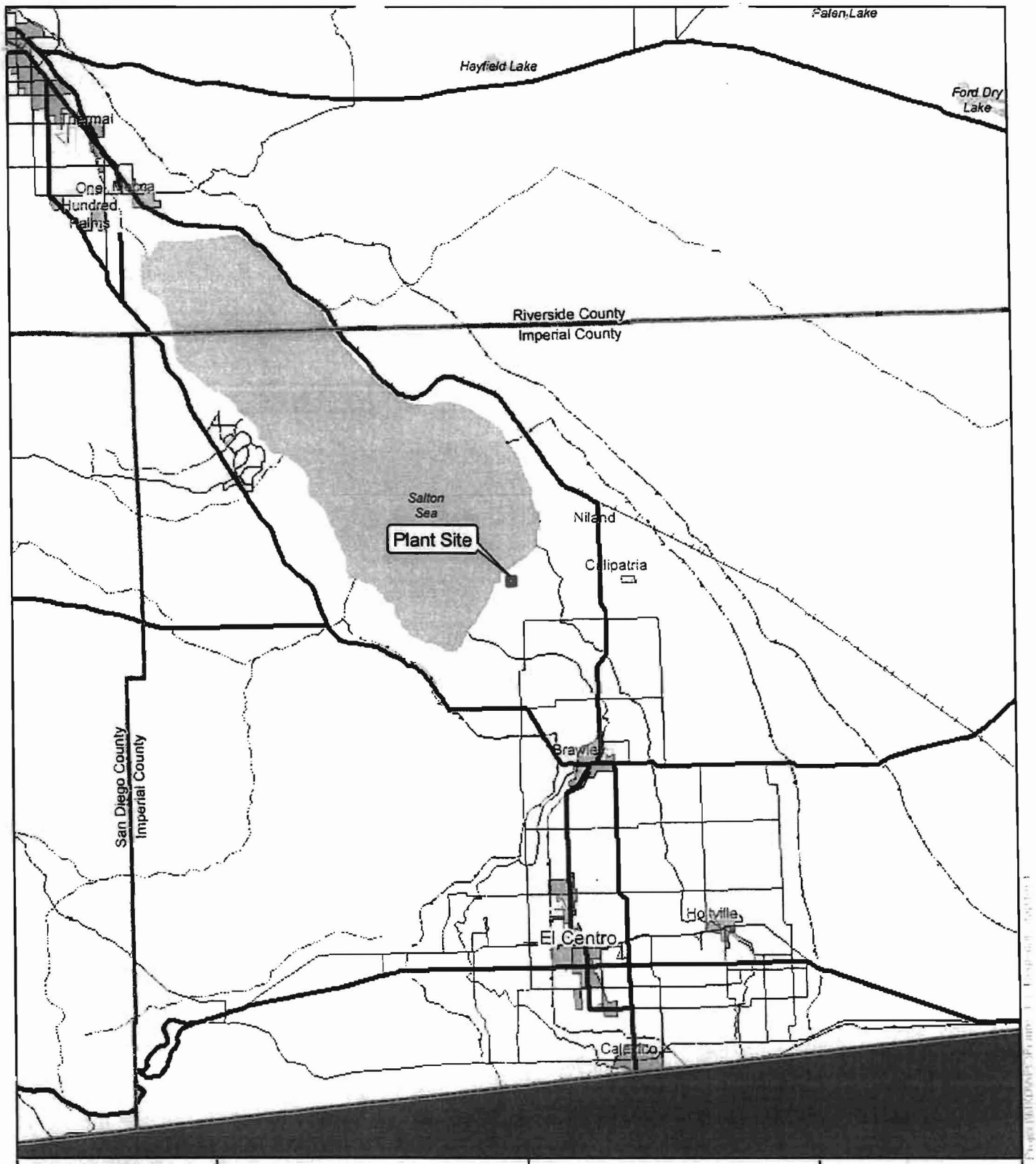
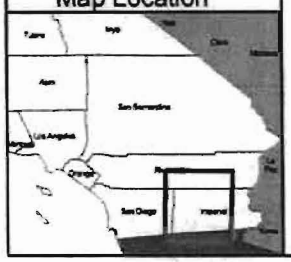


Map Location



N
W E
S

Amended SSU6 Project
Figure 1
Regional Map

1:600,000

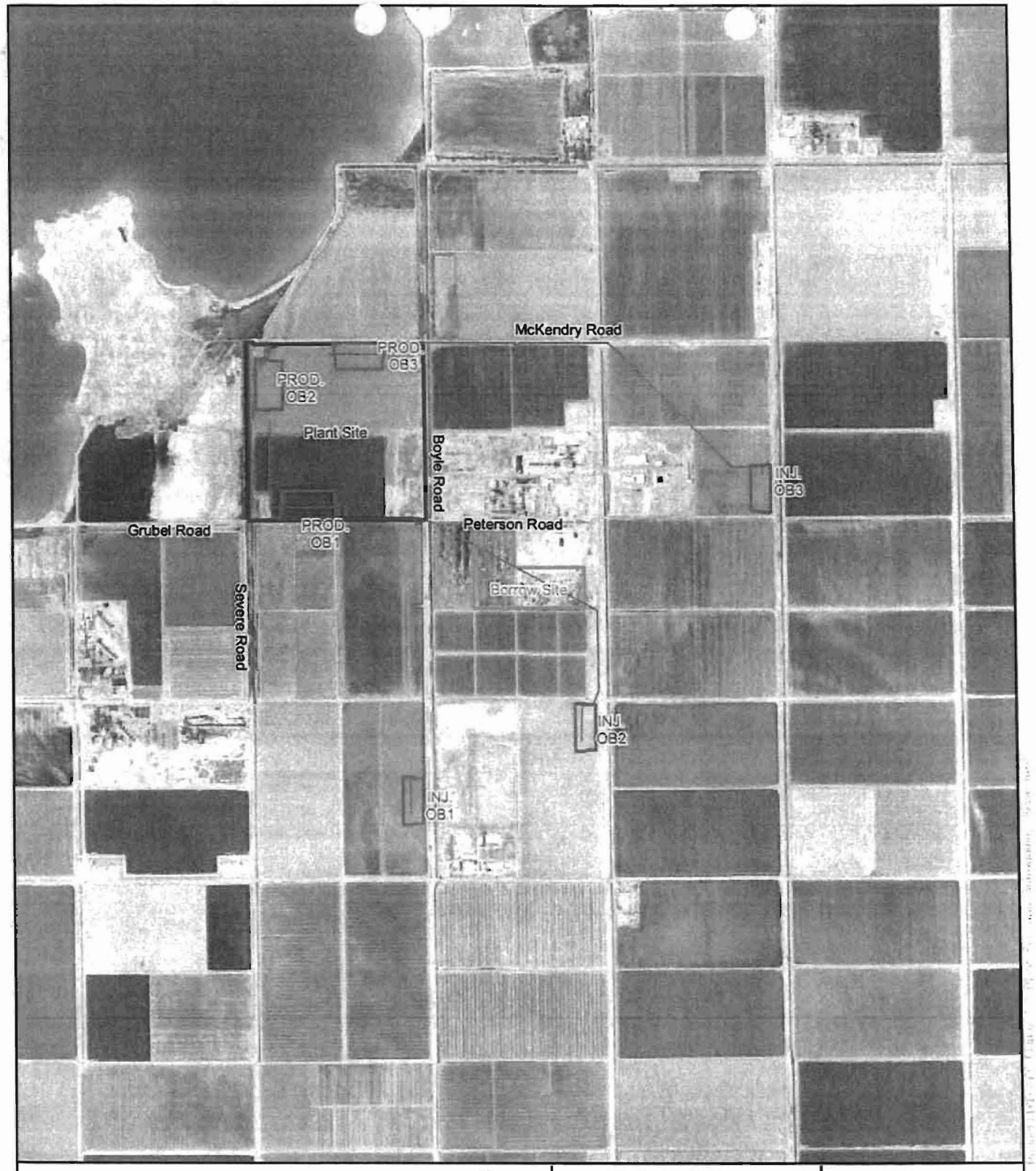
0 5 10 15 Miles

CE GENERATION LLC

AECOM

Project: 12676-001
Date: February 2009

EEC ORIGINAL PKG



Legend

- Proposed Pipeline
- Proposed Well Pad
- Borrow Site
- Plant Site

N W E S

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

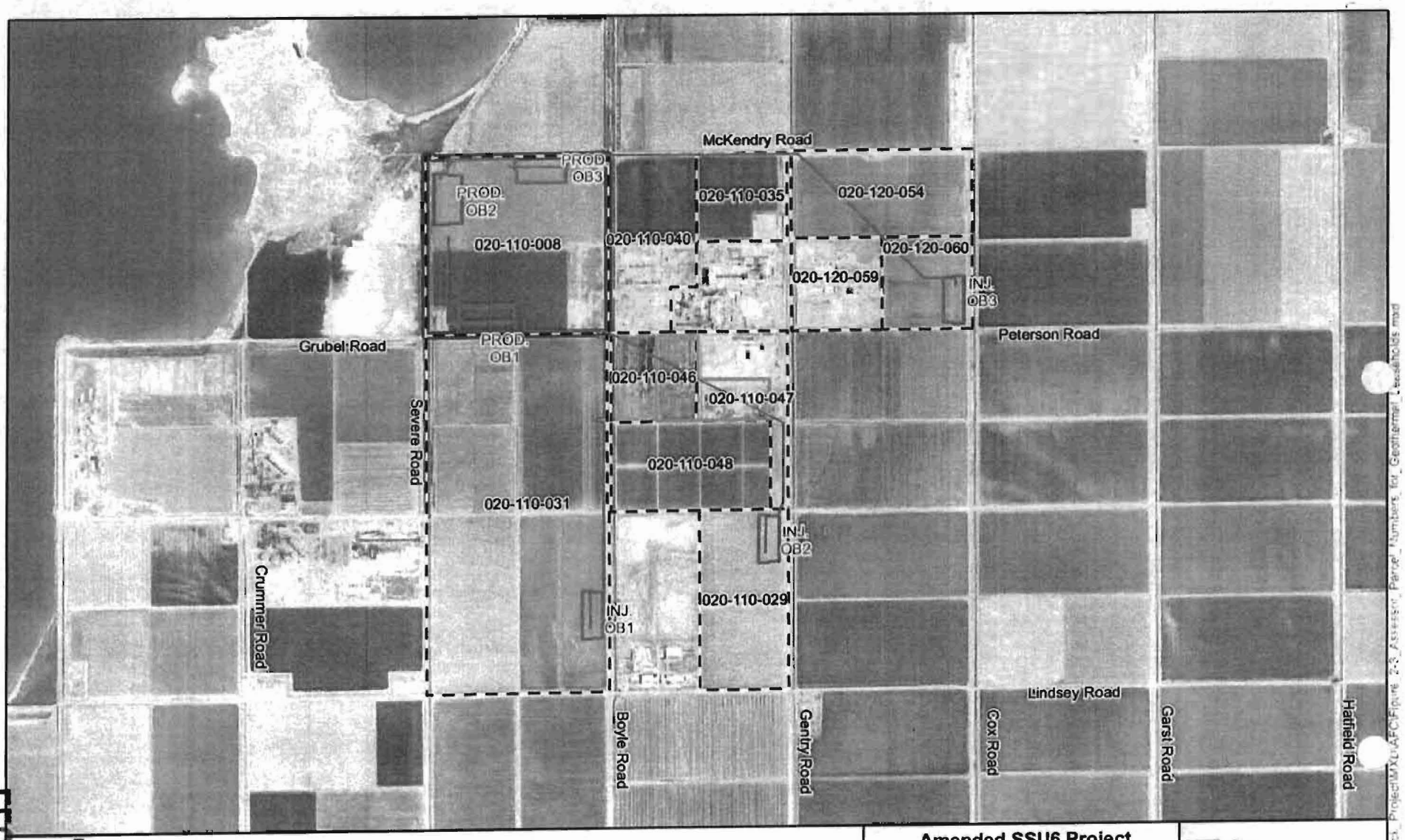
Amended SSU6 Project
Figure 2
Plant Site and Surrounding Areas

CE GENERATION LLC

AECOM

Project: 12676-001
Date: February 2009

EEC ORIGINAL PKG



Legend

- Plant Site
- Proposed Pipeline
- Propsed Well Pad
- Borrow Site
- Assessor Parcels

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N W E S

Amended SSU6 Project

Figure 3
Assessor Parcel Numbers for Geothermal Leaseholds

CE GENERATION LLC

AECOM

Project: 12676-001
Date: February 2009

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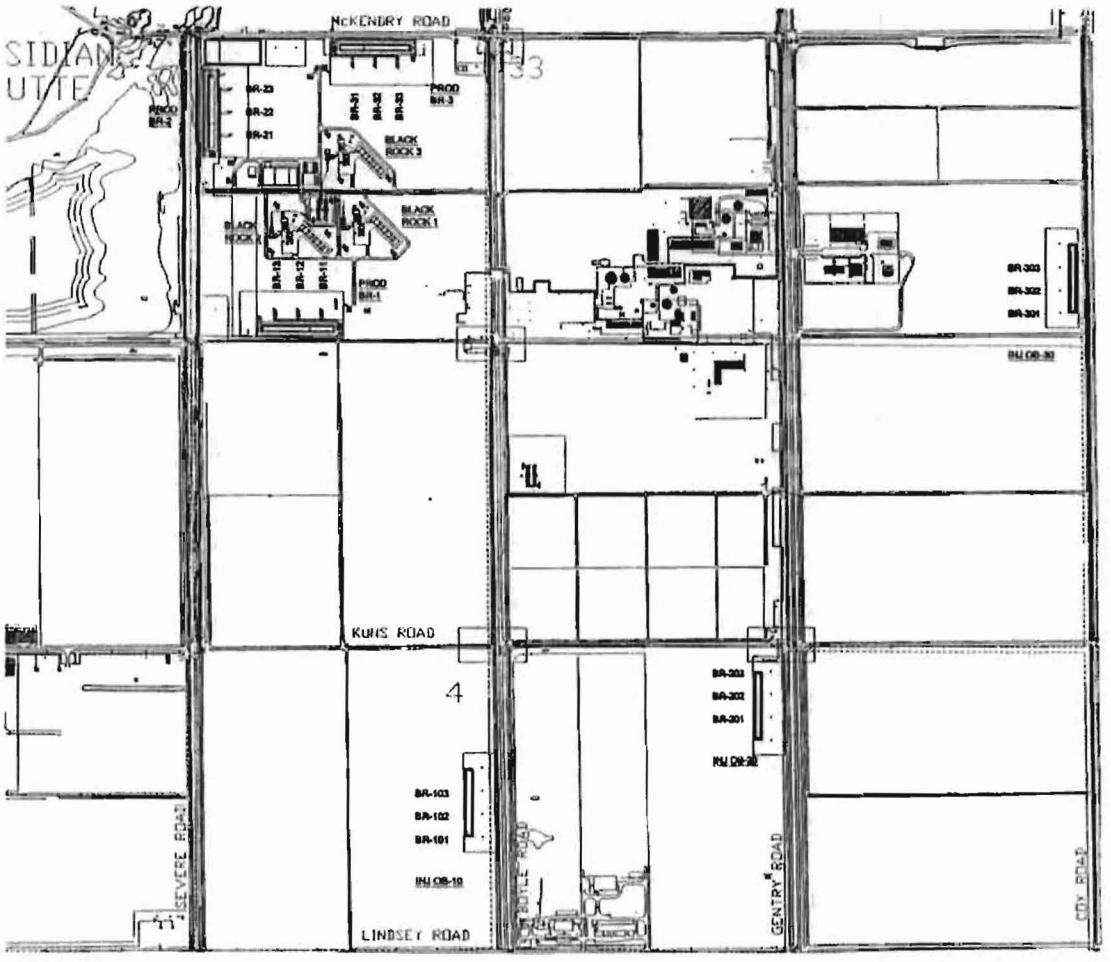

1 WELL LOCATION PLAN

WELL PAD LOCATION

PRODUCTION WELL PADS
BR-1, SW COR, SW 1/4, SEC 33, T11S, R13E
BR-2, NW COR, SW 1/4, SEC 33, T11S, R13E
BR-3, NE COR, SW 1/4, SEC 33, T11S, R13E

INJECTION WELL PADS
OB-10, SW 1/4, SEC 4, T12S, R13E
OB-20, SE 1/4, SEC 4, T12S, R13E
OB-30, SW 1/4, SEC 34, T11S, R13E

CAL ENERGY OPERATING CORPORATION

REV	DATE	DESCRIPTION	BY	APV
A	1/1/10	UPDATED INJ PAD SIZE, ADDED SUMP	JR	JR

REVISION RECORD

ISSUE	DATE	REV	DESCRIPTION
2	1/1/10	A	ISSUED FOR INFORMATION
1	1/1/10		ISSUED FOR INFORMATION

ISSUE RECORD

ENGINEERING MGR.: L. WHITE
PROJECT MGR.: D. HACKLEY
PROJECT ENG.: J. REVERENTE
DRAWN BY: J. HULA
DRAWN DATE: 10/13/2009

BLACK ROCK PROJECT
WELL PAD LOCATION PLAN
Figure 4

PROJECT NUMBER EP-09-014
DRAWING NUMBER
SHEET NUMBER

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ATTACHMENT A

Supplement to Conditional Use Permit Application – CE Obsidian Black Rock Units 1-3

1.0 Background Information

CE Obsidian Energy, LLC (Applicant/CEOE) currently possesses a license from the California Energy Commission (CEC) to construct a geothermal generating plant on an 80-acre site in Imperial County, California (see Figure 1). The license for "Salton Sea Unit 6" was originally granted by the CEC in December 2003 for a 185-MW plant using multiple-flash technology. The 2003 license was amended in May 2005 to enable the plant to increase its capacity to 215 MW (referred to herein as the "original project"). Subsequent to the 2005 CEC-approved amendment, the CEC granted an extension to the Salton Sea Unit 6 (SSU6) license, deferring construction and operation until December 18, 2011.

A second Amendment Petition (Amendment Petition) to the Salton Sea Unit 6 project was submitted by the Applicant to the CEC in March 2009 to request approval for construction of three smaller geothermal plants with a combined total of 159 MW net nominal geothermal power generation using single-flash technology. The single-flash technology is simpler, requires fewer infrastructure components, and produces a significantly smaller amount of waste as compared to multiple-flash technologies. In July 2009, the Applicant requested, and was granted by CEC) to change the name of the project to Black Rock 1, 2, and 3 (BR 1-3).

Imperial County issued a Conditional Use Permit (CUP) in December 2003 for Salton Sea Unit 6 (CUP-02-0028). CUP-02-0028 covered construction and operation of 10 production wells on five well pads, seven injection wells on three well pads, associated above ground brine pipelines for these wells, and brine steam handling facilities with ancillary support systems. A copy of CUP-02-0028 and the corresponding CUP application package is included on the Reference CD (Appendix A.)

1.1 Project Jurisdiction

The CEC is the California Environmental Quality Act (CEQA) Lead Agency for permitting and environmental review for the geothermal electricity generating facility that comprises BR 1-3. The CEC has jurisdiction over the amended facility, as its net generation capacity of 159 MW falls within the CEC's jurisdiction for thermal generation facilities over 50 MW. The CEC also has jurisdiction over that portion of the transmission infrastructure to the first point of interconnection to the power grid and environmental impacts associated with the project's water use/supply.

In addition to the CEC's jurisdiction, Imperial County (County), the California Division of Oil and Gas and Geothermal Resources (DOGGR), and the Regional Quality Control Board (RWQCB) have permitting jurisdiction over the project components, and the Imperial County Air Pollution Control District (ICAPCD) has jurisdiction over project-related construction and operation air emissions. The permitting jurisdiction for the CEC, County,

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DOGGR, RWQCB, and ICAPCD, is consistent with how the permitting and environmental review was conducted for the Salton Sea Unit 6. The list of applicable regulatory agency approvals is included in Section 5.7.2 of the Amendment Petition for the Amended Salton Sea Unit 6 Project dated March 2009. The Amendment Petition, CEC staff Data Requests, and the Applicant's responses from the data adequacy phase of CEC staff review, as well as previously prepared environmental and permitting documents, are included on the Reference CD (Appendix A). The following discussion explains permitting jurisdictions for BR 1-3 components.

Imperial County

As the underlying land use authority, Imperial County is responsible for approval of those components involved with the extraction and re-injection of geothermal fluids. Pursuant to Imperial County's Zoning Ordinance, § 91701.05 Conditional Use Permits, Major Geothermal Projects may be permitted in the Geothermal Overlay Zone only CUP. Figures 2-4 of this application package identify the BR 1-3 components subject to County CUP requirements.

This CUP application for BR 1-3 requests Imperial County approval for the construction and operation of production and injection well pads, including the following features.

- Three onsite production well pads (PROD BR1 through PROD BR-3) with three production wells on each pad (PROD BR-1 [BR-11 through BR 1-3], PROD-BR-2 [BR-21 through BR-23], and PROD-3 [BR-31 through BR-33]) for a total of nine onsite production wells, and associated piping
- Four onsite plant injection well pads (BR-104 through BR-107 located on three well pads [BR-104 is located on PROD BR-1, BR-105 is located on PROD BR-3, and BR-106 and BR-107 are located on a separate well pad adjacent to PROD BR-3]), and associated piping
- Three offsite injection well pads (INJ OB-10, INJ OB-20, and INJ OB-30) with three injection wells on each pad (INJ OB-10 [BR-101 through BR-103], INJ OB-20 [BR-201 through BR-203[, and INJ OB-30 [BR-301 through BR-303]) for a total of nine offsite injection wells, and associated piping

DOGGR

Pursuant to the State of California Public Resources Code (PRC), Chapter 4, Geothermal Resources, Section 3700, the Department of Conservation, DOGGR is responsible to ensure that wells for the discovery and production of geothermal resources be drilled, operated, maintained, and abandoned in such manner as to safeguard life, health, property, and the public welfare, and to encourage maximum economic recovery. DOGGR is responsible for overseeing the drilling, operation, maintenance, plugging, and abandonment of geothermal wells on state and private lands to ensure public safety and protect underground and surface waters.

Consistent with DOGGR requirements, CEOE will secure Underground Injection Control (UIC) permits for the construction and operation of each of the brine and plant injection wells. Copies of these permits will be sent to the County.

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In addition, CEOE is expected to participate in regional subsidence monitoring conducted by Imperial County and DOGGR to evaluate the cumulative impacts of geothermal energy development in the vicinity of BR 1-3.

Colorado River Basin Regional Water Quality Control Board

Pursuant to PRC 25120, mud sumps and brine ponds are expressly excluded from the CEC licensing process. Drilling of the plant wells, production wells, and injection wells will entail the construction of six mud sumps. One mud sump will be located proximate to each (production/injection) well pad. These mud sumps are temporary structures and will be decommissioned at the conclusion of managing solids associated with the drilling program. Each production well pad will have a brine pond [total of three]. The brine ponds are permanent structures that will support plant operations. However, they will also be used to manage solids generated from the drilling program.

The Colorado River Basin Regional Water Quality Control Board (CRBRWQCB) would normally establish standards and Waste Discharge Requirements (WDRs) for operation of both the production and injection well mud sumps and brine ponds. However, PRC Section 25500 vests the CEC with sole jurisdiction for all state and local permits associated with construction and operation of the proposed geothermal power plant. Therefore, the CEC, in consultation and coordination with the CRBRWQCB, will issue in-lieu discharge requirements for the mud sumps and plant brine ponds. In addition, as shown on Figures 2-4, and as described on page 5.17-24 of the Amendment Petition, monitoring wells will be located adjacent to the brine ponds in order to comply with CRBRWQCB groundwater protection requirements.

Monitoring wells associated with the brine ponds and mud sumps also fall under the jurisdiction of the RWQCB and CEC. The BR 1-3 monitoring wells have been included in the Report of Waste Discharge (ROWD) application submitted to the CRBRWQCB on July 30, 2009, with copies transmitted to the CEC. A copy of this documentation is included in Appendix A, Reference CD.

The three brine ponds and the six mud sumps associated with the well pads will be permitted as waste management units (WMUs). In addition to the WMUs, the WDR will also address monitoring and maintenance requirements for the onsite stormwater management facility. General stormwater permits will be required for the construction of the facility.

In addition, it is expected that all CRBRWQCB compliance requirements will be embodied in the Amendment Petition's final Conditions of Certification.

Imperial County Air Pollution Control District

The Imperial County Air Pollution Control District (ICAPCD) has jurisdiction of project-related construction and operation air emissions. An application for an Authority to Construct (ATC) from the ICAPCD was previously filed for the BR 1-3 project. This application included a regulatory analysis demonstrating BR 1-3 conformance with ICAPCD applicable law, ordinances, regulations or standards regarding air quality. The ICAPCD's issuance of an ATC permit will demonstrate that conflicts or obstruction with the implementation of applicable air quality plans are not expected. In addition to the issuance of an ATC, the ICAPCD will also issue a Permit to Operate (PTO) that addresses

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conformance with air quality regulations specifically pertaining to project operations. As part of the processing of the BR1-3 CEC License Amendment, the CEC will issue additional Conditions of Certification that most likely incorporate the ICAPCD ATC and PTO conditions and contain additional conditions intended to further mitigate air quality issues to below significant levels.

1.2 Environmental Review

As described above, the CEC, as CEQA Lead Agency, is conducting the environmental review for components of BR 1-3 as described above. As part of the CEC process, a Staff Analysis will be prepared including a set of Conditions of Certification (COCs) intended to minimize potential environmental impacts and assure compliance with applicable laws, ordinances, regulations, and standards (LORS). As with Salton Sea Unit 6, it is expected that Imperial County will rely on the CEC Staff Analysis to meet CEQA environmental review requirements for processing the CUP. In addition, it is expected that the CEC staff will coordinate with the County regarding the development of an acceptable set of CUP conditions of approval.

A summary of environmental information presented as responses to the CEQA Initial Study Checklist, relating specifically to BR 1-3 components subject to the County's CUP jurisdiction, is included in the Environmental Information section of this application.

1.3 Other Permits

As described above, there are several agencies with permit jurisdiction over BR 1-3. Separate applications have been filed with each agency to comply with permitting requirements. A list of all agencies requiring permit approvals is included in the LORS section of each issue area covered under the Amendment Petition.

1.4 Schedule

CEOE anticipates that the CUP application processing will occur concurrently with CEC processing of the Amendment Petition and associated Data Requests for BR 1-3.

2.0 Location

The 160-acre BR 1-3 site is located within unincorporated area of Imperial County, California, southeast of the Salton Sea as shown on Figure 1. 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.

As shown on Figure 2, the plant site is bounded by McKendry Road to the north, Severe Road to the west, Peterson Road to the south, and Boyle Road to the east. Figure 3 identifies the Imperial County Assessor Parcel Numbers of each parcel involved with BR 1-3. The plant site is currently used for agriculture, as shown on Figure 2. Land uses in the surrounding area include existing geothermal power facilities, agriculture, and wildlife management (the Sonny Bono Salton Sea National Wildlife Refuge [Wildlife Refuge]).

Nine geothermal power plants owned and operated by CalEnergy Operating Company, LLC (the holding company for the Applicant) are located within a 2-mile radius of BR 1-3 (refer to Figure 2-2 of the Amendment Petition included in Appendix A). Geothermal Power

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Plant Units 1, 2, 3, 4, and 5 (referred to by CE Generation as Region 1) are located southwest of BR 1-3; the Vulcan and Hoch (Region 2) geothermal plants are located southeast; and the J.J. Elmore and Leathers geothermal plants are located northeast of BR 1-3.

3.0 Project Description

As described previously, BR 1-3 is composed of three geothermal electric power plants, Black Rock 1, 2, and 3 with a nominal, net output for each plant of 53 MW for a combined capacity of 159 MW. Consistent with Salton Sea Unit 6, BR 1-3 will operate as a base load facility operating continuously (i.e. 24 hours per day; 7 days per week; for approximately 50 weeks per year). The ability to operate continuously is an advantage of geothermal as a renewable energy source as compared to solar and wind resources. Geothermal power generation is therefore beneficial because its base load capability facilitates stability of the electric grid.

3.1 BR 1-3 Overview

The three BR 1-3 plants each consist of two major components; the Resource Production Facility (RPF) and the Power Generating Facility (PGF), as well as ancillary facilities. The RPF includes all the brine and steam handling facilities from the production wellheads to the injection wellheads. It also includes a brine injection system, a brine pond, steam polishing equipment designed to provide turbine-quality steam to the PGFs, and appropriate steam-venting vessels to support operations during startup/shutdown and emergency conditions. The PGF includes a condensing turbine/generator set, noncondensable gas (NCG) removal and abatement systems, and the heat rejection system. The three PGFs also share a 230-kilovolt (kV) switchyard and several power distributions centers. Other facilities common to the three PGFs include a control building, a service water pond, and other ancillary facilities.

The geothermal conversion process proposed for BR 1-3 includes the following processes.

- Hot, high-pressure geothermal fluid (brine) is extracted from the geothermal reservoir through the production wells located on the plant site.
- Brine flows to a steam handling system consisting of a flash vessel, scrubbers, and demisters.
- Steam is separated from the geothermal brine (flashed) to produce high-pressure steam that is sent to the PGF for use in the steam turbine.
- After the first flash, the brine is chemically conditioned, as needed, with hydrochloric acid to prevent scale formation in the process piping and/or injection wells, and reinjected into the formation through a series of injection wells.
- Steam from the RPF is sent to the steam turbine for power generation.
- Steam leaves the turbine generator and enters a shell-and-tube heat exchanger that condenses the steam.
- Cooling water for the heat exchanger is provided by cooling towers.

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- Each PGF will have a dedicated five-cell, mechanical draft wet cooling tower. Each cooling tower will be equipped with a high efficiency mist eliminator to minimize drift and fine particulate matter (PM_{10}) emissions.
- Water condensed in the heat exchanger is the source of approximately 95 percent of the cooling water make-up in the cooling tower on an annual basis. The remaining 5 percent of the total facility water needs will be drawn from the nearby Imperial Irrigation District (IID) canal.
- NCGs are evacuated from the heat exchanger using a vacuum pump and sent to a Regenerative Thermal Oxidizer (RTO) and scrubber system for control of hydrogen sulfide, ammonia, methane, benzene, and other trace components of the NCG stream.
- Condensate will be treated for hydrogen sulfide (H_2S) removal using the chemical oxidization system (ChemOx). This system uses a combination of chemicals to oxidize H_2S into water soluble sulfates which are discharged from the cooling tower with blowdown. This system has been successfully implemented by the applicant at several of the existing Salton Sea geothermal facilities. Refer to section 5.2.4.1 of Amendment Petition for additional details on the ChemOx system.

There are three types of wells associated with the proposed BR 1-3 RPF: 1) production wells that extract geothermal fluids; 2) injection wells that receive geothermal brine after heat and steam extraction; and 3) plant wells to manage cooling tower blow-down and aerated brine.

Nine production wells on three pads (average pad size 6.6 acres, three wells each) are proposed on the plant site, and nine injection wells on three pads (average size 4.7 acres, three wells each) are proposed off the plant site. The onsite wells are shown on Figure 4 and the offsite wells are shown on Figure 2. All wells will be directionally drilled to optimize the geothermal brine production and to minimize the well pad size. The production wells are to be drilled to an average depth of approximately 7,400 feet, while the injection wells are to be drilled to an average depth of 8,725 feet. Brine from the power generation process will be conveyed to the injection wells via aboveground, alloy piping. The routes of the injection piping are presented in Figure 4.

3.2 BR 1-3 Components Subject to Imperial County CUP Jurisdiction

- Based upon consultation with CEC and Imperial County staff, BR 1-3 components subject to Imperial County CUP requirements include those components supporting the extraction and re-injection of geothermal fluids described in Section 1.1 above.

Figures 2 through 4 show BR 1-3 and delineate the well pads and ancillary features subject to County jurisdiction. Piping for the onsite wells that exit the well pad to one of the three power block components, are considered part of the BR 1-3 power plant site. Pipelines that transit from one onsite well pad to another onsite/offsite well pad are subject to County jurisdiction.

The following sections describe these wells and piping components in more detail.

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3.2.1 Production Wells

Three onsite production well pads and associated piping are proposed for the BR 1-3 plant site. The production wells extract geothermal fluid that will get sent through the power plant portion of BR 1-3 (subject to the CEC's jurisdiction).

The nine production wells (three for each 53 MW unit on three separate well pads) will be drilled to a depth of approximately 7,400 feet, with casing set at a depth of approximately 2,500 feet. Actual depths will vary somewhat based on geology and geophysics encountered during the construction of the production wells. Numerous factors were considered in selecting well locations, including efficient use of geothermal resources, minimizing interference with existing production wells, and environmental constraints. The proposed production wells are spatially separated from injection wells to accommodate well field development and reservoir management.

Aboveground piping will be constructed at each power plant to connect the production wells with each power block. The piping will be insulated so as to minimize radiant heat loss and for worker safety. Because the production piping will be operated at near wellhead temperatures (i.e., 450°F to 480°F), a major design consideration is thermal expansion. The piping will therefore be designed by qualified mechanical engineers and constructed so as to accommodate the anticipated thermal expansion. Similar consideration will be applied to the piping connecting the RPF to the injection wells. Each production well will be instrumented with pressure and temperature sensors remotely monitored in the Project's central control room and operated consistent with established CalEnergy procedures.

3.2.2 Brine Injection System

For each nominal 53 MW geothermal power plant, three offsite injection well pads (INJ OB-10, INJ OB-20, and INJ OB-30) with three injection wells on each pad (INJ OB-10 [BR-101 through BR-103], INJ OB-20 [BR-201 through BR-203[, and INJ OB-30 [BR-301 through BR-303]) for a total of nine offsite injection wells, and associated piping will be required.

These injection wells and pads will be located to the south, southeast, and east approximately 8,000 to 10,000 feet from the BR 1-3 facility as shown in Figure 2. These wells will be drilled to an average depth 8,725 feet. The wells will be cased with high alloy casing to a depth where static subsurface temperatures are above 500°F and where the underlying geologic formation is stable. Actual injection well depths will vary based on site geology and geophysics. The injection wells are planned as low-angle slant or S-shaped well courses in order to minimize displacement from the wellhead, enhance the interception of fractures of multiple orientations, and minimize the pad area.

The brine injection wells will have an average injection rate of approximately 1.9 million pounds per hour of brine at a temperature of approximately 400°F to 420°F. The BR 1-3 proposed use of single-flash technology allows for maintaining an elevated injection temperature which minimizes brine solids formation. This minimal amount of brine solids is significantly lower than SSU6 project, which would have produced up to 200 tons per day of brine solids requiring offsite disposal.

Each brine injection system will operate in accordance with DOGGR regulations, as follows:

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- Brine from the high-pressure separator is pumped from the RPF to the remote injection well pads via an aboveground pipeline. There will be one aboveground injection pipeline per power plant.
- Two in-series booster pumps and two main injection pump trains (each capable of 100 percent total brine flow capacity) will deliver the brine to the injection wells through a corrosion resistant alloy injection pipeline.
- Each of the three, 30-inch diameter injection pipelines will be fabricated from high alloy steel to resist the slightly acidified, corrosive injection brine.
- The injection pipeline material was selected based upon successful operation of the acidified brine header on other CEOE operating plants. A similar brine injection header was installed in 2002 at Region 2 of CEOC and has been performing without any corrosion problems since that time.
- Each injection well is remotely metered for pressure, temperature, and flow rate.
- The selection of type and size of injection pumps was based on currently operating Unit 4 transfer pumps and CEOC Unit 5 injection pumps. The brine injection system pumping station will be equipped with two sets of 100 percent pump trains. Each pump train consists of a booster pump and a main injection pump in series. The pumps will be designed for the required pressure once the post-drilling testing is completed. The pumping station will include a local control panel, while main control for this pumping station will be located in the shared control building.

4.0 Environmental Information

This section presents an initial evaluation of the potential environmental impacts of the BR 1-3 components subject to the County's jurisdiction. These components include the three onsite well pads, the three offsite well pads and associated piping. The onsite well pads are shown on Figure 4 and the offsite well pads are shown on Figure 2.

4.1 CEQA Guidelines Checklist Questions and Responses

The organization of this evaluation corresponds to the questions presented in the CEQA Guidelines Checklist. The response to each criterion includes a reference to the expanded analysis presented in the Amendment Petition (included on the Reference CD in Appendix A.)

I. Aesthetics

a) Would the Project have a substantial effect on a scenic vista?

No, the presence of similar structures at existing geothermal plants in the immediate vicinity and within a two-mile radius of the BR 1-3 plant site establish the industrial character of the area, which is not subject to scenic vista qualities. See Section 5.15 of the Amendment Petition for additional details.

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b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No, there are no scenic resources in the vicinity of the BR 1-3 plant site.

c) Substantially degrade the existing visual character or quality of the site and its surroundings?

No, see response to I (a) above. BR 1-3 is not expected to degrade the existing industrial visual character of the area. See Section 5.15 of the Amendment Petition for additional details.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

No, as discussed in Sections 5.14.4.2 and 5.14.4.4 of the Amendment Petition, the minimal nighttime lighting from the BR 1-3 plant will be insignificant because of the presence of nighttime lighting from the existing geothermal plants in the area.

II. Agriculture Resources

a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

Yes, the on- and offsite injection well pads, and pipeline rights-of-way (ROW) will convert areas of Prime Farmland and Farmland of Statewide Importance to a non-agricultural use. However, Imperial County General Plan, Land Use Element, Agriculture Standards promote the compatibility of geothermal development alongside agriculture activities. These policies are intended to ensure compatibility with Williamson Act contracts. See response II (b), below and Table 5.7-6 in section 5.7.4.3, of the Amendment Petition for additional details.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No, while the on- and offsite injection well pads, and pipeline ROW will remove lands under active agricultural use subject to Williamson Act contract, the County's General Plan policies promote geothermal development alongside agriculture activities. These policies are intended to ensure compatibility with Williamson Act contracts. Section 5.7.4.3 of the Amendment Petition describes the expected minimal impacts to existing agricultural operations from the OB-1 and OB-2 well pads and associated pipelines.

c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?

No, see section 5.7.4.3 of the Amendment Petition for additional discussion.

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III. Air Quality

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

No, an application for an Authority to Construct (ATC) from the Imperial County Air Pollution Control District was previously filed for the BR 1-3 project. This application included a regulatory analysis demonstrating BR 1-3 conformance with applicable law, ordinances, regulations or standards. The Imperial County Air Pollution Control District's issuance of an ATC permit will demonstrate that conflicts or obstruction with the implementation of applicable air quality plans are not expected. Furthermore, the CEC will issue additional Conditions of Certification that will mitigate any air quality issues to below significant levels.

*b) Violate any **air quality standard** or contribute substantially to an existing or projected air quality violation?*

No, as described in Section 5.2, and specifically addressed in subsection 5.2.5.3, the Amended Project's emissions were modeled in conformance with air quality standards and subsequently determined that impacts from normal BR 1-3 air emissions will be less than significant.

*c) Result in a cumulatively considerable net increase of any **criteria pollutant** for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?*

Yes, it is expected that implementation of BR 1-3 will exceed pollutant levels for: NO_x, SO2, and CO during construction. However, no exceedance of criteria pollutants levels is expected to occur during normal operations. Implementation of mitigation measures, included as part of the set of revised COCs, is intended to minimize potential air quality impacts. See section 5.2.5.3 in the Amendment Petition for additional details.

d) Expose sensitive receptors to substantial pollutant concentrations?

No, the closest residential use to the BR 1-3 site is located approximately 0.8 miles northeast of the site (Sonny Bono Salton Sea National Wildlife Refuge Headquarters staff housing.) The second closest residence is located approximately two miles east of the site. There are no hospitals, daycare centers, or other sensitive receptors within three miles of the Project site. Therefore, implementation of BR 1-3 is not expected to expose sensitive receptors to substantial pollutant concentrations.

e) Create objectionable odors affecting a substantial number of people?

No, as presented in Table 5.2-35 of the Amendment Petition and described in Data Response 19, the Project's normal operating H2S emissions are not expected to result in a significant odor impacts. Additionally, due to the distance of potential sensitive receptors to BR 1-3, offsite odors are expected to be less than significant.

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IV. Biological Resources

a) Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

No, as proposed, the mitigation measures included as part of the set of revised COCs are intended to reduce potential temporary construction-related impacts, such as dust, lighting and noise, to special-status wildlife species, to less than significant levels. Impacts to sensitive vegetation communities or special status plants are not anticipated. See sections 5.3.4.1 and 5.3.4.2 of the Amendment Petition for additional details.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?

No, the BR 1-3 site is not located within a riparian or sensitive natural community. Further, implementation of mitigation measures, included as part of the set of revised COCs, is intended to minimize potential impacts to biological resources. See sections 5.3.4.1 and 5.3.4.2 of the Amendment Petition for additional details. In addition, a Biological Assessment was previously prepared for the Salton Sea Unit 6 Project and a Biological Opinion was issued by the US Fish and Wildlife Service (USFWS). USFWS has indicated that both of these are valid with respect to the proposed BR1-3 project. Further, the mitigation measures contained in the valid CEC license have been indicated as being adequate due to the generally reduced impacts associated with the proposed project. These documents concluded that no Incidental Take Permit was required and these documents remain in effect.

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Construction and operation of BR 1-3 are not expected to substantially impact federally protected wetlands beyond those impacts being permitted by the US Corp of Engineers through the Section 404 (of the Clean Water Act) permitting process that BR 1-3 is currently undertaking as part of the transmission line interconnection to the IID transmission system. The interconnection is subject to the Section 404 permit to address potential impacts to drainages (ephemeral washes) along the route, which ensures compliance with federal requirements for the protection of these drainages. See sections 5.3.4.1 and 5.4.3.2 of the Amendment Petition for additional discussion and Appendix A, reference CD, for a copy of the 404 permit application.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

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No, construction and operation of BR 1-3 would not interfere with wildlife movement or established wildlife corridors. See sections 5.3.4.1 and 5.4.3.2 of the Amendment Petition for additional discussion.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No, the area surrounding the BR 1-3 site is under active agricultural use and there are several other geothermal plants within 2 miles of the site. As a result, construction and operation of BR 1-3 are not expected to conflict with any local biological resources protection policies.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No, due to the agricultural and geothermal development surrounding the BR 1-3 site does not conflict with habitat conservation plans as are result of implementation of the project.

V. Cultural Resources

a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?

No, the only potential historic resources identified within the survey limits were three existing concrete lined water conveyance laterals, Vail Lateral 3-A, 4, and 4-A. See Table 5.4 6 and sections 5.4.3.7 and 5.4.4.1 of the Amendment Petition and the Data Responses for cultural resources for additional details.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?

No, impacts to archaeological resources are not expected from implementation of BR 1-3. See section 5.4.4.1 of the Amendment Petition and the Data Responses for additional details on archaeological resources.

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

No, impacts to paleontological resources are not expected from implementation of BR 1-3. Based on the review of available data and the field surveys, no fossils are known to directly underlie the proposed BR 1-3 plant site or the linear facilities' ROW. However, because of the presence of fossil sites in alluvial deposits in the general vicinity of BR 1-3, the site is considered to have a high sensitivity for producing scientifically important paleontological resources. However, implementation of mitigation measures, included as part of the set of revised COCs, are intended to reduce construction-related impacts to paleontological resources to less than significant levels. See Section 5.9.3.5 of the Amendment Petition and the Data Response package for additional discussion.

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d) Disturb any human remains, including those interred outside of formal cemeteries?

No, see response to V (b) above and section 5.4.4.1 of the Amendment Petition for additional discussion.

VI. Geology and Soils

a) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

> *i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?*
>
> *ii) Strong seismic ground shaking?*
>
> *iii) Seismic-related ground failure, including liquefaction?*
>
> *iv) Landslides?*

No, in late 2008, CalEnergy performed an extensive geotechnical investigation of the project site. Data obtained from this investigation will be used in the detailed design of the project. The project will be designed and constructed to meet California industrial building and seismic code requirements. Implementation of mitigation measures, included as part of the set of revised COCs, would reduce potential geologic impacts to less than significant levels. See sections 5.5.4.1 and 5.5.4.2 of the Amendment Petition for additional details.

b) Result in substantial soil erosion or the loss of topsoil?

No, while clearing of existing vegetation and subsequent soil disturbance during construction will likely result in short-term increases in water and wind erosion rates, the existing flat site topography and series of drainage and water conveyance berms and levies in the area of the BR 1-3 site will limit potential soil erosion impacts. Implementation of mitigation measures, included as part of the set of revised COCs, is intended to reduce potential soil erosion impacts to less than significant levels. See sections 5.12.4.1 through 5.12.6 of the Amendment Petition for additional details.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

No, as noted in response VI (a), BR1-3 will adhere to sound professional practices and comply with regulatory requirements related to geologic hazards. See sections 5.5.4.1 and 5.5.4.2 of the Amendment Petition for additional details.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

No. See response VI(a) above. See also sections 5.5.4.1 and 5.5.4.2 in the Amendment Petition for additional details.

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e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No, the project components within the County's jurisdiction do not require any septic tanks or alternative wastewater disposal systems. During construction, sanitary waste will be collected in portable, self-contained toilets. The sanitary wastes from the portable chemical toilets will be pumped out regularly by a licensed contractor and transported to a licensed wastewater treatment plant. During operations, BR 1-3 will manage sewage waste through the use of sewage holding tanks and as needed pumping/offsite disposal by a licensed contractor. The difference between a sewage holding tank and a septic system is that the septic system biologically digests waste and discharges the effluent to a leach field and the sewage holding tank system stores the wastes for future removal via pumping and offsite disposal with no release of sanitary wastes to the environment.

Potential impacts from these components are addressed in sections 5.12.4. and 5.16.4 of the Amendment Petition.

VII. Hazards and Hazardous Materials

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

No, implementation of mitigation measures, included as part of the set of revised COCs, is intended to minimize potential impacts associated with the use, handling, and transport of hazardous materials. See section 5.6.4 of the Amendment Petition for additional discussion.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

BR 1-3 has been designed so that the use or storage of acutely hazardous materials is not required for construction or operation. Consequently, there are no reasonably foreseeable chemical release scenarios that would have the potential for offsite consequences. See section 5.6.4.of the Amendment Petition for additional discussion.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No, as described in response III (d), above, and section 5.10.3.1 of the Amendment Petition, there are no hospitals, daycare centers, schools, or other sensitive receptors within a one-mile radius of the Project site.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No, the 2008 Phase I environmental site assessments (ESAs) prepared for BR 1-3 did not identify any new Recognized Environmental Conditions (REC) on the property. The 2001 Phase I ESA identified the presence of agricultural and geothermal production associated debris at the site. In response to a request for additional information from CEC, soil samples were taken and analyzed. The results of these analyses indicated no elevated risk to workers

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or the public. See section 5.6.4 of the Amendment Petition and Data Request responses for additional discussion.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

No, as discussed in Section 5.13.3.6 of the Amendment Petition, the nearest airport to the BR 1-3 site is the Cliff Hatfield Memorial Airport, located approximately 6.5 miles away in Calipatria. Because of the distance of the site from the airport and because the maximum height of Project structures is 65 feet (cooling towers), aviation-related issues are not expected to result from implementation of BR 1-3.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

No, see response VII (e) above.

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No, as discussed in Section 5.11.3.7, the Calipatria Fire Department provides fire protection and emergency response in the Project area, and would provide backup assistance to onsite fire suppression systems. The draft Amendment Petition as presented to Imperial County Department of Planning and Development Services has been reviewed by Chief Tony Rouhotas. Chief Rouhotas has indicated that the Imperial County Department of Fire Protection has no concerns regarding the proposed project. Additional correspondence from Johnny M. Romero, Deputy Fire Marshal, dated April 6, 2009, indicated that conformance with County Fire Department requirements and the 2007 California Fire Code is expected as part of the implementation of the BR 1-3 project and is also included on the reference CD (Appendix A).

The addition of BR 1-3 in the vicinity would not be expected to significantly increase the demand for fire protection and emergency response services and potential impacts are expected to be less than significant.

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

No, implementation of BR 1-3 will involve the use of hazardous and potentially flammable materials including drilling mud, cement, gasoline, diesel fuel, oil, lubricants, welding gases (e.g., acetylene, oxygen, and argon), and small quantities of solvents and paint as described in section 5.6.4.2 and 5.6.4.3. However, with the implementation of mitigation measures, included as part of the revised COCs, and compliance with all applicable local, state and federal protection regulations, potential on- and offsite fire risks will be minimized.

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VIII. Hydrology and Water Quality

a) Would the Project violate any water quality standards or waste discharge requirements?

No, see responses to XVI (a) and (c) below and section 5.17.4 of the Amendment Petition for additional discussion.

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

No, as discussed in sections 5.17.1 and 5.17.4 5.5.3.4 – Geology of the Amendment Petition, over 95 percent of the process water required by BR 1-3 will be created from steam condensed during the processing of geothermal fluids. The remaining water will be obtained from IID. The portions of BR 1-3, subject to County permit jurisdiction, will not impact groundwater supplies.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

No, as described in response XVI (c) below, implementation of the BR 1-3 will improve the existing drainage patterns. See section 5.12.4 of Amendment Petition for additional details.

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

No, see response to VIII (c) and section 5.17.4.3 of the Amendment Petition, implementation of BR 1-3 will improve current site drainage and flooding patterns.

e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

No, see responses to XVI (a) through (c) below and section 5.17.4 of the Amendment Petition for additional discussion.

f) Otherwise substantially degrade water quality?

No, consistent with responses to XVI (a) through (c) and the discussion in section 5.17 of the Amendment Petition, BR 1-3 will result in improvements to existing water quality from the implementation of stormwater control measures.

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

No, this criterion does not apply since BR 1-3 does not involve residential development.

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h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?

No, while the BR 1-3 site is located within the 100-year floodplain, as described in response VII (i), BR 1-3 will result in improvements to area roadways and site topography intended to reduce potential flooding issues to less than significant levels. See section 5.17.4 of the Amendment Petition for additional details.

i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

No, while the BR 1-3 site is located within the 100-year flood zone, the entire site will be enclosed by a berm with a top height of 220 feet below sea level and constructed with two-to-one (horizontal to vertical) sloping sides to protect the plant site from flooding. Therefore, potentially significant flood-related impacts are expected to be less than significant. See section 5.17.4 of the Amendment Petition for additional details.

j) ...or Inundation by seiche, tsunami, or mudflow?

No, see section 5.5.3.3 of the Amendment Petition for more details.

IX. Land Use and Planning

a) Would the Project physically divide an established community?

No, BR 1-3 is proposed in an area designated for geothermal production by Imperial County. The project would not physically divide an established community and therefore impacts would be less than significant. See section 5.7.4 of the Amendment Petition for additional discussion.

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

No, see response IX (a). The production and injection well pads and associated piping are subject to the Imperial County CUP requirements. In addition, BR 1-3 is located within the County's Geothermal Overlay Zone (GZO) which establishes permit requirements for new geothermal energy development. See section 5.7.4 of the Amendment Petition for additional details.

c) Conflict with any applicable habitat conservation plan or natural community conservation plan?

No, see response IV (f) above and section 5.3 of the Amendment Petition for additional details.

X. Mineral Resources

a) Would the Project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No, BR 1-3 involves the production of a known energy resource. See section 5.5.3.4 of the Amendment Petition for additional discussion.

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b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No, implementation of BR 1-3 will result in the development of geothermal energy resources. See response to IX (b) above and section 5.5.3 of the Amendment Petition for additional discussion.

XI. Noise

a) Would the project cause exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

No, due to the distance of the BR 1-3 site from sensitive receptors, as described in response III (d), exceeding noise level standards is not expected to occur. See sections 5.8.4.1 and 5.8.4.2 of the Amendment Petition for additional details.

b) Cause exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

No, due to the distance of the BR 1-3 site from sensitive receptors and as discussed in section 5.8.4 of the Amendment Petition, ground-borne vibration generated would be imperceptible at approximately 300 feet from the vibration source. As a result potential offsite vibration impacts to sensitive receptors are not expected from implementation of BR 1-3.

c) Cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

No, construction noise from implementation of BR 1-3 would be less than significant because: (1) the construction activity is temporary; (2) use of heavy equipment and noisy activities will occur during daytime hours; and (3) feasible noise abatement measures will be implemented for noise-producing equipment. Operation of the proposed facility would generate continuous noise levels 24 hours per day, seven days per week. The primary noise sources of geothermal power plants are the turbine/generator and the cooling towers, with various secondary noise sources including pumps and equipment associated with the separator. Implementation of mitigation measures, included as part of the revised COCs, and compliance with all applicable local, state and federal noise protection regulations, potential on- and offsite noise impacts would be less than significant. See sections 5.8.4.1 through 5.8.4.3 of the Amendment Petition for additional details.

d) Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

No, cumulative noise impacts from implementation of BR 1-3 combined with other past, present, and reasonably foreseeable future projects, including additional geothermal projects, are not expected from implementation of BR 1-3. See section 5.8.4.3 of the Amendment Petition for additional details.

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e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No, as discussed in section 5.13.3.6 of the Amendment Petition, the nearest airport to the BR 1-3 site is the Cliff Hatfield Memorial Airport, approximately 6.5 miles away in Calipatria. Because of the distance from the nearest airport and the maximum component height of only 65 feet (cooling towers), aviation-related issues are not expected to result from implementation of BR 1-3.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

No, see response XI (e) above. No private airstrips have been identified in the immediate project vicinity.

XII. Population and Housing

a) Would the Project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No, it is anticipated that the construction work force would commute daily to the BR 1-3 site rather than relocate. Thus, impacts to population growth are expected to be less than significant during construction. During operations, approximately 69 employees would staff the power plant. It is expected that 90 percent of the full-time staff will to commute from areas in the vicinity of cities of El Centro, Brawley, Calipatria, and Niland. The remaining 10 percent of the full-time staff are expected to commute from the cities of Indio and La Quinta, or other areas within in Riverside County. Population impacts are not anticipated to be significant. See section 5.11.4.1 of the Amendment Petition for additional details.

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

No, the project is located in areas currently used for agriculture and industrial purposes. See section 5.7 of the Amendment Petition for additional details.

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No, the construction workforce is expected to commute to the area daily rather than relocate therefore, implementation of BR 1-3 would result in a less than significant impact on the local housing supply. See section 5.11.4.1 of the Amendment Petition for additional discussion.

XIII. Public Services

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to

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maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire protection?

Police protection?

Schools?

Parks?

Other public facilities?

No, increases in area population as a result of implementation (both construction and operation) of BR 1-3 are expected to be minimal. As a result, the increase in demand for public services is expected to be less than significant. See section 5.11.4.1 of the Amendment Petition for more details.

XIV. Recreation

a) Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No, as discussed presented in section 5.11.4.2 of the Amendment Petition, implementation of BR 1-3 will not result in a substantial increase in population growth or the use of local parks or recreational facilities.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No, BR 1-3 does not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

XV. Transportation/Traffic

a) Would the Project cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

No, as discussed in Section 5.13.4.2 of the Amendment Petition, implementation of BR 1-3 will result in a temporary increase in traffic associated with movement of construction vehicles, equipment, and personnel on the transportation network serving the Project area. However, the results of the intersection service analysis indicate that all study intersections would continue to operate at acceptable levels with the addition of Project construction-related traffic. Accordingly, no significant cumulative traffic or transportation impacts are expected from implementation of the Project

b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

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No, as discussed in section 5.13.4 of the Amendment Petition, neither construction nor operation activities are expected to cause an increase in traffic that would exceed any County established level of service standard.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

No, as discussed in section 5.13.3.6 of the Amendment Petition, the nearest airport to the Project site is the Cliff Hatfield Memorial Airport, approximately 6.5 miles away in Calipatria. Because of the distance and because the maximum height of Project structures is only 65 feet (cooling towers), aviation-related impacts are expected to be less than significant.

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No, because of the low elevation of the site (currently average of 225 feet below mean sea level), as described in Section 5.13.4.2, several sections of local roadways adjacent to the plant site will be raised an average of seven feet in elevation to be 220 feet below mean sea level. In addition some portions of adjacent roadways will be paved as two-lane roadways. As a result, implementation of BR 1-3 will result in improved roadway features. See section 5.13.4.3 of the Amendment Petition for additional details regarding roadway improvements.

e) Result in inadequate emergency access?

No, see response to VII (g) above, and section 5.13.4.3 of the Amendment Petition for additional details.

f) Result in inadequate parking capacity?

No, section 5.13.4.3 of the Amendment Petition describes the proposed parking to accommodate implementation of BR 1-3.

g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

No, BR 1-3 is proposed for an area designated for geothermal production. Therefore, implementation of BR 1-3 will not result in any conflicts with adopted policies related to alternative transportation. See section 5.13.4.3 of the Amendment Petition for additional details.

XVI. Utilities and Service Systems

a) Would the Project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

No, during construction, sanitary waste will be collected in portable, self-contained toilets. The sanitary wastes from the portable chemical toilets will be pumped out regularly by a licensed contractor and transported to a sanitary wastewater treatment plant. During

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plant-upset conditions, well flow testing, or startup, produced brines will be discharged to the brine pond associated with that particular power block. These brines will be managed with the plant injection wells described above. During normal operations, the facility will be equipped with a sewage holding tank, described above in Section VI.e., which is not subject to County permit jurisdiction. See sections 5.16.4.1, 5.16.4.2, 5.17.4.2 and 5.17.4.3 of the Amendment Petition for additional information.

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No, while the project will require a construction of a water supply line and an intake structure in IID the canal system, the CEC's Staff Analysis of the Amendment Petition to date has concluded that no significant impact associated would occur from implementation of these project components. See response XVI (a) above.

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No, BR 1-3 is located in an area of very low rainfall. Any storm water discharges occurring during construction activities will be managed in accordance with the California General Storm Water Construction Permit issued by the SWRCB and implemented by the Colorado River RWQCB and implementation of a Storm Water Pollution Prevention Plan (SWPPP). Implementation of mitigation measures, included as part of the revised Conditions of Certification, and compliance with all applicable local, state and federal storm water drainage requirements would result in less than significant impacts. Further, BR 1-3 has been designed such that there will be no discharges from the plant site. Site grading will convey any runoff to the northwest corner of the site to an earthen storm water detention basin. The detention basin will be designed to contain a storm event of three inches in a 24-hour period (100-year storm conditions). Runoff will be conveyed via ditches, swales and culverts. Consistent with SWRCB requirements for geothermal facilities operations, a SWPPP for BR 1-3 operations is not required. See sections 5.17.4.2 and 5.17.2.2 of the Amendment Petition for additional details.

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Yes, an estimated 95 percent of BR 1-3's water supply needs will be provided by process generated condensate and the remaining five percent of the water supply will be provided by IID. CEOE intends to comply with the IID Interim Water Supply Policy (IWSP) for all water supplied by IID. Refer to section 5.17.4.3 of the Amendment Petition for additional discussion.

e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No, this criterion is not applicable since no wastewater treatment will be required. Sanitary waste will be directed to a sewage holding tank constructed consistent with applicable regulations. Sludge from the sewage holding tank will be periodically removed and trucked

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offsite for disposal by a licensed contractor. See response XVI (c) above and section 5.17.4.3 for additional details regarding BR 1-3 wastewater processing.

f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Yes, as discussed in section 5.16.4.1 of the Amendment Petition, the non-hazardous solid wastes (other than drilling wastes) that cannot be recycled or reused would be disposed of at a Class III landfill, expected to be the Allied Imperial Landfill located in Salton City approximately 20 miles from BR 1-3. It is expected that the disposal of construction- and operational-related solid wastes would represent only a nominal (less than 0.01 percent) increase relative to current disposal volumes at the facility. In addition, small amounts of brine solids will be sent to the Desert Valley Company's Monofill Facility (owned by a subsidiary of the applicant), located in a Class II landfill in Brawley, California. As concluded in Section 5.16.4.1 pf the Amendment Petition, the disposal of these wastes is would not significantly affect the available landfill capacity.

g) Comply with federal, state, and local statutes and regulations related to solid waste?

Yes, implementation of mitigation measures, included as part of the revised Conditions of Certification, and compliance with all applicable local, state and federal solid waste requirements would result in less than significant impacts. See section 5.16.2 of the Amendment Petition for additional discussion.

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COUNTY OF IMPERIAL

DEPARTMENT OF PUBLIC WORKS

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IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES

May 14, 2010

Mr. Jurg Heuberger, Director
Planning & Development Services Department
801 Main Street
El Centro, CA 92243

Attention: Richard Cabanilla, Planner IV

SUBJECT: Conditional Use Permit #10-0004; CE Obsidian Energy, LLC. Black Rock Project, Well Pads; APN 020-111-008

Dear Mr. Heuberger:

This letter replaces our letter dated March 5, 2010 (attached) and is in response to a meeting held with the applicant on March 15, 2010 for the above-mentioned permit. The 160-acre BR 1-3 site is located within unincorporated area of Imperial County; the project is bounded by McKendry, Severe, Peterson and Boyle roads. The purpose of the project is to construct a geothermal generating plant on an 80-acre site. The BR 1-3 site is composed of three geothermal electric power plants, Black Rock 1,2, and 3 with nominal, net output for each plant of 53 MW for a combined capacity of 159 MW. This application is for the approval to install and operate four onsite plant injection well pads, three production well pads, and associated pipelines, plus nine injection well pads and associated pipelines located off the plant site.

After further reviewed of the package information the following comments shall be Conditions of Approval:

1) McKendry Road is classified as Local Road requiring sixty (60) feet of right of way, being thirty (30) feet from existing centerline. It is requested that sufficient right-of-way be provided to meet this road classification.

2) Grubel Road is classified as Local Road requiring sixty (60) feet of right of way, being thirty (30) feet from existing centerline. It is requested that an irrevocable offer of right-of-way be provided to meet this road classification for the extension of Grubel Road from Severe road to Boyle Road

3) Severe Road is classified as Local Road requiring sixty (60) feet of right of way, being thirty (30) feet from existing centerline. It is requested that an irrevocable offer of right-of-way be provided to meet this road classification.

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4) Gentry Road is classified as Major Collector requiring eighty four (84) feet of right of way, being forty four (42) feet from existing centerline. It is requested that an irrevocable offer of right of way be provided to meet this road classification. Right of way requirements will be imposed in the event that the exploratory wells prove successful, location of injection well is located along the project frontage road and under the CUP process for the future Geothermal Power Plant.

5) Boyle Road is classified as a Local Road requiring sixty (60) feet of right of way, being thirty (30) feet from existing centerline. It is requested that sufficient right-of-way be provided to meet this road classification

6) A record of survey delineating leased area must be provided.

7) Traffic to be generated by proposed project should be provided to determine the impacts to County road facilities. A traffic study may be required for this department's review and approval.

8) The applicant shall furnish a Drainage and Grading Plan/Study to provide for property grading and drainage control, which shall also include prevention of sedimentation of damage to off-site properties. The Study/Plan shall be submitted to the Department of Public Works for review and approval. The applicant shall implement the approved plan. Employment of the appropriate Best Management Practices (BMP's) shall be included.

9) An encroachment permit shall be secured from the Department of Public Works for any and all new, altered or unauthorized existing driveway(s) to access the properties through surrounding roads.

10) A Transportation Permit shall be required from road agency(s) having jurisdiction over the haul route(s) for any hauls of heavy equipment and large vehicles which impose greater then legal loads on riding surfaces, including bridges.

11) The project will require a National Pollutant Discharge Elimination System (NPDES) permit and Notice of Intent (NOI) from the Regional Water Quality Control Board (RWQCB) prior to County approval of onsite grading plan.

12) All on-site traffic area shall be hard surfaced to provide all weather access for fire protection vehicles. The surfacing shall meet the Department of Public Works and Fire/OES Standards as well as those of the Air Pollution Control District (APCD).

13) All solid and hazardous waste shall be disposed of in an approved solid waste disposal site in accordance with existing County, State and Federal regulations.

14) All permanent structures, including above ground piping abutting public roads shall be located outside the ultimate right of way. Additionally, locations of instruments and appurtenances cannot pose a traffic safety hazard.

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Should you have any questions, please do not hesitate to contact this office. Thank you for the opportunity to review and comment on this project.

Respectfully,

William S. Brunet, PE
Director of Public Works

By: Manuel Ortiz

Manuel Ortiz
Assistant County Engineer

Fp/ga

Cc: Mark T. Gran – Vice President, CalEnergy
Jeff Lyon – Landmark Consultants

EEC ORIGINAL PKG

COUNTY OF IMPERIAL

DEPARTMENT OF PUBLIC WORKS

155 S. 11th Street
El Centro, CA
92243

Tel: (760) 482-4462
Fax: (760) 352-1272

Public Works works for the Public

ICDPW

March 5, 2010

RECEIVED

MAR 08 2010

IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES

Mr. Jurg Heuberger, Director
Planning & Development Services Department
801 Main Street
El Centro, CA 92243

Attention: Richard Cabanilla, Planner IV

SUBJECT: Conditional Use Permit #10-0004; CE Obsidian Energy, LLC. Black Rock Project, Well Pads; APN 020-111-008.

Dear Mr. Heuberger:

This letter is in response to your letter and copy of Conditional Use Permit package received on February 12, 2010 for the above-mentioned permit. The 160-acre BR 1-3 site is located within unincorporated area of Imperial County; the project is bounded by McKendry, Severe, Peterson and Boyle roads. The purpose of the project is to construct a geothermal generating plant on an 80-acre site. The BR 1-3 site is composed of three geothermal electric power plants, Black Rock 1,2, and 3 with nominal, net output for each plant of 53 MW for a combined capacity of 159 MW. This application is for the approval to install and operate four onsite plant injection well pads, three production well pads, and associated pipelines, plus nine injection well pads and associated pipelines located off the plant site.

Department staff has reviewed the package information and the following comments shall be Conditions of Approval:

1) McKendry, Grubel and Severe Roads are classified as Local Roads requiring sixty four (64) feet of right of way, being thirty two (32) feet from existing centerline. It is requested that sufficient right-of-way be provided to meet this road classification.

2) Lindsey Road is classified as Minor Collector requiring seventy (70) feet of right of way, being thirty five (35) feet from existing centerline. It is requested that sufficient right-of-way be provided to meet this road classification.

3) Boyle Road is classified as proposed Prime Arterial requiring one hundred and thirty six (136) feet of right of way, being sixty eight (68) feet from existing centerline. It is requested that sufficient right-of-way be provided to meet this road classification.

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4) Gentry Road is classified as Major Collector requiring eighty four (84) feet of right of way, being forty two (42) feet from existing centerline. It is requested that sufficient right-of-way be provided to meet this road classification.

5) A record of survey delineating leased area must be provided.

6) Traffic to be generated by proposed project should be provided to determine the impacts to County road facilities. A traffic study may be required for this department's review and approval.

7) The applicant shall furnish a Drainage and Grading Plan/Study to provide for property grading and drainage control, which shall also include prevention of sedimentation of damage to off-site properties. The Study/Plan shall be submitted to the Department of Public Works for review and approval. The applicant shall implement the approved plan. Employment of the appropriate Best Management Practices (BMP's) shall be included.

8) An encroachment permit shall be secured from the Department of Public Works for any and all new, altered or unauthorized existing driveway(s) to access the properties through surrounding roads.

9) A Transportation Permit shall be required from road agency(s) having jurisdiction over the haul route(s) for any hauls of heavy equipment and large vehicles which impose greater then legal loads on riding surfaces, including bridges.

10) The project will require a National Pollutant Discharge Elimination System (NPDES) permit and Notice of Intent (NOI) from the Regional Water Quality Control Board (RWQCB) prior to County approval of onsite grading plan.

11) All on-site traffic area shall be hard surfaced to provide all weather access for fire protection vehicles. The surfacing shall meet the Department of Public Works and Fire/OES Standards as well as those of the Air Pollution Control District (APCD).

12) All solid and hazardous waste shall be disposed of in an approved solid waste disposal site in accordance with existing County, State and Federal regulations.

13) All permanent structures, including above ground piping abutting public roads shall be located outside the ultimate right of way. Additionally, locations of instruments and appurtenances cannot pose a traffic safety hazard.

14) Right of way requirements for McKendry, Lindsey, Boyle and Gentry Roads will be imposed in the event that the exploratory wells prove successful and under the CUP process for the future Geothermal Power Plant.

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Should you have any questions, please do not hesitate to contact this office. Thank you for the opportunity to review and comment on this project.

Respectfully,

William S. Brunet, PE
Director of Public Works

By: Manuel Ortiz

Manuel Ortiz
Assistant County Engineer

Fp/ga

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IMPERIAL IRRIGATION DISTRICT

OPERATING HEADQUARTERS * P.O. BOX 937 * IMPERIAL, CALIFORNIA 92251

INTER-CONNECT AND TRANSMISSION

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FEB 25 2010

IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES

February 22, 2010

Jurg Heuberger, AICP, CEP, CBO, Director
Imperial County Planning and Development Services
801 Main Street
El Centro, CA 92243

Subject: **CE Obsidian Energy, LLC Geothermal Project**
CUP #10-0004 / Assessor's Parcel Number 020-110-008-000

Dear Mr. Heuberger:

This letter is to advise Imperial County that Imperial Irrigation District ("IID") is working closely with CE Obsidian Energy, LLC regarding the electrical interconnection of the proposed Black Rock 123 Project (the "Project") on certain lands that are subject to the jurisdiction of Imperial County. IID understands that the Project is in the process of obtaining a Conditional Use Permit that is necessary to develop, construct and operate the Project. As you are aware, IID as a provider of transmission service in the Imperial Valley must provide transmission access to any generation project requesting interconnection.

IID further confirms that it has received CE Obsidian Energy's request for interconnection of the Project to IID's system, and that process is moving forward with necessary system impact analyses and associated interconnection agreement(s). This interconnection process follows a structured protocol that is standard in the power industry to assure that IID can accommodate the Project's interconnection and operation.

IID wishes to point out that the submittal of an interconnection or transmission service request does not automatically guarantee water availability for the Project.

IID will continue to work with CE Obsidian Energy to configure the interconnection for the Project and will provide the County with any information that is directly related to such interconnection as it relates to the Project's application for a Conditional Use Permit.

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If you have any questions, please feel free to contact me at (760) 482-3379.

Sincerely,

JAMIE ASBURY
Inter-Connect Transmission Contract
Specialist, Sr.
Imperial Irrigation District

cc: Edward Aghjayan, Imperial Irrigation District
David X. Kolk, Imperial Irrigation District
Stephen Keene, Imperial Irrigation District
Juan Carlos Sandoval, P.E., Imperial Irrigation District
Richard Cabanilla, Imperial County
Steve Larsen, CE Obsidian Energy, LLC
Doug Hackley, CE Obsidian Energy, LLC
Randy Keller, CE Obsidian Energy, LLC

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 results of the baseline surveys must be submitted to the CPM, USFWS, CDFG, and Refuge no later than 30 days prior to the start of mobilization. Results of pre-construction burrowing owl surveys shall be submitted to the CPM, USFWS, CDFG, and Refuge prior to the commencement of ground-disturbing activities. The protocol survey results shall be submitted to the CPM, USFWS, CDFG, and Refuge no more than 10 days after completion and at least 20 days prior to mobilization.

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 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 10 days after completion and at least 20 days prior to mobilization.~~

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

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(e.g., beyond 78 dBA L_{max}) 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 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 Noise and Vibration Assessment and Abatement Plan shall be submitted to the CPM, CDFG, Refuge and USFWS 60 days prior to the start of any site (or related facilities) mobilization. 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 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 noise measurement locations shall be mapped and proposed by the project owner in the Noise and Vibration Assessment and Abatement Plan according to the recommendations of the USFWS.** 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,

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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.

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 **and/or California Invasive Plant Council [Cal-IPC]**) 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,~~

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~~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.~~

~~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 Impacts to Burrowing Owls and Their Habitat

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BIO-25 Permanent **impacts to burrowing owls and** foraging habitat ~~which is permanently destroyed~~ shall be ~~replaced~~ **compensated** ~~at 0.5:1 (mitigation:impacts)~~.through **acquisition or easement. The acquired compensation lands shall be** ~~and~~ managed for the protection of burrowing owls. ~~Based on these ratios,~~ The project owner must protect and manage ~~42.65~~ 50.4 acres of land for burrowing owls **(45.5 acres for the power plant site, 2.25 acres for off-site injection wells, and** ~~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.~~ **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. Based on the 2009 survey results, the applicant must enhance or install at least 2 new burrows.**

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.~~ **At least 15 days prior to construction, the** project owner shall fund the acquisition **(or placement of the project owner's previously owned land under conservation easement)** and long-term **management** of the compensation lands ~~in a form acceptable~~ **under conditions acceptable** to the CEC and CDFG (e.g., provide a letter of credit or establish an escrow account**, ensure a specified crop type on agricultural lands**) ~~15 days prior to construction~~. **At least 90 days prior to commercial operation, the project owner shall propose land for purchase or protection with a description of habitat types and propose a management and monitoring plan.** 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 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.

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REFERENCES

California Burrowing Owl Consortium, 1993. Burrowing Owl Survey Protocol and Mitigation Guidelines. April 1993.

California Energy Commission (CEC). 2003a. Decision for CE Obsidian Energy's Salton Sea Geothermal Unit #6 Power Project Application for Certification, Docket No. 02-AFC-2, Lake County, published on December 19, 2003.

California Energy Commission (CEC). 2003. Staff Assessment for Salton Sea Geothermal Unit #6 Power Project Application for Certification (02-AFC-2), Lake County, California, published on August 5, 2003.

California Department of Fish and Game (CDFG). 2002. Agreement Regarding Proposed Activities Subject to California Fish and Game Code Section 1603. Notification No. 6-2002-279-R6. 10-31-2002. Agreement between the Department of Fish and Game, Eastern Sierra and Inland Deserts Region and CE Obsidian Energy LLC.

California Energy Commission (CEC). 2005b. Decision approving the Salton Sea Geothermal Unit 6 (now Black Rock 1, 2, 3) Power Plant Petition to Amend, Docket No. 02-AFC-2, Imperial County, published on May 11, 2005.

California Energy Commission (CEC). 2005b. Staff Assessment for Salton Sea Geothermal Unit 6 (now Black Rock 1, 2, 3) Power Plant Petition to Amend, (02-AFC-2), Imperial County, California, published on April 20, 2005.

California Department of Fish and Game (CDFG). 2009a. *California Natural Diversity Database Rarefind.* Search of the Niland and Obsidian Butte 7.5-minute USGS quadrangles.

California Department of Fish and Game (CDFG). 2009b. E-mail communications with Magdalena Rodriguez, Environmental Scientist, re: Salton Sea 6 1603 permit and permitting for other biological resources related to the BR123 project amendment on July 23, 2009 and December 10, 2009.

California Department of Fish and Game (CDFG). 2010. Telephone calls and e-mail Communications with Magdalena Rodriguez, Environmental Scientist, re: compensation for burrowing owls and their habitat related to the BR123 project amendment on January 28, 2010 and June 29, 2010.

California Native Plant Society (CNPS). 2009. Online Inventory of Rare and Endangered plants. Available at www.cnps.org/inventory, accessed on April 2, 2009.

CE Obsidian Energy, LLC, (CE Obsidian/AECOM). 2009a. Salton Sea Geothermal Unit #6 Power Project, Petition for License Amendment. Submitted to the California Energy Commission, March 13, 2009.

CE Obsidian Energy, LLC (CE Obsidian/CH2MHILL). 2009b. CalEnergy Black Rock 1-3, Data Responses 1-64. Submitted to the California Energy Commission, November 2009.

CE Obsidian, LLC (CE Obsidian/CH2MHILL). 2009c. Notification of Lake or Streambed Alteration. Black Rock 1, 2 and 3 Geothermal Power Project. Dated August 2009.Submitted to the California Department of Fish and Game, November 2009.

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CE Obsidian, LLC (CE Obsidian/CH2MHILL). 2009d. Burrowing Owl Survey Report. Black Rock 1, 2 and 3 Geothermal Power Project. Dated December 2009.

CE Obsidian, LLC. 2010. E-mail communications with Michael Fawdry and Doug Hackley regarding Section 404 permit requirements for the BR123 project on February 28, 2010 and March 1, 2010.

U.S. Fish and Wildlife Service (USFWS). 2009. E-mail communication with Christian Shoneman, Project Leader, Sonny Bono Salton Sea National Wildlife Refuge Complex, re: potential biological concerns related to the BR123 project amendment on May 12, 2009.

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CULTURAL RESOURCES

Testimony of Dorothy Torres

INTRODUCTION

CE Obsidian Energy, LLC, is proposing a major amendment to the 215-megawatt (MW) project previously certified as "Salton Sea Unit 6" (SSU6). The amended project would be named the Black Rock 1, 2, and 3 Geothermal Power Plant (BR123), and would consist of three power plants producing approximately 53 MW each. BR123 would be built in the Salton Sea Known Geothermal Resource Area (KGRA), which has been zoned by Imperial County for geothermal development.

BR123 would include the original 80-acre SSU6 project site and an additional 80 acres adjacent to the south of the original project, plus additional lands for the off-site injection wells, pipelines, project transmission lines (previously licensed under the SSU6 Amendment), and two borrow sites (one of the borrow sites was previously licensed under the SSU6 Amendment). The project would be located adjacent to the Salton Sea, just east of Obsidian Butte and 0.6 mile from the Salton Sea Sonny Bono National Wildlife Refuge (CE Obsidian 2009, p. 2-3–2-7).

PROJECT DESCRIPTION

BR123 would consist of three production well pads with three wells each located at the northern, western, and southern perimeters of the site. The project also includes three injection well pads with three injection wells each, located off the project site to the east, southeast, and south of the project site. The previously proposed 80 acres used for the project would be doubled to 160 acres. A total of 18 production and injection wells utilizing six well pads would be built. In addition, two plant injection wells and two aerated brine injection wells would be drilled to inject cooling tower blow down and aerated brine (CE Obsidian 2009, p. 2-2).

Three brine ponds would be constructed on the project site. Each pond would be 620 feet by 42 feet by 4 feet deep. Containment areas would be constructed around each brine pond for pipes and de-scaling activities (CE Obsidian 2009, pp. 2-32–2-33). The brine ponds would be permitted by the Regional Water Quality Control Board (RWQCB) (CE Obsidian 2009, p. 2-32). The amended project would obtain water from an Imperial Irrigation District (IID) canal, Vail Lateral 4-A.

The amended project would use a borrow site located immediately southeast of the plant site to obtain soil to construct a berm around the entire perimeter of the 160-acre project site, as protection against flooding. An additional borrow site located adjacent to the Leathers geothermal plant, approximately two miles northeast of the project, would also be used (CE Obsidian 2009, p. 2-37). The project would utilize approximately 361,840 cubic yards of soil from the borrow locations. Perimeter roads would be located on top of the berm.

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LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

There are no new or changed LORS pertaining to cultural resources that are applicable to BR123.

CULTURAL RESOURCES ANALYSIS

ORIGINAL PROJECT FINDINGS

For the original SSU6 project, the Final Staff Assessment (FSA) discussed six archaeological sites that were identified during previous cultural surveys that could not be relocated during surveys for the original permit. The FSA also recognized additional known cultural resources, stating that there were "...28 archaeological sites, features, objects, buildings, or structures known to be located in the vicinity of the project" (CEC 2003a p. 4.3-23). These cultural resources included 15 historic-era buildings or structures and 13 archaeological sites, some containing human remains. However, many of the cultural resources identified during permitting of the SSU6 project were located near the transmission line route. The transmission line route has already been permitted as part of the SSU6 project, and is not a subject of this amendment.

The original FSA also recommended that "...Obsidian Butte meets the eligibility requirements for the California Register under criteria 4. Obsidian Butte is potentially eligible to the inventory of sacred places. It also retains sufficient integrity to provide important information about prehistory and to function as a Traditional Cultural Place, and will be treated as also eligible for the California Register of Historical Resources (CRHR) under criterion 1 for the purposes of this analysis" (CEC 2003a, p. 4.3-21). The FSA also concluded that there would be a change in the integrity of setting, feeling, and association of Obsidian Butte, diminishing the integrity of the resource, but that the change was not expected to materially impair Obsidian Butte's eligibility to the CRHR under criterion 1 (CEC 2003a, p. 4.3-22). In addition, the original FSA concluded that there were no cumulative impacts (CEC 2003a, p. 4.3-23).

Cultural resources Conditions of Certification, **CUL-1** through **CUL-11** are thoroughly discussed in the FSA prepared for the SSU6 project. **CUL-1** through **CUL-9** provided for the identification, assessment, and appropriate treatment of CRHR-eligible archaeological resources that might be discovered during construction. **CUL-10** required an ethnographic study to determine the traditional use and the cultural importance of Obsidian Butte by and to Native American groups. **CUL-11** provided a guide for mitigation for the lithic scatter located on Obsidian Butte that would have been impacted by the construction of a production well pad.

The previous project, SSU6, had planned to locate a production well, pipeline, and access road on Obsidian Butte. The amended project, BR123, moves all production wells onto the 180-acre project site, and no injection wells are proposed in the Wildlife Refuge or on Obsidian Butte (CE Obsidian 2009, p. 2-2).

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Records Search

In the preparation of the Petition to Amend the SSU6 license, consultants to the project owner conducted a records search at the Imperial Valley College Desert Museum. The search addressed a study area that extended 1.0 mile beyond the project facilities and 0.25 mile to either side of the linear facilities (CE Obsidian 2009, p. 5.4-15). The records search included a search of the Native American Heritage Commission's (NAHC) Sacred Land Files that indicated cultural resources were present in the project area (CE Obsidian 2009, p. 24). The records search revealed that no previous surveys had been conducted in the area of the injection well pads and pipelines that would be located south and east of the plant site.

A historic records search included a review of historic USGS topographical maps and historic site inventories conducted for previous studies in the vicinity of the project. The Pioneer Museum in Imperial, California, was also contacted; however, no response was received from the museum.

In response to staff's data request, additional information sources were selected and reviewed based on the information that the sources might provide regarding Obsidian Butte (CE Obsidian 2009a, p. 8).

Field Surveys

Since the proposed amendment has expanded the location of the proposed project, additional areas were surveyed by cultural resources consultants to the applicant. Buffer areas and some linear facilities changed, necessitating additional surveys. Consultants to the project owner surveyed the buffer for the plant site, injector well pads, pipelines, and borrow area by pedestrian archaeological reconnaissance between November 4, 2008, and November 6, 2008. The built-environment survey area extended 0.5 mile beyond the amended project components (CE Obsidian 2009, p. 29).

Ground visibility for the archaeological survey was good to excellent, revealing that the area was level, had been graded and cultivated, and was heavily disturbed. The survey identified and recorded Vail Canal Lateral 3-A, 4, and 4-A (CE Obsidian 2009, p. 31). The survey of the plant buffer area identified pieces of unmodified obsidian in the northwest corner of the buffer area and along a 2,400-foot segment of Vail Lateral 4-A, which parallels the eastern side (boundary) of the plant site.

Native American Consultation

In support of the BR123 amendment, the project owner's cultural resources consultant contacted the NAHC on September 8, 2008, to request a search of the Sacred Lands File. The NAHC responded that there were cultural resources located within the search area (CE Obsidian 2009, p. 5.4-14). The NAHC also provided an updated list of Native American Individuals and groups who had requested to be informed regarding construction development in Imperial County. Those Native American individuals and groups were contacted by the consultant to the project owner on September 23, 2008. Telephone calls were made to the listed Native Americans on December 10, 2008 (CE Obsidian 2009, p. 25). Only Carmen Lucas with the Kwaaymii Laguna Band of Mission Indians and Bridget Nash-Chrabascz, Tribal Historic Preservation Officer to the

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Quechan Indian Nation, responded with expressions of concern. Preston Arrow-Weed, Quechan Kumeyaay Tribal Elder, responded that the Quechan Indian Nation should be contacted and that he need not be contacted again (CE Obsidian 2009a, p. 8).

As a result of staff's Data Requests for additional information on Native American concerns regarding Obsidian Butte, in 2009 persons on the 2008 list of Native Americans were contacted again by LSA, an additional consultant to the project owner. Contacts included Carmen Lucas, Bridget Nash-Chrabascz, and Bernice Paipa, tribal member of the Santa Ysabel Band of Kumeyaay Indians and Cultural Representative with the Kumeyaay Culture and Repatriation Committee. All responded that Obsidian Butte was either sacred or important to their particular group. Michael Garcia, of the Ewiiaapaayp Band of Kumeyaay Indians said that he would consult with elders and respond at a later date.

Cultural Resources Identified by Investigations Conducted in Support of SSU6 and BR123

Obsidian Butte

As addressed in the FSA completed for SSU6, Obsidian Butte is a known source of obsidian used by Native Americans to make flaked stone tools during the latter part of the Late Prehistoric period. Two small areas around the base of Obsidian Butte have been recorded as archaeological sites (CA-IMP-452 and CA-IMP-6683).

Obsidian Butte, as a whole, has not been recorded (CEC 2003a, p. 4.3-10). At the proposed plant site, the level of elevation ranges from 230 feet bmsl (below mean sea level) to approximately 220 feet bmsl at the highest point. The terrain is generally flat and "the volcanic glass dome of obsidian butte rises approximately 100 feet above the surrounding farm land" (CE Obsidian 2009, p. 5.5-5). "Materials suitable for prehistoric stone tool manufacture were quarried, from the obsidian, rhyolite, and silicified sediment (Wonderstone) deposits at Obsidian Butte..." (CE Obsidian 2009, p. 5.4-7). The area surrounding Obsidian Butte is composed of about 40 acres of rhyolite flow with chunks of rhyolitic obsidian covered by a weathered light gray pumice mantle. Soon after Obsidian Butte formed by volcanic activity, it was covered by the water of Lake Cahuilla, as indicated by rounded pumice clasts and seven wave cut benches on the east slope of the dome. In the past, Lake Cahuilla extended much farther than the boundaries of the present-day Salton Sea. It appears that over the course of "the last approximately 1,300 years the Colorado River has filled the Salton Sink at least four times and that, at each time, the level of Lake Cahuilla..." (CE Obsidian 2009a, p. cult-15) appears to have reached the top of the sill that separated Lake Cahuilla from the Gulf of California. During these times, the project vicinity would have been under approximately 315 feet of water. Native Americans could only access obsidian when Lake Cahuilla was low (CEC 2003a, p. 4.3-10).

In February, 2002, the consultant to the project owner sent letters to Native American individuals and groups listed by the NAHC in preparation of the SSU6 Application for Certification. The Native American individuals and groups had requested that they be informed regarding construction development in Imperial County. Telephone calls were made to the same people in February and March 2003. As a result of those calls, two Native Americans stated that Obsidian Butte was important to Native Americans.

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During the permitting process for the SSU6 project, staff also spoke with numerous Native Americans regarding the proposed project. As a result of those conversations, many Native Americans asserted that Obsidian Butte was important to the Native American community (CEC 2003, p. 4.3-20). In the FSA completed for SSU6, staff concluded that Obsidian Butte, due to presence of archaeological sites, met the requirements of the CRHR under criterion 4, the ability to yield important information. In addition to a recommendation of eligibility under criterion 4, staff recommended that Obsidian Butte retained sufficient integrity to function as a traditional cultural place, and so Obsidian Butte, for the purpose of staff's analysis, would be treated as a traditional cultural place (CEC 2003, p. 4.3-21), eligible to the CRHR under criterion 1: "is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage" (OHP 1999, p. 15).

Historic Canals and Drainages Identified During Surveys for this Amendment

Cultural resources surveys for the original project did not identify canals and drainages within the boundaries of the original SSU6 project. The survey conducted for the amended BR123 project identified the Vail Canal Laterals 3-A, 4, and 4-A that appeared to be greater than 50 years old within the project amendment boundaries. The Vail Canal Laterals, 3-A, 4, and 4-A appear to have been associated with historic canal expansion in the Imperial Valley between 1920 and 1930.

The California Irrigation Company began construction of canals in 1891 to transport water from the Colorado River to the Salton Sink. The company went out of business after a series of mishaps that included the overflow of the Colorado River and the current formation of the Salton Sea (CE Obsidian 2009, p. 5.4-13). IID was formed in 1911, filling the service gap left by the defunct California Irrigation Company. After 1929, IID expanded the canals with lateral drain systems. Many of the canals and lateral drain systems were constructed of dirt, or lined with tile, and provided irrigation outlets to farms. Regional agriculture still relies on many of the canals and drainage ditches that were already in place before the Second World War.

The Vail Canal, a major canal in the vicinity of the project was constructed in 1910 by the Vail family. It is situated just south of the Salton Sea, on land owned by the Vail family, and runs between the Alamo River and the New River. The Vail Laterals in the project vicinity are also located between the Alamo River and New River. The consultant to the project owner stated that the Vail Canal Laterals (Vail Laterals) may have been part of IID's expansion and would date from the drainage expansion period of 1920s and 1930s. The consultant to the project owner noted that it is likely that modern concrete linings were added to the drainages sometime between 1949 and the present (CE Obsidian 2009, p. 35).

Vail Lateral 3-A

Vail lateral 3-A is "an open, concrete lined trapezoidal shaped channel with flowing water. Canal walls are poured slab concrete with a smooth finish" (CE Obsidian 2009, Department of Parks and Recreation (DPR) Primary Record Form). The width at the top of the canal is 10 feet 3 inches, at the bottom it is approximately 2 feet, and the canal's depth is approximately 4 feet. A segment of the canal is labeled 1949, and includes two sluice gates. One sluice gate is stamped "Vail 3-A," and divides the canal into two

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segments that correspond with an intersecting road. The second sluice gate is labeled "367," and leads to another unnamed canal that runs east-west. Water was present in the canal at the time of recordation (CE Obsidian 2009, p. 32).The presence of a concrete lining that was not a feature of the early canal laterals leads staff to recommend that Vail Lateral 3-A would not be eligible to the CRHR.

Vail Lateral 4

In the project area, Vail Lateral 4 is an open, smooth, concrete-lined, trapezoidal-shaped channel with flowing water, composed of three segments. The first segment (Segment 1), has a contractor's stamp that indicates, "MERRILL 1993", is 2,254 feet long and is situated between Gentry Road and Kuns Road. It has two sluice gates, and the first, "Vail 4," divides the canal into sections that correspond with intersecting roads. Segment 1 is 14 feet, four inches wide, with a bottom width of approximately 2 feet and a depth of approximately 4 feet. The additional sluice gate is labeled "415" and leads to an east-west-trending unnamed irrigation canal. Small sluice valves are present in the wall of the segment to allow drainage to agricultural fields (CE Obsidian 2009, DPR Primary Record Form).

Segment 2 is 200 feet long and contains water. The southernmost portion of this canal segment is 0.25 mile south of the intersection of Gentry Road and McNerny Road at an unnamed dirt road. It is 11 feet, 4 inches wide, approximately 2 feet wide at the bottom and approximately 4 feet deep. There is also a stamped contractor's mark that says "Ryerson 1992" (CE Obsidian 2009, DPR Primary Record Form).

Segment 3 is 150 feet long and its southern point is 60 feet north of McNerny Road. It has a contractor's stamp that says "Ryerson 1992." The recorders note that "McNerny Road is incorrectly labeled with a sign that says McKendry Road" (CE Obsidian 2009, DPR Primary Record Form). Two sluice gates are present; one sluice gate labeled "Vail 4" divides the segment into sections that correspond with an intersecting road. The second sluice gate is labeled "419," and is the entrance to an east-west running unnamed canal. The portion of the segment north of McNerny Road, includes the sluice gate labeled "419," is 13 feet, 9 inches wide, and is 49 feet long with water present (CE Obsidian 2009, DPR Primary Record Form). The remainder of the segment is 9 feet, 7 inches in width at the top, approximately 2 feet at the bottom and approximately 4 feet deep. Sluice valves in the north wall of the segment allow water access to agricultural fields. The presence of the contractor's mark indicating that modifications were made to Vail Lateral 4 in 1992 leads staff to recommend that Vail Lateral 4 would not be eligible to the CRHR.

Vail Lateral 4-A

This recorded canal segment extends 1.4 miles in the project area and parallels Boyle Road. It is an open, trapezoidal-shaped canal with flowing water. The top width of the canal is 10 feet 3 inches; the bottom width is approximately 2 feet, with a depth of approximately 4 feet. It has a contractor's stamp "Granite Construction 2003" and includes 9 sluice gates. Four of the sluice gates are labeled "Vail 4-A" and correspond with intersecting roads. The other five sluice gates are labeled "455," "457," "459," "460," and "461-A," and lead into east-west-running, unnamed irrigation canals to the west. The unnamed canals have sluice valves in the side of the canal to provide water to agricultural fields (CE Obsidian 2009, DPR Record Form).

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In January, 2010, staff asked the project owner questions regarding the Vail Canal and Vail Laterals, Vail 3-A, Vail 4 and Vail 4-A. The information provided stated that the Vail Canal was visible on the Map of Imperial Valley Settlements dated July, 1913, and Vail Laterals 3-A, 4, and 4-A were apparent on the IID Plat Book Map dated November, 1924. This indicates that Vail Laterals 3, 4, and 4A were built prior to 1924, and that it is very likely that that they were built during the drainage expansion that occurred between 1920 and 1930 (Salamy 2010). The consultant to the applicant recommended Vail Laterals 3-A, 4, and 4-A as potentially eligible to the CRHR based on their "associations with agricultural development of the region" (CE Obsidian 2009, p. 5.4-22). However, the information that the Vail 3-A, Vail 4, and Vail 4-A laterals, originally unlined dirt, are now concrete-lined indicates an important change in a character-defining feature of these canals, resulting in a loss of their integrity of materials. Based on this loss, staff recommends that, while these canals may be potentially eligible for listing on the CRHR, their loss of integrity due to the addition of concrete lining significantly impairs their ability to convey historical significance, and so additional impacts to them would not be significant.

IMPACTS

For an amendment, staff is charged with assessing impacts to cultural resources that are due to modifications of a previously certified project. To assess potential impacts to cultural resources from an amended project, staff must consider whether the amended project modifications would cause additional or more severe impacts to identified, or undiscovered cultural resources than impacts identified in the Energy Commission Final Decision for the previously approved project.

PREHISTORIC ERA RESOURCES

Since transmission line routes are not part of this amendment, previously identified archaeological sites along these routes, and the potential to encounter additional archaeological sites on these routes, will not be discussed in the analysis for this amendment.

The cultural resources section of the SSU6 FSA identified an archaeological site and lithic scatter, located on Obsidian Butte, which would be adversely affected by construction of a pipeline, access road, and Well Pad OB-3. Staff recommended that the archaeological site and lithic scatter were eligible to the CRHR and that construction of the pipeline and Well Pad OB-3 would constitute a significant impact to a significant cultural resource. Since amended project BR123 would not construct Well Pad OB-3 or the associated access road and brine pipeline, there would not be an impact to Obsidian Butte and the archaeological sites that were recommended eligible to the CRHR.

Historic-Era Resources

New cultural resources surveys conducted for BR123 identified historic canals and drainages within or adjacent to project boundaries that had not been identified within the boundaries of the SSU6 project. The Vail Canal Laterals 3-A, 4, and 4-A were confirmed to be more than 50 years of age and recommended as potentially eligible for the CRHR. However, improvements to these canals have resulted in a loss of integrity sufficient to impair their ability to convey historical significance. Staff, therefore, recommends that

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the Vail Canal Laterals 3-A, 4, and 4-A are not eligible for listing on the CRHR. Since, under CEQA, staff need only consider potential impacts to resources eligible or recommended eligible for listing on the CRHR, impacts to the Vail Canal Laterals 3-A, 4, and 4-A will not be analyzed.

Ethnographic Resources

The original FSA found Obsidian Butte eligible to the CRHR under criterion 1, which states that a potential cultural resource might be considered eligible to the CRHR if it is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage. The FSA assessed Obsidian Butte's eligibility to the CRHR under criterion 1, as follows, "Obsidian Butte is potentially eligible to the inventory of sacred places. It also retains sufficient integrity to provide important information about prehistory and to function as a Traditional Cultural Place [an ethnographic resource], and will be treated as also eligible for the CRHR under criterion 1 for the purposes of this analysis" (CEC 2003a, p. 4.3-21). The FSA also concluded that "Obsidian Butte would be impacted by diminishing aspects of integrity (setting, feeling, and association) under criterion 1" (CEC 2003a, p. 4.3-21), but also concluded that construction of SSU6 would not materially impair Obsidian Butte's eligibility to the CRHR under criterion 1 (CEC2003a, p. 60).

For the BR123 amendment, staff is tasked with determining whether there would be additional impacts to Obsidian Butte as an ethnographic resource, eligible to the CRHR under criterion 1, caused by modifications to the previously certified SSU6, and, if so, would they be significant. For BR123, Well Pad OB3 and its two associated wells would be moved from Obsidian Butte and placed within the boundaries of the project, the associated above-ground brine pipeline would no longer be placed on Obsidian Butte, and McKendry Road would not be widened (CE Obsidian 2009, p. 2-3). Thus the amended project would result in a less significant physical impact on Obsidian Butte than the original project.

However, a comparison between the heights of project components indicates that three stacks reaching 99 feet would be built for BR123 as opposed to two for SSU6. Cooling towers would decrease from 55 feet to 53 feet, but there would be three cooling tower plumes rather than two as proposed for the SSU6 facility. The associated plumes for the BR123 amendment would also be visible 11 percent of the time as opposed to being visible 1 percent of the time for the SSU6 project. The BR123 Staff Assessment Visual Section asserted that the plume dimensions would be comparable to existing ~~geothermal facilities and would not stand out in the visual setting~~.

In conclusion, the BR123 amendment would remove a well pad and associated pipeline from Obsidian Butte, but some of the taller project components would be slightly more numerous. Therefore, the impact would not exceed that of the SSU6 project.

For BR123, staff concludes that there are no additional significant impacts from BR123. Staff also concludes that the only significant impacts identified in the Commission Final Decision (the construction of well pad OB3, associated pipeline, and access road) would not occur because the BR123 amendment has removed them from the project. Therefore, the significant impacts to Obsidian Butte that would have resulted from the original project would be avoided under the amended project.

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Although it is not likely that the amended project would impact any previously undiscovered archaeological sites, a potential still exists that archaeological material left in the area by prehistoric uses of Obsidian Butte, including hearths, campsite remnants, and evidence of fish and flora processing, might be discovered during construction. Those impacts that could occur during construction-related excavations, potentially affecting unknown buried archaeological resources, are the only impacts to cultural resources from the construction proposed in the amendment. The existing cultural resources Conditions of Certification **CUL-1** through **CUL-9** would mitigate to below the level of significance impacts to resources discovered during construction.

CUMULATIVE IMPACTS

A cumulative impact under CEQA refers to a proposed project's incremental effects considered over time and together with those of other, nearby, past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project. Cumulative impacts to archaeological cultural resources in the vicinity of the BR123 project site could occur if any other existing or proposed projects, in conjunction with the proposed BR123 modifications, had or would have impacts on archaeological resources that, considered together, would be significant.

The original FSA concluded that SSU6 would have no cumulative impacts (CEC 2003a, p. 4.3-23). Staff has determined that the amended BR123 would not impact any known CRHR-eligible built-environment resources and that the project would, in fact, avoid known archaeological resources that SSU6 would have impacted. Since the BR123 project impacts to any CRHR-eligible archaeological resources discovered during construction would be mitigated to a less-than-significant level by the project's compliance with existing Conditions of Certification **CUL-1** through **CUL-9**, and since similar protocols can be applied by other projects in the area, staff does not expect any incremental BR123 project effects on archaeological resources to be cumulatively considerable when viewed in conjunction with other projects.

CONCLUSIONS AND RECOMMENDATIONS

The amended BR123 project would comply with all applicable LORS. Staff determined that the amended BR123 project would avoid previously identified significant impacts to CRHR-eligible cultural resources and would not impact any additional CRHR-eligible resources.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

The applicant requested that **CUL-10** be deleted because the amended project would not locate a well pad on Obsidian Butte and consequently would not impact the previously identified CRHR-eligible cultural resources. Staff recommends deleting both **CUL-10** and **CUL-11** since the amended project would not impact any Obsidian Butte cultural resources. Existing cultural resources Conditions of Certification **CUL-1** through **CUL-9** would ensure that impacts to newly discovered cultural resources would be mitigated to below the level of significance. With the continued applicability of

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Conditions of Certification **CUL-1** through **CUL-9**, staff concludes that construction and operation of BR123 would not cause a significant direct, indirect, or cumulative impact to cultural resources.

Changes to the cultural resources conditions of certification are shown below, with deleted text shown as ~~strikethrough~~.

~~**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, FortMohave, 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 no 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 cannot 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~~

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~~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 cannot 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 an 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.~~

REFERENCES

CEC 2003—California Energy Commission. Decision for the Salton Sea Geothermal Unit 6 (now Black Rock 123) Power Plant Application for Certification, Docket No. 02-AFC-2, Imperial County, published on December 19, 2003.

CEC 2003a—California Energy Commission. Staff Assessment for Salton Sea Geothermal Unit 6 (now Black Rock 123) Power Plant Application for Certification (02-AFC-2). Imperial County, California. Published August 5, 2003.

CE Obsidian 2002—CE Obsidian Energy, LLC. Application for Certification: Salton Sea Unit 6 Project, Volume 1. July, 2002.

CE Obsidian 2009—CE Obsidian Energy, LLC (CE Obsidian/AECOM). Salton Sea Geothermal Unit 6 (now Black Rock 123) Power Plant, Petition for License Amendment, to Modify Project to Allow Construction of Three 53 MW Units, Totaling 159 MW. Submitted to the California Energy Commission, March 10, 2009.

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Salamy 2010 Jerry Salamy, CH2MHill. Email Communication with Dale Rundquist of the Energy Commission, regarding Vail Laterals, February 2, 2010.

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LAND USE

Testimony of Jeanine Hinde

INTRODUCTION

The Salton Sea Unit 6 Geothermal Power Project (SSU6) was certified by the California Energy Commission (Energy Commission) in December 2003 as a 185-MW geothermal power plant (Energy Commission 2003a). The application for certification for SSU6 included an assessment of the project's consistency with applicable laws, ordinances, regulations, and standards (LORS) pertaining to land use and agricultural resources (CE Obsidian Energy 2002). In 2003, Energy Commission staff assessed compatibility of SSU6 with existing and planned land uses. Conditions of certification were proposed to address impacts relating to the conversion and loss of productive agricultural land, ensure conformity of SSU6 with the Imperial County Land Use Ordinance, and address anticipated transmission line right-of-way issues (Energy Commission 2003b).

The project applicant subsequently proposed to increase generation from 185 MW to 215 MW, and in May 2005, the Energy Commission approved a petition to modify the SSU6 project and amend the related conditions of certification (Energy Commission 2005a). Proposed modifications to SSU6 included adding approximately 20 acres to the project site, which required moderate changes to the conditions of certification relating to land use (Energy Commission 2005b).

In March 2009, the SSU6 project owner filed a petition with the Energy Commission requesting to amend its license to allow for the construction of three smaller geothermal plants that would be co-located on the same site as the original SSU6 project, and the name of the project was changed on August 3, 2009, to the Black Rock 1, 2, and 3 Geothermal Power Project (BR123). The three plants associated with BR123 would be constructed on the same 80-acre site that was previously analyzed for SSU6 plus a contiguous 80-acre site south of the original site for a total of 160 acres. The entire 160-acre site is located on a parcel that is owned by Imperial Magma, an affiliated company of the project applicant. Compared to the project that was certified in December 2003, many of the facilities for BR123 would be consolidated within the expanded main plant site. A 34-acre borrow site would be established near the BR123 plant site (referred to in this staff assessment as Borrow Area 1). Soils imported from Borrow Area 1 would be used to construct several project features at the main plant site.

This analysis addresses whether BR123 would cause additional impacts relating to land use planning and agricultural resources compared to the licensed SSU6 project.

APPLICABLE LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

This section discusses LORS pertaining to land use and agricultural resources that are new or that have changed since SSU6 was certified in 2003, or that have become applicable due to the differences between the SSU6 and BR123 projects.

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FEDERAL

No changes to federal LORS pertaining to land use planning or agricultural resources have been identified since SSU6 was certified in 2003.

STATE

Williamson Act

Portions of the BR123 project are under the jurisdiction of the California Land Conservation Act of 1965, commonly known as the Williamson Act, which enables local governments to enter into contracts with private landowners to restrict specific parcels of land to agricultural or related open space use. In return, landowners receive property tax assessments that are based on farming and open space uses instead of full market value (California Department of Conservation 2007a).

The Williamson Act empowers local governments to establish "agricultural preserves" consisting of lands devoted to agricultural and other compatible uses (Gov. Code § 51230). When such preserves are established, the locality may offer to owners of included agricultural land the opportunity to enter into annually renewable contracts that restrict the land to agricultural use for at least 10 years (i.e., the contract continues to run for 10 years following the first date upon which the contract is not renewed). In return, the landowner is guaranteed a relatively stable tax base, founded on the value of the land for agricultural/open space use only and unaffected by its development potential (Gov. Code §§ 51240, 51243, 51244).

Regulations governing land uses in agricultural preserves identify construction and maintenance of various utilities as compatible uses while allowing local municipalities to impose additional limiting conditions (Gov. Code § 51238):

> *(a) (1) Notwithstanding any determination of compatible uses by the county or city pursuant to this article, unless the board or council after notice and hearing makes a finding to the contrary, the erection, construction, alteration, or maintenance of gas, electric, water, communication, or agricultural laborer housing facilities are hereby determined to be compatible uses within any agricultural preserve.*
>
> *(2) No land occupied by gas, electric, water, communication, or agricultural laborer housing facilities shall be excluded from an agricultural preserve by reason of that use.*

The regulations establish principles of compatibility for uses that are approved on contracted lands (Gov. Code § 51238.1):

> *(a) Uses approved on contracted lands shall be consistent with all of the following principles of compatibility:*
>
> *(1) The use will not significantly compromise the long-term productive agricultural capability of the subject contracted parcel or parcels or on other contracted lands in agricultural preserves.*

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(2) The use will not significantly displace or impair current or reasonably foreseeable agricultural operations on the subject contracted parcel or parcels or on other contracted lands in agricultural preserves. Uses that significantly displace agricultural operations on the subject contracted parcel or parcels may be deemed compatible if they relate directly to the production of commercial agricultural products on the subject contracted parcel or parcels or neighboring lands, including activities such as harvesting, processing, or shipping.

(3) The use will not result in the significant removal of adjacent contracted land from agricultural or open-space use.

Surface Mining and Reclamation Act

Because of its use for obtaining fill material for plant construction, Borrow Area 1 is subject to the Surface Mining and Reclamation Act of 1975 (SMARA), which requires the State Mining and Geology Board (SMGB) to adopt state policy for the reclamation of mined lands and the conservation of mineral resources. SMARA provides a comprehensive surface mining and reclamation policy for the regulation of surface mining operations to ensure that adverse environmental impacts are minimized and mined lands are reclaimed to a usable condition. SMARA also encourages the production, conservation, and protection of the state's mineral resources (Pub. Resources Code §§ 2710–2796, California Department of Conservation 2007b).

SMARA requirements apply to any entity engaged in surface mining operations in California that disturb more than 1 acre or remove more than 1,000 cubic yards of material. Activities that are subject to SMARA include, but are not limited to: prospecting and exploratory activities, dredging and quarrying, streambed skimming, borrow pitting, and the stockpiling of mined materials (Imperial County Planning & Development Services 2010). Borrow pits are defined as: "Excavations created by the surface mining of rock, unconsolidated geologic deposits or soil to provide material (borrow) for fill elsewhere." (14 Cal. Code Regs. § 3501)

SMARA allows for a one-time exemption for certain surface mining operations, subject to approval by SMGB. SMARA addresses conditions under which an exemption may be granted, including "Any other surface mining operations that the board, as defined by Section 2001, determines to be of an infrequent nature and which involve only minor surface disturbances." (Pub. Resources Code § 2714[f])

SMARA regulations establish state policy for the reclamation of mined lands, including performance standards for reclamation of prime and other agricultural land (14 Cal. Code Regs. §§ 3707 and 3708).

LOCAL

Imperial County Municipal Code – Surface Mining and Reclamation

Imperial County (County) has a regulatory program for activities in the County that are subject to the requirements of SMARA, which is implemented through the County's Municipal Code. The Surface Mining and Reclamation Ordinance (Title 9, Division 20) regulates surface mining operations, in accordance with SMARA. The purpose and

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intent of the ordinance is to ensure the continued availability of important mineral resources while regulating mining operations to ensure that:

A. *Adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a usable condition which is readily adaptable for alternative land uses.*

B. *The production and conservation of minerals are encouraged, while giving consideration to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment.*

C. *Residual hazards to the public health and safety are eliminated.*

The ordinance requires that "no person shall conduct surface mining operations unless a permit, reclamation plan, and financial assurances for reclamation have first been approved by the county." (Imperial County Municipal Code Title 9, Division 20, § 92001.03) The provisions of Division 20 apply to all lands within the County, both public and private. Compliance with Division 20 requires submittal of an application for a site approval(s) or a reclamation plan approval for a surface mining or land reclamation project on forms provided by the planning department. Reclamation plan applications are required, at a minimum, to address each of the elements required by SMARA (Pub. Resources Code §§ 2772 and 2773; Imperial County Municipal Code Title 9, Division 20, § 92001.00)

The process of reclamation includes maintaining water and air quality, and minimizing flooding, erosion and damage to wildlife and aquatic habitats caused by surface mining. The final step in this process is often topsoil replacement and revegetation with suitable plant species (Imperial County Planning & Development Services 2010).

Imperial County General Plan – Conservation and Open Space Element

The Conservation and Open Space Element of the County's General Plan addresses preservation of mineral resources and protection of other environmental resources from the adverse effects of mining activities. The following goal and related objectives from the Conservation and Open Space Element are applicable to the amended project (Imperial County Planning & Development Services 1993):

> ***Goal 5.*** *The County will identify and protect mineral resources for extraction and minimize the effect of mining on surrounding land uses and other environmental resources.*
>
> > ***Objective 5.1.*** *Encourage the sound extraction of mineral and quarry/aggregate resources while protecting the natural desert environment.*
> >
> > ***Objective 5.3.*** *Require that mineral extraction and reclamation operations be performed in a way that is compatible with surrounding land uses and minimize adverse effects on the environment.*
> >
> > ***Objective 5.4.*** *Safeguard the use and full development of all mineral deposits.*

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Objective 5.5. *Regulate the development adjacent to or near all mineral deposits and geothermal operations due to the potential for land subsidence.*

SETTING

SITE AND VICINITY DESCRIPTION

Proposed facilities for the BR123 amended project are located approximately 1,000 feet southeast of the Salton Sea in an unincorporated area of Imperial County (CE Obsidian Energy 2009a). The project area is in the northern portion of the Imperial Valley, a large, irrigated agricultural region that is surrounded by desert. The area is mostly used for agricultural operations and geothermal power production. Crops grown in the area include lettuce, asparagus, carrots, onions, alfalfa, sugarcane, and sweet beets (CE Obsidian Energy 2009b).

The project site is located approximately 6 miles northwest of the town of Calipatria and approximately 7½ miles southwest of the town of Niland. A total of 10 existing geothermal power plants that are owned by affiliates of the project applicant are located within a 2-mile radius of the BR123 site (CE Obsidian Energy 2009a) (Integrated Engineers & Contractors 2009). These geothermal projects are located in the Salton Sea Known Geothermal Resource Area (KGRA).

The main plant site would be located on a 160-acre parcel that is bounded by McKendry Road to the north, Severe Road to the west, Grubbel and Peterson Roads to the south, and Boyle Road to the east (CE Obsidian Energy 2009a). Most of the proposed plant site is irrigated agricultural land (CE Obsidian Energy 2009b). Fallow land and the Vulcan and Hoch Power Plants border the east side of the plant site. Beyond the site to the west are wetlands and open space near the Salton Sea. A portion of the Salton Sea National Wildlife Refuge lies north of the plant site. Agricultural land lies south of the plant site. An automotive parts manufacturing facility is located in the agricultural area south of the proposed plant site (CE Obsidian Energy 2009a). Existing land uses in the project area are shown in **LAND USE Figure 1**.

Other property east of the BR123 project site is occupied by CalEnergy's (under Imperial Magma) administration buildings, warehousing facilities, and a waste disposal staging site (CE Obsidian Energy 2009b).

DESIGNATED LAND USES AND ZONING

BR123 would be located in an area that is under the jurisdiction of Imperial County. The Imperial County General Plan was adopted by the Board of Supervisors in November 1993. As shown below in **Land Use Table 1**, land use designations for the area where project facilities would be located include Agriculture and Industry (Imperial County Planning & Development Services 2008). The County's General Plan defines these land use designations:

- **Agriculture.** This land use designation is intended to preserve lands for agricultural production and related industries, ranging from light to heavy agriculture. Where this designation is applied, agriculture shall be promoted as the principal and dominant use to which all other uses shall be subordinate.

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Geothermal plants may be permitted with a conditional use permit (CUP) subject to zoning and environmental review.

- **Industry.** This land use designation applies to heavy manufacturing land uses located in areas with the necessary supporting infrastructure and located away from conflicting existing or planned land uses. Generally, these lands are not suitable for agricultural use and are located adjacent to major transportation systems.

The Geothermal/Alternative Energy and Transmission Element of the County's General Plan provides a framework for the review and approval of geothermal projects in the County. The County supports and encourages the development of geothermal resources in a manner compatible with the protection of agricultural and environmental resources (Imperial County Planning & Development Services 2006).

The County of Imperial has adopted a zoning ordinance to divide designated land uses into classes of use zones and sub-zones to regulate land uses and protect the public health, safety, and welfare. Most of the area where BR123 project facilities would be located is zoned Heavy Agriculture (A-3). Lot sizes in the A-3 zone are typically 40 acres or larger. The A-3 zone is intended to prevent the encroachment of incompatible uses onto and within agricultural lands and to prohibit the premature conversion of such lands to nonagricultural uses. Land uses in the A-3 zone are limited primarily to uses and activities that are related to and compatible with agricultural uses (Imperial County Municipal Code Title 9, Division 5, § 90509).

One of the injection well pads, INJ OB-2, would be located in an area that is zoned Medium Industrial (M-2), which designates areas for wholesale commercial, storage, trucking, assembly type manufacturing, general manufacturing, research and development, medium intensity fabrication and other similar medium intensity processing facilities (Imperial County Municipal Code Title 9, Division 5, § 90516).

The County regulates the use of land for geothermal purposes through zoning and local land use permits. Regulations for geothermal projects are contained in the County's Land Use Ordinance (Imperial County Municipal Code, Title 9, Division 17). To facilitate and manage geothermal resources, the County has established an overlay zone designation of "G," the Geothermal Overlay Zone (GOZ), to indicate that geothermal production is conditionally permitted through a CUP in that general zone (CE Obsidian Energy 2009a). All of the proposed BR123 project area is located within an existing GOZ established by the County.

Geothermal facilities and projects are permitted in the A-3-G zone, subject to first securing a CUP (Imperial County Municipal Code, Title 9, Division 5, § 90509.02). For geothermal projects, CUPs are also referred to as "geothermal permits" (CE Obsidian Energy 2009a).

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Land Use Table 1 Land Use Designations and Zoning Categories			
Project Component	**Jurisdiction**	**General Plan Land Use Designation**	**Zoning Category**
BR123 Plant Site, Including Three Production Well Pads and Associated Pipelines	County of Imperial	Agriculture	Heavy Agriculture, Geothermal Overlay (A-3-G)
Brine Injection Well Pads – INJ OB-1, INJ OB-2, and INJ OB-3	County of Imperial	Agriculture	Heavy Agriculture, Geothermal Overlay (A-3-G) Medium Industrial, Geothermal Overlay (M-2-G)
Aboveground Pipelines Connecting to Brine Injection Wells	County of Imperial	Agriculture, Industry	Heavy Agriculture, Geothermal Overlay (A-3-G) Medium Industrial, Geothermal Overlay (M-2-G)
Borrow Site	County of Imperial	Agriculture, Industry	Heavy Agriculture, Geothermal Overlay (A-3-G)
Source: CE Obsidian Energy 2009a			

IMPACT ANALYSIS

THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the California Environmental Quality Act Guidelines (State CEQA Guidelines), an impact to land use or agricultural resources is considered significant if the project would:

- physically divide an established community;
- 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;
- conflict with any applicable habitat conservation plan or natural community conservation plan;
- convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use;
- conflict with existing zoning for agricultural use, or a Williamson Act contract; or
- involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to nonagricultural use.

The amended project would be located in a rural area that primarily consists of a mixture of agricultural and industrial uses, including geothermal power production. The project would not physically divide an established community. No habitat conservation or natural community conservation plans are in effect that would apply to the project area, and the project would not conflict with any such plans. Because the amended

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project would have no impact related to these thresholds, they are not discussed further in this section.

EFFECTS OF THE AMENDED PROJECT ON LAND USE

OVERVIEW OF THE AMENDED PROJECT

The three geothermal power plants associated with BR123 would be located near the center of the BR123 plant site. Areas for construction laydown and parking that were previously planned for location offsite are proposed for location within the main plant site. A total of nine new production wells would be located on three well pads within the north, west, and south perimeters of the site.

The amended project would require construction of nine brine injection wells that are proposed for location on three approximately 4.7-acre well pads outside of the BR123 plant site; each of these well pads (INJ OB-1, INJ OB-2, and INJ OB-3) would be approximately 8,000 to 10,000 feet from the main plant site. The three injection well pads are proposed for location along paved and unpaved rural roadways and are mostly surrounded by agricultural land. The automotive parts manufacturing facility discussed above is located on property near the area proposed for INJ OB-2. Areas proposed for the main plant site and well pads INJ OB-1 and INJ OB-3 are in agricultural production (CE Obsidian Energy 2009a).

Brine would be pumped from the BR123 plant site to the offsite injection wells through three aboveground injection pipelines. The 30-inch injection pipelines would be constructed out of a highly corrosive-resistant alloy material and welded in the field during assembly. The injection pipelines generally parallel existing rural roadways. A portion of the pipeline to INJ OB-3 crosses an open area between an agricultural field and an area occupied by CalEnergy facilities and buildings (CE Obsidian Energy 2009b).

The proposed 34-acre Borrow Area 1 would be located southeast of the BR123 plant site along the south side of Peterson Road (CE Obsidian Energy 2009a). The borrow site is bordered on the north by the Vulcan and Hoch Power Plants (CE Obsidian Energy 2009b). Construction of the modified BR123 project would require a total of approximately 361,840 cubic yards (cu. yd.) of borrow material for construction of the perimeter berm, the buildings/power block area and on-site roads, the well pads and construction laydown area, and the brine ponds and mud sumps. A portion of injection pipeline INJ OB-2 would cross the proposed borrow site.

EFFECTS ON AGRICULTURAL LANDS

The California Department of Conservation (DOC) Division of Land Resource Protection works with landowners, local governments, and researchers to conserve the state's farmland and open space, and it maintains a statewide inventory of farmlands. These lands are mapped as part of the Farmland Mapping and Monitoring Program (FMMP), based on a classification system that combines technical soil ratings and current land use. Lands are divided and mapped into the following farmland categories (often referred to as Important Farmland categories) and other categories based on their suitability for agricultural use:

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- **Prime Farmland.** Farmland with the best combination of physical and chemical features able to sustain long term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields.
- **Farmland of Statewide Importance.** Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture.
- **Unique Farmland.** Farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include nonirrigated orchards or vineyards as found in some climatic zones in California.
- **Farmland of Local Importance.** Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.
- **Grazing Land.** Land on which the existing vegetation is suited to the grazing of livestock.
- **Urban and Built-up Land.** Land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately six structures to a 10-acre parcel.
- **Other Land.** Land not included in any other mapping category. Common examples include low-density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines, borrow pits; and water bodies smaller than 40 acres.
- **Water.** Perennial water bodies with an extent of at least 40 acres.

As of 2006, approximately 543,140 acres of Important Farmland were in Imperial County, classified by the DOC as 196,180 acres of Prime Farmland, 311,650 acres of Farmland of Statewide Importance, 2,280 acres of Unique Farmland, and 33,040 acres of Farmland of Local Importance (DOC 2007c).

As shown in **Land Use Table 2**, the amended project would convert a total of approximately 190 acres of Important Farmland to nonagricultural uses. This total acreage includes 116 acres of Important Farmland that would have been converted from construction of the original SSU6 project (Energy Commission 2005b). Changes to the configuration of BR123 project facilities have added approximately 74 acres of Important Farmland to the total acreage that would be converted by the project. Based on Appendix G of the State CEQA Guidelines, Energy Commission staff considers the conversion of Important Farmland to be a significant impact of the amended project. Energy Commission staff proposes modifying the existing Condition of Certification **LAND-6** to require compensation for the total 190 acres of Important Farmland that would be converted by the BR123 project. **LAND-6** requires the project applicant, in coordination with the County, to: 1) contribute funds to Imperial County for a 1:1 purchase of Prime Farmland 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 (Energy Commission 2003b). Based on conclusions reached by Energy Commission staff in 2003 for the assessment of project impacts to Important Farmland, implementation of Condition of Certification **LAND-6** would reduce the impact to a less-

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than-significant level. See the discussion below under "Proposed Modifications to the Conditions of Certification."

Land Use Table 2 Effects of the Amended Project on Agricultural Resources			
Project Component	Prime Farmland (acres)	Farmland of Statewide Importance (acres)	Williamson Act Contracted Lands (acres)
BR123 Plant Site	40.2	100.1	0.0
Brine Injection Well Pads	14.1	0.0	9.4
Right-of-Way (ROW) for Aboveground Pipelines Connecting to Brine Injection Wells [1]	27.1	8.2	11.1
Totals	81.4	108.3	20.5

[1] Assumes a 100-foot right-of-way (ROW) plus 10 percent for expansions joints for a total ROW of 100 feet.
Source: CE Obsidian Energy 2009a

Portions of injection well pads INJ OB-1 and INJ OB-2 and their associated pipelines would be located on parcels currently under Williamson Act contracts (Assessor's Parcel Number [APN] 020-110-029, Preserve 2 Contract 2000-005; APN 020-110-031, Preserve 2 Contract 2000-002) (CE Obsidian Energy 2009a). The two affected parcels contain a total of approximately 398 acres that are subject to Williamson Act contracts. Construction of the amended project would remove 20.5 acres of these Williamson Act contracted lands from agricultural use (Land Use Table 2).

The County has found geothermal uses to be compatible with agricultural uses provided that geothermal wells and pipelines are designed and constructed in a way that ensures continuance of viable agricultural operations on affected agricultural fields (Minnick, pers. comm., 2006). The County allows construction of geothermal wells and pipelines on lands held under Williamson Act contracts provided that viable agricultural operations can continue on at least 80 percent of the historical agricultural field (e.g., an 80-acre [gross] parcel, with a historical field footprint of 70 acres, could be reduced in size to a 56-acre field footprint). For agricultural operations that are greater than 10 acres, the County considers geothermal wells and pipelines to be compatible with its Williamson Act Program (Minnick, pers. comm., 2006).

Of the total 20.5 acres of Williamson Act lands that would be removed from agricultural production by the amended project, approximately 15.0 acres are associated with injection well pad INJ OB-1 and its injection pipeline. These project facilities would be located on an approximately 320-acre parcel (APN 020-110-031) that is subject to a Williamson Act contract. Based on the County's calculations in the example above, the field could be reduced in size by as much as 64 acres and continue to support a viable agricultural operation.

Of the total 20.5 acres of Williamson Act lands impacted by the amended project, approximately 6.0 acres are associated with injection well pad INJ OB-2 and a small segment of its injection pipeline. These project facilities would be located on an approximately 78-acre parcel (APN 020-110-031) that is subject to a Williamson Act

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contract. The 78-acre field could be reduced in size by as much as 16 acres and continue to support a viable agricultural operation. Impacts to agricultural operations on these parcels have also been minimized by locating the well pads and pipelines along the property boundaries and as close to the BR123 plant site as possible. Based on the County's General Plan and additional County guidelines, the geothermal wells and pipelines for BR123 are considered compatible with the County's Williamson Act program.

As discussed above, the Williamson Act addresses principles of compatibility for uses that are approved on contracted lands. Approved uses may not compromise long-term productivity or displace or impair current or reasonably foreseeable agricultural operations (Gov. Code § 51238.1). Based on the fact that the proposed geothermal wells and pipelines would not violate the principles of compatibility for uses on contracted lands, Energy Commission staff considers the BR123 amended project to be consistent with Williamson Act objectives. See Land Use Table 3, below.

EFFECTS RELATED TO THE PROPOSED BORROW SITE

The project applicant is proposing to obtain imported soil from a new borrow site for construction of various project features at the BR123 site (CE Obsidian Energy 2009a). The proposed 34-acre Borrow Area 1 is located immediately southeast of the main plant site. Approximately one-half of the proposed borrow site is classified by DOC as Prime Farmland. The eastern half is classified by DOC as Urban and Built-up Land. The project applicant is proposing to stockpile topsoil that would be removed from the main plant site. Following extraction of borrow material from the borrow site, it would be backfilled with the stockpiled topsoil from the main plant site. The borrow site would be returned to conditions approximating those currently present (CE Obsidian Energy 2009a).

Borrow site work would not result in a permanent conversion of agricultural lands to nonagricultural uses. Impacts to agricultural resources and uses at the proposed borrow site would be temporary, and no significant long-term impact to agricultural resources would occur relating to borrow site activities.

As discussed above, SMARA requirements apply to any entity engaged in surface mining operations in California that disturb more than 1 acre or remove more than 1,000 cubic yards of material. Borrow pitting is an activity that is subject to SMARA. Imperial County's regulatory program relating to activities in the County that are subject to SMARA is implemented through its Municipal Code. The borrow site work for the BR123 project would be subject to the County's surface mining and reclamation ordinance (Valenzuela, pers. comm., 2010).

SMARA allows for a one-time exemption for certain surface mining operations, subject to approval by SMGB. The Energy Commission requested a determination from SMGB on whether the new borrow site would be eligible for such an exemption from SMARA. The request was based on statutory provisions pertaining to activities that are infrequent and involve only minor surface disturbances (Pub. Resources Code § 2714[f]). SMGB considered the request at its regularly scheduled Board meeting, and on May 13, 2010, the one-time exemption was granted on the condition that all topsoil from the borrow site be salvaged and replaced as part of reclaiming the site to agricultural use (SMGB 2010). Verification of satisfactory reclamation of the site by SMGB staff is also required.

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Condition of Certification **LAND-9** is proposed to address the temporary construction-related impact to Prime Farmland at the borrow site. It includes performance standards that are consistent with state policy for reclamation of prime and other agricultural land (14 Cal. Code Regs. §§ 3707 and 3708). See the discussion below under "Proposed Modifications to the Conditions of Certification." Refer also to Condition of Certification **SOIL & WATER-16** in the Soil & Water Resources section of this staff assessment, which addresses preparation and implementation of a detailed plan for reclaiming areas disturbed at Borrow Area 1.

The project applicant is also proposing to use an existing borrow site that is located approximately 2 miles northeast of the BR123 site on property that is owned by an affiliated company of the project applicant. This borrow site has been used for ongoing construction work at existing geothermal facilities. All necessary approvals for use of the existing borrow site have been obtained (Hackley, pers. comm., 2010).

With implementation of Condition of Certification **LAND-9**, Energy Commission staff considers the BR123 amended project to be consistent with SMARA and the County's ordinance addressing surface mining activities. See **Land Use Table 3**, below.

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

In 2003, Energy Commission staff identified LORS relating to land use planning and agricultural resources that were applicable to the original project (Energy Commission 2003b). These LORS continue to apply to BR123. The proposed design changes for the amended project are being planned and would be implemented to comply with the Imperial County Land Use Code and the Imperial County General Plan, including the Land Use Element, the Agricultural Element, the Conservation and Open Space Element, and the Geothermal/Alternative Energy and Transmission Element. The BR123 project sites and facilities would be located in an existing GOZ where geothermal production is conditionally permitted; therefore, the amended project is considered consistent with County zoning.

Review of the amended project description contained in the 2009 amendment petition (CE Obsidian Energy 2009a) resulted in identification of additional LORS relating to land use and agricultural resources that are applicable to BR123. Land Use Table 3 provides an assessment of consistency of the amended project with the additional LORS.

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Land Use Table 3 Consistency of the Amended Project with LORS for Land Use and Agricultural Resources		
LORS	**Consistency Determination**	**Basis for Consistency**
State		
California Land Conservation Act of 1965 (Williamson Act) (Gov. Code commencing with § 51200)	Consistent	The Williamson Act addresses uses that are considered compatible in areas that are identified as agricultural preserves and on contracted lands. Construction and maintenance of various utilities are identified as compatible uses in areas identified as agricultural preserves (Gov. Code § 51238). The amended project would supply geothermal electric power, which is considered a compatible use. The Williamson Act establishes principles of compatibility on contracted lands. Approved uses may not compromise long-term productivity or displace or impair current or reasonably foreseeable agricultural operations (Gov. Code § 51238.1). The Imperial County Planning & Development Department considers geothermal wells and pipelines to be compatible with the County's Williamson Act program provided that individual parcels still allow for a viable agricultural operation on at least 80 percent of the historical agricultural field, and the agricultural operation is greater than 10 acres. The amended project is being planned and designed to minimize impacts on Williamson Act contracted lands, in accordance with Imperial County's standards for geothermal facilities on such lands; therefore, the amended project is considered consistent with Williamson Act objectives and principles of compatibility.
Surface Mining and Reclamation Act (Pub. Resources Code §§ 2710–2796)	Consistent, with implementation of **LAND-9** (see below)	Borrow pitting is an activity that is subject to SMARA. SMARA addresses conditions under which an activity may be exempted from the requirements of SMARA (Pub. Resources Code § 2714[f]). On May 13, 2010, the State Mining and Geology Board (SMGB) granted a one-time exemption for borrow pitting activities at the 34-acre borrow site for the project (SMGB 2010). The SMGB decision includes a requirement that the borrow site be returned to agricultural use as soon as extraction of borrow material is completed.
Local		
Imperial County Municipal Code, Title 9 Land Use Code, Division 20 Surface Mining and Reclamation, § 92001	Consistent, with implementation of **LAND-9** (see below)	Activities at the borrow site would be subject to the requirements of the Imperial County Surface Mining and Reclamation Ordinance, which regulates surface mining operations, in accordance with SMARA. Compliance with SMGB conditions for returning the borrow site to agricultural use would constitute compliance with the Imperial County ordinance.

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Land Use Table 3 Consistency of the Amended Project with LORS for Land Use and Agricultural Resources		
LORS	Consistency Determination	Basis for Consistency
Imperial County General Plan – Conservation and Open Space Element, Goal 5 addressing mineral resources (Imperial County Planning & Development Services 1993)	Consistent, with implementation of **CIVIL-1**; **LAND-9**; and **SOIL & WATER-1**, **-2**, and **-3**.	Energy Commission staff has evaluated the amended petition for BR123 to determine whether it would cause direct or indirect changes to the environment, pursuant to CEQA and the State CEQA Guidelines. Potential impacts relating to borrow site activities are evaluated for the full range of environmental resource sections addressed in this proposed amendment. Potential adverse effects on the environment would be minimized through compliance with all applicable permitting requirements relating to the control of soil erosion and waste discharges and protection of surface and groundwater quality. Irrigation of the Imperial Valley has altered the natural desert environment. Impacts to agricultural land uses and habitat values present at the project site would be minimized through implementation of a reclamation plan for Borrow Area 1 (see Conditions of Certification **SOIL & WATER-1** and **LAND-9**). (Refer to the Facility Design, Soil and Water Resources, and Biological Resources sections of this staff assessment for further details on mitigation requirements.) Compliance with Goal 5 would be achieved with implementation of Conditions of Certification **CIVIL-1**; and **SOIL & WATER-1**, **-2**, and **-16**. The County of Imperial bears responsibility for controlling land uses in parts of the County identified as important for geothermal development and mineral resource extraction.

CUMULATIVE IMPACTS

Approximately 20 percent of the land within the County is irrigated for agricultural purposes, most notably the central area known as Imperial Valley, which covers approximately 512,160 acres and extends southward for approximately 50 miles from the southern end of the Salton Sea into Mexico (Imperial County Planning & Development Services 1996). The BR123 site is located in the northern portion of the Imperial Valley.

Land Use Table 4 shows the most recent data compiled by the FMMP on land use conversions involving Important Farmland in Imperial County. Data are available through 2006. These data generally represent a continuing decline in total acreage of Important Farmland in the County. Future agricultural production in the County has been affected by land use conversions to urban and other uses (Imperial County Planning & Development Services 1996).

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Land Use Table 4 Land Use Conversions in Imperial County Involving Important Farmland	
Year	**Imperial County**
	Total Acreage of Important Farmland Inventoried
1996	555,592
1998	554,889
2000	554,964
2002	550,161
2004	545,612
2006	543,140
	Total Losses and Gains of Important Farmland (acres)
1996–1998	-5,036 + 4,333 = 703 net loss
1998–2000	-2,229 + 2,303 = 74 net gain
2000–2002	-6,706 + 5,622 = 1,084 net loss
2002–2004	-13,609 + 9,058 = 4,551 net loss
2004–2006	-5,237 + 2,765 = 2,472 net loss
	Important Farmland Converted to Urban and Built-up Land (acres)
1996–1998	422
1998–2000	302
2000–2002	1,014
2002–2004	1,985
2004–2006	849

* Notes: Important Farmland includes Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance.
The net gain for 1998–2000 partially relates to an urban line correction that resulted in a conversion from Urban and Built-up Land.
Source: Data compiled by Energy Commission staff based on online reports prepared by DOC through 2007 (DOC 2007c).

The County anticipates significant population growth through approximately 2020, in part because the local economy is becoming more diversified and less reliant on the economic cycles of agriculture (Imperial County Planning & Development Services 2008). In addition to economic diversification, the County has identified a number of other factors that may accelerate population growth in the future, including growth in the geothermal industry.

With few exceptions, virtually all land surrounding cities and unincorporated communities is classified as Important Farmland (Imperial County Planning & Development Services 1996). Most land that surrounds existing urban uses in the County is classified by DOC as Prime Farmland or Farmland of Statewide Importance. Net losses of existing Important Farmland are anticipated as development of new urban and industrial uses are approved in the County. Urban encroachment resulting in conversion of Important Farmland is occurring in several areas, particularly in the vicinities of El Centro, Imperial, and Calexico in the southern portion of the Imperial Valley.

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An analysis of the cumulative impacts of implementing the amended BR123 project must be taken together with other past, present, and probable future projects producing related impacts, as required by the State CEQA Guidelines (14 Cal. Code Regs. § 15130). A list of projects in the vicinity of the BR123 project area has been identified to include in the cumulative analysis for the project; these projects would result in the conversion of additional acreages of Important Farmland to nonagricultural uses:

- **Hudson Ranch Geothermal Development Project (commonly referred to as the CHAR project), in the Salton Sea KGRA.** The Hudson Ranch I Geothermal Development Project is a 49.9-MW geothermal power generating facility under development within the Salton Sea KGRA. The project is being implemented by a subsidiary of CHAR, LLC on property that is owned by Magma Power Company. It is located approximately 3.4 miles northeast of the BR123 project site in an unincorporated area of the County southwest of the city of Niland. A CUP for the CHAR project is in place. The project is planned to be operational in 2010.

- **Ormat Geothermal Projects, in the Brawley KGRA.**
    - **North Brawley Geothermal Project.** Construction is nearing completion on the North Brawley Geothermal Project, which will be operated by Ormat. The North Brawley project is located approximately 11.2 miles southeast of the BR123 plant site, in an unincorporated area of the County north of Brawley. The project is a 49.9-MW binary power plant, including 20–26 production wells and 14–20 injection wells (CE Obsidian Energy 2009a, Integrated Engineers & Contractors 2009).
    - **East Brawley Geothermal Project.** Ormat also plans to develop a 49.9-MW geothermal power plant in its East Brawley field, located east of the North Brawley field (CE Obsidian Energy 2009a). The proposed East Brawley project would be located near the intersection of Ward Road and Best Road, approximately 11.8 miles southeast of the BR123 plant site. The East Brawley plant would be constructed nearly identically to the North Brawley plant (Integrated Engineers & Contractors 2009).

- **Ram East Brawley, in the Brawley KGRA.** The Ram East Brawley project is being developed by Ram Power, Inc. The project site is located a few miles east of Brawley near the Imperial Irrigation District East Highline Canal. This 50-MW plant is expected to be operational in 2012 with other identical units to follow (Integrated Engineers & Contractors 2009).

- **Blackrock 4, 5, and 6, in the Salton Sea KGRA.** This project is being proposed by CalEnergy (Integrated Engineers & Contractors 2009), and although details are unknown, it is anticipated that construction and operation would be similar to BR123.

Historical FMMP data show a consistent decline in availability of Important Farmland in Imperial County that is primarily the result of conversions to urban uses. Between 1996 and 2006, conversions of Important Farmland to Urban and Built-up Land resulted in losses of approximately 1,070 acres of Prime Farmland, 2,400 acres of Farmland of Statewide Importance, 30 acres of Unique Farmland, and 1,070 acres of Farmland of Local Importance (DOC 2007c). The total acreage of Important Farmland converted over this 10-year period represents approximately 1.0 percent of the average total

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Important Farmland inventoried during those years. Although data are not yet available, additional conversions of Important Farmland have occurred since 2006.

The effectiveness of mitigation measures designed to offset the impacts of farmland conversion from other approved projects in the Imperial Valley is not known. Given the losses of Important Farmland from 1996 through 2006, coupled with additional acreage lost between 2006 and the present, and additional acres that could be lost through future implementation of development projects in the Imperial Valley, Energy Commission staff considers the overall loss to be a significant adverse cumulative effect.

Although the BR123 project would result in conversion of approximately 190 acres of Important Farmland to nonagricultural uses, Condition of Certification **LAND-6** requires a mitigation fee payment to compensate for this loss at a 1:1 ratio. With implementation of Condition of Certification **LAND-6**, Energy Commission staff concludes that the amended BR123 project would not contribute considerably to the significant future cumulative condition relating to the loss of Important Farmland.

CONCLUSIONS AND RECOMMENDATIONS

Energy Commission staff has reviewed the amendment petition (CE Obsidian Energy 2009a) and evaluated whether BR123 would cause additional impacts relating to land use planning and agricultural resources that were not previously identified in the process to certify the original project in 2003.

Staff recommends changes to the conditions of certification that were last amended in 2005 (Energy Commission 2005b). With implementation of these recommended changes (described below), BR123 would comply with all applicable LORS. Approval of the amendment would not cause any new significant impacts relating to land use planning and agricultural resources, pursuant to CEQA (Pub. Resources Code § 21000 et seq.) and the State CEQA Guidelines (14 Cal. Code Regs. § 15000 et seq.).

PROPOSED MODIFICATIONS TO THE CONDITIONS OF CERTIFICATION

In 2003, Energy Commission staff proposed conditions of certification to address impacts to land use and agricultural resources (Energy Commission 2003b). Those conditions of certification were part of the project that was certified in 2003. An addendum to the final staff assessment included a minor adjustment to the total acreage of Prime Farmland that would be converted to nonagricultural use (Energy Commission 2003c).

The conditions of certification were modified again in 2005 as part of the process to approve a petition to amend the project. Condition of Certification **LAND-8** was added to address modifying the CUP for the project (Energy Commission 2005b). Changes to the project caused a moderate increase in the total acreage of Important Farmland that would be converted by the project, from 96 to 116 acres, which was reflected in changes to **LAND-6**.

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The project description contained in the 2009 amendment petition proposes using the BR123 main plant site for construction laydown and parking areas, which were originally proposed in the area south of the project site (CE Obsidian Energy 2009a). The original conditions of certification addressed temporary land use impacts at the off-site construction areas with Condition of Certification **LAND-4.** With the proposal to relocate these construction areas to the main plant site, **LAND-4** is no longer considered applicable to the project and Energy Commission staff proposes that it be struck from the conditions of certification for this proposed amendment.

BR123 would convert approximately 81.4 acres of Prime Farmland and 108.3 acres of Farmland of Statewide Importance to nonagricultural uses (Land Use Table 2). Based on Appendix G of the State CEQA guidelines, this conversion is considered a significant impact of the amended project. **LAND-6** was originally proposed to address conversion of Prime Farmland and Farmland of Statewide Importance (CE Obsidian Energy 2002). Energy Commission staff proposes modifying **LAND-6** to clarify that the total acreage that would be converted to nonagricultural uses includes both farmland categories.

The Land Use Element of the Imperial County General Plan addresses industrial development standards and provides that: "Geothermal plants may be permitted with a conditional use permit subject to zoning and environmental review." The 2009 amendment petition states that Imperial County intends to either issue a CUP or amend the existing CUP that was issued by the County for the original SSU6 project (Imperial County Planning & Development Services 2008, CE Obsidian Energy 2009a). **LAND-8** was added to the conditions of certification to address compliance with CUP requirements. Energy Commission staff proposes modifying **LAND-8** to require the project applicant or owner to demonstrate compliance with Imperial County's new or amended CUP.

The 2009 amendment petition proposes establishing a 34-acre borrow site (Borrow Area 1) southeast of the BR123 plant site for construction of several project features at the plant site. As discussed above, the western portion of the proposed borrow site is classified by DOC as Prime Farmland. Although work at the borrow site would not result in a permanent conversion of agricultural lands to nonagricultural uses, a temporary construction-related impact to farmland would occur at the borrow site. Condition of Certification **LAND-9** is proposed to address this impact and to satisfy requirements of SMGB for returning the site to agricultural use.

Energy Commission staff proposes no changes to Conditions of Certification **LAND-1**, **LAND-2**, **LAND-3**, **LAND-5**, and **LAND-7**. Deleted language is shown in ~~strikethrough~~, and new text is shown in <u>underline</u>.

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.

<u>Verification:</u> 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).

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Verification: At least 30 days prior to start of construction, the project owner shall submit to the Compliance Project Manager, 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 Compliance Project Manager, 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:~~

~~Assessor's Parcel numbers;~~

~~addresses;~~

~~land use designations;~~

~~zoning;~~

~~site plan showing dimensions;~~

~~owner's name and address (if leased); and,~~

~~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 Compliance Project Manager 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: At least 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 ~~116~~ 190 acres at a 1:1 ratio for the conversion of Prime Farmland and Farmland of Statewide Importance as classified by the California Department of Conservation, to a nonagricultural 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

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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~~ available in perpetuity for farming. This discussion must include the schedule for purchasing ~~116~~ 190 acres of prime farmland and/or easements within five years of start of construction as compensation for the ~~116~~ 190 acres of Prime Farmland and Farmland of Statewide Importance to be converted by ~~the SSU6~~ BR123.

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

Verification: At least 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.

LAND-8 The project owner shall comply with Imperial County's ~~Minor Modification to the Conditional Use Permit~~ requirements for ~~the additional 20 acres not covered by the CUP that was approved by Imperial County~~ issuance of a conditional use permit (CUP), or an amendment to the CUP that was issued by the County for the project that was certified in 2003.

Verification: At least 30 days prior to the start of construction, the project owner shall submit to the Compliance Project Manager, written documentation, including evidence of review and approval by Imperial County that the project conforms to all requirements of the ~~Minor Modification to the~~ CUP.

LAND-9 The project owner shall ensure implementation of performance standards for reclamation of Prime Farmland at Borrow Area 1 southeast of the BR123 main plant site. Performance standards shall be established in accordance with the applicable SMARA regulation for reclamation of Prime Farmland (14 Cal. Code Regs. § 3707). Plans and performance standards for reclamation of the site shall fully comply with the requirements of the State Mining and Geology Board (SMGB) for returning the site to agricultural use. The following standards shall apply to agricultural land at the borrow site where the approved end use is agriculture:

(a) Mining operations on Prime Farmland, as defined by the U.S. Soil Conservation Service, shall return all disturbed areas to the fertility level that was present on the property before site disturbance occurred.

(b) All topsoil at the borrow site shall be salvaged. When distinct soil horizons are present, topsoil shall be segregated by defined A, B, and C soil horizons. Upon reconstruction of the soil, the sequence of horizons shall have the A atop the B, the B atop the C, and the C atop graded overburden.

(c) Reclamation shall be deemed complete when productive capability of the affected land is equivalent to or exceeds, for 2 consecutive crop years, that of the premining condition or similar crop production in the area.

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(d) Use of fertilizers or other soil amendments shall not cause contamination of surface or groundwater.

These performance standards shall be part of the plan described under Condition of Certification **SOIL & WATER-16** in the Soil & Water Resources section of this staff assessment.

Verification: Refer to verification requirements described under Condition of Certification **SOIL & WATER-16** in this staff assessment, which shall also apply to Condition of Certification **LAND-9**.

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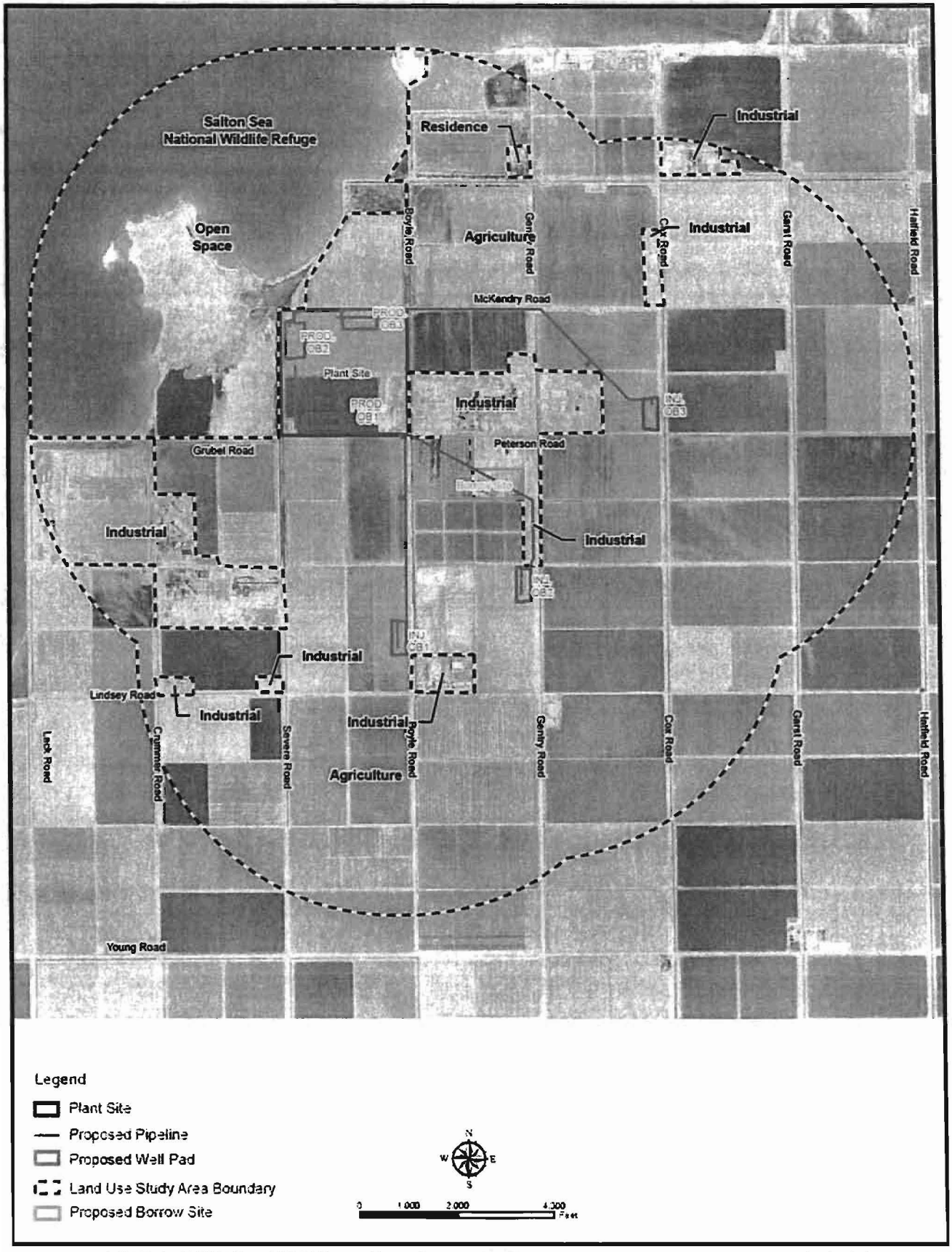
LAND USE - FIGURE 1

Blackrock 1, 2 and 3 Geothermal Power Project - Existing Land Uses



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: CE Obsidian Energy 2009a

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NOISE AND VIBRATION

Testimony of Shahab Khoshmashrab

INTRODUCTION

The applicant's proposed amendment would allow conversion of the licensed 215 MW Salton Sea Geothermal Unit 6 (SSU6) project to the 159 MW Black Rock 1, 2, 3 (BR123) geothermal power project. The BR123 project would yield reduced noise and vibration impacts compared to those predicted for the SSU6project. The applicant has proposed to comply with the conditions of certification included in the SSU6 Commission Decision, and staff agrees that such compliance would provide adequate protection from noise and vibration impacts.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

Some applicable local LORS have been updated since the Commission Decision on SSU6. The result of these updates would have no effect on the amended project, as summarized in **NOISE AND VIBRATION Table 1**:

NOISE AND VIBRATION Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Protocol: Applicable Law	Protocol: Description
Imperial County General Plan Noise Element	No change from previous analysis
Imperial County General Plan Geothermal and Transmission Element (Imperial 2006)	Update in 2006 resulted in no change from previous analysis
Imperial County Noise Ordinance (Imperial 2002)	Update in 2002 echoes General Plan Noise Element; result is no change from previous analysis

ANALYSIS

Staff has reviewed the petition for potential environmental effects and consistency with applicable LORS. Based on this review, staff determined that compliance with the conditions of certification incorporated into the SSU6 Commission Decision would ensure adequate protection from adverse noise impacts.

The Commission Decision on the SSU6 project (CEC 2003a) included conditions of certification that ensures no significant adverse noise impacts would result from the construction and operation of that project. Staff analyzed the proposed BR123 project to compare its likely impacts to those of the SSU6 project.

CONSTRUCTION IMPACTS

Construction noise from power plant construction and from pile driving (the noisiest operation in constructing the project) would yield noise levels at the Wildlife Refuge

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residence (the nearest sensitive human receptor) of 38 dBA L_{eq} and 52 dBA L_{eq} respectively (CE Obsidian 2009, Amendment Petition, § 5.8.4.1), figures in compliance with LORS. This compares to levels of 56 dBA L_{eq} to 71 dBA L_{eq} at the residence predicted for the SSU6 project (CEC 2003, Staff Assessment, p. 4.6-9, p. 4.6-11). Construction noise from the BR123 project would thus be considerably less than previously analyzed for SSU6. The applicant proposes to comply with the conditions of certification included in the SSU6 Commission Decision. This would thus yield adequate protection from adverse noise impacts due to construction of BR123.

OPERATION IMPACTS

Noise due to operation of BR123 would attenuate to approximately 40 dBA L_{eq} at the Wildlife Refuge residence (CE Obsidian 2009, Amendment Petition, § 5.8.4.2), in compliance with LORS. This compares to 39 dBA L_{eq} for the SSU6 project (CEC 2003, Staff Assessment, p. 4.6-14). Both these figures are less than the existing ambient noise levels at the residence (CE Obsidian 2009, Amendment Petition, § 5.8.4.2; Table 5.8-6), and would thus create an insignificant adverse impact. Compliance with the SSU6 conditions of certification would yield adequate protection from adverse noise impacts due to operation of BR123.

CUMULATIVE IMPACTS

No projects have been identified that lie near enough to the Black Rock project to create cumulative noise impacts. As was determined in the initial staff analysis for SSU6, any future projects would be required to comply with applicable noise LORS. Therefore, staff concludes that no cumulative noise and vibration impacts are possible.

CONCLUSIONS AND RECOMMENDATIONS

The BR123 project, if constructed and operated in compliance with the conditions of certification included in the Salton Sea Unit 6 Commission Decision, would comply with applicable noise and vibration LORS, and would produce no significant adverse noise and vibration impacts on sensitive receptors. Staff recommends that BR123 be constructed and operated in compliance with the conditions of certification (Condition of Certification **NOISE-1** through **NOISE-8**) included in the SSU6 Commission Decision.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

Staff proposes no modifications to the Noise and Vibration Conditions of Certification.

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PUBLIC HEALTH

Testimony of Obed Odoemelam, Ph.D.

INTRODUCTION

The applicant, CE Obsidian Energy, LLC (CEOE), proposes to build three separate 53 MW power plants that would constitute the 159 MW Black Rock 1, 2, and 3 Geothermal Power Project (BR123), rather than the licensed 215 MW single-unit Salton Sea Unit 6 Geothermal Power Plant (SSU6). This analysis focuses on the impacts of the proposed 159 MW BR123 project version to determine whether or not to recommend approval as staff did for the licensed SSU6 project, for which staff determined that potential impacts would be below the levels of health significance. The applicant's Petition to Amend (CEOE 2009 pp. 5.10 through 5.10-3) identified engineering modifications that would lead to a reduction in emission of one of the project's problem pollutants (hydrogen sulfide) when compared with the licensed project. The pollutants of specific focus in this **Public Health** analysis are the toxic air pollutants (TACs) for which there are no ambient air quality standards. These are known as the noncriteria pollutants, which differ from the criteria pollutants that have specific air quality standards. The potential impacts from these criteria pollutants are assessed in the **Air Quality** section by comparing total exposures to the applicable standards.

The health risk estimates from the applicant's health risk assessment should reflect the effectiveness of the proposed mitigation measures in maintaining impacts below levels of health significance. If, as with the licensed version, this analysis confirms that the risk estimates are below these significance levels, staff would recommend approval of the proposed amendment; if not, staff would recommend further mitigation to ensure mitigation to acceptable impact levels.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

There are no new LORS associated with this amendment that were not considered in staff's analysis of the licensed version. The LORS applicable to this analysis are listed below in **PUBLIC HEALTH Table 1**.

PUBLIC HEALTH Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Protocol: Applicable Law	Protocol: Description
Federal	
Clean Air Act section 112 (Title 42, U.S. Code section 7412).	This act requires new sources that emit more than 10 tons per year of any specified Hazardous Air Pollutant (HAP) or more than 25 tons per year of any combination of HAPs to apply Maximum Achievable Control Technology.
State	
California Health and Safety Code section 25249.5 et seq. (Proposition 65).	These sections establish thresholds of exposure to carcinogenic substances above which Prop 65 exposure warnings are required.

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California Health and Safety Code section 41700.	This section states that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."
California Energy Commission Staff Cooling Water Management Program Guidelines for Wet and Hybrid Cooling Towers in Power Plants.	Provides examples of adequate contents of a biocide application and monitoring program designed to control microorganisms to the maximum extent feasible within cooling towers using open circulating water systems.
California Public Resource Code section 25523(a); Title 20 California Code of Regulations (CCR) section 1752.5, 2300–2309 and Division 2 Chapter 5, Article 1, Appendix B, Part (1); California Clean Air Act, Health and Safety Code section 39650, et seq.	These regulations require a quantitative health risk assessment for new or modified sources, including power plants that emit one or more toxic air contaminants (TACs).
Local	
Imperial County Air Pollution Control District (ICAPCD) Rule 216	Requires use of Best Available Control Technology for Toxics (T-BACT) for major sources.
ICAPCD Rule 309	Requires annual fees for the Air Toxic Hot Spots (AB2588) program to recover implementation costs.
ICAPCD Rule 407	States that no source shall cause injury, detriment, nuisance or annoyance to the public, which could endanger their comfort, repose, health and safety, or property.
ICAPCD Rule 1002	Implements California's Airborne Toxic Control Measures.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

This section describes staff's method of analyzing the potential health impacts of toxic pollutants together with the criteria used to determine their significance.

METHOD OF ANALYSIS

The toxic emissions addressed in this **Public Health** section are those to which the public could be exposed during project construction and routine operation. If such toxic contaminants are released into the air or water, people may come in contact with them through inhalation, dermal contact, or ingestion via contaminated food or water.

The ambient air quality standards for the criteria pollutants, such as ozone, carbon monoxide, sulfur dioxide, particulate matter or nitrogen dioxide, are set to ensure the safety of everyone including those with heightened sensitivity to the effects of environmental pollution in general. Since noncriteria pollutants do not have such standards, a process known as a health risk assessment is used to determine if people might be exposed to them at unhealthy levels. The health risk assessment procedure consists of the following steps:

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- Identification of the types and amounts of hazardous substances that a source could emit into the environment;
- Estimation of worst-case concentrations of project emissions into the environment using dispersion modeling;
- Estimation of the amounts of pollutants to which people could be exposed through inhalation, ingestion, and dermal contact; and
- Characterization of the potential health risks by comparing worst-case exposures to safety standards based on known health effects.

For the BR123 project and other sources, a screening-level risk assessment is initially performed using simplified assumptions intentionally biased towards protecting public health. That is, the analysis is designed to overestimate rather than underestimate the public health impacts from exposure to the emissions in question. In reality, it is likely that the actual risks from the project would be much lower than the risks estimated by the screening-level assessment. This overestimation is mostly accomplished by identifying conditions that would lead to the highest, or worst-case risks, and then assuming them in the study. The process involves the following:

- using the highest levels of emissions for pollutants that could be emitted from the source;
- assuming weather conditions that would lead to the maximum ambient concentration of pollutants;
- using the type of air quality computer models that predict the greatest plausible impacts;
- calculating health risks at the location where the pollutant concentrations are estimated to be highest;
- using health-based standards designed to protect the most sensitive members of the population (i.e., the young, elderly, and those with respiratory illnesses); and
- assuming that an individual's exposure to cancer-causing agents would occur over a 70-year lifetime (i.e., the individual remains at the point of maximum impact for 70 years).

A screening-level risk assessment would, at a minimum, include the potential health effects from inhaling hazardous substances. Some facilities may also emit certain substances that could present a health hazard from non-inhalation pathways of exposure (see California Air Pollution Control Officers Association (CAPCOA) 1993, Table III-5). When these substances are present in facility emissions, the screening-level analysis is conducted to include the following additional exposure pathways: soil ingestion, dermal exposure, and mother's milk (CAPCOA 1993, p. III-19).

The risk assessment process addresses three categories of health impacts: acute (short-term) health effects, chronic (long-term) noncancer effects, and cancer risk (also long-term). Acute health effects result from short-term (one-hour) exposure to relatively high concentrations of pollutants. Acute effects are usually temporary in nature, and include symptoms such as irritation of the eyes, skin, and respiratory tract.

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Chronic health effects are those that result from long-term exposure to lower concentrations of pollutants. The exposure period is considered to be approximately from 10 to 100 percent of a lifetime (that is from 7 to 70 years). Chronic health effects include diseases such as reduced lung function and heart disease.

The analysis for noncancer health effects compares the maximum project contaminant levels to safe levels called "reference exposure levels" or RELs, which are the amounts of the toxic substances to which even sensitive individuals could be exposed and suffer no adverse health effects (CAPCOA 1993, p. III-36). This means that such exposure limits would serve to protect such sensitive individuals as infants, school pupils, the aged, and people suffering from illnesses or diseases, whom are more susceptible to the effects of toxic substance exposure. The RELs are based on the most sensitive adverse health effects reported in the medical and toxicological literature, and include specific margins of safety, which address the uncertainties associated with inconclusive scientific and technical information available at the time the review was conducted. They are, therefore, intended to provide a reasonable degree of protection against hazards that research has not yet identified. Each margin of safety is designed to prevent pollution levels that have been demonstrated to be harmful, as well as to prevent lower pollutant exposures that may pose an unacceptable risk of harm, even if the risk is not precisely identified as to nature or degree. Health protection can be expected if the estimated worst-case exposure is below the relevant reference exposure level. In such a case, an adequate margin of safety would be assumed to exist between the predicted exposure and the estimated threshold for toxicity.

Exposure to multiple toxic substances may result in health effects that are equal to, less than, or greater than effects resulting from exposure to the individual chemicals. Only a small fraction of the thousands of potential combinations of chemicals have been tested for the health effects of combined exposures. In conformance with CAPCOA guidelines, the health risk assessment assumes that the effects of the individual substances are additive for a given organ system (CAPCOA 1993, p. III-37). In those cases where the actions may be synergistic (greater than the sum), this approach may underestimate the health impact in question. For carcinogenic substances, the health assessment considers the risk of developing cancer and conservatively includes the previously noted assumption that the individual would be continuously exposed over a 70-year lifetime. The risk that is calculated is not meant to project the actual expected incidence of cancer, but rather a theoretical upper-bound number based on worst-case assumptions.

Cancer risk is expressed in terms of chances per million of developing cancer and is a function of the maximum expected pollutant concentration, the probability that a particular pollutant will cause cancer (known as "potency factor," and established by the California Office of Environmental Health Hazard Assessment, or OEHHA), and the length of the exposure period. Cancer risks for individual carcinogens are added together to yield the total cancer risk from the source being considered. The conservative nature of the screening assumptions used means that actual cancer risks are likely to be considerably lower than estimated.

The screening-level analysis was performed to assess worst-case public health risks associated with the proposed project. If the screening analysis were to predict a risk of no significance, no further analysis would be necessary. However, if the risk were to be

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above the significance level, further analysis using more realistic site-specific assumptions would be performed to obtain a more accurate estimate of the public health risk in question.

SIGNIFICANCE CRITERIA

Staff assesses the health effects of exposure to toxic emissions by first considering the impacts on the maximally exposed individual. This individual is the person hypothetically exposed to project emissions at a location where the highest ambient impacts were calculated using worst-case assumptions, as described above. If the potential risk to this individual is below established levels of significance, staff would consider the potential risk as also less than significant anywhere else in the project area. As described earlier, noncriteria pollutants are evaluated for short-term (acute) and long-term (chronic) noncancer health effects, as well as cancer (long-term) health effects. The potential significance of project health impacts is determined separately for each of the three categories of health effects.

Acute and Chronic Noncancer Health Effects

Staff assesses the significance of noncancer health effects by calculating a "hazard index" for the exposure being considered. A hazard index is a ratio obtained by comparing exposure from facility emissions to the reference (safe) exposure level for the toxicant. A ratio of less than one would signify a worst-case exposure within safe levels. The hazard indices for all toxic substances with the same types of health effect are added together to yield a total hazard index for the source being evaluated. This total hazard index is calculated separately for acute and chronic effects. A total hazard index of less than one indicates that the cumulative worst-case exposure would be within safe levels. Under these conditions, health protection would be assumed even for sensitive members of the population. In such a case, staff would assume that there would be no significant noncancer public health impacts from project operations.

Cancer Risk

Staff relies upon regulations implementing the provisions of Proposition 65, the Safe Drinking Water and Toxic Enforcement Act of 1986 (Health & Safety Code §§ 25249.5 et seq.) for guidance in establishing the level of significance for its assessed cancer risks. Title 22, California Code of Regulations, Section 12703(b) states in this regard, that "the risk level which represents no significant risk shall be one which is calculated to result in one excess case of cancer in an exposed population of 100,000, assuming lifetime exposure." This risk level is equivalent to a cancer risk of 10 in 1 million, or 10×10^{-6}. An important distinction from the provisions in Proposition 65 is that the Proposition 65 significance level applies separately to each cancer-causing substance, whereas staff determines significance based on the total risk from all cancer-causing chemicals from the source in question. Thus, the manner in which the significance level is applied by staff is more conservative (health-protective) than with Proposition 65.

As noted earlier, the initial risk analysis for a project is normally performed at a screening level, which is designed to overstate actual risks, so that health protection can be ensured. When a screening analysis shows the cancer risks to be above the significance level, refined assumptions would likely result in a lower, more realistic risk estimate. If facility risk, based on refined assumptions, were to exceed the significance level of 10 in 1 million, staff would require appropriate measures to reduce risk to less

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than significant. If, after all risk reduction measures have been considered, a refined analysis still identifies a cancer risk of greater than 10 in 1 million, staff would deem such risk to be significant, and would not recommend project approval.

SETTING

This section describes the environment in the vicinity of the proposed project site from the public health perspective. Features of the natural environment, such as meteorology and terrain, affect the project's potential for causing impacts on public health. An emission plume from a facility may affect elevated areas before lower terrain areas, because of a reduced opportunity for atmospheric mixing. Consequently, areas of elevated terrain can often be subjected to increased pollutant impacts. Also, the types of land use near a site influences population density and, therefore, the number of individuals potentially exposed to the project's emissions. Additional factors affecting potential public health impacts include existing air quality and environmental site contamination.

SITE AND VICINITY DESCRIPTION

The three generating units that would constitute the proposed BR123 project would be co-located near the same site as the original and amended SSU6 in unincorporated Imperial County. The proposed site would include the 80-acre parcel for the original proposal plus an additional 80 acres immediately to the south. The site lies west of State Highway 111 and north of State Highway 86, approximately 6 miles west of Calipatria, and southwest of the Salton Sea. The project's three power units would be located in the middle of the proposed site.

The project site is currently used for agriculture with the surrounding areas used for geothermal power production, as open space, wildlife preservation, and for industrial facilities and residences. The site is at an average elevation of 225 feet below sea level in a lightly populated area where the nearest residence is located approximately 0.8 miles to the northeast. The applicant (CEOE 2009, p. 5.10-29) provided specific information showing that there are no sensitive receptor locations within the 3-mile radius that would encompass the project's zone of potentially significant impacts. Sensitive receptor locations in this context are non-home locations housing sensitive individuals such as the elderly, school pupils and individuals with respiratory diseases who, as previously noted, are usually more sensitive to the effects of environmental pollutants than the general public. In most cases these locations would include schools, pre-schools, daycare centers, nursing homes, medical centers, hospitals, and colleges.

METEOROLOGY

Meteorological conditions, including wind speed, wind direction, and atmospheric stability, affect the extent to which pollutants are dispersed into ambient air as well as the direction of pollutant transport. This, in turn, affects the level of public exposure to emitted pollutants and associated health risks. When wind speeds are low and the atmosphere is stable, for example, dispersion is reduced and localized exposure may increase.

The proposed project site has a distinct desert climate of hot summers, mild winters, and relatively low precipitation. This climate is strongly influenced by the large-scale

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warming and sinking of the air in the semi-permanent subtropical high-pressure center over the Pacific Ocean. This high-pressure system blocks most mid-latitude storms except in the winter when most of the area's 7 inches of rainfall occurs. The yearly maximum temperature averages more than 100°F while the minimum averages 48°F.

Because of the area's light winds (with little seasonal variation), the atmosphere has a limited capacity to disperse the area's air contaminants from the points of generation to other locations. Strong atmospheric temperature inversions frequently occur, especially in the late mornings and early afternoons. These inversions severely limit vertical air mixing and result in the buildup of air pollutants by restricting their movement from the ground level to the upper atmosphere where they could be transported out of the air basin.

Atmospheric stability is a measure of the turbulence that influences such pollutant dispersion. Mixing heights (the height above ground level below which the air is well mixed and in which pollutants can be effectively dispersed) are higher during the morning hours and then lower during the late morning and early afternoon because of temperature inversions. Staff's **Air Quality** section presents a more detailed discussion of the area's meteorology as related to pollutant dispersion.

EXISTING AIR QUALITY

The proposed site is within the jurisdiction of the Imperial County Air Pollution Control District (ICAPCD). By examining average toxic concentrations from representative air monitoring sites in California with cancer risk factors specific to each contaminant, lifetime cancer risk can be calculated to provide a background, toxic air contaminants (TAC) related risk level for inhalation of ambient air. For comparison purposes, it should be noted that the overall lifetime cancer risk for the average individual is about 1 in 3, or 330,000 in 1 million.

The closest air quality monitoring station to the project site is in Niland, approximately 5 miles to the northeast. Since only criteria pollutants are monitored at this station, there is no data to calculate the TAC-related background indicator cancer risk for the area. The significance of the cancer risk in this regard is the present recognition of the cancer endpoint as the most sensitive indicator of the potential for a significant health hazard for a source of both carcinogenic and non-carcinogenic pollutants. The proposed project's addition to the total area cancer risk should best be seen in terms of potential contribution to the noted average background risk of 330,000 in 1 million.

The criteria pollutant-related air quality for the project area is assessed in the **Air Quality** section by adding the existing levels (as measured at area monitoring stations), to the project-related levels, and comparing the resulting levels with the applicable air quality standards. Public health protection would be ensured only through specific technical and administrative measures that ensure below-standard exposures when the project is operating. It is such a combination of measures that is addressed in the **Air Quality** section.

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POTENTIAL IMPACTS OF PROJECT'S NONCRITERIA POLLUTANTS

The health impacts of the noncriteria pollutants of specific concern in this analysis can be assessed separately as construction-phase impacts and operational-phase impacts.

Construction Phase Impacts

Possible construction-phase health impacts, as noted in the 2003 Staff Assessment, are those from human exposure to the windblown dust from site excavation and grading, and emissions from construction-related equipment. The dust-related impacts may result from exposure to the dust itself as PM10, or PM2.5, or exposure to any toxic contaminants that might be absorbed into the dust particles. As more fully discussed in the **Waste Management** section, results of the applicant's site contamination assessments (CEOE 2002a, Appendix O) showed no areas of possible chemical contamination from past agricultural or other uses. This means that particulate-related chemical exposures of toxic substances would be unlikely during the site preparation and project erection phases.

The applicant has specified mitigation measures necessary to minimize construction-related fugitive dust as required by ICAPCD. The only soil-related construction impacts of potential significance would result from the possible impacts of PM10, or PM 2.5 as a criteria pollutant for the 20-month construction period.

As mentioned earlier, the potential for significant impacts from criteria pollutants during construction is assessed in the **Air Quality** section, in which the requirements for the identified mitigation measures are recommended as a specific condition of certification (AQ-C3). Staff's recommendations in this regard include the use of ARB-certified diesel engines, or installation of soot filters on diesel equipment.

The exhaust from diesel-fueled construction and other equipment is a potent human carcinogen. Thus, construction-related emission levels should be regarded as possibly adding to the carcinogenic risk of specific concern in this analysis. The applicant (CEOE 2002, Appendix G) presented the diesel emissions from the different types of equipment to be used in the construction phase. These emission levels are more fully discussed in staff's **Air Quality** section. The maximum cancer risk from these diesel emissions was calculated as 2.5 in 1 million for an uninhabited zone immediately beyond the project's boundaries. This risk estimate is significantly below staff's significance criterion of 10 in 1 million for such emissions. Staff considers the recommended control measures (presented in **Air Quality** as specific conditions of certifications) as adequate to minimize this cancer risk during the construction period.

Operational Impacts

The main TAC-related health risk from the proposed project's operations would be associated with emissions from combustion of natural gas from the Recuperative Thermal Oxidizer (RTO) chemical storage tanks, the handling of brine, including steam vent tanks and steam blow lines, and the three cooling towers. The main differences in project impacts relate to specific steps intended by the applicant to reduce the emissions from the amended BR123 project compared with the licensed project. As

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described by the applicant, the main sources of the process-related emissions of concern in this analysis (the vent tanks, dilution water heaters, and the handling and disposal of solid silica and sulfur filter cake wastes) would remain the same except that the modified BR123 project would not require the use of dilution water heaters or handling of large amounts of filter cakes, thereby eliminating the emissions from these aspects of operations. The applicant also proposes to modify the hydrogen sulfide control system using activated charcoal in a way that would enhance the control of benzene and the reactive organic gas emissions. The control of hydrogen sulfide and the non-condensable gases would further be enhanced with installation of RTOs. The project would also use a chemical oxidation process in the cooling tower (rather than the less efficient biological oxidation process proposed for the licensed version) for enhanced hydrogen sulfide control. Ammonia emission would be reduced by 70 percent from use of a more effective absorption process.

The applicant also proposes to use Tier-4 diesel-fired engines for the emergency fire water pumps and emergency power instead of the licensed project's Tier-2 engines, which have higher emission levels. This combination of operational and engineering changes is the reason for the applicant's expectation of lower facility impacts from some problem pollutants such as hydrogen sulfide.

PUBLIC HEALTH Table 2 lists the toxic emissions of most concern in this analysis and shows how each contributes to the risk estimated from the health risk analysis. For example, the first row shows that oral exposure to acetaldehyde is not of concern but, if inhaled, may have cancer and chronic (long-term) noncancer health effects, but not acute (short-term) effects.

As noted in a publication by the South Coast Air Quality Management District (SCAQMD 2000, p. 6), one property that distinguishes the air toxics of concern in this analysis from the criteria pollutants is that the impacts from air toxics tend to be highest in close proximity to the source and quickly drop off with distance. This means that the levels of the project's air toxics would be highest in the immediate area and would decrease rapidly with distance. One purpose of this analysis, as previously noted, is to determine whether or not such exposures would be at levels of possible health significance as established using existing assessment methods.

The applicant's estimates of the project's potential contribution to the area's carcinogenic and non-carcinogenic pollutants were obtained from a screening-level health risk assessment conducted according to procedures specified in the 1993 CAPCOA guidelines. The applicant provided the lists of the TAC from the proposed generating units along with the toxicity factors used for the related risk assessment. The results from this assessment (summarized in staff's **PUBLIC HEALTH Table 3**) were provided to staff along with documentation of the assumptions used (CEOE 2009, pp. 5.10-12, through 5.10-20 and Appendix-E). This documentation included:

- pollutants considered;
- emission levels assumed for the pollutants involved;
- dispersion modeling used to estimate potential exposure levels;
- exposure pathways considered;
- the cancer risk estimation process;

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- hazard index calculation; and
- characterization of project-related risk estimates.

Staff determined these assumptions are acceptable for use in this analysis and has validated the applicant's findings with regard to the numerical public health risk estimates expressed either in terms of the hazard index for each non-carcinogenic pollutant, or a cancer risk for estimated levels of the carcinogenic pollutants. These analyses were conducted to establish the maximum potential for acute and chronic effects on body systems such as the liver, central nervous system, the immune system, kidneys, the reproductive system, the skin and the respiratory system. The specific case of radon is from its potential emission from the temporary storage of the filter cake generated from extraction of the geothermal fluids, in addition to the cooling towers. The related health impact is cancer.

PUBLIC HEALTH Table 2
Types of Health Impacts and Exposure Routes Attributed to Toxic Emissions

Substance	Oral Cancer	Oral Non-cancer	Inhalation Cancer	Non-cancer (Chronic)	Non-cancer (Acute)
Acetaldehyde			✔	✔	
Acrolein				✔	✔
Ammonia				✔	✔
Arsenic	✔	✔	✔	✔	✔
Benzene			✔	✔	✔
1,3-Butadiene			✔	✔	
Cadmium		✔	✔	✔	
Chromium			✔	✔	
Copper				✔	✔
Ethylbenzene				✔	
Formaldehyde			✔	✔	✔
Hexane				✔	
Lead	✔	✔	✔	✔	
Mercury		✔		✔	✔
Naphthalene		✔		✔	
Nickel			✔	✔	✔
Polynuclear Aromatic Hydrocarbons (PAHs)	✔	✔	✔	✔	
Propylene				✔	
Radon			✔		
Toluene				✔	✔
Xylene				✔	✔
Zinc				✔	

Source: Prepared by staff using reference exposure levels and cancer unit risks from CAPCOA Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines, October 1993, SRP 1998, and Office of Environmental Health Hazard Assessment Air Toxics Hot Spots Program Risk Assessment Guidelines.

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The applicant (CEOE 2009, Table 5.10-25, p. 5.10-25) provided a list of the toxicity values used to assess the cancer and noncancer impacts.

As shown in **PUBLIC HEALTH Table 3**, the chronic hazard index for the maximally exposed individual is 0.312 (compared to 0.156 for the licensed version) while the maximum hazard index for acute effects is 0.550 (compared to 0.881 for the licensed version). These values are higher than calculated for the licensed version because they reflect the higher emission rates established by the applicant from more accurate data on the physical and chemical characteristics of the geothermal brine, which is the main source of the pollutants in question (CEOE November 2009 Responses to Staff's Air Quality Data Requests 1 through 64). The calculations from the more refined data still show these noncancer risk indices to be significantly below staff's significance criterion of 1.0, suggesting that the pollutants in question would not pose a significant risk of chronic or acute noncancer health effects anywhere in the project area for any of the considered project versions.

PUBLIC HEALTH Table 3
Operational Hazard/Risk

Type of Hazard/Risk	**Hazard Index/Risk**	Significance Level	Significant?
Acute Noncancer	0.550	1.0	No
Chronic Noncancer	0.312	1.0	No
Individual Cancer	7.19×10^{-6}	10.0×10^{-6}	No

Staff's summary of information from CEOE 2009 pp. 5.10-25 through 5.10-32.

The cancer risk to the maximally exposed individual from normal project operation is shown as 7.19 in 1 million, which is higher than the 2.88 in 1 million for the licensed version. As with the noncancer health risks, the increased cancer risk estimate reflected the higher emission rates established by the applicant from more refined emission data. This risk estimate is still below staff's significance criterion of 10 in 1 million for this screening-level assessment. Thus, project-related cancer risk from routine operations would be less than significant for all individuals in the project area.

The conservatism in these assessments is reflected in the noted fact that (a) the individual considered is assumed to be exposed at the highest possible levels to all the carcinogenic pollutants from the project for a 70-year lifetime, (b) all the carcinogens are assumed to be equally potent in humans and experimental animals, even when their cancer-inducing abilities have not been established in humans, and (c) humans are assumed to be as susceptible as the most sensitive experimental animal, despite knowledge that cancer potencies often differ between humans and experimental animals. Only a relatively few of the many environmental chemicals identified so far as capable of inducing cancer in animals have been shown to also cause cancer in humans.

Although the population within the project site's 6-mile radius shows that the minority population from the 2000 census data as more than 50 percent, (from the **Socioeconomics Figure 1** in CEC staff's 2003 analysis), the finding that the operational cancer and noncancer risks would be below the levels of potential significance means that there would be no environmental justice concerns related to minority status. Such concerns arise only in cases of potentially significant impacts. The

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same census data showed the low-income population to be less than 50 percent. Given this percentage and the fact that there would be no significant impacts from operations, there would be no environmental justice concerns related to economic status.

While the cancer and noncancer risks from operating the project cooling towers would be below levels of potential significance, the cooling towers for the three generating units have been established by staff and the applicant as posing a potentially significant risk of bacterial infection (Legionnaires' disease) if operated without adequate safeguards. Implementing the related condition of certification for the licensed 215 MW project should offer adequate protection against such infection for the modified BR123 project as agreed to by the applicant (CEOE 2009, p. 5.10-34).

CUMULATIVE IMPACTS

As noted in the 2003 Staff Analysis and discussed by the applicant (CEOE 2009, p. 5.10-10), there are no identified existing sources of toxic air pollutants of concern in this analysis in the immediate vicinity of the project site, meaning there would be no cumulative impacts that could lead to exposures of possible health significance. The present approach to regulating this group of is to ensure that further additions from identifiable sources are maintained within insignificant levels as established using the methods discussed in this analysis.

As previously noted, the maximum impact locations for the three proposed generating units would be near the spot where pollutant concentrations would theoretically be highest. Even at this location, staff does not expect any significant project-related changes in the lifetime risk to any individual, given the calculated incremental cancer risk of only 7.19 in 1 million, which staff regards as not potentially contributing significantly to the previously noted average lifetime individual cancer risk of 330,000 in 1 million. This background risk should best be seen as reflecting the cumulative impacts of all encountered carcinogens whether man-made or naturally occurring. It is because of its related low cancer risk that staff considers the proposed project as not contributing significantly to any cancer-related impacts of a cumulative nature.

As previously noted, the worst-case long-term noncancer health impact from the project (represented as a chronic hazard index of 0.312) is well below staff's significance level of 1.0 at the location of maximum impact (which falls at the fence line) suggesting an insignificant contribution to the incidence of the area's noncancer health symptoms from cumulative TAC exposures. The cumulative impacts from emission of the criteria pollutants are addressed in the **Air Quality** section.

As more fully discussed in staff's **Air Quality** section, the applicant identified the pollutants associated with expected project commissioning (a one-time event) and start-up and shut-down activities (CEOE 2001, pp. 5.10-11 through 5.10-18, and Appendix E). As with the licensed project, there would be short-term, above-threshold emissions of hydrogen sulfide and particulate matter during the commissioning period. A related condition of certification (AQ-C6) is specified in the **Air Quality** section of the 2003 Staff Assessment in this regard. Staff is in agreement with the applicant (CEOE 2009, pp.5.10-3 and 5.10-8) that this same **Air Quality** condition of certification would be adequate to mitigate the impacts of these commissioning-related pollutants for the proposed project and does not recommend further mitigation measures.

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COMPLIANCE WITH LORS

The toxic pollutant-related cancer and noncancer risks from the proposed 159 MW BR123 project reflect the effectiveness of control measures proposed by the applicant. Since these risk estimates are below the significance levels in the applicable LORS, staff concludes that the related construction and operational plan would comply with these LORS.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

Staff received no public or agency comments on the public health aspects of the proposed project amendment.

CONCLUSIONS AND RECOMMENDATIONS

Staff has determined that the toxic air emissions from the construction and operation of the proposed 159 MW BR123 project would be at levels that do not require mitigation beyond the specific emission control measures proposed by the applicant and deemed adequate for the licensed 215 MW project. Since (a) the potential impacts would be below levels of potential insignificance and (b) very few residences reside in the project's zone of potentially significant impacts, there would be no environmental justice issues when the project is operating. The conditions for ensuring compliance with all applicable air quality standards are specified in the **Air Quality** section for the area's criteria pollutants. With continued enforcement of Condition of Certification Public Health-1, staff recommends approval of the proposed modifications to the BR123 project with respect to the health impacts of concern in this analysis.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

No new or modified Public Health-related Conditions of Certification are proposed.

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SOCIOECONOMICS

Testimony of Kristin Ford

INTRODUCTION

The Salton Sea Unit 6 Geothermal Power Project (SSU6) was originally granted a California Energy Commission license in December 2003 for a 185 MW plant utilizing multiple flash technologies. The license was amended in May 2005 to enable the plant to increase its capacity to 215 MW and to extend the deadline to start construction of the project to December 18, 2011.

The applicant proposes to amend the project license to allow for construction of three 53 MW single-flash units for a net total generating capacity of 159 MW. The renamed Black Rock 1, 2, 3 Geothermal Power Plant (BR123) would be located on the same 80-acre site as the original project; however, the amended project would utilize a contiguous 80-site to the south of the site for a total plant size of 160 acres. This analysis focuses on the potential impacts to Socioeconomics caused by the changes to the licensed project that are proposed in the applicant's Petition to Amend.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

At the time of certification, LORS applicable to Socioeconomics were identified in the Final Staff Assessment (FSA). Approval of the amendment would not require analysis or inclusion of any new LORS.

ANALYSIS

According to *Environmental Justice: Guidance Under the National Environmental Policy Act*, minority individuals are defined as members of the following groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. A minority population is identified when the minority population of the potentially affected area is greater than 50 percent or when one or more U.S. Census blocks in the potentially affected area have a minority population greater than 50 percent.

For the proposed BR123 project, the population living within the 6-mile radius of the proposed site is 108 persons and the total minority population is 84 persons, or about 78 percent of the total population. Staff identified similar numbers for population and minority population for Imperial County in the Staff Assessment of the 2003 Application for Certification.

The below-poverty-level threshold is defined by the U.S. Census as a function of the size of a family unit and the number of children less than 18 years of age. For the 2000 Census, the poverty threshold income for a family of four with two children was $17,463. The 2000 Census data report that the median household income in the county was $31,870.

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The BR123 project would employ for 46 months of construction an average of 323 workers and a peak of 642 workers, of which 60 percent would come from the local area in Imperial County, and 40 percent non-local. The licensed SSU6 project called for a peak workforce of 467 workers.

Construction workers can commute up to two hours to construction sites from their homes rather than relocate temporarily. The BR123 project could draw on Imperial County, Riverside County, San Bernardino County and San Diego County labor markets, which had approximately 222,000 construction workers in 2006 (CE Obsidian Energy, LLC 2009a). This represents less than 1 percent of the average workforce needed for project construction. Approximately 69 full-time permanent employees would staff the power plant at operation. Some of the specialized technical or managerial skill operation jobs would require relocation to the area. The applicant estimates that 90 percent of the full-time staff would commute from El Centro, Brawley, Calipatria or Niland areas, while 10 percent would commute from Indio or La Quinta in Riverside County. The population impacts created by project construction and operation would not be significant.

Approximately 257 construction workers at peak might reside in hotels/temporary housing during the work week and return to homes on the weekends. There are 1,148 hotel/motels in Imperial County. Imperial County had a hotel/motel vacancy rate of 12.3 percent or 51,590 units in 2006. For 2009, Imperial County listed 3,059 mobile home sites and 3,672 RV spaces in the county. The unemployment rate for Imperial County in March 2009 was 25.1 percent (not seasonally adjusted) (CE Obsidian Energy, LLC 2009a and State of California Employment Development Department 2009).

The BR123 project would not adversely impact community services for construction since most workers would commute and housing would be available for those who would relocate on a temporary basis. For operations, most of the workforce would be local and not adversely impact community services.

Benefit estimates for the BR123 project would be higher than for the original SSU6 project:

- Secondary construction employment for the four-county area of Imperial, San Diego, Riverside, and San Bernardino would increase from 570 jobs to 868 jobs;
- School impact fees would increase from $11,716 to approximately $18,083 for the Calipatria Union School District;
- Property taxes would increase from $2.9 million to $8.5 to $9.0 million for Imperial County;
- Construction/operations payroll would increase from $30 million/$5.9 million to $49 million/$6.6 million for the four-county area;
- Capital costs would increase from $460 million to $862 million; and,
- Sales tax would increase from $7.75 million during construction and $178,328 during operation to $10.2 million during construction and $199,000 during operation (CEOE 2002 and CE Obsidian Energy, LLC 2009a&b).

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CONCLUSIONS AND RECOMMENDATIONS

Staff concludes that construction and operation of the BR123 project would not cause significant direct, indirect, or cumulative adverse socioeconomic impacts on the study area's housing, schools, parks and recreation, law enforcement, emergency services, or hospitals. The BR123 project, as proposed, is consistent with applicable LORS.

Estimated gross public benefits from the BR123 project include increases in employment and income for the four-county area. The project would create an estimated average of 323 direct project-related construction jobs for the 46 months of construction and 69 jobs for operations, and would result in an increase in property taxes, school impact fees and sales taxes compared to the licensed SSU6 project.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

Mitigation would remain unchanged with **Condition of Certification SOCIO-1** requiring payment of school impact fees.

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TRAFFIC AND TRANSPORTATION

Testimony of James Adams

INTRODUCTION

Staff's traffic and transportation analysis focuses on the differences in construction schedules and resultant traffic patterns for the Black Rock 1, 2, 3 Geothermal Power Plant (BR123) compared to the licensed Salton Sea Unit 6 Geothermal Power Project (SSU6).

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

There has been no change in the applicable traffic and transportation LORS, nor has the project been modified sufficiently to warrant consideration of additional LORS.

ANALYSIS

Staff has reviewed the petition for potential environmental effects and consistency with applicable LORS. Based on this review, staff determined that the amended project will not have any significant and adverse traffic and transportation impacts.

There are some minor changes in the construction traffic and transportation impacts when comparing the proposed BR123 project with the licensed SSU6 project. The construction period would increase from 26 to 46 months. The average number of construction workers would increase from 265 to 325 and the peak number of workers would increase from 467 to 572. The average number of truck deliveries per day would increase from 10 to 34 and peak day deliveries would increase from 18 to 64 (CEC 2003, CE Obsidian/AECOM 2009). Because of the very light vehicular traffic in the project area, the Levels of Service (LOS) on the roads and highways (LOS A & B) that would be used during project construction would not deteriorate with the increased construction traffic and would remain within Imperial County's acceptable standards (LOS C or better). There would be a significant reduction in truck trips during operation of the amended project due to the use of single-flash technology. The SSU6 project would have used multi-flash technology, which would have generated substantial amounts of waste (CEC 2010) requiring a minimum of 32 trucks per day to dispose of the waste offsite (CEC 2003). The BR123 project would only require three trucks per day for waste disposal (Obsidian/AECOM 2010).

Staff has been advised by Imperial County Planning Department staff of their determination that project generated increase in construction traffic and lengthened schedule would not adversely impact the traffic and transportation system in the local area. Staff concurs with this determination.

CUMULATIVE IMPACTS

As noted in the **Visual Resources, Land Use, Biological Resources** and other sections of this assessment, the applicant has identified and staff has reviewed

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information regarding a proposed geothermal plant being developed by the firm Catalyst Hannon Armstrong Renewables (CHAR). This facility would be located 3.4 miles northeast of the BR123 site. In addition, the CHAR project construction is expected to be completed before the BR123 construction begins and the CHAR operational workforce is expected to be small (CE Obsidian/AECOM 2009). Staff is not aware of any other project in the general area that would contribute to a significant cumulative traffic and transportation impact.

CONCLUSIONS AND RECOMMENDATIONS

The changes in traffic and transportation impacts related to the amended project are relatively minor compared to the original project with the exception of the reduction in truck trips during operation. LOS ratings for the local roads and highways would not deteriorate and the project would be consistent with all applicable LORS.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

Staff is not proposing modifications to the Traffic and Transportation Conditions of Certification for the original project.

REFERENCES

California Energy Commission (CEC). 2003. Decision for the Salton Sea Geothermal Unit 6 (now Black Rock 1, 2, 3) Power Plant Application for Certification, Docket No. 02-AFC-2, Imperial County, published on December 19, 2003.

California Energy Commission (CEC). 2003. Staff Assessment for Salton Sea Geothermal Unit 6 (now Black Rock 1, 2, 3) Power Plant Application for Certification (02-AFC-2), Imperial County, California, published on August 5, 2003.

California Energy Commission (CEC) 2003. Commission Decision regarding the Salton Sea Geothermal Unit #6, published in December 2003.

California Energy Commission (CEC) 2010. E-mail from Matt Trask, California Energy Commission, to James Adams, California Energy Commission, on January 8, 2010. Submitted to CEC/Docket Unit on January 11, 2010.

CE Obsidian Energy, LLC (CE Obsidian/AECOM). 2009. Salton Sea Geothermal Unit 6 (now Black Rock 1, 2) Power Plant, Petition for License Amendment, to Modify Project to Allow Construction of Three 53 MW Units, totaling 159 MW. Submitted to the California Energy Commission, March 13, 2009.

CE Obsidian Energy, LLC (CE Obsidian /AECOM) 2010. E-mail from Jerry Salamy, Black Rock project manager, to James Adams on January 8, 2010. Submitted to CEC/Docket Unit on January 11, 2010.

Country of Imperial 2006. Circulation and Scenic Highway Element of the Imperial County General Plan, dated December 16, 2003.

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County of Imperial 2010. Report of Conversation between Jim Minnick, Imperial County Planning Department, and James Adams on January 5,2010. Submitted to CEC/Docket Unit on January 5, 2010.

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TRANSMISSION LINE SAFETY AND NUISANCE

Testimony of Obed Odoemelam, Ph.D.

INTRODUCTION

This analysis addresses whether the transmission line safety and nuisance aspects of the Black Rock 1, 2, and 3 Geothermal Power Project (BR123), formerly known as Salton Sea Unit 6 Geothermal Power Plant, would be changed by the currently proposed amendment to build three generating plants with a net generating capacity of 159 megawatts (MW). A previous amendment allowing operation at 215 MW was approved in May 2005, amending the Energy Commission's original December 17, 2003 decision. Any changes to the related safety and nuisance impacts would necessitate specific changes to the conditions of certification specified in the Commission Decisions approving the original and amended project.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS) COMPLIANCE

There are no new or changed transmission line and safety-related laws, ordinances, regulations, and standards (LORS) that would be applicable to the project as proposed to be amended.

ANALYSIS

This analysis is based, in part, on information provided in the Application for Certification for the original project by the applicant, CE Obsidian Energy, LLC (CEOE 2002), staff's assessments for the original project (CEC 2003), and the applicant's 2009 Petition to Amend seeking authority to construct the 159 MW BR123 project (CEOE 2009). The purpose of this analysis is to determine whether or not the proposed line construction and operational plan adequately incorporated the measures necessary for compliance with the health and safety laws, ordinances, regulations, and standards (LORS) of concern for the 161-kV lines of the types proposed for the original and the amended versions of the project. The analyses focused on the following issues relating primarily to the physical presence of the lines or secondarily to the physical interactions of the lines' electric and magnetic fields:

- Aviation safety
- Interference with radio-frequency communication
- Audible noise
- Fire hazards
- Hazardous shocks
- Nuisance shocks, and
- Electric and magnetic field (EMF) exposure

Staff assessed the applicant's proposed mitigation measures and determined that their implementation would be adequate to ensure that the line impacts of concern would be

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below the levels of potential significance for the original, amended and the presently proposed project. Staff's proposed conditions of certification (which were specified in the December 17, 2003 Energy Commission Decision and later amended by the Energy Commission in May 2005), were intended to ensure implementation. The present proposal to build three separate power plants would lead to a reduction in net generating capacity from the permitted 215 MW to 159 MW without requiring changes to the design, construction and operational plan necessary to ensure that the line impacts of concern would remain at less than significant levels.

CONCLUSIONS AND RECOMMENDATIONS

Since the proposed project modification would not involve any changes to the already-licensed transmission lines whose field and non-field impacts would be below levels of potential significance, staff does not consider it necessary to recommend modifications to the five conditions of certification specified in the December 2003 Energy Commission Decision approving the original SSU6 project, as modified in May 2005.

CONDITIONS OF CERTIFICATION

Staff proposes no changes to the existing Transmission Line Safety & Nuisance Conditions of Certification as specified in the December 2003 Energy Commission Decision approving the SSU6 project, as modified in the May 2005 Decision approving expansion of the project to 215 MW.

REFERENCES

California Energy Commission (CEC). 2003. Staff Assessment for the Salton Sea Unit 6 Project, published on December 17, 2003.

California Energy Commission (CEC). 2003a. Decision on the Salton Sea Unit 6 Project's Application for Certification (AFC). Published Dec .2003.

California Energy Commission Decision on Amendment to the original license to the Salton Sea Project. May 2005.

CEOE (CE Obsidian Energy, LLC) 2002. Application for Certification (AFC) Volumes I and 2 for the Salton Sea Unit 6 Project. July 26, 2002

CEOE (CE Obsidian) 2009. Petition for License Amendment, for the Black Rock 1, 2, 3 Geothermal Power Plant, formerly known as Salton Sea Unit 6 Geothermal Power Plant. (02-AFC-2C). March 13, 2009.

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VISUAL RESOURCES

Testimony of James Adams

INTRODUCTION

Staff's visual resources analysis focuses on the differences in design and construction of the Black Rock 1, 2, 3 Geothermal Power Plant (BR123), and the resultant effect on visual resources in the project area, compared to the licensed Salton Sea Unit 6 Geothermal Power Project (SSU6).

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

The applicable local LORS have changed since the project was permitted and are listed in **VISUAL RESOURCES Table 1**. The federal and state LORS are the same and the project has not been changed sufficiently to warrant consideration of additional LORS.

VISUAL RESOURCES Table 1
Local Laws, Ordinances, Regulations, and Standards (LORS)

Protocol: Applicable Law	Protocol: Description
Local	
Conservation and Open Space Element of the Imperial County General Plan	The intent of this element is to protect the County's visual resources.
Goal 7	The aesthetic character of the region shall be protected and enhanced to provide a pleasing environment for residential, commercial, recreational, and tourist activity.

ANALYSIS

The primary changes in the amended project, BR123, regarding visual resources when compared to the SSU6 project is that there will be three 53 megawatt (MW) plants (with stacks and plumes) instead of one 215 MW plant, and three cooling tower plumes instead of two.

BR123 would be the 10th geothermal facility within two miles of the project site. All of the facilities generate visible plumes from various plant exhaust or vent stacks and/or cooling towers. The BR123 project cooling towers would be 55 feet high, 282 feet long, and 54 feet wide. The original project cooling towers would have been 58 feet high and 538 feet long. They would have generated a visible plume only 1 percent of the time that would have been 64 feet long, 115 feet high, and 57 feet wide.

Since the time of the original project being permitted in 2005, staff has adopted a visual plume frequency of 20 percent seasonal daylight hours as a plume impact study

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threshold. Because the amended project cooling towers would generate three visible plumes approximately 11 percent of the time during plant operation (daylight clear hours), plume dimension modeling was not required. The three regenerative thermal oxidizer (RTO) exhaust stacks would be 99 feet tall, 29 feet long, and 16 feet wide. The RTO plumes would occur well over 20 percent of the seasonal daylight clear hours. At the 10 percent threshold during plant operation, the plumes would be 60 feet long, 110 feet high, and 29 feet wide (Aspen 2009). The original project proposal envisioned two dilution water heaters that would have been 45 feet high and 8 feet wide. For approximately 10 percent of the time, the heater plumes would have been 439 feet long, 275 high, and 72 feet wide.

The plume dimensions of the amended project are comparable to plumes generated by the existing geothermal facilities and would not stand out in the visual setting. The amended project structures and visible plumes would be smaller in size and less visible from Key Observation Points (KOPs) 1 through 4 than the original project. KOPs 5 and 6 would not be affected since they deal with the project transmission lines crossing SR-86 and SR-111.

Imperial County Planning Department has informed staff that under the County's criteria the project generated plumes would not have an adverse impact on the visual character of the local area. Staff concurs with this determination.

CUMULATIVE IMPACTS

The applicant has identified and staff has reviewed information regarding a proposed geothermal plant being developed by the firm Catalyst Hannon Armstrong Renewables (CHAR). This facility would be located 3.4 miles northeast of the Black Rock 1&2 site (CE Obsidian/AECOM 2009, pg. 5.15-13 and IEC 2009, pg. 4). Staff agrees with the applicant that the CHAR project as well as the Los Angeles Department of Water & Power solar project near Niland, and Ormat's East Brawley geothermal project are too far from the BR123 site to cause cumulative visual resource impacts. Staff is unaware of any other projects that would contribute to a cumulative visual impact. Given the dominant landscape features of the Salton Sea and vast agricultural lands in this part of Imperial County, the project plus the existing geothermal facilities would not constitute an adverse cumulative visual impact.

CONCLUSIONS AND RECOMMENDATIONS

The amended project's visual change from the original project is that there will be three 53 MW plants (with stacks) instead of one 215 MW plant, and three cooling tower plumes instead of two. The RTO exhaust stack plumes would be visible during daylight clear hours but would be comparable in size to existing plumes at other geothermal facilities, and would occur over 20 percent of the time. The cooling tower plumes are estimated to occur less than 20 percent of daylight clear hours and would not have a significant visual impact. The project, when combined with other geothermal facilities in the local area and additional proposed projects in the general area, would not constitute an adverse cumulative impact.

The amended project is consistent with all applicable visual resources LORS. The aesthetic character of the amended project is a slight improvement compared with the

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original project due to smaller plume dimensions. Thus, the aesthetic character of the local area would not be degraded in comparison to the permitted project and would be consistent with Goal 7 of the Conservation and Open Space Element listed in **VISUAL RESOURCES Table 1**. Viewers on local roads and visitors to the Salton Sea National Wildlife Refuge (KOP 1) and Rock Hill (KOP 4) would see structures and plumes similar to the existing geothermal facilities and would not experience a significant change in the visual setting. If the Commission approves the amendment, staff believes that the visual resources conditions from the original decision do not need to be modified.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

Staff proposes no modifications to the original conditions of certification for visual resources.

REFERENCES

California Energy Commission (CEC). 2003. Decision for the Salton Sea Geothermal Unit 6 (now Black Rock 1, 2, 3) Power Plant Application for Certification, Docket No. 02-AFC-2, Imperial County, published on December 19, 2003.

California Energy Commission (CEC). 2003. Staff Assessment for Salton Sea Geothermal Unit 6 (now Black Rock 1, 2, 3) Power Plant Application for Certification (02-AFC-2), Imperial County, California, published on August 5, 2003.

CE Obsidian Energy, LLC (CE Obsidian/AECOM). 2009. Salton Sea Geothermal Unit 6 (now Black Rock 1, 2, 3) Power Plant, Petition for License Amendment, to Modify Project to Allow Construction of Three 53 MW Units, totaling 159 MW. Submitted to the California Energy Commission, March 10, 2009.

Country of Imperial 2006. Conservation and Open Space Element of the Imperial County General Plan, dated February 1, 2006.

County of Imperial 2010. Report of Conversation between Jim Minnick, Imperial County Planning Department, and James Adams, California Energy Commission, on January 5,2010. Submitted to CEC/Docket Unit on January 5, 2010.

Integrated Engineers & Contractors Corporation (ICE) 2009. Memorandum Regarding Imperial Irrigation District Power Plant Water Use Evaluation.

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WASTE MANAGEMENT

Testimony of Ellen Townsend-Hough

INTRODUCTION

On March 13, 2009, CE Obsidian Energy, LLC (project owner) filed a petition with the California Energy Commission to modify the Black Rock 1, 2 and 3 Geothermal Power project (BR123), originally licensed as the Salton Sea Unit 6 (SSU6) project. The project is located in Imperial County, California, southeast of the Salton Sea. The Imperial Valley is the southwest part of the Colorado Desert that merges northwestward into the Coachella Valley. The plant site is used for agriculture and is bounded by McKendry Road to the north, Severe Road to the west, Peterson Road to the south, and Boyle Road to the east. Land uses in the area consist of geothermal power facilities, agriculture, and the Sonny Bono Salton Sea National Wildlife Refuge. The petition proposes to modify the licensed 215 MW multi-flash, single-generator geothermal plant to allow for the construction of three 53 MW single-flash geothermal units with a combined total of 159 MW generating capacity (CE Obsidian/AECOM 2009). All proposed modifications are described in the **Project Description** section of this document.

This analysis addresses project changes associated with managing waste generated from the construction and operation of the proposed modifications to the project and any wastes already existing on-site. Only those aspects of the licensed facility that would change because of the proposed amendment and those aspects that would affect staff's past testimony for **Waste Management**, as written in the Commission Decision approving the SSU6 project and in later modifications, are examined in this analysis. The technical scope of this analysis encompasses solid wastes existing on-site and those generated during facility construction and operation. Wastewater is more fully discussed in the **Soil and Water Resources** section of this document.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

The LORS applicable to the original and previously amended SSU6 project have not changed with the changes proposed by this amendment.

ANALYSIS

As the first step in its analysis, staff assesses whether any existing or potential releases of hazardous substances at the project site could pose a risk to public health and environmental receptors.

The applicant completed and submitted a Phase I Environmental Site Assessment (ESA) conducted according to the American Society for Testing and Materials (ASTM) Standard Practice E 1527-05 for ESAs. AECOM Environment completed the Phase I ESA in January 2009. The area studied included the 160-acre amended project site, which includes the original 80-acre project site licensed by the Commission. The studied area also included three 4.7-acre properties for the three proposed injection well pad

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sites, 3.22 miles of right-of-way for the proposed brine injection pipelines, and an approximately 34-acre borrow site. The 34-acre off-site borrowing site would be used as the source of 362,000 cubic yards of fill required to raise foundations and build the flood-protection berm (CE Obsidian/AECOM 2009, page 5.12-1). Historical research indicates that the subject property and surrounding lands have been used for agricultural production since the early 1900s (CE Obsidian/AECOM 2009).

The Phase I ESA did not reveal any recognized environmental conditions (REC). However, staff concluded the long term use of the property for agricultural purposes on the proposed site may have contaminated soil and ground water and recommended further analysis. An REC is the presence or likely presence of any hazardous substances or petroleum products on a property under the conditions that indicate an existing release, past release, or a material threat of a release of any hazardous substance or petroleum products into structures on the property or in the ground, groundwater, or surface water of the property. Given the past land uses and proposed construction, Energy Commission staff requested that the project owner provide a Phase II ESA and verify that no harmful concentrations of any contaminants would be encountered at the proposed project site (CE Obsidian/CH2MHILL 2009 Data Response 64). A non-contaminated working environment protects the workers and reduces or eliminates damage to the environment. Staff requested that the project owner sample the project site in accordance with the California Department of Toxic Substances Control (DTSC) "Interim Guidance for Sampling Agricultural Fields for School Sites (Second Revision August 26, 2002)." DTSC uses the guidance for all types of commercial and industrial businesses constructed on agricultural properties. The guidance is intended to assist environmental assessors in designing an initial investigation for sites with historical agricultural uses.

The applicant completed a Phase II ESA for the BR123 project site. The soil samples from the project site were collected on September 23 and 24, 2009, and results were submitted to staff (CE Obsidian/CJ2MHILL 2009 Data Response 64). DTSC guidance recommended one discrete sample for every 2 acres, for a total of 24 point composite samples (Holmes 2009a, 2009c, 2009d). The samples were analyzed for organochlorine pesticides using United States Environmental Protection Agency (U.S. EPA) Method 8081A. The analytical results were compared to the Residential California Human Health Screening Levels (CHHSLs) and the U.S. EPA Residential Regional Screening Levels (RSL).[1] Two organochlorine pesticides were detected in the soil samples: 4,4'-DDE and 4,4'-DDT.

[1] CHHSLs were developed as a tool to assist in the evaluation of contaminated sites for potential adverse threat to human health. The soil CHHSLs are modeled after the EPA Region IX Preliminary Remediation Goal (PRG). The Region 9 PRGs have been harmonized with similar risk-based screening levels used by Regions 3 and 6 into a single table: Regional Screening Levels (RSL) for Chemical Contaminants at Superfund Sites.

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WASTE MANAGEMENT Table 1
Detected Organochlorine Pesticides

Constituent of Concern	CHHSL (mg/kg)	RSL (mg/kg)	Concentration Range (mg/kg)
4,4'-DDE	1.6	1.4	0.008 - 0.037
4,4'-DDT	1.6	1.7	0.004 - 0.014
DDE – dichlorodiphenyldichloroethylene, detected in 100% of samples			
DDT- dichlorodiphenyltrichloroethane, detected in 25% of samples			

The results of the Phase II assessment indicate that the levels of organocholoride remaining in the soil are persistent but do not exceed regulatory screening levels and will not require soil remediation. Condition of Certification **WORKER SAFETY-1** would be adequate to address any soil contamination contingency that may be encountered during construction.

As the next step in its analysis, staff reviews the capacity available at off-site treatment and disposal sites and determines whether or not the proposed power plant's waste would have a significant impact on the volume of waste a facility is permitted to accept. Staff uses a waste volume threshold equal to 10 percent of a disposal facility's remaining permitted capacity to determine if the impact from disposal waste at a particular facility would be significant.

BR123 will generate nonhazardous solid waste, hazardous waste and waste required to be disposed of in a Class II landfill, these wastes will add to the total waste generated in Imperial County and in California. The estimated amounts of waste generated from the project are shown in **WASTE MANAGEMENT Table 2**.

WASTE MANGEMENT Table 2
Waste Generated and Landfill Capacity

	Construction[1] cubic yards	**Operation[2]** cubic yards per year	**Remaining Landfill Capacity[3]** cubic yards
Non-Hazardous	50	156	5,127,575
Hazardous	1	52	15,500,000
Class II Waste (drilling waste)	19,000	100	1,314,800

1. Source: Tables 5.16-4 and 5.16-5, BR123 Amendment Petition
2. Source: Table 5.16-6, BR123 Amendment Petition
3. Imperial County 2009 landfill totals- www.calrecycle.ca.gov/SWFacilites/Direcrory//13-AA-0022/Detail
4. Source: Beacon Solar Energy Project -Combined permitted capacity of Clean Harbors' Buttonwillow Landfill (Kern County) and the Waste Management Kettleman Hills Facility.

Based on **WASTE MANAGEMENT Table 2**, the waste generated by BR123 would represent less than 1 percent of the county's total remaining landfill capacity. Therefore, staff concludes that disposal of the waste generated during construction and operation of the modified BR123 project would not result in any significant adverse waste disposal impacts.

There will be no new or additional unmitigated significant environmental impacts due to hazardous or non-hazardous wastes associated with the changes proposed in the BR123 amendment.

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CONCLUSIONS AND RECOMMENDATIONS

The BR123 project would produce solid non-hazardous waste and both liquid and solid hazardous waste. There is sufficient landfill capacity in the region to dispose of non-hazardous and hazardous waste during construction and operation. Chemical analysis of soil samples taken at the proposed project site did not yield concentrations of organochlorines above state or federal regulatory levels. Management of the waste generated during construction and operation of BR123 would not generate significant adverse impacts, and would comply with applicable LORS, if the waste management practices and mitigation measures proposed in the amendment petition and staff's proposed conditions of certification, are implemented.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

Staff does not propose modifications to the **Waste Management** Conditions of Certification as written in the SSU6 Commission Decision (CEC 2003). Those conditions of certification should also apply to the facilities constructed and operated as a result of the proposed BR123 project amendment.

REFERENCES

California Energy Commission (CEC). 2003. Decision approving the Salton Sea Geothermal Unit 6 (now Black Rock 1, 2, 3) Power Plant Application for Certification, Docket No. 02-AFC-2, Imperial County, published on December 19, 2003.

California Energy Commission (CEC). 2003a. Staff Assessment for Salton Sea Geothermal Unit 6 (now Black Rock 1, 2, 3) Power Plant Application for Certification (02-AFC-2), Imperial County, California, published on August 5, 2003.

CE Obsidian Energy, LLC (CE Obsidian/AECOM). 2009. Salton Sea Geothermal Unit 6 (now Black Rock 1, 2, 3) Power Plant, Petition for License Amendment, to Modify Project to Allow Construction of Three 53 MW Units, totaling 159 MW. Submitted to the California Energy Commission, March 10, 2009.

CE Obsidian, LLC (CE Obsidian/CH2MHILL). 2009a. CalEnergy Black Rock 1-3, Data Responses 1-64. Submitted to the California Energy Commission, November 2009.

Holmes 2009a - Holmes, Greg. Letter from Greg Holmes, Department of Toxic Substances Control, discuss CalEnergy Black Rock 1 -3 Soil Sampling Protocol, submitted August 28, 2009.

Holmes 2009b - Holmes, Greg.E-mail from Greg Holmes, Department of Toxic Substances Control, Clarify June 10, 2009 letter to Matt Trask response to agency participation for Amended Salton Sea Unit 6 Project, Imperial County (tn:51975), submitted July 27, 2009.

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Holmes 2009c - Holmes, Greg. Letter from Greg Holmes, Department of Toxic Substances Control, July 7, 2009 letter to Ellie Townsend, Hough in reference to CalEnergy Environmental Site Assessment for Amended Salton Sea Unit 6 Project, Imperial County (tn:52580), submitted July 7, 2009.

Holmes 2009d - Holmes, Greg. E-mail from Greg Holmes, Department of Toxic Substances Control, Clarify July 7, 2009 letter to Ellie Townsend-Hough in reference to CalEnergy Environmental Site Assessment for Amended Salton Sea Unit 6 Project, Imperial County (tn:52583), submitted July 27, 2009.

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ENGINEERING ANALYSIS

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FACILITY DESIGN ANALYSIS

Testimony of Erin Bright

INTRODUCTION

CE Obsidian Energy, LLC seeks approval to modify the Black Rock Geothermal Power Plant Project Units 1, 2, & 3 Project (previously the Salton Sea Unit 6 Project) from one multi-flash geothermal power plant to three smaller single-flash geothermal power plants. The change would require less facility infrastructure compared to the licensed project.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

The Energy Commission Decision (original Decision) included 20 Conditions of Certification relating to Facility Design, including **GEN-1** and **GEN-2**. Those conditions recognize that the project was to be designed and built in accordance with the 2001 edition of the California Building Code (CBC). The applicable edition of the CBC is currently the 2007 edition (see below).

ANALYSIS

The analysis associated with the original application has not changed as a result of the proposed modification, with two minor exceptions. The project must be designed and constructed in compliance with the current (2007) edition of the California Building Standards Code (CBSC), which encompasses the 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. Also as the result of this amendment, some alternative and additional components must be added to the project while some components would no longer be necessary. The conditions of certification included in the original Decision would still apply, with two changes (see below).

CONCLUSION

The proposed modification from one multi-flash plant to three single-flash plants will not result in impacts on facility design. Staff recommends approval of this request and proposes the following changes to two existing conditions of certification.

PROPOSED CHANGES TO CONDITIONS OF CERTIFICATION

No mitigation measures are required for Facility Design beyond the requirements embodied in the conditions of certification. Conditions of Certification **GEN-1** and **GEN-2** require the following revisions due to this amendment. (note: Deleted text is in ~~strikethrough~~ and new text is in **bold and underlined**.)

Condition of Certification **GEN-1** must be updated to reflect that the current version of the applicable laws, ordinances, regulations and standards (LORS), the California

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Building Standards Code, applies to all new construction. **GEN-1** should be revised thus:

GEN-1 The project owner shall design, construct and inspect the project in accordance with the ~~2001~~**2007** California Building Standards Code (CBSC) 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 addressed in the Conditions of Certification in the **Transmission System Engineering** section of this document.

In the event that the initial engineering designs are submitted to the CBO when a successor to the ~~2001~~**2007** CBSC is in effect, the ~~2001~~**2007** 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 California Energy Commission Compliance Project Manager (CPM) a statement of verification, signed by the responsible design engineer, attesting that all designs, construction, installation and inspection requirements of the applicable LORS and the Energy Commission's Decision have been met in the area of facility design. The project owner shall provide the CPM a copy of the Certificate of Occupancy within 30 days of receipt from the CBO [~~2001 CBC, Section 109~~**2007 CBC, Appendix Chapter 1, §110** – Certificate of Occupancy].

Condition of Certification **GEN-2**, including **Table 1**, must be changed to reflect the added and deleted equipment embodied in this amendment:

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 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 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 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.

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~~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~~
~~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~~

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~~Equipment/System~~	~~Quantity (Plant)~~
~~HCl 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~~	~~1 Lot~~
~~Building Energy Conservation Systems~~	~~1 Lot~~
~~Substation/Switchyard, Buses and Towers~~	~~1 Lot~~
~~Electrical Duct Banks~~	~~1 Lot~~

Table 1: Major Structures and Equipment List

#	Equipment/System	Quantity (Plant)
1	Brine Production Wellpads	3
2	Brine Pond Foundations	3
3	Brine Injection Wellpads	3
4	Brine Production Aerated Brine Wellpads	1
5	Brine Injection Condensate Wellpads	1
6	Steam Turbine (single-flash) Foundation and Connections	3
7	Steam Turbine Generator Foundation and Connections	3
8	Steam Condenser and Auxiliaries Foundation and Connections	3
9	HP Separators Foundation and Connections	3
10	HP Scrubbers Foundation and Connections	3
11	HP Demisters Foundation and Connections	3
12	High Pressure and Large Diameter Piping and Pipe Racks	1 Lot
13	Rock Mufflers Foundations and Connections	3
14	Condensate Storage Tank Foundation and Connections	1
15	Filter Press System Containment Structure, Foundation and Connections	3
16	Cooling Tower Foundation and Connections	3
17	Acid System Foundations and Connections	3
18	Lube Oil Skid Foundations and Connections	3
19	230kV Transformer Foundation and Connections	3
20	Substation/Switchyard, Buses and Towers	1 Lot
21	Electrical Duct Banks	1 Lot
22	PDC 101 (4160V) Foundations and Connections (Note: PDC is power distribution center)	3
23	230kV Take-off Structure / circuit breakers Foundations and Connections	3

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#	Equipment/System	Quantity (Plant)
24	4160V Transformer Foundations and Connections	3
25	PDC 102 (480V) Foundations and Connections	3
26	PDC 103 (4160V) Foundations and Connections	3
27	480V Transformer Foundations and Connections	3
28	PT/CT Foundations and Connections (potential transformer and current transformer)	3
29	230kV Transmission Towers Foundations and Connections	2
30	Chemical H2S Abatement Structure, Foundation and Connections	3
31	NCG Removal System Structure, Foundation and Connections	3
32	Booster/Injection/ Pumps Foundation and Connections	3
33	Production Test Unit Foundations and Connections	3
34	Fire Protection System	1 Lot
35	Raw/Fire/Condensate Water Storage Tank Foundation and Connections	1
36	Control Room Structure, Foundation and Connections	1
37	Drainage Systems (including sanitary drain and waste)	1 Lot
38	HVAC and Refrigeration Systems	1 Lot
39	Temperature Control and Ventilation Systems (including water and sewer connections)	1 Lot
40	Building Energy Conservation Systems	1 Lot
41	Circulating Water Pumps Foundations and Connections	3
42	Fire Water Pump House Foundation and Connections	1
43	Hydro Test Blast Pad Foundation and Connections	1
44	Propane Tank Foundation and Connections	3
45	Septic Tank Foundations and Connections	1

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California Energy Commission (CEC). 2003. Decision approving the Salton Sea Geothermal Unit 6 (now Black Rock 1, 2, 3) Power Plant Application for Certification, Docket No. 02-AFC-2, Imperial County, published on December 19, 2003.

California Energy Commission (CEC). 2003a. Staff Assessment for Salton Sea Geothermal Unit 6 (now Black Rock 1, 2, 3) Power Plant Application for Certification (02-AFC-2), Imperial County, California, published on August 5, 2003.

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CE Obsidian Energy, LLC (CE Obsidian/AECOM). 2004. Salton Sea Geothermal Unit 6 (now Black Rock 1, 2, 3) Power Plant, Petition to Amend, to Modify Project to Add Binary Turbine and Increase Generating Capacity to 215 MW. Submitted to the California Energy Commission, December 14, 2004.

CE Obsidian Energy, LLC (CE Obsidian/AECOM). 2009. Salton Sea Geothermal Unit 6 (now Black Rock 1, 2, 3) Power Plant, Petition for License Amendment, to Modify Project to Allow Construction of Three 53 MW Units, totaling 159 MW. Submitted to the California Energy Commission, March 10, 2009.

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GEOLOGICAL AND PALEONTOLOGICAL RESOURCES

Testimony of Dal Hunter, Ph.D., C.E.G.

INTRODUCTION

CE Obsidian Energy, LLC is seeking to amend their existing license for construction of the proposed Black Rock 1, 2, and 3 Geothermal Power Plant (formerly Salton Sea Unit 6 Geothermal Power Plant Project). The amended project would consist of construction of 3 smaller geothermal power plants with a total of 159 MW output. Modification to construct 3 smaller power plants will result in changes to the locations and orientations of building footprints and other facility infrastructure foundations which could have a potential effect on the areas geology, mineral resources, and paleontology.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

At the time of certification, LORS applicable to Geology, Mineral Resources, and Paleontology were identified in staff's Final Staff Assessment. These LORS will continue to apply to the amended project, and no new LORS have been identified. The California Building Code has been updated to the 2007 edition and is in effect for the proposed upgraded project.

ANALYSIS

Energy Commission Geology, Mineral Resources, and Paleontology staff reviewed the petition and assessed the impacts of this proposal on environmental quality, public health, and safety. No significant impacts to geology or mineralogic resources are expected due to construction of the proposed amended project. Paleontological resources that might be encountered during construction will be safeguarded by implementation of the standard Paleontological Conditions of Certification as presented in the original license.

CUMULATIVE IMPACTS

No cumulative impacts to geology, mineral resources, and paleontologic resources are anticipated due to implementation of the proposed amended project.

CONCLUSIONS AND RECOMMENDATIONS

Energy Commission Geology, Mineral Resources, and Paleontology staff reviewed the amendment petition and assessed the impacts of this proposal on environmental quality, public health, and safety. It is staff's opinion that revisions to Geology, Mineral Resources, and Paleontology Conditions of Certification are not required and that the project as modified will not result in a significant adverse direct or cumulative impact on the environment (Title 24, California Code of Regulations).

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PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

No modifications to Geology, Mineral Resources, and Paleontology Conditions of Certification are proposed.

REFERENCES

California Code of Regulations, Title 24, 2007, (*California Building Standards Code* [CBSC]), Part 2, *California Building Code* (CBC).

CEC 2003, California Energy Commission, Part 1 of Final Staff Assessment of the AFC (02-AFC-2), Salton Sea Unit 6 Geothermal Power Plant, Imperial County, California, published on August 5, 2003.

CEC 2003, Salton Sea Geothermal Unit 6 Power Project, Commission Decision, Application for Certification (02-AFC-2), Imperial County, California.

CE Obsidian Energy LLC 2009, Amended Salton Sea Unit 6 Project Amendment Petition, February 2009.

EEC ORIGINAL PKG

POWER PLANT EFFICIENCY

Testimony of Shahab Khoshmashrab

INTRODUCTION

The proposed amendment would yield efficiency impacts that are less than significant. From the standpoint of power plant efficiency, staff believes the proposed Black Rock 1, 2, 3 Geothermal Power Plant project (BR123) can be certified as proposed.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

No LORS apply to power plant efficiency.

ANALYSIS

Staff has reviewed the petition for potential environmental effects. Based on this review, staff determined that since BR123 would consume a renewable resource of energy, it would not create significant adverse effects on energy supplies or resources, nor would it require additional sources of energy supply or consume energy in a wasteful or inefficient manner. The use of the single flash geothermal technology proposed for BR123, as opposed to the multiple flash geothermal technology proposed for the licensed Salton Sea Unit 6 Geothermal Power Project, would not significantly impact power plant efficiency, because most of the energy not utilized as the result of this modification will be injected back into the ground.

CUMULATIVE IMPACTS

No projects have been identified that lie near enough to BR123 to create cumulative impacts. Therefore, staff concludes that no cumulative efficiency impacts are possible.

CONCLUSIONS AND RECOMMENDATIONS

BR123 would not create significant adverse effects on energy supplies or resources, nor would it require additional sources of energy supply or consume energy in a wasteful or inefficient manner. Staff therefore concludes that the project would present no significant adverse impacts upon energy resources.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

No Conditions of Certification are proposed.

REFERENCES

California Energy Commission (CEC). 2003a. Decision for CE Obsidian Energy's Salton Sea Geothermal Unit #6 Power Project Application for Certification, Docket No. 02-AFC-2, Imperial County, published on December 19, 2003.

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POWER PLANT RELIABILITY

Testimony of Shahab Khoshmashrab

INTRODUCTION

The proposed amendment would not yield significant reliability impacts. From the standpoint of power plant reliability, staff believes the proposed modifications to the Salton Sea Unit 6 Geothermal Power Project to become the Black Rock 1, 2 & 3 project (BR123) can be approved.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

No LORS apply to power plant reliability.

ANALYSIS

Staff has reviewed the petition for potential reliability effects. Based on this review, staff determines that BR123 would be built in accordance with typical industry norms for reliable power generation in relation to equipment availability, plant maintainability, fuel and water availability, and power plant reliability in relation to natural hazards.

CUMULATIVE IMPACTS

No projects have been identified that lie near enough to BR123 to create cumulative impacts. Therefore, staff concludes that no cumulative reliability impacts are possible.

CONCLUSIONS AND RECOMMENDATIONS

BR123 would be built and operated in a manner consistent with industry norms for reliable operation. This should provide an adequate level of reliability.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

No Conditions of Certification are proposed.

REFERENCES

California Energy Commission (CEC). 2003a. Decision for CE Obsidian Energy's Salton Sea Geothermal Unit #6 Power Project Application for Certification, Docket No. 02-AFC-2, Imperial County, published on December 19, 2003.

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TRANSMISSION SYSTEM ENGINEERING

Testimony of Sudath Edirisuriya and Mark Hesters

INTRODUCTION

The applicant, CE Obsidian Energy, LLC, is proposing to amend the currently effective license to allow for the construction of three smaller geothermal plants named Black Rock Units 1, 2, and 3 (BR123), which will produce clean, renewable energy. The original project Salton Sea Unit 6 (SSU6) was granted a license by the California Energy Commission in December 2003 for a net output of 185 MW. The 2003 license was amended in May, 2005 to enable the plant to increase its capacity to 215 MW. The proposed amendment would change the project to three 53 MW geothermal electric power plants producing a combined nominal output of 159 MW. The three units will be located on the same site as the original SSU6 project in the Southeast of the Salton Sea, Imperial County, California.

The project would be owned by CE Obsidian and operated by Cal Energy Operating Corporation. As with the originally licensed project, the amended project will require two new transmission lines: the "Midway" and "L" interconnection lines. The amended project will be interconnected to the Imperial Irrigation District (IID) grid via two 161kV single circuits. The proposed 16-mile single circuit L-line interconnection at the Banister switching station and the proposed 15-mile single circuit IID Midway interconnection would be a direct inter-tie between the Black Rock project and IID's existing L-line and Midway substations. The configuration of these lines is unchanged from the originally licensed SSU6 project. The transmission lines will be constructed, owned, maintained and operated by IID. The proposed transmission lines are already licensed and will not be modified by the amended project. The detailed amended project description has been discussed in the applicant's Petition to Amend in section 1.1 to 1.13 and Figure 1.1, 1.2, 1.3.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS) COMPLIANCE

The LORS that apply to the transmission facilities associated with the proposed Black Rock 1, 2, 3 Project are:

- California Public Utilities Commission (CPUC) General Order 95 (GO-95), *Rules for Overhead Electric Line Construction*, sets forth uniform requirements for the construction of overhead lines. Compliance with this Order ensures adequate service and the safety of the public and the people who build, maintain, and operate overhead electric lines.

- CPUC General Order 128 (GO-128), *Rules for Construction of Underground Electric Supply and Communications Systems*, sets forth uniform requirements and minimum standards for underground supply systems to ensure adequate service and the safety of the public and the people who build, maintain, and operate underground electric lines.

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- The National Electric Safety Code, 2007, provides electrical, mechanical, civil, and structural requirements for overhead electric line construction and operation.

- The combined North American Electric Reliability Corporation/Western Electricity Coordinating Council (NERC/WECC) planning standards provide system performance standards for assessing the reliability of the interconnected transmission system. These standards require continuity of service and the preservation of interconnected operation as the first and second priorities, respectively. Some aspects of NERC/WECC standards are either more stringent or more specific than the either agency's standards alone. These standards are designed to ensure that transmission systems can withstand both forced and maintenance outage system contingencies while operating reliably within equipment and electric system thermal, voltage, and stability limits. They include reliability criteria for system adequacy and security, system modeling data requirements, system protection and control, and system restoration. Analysis of the WECC system is based to a large degree on Section I.A of WECC standards, *NERC and WECC Planning Standards with Table I and WECC Disturbance-Performance Table,* and on Section I.D, *NERC and WECC Standards for Voltage Support and Reactive Power.* The standards require that power flows and stability simulations verify defined performance levels. Performance levels are defined by specifying allowable variations in thermal loading, voltage and frequency, and loss of load that may occur during various disturbances. Performance levels range from no substantial adverse effects inside and outside a system area during a minor disturbance (such as the loss of load from a single transmission element) to a catastrophic loss level designed to prevent system cascading and the subsequent blackout of islanded areas and millions of consumers during a major transmission disturbance (such as the loss of multiple 500-kV lines along a common right-of-way, and/or of multiple large generators). While the controlled loss of generation or system separation is permitted under certain specific circumstances, a major uncontrolled loss is not permitted (WECC, 2002).

- NERC's reliability standards for North America's electric transmission system spell out the national policies, standards, principles, and guidelines that ensure the adequacy and security of the nation's transmission system. These reliability standards provide for system performance levels under both normal and contingency conditions. While these standards are similar to the combined NERC/WECC standards, certain aspects of the combined standards are either more stringent or more specific than the NERC performance standards alone. NERC's reliability standards apply to both interconnected system operations and to individual service areas (NERC, 2006).

ANALYSIS AND IMPACTS

SYSTEM RELIABILITY

Because the BR123 project would be located within IID's transmission system, a Transitional Cluster Study was conducted to analyze the potential effect of connecting the known proposed new power plants to the existing IID power system grid to determine the alternate and preferred interconnection facilities to the grid, downstream transmission system impacts and their mitigation measures in conformance with system

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performance levels, as required in utility reliability criteria, NERC planning standards, WECC reliability criteria. The study determines both positive and negative impacts, and for the reliability criteria violation cases (for the negative impacts) determines the alternate and preferred additional transmission facilities or other mitigation measures. The study is conducted with and without new cluster generation projects and their interconnection facilities by using the computer model base case for the year the generator projects will come on-line.

The cluster study normally includes a Load Flow study, Transient Stability study, Post-transient Load Flow study, and Short Circuit study. The cluster study is focused on thermal overloads, voltage deviations, system stability (excessive oscillations in the generators and transmission system, voltage collapse, loss of loads or cascading outages), and short circuit duties. The study must be conducted under the normal condition (N-0) of the system and also for all credible contingency/emergency conditions, which includes 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. The study may also be conducted for credible simultaneous loss of multiple (more than two) system elements. In addition to the above analysis, the studies may be performed to verify whether sufficient active or reactive power margins are available in the area system or area sub-system to which the new generator project will be interconnected. The cluster study is followed by supplemental studies conducted by the participating transmission owner with details provided in a Detailed Interconnection Facility Study or a Facility Cost Report.

Any new transmission facilities, such as the power plant switchyard, the outlet line, and downstream facilities required for connecting a project to the grid, are considered part of the project and are subject to the full Energy Commission review process.

Scope of Transitional Cluster Study

The Cluster Study was performed by PDS Consulting, PLC at the request of IID to identify the transmission system impacts of cluster group projects on the IID 115/230/500 kV system. The study included power flow, short circuit studies, and transient and post-transient analyses. For cluster study purposes, projects were divided into four groups according to each project's proposed commercial operating date. The output from all the generation projects in each group were dispatched and delivered as indicated in each project's interconnection application. The study modeled the Black Rock project with a net output of 159 MW. The base case was developed from WECC's 2012 heavy summer and 2013 light winter base case series and included all major IID transmission projects, and model all proposed higher-queued generation projects that will be operational by 2012 and 2013, respectively. The power flow studies were conducted with and without proposed group 2012 cluster projects, consisting of 11 projects totaling 948 MW, connected to the IID grid at each project's interconnection switchyard, using 2012 heavy summer and 2013 light winter base cases. The detailed study assumptions are described in the study. The power flow study assessed the group 2012 Cluster projects impacts on thermal loading of the transmission lines and equipment. Transient and post-transient studies were conducted using the 2012 heavy summer base case to determine whether the 2012 project group would create instability in the system following certain selected outages. Short circuit studies were conducted to

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determine if 2012 group cluster projects would overstress existing substation facilities. (IID Transitional Cluster Study 2009a)

Transitional Cluster Study Results:

The Transitional Cluster Study identified pre-project overload criteria violations under both the 2012 Heavy Summer and 2013 Light Winter study conditions. Pre-project overloads are caused by either existing system conditions or by projects with higher positions in the IID's generator interconnection queue. The study concludes that the addition of the 2012 cluster of projects would cause a number of pre-existing normal and/or emergency overloads to increase and would cause some new normal and emergency overloads. The amended Black Rock project would represent about 13 percent of the 2012 cluster output and as such would likely be responsible for only a small portion the mitigation of the overloads. Because the Black Rock project represents such a small portion of the overall 2012 cluster, staff does not believe that transmission upgrades will be required for the reliable interconnection of the BR123 project, and therefore are not a reasonably foreseeable consequence of the project.

Detailed results of the Transitional Cluster Study are below. Where potential overloads are identified, mitigation is proposed that would eliminate the potential impact to reliability.

Heavy Summer Pre-Cluster (Pre-Project) overloads:

Normal conditions (N-0); The power flow study projected that the pre-cluster projects would cause no normal overloads. Therefore, there is no mitigation needed for N-0 conditions.

Contingency (N-1); The power flow study projected that the pre-cluster projects would cause two N-1 overloads. A summary of the transmission facility overloads is provided in Appendix C2, Table C2-1, of the Transitional Cluster Study.

Recommended Mitigation: Reconductor the existing Avenue 58 – Avenue 48 92 kV line with a 191 MVA, 900MCM ACSS conductor.

Contingency (N-2); The power flow study projected that the pre-cluster projects would cause one N-2 overload. A summary of the transmission facility overloads is provided in Appendix C2, Table C2-3, of the Transitional Cluster Study.

Heavy Summer Post-Cluster Base case overloads:

Normal condition (N-0); The power flow study projected that the project's 2012 cluster group would cause one normal overload during normal operating conditions.

Recommended Mitigation:

- New 8.5 mile, 230kV line from Midway to Hudson Ranch using 560 MVA, 2-1590 MCM ACSS bundled conductors.
- New 24 miles 230kV line from Hudson Ranch to banister using 560 MVA, 2-1590 MCM ACSS bundled conductors.
- Replace existing Avenue 58-El Centro section with 786 MVA, 2-1033MCM ACSR bundled conductors. Terminate one circuit at El Centro and extend the other circuit at Dixieland.

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- Install 225 MVA, 230/161 kV transformer at Bannister.
- Interconnect Project A-8 to the new Banister 230kV substation
- Interconnect Project A-12 to the new Bannister – Dixieland 230kV line.
- Interconnect Project A-1 to the Hudson Ranch 230kV substation.

These transmission line and interconnection point upgrades help to mitigate the costly upgrade of the Avenue 58-El Centro 161 kV line. Additionally, these upgrades would enhance the reliability of the entire transmission system during the selected double element outages from Midway to SCE transmission system.

Contingency (N-1); The power flow study projected that the 2012 cluster group projects would cause four overloads under selected single element outages. Two out of the four transmission facility overloads are attributable to the integration of group 2012 cluster projects. A summary of the transmission facility overloads is provided in Appendix C2, Table C2-1 and Table C-4, of the Transitional Cluster Study.

Recommended Mitigation: Reconductor the existing Avenue 58-Avenue 48, 92 kV line with a 191MVA, 900 MCM ACSS conductor.

Rebuild the existing 8.5 miles long RTP3ANZA-RTAP2 92 kV line with a 191 MVA, 900 MCM ACSS conductor.

Contingency (N-2); The power flow study projected that the 2012 cluster group projects would cause four overloads under selected double element outages. Three out of the four transmission facility overloads are attributable to the integration of group 2012 cluster projects. A summary of the transmission facility overloads is provided in Appendix C2, Table C2-3 and Table C-5, of the Transitional Cluster Study.

Recommended Mitigation: Implement a Special Protection System (SPS) to trip generation at Midway.

Light Winter Pre-Cluster Base case overloads:

Normal condition (N-0); The power flow study projected that the pre-cluster projects would cause no overloads during normal operating conditions.

Contingency (N-1); The power flow study projected that the pre-cluster projects would cause two overloads during selected single element outages. A summary of the transmission facility overloads is provided in Appendix C2, Table C2-5, of the Transitional Cluster Study.

Contingency (N-2); The power flow study projected that the pre-cluster projects would cause no overloads under selected double element outages.

Light Winter Post-Cluster Base case overloads:

Normal condition (N-0); The power flow study projected that the project 2012 cluster group would cause no normal overload during normal operating conditions.

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Contingency (N-1); The power flow study projected that the 2012 cluster group projects would cause three overloads under selected single element outages. Two out of the three transmission facility overloads are existing overloads that persisted following the integration of the group 2012 cluster projects. A summary of the transmission facility overloads is provided in Appendix C2, Table C2-5 and Table C-7, of the Transitional Cluster Study.

Recommended Mitigation: Rebuild the existing 8.5 miles long RTP3ANZA-RTAP2 92 kV line with a 191 MVA, 900 MCM ACSS conductor.

Contingency (N-2); The power flow study projected that the 2012 cluster group projects would cause one overload under selected double element outages. The transmission facility overload is attributable to the integration of group 2012 cluster projects. A summary of the transmission facility overloads is provided in Appendix C2, Table C2-7 and Table C-8, of the Transitional Cluster Study.

Recommended Mitigation: Rebuild the existing 8.5 miles long RTP3ANZA-RTAP2 92 kV line with a 191 MVA, 900 MCM ACSS conductor.

Transient Stability Analysis results:

Stable and adequately damped transient stability performances were achieved following all of the outages simulated using both the pre-and post-cluster base cases. The power flow studies of N-1 and N-2 contingencies showed that the project would not cause voltage drops of 5 percent or more from the pre-project levels or cause the IID system to fail to meet applicable voltage criteria. No transient frequency criteria violations were observed for all the contingencies simulated. The transient stability study projected that the transmission system's performance relative to the applicable reliability guidelines would not be adversely affected by the group 2012 cluster projects due to selected disturbances.

Post-Transient Stability Analysis results:

Post-transient stability analysis was performed on the heavy summer pre-and post cluster base cases. The study indicated that the reactive power margins at the N. Laquin 92 kV bus following the outage of the N. Laquin–Ave42 92kV line would be below the acceptable minimum reactive margins of the IID reactive power criteria standard. The integration of the group 2012 Cluster projects resulted in marginal reductions in the reactive power margins at most of the buses monitored.(the study results can be found in Appendix C3 of the IID Transitional Cluster Study).

Short Circuit Study Results:

Short circuit studies were performed to determine the degree to which the addition of group 2012 cluster projects would increase fault duties at IID's substations, adjacent utility substations, and the other 115 kV, 230 kV and 500 kV busses within the study area. For the buses at which faults were simulated, the maximum three-phase and single-line-to-ground fault currents, both with and without the project, and information on the breaker duties at each location are summarized in Table C-9, short circuit study results, on page 89 of the Transitional Cluster Study Report. The interconnection of the group 2012 cluster projects will cause the El Centro 92kV and the Coachella Switching station 92kV breakers to exceed their interruption capabilities by 649 Amps and 31

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Amps respectively. Therefore, these two breakers should be replaced with 63,000 Amps and 40,000 Amps, respectively, higher interrupting capability breakers.

CONCLUSION AND RECOMMENDATIONS

- Some downstream upgrades would be required in the IID system for the reliable interconnection of the group 2012 cluster projects. The Black Rock project is a small (13-percent) part of the cluster, and therefore these upgrades are not considered a reasonably foreseeable consequence of the amended project. Therefore, staff determined that the study results and selected mitigation measures are acceptable.
- The proposed geothermal plants will enhance grid reliability and stability by continuously operating throughout the year. The continuous operation capability would be a distinct advantage of geothermal power as a renewable source of energy compared to solar and wind power.
- The proposed 16-mile single circuit L-line interconnection at the Banister switching station and the proposed 15-mile single circuit IID Midway interconnection would be a direct inter-tie between the Black Rock project and IID's existing L-line and Midway substation. The original transmission interconnection lines are adequate to carry the reduced nominal output of the project and will not be modified by the proposed amendment.
- Additionally, the proposed interconnection will not affect the Black Rock project ability to comply with all applicable Laws, Ordinances, Regulations and Standards (LORS). Therefore, staff proposes no changes to the Transmission System Engineering Conditions of Certification from the final decision of the Salton Sea Unit 6 project.

REFERENCES

IID (Imperial Irrigation District) 2009a, Imperial Irrigation District; Transitional Cluster Study submitted to the California Energy Commission.

NERC (North American Electric Reliability Council). 1998. NERC Planning Standards, September 1997.

WECC (Western Systems Coordinating Council) 2001. NERC/WSCC Planning Standards, June 2001.

California Energy Commission (CEC). 2003. Decision approving the Salton Sea Geothermal Unit 6 (now Black Rock 1, 2, 3) Power Plant Application for Certification, Docket No. 02-AFC-2, Imperial County, published on December 19, 2003.

California Energy Commission (CEC). 2003a. Staff Assessment for Salton Sea Geothermal Unit 6 (now Black Rock 1, 2, 3) Power Plant Application for Certification (02-AFC-2), Imperial County, California, published on August 5, 2003.

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CE Obsidian Energy, LLC (CE Obsidian/AECOM). 2004. Salton Sea Geothermal Unit 6 (now Black Rock 1, 2, 3) Power Plant, Petition to Amend, to Modify Project to Add Binary Turbine and Increase Generating Capacity to 215 MW. Submitted to the California Energy Commission, December 14, 2004.

CE Obsidian Energy, LLC (CE Obsidian/AECOM). 2009. Salton Sea Geothermal Unit 6 (now Black Rock 1, 2, 3) Power Plant, Petition for License Amendment, to Modify Project to Allow Construction of Three 53 MW Units, totaling 159 MW. Submitted to the California Energy Commission, March 10, 2009.

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Appendix

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August 19, 2010

IMPERIAL COUNTY AIR POLLUTION CONTROL DISTRICT

Final Determination of Compliance

Permit:	#3961A
Source Name:	CE Obsidian Energy LLC
Source Type:	Geothermal
Applied For:	Black Rock Facility: Units 1, 2, and 3 (Geothermal Power Plants)
Mailing Address:	7030 Gentry Road Calipatria, CA 92233
Project Location:	SW Quarter of Section 33, Township 11 S, Range 13 E, San Bernadino Meridian APN 020-110-08
Responsible Person:	Steve Larson, President Office: (760) 348-4221 Cell: (760) 604-0041
Permit Reviewer:	Thomas Brinkerhoff, APC Engineer

Introduction

CE Obsidian Energy, LLC (CEOE) has submitted an application to the Air District for the construction and operation of a facility containing three geothermal plants that will produce a combined total of 159 MW net (nominal) of renewable energy. The project, more commonly known as Black Rock, is a stationary source consisting of three single flash 53 MW net (nominal) individual units, referred to separately as Black Rock Units 1, 2, and 3. The single flash technology is simpler, requires considerably less facility infrastructure, and produces a small fraction of the waste compared to multiple flash technology. The 80-acre project site is bounded on the north by McKendry Road, on the east by Boyle Road, on the west by Severe Road, and on the south by Peterson Road, with an additional 80 acres adjacent to the south, part of which was used for construction support in the original project. The three power plants will be situated

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generally in the middle of the Black Rock Facility, with production well pads on the northern, western, and southern perimeters of the site.

This version of the FDOC, No. 3961A, has been amended in order to address several changes to the operative parameters of the proposed project. More specifically, CEOE reverted back to its original limit for the maximum total dissolved solids (TDS) level of each cooling tower's recirculating water, which will now be 7,952 ppm_w. The second administrative change which has taken place deals with the minimum removal efficiency of each Scrubber for sulfur dioxide (SO_2), which has now returned to the PDOC level of 97.5 percent. Previously the requirement in the original FDOC was 95 percent, although all emission calculations were based on the 97.5 SO_2 removal efficiency rate.

Source Description

In general, each of the three generation plants to be constructed in association with the Black Rock Project will consist of two major components:

- A Resource Production Facility (RPF), consisting of production wells and pipelines, a steam handling system, a brine Injection system, plant injection wells, brine ponds, and a Production Test Unit (PTU).
- A Power Generating Facility (PGF), consisting of a steam turbine generator (STG), condensers, cooling towers, noncondensable gas handling equipment, and ancillary equipment.

Therefore in total, the projects will consist of three RPFs, three PGFs, and ancillary facilities. Black Rock will include nine production wells on three well pads on the plant site, nine injection wells on three offsite well pads, and four plant wells located on the plant site. The 160-acre plant site will also contain infrastructure commonly shared by all three Black Rock units, including a control building, an electrical switchyard, two fire water pumps (one 2,400 gallons per minute emergency fire water pump with a 200 hp rating and one jockey pump with a 24 hp rating) and fire water, process water, and condensate storage tanks. Under normal operative mode, the facility will be operated at a base load mode of approximately 8,000 hours per year or more.

The design of the RPF utilizes a single stage flash to produce the required steam supply to the turbine. The RPF includes the production pipelines, from the production wellheads and warm-up header to the production manifold, the injection piping to the injection wells, the brine and steam handling facilities from the production manifolds, the steam and brine piping, and the high-pressure separator and steam scrubber. It also includes the aerated brine injection system from the brine pond, the PTU to be used for well startup and as a steam relief-venting system to support operations during startup/shutdown and emergency conditions, and steam polishing equipment designed to provide turbine-quality steam to the PGF.

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The PGF includes the steam demister, turbine/generator system, and heat rejection system. The heat rejection system includes the main condenser, chemical oxidizer, air emissions control system for control of hydrogen sulfide (H_2S) and benzene emissions, and the cooling tower and cooling water distribution system. Each PGF will have a "rock muffler" to vent steam for brief periods of time in the event of a plant "trip" (i.e., emergency shutdown). Each PGF also includes various diesel-fueled combustion units, including one 1.5-MW emergency generator (4,160 volts) and one 1.0-MW emergency generator (480 volts).

The overall process operates as follows: hot, high-pressure geothermal fluid (brine) is extracted from the geothermal reservoir through three production wells located on the power plant site. The two two-phase steam and brine flow to a steam handling system consisting of a high-pressure separator, a scrubber, and a demister. Via the steam handling system, the steam is separated from the geothermal fluid (flashed) to produce high-pressured steam that is sent to the PGF for use in the steam turbine. The flash point is set to avoid solids precipitation in the depleted brine. Meanwhile the depleted brine if necessary can be further chemically conditioned with acid to prevent scale formation in the process piping or injection wells, and injected back into the formation through the injection wells. The facilities and equipment that handle the brine constitute the RPF.

Steam from the RPF is conditioned through scrubber and demister stages in the PGF and sent to the steam turbine which drives a generator for power production. The depleted steam leaves the turbine and enters a shell-and-tube heat exchanger which condenses the steam to water. Cooling water for the heat exchanger is provided by a piping loop from the cooling towers. Water condensed in the heat exchanger is used for cooling water make-up in the cooling tower, among other (much smaller quantity) uses. Non-condensable gases (NCGs) released from the condensed steam are evacuated from the heat exchanger using a vacuum pump and sent to a Regenerative Thermal Oxidizer (RTO) for control of H_2S, methane, benzene, and other trace gases. Exhaust from the RTO is routed to a wet scrubber before being released to the atmosphere.

Steam Turbine Generator

Each PGF includes a single cased, single-pressure, down exhaust condensing turbine. Geothermal steam from the RPF will be the only steam source used by the STG. Each turbine generator set will consist of a condensing turbine generator with high-pressure steam entry pressure. Nominal turbine inlet pressure is 250 pounds per square inch absolute. The STG is nominally rated at 53 MW (net). Heat rejection for the steam turbines will be accomplished with a condenser and counterflow cooling tower. The turbine is directly coupled to a totally enclosed water and air-cooled synchronous-type generator. The generator is expected to have a design rating of 75 megavolt amperes at a power factor of 0.90 lagging. The turbine-generator will be fully equipped with auxiliary systems for turbine control and speed protection, lubricating oil, gland sealing, generator excitation, and cooling.

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Cooling Towers

Each PGF also possesses a dedicated five-cell, induced draft cooling tower. Each cooling tower will have three 50-percent-capacity, vertical, wet-pit circulating water pumps to circulate water between the cooling tower and condenser and two 100-percent-capacity, vertical, wet-pit auxiliary water pumps that will circulate water between the cooling tower and the plant auxiliary cooling loads. All cooling towers have an inlet circulating water flowrate of 89,112 gpm and will are equipped with a high efficiency mist eliminator to minimize drift losses to no more than 0.0005 percent of design flow rate to reduce particulate matter (PM10) emissions. Each cooling tower's recirculating water will have a maximum total dissolved solids (TDS) level of 7,952 ppm_w, and as such, will be listed as a condition which the permittee will be required to meet.

Regenerative Thermal Oxidizer Units

There will be a total of three RTOs installed as part of Black Rock, with one at each PGF. NCGs are evacuated from the condenser heat exchanger using a vacuum pump and routed to the RTO for control of H_2S, methane, benzene and other trace gas emissions. The RTO is a direct oxidizing process that allows for simultaneous destruction of benzene and H_2S and other combustible constituents present in the NCG in a compact unit that is simply to operate and maintain. The ammonia is expected to pass through the RTO without combusting or oxidizing. The RTO unit burns a propane-air mixture (3 million British thermal units per hour [MMBtu/hr] maximum capacity, but heat demand modulates as necessary) to maintain the temperature of the oxidation chamber at approximately 1,500°F. The stack of each RTO has a height of 19.7 meters and a diameter of 1.08 meters. When the appropriate temperature is reached, vacuum, created by a downstream vacuum blower, causes the process stream and outside air to enter the oxidizing chamber. Flammable gases in the process stream including methane, benzene, H_2S, and hydrogen are oxidized. During this process, benzene and methane are converted into CO_2 and water while H_2S is oxidized to SO_2, with a small fraction oxidizing to sulfur trioxide (SO_3). Hydrogen is oxidized to water vapor. The control efficiency of the RTO according to the application will be at a rate of 95 percent or more for most constituents. Following oxidizing, the gas stream enters a pre-heater that routes the 1,500°F oxidized gases to a heat exchanger connected to the process stream inlet plenum. Heat is removed from the hot gas, lowering its temperature to approximately 700°F. Heat removed from the hot gas is used to increase the inlet stream to a temperature of 400-500°F prior to entry into the oxidizing chamber, thus reducing the propane required to sustain the operating temperature in the oxidation chamber. After releasing heat to the inlet process stream, the cooled gas is routed to a water quench tower to further decrease its temperature before entering the SO_2 scrubber.

The exhaust gas next enters a quench tower in where the temperatures of the gases are lowered using water injection. In the tower, some portion of the SO_2 and SO_3 are expected to form sulfurous and sulfuric acids in water which will in turn react with the ammonia to form ammonium sulfate. The control efficiency for ammonia in the quench

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tower is not known. The quench water is periodically discharged to the cooling tower basin.

Following the RTO and quench tower, the gas stream enters a packed-bed SO_2 scrubber where a sodium hydroxide (NaOH) solution is introduced. The NaOH reacts with the SO_2 and acid gas formed by the oxidation process to form a mixture of sulfates and sulfites in aqueous solution. The scrubbing solution is periodically discharged to prevent sulfate and sulfite buildup in the scrubber tower. The sodium sulfite/sulfate solution created by operation of the SO_2 scrubber is of a sufficiently small volume that it can be safely introduced into the cooling tower basin. This water is periodically reinjected into one of the plant wells shared by the three (3) PGFs. The SO_2 scrubber is equipped with a mist eliminator to reduce drift and minimize PM10 emissions. Next in the process comes the mercury abatement system. This is a proprietary system which will form a non-hazardous amalgam of mercury and selenium. The treated exhaust then vents to the atmosphere through a stack.

Air Emissions Calculations

Commissioning Emissions

Emissions from commissioning activities are attributed to the air contaminants present in the NCG that are released from the brine with the steam phase in the HP separator. Black Rock has detailed information derived from existing operating plants that demonstrate the ratio of NCG to brine, NCG to steam, and the composition of the NCG. This information is used in conjunction with steam flow rates to estimate emissions. Uncontrolled emissions are expected during specific phases of commissioning and are emitted through either the PTU or rock muffler, as described below. Other phases of commissioning will involve venting the NCG through the RTO for emissions control.
Project commissioning will take place in three phases, with each power block (Unit) commissioned separately, approximately 10 months apart. Commissioning activities involve the following general steps:

- Production wells have a warm-up duration of 12 to 16 hours for the first well, followed by 16 to 24 hours for the next two wells (combined). Steam from well warm-ups vents to the PTU at a rate of 250,000 lbs/hr per well.
- Production piping and equipment have a warm-up duration of 24 to 32 hours. Steam is vented at a rate of 350,000 lbs/hr to the rock muffler.
- Steam blow has a duration of 16 to 24 hours with steam venting at 750,000 lbs/hr to the rock muffler.
- Turbine and auxiliary loops preheat with a duration of 18 to 24 hours. The total steam flow rate is 350,000 lbs/hr; 50,000 lbs/hr steam flows through the turbine, condenser and RTO, and the balance of 300,000 lbs/hr of steam flows to the rock muffler.
- Turbine load test with a duration of 18 to 24 hours, full steam flow rate of 750,000 lbs/hr through the turbine, condenser, and RTO, with no venting of steam directly to atmosphere.

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- Turbine performance test has a duration of 18 to 24 hours, with a steam flow rate of 750,000 lbs/hr through the turbine, condenser, and RTO, with no venting of steam to atmosphere.

Table A-1: Commissioning Emissions

Pollutant	Lbs/event (One Unit)	Lbs/event (All Units)
NOx	30.69	92.07
VOC	171.57	514.71
CO	17.70	53.10
SO_2	88.63	265.89
PM10	129.39	388.17
H_2S	4,476.40	13,429.20

NCG Emissions During Cold Startups

Each Black Rock Unit is anticipated to incur one "cold start" each year of operation. The time required for startup of the plant is approximately 45 hours when the plant has been completely shut down, which is the case in a cold startup event, and all brine flow to the plant has been secured for an extended period. Cold startups involve the following sub-processes, which overlap one another within the 45 hour time period:

- Production wells have a warm-up duration of 12 to 16 hours for the first well, followed by 16 to 24 hours for the next two wells (combined). Steam from well warm-ups vents to the PTU at a rate of 250,000 lbs/hr per well.
- Production piping and equipment have a warm-up duration of 24 to 32 hours. Steam is vented at a rate of 350,000 lbs/hr to the rock muffler.
- Turbine and auxiliary loops preheat with a duration of 18 to 24 hours. The total steam flow rate is 350,000 lbs/hr; 50,000 lbs/hr steam flows through the turbine, condenser and RTO, and the balance of 300,000 lbs/hr of steam flows to the rock muffler.
- Auxiliary equipment startup has a duration of 8 to 12 hours. A slip stream at a flow rate of 80,000 lbs/hr is directed to the auxiliary equipment which flows to the condenser and RTO, with the balance of the steam flow of 270,000 lbs/hr vented to the rock muffler.
- Full functional trip test with a duration of 6 to 8 hours, venting system at a flow rate of 350,000 lbs/hr to a full production rate of 750,000 lbs/hr over a period of 4 to 6 hours. Steam vents through the turbine, condenser, and RTO.

Table A-2: Cold Startup Emissions

Pollutant	Cold Start Lbs/hr (One Unit)	Cold Start Lbs/Yr (One Unit)	Cold Start Lbs/Yr (All Units)
NOx	0.40	18.0	54.0

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VOC	2.77	124.65	373.95
CO	0.23	10.35	31.05
SO_2	0.27	12.15	36.45
PM10	1.68	75.60	226.80
H_2S	56.43	3,290.0	9.870.0

NCG Emissions During Warm Startups

Each Black Rock unit will be conducting four "warm starts" per year, for a total of twelve warm startups per year. A warm start will occur when the turbine is taken offline and the RPF continues to operate. A startup in this condition will require approximately four hours to fully carry out. It is anticipated that four warm starts per turbine will occur per year due to short-term outages. In Table A-3 below, emissions from warm startups for all Black Rock Units are displayed:

Table A-3: Warm Startup Emissions

Pollutant	Warm Start Lbs/hr (One Unit)	Warm Start Lbs/event (One Unit)	Warm Start Lbs/event (All Units)	Warm Start Lbs/Yr (All Units)
NOx	0.43	1.72	5.16	20.64
VOC	3.91	15.64	46.92	187.68
CO	0.25	1.00	3.00	12.00
SO_2	1.12	4.48	13.44	53.76
PM10	1.80	7.20	21.60	86.40
H_2S	52.55	410.0	1,230.0	4,920.0

For H_2S emissions, those processed through the RTO are expected to be no greater than 5.0 lbs/event. Additionally, H_2S emissions through the rock muffler will be at a maximum of 399 lbs/event.

NCG Emissions During Shutdown

As each individual Black Rock Unit will experience four warm startups per year, so too will each Black Rock Unit endure four shutdown events. During shutdowns, the following activities will take place during the event, which would take up to 12 hours to execute:

- Turbine is taken offline, steam vented to rock muffler, with a gradual flow reduction from 750,000 to 0 lbs/hr over a period of 8 to 12 hours. The procedure is to take one well offline at a time, meaning the first step will reduce the steam flow rate to 500,000 lbs/hr, followed by a reduction to 250,000 lbs/hr and, finally, the third is taken off line to drop the steam flow down to zero.
- After shutting down all three wells, the pipeline is drained of brine, with no steam or other emissions released to the atmosphere.

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Table A-4: Shutdown Emissions

Pollutant	Shutdown Lbs/hr (One Unit)	Shutdown Lbs/event (One Unit)	Shutdown Lbs/event (All Units)	Shutdown Lbs/Yr (All Units)
NOx	0.00	0.00	0.00	0.00
VOC	1.27	15.24	45.72	182.88
CO	0.00	0.00	0.00	0.00
SO_2	0.00	0.00	0.00	0.00
PM10	0.00	0.00	0.00	0.00
H_2S	33.31	400.0	1,200.0	4,800.0

Normal Operating Emissions

Emissions from normal operation are attributed to the air contaminants that are present in the NCG that are released from the brine with the steam phase. Controlled emissions were estimated based on the uncontrolled emission rate and the control efficiency of the RTO and scrubber, plus the emissions associated with fuel combustion in the RTO. Normal operating emissions associated with NCG from the steam turbine are always controlled. Normal operation is expected to occur 8,760 hours per year, and will involve the operation of all three power blocks at seam flow rates of 750,000 lbs/hr for each power block. Normal operating emissions are combined for Black Rock Units 1, 2, and 3 in Table A-5 below, based on 24 hours per day and 8,760 operating hours per year:

Table A-5: Normal Operating Emissions

Pollutant	Lbs/hr (One Unit)	Lbs/day (One Unit)	Lbs/hr (All Units)	Lbs/day (All Units)	Tpy (All Units)
NOx	0.43	10.32	1.29	30.96	5.65
VOC	0.06	1.44	0.18	4.32	0.79
CO	0.25	6.00	0.75	18.0	3.29
SO_2	1.79	42.96	5.37	128.88	23.52
PM10	0.02	0.48	0.06	1.44	0.26
H_2S	2.0	48.0	6.00	144.0	26.28

Cooling Towers Emissions

The project will include three five-cell cooling towers with drift eliminators. PM10 was calculated by assuming 100 percent of Total Suspended Particulate (TSP) emissions are PM10, based on the maximum water circulation rate and the amount of Total Dissolved Solids (TDS)/Total Suspended Solids (TSS) in the water. The reduction due

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to the drift eliminator was then applied. VOC emissions were estimated based on the organic compound concentration in condensate (from an existing operating plant) assuming that all of the organics present volatilize completely. Hourly and annual emissions are listed in Table A-6 below. Emissions are based on 24 hours per day continuous operation, up to 8,760 hours per year, for all three cooling towers.

Table A-6: Cooling Towers Emissions

Pollutant	Lbs/hr (One Unit)	Lbs/day (One Unit)	Lbs/hr (All Units)	Lbs/day (All Units)	Tpy
NOx	--	--	---	---	---
VOC	0.01	0.24	0.03	0.72	0.13
CO	--	--	---	---	---
SO_2	--	--	---	---	---
PM10	1.77	42.48	5.31	127.44	23.26
H_2S	1.33	31.92	3.99	95.76	17.48

Emergency Combustion Units

Black Rock will operate six emergency generators up to 20 hours per year each for maintenance and testing. Three generator engines are 1.5 megawatt (MW), each with a rating of 2,200 horsepower hp, and three are 1.0 MW, each with a rating of 1,500 hp. NOx, VOC and CO emission factors are equal to the California Tier 4 emission limits, with the assumption that 95 percent of the emission limit for NOx plus NMHC is NOx. SO_2 emissions were calculated using a fuel sulfur content of 15 ppmw. The PM10 emission factor was set to 0.10 g/kW-hr, which lies below the limit of 0.15 g/hp-hr specified in 17 CCR §93115. Emissions for one 2,200-Hp emergency diesel generator engine and the annual total for three engines are presented in Table A-7, and emissions from one 1,500-Hp emergency diesel generator engine and the total for three engines are presented in Table A-8. The tons per year were based on the 20 hours for maintenance and testing:

Table A-7: 1.5 MW Emergency Generator Engine Emissions

Pollutant	One Engine			Project Total	
	Lbs/hr	Lbs/day	Tpy	Lbs/day	Tpy
NOx	2.43	2.43	0.02	7.29	0.07
VOC	1.45	1.45	0.01	4.35	0.04
CO	12.69	12.69	0.13	38.08	0.38
SO_2	0.02	0.02	0.00	0.07	0.00
PM10	0.36	0.36	0.00	1.09	0.01

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Table A-8: 1.0 MW Emergency Generator Engine Emissions

Pollutant	One Engine			Project Total	
	Lbs/hr	Lbs/day	Tpy	Lbs/day	Tpy
NOx	1.62	1.62	0.02	4.87	0.05
VOC	0.97	0.97	0.01	2.91	0.03
CO	8.48	8.48	0.08	25.44	0.25
SO_2	0.02	0.02	0.00	0.05	0.00
PM10	0.24	0.24	0.00	0.73	0.01

Black Rock will also be operating one 200-hp emergency fire water pump engine up to 50 hours per year for maintenance and testing and one 24-hp jockey pump with a 24 hp rating. The emissions presented below in Table A-9 focus solely on the 200-hp emergency fire water pump, with the tons per year based on the 50 hours for maintenance. The NOx, VOC and CO emission factors are equal to the California Tier 4 emission limits, with the assumption that 95 percent of the emission limit for NOx plus NMHC is NOx. SO_2 emissions were calculated using a fuel sulfur content of 15 ppm by weight. The PM10 emission factor was set to 0.02 g/kW-hr, which lies below the limit of 0.15 g/hp-hr specified in 17 CCR §93115:

Table A-9: Emergency Fire Water Pump Engine Emissions

Pollutant	Lbs/hr	Lbs/day	Tpy
NOx	0.13	0.13	0.00
VOC	0.06	0.06	0.00
CO	1.13	1.13	0.03
SO_2	0.00	0.00	0.00
PM10	0.01	0.01	0.00

Emissions Summary

Total annual emissions from the Black Rock Project are shown in Table A-10 below. Annual emissions, in tons per year, include three cold startups (one per each Black Rock Plant), twelve warm startups (four per each Black Rock Plant), and twelve shutdowns (four per each Black Rock Plant). Emissions are also based on 8,651 hours per year of normal operations of the steam turbine, RTO, and cooling tower operation for each Black Rock Plant. Finally the annual emissions include 20 hours of operation for each of the emergency generator engines and 50 hours per year of operation of the fire water pump engine. Daily emissions are based on the potential that one of the three Black Rock Plants experiences a 4 hour warm startup, with the remaining time dedicated to normal operations:

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Table A-10: Black Rock Project Annual Emissions

Pollutant	Lbs/day (One Unit)	Lbs/day (All Units)	Tpy (All Units)
NOx	14.50	43.50	5.74
VOC	19.52	27.84	1.35
CO	28.30	84.90	3.93
SO_2	40.32	126.32	23.27
PM10	43.61	130.75	23.40
H_2S	346.20	506.04	50.98
Daily emissions include testing of all seven emergency engines on same day. Emissions exclude O&M emissions and Commissioning emissions.			

Rules and Regulations

The following section summarizes the Air District Rules and Regulations, as well as other State and Federal standards which are applicable to the source and their respective applicability to the Black Rock project:

ICAPCD Rule 109 Source Sampling

The permittee may be required to provide and maintain such facilities as are necessary for sampling and testing. In the event of such requirements, the ICAPCD shall notify the applicant in writing of the required size, number and location of sampling ports; the size and location of the sampling platform; the access to the sampling platform, and the utilities for operating the sampling and testing equipment. The platform and access shall be constructed in accordance with the General Industry Safety Orders of the State of California.

ICAPCD Rule 110 Stack Monitoring

The owner or operator shall provide, install, and maintain continuous monitoring systems to measure the specific pollutants from steam generators with heat input of 250 million British thermal units or more per hour. Black Rock has no such equipment; therefore, this rule is not applicable toward the project.

ICAPCD Rule 111 Equipment Breakdown

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

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a) A statement that the occurrence has been corrected, together with the date of correction and proof of compliance;

b) A specific statement of the reason(s) or cause(s) from the occurrence sufficient to enable the ICAPCD to determine whether the occurrence was a breakdown condition;

c) A description of the corrective measures undertaken and/or to be undertaken to avoid such an occurrence in the future;

d) An estimate of the emissions caused by the occurrence; and

e) Pictures of the equipment or controls which failed, if available.

Such relevant evidence shall be submitted to the ICAPCD within 10 days of the date the breakdown was reported to the ICAPCD. The permittee will make such notifications and reports, as may become necessary.

ICAPCD Rule 201 Permits Required

Any person building, altering or replacing any equipment, the use of which may cause the issuance of air contaminants or the use of which may eliminate or reduce or control the issuance of air contaminants, must first obtain authorization for such construction from the ICAPCD. An ATC shall remain in effect until the PTO for the equipment for which the application was filed is granted, denied, or canceled. An air permit application for a Determination of Compliance (DOC; functionally equivalent to an ATC) was submitted to the ICAPCD in a timely manner to satisfy this Rule.

ICAPCD Rule 202 Exemptions

The Project will employ a number of devices that emit air pollutants, but are exempt from permit pursuant to one or more exemptions listed in Rule 219, including seven diesel fuel storage tanks piped exclusively to emergency engines, a propane tank, heating ventilation and air conditioning systems, a water heater, water treatment systems, and storage tanks for water treatment chemicals.

ICAPCD Rule 207 New and Modified Stationary Source Review

This rule provides requirements such as limits to permitted increases of air pollutants that could interfere with the attainment of NAAQS and CAAQS within the District, offset calculations, and thresholds over which emissions must be offset. It also defines which pollutants must be offset, what ratios must be used, and the criteria of what can be used as an emission reduction credit (ERC). Furthermore, Rule 207 provides for preconstruction review of new and modified stationary sources of affected pollutants to insure emissions will not interfere with attainment of NAAQS and CAAQS; ensures appropriate new and modified sources of affected pollutants are constructed with BACT;

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and provides for no significant net increase in emissions from new and modified stationary sources for all non-attainment pollutants and their precursors.

BACT: An applicant shall provide BACT for any new or modified permit unit which emits, or has the potential to emit, 25 lbs/day or more of any nonattainment air pollutant or its precursors; or any new or modified permit unit with a potential to emit equal to or greater than the values in Table B-1:

Table B-1: ICAPCD BACT Thresholds

Pollutant	BACT Threshold lbs/day
Carbon Monoxide	550
Lead	3.3
Asbestos	0.04
Beryllium	0.0022
Mercury	0.55
Vinyl chloride	5.5
Fluoride	16
Sulfuric acid mist	38
Hydrogen sulfide	55
Total Reduced Sulfur	55

The Salton Sea Air Basin (SSAB) is designated as a non-attainment area with respect to ozone and PM10 and attainment with respect to NOx, PM2.5, SO_2 and CO. Although the SSAB is in attainment with the arnbient air quality standards for SO_2 and NOx, NOx is a precursor to ozone, and both SO_2 and NOx are precursors to PM10. There are no ambient air quality standards for VOC; however, VOC is a precursor to ozone. Therefore, SO_2, NOx and VOC are treated as non-attainment air pollutants as well. The net result is that BACT is required for VOC, NOx, SO_2, and PM10 if emissions of the specific pollutant exceed 25 lbs/day. Although ammonia (NH_3) is commonly considered a precursor to PM10, it is not regulated by ICAPCD, and there is no BACT threshold or emission limit applicable to NH_3. There will be several emission sources at the facility that will be required to employ current BACT.

Offsets: An applicant must provide offsets for new or modified stationary source of VOC, NOx, SOx, PM10, or CO for the source's potential to emit when the source's potential to emit equals or exceeds the offset trigger levels identified in the Rule 207. These levels are indicated in Table B-2 below, and demonstrate that Black Rock's daily emissions will not exceed the offset threshold for any pollutant thus eliminating the necessity for offsets:

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Table B-2: ICAPCD Offset Thresholds

Pollutant	Offset Threshold lb/day
VOC	137
NOx	137
SOx	137
PM10	137
CO	137

Alternative Siting: For sources requiring an analysis of alternative sites, sizes, and production processes and environmental control techniques, pursuant to Section 173 of the Federal CAA, the applicant must prepare an analysis functionally equivalent to requirements of Division 13, Sections 21000 *et seq.* of the Public Resources Code.

Modeling: Emissions from a new or modified stationary source shall not make worse an exceedance of an NAAQS and CAAQS. In making this determination, the ICAPCD will take into account increases in cargo carrier and secondary emissions and offsets provided pursuant to this rule. Black Rock's emissions exceed the offset trigger levels and, therefore, modeling is required for the Project.

ICAPCD Rule 208 Permit to Operate

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

ICAPCD Rule 216 Construction or Reconstruction of Major Stationary Sources that Emit Hazardous Air Pollutants

All owners and operators of stationary sources that emit Hazardous Air Pollutants (HAPs) are required to install best available control technology for toxics (T-BACT) to any constructed or reconstructed major source. All T-BACT determinations shall be controlled to a level that is no less stringent than new source Maximum Achievable Control Technology (MACT) standards as required by the CAA, §112 (g)(2)(B) and implemented through 40 CFR §63.40-63.44, of subpart B. Black Rock complies with this rule via implementation various control measures which will be summarized in the BACT section of this review.

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ICAPCD Rule 400 Fuel Burning Equipment – Oxides of Nitrogen

This rule applies to non-mobile fuel burning equipment, and limits NOx emissions to 140 lbs/hr. The project will have a RTO, a diesel-fueled emergency electrical generator and diesel-fueled emergency fire pump engines. The diesel engines will be EPA and CARB certified, and the RTO will be designed to be low emitting. Hourly NOx emissions do not exceed 140 lbs/hr for the entire Black Rock Project, thus, compliance with this rule is expected.

ICAPCD Rule 403 General Limitation on the Discharge of Air Contaminants

This rule limits discharges from any emission unit to the following:

1) Particulate matter, including lead and lead compounds, in excess of the rate specified in the rule;
2) Air contaminants in excess of the concentrations at standard conditions specified in the rule;
3) Combustion contaminants exceeding in concentration at the point of discharge of 0.2 grains per dry cubic foot of gas, calculated to 12 percent of CO_2 at standard conditions averaged over 25 consecutive minutes;
4) Combustion contaminants from new or existing stationary electrical utility generating units, excepting emergency standby generators, in concentrations at the point of discharge of 0.01 grains per dry standard cubic foot of gas, calculated to three percent excess oxygen (O_2) for boilers and 15 percent O_2 for gas turbines; and
5) Combustion contaminants derived from the fuel in excess of 10 lbs/hr from a new or existing stationary fuel burning equipment other than electrical utility generating units.

The cooling towers will be equipped with BACT, the diesel engines will be EPA and CARB certified and up to current standards, and the RTO exhaust will pass through a scrubber.

The RTO is a propane fired system with a maximum heat input of 3 MMBtu/hr or 26,130 sdcf exch. gas/hr (EPA AP-42 Reference Method 19 F-factor of 8710 SDCF/MMBtu). The RTO PM emission rate is 161 grains/hr / 26130 sdcf/hr = 0.0062 grains/sdcf. From Rule 403B.4, the applicable emission limit is 0.01 grains per standard dry cubic foot. The RTO PM emission rate of 0.0062 grains/sdcf is less than the applicable PM emission limit of 0.01 grains/sdcf.

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ICAPCD Rule 405 Sulfur Compounds Emissions Standards, Limitations and Prohibitions

This rule limits sulfur compounds, calculated as SO_2, in excess of 0.2 percent by volume from any emission unit. Contaminants from any stationary fuel burning equipment, containing more than 500 parts per million by volume (ppmv) of SO_2, or 200 lbs/hr of SO_2, are also prohibited. Finally, no gaseous fuel containing sulfur compounds in excess of 50 grains per 100 cubic feet of gaseous fuel, calculated as H_2S at standard conditions, and no liquid or solid fuel, or mixture thereof, containing sulfur in excess of 0.5 percent by weight, shall be burned. Black Rock will satisfy this rule by utilizing diesel fuel which meets CARB requirements and propane, which is inherently a low sulfur content fuel. The H_2S content of the process stream is not expected to exceed the stated limit, and therefore, compliance with this rule is expected.

ICAPCD Rule 407 Nuisances

This rule of the ICAPCD prohibits all persons from discharging in any Source emissions which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, which endanger the comfort, repose, health or safety of any such persons or the public,; or which cause or have a natural tendency to cause injury or damage to business or property. The permittee will be required to comply with this rule by directing the operations permitted herein to not cause a nuisance or other detriment as described above due to the discharge of air contaminants.

ICAPCD Rule 414 Storage of Reactive Organic Compound Liquids

This rule applies to any storage tank with a capacity equal to or greater than 1,500 gallons used to store VOC liquids with a true vapor pressure equal to or greater than 0.50 psia. Propane, diesel fuel, various lubricating oils, and other maintenance fluids will be stored at the Black Rock facility. Except for the propane tanks, none of the fuel storage containers will exceed the threshold limit of 1,500 gallons and, therefore, will not be subject to this rule. The three, 2,000-gallon propane tanks will comply with Rule 414 by using pressure tanks which maintain sufficient pressures to prevent organic vapor loss to the atmosphere.

ICAPCD Rule 424 Architectural Coatings

The purpose of this rule is to limit VOC emissions from architectural coatings. This rule specifies architectural coatings, storage, cleanup, and labeling requirements. Black Rock will comply with the requirements of this rule if architectural coatings are applied at the project site during construction or subsequent maintenance activities.

Regulation VIII – Fugitive Dust Rules, Rules 800-805

This set of rules aim to reduce the amount of PM10 emitted from significant man-made fugitive dust sources and in an amount sufficient to maintain NAAQS. The provisions of

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these rules apply to specified bulk storage, earthmoving, construction and demolition, and man-made conditions resulting in wind erosion. The rules also apply to paved and unpaved roadways located in the District. The construction phase of Black Rock will involve bulk storage of soils, earthmoving, construction and demolition, and man-made conditions that have the potential for fugitive dust emissions. Operations at the facility once it is online will involve routine vehicle travel within the property boundaries for maintenance purposes, potentially causing fugitive dust emissions. The permittee, or its contractors, will implement the fugitive dust control strategy outlined in a Dust Control Plan that will be submitted to the ICAPCD.

ICAPCD Rule 1101 New Source Performance Standards

Black Rock will be subject to 40 CFR 60, Subpart IIII Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, and it will comply by purchasing equipment that meets the applicable emission standards.

ICAPCD CEQA Air Quality Handbook

This ICAPCD handbook provides guidance on how to demonstrate compliance with CEQA for projects involving potential air quality impacts. The guidelines specify daily mass-based significance thresholds for both construction and operations phases of a give project:

Table B-3: ICAPCD CEQA Significance Thresholds

Pollutant	Construction Threshold (lbs/day)	Operations Threshold (lbs/day)	Project Construction Max Emissions (lbs/day)
NOx	100	55	183.29
VOC	75	55	105.27
PM10	150	150	138.81
SOx	---	150	1.74
CO	CO	55	917.19

For operation, when project emissions exceed the stated significance threshold, additional air quality impacts analysis (i.e., ambient air quality modeling) is required. Because ambient air quality modeling was carried out for this application, Black Rock's emissions are not compared to significance thresholds. Project construction emissions exceed the construction significance thresholds for NOx, VOC, PM10 and CO. ICAPCD recognizes that construction impacts are short-term in nature and recommends a number of mitigation measures to reduce potential impacts, which are listed in the proposed Conditions of Certification in Air Quality Section 5.2.7 of the application.

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BACT Analysis

Black Rock Project has a small number of sources that were analyzed for their applicability to BACT provisions. The sources reviewed included the cooling tower and emergency generator fire ware pump engines for each Black Rock Unit. Databases reviewed by the applicant for BACT clarification included the South Coast Air Quality Management District's BACT/lowest achievable emission rate (LAER) Guidelines, EPA's reasonably available control technology/BACT/LAER Clearinghouse, Bay Area Air Quality Management District (BAAQMD's) BACT database, and recent or pending projects in the CEC database.

Evaporative Mechanical Draft Cooling Tower

Black Rock will have a total of three 5-cell cooling towers operating upon full installation. Based on recent CEC-approved project, such as Victorville II Hybrid Power Plant), the current LAER for PM10 emissions from a cooling tower was found to be the utilization of high efficiency drift eliminators with a drift rate of 0.0005 percent of the water circulation rate. Because LAER is more stringent than BACT, this technology and emission rate satisfies BACT. Therefore, BACT for PM10 from evaporative cooling towers is the use of high efficiency drift eliminators.

After researching several types of systems that would satisfy BACT requirements, Black Rock has proposed to utilize a chemical oxidation system referred to as "ChemOx". The ChemOx system will use a combination of chemicals including trichloroisocyanuric acid (trade name: Towerbrom) and sodium hypochlorite to oxidize H_2S into water soluble sulfates which are discharged from the cooling tower with blowdown. This system has been tested by the applicant at the existing Salton Sea geothermal facility and has demonstrated an abatement efficiency of 95 percent. Therefore the permittee proposes the usage of the ChemOx abatement system with a control efficiency of 95 percent as BACT for H_2S emissions control for the cooling towers.

Noncondensable Gas Streams

Thermal oxidation or incineration is a type of technology available to control H_2S emissions from the NCG stream. Thermal oxidizers include regenerative thermal oxidizers, recuperative thermal oxidizers (RTOs), direct oxidation, and catalytic oxidation. RTOs can achieve control efficiency of 98 percent or more. Chemical oxidation systems may have higher control efficiencies for H_2S, but they do not have the ability to remove benzene from NCG. Since benzene is a HAP that in this project that will be subject to T-BACT requirements under ICAPCD Rule 216, a technology that provides higher benzene control is preferred over a technology that provides higher H_2S control. The utilization of a RTO also provides the most suitable BACT alternative for VOCs. Incineration or thermal oxidation is a widely used technology to control VOC emissions. It can also achieve a control efficiency of up to 98 percent for VOCs. This technology is suitable for Black Rock because it will control VOC emissions, and in addition control other pollutants including H_2S, CH_4, and specific HAPs (such as

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benzene) that are present in the NCG stream. As such, to satisfy BACT for VOC emissions control, the permittee will be required to install a RTO with a destruction efficiency of 98 percent or higher for each Black Rock Unit.

Emergency Diesel Generator/Fire Water Pump Engines

For these units, Black Rock will meet BACT requirements through demonstrating compliance of the emergency diesel generator and fire water pump engines with the California emission standards and limits. The emergency diesel generator engines will meet the California Tier 4 limit of 0.67 grams per kilowatt-hour (g/kW-hr) for NOx, 0.4 g/kW-hr for NMHC, and 3.5 g/kW-hr for CO for 2011 through 2014 model year diesel engines rated above 560 kW. The fire water pump engines will meet the California Tier 4 limit of 0.4 g/kW-hr for NOx, 0.19 g/kW-hr for hydrocarbon emissions, and 3.5 g/kW-hr for CO for 2011 through 2014 model year diesel engines rated between 175 and 750 Hp. Use of engines that comply with these emission limits, plus an enforceable operating restriction of 50 hours per year for maintenance and testing for each fire water pump engine and 20 hours per year for each of generator engine constitutes BACT for NOx and CO emissions. For SO_2, BACT requirements will be fulfilled through the exclusive usage of ultra-low sulfur diesel fuel (15 ppmw) for the emergency generator and fire water pump engines. No add-on SO_2 controls are available for these sources.

Black Rock has proposed that BACT for these diesel engines is an ATCM-compliant engine, since diesel particulate traps are infeasible due to the fact the units are for emergency standby purposes. The California emission limit for emergency engines with 31 to 50 hours per year allowed for maintenance and testing is 0.07 grams per brake horsepower-hour (g/Hp-hr) for engines above 560 kW and 0.015 g/Hp-hr for engines rated between 175 and 750 Hp. Therefore, compliance with an emission limit of 0.015 g/Hp-hr plus an enforceable operating restriction of 50 hours per year for maintenance and testing for the fire water pump engine and compliance with an emission limit of 0.07 g/Hp-hr plus an enforceable operating restriction of 20 hours per year for each of the generator engines constitutes BACT for PM10/PM2.5 emissions for these engines.

Air Quality Impact and Health Risk Assessment

USEPA dispersion models proposed for use to quantify pollutant impacts on the surrounding environment based on the emission sources operating parameters and their locations to determine impact. Once the modeled impacts were added to background monitoring data, the resultant concentrations were compared with the CAAQS/NAAQS as necessary. All modeled concentrations, with the exception of 24-hour and annual PM10 along with 24-hour PM2.5 are less than the CAAQS/NAAQS standards. The background concentrations for the 24-hour and annual PM10 and the 24-hour PM2.5 exceed the applicable AAQS. In these cases, the modeled concentration is compared to the SIL. For normal operations, the modeled PM10 and PM2.5 impacts do not exceed the applicable SILs. Thus, all Project impacts for normal operations, including PM10/2.5 are less than significant.

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Pollutant	Average Period	Maximum Concentration ug/m^3	Background ug/m^3	Total ug/m^3	Class II Significance Level ug/m^3	CAAQS ug/m^3	NAAQS ug/m^3
NO^2	1-hour	85.16	215.1	300.26		339	
	Annual	0.17	22.6	22.77	1	56	100
CO	1-hour	419.97	16345	16764.97	2000	23000	40000
	8-hour	22.35	8870	8892.35	500	10000	10000
SO^2	1-hour	9.07	499.2	508.27		655	
	3-hour	7.73	431.6	439.33	25		1300
	24-hour	4.18	49.4	53.58	5	105	365
	Annual	0.896	2.6	3.496	1		80
PM10	24-hour	3.44	291	294.44	5	50	150
	Annual	0.81	56.4	57.21	1	20	
$PM^{2.5}$	24-hour	2.39	57.9	60.29	5		35
H_2S	1-hour	11.88	24.6	36.48	1	42	

The screening health risk assessment will be conducted in accordance with the procedures developed by the California Air Resources Board and the Office of Environmental Health Hazard Analysis. The latest version of the Health Risk Assessment Program (HARP version 1.4) and the HARP On-Ramp program will be used to characterize risks from the proposed facility.

The HARP program results for acute and chronic inhalation and chronic non-inhalation exposures, cancer burden and individual cancer risk (workplace and residential) for the cooling tower and the combustion sources will be summarized. Separate calculations will be shown for each type of exposure and risk.

Receptor Type	Maximum cancer risk/10^6	Maximum Acute Hazard Index	Maximum Chronic Hazard Index
Maximum Impact	7.19	0.55	0.312
Maximum Impact 2	7.09	0.555	0.304
Maximum Impact 3	7.08	0.543	0.312
Significance Criteria	1	1	0.129

Both acute and chronic HI are below the significance criteria of 1. The Imperial County currently follows South Coast AQMD's policy on health risk criteria. Projects with an incremental cancer risk of 1 in a million or more, are required T-BACT. Projects subject to T-BACT are required to maintain the incremental cancer risk below 10 cases in a

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million. Current project has a score of 7.08 cases per million incremental cancer risk. The pollutant of concern is benzene, being a constituent of non-condensable gases.

The proposed use of an RTO to control VOC in the NCG line has received a full BACT review. Benzene is also a VOC and will be controlled at a rate of 98% or higher. ICACPD Rule 216 requires major sources of hazardous air pollutants to install Best Available Control Technology for Toxics (T-BACT). As previously stated in this review, all T-BACT determinations are required to be controlled to a level that is no less stringent than new source MACT. Black Rock complies with this rule through the installation and operation of the proposed control devices described in the above BACT analysis. Devices such as the RTO, with a 98% control efficiency, and ChemOx system will satisfy the T-BACT requirements of the ICAPCD. No further T-BACT determinations have been found for geothermal NCG benzene.

Operational Specifications and Permit Limitations

A. General Conditions

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

2. Operation of this equipment shall be in compliance with all applicable APCD Rules and Regulations.

3. This Permit does not authorize the emissions of air contaminants in excess of those allowed by USEPA (Title 40 of the Code of Federal Regulations), the State of California Division 26, Part 4, Chapter 3 of the Health and Safety Code, or the APCD (Rules and Regulations).

4. This Permit cannot be considered permission to violate applicable existing laws, ordinances, regulations, rules or statutes of other governmental agencies.

5. No air contaminant shall be released into the atmosphere which causes a public nuisance. (Rule 407

6. The Permittee shall not release or discharge into the atmosphere from any single source of emission, any air contaminant as dark or darker as designated as No. 1 on the Ringlemann Chart (20% opacity) for a period or periods aggregating more than three (3) minutes in any hour.

7. Disturbances of soil related to any construction, demolition, excavation, or other earthmoving activities shall comply with the requirements for fugitive dust control. (Rule 801)

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8. Any unpaved and paved road, and open areas subject to be disturbed by vehicles traffic shall comply with the requirements for fugitive dust control. (Rule 805)

9. The Permittee shall prevent or cleanup any carry-out or track-out. (Rule 803)

B. Regenerative Thermal Oxidizers/Scrubber Units

1. Each RTO shall have a minimum Destruction Rate Efficiency of 98 percent or more for VOCs during all times of operation, except during commissioning, startups, and shutdown events.

2. Each Scrubber shall have a minimum removal efficiency of 97.5 percent or more for sulfur dioxide during all times of operation, except during commissioning, startups, and shutdown events.

3. Each Regenerative Thermal Oxidizer (RTO) shall be operated and properly maintained during normal operations; except during power plant startup/shutdowns.

4. For the duration of the commissioning period, the following emissions from the uncontrolled NCG stack and condensate line shall not be exceed for each Black Rock Unit:

   a. VOC emissions 171.57 pounds per event;

   b. Hydrogen sulfide emissions 4,476.40 pounds per event;

   c. Sulfur dioxide emissions 88.63 pounds per event;

   d. Nitrogen oxide emissions 30.69 pounds per event.

5. For normal RTO/Scrubber operations, the following emissions limits from the controlled NCG stack line shall not be exceeded in each Black Rock Unit:

   a. VOC emissions 0.06 pounds per hour;

   b. Hydrogen sulfide emissions 0.80 pounds per hour;

   c. Sulfur dioxide emissions 1.79 pounds per hour;

   d. Nitrogen oxide emissions 0.43 pounds per hour.

6. For normal RTO/Scrubber operations, the following emissions limits from the controlled NCG stack line shall not be exceeded in each Black Rock Unit:

   a. VOC emissions 1.44 pounds per day;

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b. Hydrogen sulfide emissions 48.0 pounds per day;

c. Sulfur dioxide emissions 42.96 pounds per day;

d. Nitrogen oxide emissions 10.32 pounds per day.

7. For each Black Rock Unit, the following emission limits from the condensate line shall not be exceeded:

   a. Benzene emissions 0.01 pounds per hour and 0.24 pounds per day, measured at the condensate line before entering the cooling towers.

   b. Hydrogen sulfide emissions 1.33 pounds per hour and 31.92 pounds per day, measured at the cooling tower shrouds.

8. During periods of operation without the abatement system (RTO/Scrubber system) for cold startups, the following emissions from the uncontrolled NCG stack and condensate line shall not be exceed for each Black Rock Unit:

   a. VOC emissions 2.77 pounds per hour;

   b. Hydrogen sulfide emissions 56.43 pounds per hour;

   c. Sulfur dioxide emissions 0.27 pounds per hour;

   d. Nitrogen oxide emissions 0.40 pounds per hour.

9. During periods of operation without the abatement system (RTO/Scrubber system) for warm startups, the following emissions from the uncontrolled NCG stack and condensate line shall not be exceed for each Black Rock Unit:

   a. VOC emissions 3.91 pounds per hour;

   b. Hydrogen sulfide emissions 52.55 pounds per hour;

   c. Sulfur dioxide emissions 1.12 pounds per hour;

   d. Nitrogen oxide emissions 0.43 pounds per hour.

10. During periods of operation without the abatement system (RTO/Scrubber system) for shutdowns, the following emissions from the uncontrolled NCG stack and condensate line shall not be exceed for each Black Rock Unit:

   a. VOC emissions 1.27 pounds per hour;

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b. Hydrogen sulfide emissions 33.31 pounds per hour.

11. A log shall be maintained showing hours of operation and routine repairs for each RTO/Scrubber system at their respective Black Rock Unit. This log shall be made available for inspection by the ICAPCD.

C. Operation Conditions

1. Total yearly operations shall be limited to the following for each Black Rock Unit:

   a. Up to 8,760 hours of normal operation,

   b. up to 45 hours of cold start ups,

   c. up to 16 hours of warm start ups, and

   d. up to 48 hours of shut downs.

2. The commissioning period for each Black Rock Unit shall be restricted to a total of 168 hours, with the following time limitations for each segment:

   a. Up to 16 hours for the warm-up of the first production well,

   b. up to 24 hours for the warm-up of the second and third production well,

   c. up to 32 hours for the warm-up of production piping associated equipment,

   d. up to 24 hours for steam blow activity to the rock muffler,

   e. up to 24 hours to preheat the turbine and auxiliary loops,

   f. up to 24 hours to carry out the turbine load test, and

   g. up to 24 hours to carry out the turbine performance test.

3. Each cold startup event (the period beginning with production wells warmup and turbine and auxiliary loops preheated and lasting until the equipment has reached a continuous operating level and is generating emissions within "normal operating" levels) shall be restricted to a total of 45 hours in duration. Total cold startup events are limited to 3 events per year or 135 hours per year for the Black Rock Facility.

4. Each warm startup event (the period beginning with the PGF control system detecting a problem and tripping the steam turbine offline and lasting until steam from the rock muffler is redirected to the turbine and the power generation cycle is reinitiated) shall be restricted to a total of 4 hours in duration. Total warm

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startup events are limited to 12 events per year and 48 hours per year for the Black Rock Facility.

5. Each shutdown event (the period beginning with the initiation of turbine shutdown sequence, a gradual reduction in brine flow, and emissions exceeding "normal operating" levels, lasting until brine flow is completely shutoff) shall be restricted to a total of 12 hours in duration. Total shutdown events are limited to 4 events and 48 hours per year for the Black Rock Facility.

6. The Black Rock Facility shall not incur a total of more than one unit startup event per day.

7. The Permittee shall ensure that the emissions from each of the RTO/Scrubber stacks do not exceed the following limits during any calendar year, including emissions generated during gas turbine start-ups and shutdowns:

   a. 1.88 tons of NOx, (as NO2) per year;

   b. 1.09 tons of CO per year;

   c. 0.26 tons of VOC per year; and

   d. 7.84 tons of SO2 per year.

8. Greenhouse gas emissions inventories shall be compiled and reported in accordance with applicable state and federal regulations.

D. Cooling Tower

1. Each cooling tower's recirculating water total dissolved solids level shall not exceed 7,952 ppm_w.

2. Cooling tower drift loss rate shall be limited to 0.0005%.

3. For each cooling tower under normal operations, the following emissions limits shall not be exceeded at each Black Rock Unit:

   a. PM10 emissions 42.48 pounds per day;

   b. Hydrogen Sulfide emissions 31.92 pounds per day.

4. The ChemOx system at each Black Rock Unit shall have a minimum destruction rate efficiency of 95 percent for hydrogen sulfide emissions.

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5. An operation protocol for the ChemOx system of each Black Rock Unit shall be submitted to the APCD for approval prior to the issuance of a Permit to Operate (PTO).

E. Monitoring, Testing, and Analysis

1. The ICAPCD may, at any time, monitor emissions from any source within each Black Rock Unit.

2. The ICAPCD may, at any time, but no more often than once per year, authorize third-party air emissions testing and/or air emissions inventory of each Black Rock Unit. The cost of the air emissions testing shall be borne by the Permittee. The ICAPCD shall give advance notification to the Permittee prior to any air emissions testing or air emissions inventory required.

3. The Permittee shall conduct the following analysis: First source test shall be conducted after the first full year of commercial operation, and every four years thereafter, as required under the Toxic Hot Spots Information and Assessment Act Emissions Inventory Criteria and Guidelines Report, Title 17, Section 93300.5. All analysis' results shall be available at the facility for inspection and include the following data:

   a. Of turbine condenser condensate and cooling tower blowdown for ammonia, arsenic, beryllium, cadmium, chromium, copper, hydrogen sulfide, lead, manganese, mercury, nickel, radon, selenium, and zinc.

   b. Of the non-condensable gases vented for hydrogen sulfide, ammonia, benzene, arsenic, mercury, radon, toluene, and xylene.

4. The Permittee shall conduct a source test for the RTO and Scrubber Abatement Equipment at each Black Rock Unit. The source test shall be conducted within the first 60 days after commissioning of each Black Rock Unit and every year thereafter. The source testing shall use EPA methods or ICAPCD approved equivalent. Test protocol shall be submitted to the district for approval 30 days prior to source test being conducted.

   a. The Permittee shall estimate the hydrogen sulfide and benzene control efficiency by measuring their concentration in the non-condensable gas at the inlet of the RTO and at the outlet of the scrubber system.

   b. The Permittee shall estimate the hydrogen sulfide and benzene mass flow emission rate in lb/hr vented from the RTO/ scrubber system.

   c. The Permittee shall estimate the scrubber control efficiency for SO_2 by measuring the concentration in the exhaust gas at the outlet of the RTOs and at the outlet of the Scrubbers.

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d. The Permittee shall calculate a mass balance within the regulated pollutants controlled in the RTO/Scrubber system.

5. The Permittee shall conduct monthly analysis of benzene and hydrogen sulfide content in the condensate before it enters the ChemOx system, using EPA methods or equivalent.

6. The Permittee shall conduct weekly testing of the cooling tower recirculating water total dissolved solids levels for each Black Rock Unit, with compliance of the required limitation, 7,952 ppm_w, based on a thirty (30) calendar day average.

7. The Permittee shall monitor each Black Rock Unit's controlled gas RTO/scrubber system as follows:

   a. The RTO Unit Combustion Chamber operating temperature shall be continuously monitored and data logged every (5) minutes.

   b. The scrubber operation parameters of the scrubber water as re-circulation flow rate and pH shall be logged every five (5) minutes.

   c. The Permittee shall monitor on a weekly basis the hydrogen sulfide and benzene at the inlet and at the outlet of the RTO/scrubber system.

      i. The Permittee shall estimate the hydrogen sulfide and benzene mass flow emission rate in lb/hr and lb/day vented from the RTO/scrubber system. The NCG flow rate shall be determined by a volumetric flow meter on the scrubber stack.

      ii. The Permittee shall calculate the RTO control efficiency by measuring hydrogen sulfide and benzene concentration in the non-condensable gas at the inlet of the RTO and the outlet of the RTO.

      iii. The Permittee shall estimate the scrubber control efficiency for sulfur dioxide by measuring ppmv sulfur dioxide concentration in the non-condensable gas at the outlet of the RTO (inlet to quench) and at the outlet of the scrubber.

8. The Permittee shall conduct a source test of the cooling tower Hydrogen sulfide emissions within the first 30 days after the commissioning period has ceased and every four years thereafter. The source test shall be conducted in the cooling tower shrouds at each Black Rock Unit. The source testing shall use EPA methods or ICAPCD approved equivalent (using for hydrogen sulfide ARB method 102 modified for Imperial County with NH3 filter). Testing protocol shall be submitted to the district for approval 30 days prior to source testing being conducted. Annual testing shall be conducted as follows:

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a. Total emissions of hydrogen sulfide from each cooling tower shall be estimated in accordance with EPA/ARB approved methods.

b. A 30-day advance notification of testing dates shall be provided to the APCD for scheduling.

9. The Permittee shall notify the APCD at least 30 days in advance of testing dates for scheduling purposes. All official tests shall be witnessed by an APCD official.

10. The Permittee shall submit to the APCD an approved H_2S monitoring program for each Black Rock Unit measuring the condensate H_2S off gassing.

11. The Permittee shall secure an H_2S monitor that meets ICAPCD specifications, to be installed, operated and maintained by the APCD at an APCD established monitoring station.

F. Emergency Standby Combustion Units

1. Operation of the emergency generators other than for the purposes of maintenance and testing shall be limited to exclusively providing backup power, and in each instance, documented to the satisfaction of the APCD.

2. Operation of the emergency fire water pumps other than for the purposes of maintenance and testing shall be limited to the pumping of water for fire suppression or protection, and in each instance, documented to the satisfaction of the APCD.

3. The engine of each emergency unit shall not discharge into the atmosphere any visible air contaminant other than uncombined water vapor, for a period or periods aggregating more than three minutes in any one hour, which is 20% opacity or greater.

4. Non-resettable hour meters, with a minimum display capability of 9,999 hours, shall be installed and maintained to proper working condition for each emergency unit.

5. The diesel engine of each emergency unit shall be fueled only with one or a combination of the following:

   a. CARB diesel fuel; or

   b. an alternative diesel fuel, such as biodiesel or a biodiesel blend that does meet the definition of CARB diesel fuel; or

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c. any alternative diesel fuel that meets the requirements of the Verification Procedure; or

d. CARB diesel fuel used with fuel additives that meets the requirements of the Verification Procedure.

6. Each emergency generator shall be restricted to operate a total of 20 (twenty) hours per year for maintenance and testing purposes.

7. Each emergency fire water pump shall be restricted to operate a total of 50 (fifty) hours per year for maintenance and testing purposes.

8. The diesel engine of each 1.5 MW emergency generator shall not emit more than 2.43 lbs/hr of NOx.

9. The diesel engine of each 1.0 MW emergency generator shall not emit more than 1.62 lbs/hr of NOx.

10. The diesel engine of each 1.5 MW emergency generator shall be source tested for compliance with the NOx emission limit stated in Condition F.8 initially within the first 60 days of installation and every three (3) years thereafter, or any time as requested by the APCO. A testing protocol shall be submitted to the APCD for approval thirty (30) days prior to the source test being conducted.

11. The diesel engine of each 1.0 MW emergency generator shall be source tested for compliance with the NOx emission limit stated in Condition F.9 initially within the first 60 days of installation and every three (3) years thereafter, or any time as requested by the APCO. A testing protocol shall be submitted to the APCD for approval thirty (30) days prior to the source test being conducted.

12. All testing of emergency generators for compliance determination shall be performed in accordance with U.S. EPA method 7, 7A, 7C, 7E, or any other EPA approved test method.

13. The engine of each unit shall comply with NSPS Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, at the time equipment is purchased.

14. Permittee shall retain all results of compliance and test reports for two (2) years from the date of each entry and made available to the APCD personnel upon request.

G. Breakdowns

1. The Permittee shall notify the ICAPCD of any upset conditions, breakdown or scheduled maintenance which cause a violation of emission limitations

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prescribed by ICAPCD Rules and Regulations, or by State law. The ICAPCD shall be notified as soon as reasonably possible, but no later than two (2) hours after its detection by an operator. The completion of corrective measures or the shutdown of emitting equipment is required within 24 hours of occurrence of a breakdown condition.

2. If the breakdown condition will require more than twenty four (24) hours to correct, the Permittee, in lieu of shutdown, shall submit a variance application to the Air Pollution Control Officer (APCO) requesting to commence the variance procedure set forth in the ICAPCD Hearing Board Procedures.

3. The Permittee shall submit a written report to the ICAPCD within ten(10) days after a break down occurrence has been corrected or an emergency event has occurred, and any impacts to operations thereof, have been resolved. This report shall include: a) a statement that the occurrence has been corrected, together with the date of correction and proof of compliance; b) the reason(s) or cause(s) of the occurrence or emergency; c) a description of the corrective measure undertaken; and d) the type of emission and estimated quantity of the emissions caused by the occurrence.

4. In any enforcement proceeding, the Permittee has the burden of proof for establishing that an emergency occurred.

5. Potential emissions described within this permit, shall be utilized to calculate emissions caused by equipment breakdown, malfunction, or any occurrence which result in uncontrolled emissions in excess of permitted conditions.

H. Recordkeeping/Reporting

1. The Permittee shall submit written notification to the ICAPCD within 72 hours of the start of each segment of the commissioning period for each Black Rock Unit.

2. At the end of each month, and not more than thirty (30) days thereafter, each Black Rock Unit shall submit a report to the ICAPCD which contains the following information:

   a. Monthly emission report of hydrogen sulfide and benzene based on analysis conducted pursuant to the requirements of Sections E.5. Emissions shall be reported in pounds per hour.

   b. A report of days and hours of operation without RTO/Scrubber (uncontrolled) system.

3. At the end of each calendar quarter, and not more than thirty (30) days thereafter, each Black Rock Unit shall submit a report to the ICAPCD which contains the following information:

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a. Quarterly emission report of hydrogen sulfide and benzene based on analysis conducted pursuant to the requirements of Sections E.5. Emissions shall be reported in pounds per hour.

b. A report of days and hours of operation without RTO/Scrubber (uncontrolled) system.

4. A log shall be maintained at each Black Rock Unit indicating the monthly fuel consumption, hours of operation for maintenance and testing purposes, and in a separate section, the hours of operation for emergency situations for each emergency generator and fire water pump unit. This log shall be made available for inspection by the APCD.

5. The Permittee shall submit to the APCD an annual report for each Black Rock Unit containing the monthly fuel consumption and hours operated per month for each emergency generator and fire water pump unit. This report shall reach the APCD by the end of February of each operating year.

6. The Permittee shall maintain all records and reports at each Black Rock Unit for a minimum of five (5) years. These records shall include but are not limited to: cold startup events and warm startup events and duration; uncontrolled operating hours, emission rates, monitor excesses, breakdowns, etc.; source test and analytical records, emission calculation records, records of plant upsets and related incidents. The Permittee shall make all records and reports available to ICAPCD staff upon request.

7. The Permittee shall notify the ICAPCD of any violations of these permits conditions. Notification shall be submitted in a timely manner, in accordance with all applicable ICAPCD Rules and Regulations. Notwithstanding the notification and reporting requirements given in any District Rules and Regulations, the owner/operator shall submit written notification (facsimile is acceptable) to the ICAPCD within 96 hours of the identification of a violation of any permit condition.

8. Records of cooling tower recirculating water total dissolved solids levels for each Black Rock Unit shall be kept up to date and available to the ICAPCD.

9. The Permittee shall furnish the ICAPCD written results of all source tests conducted within thirty (30) days of the test completion.

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