150 SOUTH NINTH STREET
EL CENTRO, CA 92243-2850

AIR POLLUTION CONTROL DISTRICT

TELEPHONE: (760) 482-4606
FAX: (760) 353-9904

DOCKET
02-AFC-2C
DATE JUL 09 2010
RECD. JUL 13 2010

July 9, 2010

Mr. Matt Layton
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

Dear Mr. Layton:

Pursuant to Imperial County Air Pollution Control District (ICAPCD) Rules and Regulations, the Air Pollution Control Officer has made a decision to grant a Determination of Compliance (DOC) to CE Obsidian Energy, LLC (CE) for the construction and operation of a facility containing three geothermal plants located southeast of the Salton Sea Beach in Imperial County, CA. The project will produce a combined total of 159 MW net (nominal) of renewable energy. The Determination of Compliance went through a public review period of 30 days, from May 14, 2010 to June 12, 2010, with a comment letter dated June 2, 2010 from the California Energy Commission (CEC) submitted to the ICAPCD during the timeframe. Copies of the CEC comment letter, the ICAPCD response letter, and the Determination of Compliance are enclosed for your records.

If you have any questions regarding this final action or would like to receive additional information regarding this matter, please contact the undersigned at (760) 482-4606 at your convenience.

Sincerely,

Thomas Brinkerhoff
Air Pollution Control Engineer

CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5512

RECEIVED
JUN 07 2010
AIR POLLUTION
CONTROL DISTRICT

June 2, 2010

Mr. Jaime Hernandez
Senior APC Engineer
Imperial County Air Pollution Control District
150 South Ninth Street
El Centro, CA 92243

Re: Comments on Preliminary Determination of Compliance (PDOC)
Black Rock 1, 2, and 3 Geothermal Power Project (02-AFC-2C)

Dear Mr. Hernandez,

Energy Commission staff has reviewed the Imperial County Air Pollution Control District PDOC for the Black Rock 1, 2, and 3 Geothermal Power Project and has the following comments for your consideration for inclusion in the Final Determination of Compliance (FDOC).

Comments on PDOC Engineering Evaluation

Odor/Nuisance Impacts
Staff is concerned that the PDOC includes no assessment regarding compliance with the Rule 407 Nuisance. Considering the high short-term event H_2S emissions potentials, the near doubling of the permitted annual operating H_2S emissions to over 50 tons/year, and the existing emission sources of H_2S in the project area staff believes that an assessment of the potential for nuisance odor impacts, both during short-term events and normal operations, should be provided in the PDOC.

Efficiency of the RTO
The efficiency of the Regenerative Thermal Oxidizer (RTO) for the removal of hydrogen sulfide appears too low to meet BACT. We believe that RTOs should be able to meet 98 percent or more destruction efficiency for both VOC and hydrogen sulfide. We would request that the District re-evaluate an appropriate the hydrogen sulfide destruction/control efficiency for the RTO.

Criteria Pollutant Emission Estimates
Staff is concerned with the inconsistencies between the commissioning and startup/shutdown emission estimates provided by the applicant and the emissions estimates provided in the PDOC. Staff prefers that the District's emission estimates be consistent with that in the Staff Assessment, which is based on an analysis of the project described in the Applicant's Petition to Amend (PTA) and data responses, and the District's DOC are consistent in terms of the presented emission estimates.

The following tables provide a comparison between the applicant's latest emission estimates from applicant data responses (Attachments DR3 – Operational Emissions.xls), and the emission estimate values in the PDOC where there are

discrepancies that are clearly more than simple calculation rounding issues. After each table is some discussion of each discrepancy. Staff would like the FDOC to correct the discrepancies in these emission estimates, including corresponding changes to the device conditions or provide rationale why such corrections are or are not necessary.

Power Block –Commissioning Emission Discrepancies

Power Block Commissioning – Emission Discrepancies

	H_2S
	lb/event
Applicant Data	4,476
PDOC Table A-1	4,384.2

The commissioning emissions estimate provided in the PTA includes emissions generated from commissioning of production test unit (PTU), rock muffler (RM), regenerative thermal oxidizer stack (RTO Stack) and cooling tower. Commissioning emissions estimate for H_2S in the PDOC appears to include emissions from commissioning of PTU, RM, and RTO, but not the cooling tower. Staff requests that the FDOC includes cooling tower commissioning in the H_2S emissions estimate, as is provided in the applicant's emission estimates.

Power Block –Startup/Shutdown Emission Discrepancies

Power Block Startup/Shutdown – Emission Discrepancies

		H_2S
		lb/event
Applicant Data	Cold Startup	3,290
	Warm Startup	410
	Shutdown	400
PDOC Table A-2, 3, 4	Cold Startup	1,395
	Warm Startup	279.6
	Shutdown	666

The H_2S emissions estimate for Startup and Shutdown proved in the PDOC are much less than what the applicant has provided. Staff would like to understand what caused discrepancies between the H_2S emissions estimated by the applicant and the H_2S emissions currently presented in the PDOC.

Comments on PDOC Conditions

<u>Regenerative Thermal Oxidizers/Scrubber Units Conditions</u>
Staff requests that these conditions also specify the regenerative thermal oxidizers' minimum destruction rate efficiency for hydrogen sulfide (please see comment above regarding request to increase that efficiency to 98 percent) and the scrubber units' minimum removal efficiency for sulfur dioxide (95 percent).

Cooling Tower Conditions
Staff requests the following additions and revisions to the cooling tower conditions:

- Staff requests that a condition be added providing cooling tower emissions limits, both PM10 and hydrogen sulfide emission limits.
- Staff requests that these conditions also specify the ChemOx systems' minimum destruction rate efficiency for hydrogen sulfide.
- Staff requests that Condition 1 specify the maximum recirculating water total dissolved solids (TDS) level rather than the number of recirculation cycles, since this is the relevant water quality parameter, as the cooling tower emissions could change significantly based on the incoming water quality regardless of recirculation cycle limits. This would also require a revision to the Recordkeeping/Reporting Condition 8 for consistency.
- Additionally, staff requests that a condition requiring TDS testing and recordkeeping be added for compliance demonstration of emission limits. Staff can provide examples of this type of condition that allows the use of conductivity testing rather than laboratory analysis.

Staff believes that the cooling tower conditions as written do not currently provide assurance of the maximum daily or annual PM10 or hydrogen sulfide emissions.

Monitoring Testing and Analysis Conditions
Staff requests the following clarifying revision to condition 4. subpart 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 ~~RTO and~~ scrubber system.

Emergency Standby Combustion Units Conditions
Staff recommends a condition be added to note that the engines need to comply with the NSPS Subpart IIII and CARB ATM requirements at the time of purchase. Such a condition will ensure BACT is enforced regardless of exactly when this project may be built and the engines procured.

Additionally, staff believes that emission limitations in the District Conditions need to be revised consistently per any revisions made to address staff comments on the engineering evaluation's emission estimate.

If you have any questions, please contact Gerry Bemis of my staff at (916) 654-4960. Thank you for the opportunity to comment on the Black Rock 1, 2, and 3 Geothermal Power Project's Preliminary Determinations of Compliance.

Sincerely,

MATT LAYTON, Manager
Engineering & Corridor Designation Office
Siting, Transmission and Environmental
Protection Division

cc: Docket

150 SOUTH NINTH STREET
EL CENTRO, CA 92243-2850

TELEPHONE: (760) 482-4606
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AIR POLLUTION CONTROL DISTRICT

July 9, 2010

Mr. Matt Layton
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

Dear Mr. Layton:

The Imperial County Air Pollution Control District (ICAPCD) is in receipt of your letter, sent on the behalf of the California Energy Commission (CEC), commenting on the Preliminary Determination of Compliance (PDOC) for the Black Rock 1, 2, and 3 Geothermal Power Project. The ICAPCD has had the opportunity to review your submitted comments on the PDOC and now provides the following response:

1. Odor/Nuisance Impacts: The ICAPCD will insert discussion addressing compliance with Rule 407 within the Rules and Regulations section of the Final Determination of Compliance (FDOC).

2. Efficiency of the RTO: The destruction removal efficiency (DRE) of each RTO, which currently stands at 95 percent, is agreeable to the ICAPCD. While the PDOC includes a Best Available Control Technology (BACT) analysis for hydrogen sulfide (H_2S) in the NCG stream, CE Obsidian Energy (CEOE) will not be required to apply BACT, as each emission unit does not exceed 55 pounds per day of H_2S. Per ICAPCD Rule 207, "An applicant shall apply Best Available Control Technology to any new or modified Emissions Unit with a Potential to Emit equal to or greater than the following: Hydrogen Sulfide, 55 lbs/day."

3. Criteria Pollutant Emission Estimates: The ICAPCD reviewed the discrepancies between the commissioning and startup/shutdown H_2S emissions estimates provided by the applicant in its Petition to Amend (PTA) and the PDOC. Commissioning H_2S emissions estimate in the PDOC for each Black Rock Unit included emissions from the production test unit (PTU), rock muffler (RM), and regenerative thermal oxidizer stack (RTO Stack), but did not incorporate emissions from the cooling tower. The ICAPCD will now include cooling tower emissions in the commissioning H_2S emissions estimate, as it is presented in the PTA, and correct any interrelated device conditions in the FDOC.

   In regards to startup/shutdown H_2S emissions estimates, the ICAPCD discovered that errors were made in the transfer of this data from the PTA to the PDOC. The discrepancies will be corrected, reflecting the emissions estimates in the PTA, as well as all associated device conditions, in the FDOC.

AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER

4. RTO/Scrubber Units Conditions: The ICAPCD will not perform the BACT assessment for each RTO unit for H_2S (please see Comment 2 above). However, the ICAPCD will address including the minimum removal efficiency for sulfur dioxide for each scrubber unit, which is set at 95 percent, in the corresponding conditions of the FDOC.

5. Cooling Tower Conditions: The ICAPCD will make the following changes in the FDOC with respect to conditions pertaining to the cooling tower of each Black Rock Unit.

   a. A condition will be added in Section D – Cooling Towers, which provides emissions limits for PM10 and H_2S for each cooling tower unit. The condition will read as follows: ***"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."***

   b. A condition will be added to Section D to include the minimum destruction rate efficiency for H_2S for each ChemOx system, reading as follows: ***"The ChemOx system at each Black Rock Unit shall have a minimum destruction rate efficiency of 95 percent for hydrogen sulfide emissions."***

   c. Conditions 1 and 2 of Section D will be replaced with a new condition that specifies the maximum recirculating water total dissolved solids (TDS) level: ***"Each cooling tower's recirculating water total dissolved solids level shall not exceed 9,545 ppm_w."***

   Condition 8 of Section H – Recordkeeping/Reporting, will also be revised: ***"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."***

   d. A condition will be inserted into Section E – Monitoring, Testing, and Analysis, that requires TDS testing and recordkeeping for compliance demonstration of emission limits, reading as follows: ***"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, 9.545 ppm_w, based on a thirty (30) calendar day average."***

6. Monitoring, Testing and Analysis Conditions: The ICAPCD agrees with the clarifying revision by CEC to Section E, Condition 4, Subpart A, which deals with the testing of the RTO and scrubber system.

7. Emergency Standby Combustion Units: The ICAPCD agrees with the recommendation by CEC to add a condition in Section F – Emergency Standby Combustion Units, which addresses that the engines of these units must comply with NSPS Subpart III and CARB ATCM requirements.

If you have any questions or would like to discuss this matter in further detail, please contact the undersigned at your convenience at (760) 482-4606.

Sincerely,

Thomas Brinkerhoff
Air Pollution Control Engineer

July 9, 2010

IMPERIAL COUNTY AIR POLLUTION CONTROL DISTRICT

Final Determination of Compliance

Permit:	#3961
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

generally in the middle of the Black Rock Facility, with production well pads on the northern, western, and southern perimeters of the site.

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.

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.

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. Although the application pointed out that each cooling tower's recirculating water would have a maximum total dissolved

solids (TDS) level of 7,952 ppm_w, CEOE has since requested that emissions estimates and the TDS limit be based on 9,545 ppm_w.

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 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.
- 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

Pollutant	Lbs/event (One Unit)	Lbs/event (All Units)
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
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.

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 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	2.13	51.12	6.39	153.36	27.99
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

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

Pollutant	One Engine			Project Total	
	Lbs/hr	Lbs/day	Tpy	Lbs/day	Tpy
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:

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	50.81	155.23	28.08
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:

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;

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 ambient 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:

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.

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.

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

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.

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

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.

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

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)

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 95 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;

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;

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 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 9,545 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 51.12 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.

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.

   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, 9.545 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:

   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

   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 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:

   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.