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

June 2, 2010

DOCKET
02-AFC-2C
DATE JUN 02 2010
RECD. JUN 02 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