

CALIFORNIA ENERGY COMMISSION

1516 NINTH STREET
SACRAMENTO, CA 95814-5512



DATE: December 4, 2007
TO: Interested Parties
FROM: Ron Yasny, Compliance Project Manager

SUBJECT: Elk Hills Power Project (99-AFC-1C) Staff analysis of the proposed changes to air quality Conditions of Certification

On November 15, 2007, the California Energy Commission received a petition from Elk Hills Power to modify the Elk Hills Power Project (EHPP). EHPP is a nominal 500 MW natural gas-fired, combined-cycle power plant located at the intersection of Elk Hills and Skyline Roads, approximately 25 miles west of Bakersfield, in Kern County. The power plant was certified in December 2000 and it commenced commercial operation in July 2003.

The proposed modifications reflect a number of minor changes recently approved by the San Joaquin Valley Air Pollution Control District (District) pursuant to their Rule 4703 and the issuance of the Title V permit by the U.S. Environmental Protection Agency.

In addition to the attached Air Quality analysis, Energy Commission staff reviewed the petition and determined that no other technical areas were affected by the petition. There are no changes to equipment or operations related to this petition. For these reasons, staff has determined that the proposed changes to Air Quality conditions of certification will not result in a significant adverse impact in any technical area. Affected conditions of certification are AQ-10, AQ-14, AQ-27, AQ-30, AQ-33, AQ-58, AQ-61, AQ-66, AQ-67. It is staff's opinion that, with the implementation of the revised conditions, the project will remain in compliance with applicable laws, ordinances, regulations, and standards and the proposed modifications will not result in a significant adverse direct or cumulative impact to the environment (Title 20, California Code of Regulations, Section 1769).

The petition to amend the project is available on the Energy Commission's webpage at <http://www.energy.ca.gov/sitingcases/elkhills/compliance/index.html>. The Energy Commission's Order (if approved) will also be posted on the webpage. Energy Commission staff intends to recommend approval of the petition at the December 19, 2007 Energy Commission Business Meeting. If you have comments on this proposed modification, please submit them to me at the following address no later than 5:00 P.M., December 18, 2007:

Ron Yasny, Compliance Project Manager
California Energy Commission
1516 9th Street, MS-2000
Sacramento, CA 95814

Comments may be submitted by fax to (916) 654-3882, or by e-mail to ryasny@energy.state.ca.us. If you have any questions, please contact me at (916) 651-1227.

Interested Parties
December 4, 2007

For further information on how to participate in this proceeding, please contact the Energy Commission Public Adviser's Office at (916) 654-4489, or toll free in California at (800) 822-6228, or by e-mail at pao@energy.state.ca.us. If you require special accommodations, please contact Lourdes Quiroz at (916) 654-5146. News media inquiries should be directed to Assistant Director, Claudia Chandler, at (916) 654-4989, or by e-mail at mediaoffice@energy.state.ca.us.

Enclosure: Staff Analysis

Elk Hills Power Project (99-AFC-1C)
Petition to Amend Air Quality Conditions of Certification
Air Quality Staff Analysis
Prepared by: Joseph M. Loyer
November 28, 2007

INTRODUCTION

Elk Hills Power, LLC (EHP) has filed a petition (dated August 31, 2007) to modify several air quality related Conditions of Certification of the Elk Hills Power Project (Elk Hills) Commission Decision. These modifications reflect a number of minor changes in the Permit to Operate for Elk Hills issued on August 17, 2007 by the San Joaquin Valley Air Pollution Control District (District) pursuant to their Rule 4703 and the issuance of the Title V permit by the U.S. Environmental Protection Agency.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

The approval of this petition will not affect the project's compliance with air quality related federal, state or local LORS.

ANALYSIS

Staff has reviewed the petition for potential environmental effects and consistency with applicable LORS. Based on this review, staff determined that the changes requested for conditions of certification AQ-10, AQ-27, AQ-33, AQ-58, AQ-61, AQ-66, and AQ-67 are minor in nature and will not result in an increase in project emissions. Conditions of Certification AQ-14 and AQ-30 are proposed to be replaced and deleted, respectively. These changes are proposed to make the Commission's conditions of certification consistent with the conditions in the Permit to Operate issued by the San Joaquin Valley Air Pollution Control District, and the Title V Permit issued by the United States Environmental Protection Agency.

The modification to AQ-10 is required because the current Permit to Operate and Title V Permit require that the duct burners also be exclusively operated on pipeline grade natural gas.

The modification to AQ-27 is required because the current Permit to Operate and Title V Permit require a stricter sampling period.

The modification to AQ-33 is required to be consistent with the deletion of Condition of Certification AQ-30.

The modification to AQ-58 is required because the current Permit to Operate and Title V Permit require a stricter emission limit for the diesel-fired emergency fire water pump.

The modification to AQ-61 is required because the current Permit to Operate and Title V Permit require a stricter time limit for testing purposes of the fire water pump.

The addition of Conditions of Certification AQ-66 and AQ-67 are required because the current Permit to Operate and Title V Permit include both of these additional restrictions.

Condition AQ-14 requires that the combustion turbines meet a specific emission limit in the middle of the startup process. This requirement was part of the District Rule 4703, and it was very difficult to demonstrate compliance due to the continuous emission monitoring system (CEMS) installed at Elk Hills. That rule has since been modified, and the District no longer requires that specific emission limit. However, the District now requires slightly different emission limits for startup and shutdown events. The table below shows the changes in emission limits imposed by the District.

Existing Condition Requirements	Proposed New Emission Limits
Within two hours after initial firing, CTG exhaust emissions shall not exceed any of the following: NOx (as NO ₂) 12.2 ppmv @ 15% O ₂ and CO 25 ppmv @ 15% O ₂ .	During an extended startup, the combined emissions from both CTG exhaust stacks shall not exceed 800 lbs of NOx or 3,600 lbs CO per event.
	During a shutdown, the combined emissions from both CTG exhaust stacks shall not exceed 102.5 lbs of NOx or 222.0 lbs CO per event.

Compliance with these emission limits will not result in unmitigated emissions from the Elk Hills Power Project. The emission limits proposed are stricter than the emission limits already imposed on the project in Condition of Certification AQ-13, which are fully mitigated through the original licensing process. AQ-13 restricts the exhausts emissions during startup to no more than 400 lbs of NOx and 3600 lbs of CO per hour.

Condition AQ-30 requires that the applicant perform a source test for VOC and CO emission under reasonably identical environmental conditions. The intent was to determine a surrogate relationship between CO and VOC emissions in order to track VOC emissions more closely. At the time of the review during the AFC, there were concerns raised by staff about how to monitor VOC emission limits without the benefit of a CEMS. Staff believes that if a ratio could be determined between VOC and CO during source testing, that CO, which is monitored with a CEMS could be used as a surrogate to monitor VOC emissions. However, the source testing revealed that the VOC emissions were below the detection limit of the source test methodology and well below the potential to violate the project VOC emission limits. Therefore, since the surrogate relationship cannot be determined and the source test shows that the project does not have the potential to violate the emission limits for VOC, and the annual source testing required in Condition of Certification AQ-26 is adequate enforcement of the project VOC emission limits, staff agrees with the applicant that Condition of Certification AQ-30 should be deleted.

CONCLUSIONS AND RECOMMENDATIONS

Staff has analyzed the proposed changes and concludes that there are no new or additional significant impacts associated with approval of the petition. Staff concludes

that the proposed changes are based on information that was not available during the original licensing procedures or subsequent amendments. Staff concludes that the proposed language retains the intent of the original Commission Decision and conditions of certification. Staff recommends the following modifications, additions, and deletions to the air quality conditions of certification.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

Staff has proposed modifications to the air quality conditions of certification as shown below. (**Note:** Deleted text is in ~~strikethrough~~, new text is underlined)

AQ-10 CTG and duct burner shall be fired on natural gas, consisting primarily of methane and ethane, with a sulfur content no greater than 0.75 grains of sulfur compounds (as S) per 100 dry-scf of natural gas. [District Rule 2201]

Verification: The project owner shall provide records of compliance as part of the quarterly reports of Condition AQ-35.

AQ-14 ~~By two hours after initial turbine firing, CTG exhaust emissions shall not exceed any of the following: NOx (as NO₂) 12.2 ppmv @ 15% O₂ and CO 25 ppmv @ 15% O₂. [District Rule 4703]~~
During an extended startup, the combined emissions from both the CTG and HRSG exhausts shall not exceed either 800 lbs NOx or 3,600 lbs CO per event.

During shutdown of CTG, the combined emissions from both the CTG and HRSG exhausts shall not exceed either 102.5 lbs NOx or 222.0 lbs CO per event.

Verification: The project owner shall provide records of compliance as part of the quarterly reports of Condition AQ-35.

AQ-27 Compliance with the startup NOx, CO, and VOC mass emission limits shall be demonstrated for one of the CTGs (S-3523-1, or -2) upon initial operation and at least every ~~seven~~ five years thereafter by District witnessed in situ sampling of exhaust gases by a qualified independent source test firm. [District Rule 1081]

Verification: The project owner shall provide records of compliance as part of Condition AQ-29.

~~AQ-30~~ ~~Source test plans for initial and seven-year source tests shall include: a method for measuring the VOC/CO surrogate relationship that will be used to demonstrate compliance with VOC lb/hr, lb/day, and lb/twelve-month rolling emission limits. [District Rule 2201]~~

Verification: ~~The project owner shall provide a source test plan to the CPM and District for the CPM and District approval fifteen (15) days prior to testing. The results and field data collected by the source tests shall be submitted to the CPM and the District within sixty (60) days of testing.~~

AQ-33 The project owner shall maintain hourly records of NO_x, CO, and ammonia emission concentrations (ppmv @ 15% O₂), and hourly, daily, and twelve month rolling average records of NO_x and CO emissions. ~~Compliance with the hourly, daily, and twelve month rolling average VOC emission limits shall be demonstrated by the CO CEM data and the VOC/CO relationship determined by annual CO and VOC source tests.~~ [District Rule 2201]

Verification: The project owner shall provide records of compliance as part of the quarterly reports of Condition AQ-35.

AQ-58 NO_x emissions shall not exceed ~~7.2~~ 4.4 g/hp-hr. [District Rule 2201].

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

AQ-61 The engine shall be operated only for maintenance, testing, and required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed ~~200~~ 77 hours per year. [District Rules 2201 and 4701]

Verification: The project owner shall compile records of hours of operation of any of the IC engines and include those records as part of the quarterly reports submitted to the CPM under Condition AQ-35.

AQ-66 The project owner/operator shall not employ the duct burner during startup or shutdown events.

Verification: The project owner/operator shall include a statement within the quarterly report, required under Condition of Certification AQ-35, that the duct burner has not been employed during startup or shutdown events.

AQ-67 The project owner/operator shall demonstrate compliance with all applicable limitations for any gas turbines on the project site that are equipped with an intermittently operating auxiliary burner both with and without the burner in operation.

Verification: The project owner/operator shall ensure that the source test requirements of Condition of Certification AQ-29 include the operation of any auxiliary burners as specified.

REFERENCES

California Energy Commission, Sacramento, California, Commission Decision for the Elk Hills Power Project. Issued December 6, 2000.

San Joaquin Valley Air Pollution Control District, Permit to Operate for the Elk Hills Power Project. Re-issued August 17, 2007.

U.S. Environmental Protection Agency, Title V Permit for the Elk Hills Power Project. Re-issued October, 2007.

Elk Hills Power Project, Petition to Amend Conditions of Certification, submitted November 15, 2007.