STAFF ANALYSIS
PETITION TO AMEND
THE COMMISSION DECISION FOR THE
THE HIGH DESERT POWER PROJECT (97-AFC-1C)

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INTRODUCTION

On August 20, 2006, the High Desert Power Plant, LLC (HDPP, LLC) filed a request to amend Conditions of Certification **AQ-16**, **AQ-17**, **AQ-20**, and **AQ-30** for the HDPP facility. In brief, HDPP, LLC requests the following changes:

1. **AQ-16:**

   a. Reduce the frequency of compliance testing for oxides of nitrogen (NOx), oxides of sulfur (SOx), carbon monoxide (CO), and ammonia slip (NH_3) from annual to once every five years,
   b. Reduce the frequency of compliance testing for volatile organic compounds (VOC) from annual to once every three years,
   c. Eliminate compliance testing requirement for fine particulate matter (PM10) and Opacity.

2. **AQ-17**: Delete this condition of certification

3. **AQ-20**: Delete the requirement to report the number of start ups, and shut down, and their duration.

4. **AQ-30**: Administrative revision to correct an inadvertent error in wording in this condition of certification.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

All applicable Laws, Ordinances, Regulations and Standards (LORS) are listed below

Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Description
Federal LORS	
42 U.S.C. §7401 et seq.	Federal Clean Air Act

State LORS	
Health and Safety Code §41700	"... no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property."
CCR Title 13 §2423	Exhaust Emissions Standards and Test Procedures, Off-Road Compression-Ignition Engines

Local LORS - Mojave Desert Air Quality Management District	
Rule 201	Permits to Construct
Rule 221	Federal Operating Permit Requirement
Rule 401	Visible Emissions
Rule 402	Nuisance
Rule 403	Fugitive Dust
Rule 404	Particulate Matter Concentration
Rule 409	Combustion Contaminates
Rule 431	Sulfur Content of Fuels

STAFF ANALYSIS

Staff's objectives in completing the air quality analysis for this amendment request are (1) to identify whether there is a potential for a significant air quality impact; and (2) to assure that appropriate mitigation measures have been applied to avoid or mitigate the identified potential air quality impacts.

The HDPP facility was certified in 2000, and has been in commercial operation since 2003. The facility is required to undergo annual compliance tests for criteria air contaminants including NOx, SOx, CO, NH_3, VOC and PM10. In addition, the facility is required to continuously monitor the concentrations of NOx, SOx, CO and NH_3 to verify compliance with their applicable emission limits.

Since the start of commercial operation, the facility has been undergone four annual source tests for the aforementioned air contaminants, and the results of these tests indicate that the facility is operating within compliance of all applicable emission limits. In addition, the collected continuous emission monitoring system (CEMS) data for the facility also show that the facility was within compliance limits. For those reasons, HDPP, LLC requests modification of annual source test requirements. The following is staff's analysis of each specific amendment request.

REVISION OF AQ-16

The applicant requests to relax the annual compliance tests for NOx, CO, NH_3 and SOx to once every five (5) years. For VOC, the petition requests that the test frequency be

reduced from an annual basis to once every three (3) years, and that the requirement of annual compliance tests for PM10 and opacity be eliminated.

NOx, SOx, CO and NH3: The facility's four (4) consecutive compliance test results show that the emissions of NOx, CO and NH_3 are consistently below that of the limits specified in other conditions of certification for the facility. In addition, staff believes that because the turbines are equipped with a CEMS, which measures the concentrations of NOx, CO and NH_3 on an hourly basis, continuing compliance with applicable emission limits for these air contaminants can be reasonably expected. For SOx, because the facility is fueled with pipeline quality natural gas, and the gas sulfur content is regularly monitored, its emissions are not expected to change much. Staff also believes that the change to relax the annual compliance test to once every five years for NOx, SOx, CO and NH_3 would not cause any emission change to the ambient air. Therefore, no significant impact to the air quality is expected and no mitigation is necessary.

VOC: The four previous source tests also showed that the turbines comply with applicable VOC emission limits. The VOC concentrations are not being monitored by the CEMS. However, VOC has a strong relationship to CO emissions. Thus, continuous monitoring of CO emissions by the CEMS on an hourly basis can be used as a reasonable verifying tool for ensuring compliance with the VOC emission limits. Therefore, staff does not object to reducing the scheduled testing frequency of the turbines' VOC emissions. Staff also believes that the change to the VOC testing frequency would not cause any emission changes; therefore, no significant impact is expected and no mitigation is needed.

PM10: Although the four previous consecutive tests showed that the turbines comply with the PM10 emission limits, staff is not confident that the PM10 emission limits can be readily verifiable on a long term basis for two reasons: 1) although the turbines are relatively new and their emissions are currently low, staff believes that over time, their PM10 emissions would likely increase; and 2) source test results from numerous turbines that recently started commercial operation showed a wide swing of PM10 emissions, which in many cases required repeating the tests to demonstrate compliance. Furthermore, the CEMS does not monitor PM10, and thus without compliance tests, staff is left with no means to verify whether the turbines are operating within the PM10 emission limits. Staff recommends that annual PM10 emissions testing be retained.

Opacity: The applicant requests waiving of the testing requirement for opacity because the facility is using pipeline quality natural gas. Because opacity is an indicator of incomplete combustion, and because the turbines are equipped with a CEMS that monitors CO, staff does not object to removing the annual testing requirement for opacity. Staff believes that elimination of opacity testing requirement will not cause any increased emissions, and therefore, no significant impact is expected and no mitigation is needed.

ELIMINATION OF AQ-17:

This condition of certification was originally intended to provide a reliable means to verify compliance with the VOC emission limits using CO concentrations as a surrogate.

Four recent compliance tests show that the turbines' VOC emissions were consistently below the VOC emission limits. In fact the measured VOC concentrations were less than 10 percent of the VOC emission limits; therefore, staff has no objection to deleting condition **AQ-17** and its requirements. Removal of **AQ-17** is not expected to result in increased VOC emissions to the atmosphere; therefore, no mitigation is needed.

ADMINISTRATIVE CHANGES TO AQ-20

The applicant requests removal of the requirement to report the number, time and duration of startup and shutdown events for each turbine in condition **AQ-20**. However, staff believes that this is the only mechanism to provide verification that the facility's quarterly and annual emissions are in compliance with the applicable limits. Therefore, staff does not recommend the proposed revisions of condition **AQ-20**.

ADMINISTRATIVE CHANGES TO AQ-30

HDPP, LLC requests an administrative change to condition **AQ-30** to correct a typographical error in this condition. Staff does not object to this change, and believes that the change will not result in increased air emissions; therefore no mitigation is needed.

CONCLUSIONS AND RECOMMENDATIONS

Staff recommends approval of the following proposed changes to condition AQ-16:

- The revision of compliance testing frequency for NOx, CO, NH_3 and SOx specified in condition **AQ-16** from an annual basis to once every five years would result in no significant impact to the environment; therefore, no mitigation is required.

- The revision of compliance testing frequency for VOC specified in condition **AQ-16** from an annual basis to once every three years would result in no significant impact to the environment; therefore, no mitigation is required.

- The deletion of compliance testing for opacity specified in condition **AQ-16** would result in no significant impact to the environment; therefore, no mitigation is required.

Staff does not recommend deletion of annual testing requirements in condition **AQ-16** for PM10, as this is the only means for staff to verify compliance with the PM10 emission limits.

The deletion of condition **AQ-17** would result in no significant impact to the environment, and no mitigation is required, thus staff recommends the approval of its deletion.

Staff does not recommend revision of start up and shut down events reporting requirements in condition **AQ-20**, as this is the only means for staff to verify facility's compliance with the emission limits.

The revision of condition **AQ-30** to correct an inadvertent drafting error would result in no significant impact to the environment, and no mitigation is required, thus staff recommends approval of the requested revision to condition **AQ-30**.

The following are the recommended revisions to Conditions of Certification **AQ-16**, **AQ-17**, **AQ-20**, and **AQ-30**.

REVISED CONDITIONS OF CERTIFICATION

Additions are shown as **bold and underlined**, deleted text is shown by ~~strikeout~~.

AQ-16 The project owner shall perform the following ~~annual~~ compliance tests in accordance with the MDAQMD Compliance Test Procedural Manual. The test report shall be submitted to the MDAQMD no later than six (6) weeks prior to the expiration date of this permit. The following compliance tests and **their frequencies** are required:

a. NO_x as NO_2 in ppmvd at 15% O_2 and lb/hr **at least once every five years** (measured per USEPA Reference Methods 19 and 20).
b. VOC as CH_4 in ppmvd at 15% O_2 and lb/hr **at least once every three years** (measured per USEPA Reference Methods 25A and 18).
c. SO_x as SO_2 in ppmvd at 15% O_2 and lb/hr **at least once every five years**.
d. CO in ppmvd at 15% O_2 and lb/hr **at least once every five years** (measured per USEPA Reference Method 10).
e. PM_{10} in mg/m3 at 15% O_2 and lb/hr **at least once a year** (measured per USEPA Reference Methods 5 and 202 or CARB Method 5).
f. Flue gas flow rate in scfmd **each time a compliance test is conducted**.
~~g. Opacity (measured per USEPA reference Method 9).~~
h. Ammonia slip in ppmvd at 15% O_2 **at least once every five years**.

Verification: No change

~~**AQ-17**. The compliance test plan shall include a method for measuring CO/VOC surrogate relationship that can be used to demonstrate compliance with VOC hourly, daily, and annual emission limits. Compliance with the VOC emission limit shall be demonstrated by the CO CEM data and the VOC/CO relationship determined by the CO and VOC source tests.~~
~~**Verification**: See verification for Condition AQ-15.~~

AQ-20 No change.

AQ-30. Emissions from **this equipment** ~~the power block~~, including the duct burner, may not exceed the following emission limits, based on a calendar day summary:

[No change to the rest of this condition or verification.]