Bay Area Air Quality Management District

939 Ellis Street
San Francisco, CA 94109
(415) 771-6000

Permit Evaluation
and
Statement of Basis
For
Significant Revision of the
MAJOR FACILITY REVIEW PERMIT

for
Gilroy Energy Center, LLC for the Lambie Energy Center
Facility #B4415

Facility Address:
5975 Lambie Road
Suisun City, CA 94585

Mailing Address:
2425 Cordelia Road
Fairfield, CA 94534

September 2006

Application Engineer: Allan Chiu
Site Engineer: Allan Chiu

Application: 11002

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Title V Statement of Basis

A. Background

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act, Part 70 of Volume 40 of the Code of Federal Regulations (CFR), and BAAQMD Regulation 2, Rule 6, Major Facility Review because it is a Phase II Acid Rain facility as defined by BAAQMD Regulation 2-6-217. It is an Acid Rain facility because it burns fossil fuel, serves a generator that is over 25 MW that is used to generate electricity for sale, and was built after November 15, 1990. It is not a "major facility" as defined by BAAQMD Regulation 2-6-212 because it does not have the "potential to emit," as defined by BAAQMD Regulation 2-6-218, of more than 100 tons per year of a regulated air pollutant.

Major Facility Operating permits (Title V permits) must meet specifications contained in 40 CFR Part 70 as contained in BAAQMD Regulation 2, Rule 6. The permits must contain all applicable requirements (as defined in BAAQMD Regulation 2-6-202), monitoring requirements, recordkeeping requirements, and reporting requirements. The permit holders must submit reports of all monitoring at least every six months and compliance certifications at least every year.

In the Bay Area, state and District requirements are also applicable requirements and are included in the permit. These requirements can be federally enforceable or non-federally enforceable. All applicable requirements are contained in Sections I through VI of the permit.

Each facility in the Bay Area is assigned a facility identifier that consists of a letter and a 4-digit number. This identifier is also considered to be the identifier for the permit. The identifier for this facility is B4415.

Current Permit Action

The purpose of this significant permit revision is to change permit conditions that have been revised under NSR application 11003 that was issued on 4/01/05. The proposed permit condition changes include the following:

1. Clarify the definition of hours to "Clock" hours with any consecutive 60 minute period "beginning on the hour"

2. Condition #20134, part 18.2: Revise the ammonia slip monitoring language to agree with standard language in other Calpine power plant permits. The revised language will allow the use of a District-approved calculation method to monitor ammonia slip. This is not a relaxation of monitoring, but replaces the original calculation method that was inaccurate. In addition, the basis of the permit condition will be changed from "BACT" to "TRMP" (Toxic Risk Management Plan), since the ammonia slip limit was based upon the District health risk assessment policies and not the BACT provision of NSR.

3. Condition #20134, part 24. Change the required source test frequency for the gas turbine from annual to every 8000 hours of gas turbine operation or once every 3 years, whichever comes first. This is a relaxation of monitoring and therefore is considered a significant revision pursuant to Regulation 2-6-226.3.

B. New Source Review Permit Evaluation

GILROY ENERGY CENTER, LLC # 14415
APPLICATION # 11003

BACKGROUND

Calpine's Gilroy Energy Center is requesting revisions to monitoring provisions in their existing operating permit conditions to incorporate revisions that were approved in application #10472 at Calpine's Gilroy /Wolfskill Energy Center for an identical gas turbine engine.. There is no impact on emissions from these changes. The source is described as follows:

S-1 Combustion Gas Turbine with Water Injection, General Electric LM6000 PC Sprint, natural gas fired, 49.6 MW net simple-cycle, 500 MMBtu/hr maximum heat input rating; abated by A-1 Oxidation Catalyst, and A-2 Selective Catalytic Reduction System.

EMISSIONS SUMMARY

Requested changes are as follows:

1. Amend Definitions as follows:
Clock Hour: Any consecutive 60-minute period beginning on the hour

2. Amend Condition 18.2 as follows:
Ammonia emissions from S-1 Gas Turbine into the atmosphere shall not exceed 10.0 ppmvd @ 15% O2 (1-hour rolling average), except during periods of startup and shutdown as defined in this permit.
The owner/operator shall verify the ammonia concentration by a District approved corrected ammonia slip calculation.
~~the continuous recording of the ratio of the ammonia injection rate to the NOx inlet rate to the SCR control system (molar ratio).~~
~~The owner/operator shall establish the~~ correction factor ~~maximum allowable NH3/NOx molar ratio~~ during a District approved source test. ~~and shall not exceed the established limits unless a new ratio has been established during another District approved source~~

3. Amend Condition 24 to reflect the infrequent operation of the peak Gas Turbine as follows:
Source Testing/RATA: Within sixty days after first fire of the gas turbines, and at a minimum on an annual

basis thereafter, a relative accuracy test audit (RATA) shall be conducted on the CEMS in accordance with 40 CFR Part 60 Appendix B Performance Specifications. A source test shall be conducted at least every 8,000 hours of tubine operation or once every three years, whichever comes first. . The owner/operator shall provide written test results of the source tests to the District within 60 days after testing. The owner/operator shall submit a complete test protocol to the District no later than 30 days prior to testing, and notification to the District at least ten days prior to the actual date of testing.

PLANT CUMULATIVE INCREASE
There are no net increase associated with the proposed changes.

TOXIC RISK SCREENING ANALYSIS
In the original application #4881, a District Risk Screen was performed yielding a cancer risk of 2 in a million and passes the Toxic Risk Screen. The proposed changes in this report will not have a change in the cancer risk. Therefore, another Toxic Risk Screen is not necessary.

STATEMENT OF COMPLIANCE

A CEQA study was conducted by the lead agency (County of Solano) in the original application #4881. A Negative Declaration for the project was issued. This project continues to comply with the requirements of Reg.2-1-426.2.

BACT
BACT is not triggered. However, this project will continue to meet BACT 2 Standards (achieve in practice) for NOx, CO, POC, and PM10 by the use of Selective Catalytic Reduction (SCR) as was determined in application #5013.

Offsets
Since there was no change in emissions, offsets were not triggered. However, the original project in application # 4881 was evaluated with two similar projects under the same ownership. As a result, Calpine had provided 423.6 TPY of NOx offset credits.

NSPS
This facility will continue to comply with NSPS standards (subpart GG Stationary Gas Turbines) as was determined in application #4881.

NESHAPS and PSD do not apply.

The facility will continue to meet all other District requirements as stated in application #4881.

PERMIT CONDITIONS
COND# 20134 ----------

Permit Conditions
Calpine Corporation
Gilroy Energy Center
Solano County, CA
Source S-1: Combustion Gas Turbine with Water Injection, General Electric LM6000 PC Sprint, Natural gas fired, 49 MW net simple-cycle, 500 MMBtu/hr

Definitions:

Clock Hour: Any continuous 60-minute period beginning on the hour

Calendar Day: Any continuous 24-hour period beginning at 12:00 AM or 0000 hours.

Year: Any consecutive twelve-month period of time

Heat Input: All heat inputs refer to the heat input at the higher heating value (HHV) of the fuel, in Btu/scf.

Firing Hours: Period of time, during which fuel is flowing to a unit, measured in fifteen-minute increments.

MM Btu: million British thermal units

Gas Turbine Start-up Mode: The time beginning with the introduction of continuous fuel flow to the Gas Turbine until the requirements listed in Part 18 are met, but not to exceed 60 minutes.

Gas Turbine Shutdown Mode: The time from non-compliance with any requirement listed in Part 18 until termination of fuel flow to the Gas Turbine, but not to exceed 30 minutes.

Corrected Concentration: The concentration of any pollutant (generally NOx, CO or NH3) corrected to a standard stack gas oxygen concentration. For an emission point (exhaust of a Gas Turbine) the standard stack gas oxygen concentration is 15% O2 by volume on a dry basis

Commissioning Activities: All testing,

adjustment, tuning, and calibration activities recommended by the equipment manufacturers and the construction contractor to insure safe and reliable steady state operation of the gas turbines, heat recovery steam generators, steam turbine, and associated electrical delivery systems.

Commissioning Period: The Period shall commence when all mechanical, electrical, and control systems are installed and individual system start-up has been completed, or when a gas turbine is first fired, whichever occurs first. The period shall terminate when the plant has completed performance testing and is available for commercial operation, or 180 days after commencement, whichever occurs first.

Precursor Organic Compounds (POCs): Any compound of carbon, excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate

Equipment Description

This Authority To Construct Is Issued And Is Valid For This Equipment Only While It Is In The Configuration Set Forth In The Following Description:

Installation of One Simple-Cycle Gas Turbine Generator Consisting Of:

Simple Cycle Gas Turbine, General Electric LM6000 PC, Maximum Heat Input 500 MMBtu/hr, Nominal Electrical Output 49 MW, Natural Gas-Fired.

Selective Catalytic Reduction NOx Control System.

Ammonia Injection System. (including the ammonia storage tank and control system)

Oxidation Catalyst System.

Continuous emission monitoring system (CEMS) designed to continuously record the measured gaseous concentrations, and calculate and continuously monitor and record the NOx and CO concentrations in

ppmvd corrected to 15% oxygen on a dry basis.

Parts 1 through 10 have been deleted as they only apply to the commissioning period as defined above. Unless noted, parts 11 through 33 shall only apply after the commissioning period has ended.

1. Deleted

2. Deleted

3. Deleted

4. Deleted

5. Deleted

6. Deleted

7. Deleted

8. Deleted

9. Deleted

10. Deleted

The Equipment For Which This Authority To Construct Is Issued May Be Operated Only When In Compliance With The Following Conditions:

11. Consistency with Analyses: Owner/Operator of S-1 Gas Turbine shall operate S-1 Gas Turbine only in accordance with all information submitted with the application (and supplements thereof) and the analyses under which this permit is issued unless otherwise noted below. (Basis: BAAQMD Regulation 2-1-403)

12. Conflicts Between Paragraphs: In the event that any paragraph herein is determined to be in conflict with any other paragraph contained herein, then, if principles of law do not provide to the contrary, the owner/operator must comply with the paragraph most protective of air quality and public health and safety. (Basis: BAAQMD Regulation 1-102)

13. Reimbursement of Costs: The owner/operator of S-1 Gas Turbine shall reimburse all reasonable expenses, as set forth in the District's rules or regulations, incurred by the District for all activities that follow the issuance of this permit, including but not limited to permit condition implementation, compliance verification and emergency response, directly and necessarily related to enforcement of the permit. (Basis: BAAQMD Regulation 2-1-303)

14. Access to Records and Facilities: As to any condition that requires for its effective enforcement the inspection of records or facilities by representatives of the District, the Air Resources Board (ARB), the U.S. Environmental Protection Agency (U.S. EPA), or the California Energy Commission (CEC), the owner/operator shall make such records available or provide access to such facilities upon notice from representatives of the District, ARB, U.S. EPA, or CEC. Access shall mean access consistent with California Health and Safety Code Section §41510 and Clean Air Act Section §114A. (Basis: BAAQMD Regulation 1-440, 1-441)

15. Notification of Commencement of Operation: The owner/operator shall notify the District of the date of anticipated commencement of turbine operation not less than 10 days prior to such date. Temporary operation under this permit is granted consistent with the District's rules and regulations. (Basis: BAAQMD Regulation 2-1-302)

16. Operations: The owner/operator of S-1 Gas Turbine shall only operate S-1 Gas Turbine if the gas turbine, emissions controls, CEMS and associated equipment are properly maintained and kept in good operating condition. (Basis: BAAQMD Regulation 2-1-403)

17. Visible Emissions: The owner/operator shall not operate S-1 Gas Turbine if air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark or darker than Ringelmann 1 or equivalent 20% opacity. . (Basis: BAAQMD Regulation 6-301)

18. Emissions Limits: The owner/operator of S-1 Gas Turbine shall only operate S-1 Gas Turbine if all of the following emission limits are met:

18.1 Oxides of nitrogen (NOx) emissions from the gas turbine shall not exceed 2.5 ppmvd @ 15% O2 (3-hour rolling average), except during periods of startup and shutdown as defined in this permit. The NOx emission concentration shall be verified by a District-approved continuous emission monitoring system (CEMS) and during any required source test. (Basis: BACT)

18.2 Ammonia emissions from the gas turbine shall not exceed 10 ppmvd @ 15% O2, except during periods of startup and shutdown as defined in this permit. The ammonia emission concentration shall be verified by District approved corrected ammonia slip calculation ~~the continuous recording of the ratio of the ammonia injection rate to the NOx inlet rate to the SCR control system (molar ratio). The maximum allowable NH3/NOx molar ratio shall be determined during any required District approved source test, and shall not be exceeded until reestablished through another valid District approved source test~~. The owner/operator shall establish the correction factor during a District approved source test. (Basis: TRMP)

18.3 Carbon monoxide (CO) emissions from the gas turbine shall not exceed 6 ppmvd @ 15 % O2 (3-hour rolling average), except during periods of startup and shutdown as defined in this permit. The CO emission concentration shall be verified by a District-approved CEMS and during any required source test. (Basis: BACT)

18.4 Precursor organic compound (POC) emissions from the gas turbine shall not exceed 2 ppmvd @ 15% O2, except during periods of startup and shutdown as defined in this permit. The POC emission concentration shall be verified during any required source test. (Basis: BACT)

18.5 Particulate matter emissions less than ten microns in diameter (PM10) from the gas turbine shall not exceed 3.0 pounds per hour, except during periods of startup and shutdown as defined in this

permit. The PM10 mass emission rate shall be verified during any required source test. (Basis: BACT & cumulative increase)

18.6 Oxides of sulfur emissions (SOx) from the gas turbine shall not exceed 1.39 pounds per hour, except during periods of startup and shutdown as defined in this permit. The SOx emission rate shall be verified during any required source test. (Basis: BACT & cumulative increase)

19. Turbine Startup: Startup of the gas turbine shall not exceed a time period of 60 minutes each per occurrence, or another time period based on good engineering practice and approved in advance by the District. The startup clock begins with the turbine's initial firing and continues until the unit meets the emission concentration limits. (Basis: Cumulative increase)

20. Turbine Shutdown: Shutdown of the gas turbine shall not exceed a time period of 30 minutes each per occurrence, or another time period based on good engineering practice and approved in advance by the District. Shutdown begins with initiation of the turbine shutdown sequence and ends with the cessation of turbine firing. (Basis: Cumulative increase)

21. Mass Emission Limits: Owner/operator can only operate S-1 Gas Turbine if the total mass emissions from the S-1 Gas Turbine do not exceed the daily, and annual mass emission limits listed in Table 1 below.

TABLE 1 - MASS EMISSION LIMITS (INCLUDING STARTUPS AND SHUTDOWNS)

Pollutant	Daily(lb.)	Annual(tons)
NOx (as NO2)	121	16.4
CO	163	29.1
POC	30	4.9
PM10	72	13.1
SOx (as SO2)	33	6.0

The daily and annual mass limits are on a calendar basis. Daily limits shall be based on average one-hour readings and annual limits shall be based on 12-month rolling average readings from the process monitors (e.g., fuel use meters), CEMS, and

source test results; and the monitoring, recordkeeping and reporting conditions of this permit. (Basis: Cumulative increase)

22. Operational Limits: In order to comply with the emission limits of this rule, the owner/operator of S-1 Gas Turbine shall operate S-1 Gas Turbine only if the following operational limits are met:

(a) The heat input to the gas turbine shall not exceed:

Hourly: 500 MMBtu/hr
Daily: 12,000 MMBtu/day
Annual: 4,380,000 MMBtu/year

(b) Only PUC Quality natural gas (General Order 58-a) shall be used to fire the gas turbine. The natural gas shall not contain total sulfur in concentrations exceeding 1 gr./100 scf.

(c) The owner/operator of the gas turbine shall comply with the daily and annual emission limits listed in Table 1 by keeping running totals based on CEM data. (Basis: Cumulative increase)

23. Monitoring Requirements: The owner/operator of S-1 Gas Turbine shall not operate S-1 Gas Turbine unless the following monitoring systems are installed, maintained and available for service:

(a) The gas turbine exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods. (Basis: BAAQMD Regulation 2-1-403)

(b) The ammonia injection system shall be equipped with an operational ammonia flowmeter and injection pressure indicator accurate to plus or minus five percent at full scale and calibrated once every twelve months. (Basis: BACT)

(c) The gas turbine exhaust shall be equipped with continuously recording emissions monitor(s) for NOx, CO, and O2 or CO2. Continuous emissions monitors shall comply with the requirements of 40 CFR Part 60, Appendices B and F, and 40 CFR Part 75, and shall be

capable of monitoring concentrations and mass emissions during normal operating conditions and during startups and shutdowns. (Basis: 40CFR Part 60, Appendices B and F, and 40CFR Part 75)

(d) The fuel gas supply system shall be continuously recorded using District-approved fuel flow meters along with quarterly fuel compositional analyses for the fuel's higher heating value (wet basis). (Basis: Cumulative Increase)

(e) The fuel gas system shall have sample points and the total sulfur content of the fuel gas shall be analyzed on a quarterly basis.
(Basis: BAAQMD Regulation 9-1-302))

24. Source Testing/RATA: Within sixty days after startup of the gas turbines, and at a minimum on an annual basis thereafter, the owner/operator shall perform a relative accuracy test audit (RATA) on the CEMS in accordance with 40 CFR Part 60 Appendix B Performance Specifications. A source test shall be conducted at least every 8,000 hrs of turbine operation or once every three years, whichever comes first. Additional source testing may be required at the discretion of the District to address or ascertain compliance with the requirements of this permit. The written test results of the source tests shall be provided to the District within 60 days after testing. A complete test protocol shall be submitted to the District no later than 30 days prior to testing, and notification to the District at least ten days prior to the actual date of testing shall be provided so that a District observer may be present. The source test protocol shall comply with the following: measurements of NOx, CO, POC, and stack gas oxygen content shall be conducted in accordance with ARB Test Method 100; measurements of PM10 shall be conducted in accordance with ARB Test Method 5; and measurements of ammonia shall be conducted in accordance with Bay Area Air Quality Management District test method ST-1B. Alternative test methods, and source testing scope, may also be used to address the source testing requirements of the permit if approved in advance by the District. The initial and annual source tests shall include those parameters specified in the approved test protocol, and shall at

a minimum include the following:

a. NOx (as NO2) - ppmvd at 15% O2 and lb/MMBtu;
b. Ammonia - ppmvd at 15% O2 (Exhaust);
c. CO - ppmvd at 15% O2 and lb/MMBtu (Exhaust);
d. POC - ppmvd at 15% O2 and lb/MMBtu (Exhaust);
e. PM10 - lb/hr (Exhaust);
f. SOx - lb/hr (Exhaust);
g. Natural gas consumption, fuel High Heating Value (HHV), and total fuel sulfur content;
h. Turbine load in megawatts;
i. Stack gas flow rate (SDCFM) calculated according to procedures in U.S. EPA Method 19.
j. Exhaust gas temperature (°F)
k. Ammonia injection rate (lb/hr or moles/hr)

(Basis: Cumulative Increase)

25. The owner/operator of S-1 Gas Turbine shall not operate S-1 Gas Turbine until after a written quality assurance program is established in accordance with 40 CFR Part 75, Appendix B and 40 CFR Part 60 Appendix F. (Basis: 40 CFR Part 75, Appendix B and 40 CFR Part 60 Appendix F)

26. The owner/operator shall not operate S-1 Gas turbine unless S-1 is in compliance with the applicable requirements of 40 CFR Part 60 Subpart GG, excluding sections 60.334(a) and 60.334(c)(1). The sulfur content of the natural gas fuel shall be monitored in accordance with the following custom schedule approved by the USEPA on August 14, 1987:

a. The sulfur content shall be measured twice per month for the first six months of operation.
b. If the results of the testing required by Part 26a are below 0.2% sulfur by weight, the sulfur content shall be measured quarterly for the next year of operation.
c. If the results of the testing required by Part 26b are below 0.2% sulfur by weight, the sulfur shall be measured semi-annually for the remainder of the permit term.
d. The nitrogen content of the fuel gas shall not be monitored in accordance with the custom schedule. (Basis: NSPS)

27. The owner/operator shall notify the District of any breakdown condition consistent with the

District's breakdown regulations. (Basis: BAAQMD Regulation 1-208)

28. The District shall be notified by the owner/operator of S-1 Gas Turbine in writing in a timeframe consistent with the District's breakdown regulations following the correction of any breakdown condition. The breakdown condition shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the actions taken to restore normal operations. (Basis: BAAQMD Regulation 1-208)

29. Record keeping: The owner/operator of S-1 Gas Turbine shall not operate S-1 Gas turbine unless the following records are maintained:

(a) hourly, daily, quarterly and annual quantity of fuel used and corresponding heat input rates (Basis: Cumulative Increase);

(b) the date and time of each occurrence, duration, and type of any startup, shutdown, or malfunction along with the resulting mass emissions during such time period (Basis: BACT, Cumulative Increase);

(c) emission measurements from all source testing, RATAs and fuel analyses (Basis: BACT, Cumulative Increase, 40CFR60, 40CFR75);

(d) daily, quarterly and annual hours of operation (Basis: Cumulative Increase);

(e) hourly records of NOx and CO, emission concentrations and hourly ammonia injection rates and ammonia/NOx ratio (Basis: BACT).

(f) for the continuous emissions monitoring system; performance testing, evaluations, calibrations, checks, maintenance, adjustments, and any period of non-operation of any continuous emissions monitor.

(Basis: BAAQMD Regulation 1-522)

30. All records required to be maintained by this permit shall be retained by the owner/operator for a period of five years and shall be made readily available for District inspection upon request. (Basis: BAAQMD Regulation 2-6-501)

31. Reporting: The owner/operator shall submit to

the District a written report for each calendar quarter, within 30 days of the end of the quarter, which shall include:

(a) Daily and quarterly fuel use and corresponding heat input rates (Basis: Cumulative Increase);

(b) Daily and quarterly mass emission rates for all criteria pollutants during normal operations and during other periods (startup/shutdown, breakdowns) (Basis: BACT, Cumulative Increase);

(c) Time intervals, date, and magnitude of excess emissions (Basis: BACT, Cumulative Increase);

(d) Nature and cause of the excess emission, and corrective actions taken (Basis: BACT, Cumulative Increase);

(e) Time and date of each period during which the CEM was inoperative, except for zero and span checks, and the nature of system repairs and adjustments (Basis: BAAQMD Regulation 1-522);

(f) A negative declaration when no excess emissions occurred (Basis: BACT, Cumulative Increase);

(g) Results of quarterly fuel analyses for HHV and total sulfur content. (Basis: BACT, 40CFR75)

32. District Operating Permit: The owner/operator shall apply for and obtain all required operating permits from the District according to the requirements of the District's rules and regulations. (Basis: BAAQMD Regulations 2, Rule 2 & BAAQMD Regulation 2, Rule 6)

33. Title IV and Title V Permits: The acid rain monitors (Title IV) must be certified within the earlier of 90 operational days or 180 calendar days of first-fire. (Basis: BAAQMD Regulation 2, Rule 6)

list condition NUMBER >>

RECOMMENDATION
Issue a change in Permit Condition for the following source:

S-1 Combustion Gas Turbine with Water Injection, General Electric LM6000 PC Sprint, natural gas fired, 49.6 MW net simple-cycle, 500 MMBtu/hr maximum heat input rating; abated by A-1 Oxidation Catalyst, and A-2 Selective Catalytic Reduction System.

By: _____ _____
AQ Engineer II Date

C. Supplemental Information

I. Standard Conditions

This section contains administrative requirements and conditions that apply to all facilities.

Changes in this action

There are no changes proposed for this section.

II. Equipment

This section of the permit lists all permitted or significant sources. Each source is identified with an S and a number (e.g., S1).

Changes in this action

There are no changes proposed for this section.

III. Generally Applicable Requirements

This section of the permit lists requirements that generally apply to all sources at a facility including insignificant sources and portable equipment that may not require a District permit

Changes in this action

No changes are proposed for this section.

IV. Source-Specific Applicable Requirements

Section IV of the permit contains citations to all of the applicable requirements. The text of the requirements is found in the regulations, which are readily available on the District or EPA websites, or in the permit conditions, which are found in Section VI of the permit.

Complex Applicability Determinations

There are no complex applicability determinations associated with the proposed permit condition changes.

Other changes in this action

No other changes are proposed for this section.

V. Schedule of Compliance

A schedule of compliance is required in all Title V permits pursuant to BAAQMD Regulation 2-6-409.10 which provides that a major facility review permit shall contain the following information and provisions:

"409.10 A schedule of compliance containing the following elements:

10.1 A statement that the facility shall continue to comply with all applicable requirements with which it is currently in compliance;

10.2 A statement that the facility shall meet all applicable requirements on a timely basis as requirements become effective during the permit term; and

10.3 If the facility is out of compliance with an applicable requirement at the time of issuance, revision, or reopening, the schedule of compliance shall contain a plan by which the facility will achieve compliance. The plan shall contain deadlines for each item in the plan. The schedule of compliance shall also contain a requirement for submission of progress reports by the facility at least every six months. The progress reports shall contain the dates by which each item in the plan was achieved and an explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted."

Since the District has not determined that the facility is out of compliance with an applicable requirement, the schedule of compliance for this permit contains only sections 2-6-409.10.1 and 2-6-409.10.2.

VI. Permit Conditions

The regulatory basis is listed following each condition. The regulatory basis may be a rule or regulation. The District is also using the following terms for regulatory basis:

- BACT: This term is used for a condition imposed by the Air Pollution Control Officer (APCO) to ensure compliance with the Best Available Control Technology in Regulation 2-2-301.
- Cumulative Increase: This term is used for a condition imposed by the APCO which limits a source's operation to the operation described in the permit application pursuant to BAAQMD Regulation 2-1-403.
- Offsets: This term is used for a condition imposed by the APCO to ensure compliance with the use of offsets for the permitting of a source or with the banking of emissions from a source pursuant to Regulation 2, Rules 2 and 4.
- PSD: This term is used for a condition imposed by the APCO to ensure compliance with a Prevention of Significant Deterioration permit issued pursuant to Regulation 2, Rule 2.
- TRMP: This term is used for a condition imposed by the APCO to ensure compliance with limits that arise from the District's Toxic Risk Management Policy.

All changes to existing permit conditions are clearly shown in "strike-out/underline" format in the proposed permit. When the permit is issued, all 'strike-out" language will be deleted and all "underline" language will be retained, subject to consideration of comments received.

Additional monitoring has been added, where appropriate, to assure compliance with the applicable requirements.

<u>Changes in this action</u>

The following permit condition changes are proposed:

1. Clarify the definition of hours to "Clock" hours with any consecutive 60 minute period "beginning on the hour"

2. Condition #20134, part 18.2: Revise the ammonia slip monitoring language to agree with standard language in other Calpine power plant permits. The revised language will allow the use of a District-approved calculation method to monitor ammonia slip. This is not a relaxation of monitoring, but replaces the original calculation method that was inaccurate. In addition, the basis of the permit condition will be changed from "BACT" to "TRMP" (Toxic Risk Management Plan), since the ammonia slip limit was based upon the District health risk assessment policies and not the BACT provision of NSR.

3. Condition #20134, part 24. Change the required source test frequency for the gas turbine from annual to every 8000 hours of gas turbine operation or once every 3 years, whichever comes first. This is a relaxation of monitoring and therefore is considered a significant revision pursuant to Regulation 2-6-226.3. To improve clarity, part 24 will be modified from the version instituted under NSR application 11003 to indicate that the source testing shall be conducted to verify compliance with part 18.

   24. Source Testing/RATA: Within sixty days after startup of the gas turbines, and at a minimum on an annual basis thereafter, the owner/operator shall perform a relative accuracy test audit (RATA) on the CEMS in accordance with 40 CFR Part 60 Appendix B Performance Specifications. <u>A source test shall be conducted to verify compliance with part 18 at least once every 8,000 hrs of turbine operation or once every three years, whichever comes first.</u> Additional source testing may be required at the discretion of the District to address or ascertain compliance with the requirements of this permit. The written test results of the source tests shall be provided to the District within 60 days after testing. A complete test protocol shall be submitted to the District no later than 30 days prior to testing, and notification to the District at least ten days prior to the actual date of testing shall be provided so that a District observer may be present. The source test protocol shall comply with the following: measurements of NOx, CO, POC, and stack gas oxygen content shall be conducted in accordance with ARB Test Method 100; measurements of PM10 shall be conducted in accordance with ARB Test Method 5; and measurements of ammonia shall be conducted in accordance with Bay Area Air Quality Management District test method ST-1B. Alternative test methods, and source testing scope, may also be used to address the source testing requirements of the permit if approved in advance by the District. The initial and annual source tests shall include those parameters specified in the approved test protocol, and shall at a minimum include the following:
      a. NOx (as NO2) - ppmvd at 15% O2 and lb/MMBtu;
      b. Ammonia - ppmvd at 15% O2 (Exhaust);
      c. CO - ppmvd at 15% O2 and lb/MMBtu (Exhaust);
      d. POC - ppmvd at 15% O2 and lb/MMBtu (Exhaust);
      e. PM10 - lb/hr (Exhaust);
      f. SOx - lb/hr (Exhaust);
      g. Natural gas consumption, fuel High Heating

Value (HHV), and total fuel sulfur content;
h. Turbine load in megawatts;
i. Stack gas flow rate (SDCFM) calculated according to procedures in U.S. EPA Method 19.
j. Exhaust gas temperature (°F)
k. Ammonia injection rate (lb/hr or moles/hr) (Basis: Cumulative Increase)

VII. Applicable Limits and Compliance Monitoring Requirements

This section of the permit is a summary of numerical limits and related monitoring requirements for each source. The summary includes a citation for each monitoring requirement, frequency of monitoring, and type of monitoring. The applicable requirements for monitoring are completely contained in Sections IV, Source-Specific Applicable Requirements, and VI, Permit Conditions, of the permit.

The District has reviewed all monitoring and has determined that the existing monitoring is adequate.

Changes in this action

The source test frequency for the gas turbine will be changed from annual to once every 8000 firing hours or once every 3 years, whichever comes first. This reduction in monitoring frequency will not increase the potential for the gas turbine emissions to exceed any applicable mass emission limits or emission concentration limits.

The gas turbine is tested for NOx, CO, POC, PM_{10}, SO_2, and ammonia emissions. The turbine is not required to test for those pollutants during gas turbine start-up or shutdown.
The potential negative impact of reduced source test frequency is the potential increase in emissions resulting from the degradation of the oxidation catalyst and SCR catalyst. The gas turbine NOx and CO emissions are monitored by CEMs during all gas turbine operation. In effect, the NOx and CO emissions are an indicator of the catalyst performance. The NOx and CO CEMs therefore provide real time monitoring of the oxidation and SCR catalysts performance.

The POC, PM_{10}, SO_2, and ammonia emissions are currently monitored only by annual source testing. The POC, PM_{10}, and SO_2 emissions are not affected by catalyst degradation. The annual POC emission calculations for the turbine did not assume any emission reduction from the use of the oxidation catalyst. The PM_{10} and SO_2 emissions are primarily a function of the natural gas fuel characteristics and are not affected by the performance of the oxidation catalyst or SCR system. Therefore, the potential violation of the POC, PM_{10}, or SO_2 emission limits is not considerably greater over a three year period than a one year period.

Furthermore, this reduction in source test frequency will not become a precedent for other baseload combined-cycle power plants since this is a peaking facility that employs a simple-cycle gas turbine.

The proposed change in source testing frequency will not conflict with any provisions of 40 CFR 60, Subpart A, NSPS General Provisions or Subpart GG, Standards of Performance for Stationary Gas Turbines, since these regulations do not specify any frequency for performance testing. In addition, District Regulation 9, Rule 9 only requires an initial source test and does not require periodic source testing. Therefore, the proposed change in source testing frequency does not conflict with Regulation 9, Rule 9.

All references to the source test requirement of condition #20134, part 24 in Table VII-A will be updated to reflect the new source test frequency of 8,000 hours or 3 years.

The entry for NSPS Subpart GG, 40 CFR 60.332(a)(1) in Table VII-A for S-1 Combustion Gas Turbine has been corrected to indicate that a CEM is used to continuously monitor NOx emissions for compliance with this standard.

VIII. Test Methods

This section of the permit lists test methods that are associated with standards in District or other rules. It is included only for reference. In most cases, the test methods in the rules are source test methods that can be used to determine compliance but are not required on an ongoing basis. They are not applicable requirements.

If a rule or permit condition requires on going testing, the requirement will also appear in Section IV of the permit.

Changes in this action

There are no changes proposed for this section.

IX. Permit Shield:

The District rules allow two types of permit shields. The permit shield types are defined as follows: (1) A provision in a major facility review permit explaining that specific federally enforceable regulations and standards do not apply to a source or group of sources, or (2) A provision in a major facility review permit explaining that specific federally enforceable applicable requirements for monitoring, recordkeeping and/or reporting are subsumed because other applicable requirements for monitoring, recordkeeping, and reporting in the permit will assure compliance with all emission limits.

The second type of permit shield is allowed by EPA's White Paper 2 for Improved Implementation of the Part 70 Operating Permits Program. The District uses the second type of permit shield for all streamlining of monitoring, recordkeeping, and reporting requirements in Title V permits. The District's program does not allow other types of streamlining in Title V permits.

This facility has the first and second types of permit shield.

Changes in this action

There are no changes proposed for this section.

X. Revision History

This section contains the details of issuance and revisions for each permit.

The initial Title V permit for this facility was issued on March 6, 2003.

Application 11002: Significant revision issued on , 2006

XI. Glossary

This section contains terms that may be unfamiliar to the general public or EPA.

Changes in this action

There are no changes proposed for this section.

D. Alternate Operating Scenarios:

No alternate operating scenarios have been requested for this facility.

F. Differences between the Application and the Proposed Permit:

There are no differences between the application and the proposed permit.

APPENDIX A

GLOSSARY

ACT
Federal Clean Air Act

APCO
Air Pollution Control Officer

ARB
Air Resources Board

BAAQMD
Bay Area Air Quality Management District

BACT
Best Available Control Technology

Basis
The underlying authority which allows the District to impose requirements.

CAA
The federal Clean Air Act

CAAQS
California Ambient Air Quality Standards

CAPCOA
California Air Pollution Control Officers Association

CEM
Continuous Emission Monitor

CEQA
California Environmental Quality Act

CFR
The Code of Federal Regulations. 40 CFR contains the implementing regulations for federal environmental statutes such as the Clean Air Act. Parts 50-99 of 40 CFR contain the requirements for air pollution programs.

CO
Carbon Monoxide

Cumulative Increase
The sum of permitted emissions from each new or modified source since a specified date pursuant to BAAQMD Rule 2-1-403, Permit Conditions (as amended by the District Board on 7/17/91) and SIP Rule 2-1-403, Permit Conditions (as approved by EPA on 6/23/95). Cumulative increase is used to determine whether threshold-based requirements are triggered.

District
The Bay Area Air Quality Management District

dscf

Dry Standard Cubic Feet

EPA
The federal Environmental Protection Agency.

Excluded
Not subject to any District regulations.

FDOC
Final Determination of Compliance (FDOC), prepared pursuant to District Regulation 2, Rule 3, Power Plants.

Federally Enforceable, FE
All limitations and conditions which are enforceable by the Administrator of the EPA including those requirements developed pursuant to 40 CFR Part 51, subpart I (NSR), Part 52.21 (PSD), Part 60 (NSPS), Part 61 (NESHAPs), Part 63 (MACT), and Part 72 (Permits Regulation, Acid Rain), including limitations and conditions contained in operating permits issued under an EPA-approved program that has been incorporated into the SIP.

FP
Filterable Particulate as measured by BAAQMD Method ST-15, Particulate.

HAP
Hazardous Air Pollutant. Any pollutant listed pursuant to Section 112(b) of the Act. Also refers to the program mandated by Title I, Section 112, of the Act and implemented by 40 CFR Part 63.

HRSG
Heat Recovery Steam Generator

Major Facility
A facility with potential emissions of: (1) at least 100 tons per year of regulated air pollutants, (2) at least 10 tons per year of any single hazardous air pollutant, and/or (3) at least 25 tons per year of any combination of hazardous air pollutants, or such lesser quantity of hazardous air pollutants as determined by the EPA administrator.

MFR
Major Facility Review. The District's term for the federal operating permit program mandated by Title V of the Federal Clean Air Act and implemented by District Regulation 2, Rule 6.

MOP
The District's Manual of Procedures.

NAAQS
National Ambient Air Quality Standards

NESHAPS
National Emission Standards for Hazardous Air Pollutants. See in 40 CFR Parts 61 and 63.

NMHC
Non-methane Hydrocarbons (Same as NMOC)

NMOC
Non-methane Organic Compounds (Same as NMHC)

NOx
Oxides of nitrogen.

NSPS
Standards of Performance for New Stationary Sources. Federal standards for emissions from new stationary sources. Mandated by Title I, Section 111 of the Federal Clean Air Act, and implemented by 40 CFR Part 60 and District Regulation 10.

NSR
New Source Review. A federal program for pre-construction review and permitting of new and modified sources of pollutants for which criteria have been established in accordance with Section 108 of the Federal Clean Air Act. Mandated by Title I of the Federal Clean Air Act and implemented by 40 CFR Parts 51 and 52 and District Regulation 2, Rule 2. (Note: There are additional NSR requirements mandated by the California Clean Air Act.)

Offset Requirement
A New Source Review requirement to provide federally enforceable emission offsets for the emissions from a new or modified source. Applies to emissions of POC, NOx, PM10, and SO2.

Phase II Acid Rain Facility
A facility that generates electricity for sale through fossil-fuel combustion and is not exempted by 40 CFR 72 from Titles IV and V of the Clean Air Act.

POC
Precursor Organic Compounds

PM
Particulate Matter

PM10
Particulate matter with aerodynamic equivalent diameter of less than or equal to 10 microns

PSD
Prevention of Significant Deterioration. A federal program for permitting new and modified sources of those air pollutants for which the District is classified "attainment" of the National Air Ambient Quality Standards. Mandated by Title I of the Act and implemented by both 40 CFR Part 52 and District Regulation 2, Rule 2.

PUC
Public Utilities Commission (California)

SIP
State Implementation Plan. State and District programs and regulations approved by EPA and developed in order to attain the National Air Ambient Quality Standards. Mandated by Title I of the Act.

SO2

Sulfur dioxide

THC
Total Hydrocarbons (NMHC + Methane)

Title V
Title V of the federal Clean Air Act. Requires a federally enforceable operating permit program for major and certain other facilities.

TOC
Total Organic Compounds (NMOC + Methane, Same as THC)

TPH
Total Petroleum Hydrocarbons

TRMP
Toxic Risk Management Plan

TSP
Total Suspended Particulate

VOC
Volatile Organic Compounds

Units of Measure:

bhp	=	brake-horsepower
btu	=	British Thermal Unit
cfm	=	cubic feet per minute
g	=	grams
gal	=	gallon
gpm	=	gallons per minute
hp	=	horsepower
hr	=	hour
lb	=	pound
in	=	inches
max	=	maximum
m^2	=	square meter
min	=	minute
mm	=	million
MMbtu	=	million btu
MMcf	=	million cubic feet
ppmv	=	parts per million, by volume
ppmw	=	parts per million, by weight
psia	=	pounds per square inch, absolute
psig	=	pounds per square inch, gauge
scfm	=	standard cubic feet per minute
yr	=	year