

Feather River Air Quality Management District

Serving the Counties of Yuba and Sutter
1007 Live Oak Blvd, Suite B-3
Yuba City, CA 95991
(530) 634-7659 * Fax 634-7660

Christopher D. Brown AICP
Air Pollution Control Officer

TITLE V FEDERAL OPERATING PERMIT FRAQMD PERMIT NO. P13004

AIRS #0610113004

**PERMIT
ISSUED:**

Draft June 10, 2013

**PERMIT
LAST AMENDED:**

NA

**PERMIT
EXPIRES:**

Draft June 10, 2018

ISSUED TO:

Calpine Greenleaf, Inc. &
Gilroy Energy Center, LLC
5029 South Township Rd
Yuba City, CA 95993

PLANT SITE LOCATION:

Calpine Greenleaf II &
Yuba City Energy Center
875 North Walton Ave
Yuba City, CA 95993

Responsible Official:

Larry Sessions
Plant Manager
(530) 821- 2072

Site Contact:

Charles Randall
EH&S Specialist II
(530) 821-2074

Nature of Business: Electrical Power Production
SIC Code 4911

Reviewed by:

Timothy Mitro, Air Quality Engineer

Date

Issued by:

Christopher D. Brown AICP,
Air Pollution Control Officer

Date

TABLE OF CONTENTS

I. PERMIT SUMMARY	4
II. FACILITY DESCRIPTION	8
III. APPLICABLE FEDERALLY ENFORCEABLE REQUIREMENTS - GENERAL	10
1. <i>Permit Term</i>	<i>10</i>
2. <i>Permit Renewal.....</i>	<i>10</i>
3. <i>Administrative Permit Amendment</i>	<i>10</i>
4. <i>Minor Permit Modification</i>	<i>10</i>
5. <i>Significant Permit Modification</i>	<i>10</i>
6. <i>Permit Modification for a Condition that is Not Federally Enforceable</i>	<i>11</i>
7. <i>Modification, Revocation or Reopening for Cause</i>	<i>11</i>
8. <i>Application Content and Correctness of Applications.....</i>	<i>11</i>
9. <i>Payment of fees</i>	<i>11</i>
10. <i>Right of Entry</i>	<i>12</i>
11. <i>Compliance</i>	<i>12</i>
12. <i>Non-Compliance</i>	<i>12</i>
13. <i>Need To Halt or Reduce Activity Not a Defense.....</i>	<i>12</i>
14. <i>Permit Action Does Not Stay any Permit Condition</i>	<i>12</i>
15. <i>Property Rights</i>	<i>12</i>
16. <i>Information Requested</i>	<i>13</i>
17. <i>Severability</i>	<i>13</i>
18. <i>Emergency Provisions</i>	<i>13</i>
19. <i>Notification and Reporting of Emergency, Upset, or Breakdown Condition.....</i>	<i>14</i>
20. <i>Monitoring Reports.....</i>	<i>15</i>
21. <i>Annual Compliance Certification Report.....</i>	<i>15</i>
22. <i>Responsible Official Shall Certify</i>	<i>16</i>
23. <i>Facility-Wide General Operating Requirements</i>	<i>16</i>
24. <i>Sampling Facilities</i>	<i>16</i>
25. <i>Visible Emissions</i>	<i>17</i>
26. <i>Particulate Concentration.....</i>	<i>17</i>
27. <i>Sulfur Oxides</i>	<i>17</i>
28. <i>Circumvention.....</i>	<i>17</i>
29. <i>Solvent Degreasing</i>	<i>17</i>
30. <i>Architectural Coating.....</i>	<i>18</i>
31. <i>Accidental Releases</i>	<i>18</i>
32. <i>Title VI Requirements (Ozone Depleting Substances).....</i>	<i>19</i>
IV. NON-FEDERALLY ENFORCEABLE REQUIREMENTS - GENERAL	20
1. <i>Acceptance of Conditions</i>	<i>20</i>
2. <i>Right to Amend Permit</i>	<i>20</i>
3. <i>Permit Not Transferrable.....</i>	<i>20</i>
4. <i>Operation in Accordance with Permit Submittal</i>	<i>20</i>
5. <i>Payment of Fees</i>	<i>20</i>
6. <i>Right of Entry</i>	<i>20</i>
7. <i>Permit Condition Familiarity.....</i>	<i>21</i>
8. <i>Maintain Equipment.....</i>	<i>21</i>
9. <i>Permit Required for Additions and Alterations.....</i>	<i>21</i>
10. <i>Copy of Permit Maintained at Facility</i>	<i>21</i>
11. <i>Nuisance</i>	<i>21</i>

TABLE OF CONTENTS

12. Fugitive Dust.....	21
13. Architectural Coatings.....	22
14. Air Toxic Hot Spots.....	22
15. Portable Engines and Portable Equipment Units.....	22
V. FEDERALLY ENFORCEABLE REQUIREMENTS - CALPINE GREENLEAF II - GAS TURBINE (S-1) AND DUCT BURNER (S-2).....	24
EQUIPMENT DESCRIPTION:.....	24
EMISSION LIMIT REQUIREMENTS:.....	24
EQUIPMENT OPERATION REQUIREMENTS:.....	25
MONITORING REQUIREMENTS:.....	26
EMISSION TESTING REQUIREMENTS:.....	27
RECORDKEEPING REQUIREMENTS:.....	28
REPORTING REQUIREMENTS:.....	31
PERMIT SHIELD:.....	32
VI. FEDERALLY ENFORCEABLE REQUIREMENTS - CALPINE GREENLEAF II - IC ENGINE (S-3).....	33
EQUIPMENT DESCRIPTION:.....	33
EMISSION LIMIT REQUIREMENTS:.....	33
EQUIPMENT OPERATION REQUIREMENTS:.....	34
RECORDKEEPING REQUIREMENTS:.....	35
REPORTING REQUIREMENTS:.....	36
VII. FEDERALLY ENFORCEABLE REQUIREMENTS - YUBA CITY ENERGY CENTER - GAS TURBINE (S-4).....	37
EQUIPMENT DESCRIPTION:.....	37
EMISSION LIMIT REQUIREMENTS:.....	37
EQUIPMENT OPERATION REQUIREMENTS:.....	38
MONITORING REQUIREMENTS:.....	38
EMISSION TESTING REQUIREMENTS:.....	40
RECORDKEEPING REQUIREMENTS:.....	41
REPORTING REQUIREMENTS:.....	43
PERMIT SHIELD:.....	44
ACID RAIN PERMIT:.....	45
VIII. FEDERALLY ENFORCEABLE REQUIREMENTS - FACILITY WIDE: (S-1), (S-2), (S-3), AND (S-4).....	46
IX. NON-FEDERALLY ENFORCEABLE REQUIREMENTS - CALPINE GREENLEAF II - GAS TURBINE (S-1) AND DUCT BURNER (S-2).....	47
X. NON-FEDERALLY ENFORCEABLE REQUIREMENTS - YUBA CITY ENERGY CENTER - GAS TURBINE (S-4).....	49
XI. INSIGNIFICANT EMISSION UNITS.....	51
XII. ACRONYMS, ABBREVIATIONS, AND UNITS OF MEASURE.....	52
ATTACHMENT A – Acid Rain Permit Application – Yuba City Energy Center	

I. PERMIT SUMMARY

This permit shall serve as a Permit to Operate pursuant to FRAQMD Rule 4.1 (Permits Required) and FRAQMD Rule 10.3 (Federal Operating Permits).

This air quality Permit to Operate was evaluated for compliance with FRAQMD, State of California and federal air quality rules and regulations. The following listed rules are those that were found to be applicable at the time of permit review, based on the information submitted with the Title V permit application.

Citation	Description	SIP Approval Date	Federally Enforceable
FRAQMD Rule 1.1	Definitions	04-12-1982	Yes
FRAQMD Rule 1.1	Definitions (not SIP approved) 8-1-2011 amended version	NA	No
FRAQMD Rule 1.2	Validity	04-12-1982	Yes
FRAQMD Rule 3.0	Visible Emissions	04-12-1982	Yes
FRAQMD Rule 3.2	Particulate Matter Concentration (see permit shield)	04-12-1982	Yes
FRAQMD Rule 3.4	Separation of Emissions	04-12-1982	Yes
FRAQMD Rule 3.5	Combination of Emissions	04-12-1982	Yes
FRAQMD Rule 3.6	Sand Blasting	04-12-1982	Yes
FRAQMD Rule 3.6	Abrasive Blasting (not SIP approved) 06-1991 amended version	NA	No
FRAQMD Rule 3.10	Sulfur Oxides (see permit shield)	04-12-1982	Yes
FRAQMD Rule 3.11	Posting of Permit	09-22-1972	Yes
FRAQMD Rule 3.12	Organic Solvents	04-12-1982	Yes
FRAQMD Rule 3.13	Circumvention	04-12-1982	Yes
FRAQMD Rule 3.14	Solvent Degreasing	05-03-1982	Yes
FRAQMD Rule 3.15	Architectural Coatings	05-03-1982	Yes
FRAQMD Rule 3.15	Architectural Coatings (not SIP approved) 11-13-2002 amended version	NA	No

**I. PERMIT SUMMARY
 (CONTINUED)**

Citation	Description	SIP Approval Date	Federally Enforceable
FRAQMD Rule 3.16	Fugitive Dust	NA	No
FRAQMD Rule 3.22	Stationary Internal Combustion Engines (Limited approval/disapproval)	03-01-2012	Yes
FRAQMD Rule 4.0	General Requirements	04-12-1982	Yes
FRAQMD Rule 4.1	Permit Requirements	04-12-1982	Yes
FRAQMD Rule 4.2	Existing Emission Sources	04-12-1982	Yes
FRAQMD Rule 4.3	Exemptions from Permit	04-12-1982	Yes
FRAQMD Rule 4.3	Exemptions from Permit (not SIP approved) 10-01-2007 amended version	NA	No
FRAQMD Rule 4.4	Standards for Granting Applications	04-12-1982	Yes
FRAQMD Rule 4.4	Standards for Granting Applications (not SIP approved) 11-1993 amended version	NA	No
FRAQMD Rule 4.5	Conditional Approval	04-12-1982	Yes
FRAQMD Rule 4.6	Standards for Authority to Construct and Permit to Operate 06-07-2004 amended version	NA	No
FRAQMD Rule 4.7	Denial of Application	NA	No
FRAQMD Rule 4.8	Public Information	04-12-1982	Yes
FRAQMD Rule 4.9	Action on Applications	NA	No
FRAQMD Rule 4.10	Appeals	NA	No
FRAQMD Rule 4.11	State Ambient Air Quality Standards 08/1991 adopted version	NA	No
FRAQMD Rule 4.13	Alteration of Permit	04-12-1982	Yes
FRAQMD Rule 4.14	Posting of Permit	04-12-1982	Yes
FRAQMD Rule 4.15	Transfer of Permit	04-12-1982	Yes
FRAQMD Regulation V	Hearing Board Procedures	NA	No

**I. PERMIT SUMMARY
 (CONTINUED)**

Citation	Description	SIP Approval Date	Federally Enforceable
FRAQMD Regulation VI	Variances	NA	No
FRAQMD Regulation VII	Fees (not SIP approved, but relevant parts of the regulation are applicable as part of U.S. EPA approval of the FRAQMD Title V program)	11-21-2003	Yes
FRAQMD Regulation VIII	Penalties and Abatement	NA	No
FRAQMD Rule 9.0	Enforcement	NA	No
FRAQMD Rule 9.1	Emission Monitoring	NA	No
FRAQMD Rule 9.2	Records and Reporting	NA	No
FRAQMD Rule 9.3	Tests	NA	No
FRAQMD Rule 9.4	Field Inspection	NA	No
FRAQMD Rule 9.5	Air Pollution Equipment - Scheduled Maintenance	04-12-1982	Yes
FRAQMD Rule 9.6	Equipment Breakdowns	04-12-1982	Yes
FRAQMD Rule 9.7	Permit Actions	NA	No
FRAQMD Rule 9.8	Variance Action	NA	No
FRAQMD Rule 9.9	Notice to Comply	NA	No
FRAQMD Rule 10.1	New Source Review (Limited approval/disapproval)	07-27-2011	Yes
FRAQMD Rule 10.2	Emission Reduction Credit and Banking	NA	No
FRAQMD Rule 10.3	Federal Operating Permits (not SIP approved, but is applicable as part of U.S. EPA approval of the FRAQMD Title V program)	11-21-2003	Yes
FRAQMD Rule 10.8	Federal Major Modifications	NA	No

**I. PERMIT SUMMARY
 (CONTINUED)**

Citation	Description	SIP Approval Date	Federally Enforceable
FRAQMD Rule 10.12	Acid Deposition Control (not SIP approved, but is applicable as part of U.S. EPA approval of the FRAQMD Title V program)	NA	Yes
FRAQMD Rule 11.1 and CARB Airborne Toxic Control Measure	State of California Airborne Toxic Control Measure for Chromate Treated Cooling Towers [CCR 93103]	03-09-1989 (a)	No
U.S. EPA New Source Performance Standards (NSPS)	General Provisions [40 CFR 60 Subpart A (begin at 60.1)]	06-13-2007 (b)	Yes
U.S. EPA New Source Performance Standards (NSPS)	Standards of Performance for Stationary Gas Turbines [40 CFR 60 Subpart GG (begin at 60.330)] (see permit shield)	02-24-2006 (b)	Yes
U.S. EPA National Emissions Standards for Hazardous Air Pollutants (NESHAP)	NESHAP for Stationary Reciprocating Internal Combustion Engines [40 CFR 63 Subpart ZZZZ (begin at 63.6580)]	01-30-2013 (b)	Yes
U.S. EPA	Chemical Accident Prevention Provisions [40 CFR 68 (begin at 68.1)]	04-09-2004 (b)	Yes
U.S. EPA	Protection of Stratospheric Ozone [40 CFR 82 (begin at 82.1)]	12-28-2007 (b)	Yes

(a) California Air Resources Board adoption date

(b) U.S. EPA promulgation date

Future changes in prohibitory rules may establish requirements that are more stringent. At the FRAQMD level, these requirements may supersede the conditions listed here. However, for Title V purposes, the federally enforceable requirements are those found in the Title V permit. Federally enforceable provisions of the Title V permit do not change until the Title V permit is revised.

II. FACILITY DESCRIPTION

The following facility description is for informational purposes only and does not contain any applicable requirements.

The facility is comprised of two plants: Calpine Greenleaf II and Yuba City Energy Center.

Calpine Greenleaf II

Calpine Greenleaf II consists of a 49.5-MW nominal simple cycle gas-fired turbine generator set and a duct-fired heat recovery steam generator (HRSG). This plant also acts as a cogeneration unit as it supplies steam to SunSweet Growers for use in their manufacturing processes. Other major equipment includes absorption/chiller units, cooling towers, switchgears, and transformers. In addition, the facility has water and wastewater treatment facilities.

Compressors supply combustion air to the turbine, drawing the air through inlet plenums and filter houses to remove particulate matter, and then through chillers to lower the temperature of the combustion air to an optimum level. Natural gas is injected into the turbine where it is blended with combustion air and burned. The expansion of the hot combustion gases drives a gas turbine-generator that produces electricity. The turbine set includes lube oil systems, inlet air filtration, starting systems, fire protection, and microprocessor-based control panels.

The Calpine Greenleaf II gas turbine-generator set is a General Electric LM5000 gas turbine with a Brush generator. The combustion section of the gas turbine includes steam injection for nitrogen oxides emission control. Additional steam injection into the high-pressure compressor outlet section and into the low-pressure turbine section provide power enhancement for the gas turbine. The gas turbine exhaust flows through ductwork to the HRSG.

The Calpine Greenleaf II HRSG extracts waste heat from the turbine exhaust and produces high-pressure superheated steam, intermediate-pressure superheated steam, and saturated steam. The superheated steam is injected in the combustion gas turbine for NO_x control and for power augmentation. The saturated steam is used to operate the chillers and is provided to SunSweet Growers. The HRSG is equipped with a natural gas-fired duct burner for auxiliary steam generation. The duct burner raises the inlet temperature of the gas turbine exhaust gas to increase the HRSG's steam output.

A selective catalytic reduction (SCR) reactor controls NO_x emissions from the turbine and duct burner. The gas turbine and duct burner exhaust is discharged through a stack into the atmosphere.

II. FACILITY DESCRIPTION (CONTINUED)

Yuba City Energy Center (YCEC)

YCEC consists of a 48.1-MW nominal simple cycle combustion gas turbine. The plant produces electricity for commercial sale to meet peak power demands.

Compressors supply combustion air to the turbine, drawing the air through inlet plenums and filter houses to remove particulate matter, and then through chillers to lower the temperature of the combustion air to an optimum level. Natural gas is injected into the turbine where it is blended with combustion air and burned. The expansion of the hot combustion gases drives a gas turbine-generator that produces electricity. The turbine set includes lube oil systems, inlet air filtration, starting systems, fire protection, and microprocessor-based control panels.

The YCEC gas turbine-generator set is a General Electric LM6000 gas turbine with a Brush generator. The combustion section of the gas turbine includes water injection for nitrogen oxides emission control. The gas turbine exhaust flows through ductwork to the SCR system and then the oxidation catalyst.

A selective catalytic reduction (SCR) reactor controls NO_x emissions from the turbine. An oxidation catalyst controls CO and ROC emissions from the turbine. The gas turbine exhaust is discharged through a stack into the atmosphere.

III. APPLICABLE FEDERALLY ENFORCEABLE REQUIREMENTS - GENERAL

The information and conditions specified in this section are enforceable by the FRAQMD, U.S. EPA, CARB, and the public.

1. Permit Term

This permit to operate shall be valid for a term of five years from the date of issuance. Permit expiration terminates the stationary source's right to operate unless the source submits a timely and complete Title V permit application for renewal.

[FRAQMD Rule 10.3.F.2.o]

2. Permit Renewal

The permittee shall submit a standard FRAQMD application for renewal of the Title V permit, no earlier than 18 months and no later than six months before the expiration date of the current permit to operate.

[FRAQMD Rule 10.3.D.2.b; 40 CFR 70.5(a)(1)(iii)]

3. Administrative Permit Amendment

The permittee shall submit a written request to the FRAQMD Air Pollution Control Officer for an administrative permit amendment. The permittee may implement the change addressed in the written request immediately upon submittal of the request.

[FRAQMD Rule 10.3.D.4.a]

4. Minor Permit Modification

After obtaining any required preconstruction permits, the permittee shall submit a standard FRAQMD application for each emissions unit affected by the proposed permit revision that qualifies as a minor permit modification. The emissions unit(s) affected by the proposed permit modification shall not commence operation until the FRAQMD Air Pollution Control Officer takes final action to approve the permit revision.

[FRAQMD Rule 10.3.D.2.d]

5. Significant Permit Modification

After obtaining any required preconstruction permits, the permittee shall submit a standard FRAQMD application for each emissions unit affected by a proposed permit revision that qualifies as a significant permit modification. Upon request by the FRAQMD Air Pollution Control Officer, the responsible official shall submit copies of the latest preconstruction permit for each affected emissions unit. The emissions unit(s) affected by the proposed permit modification shall not commence operation until the FRAQMD Air Pollution Control Officer takes final action to issue the revised permit or until the requirements of FRAQMD Rule 10.3.D.2.c.2 are met.

[FRAQMD Rule 10.3.D.2.c]

III. APPLICABLE FEDERALLY ENFORCEABLE REQUIREMENTS - GENERAL (CONTINUED)

6. Permit Modification for a Condition that is Not Federally Enforceable

For any permit modification of a condition that is not federally enforceable, an owner or operator shall submit a written request in accordance with the requirements of FRAQMD Regulation IV.

[FRAQMD Rule 10.3.D.4.b]

7. Modification, Revocation or Reopening for Cause

This permit may be modified, revoked, reopened and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated non-compliance does not stay any permit condition.

[FRAQMD Rules 10.3.E.8 and 10.3.F.2.k; 40 CFR 70.6(a)(6)(iii)]

8. Application Content and Correctness of Applications

The permittee shall submit a complete application as outlined in FRAQMD Rule 10.3 D.3.a.

a. Upon written request of the FRAQMD Air Pollution Control Officer, the permittee shall supplement any complete application with additional information within the timeframe specified by the FRAQMD Air Pollution Control Officer.

[FRAQMD Rule 10.3.D.3.b.1]

b. The permittee shall promptly provide additional information in writing to the FRAQMD Air Pollution Control Officer upon discovery of submittal of any inaccurate information as part of the application or as a supplement thereto, or of any additional relevant facts previously omitted which are needed for accurate analysis of the application.

[FRAQMD Rule 10.3.D.3.b.2.]

c. Intentional or negligent submittal of inaccurate information shall be reason for denial of an application.

[FRAQMD Rule 10.3.D.3.b.3.]

9. Payment of fees

Except as provided in the subsection below, the permittee shall pay an annual supplemental fee for a permit to operate pursuant to FRAQMD Rule 10.3.G as determined by the calculation method in FRAQMD Rule 10.3.G.3, to meet an overall fee rate of \$25 per ton of fee-based potential emissions (CPI adjusted).

[FRAQMD Rule 10.3.G and 40 CFR 70.6(a)(7)]

a. There shall not be a supplemental annual fee if the total annual fee rate paid by the source under FRAQMD Regulation VII and California Health and Safety Code Section 44380 (AB 2588 Toxic Hot Spots) equals or exceeds \$25 per ton of fee-based potential emissions (CPI adjusted). Only those AB 2588 Toxic Hot Spots fees that fund direct and indirect costs associated with activities related to

III. APPLICABLE FEDERALLY ENFORCEABLE REQUIREMENTS - GENERAL (CONTINUED)

the operating permits program as specified in the 1990 Clean Air Act Section 502(b)(3)(A) are to be used to meet the overall fee rate of \$25 per ton of fee-based potential emissions (CPI adjusted).

[FRAQMD Rule 10.3.G.2 and 40 CFR 70.6(a)(7)]

10. Right of Entry

The FRAQMD, the Executive Officer of the California Air Resources Board, the U.S. EPA Region 9 Administrator and/or their authorized representatives, upon the presentation of credentials, shall be permitted:

- a. To enter upon the premises where the emission source is located or in which any records are required to be kept under the terms and conditions of this permit;
- b. At mutually agreed upon times to have access to and copy any records required to be kept under terms and conditions of this permit;
- c. To inspect any equipment, operation, or method required in this permit; and
- d. To obtain samples from the emission source or require samples to be taken.

[FRAQMD Rule 10.3.F.2.j; 40 CFR 70.6(c)(2)]

11. Compliance

The permittee shall comply with all permit conditions.

[FRAQMD Rule 10.3.F.2.k.1; 40 CFR 70.6(a)(6)(i)]

12. Non-Compliance

The non-compliance with any permit condition is grounds for permit termination, revocation and reissuance, modification, enforcement action, or denial of permit renewal.

[FRAQMD Rule 10.3.F.2.k.3; 40 CFR 70.6(a)(6)(i)]

13. Need To Halt or Reduce Activity Not a Defense

The permittee shall not use the "need to halt or reduce a permitted activity in order to maintain compliance" as a defense for non-compliance with any permit condition.

[FRAQMD Rule 10.3.F.2.k.4; 40 CFR 70.6(a)(6)(ii)]

14. Permit Action Does Not Stay any Permit Condition

A pending permit action or notification of anticipated non-compliance does not stay any permit condition.

[FRAQMD Rule 10.3.F.2.k.5; 40 CFR 70.6(a)(6)(iii)]

15. Property Rights

The permit does not convey property rights or exclusive privilege of any sort.

[FRAQMD Rule 10.3.F.2.k.2; 40 CFR 70.6(a)(6)(iv)]

III. APPLICABLE FEDERALLY ENFORCEABLE REQUIREMENTS - GENERAL (CONTINUED)

16. Information Requested

Within a reasonable time, the permittee shall furnish any information requested by the FRAQMD Air Pollution Control Officer, in writing, for the purpose of determining:

- a. compliance with the permit;
- b. whether or not cause exists for a permit or enforcement action;
- c. Upon request, the permittee shall also furnish to the permitting authority copies of records that are required to be maintained by the permit. For information claimed to be confidential, the permittee may furnish such records along with a claim for confidentiality.

[FRAQMD Rule 10.3.F.2.k.6; 40 CFR 70.6(a)(6)(v)]

17. Severability

If any provision, clause, sentence, paragraph, section or part of these conditions for any reason is judged unconstitutional or invalid, such judgment shall not affect or invalidate the remainder of these conditions.

[FRAQMD Rules 1.2, 4.5, and 10.3.F.2.m]

18. Emergency Provisions

- a. *Definition:* An "emergency" or means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

[FRAQMD Rule 10.3.F.2.l; 40 CFR 70.6(g)(1)]

- b. *Effect of an emergency:* An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the reporting requirements of Condition III.19 of this permit are met.

[40 CFR 70.6(g)(2)]

- c. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - i. An emergency occurred and that the permittee can identify the cause(s) of the emergency;
 - ii. The facility was at the time being properly operated;

III. APPLICABLE FEDERALLY ENFORCEABLE REQUIREMENTS - GENERAL (CONTINUED)

- iii. During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and;
- iv. The permittee submitted notice of the emergency to the permitting authority within two working days of the time when emission limitations were exceeded due to the emergency.

[FRAQMD Rule 10.3.F.2.I.2; 40 CFR 70.6(g)(3)]

- d. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.

[FRAQMD Rule 10.3.F.2.I.3; 40 CFR 70.6(g)(4)]

19. Notification and Reporting of Emergency, Upset, or Breakdown Condition

- a. *Definition:* A upset or breakdown is any unforeseeable failure or malfunction of any air pollution control equipment or operating equipment which causes a violation of any emission standard or limitation prescribed by District, California or federal rules, regulations or laws, where such failure or malfunction:
 - i. Is not the result of intent, neglect, or disregard of any air pollution control law, rule or regulation;
 - ii. Is not the result of improper maintenance;
 - iii. Does not constitute a nuisance;
 - iv. Is not an excessively recurrent breakdown of the same equipment.
[FRAQMD Rule 10.3.F.2.g.1]
- b. The FRAQMD and the U.S. EPA shall be notified within 48 hours of any deviation from permit requirements including those attributable to upset or breakdown conditions. Within fifteen (15) calendar days after an upset or breakdown condition, the permittee shall submit a written report to the FRAQMD, including the following:
 - i. A description of malfunctioning equipment or abnormal operation.
 - ii. The date of initial failure and the date normal operations were resumed.
 - iii. The duration of excess emissions.
 - iv. An estimate of the quantity of excess emissions.
 - v. A statement of the cause of the failure.
 - vi. The methods used to restore normal operations.

III. APPLICABLE FEDERALLY ENFORCEABLE REQUIREMENTS - GENERAL (CONTINUED)

[FRAQMD Rule 10.3.F.2.g; 40 CFR 70.6(a)(3)(iii)(B)]

- c. In order to establish an affirmative defense for any permit deviation resulting from upset, breakdown, malfunction or other emergency, the permittee, shall submit within fifteen (15) calendar days, contemporaneous operating logs, or other relevant evidence demonstrating that:
 - i. An emergency occurred;
 - ii. The permittee identifies the cause(s) of the emergency;
 - iii. The facility was being properly operated at the time of the emergency;
 - iv. The permittee took all reasonable steps to minimize the emissions resulting from the emergency event;
 - v. In any enforcement proceeding, the permittee has the burden of proof for establishing that an emergency occurred.

[FRAQMD Rule 10.3.F.2.I.2; 40 CFR 70.6(g)(2)]

20. Monitoring Reports

- a. The permittee shall submit to the FRAQMD Air Pollution Control Officer at least once every six months, unless required more frequently by an applicable requirement, reports of all required monitoring.
 - i. All instances of deviations from Title V permit monitoring conditions must be clearly identified in such reports.
- b. The reporting periods for this permit shall be January 01 through June 30 and July 01 through December 31. The reports shall be submitted by July 31 and January 31 following each reporting period respectively.
- c. All required reports must be certified by the responsible official and shall state that, based on information and belief formed after reasonable inquiry; the statements and information in the document are true, accurate, and complete.

[FRAQMD Rule 10.3.F.2.g.2; 40 CFR 70.6(a)(3)(iii)(A)]

21. Annual Compliance Certification Report

- a. The permittee shall submit to the FRAQMD Air Pollution Control Officer and U.S. EPA (Air-3, U.S. EPA Region 9) every 12 months, a certification of compliance by the responsible official with all terms and conditions contained in the Title V permit, including emission limitations, standards and work practices.
- b. The reporting period for this permit shall be January 1 through December 31. The report shall be submitted by January 31 following the reporting period.

III. APPLICABLE FEDERALLY ENFORCEABLE REQUIREMENTS - GENERAL (CONTINUED)

- c. The Compliance Certification Report shall include the following:
- i. The compliance certification shall include the identification of each term or condition of the permit that is the basis of the certification and the means of determining compliance with the term or condition;
 - ii. The compliance certification shall include the compliance status and method(s) used to determine compliance for the current time period and over the entire reporting period and whether such method(s) provides continuous or intermittent data;
 - iii. The compliance certification shall include any additional inspection, monitoring, or entry requirement that may be promulgated pursuant to Sections 114(a) and 504(b) of the CAA.
[FRAQMD Rule 10.3.F.2.n; 40 CFR 70.6(b)(5)]

22. Responsible Official Shall Certify

Any application form, report, or compliance certification submitted pursuant to these regulations shall contain certification by a responsible official of truth, accuracy, and completeness. This certification and any other certification required under this part shall state that, based on information and belief formed after reasonable inquiry, the statements, and information in the document are true, accurate, and complete.
[FRAQMD Rule 10.3.D.3.a.13; 40 CFR 70.5(d)]

23. Facility-Wide General Operating Requirements

At all times, including periods of startup, shutdown and malfunction, the permittee shall, to the extent practicable, maintain and operate all equipment, including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions.
[FRAQMD Rule 4.5; 40 CFR 60.11(d)]

24. Sampling Facilities

- a. The permittee shall provide source-testing ports, platforms, and access ladders that conform to the California Air Resources Board and federal Occupational Health and Safety administration standards.
 - i. Safe sampling platform(s),
 - ii. Safe access to sampling platform(s),
 - iii. Utilities for sampling and testing equipment,
 - iv. Sampling ports adequate for test methods applicable to such facility. This includes constructing the air pollution control system such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable

III. APPLICABLE FEDERALLY ENFORCEABLE REQUIREMENTS - GENERAL (CONTINUED)

test methods and procedures and providing a stack or duct free of cyclonic flow during performance tests, as demonstrated by applicable test methods and procedures.

[40 CFR 60.8(e)]

25. Visible Emissions

Unless otherwise specified in this permit, the permittee shall not discharge into the atmosphere from any source whatsoever any contaminant, other than uncombined water vapor, for a period or periods aggregating more than three (3) minutes in any one (1) hour that is:

- a. As dark or darker in shade as that designated as No. 2 (or 40% opacity) on the Ringelmann Chart, as published by the United States Bureau of Mines and as determined by U.S. EPA Method 9; or
- b. Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subsection (a).

[FRAQMD Rule 3.0]

26. Particulate Concentration

The facility shall not emit into the atmosphere from any source particulate matter in excess of 0.3 grains per cubic foot of gas at standard conditions. When the source involves a combustion process, the concentration must be calculated to 12 percent carbon dioxide (CO₂).

[FRAQMD Rule 3.2]

27. Sulfur Oxides

The facility shall not emit into the atmosphere from any single source of emissions whatsoever any sulfur oxides in excess of 0.2 percent by volume (2,000 ppm) collectively calculated as sulfur dioxide (SO₂).

[FRAQMD Rule 3.10]

28. Circumvention

The permittee shall not build, erect, install, or use any article, machine, equipment or other contrivance, the use of which, without resulting in a reduction in the total release of air contaminants to the atmosphere, reduces or conceals an emission which would otherwise constitute a violation of the State of California Health and Safety Code or the FRAQMD Rules and Regulations. This requirement shall not apply to cases in which the only violation involved is State of California Health and Safety Code Section 41700.

[FRAQMD Rule 3.13]

29. Solvent Degreasing

III. APPLICABLE FEDERALLY ENFORCEABLE REQUIREMENTS - GENERAL (CONTINUED)

Any container of solvent which exceeds 55 gallons capacity shall be covered when not in use and shall be labeled with an instruction to store in a closed condition.

[FRAQMD Rule 3.14]

30. Architectural Coating

Any coating applied to stationary structures and their appurtenances, to mobile homes, to pavements, or to curbs shall meet the requirements of FRAQMD Rule 3.15.

[FRAQMD Rule 3.15 (05-03-1982 SIP approved version)]

31. Accidental Releases

- a. If the permittee is subject to Section 112(r) of the federal Clean Air Act of 1990 and 40 CFR 68, the permittee shall register and submit to the EPA the required data related to the risk management plan (RMP) for reducing the probability of accidental releases of any regulated substances listed pursuant to Section 112(r)(3) of the CAA as amended in 40 CFR 68.130. The list of substances, threshold quantities and accident prevention regulations promulgated under 40 CFR Part 68 do not limit in any way the general duty provisions under Section 112(r)(1) of the federal Clean Air Act of 1990.
[40 CFR Part 68]
- b. If the permittee is subject to Section 112(r) of the federal Clean Air Act of 1990 and 40 CFR 68, the permittee shall comply with the requirements of 40 CFR Part 68 no later than the latest of the following dates as provided in 68.10(a):
 - i. June 21, 1999,
 - ii. Three years after the date on which a regulated substance is first listed under 68.130, or
 - iii. The date on which a regulated substance is first present above a threshold quantity in a process.
[40 CFR Part 68]
- c. If the permittee is subject to Section 112(r) of the federal Clean Air Act of 1990 and 40 CFR 68, the permittee shall submit any additional relevant information requested by any regulatory agency necessary to ensure compliance with the requirements of 40 CFR Part 68.
[40 CFR Part 68]
- d. If the permittee is subject to Section 112(r) of the federal Clean Air Act of 1990 and 40 CFR 68, the permittee shall annually certify compliance with all applicable requirements of Section 112(r) of the federal Clean Air Act of 1990 as part of the required annual compliance certification.
[40 CFR Part 68]

**III. APPLICABLE FEDERALLY ENFORCEABLE REQUIREMENTS - GENERAL
(CONTINUED)**

32. Title VI Requirements (Ozone Depleting Substances)

- a. The permittee, when opening appliances containing CFCs for maintenance, service, repair, or disposal must comply with the required practices pursuant to 40 CFR 82.156.
[40 CFR 82 Subpart F]
- b. Equipment used during the maintenance, service, repair, or disposal of appliances containing CFCs must comply with the standards for recycling and recovery equipment pursuant to 40 CFR 82.158.
[40 CFR 82 Subpart F]
- c. The permittee, when performing maintenance, service, repair, or disposal of appliances containing CFCs, must be certified by an approved technician certification program pursuant to 40 CFR 82.161.
[40 CFR 82 Subpart F]

IV. NON-FEDERALLY ENFORCEABLE REQUIREMENTS - GENERAL

The conditions in this section are based on conditions contained in previous locally issued operating permits or rules and regulations that are not part of the State Implementation Plan. Pursuant to 40 CFR 70.6(b)(2), the conditions of this section are enforceable by the FRAQMD only and shall not be enforceable by U.S. EPA or any citizen. This section is exempt from compliance certification requirements of 40 CFR 70.6, and administrative requirements for permit issuance and permit review of 40 CFR 70.7 and 70.8.

1. Acceptance of Conditions

Acceptance of this Permit to Operate is deemed acceptance of all conditions as specified. Failure to comply with any condition of this permit or the FRAQMD Rules and Regulations shall be grounds for revocation of this permit.

2. Right to Amend Permit

The FRAQMD reserves the right to amend this permit, if the need arises, in order to ensure the compliance of this facility, and/or to abate any public nuisance.

3. Permit Not Transferrable

This permit is not transferable from either one location to another, from one piece of equipment to another or from one person to another without prior FRAQMD approval. In the event a new owner assumes the control of this facility, the FRAQMD shall be notified in writing within ten (10) days of the change of ownership.

4. Operation in Accordance with Permit Submittal

Operation of the equipment must be conducted in compliance with all data and specifications submitted with the application under which this permit was issued. If any provision of this permit is found to be invalid, such finding shall not affect the remaining provisions of this permit.

5. Payment of Fees

The permittee shall be responsible for the payment of annual fees. In the event of facility closure, change in ownership or responsibility, the new owner shall be responsible for any outstanding and/or current fees.

6. Right of Entry

The "Right of Entry", as delineated by the California Health and Safety Code Section 41510 of Division 26, shall apply at all times. FRAQMD staff shall be allowed access to the plant site and pertinent records at all reasonable times for the purposes of inspections, surveys, collecting samples, obtaining data, reviewing and copying air contaminant emission records, training, and otherwise conducting all necessary functions related to this permit.

**IV. NON-FEDERALLY ENFORCEABLE REQUIREMENTS - GENERAL
(CONTINUED)**

7. Permit Condition Familiarity

The operating staff of this facility shall be advised of and be familiar with all the conditions contained in this permit.

8. Maintain Equipment

The physical integrity of all processes and air pollution control equipment shall be maintained at regular intervals to insure minimal discharge of emissions. The basic equipment shall not be operated without the control equipment attached and operating as designed. Equipment manufacturers' recommendations shall be followed diligently.

9. Permit Required for Additions and Alterations

Any additions, deletions, or alterations of the subject equipment, including a change in the method of operation or a change in the location, shall be reported to the FRAQMD. Such alterations may require a new Authority to Construct permit.

10. Copy of Permit Maintained at Facility

The permittee shall maintain this permit or a legible copy at the site. The permit shall be made available on demand to any authorized person.

11. Nuisance

The facility shall not emit into the atmosphere 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 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. (California Health and Safety Code Section 41700)

12. Fugitive Dust

The permittee shall take every reasonable precaution not to cause or allow the emissions of fugitive dust from being airborne beyond the property line from which the emission originates, from any construction, handling or storage activity, or any wrecking, excavation, grading, clearing of land or solid waste disposal operation. Reasonable precautions shall include, but are not limited to:

- a. the use, where possible, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, construction of roadways, or the clearing of land, or
- b. the application of asphalt, California approved oils and emulsion substances, water, or suitable chemicals on dirt roads, material stockpiles, and other surfaces which can give rise to airborne dusts, or
- c. any other means approved by the Air Pollution Control Officer.

**IV. NON-FEDERALLY ENFORCEABLE REQUIREMENTS - GENERAL
(CONTINUED)**

13. Architectural Coatings

- a. Any coating applied to stationary structures and their appurtenances, to mobile homes, to pavements, or to curbs, shall meet the requirements of FRAQMD Rule 3.15.
- b. All VOC containing materials shall be stored in closed containers when not in use. In use includes, but is not limited to: being accessed, filled, emptied, maintained, or repaired. (FRAQMD Rule 3.15.C.)

14. Air Toxic Hot Spots

- a. This facility is subject to Division 26, Part 6, Chapter 1 Section 44300 of the California Health and Safety Code (Air Toxics "Hot Spots" Information and Assessment Act of 1987). The owner or operator is responsible for complying with all requirements and deadlines set forth in the regulation.
- b. The FRAQMD reserves the right to require the facility to evaluate the health risk, in accordance with the Toxic Hot Spot Emission Inventory Criteria and Guidelines Regulation, if there is a significant change in population, emissions, or emission unit(s) site location, or if new health data becomes available.

15. Portable Engines and Portable Equipment Units

- a. The operation of portable engines and portable equipment units at the facility shall not require modification of this permit provided the permittee verifies that each source is registered with the California Air Resources Board.
 - i. This provision shall not apply if the engine or equipment unit is operated in such a way that it supplements the stationary source operation.
 - ii. For the purpose of this permit, "Equipment Unit" means equipment that emits PM₁₀ over and above that emitted from an associated engine.
- b. Portable engines and portable equipment units registered by the California Air Resources Board shall operate pursuant to the conditions of the registration. Operation of the source, such that the operation invalidates the registration, shall not be permitted.
- c. If a portable equipment unit will be at the facility for more than five days, the permittee shall notify the district in writing within two working days of commencing operations. The notification shall include:
 - i. the registration number of the equipment unit;
 - ii. the name and phone number of the responsible official; and
 - iii. the estimated time that the equipment unit will be located at the facility.

**IV. NON-FEDERALLY ENFORCEABLE REQUIREMENTS - GENERAL
(CONTINUED)**

- d. If the permittee utilizes a portable equipment unit, the permittee shall comply with the following recordkeeping and reporting provisions within 30 days after the end of each calendar quarter:
 - i. The dates in which the equipment unit was operated at the facility,
 - ii. The type and quantity of materials processed by the equipment unit,
 - iii. The emissions for the project, calculated in accordance with the equipment unit's registration.

**V. FEDERALLY ENFORCEABLE REQUIREMENTS -
 CALPINE GREENLEAF II - GAS TURBINE (S-1) AND DUCT BURNER (S-2)**

*The information and conditions specified in this section are enforceable by the
 FRAQMD, U.S. EPA, CARB, and the public.*

EQUIPMENT DESCRIPTION:

Gas Turbine (S-1)

Manufacturer: General Electric
 Model No.: 7LM5000-GE-NGA
 Type: Simple Cycle, Cogeneration
 Emission Control: Steam injection, Low Sulfur Fuel, Combustion Controls, Selective
 Catalytic Reduction (SCR)
 Fuel: Natural gas
 Max. Heat Input: 450 MMBTU/hour
 Net Output: Nominal 49.5 MW

Duct Burner for the Heat Recovery Steam Generator (S-2)

Manufacturer: Coen
 Emission Control: Low-NOx combustion design
 Fuel: Natural gas
 Max. Rating: 84,000 scf/hour

Air Pollution Control System for (S-1) and (S-2) for NOx

Manufacturer: Johnson Matthey
 Control Device: SCR (Anhydrous Ammonia)
 Venting: Gas Turbine and Duct Burner for Heat Recovery Steam Generator

EMISSION LIMIT REQUIREMENTS:

- The gas turbine and duct burner combined emissions shall not exceed the following limits:

[FRAQMD Rule 4.5]

Pollutant	Maximum Allowable Emissions: Gas Turbine (S-1) and Duct Burner (S-2) Combined (a) (b)		
	ppmvd at 15% O2	lbs/hr	lbs/day
VOC	NA	6.5	156
NOx (as NO2)	6	11.4	245
SOx	NA	0.2	5
CO	NA	31.4	537
PM	NA	3.4	82

**V. FEDERALLY ENFORCEABLE REQUIREMENTS -
 CALPINE GREENLEAF II - GAS TURBINE (S-1) AND DUCT BURNER (S-2)
 (CONTINUED)**

- (a) Excluding startups and shutdowns, as defined in Conditions VIII.2 and VIII.3.
- (b) All emissions are calculated on a dry basis. All emission limits shall be measured on a 3-hour average (an average of three 1-hour tests for the purpose of source testing and a 3-hour rolling average for a continuous emission monitoring (CEM) system).

2. The gas turbine and duct burner combined emissions shall not exceed the following limits:

[FRAQMD Rule 4.5]

Pollutant	Maximum Allowable Emissions: Gas Turbine (S-1) and Duct Burner (S-2) Combined (a)				
	January-March (lbs/quarter)	April-June (lbs/quarter)	July-September (lbs/quarter)	October-December (lbs/quarter)	Annual (tons/year)
VOC	14,040	14,196	14,352	14,352	28.47
NOx (as NO2)	22,050	22,295	22,540	22,540	44.71
SOx	475	480	486	486	0.96
CO	48,330	48,867	49,404	49,404	98.0
PM	7,344	7,426	7,507	7,507	14.89

(a) Excluding startups and shutdowns, as defined in Conditions VIII.2 and VIII.3.

EQUIPMENT OPERATION REQUIREMENTS:

3. The facility shall install, continuously operate, and maintain the following air pollution control equipment:

- a. Steam injection to reduce emissions of nitrogen oxides from the gas turbine.
- b. Selective Catalytic Reduction (SCR) to reduce emissions from the gas turbine and duct burner combination.
 - i. Ammonia flow to the SCR system shall be regulated by automatic controls. In the case of regular maintenance on the controls or in the event of a breakdown, ammonia flow may be administered by the manual bypass system.

[FRAQMD Rule 4.5]

4. The gas turbine and duct burner combination is authorized to operate 24 hours per day and 8,760 hours per calendar year.

[FRAQMD Rule 4.5]

**V. FEDERALLY ENFORCEABLE REQUIREMENTS -
CALPINE GREENLEAF II - GAS TURBINE (S-1) AND DUCT BURNER (S-2)
(CONTINUED)**

5. The gas turbine and duct burner combination shall combust no more than an average of 500 MMBTU/hr (HHV) of natural gas per calendar day.
[FRAQMD Rule 4.5]
6. The gas turbine and duct burner combination shall exclusively use natural gas as a fuel.
[FRAQMD Rule 4.5]

MONITORING REQUIREMENTS:

7. The permittee shall install, maintain, and operate the following continuous monitoring systems in the exhaust stack of the heat recovery steam generator:
 - a. A continuous monitoring system to measure stack gas NO_x concentrations. The system shall meet EPA monitoring performance specifications (40 CFR 60.13 and 40 CFR 60, Appendix B, Performance Specification 2).
 - b. A continuous monitoring system to measure stack gas O₂ concentrations. The system shall meet EPA monitoring performance specifications (40 CFR 60, Appendix B, Performance Specification 3).
 - c. A continuous monitoring system to measure stack gas CO concentrations. The system shall meet EPA monitoring performance specifications (40 CFR Part 60 Appendix B. Performance Specification 4).
[FRAQMD Rule 4.5]
8. A quality assurance/quality control (QA/QC) program for the CEM system shall be developed and maintained. At a minimum, the plan shall conform to 40 CFR 60 Appendix F.
[FRAQMD Rule 4.5]
9. A Relative Accuracy Test Audit (RATA) shall be conducted at least once every four operating quarters.
 - a. The RATA for the NO_x monitor shall be conducted in accordance with 40 CFR 60 Appendix B Performance Specification 2 Section 7.
 - b. The RATA for the O₂ monitor shall be conducted in accordance with 40 CFR 60 Appendix B Performance Specification 3 Section 3.
 - c. The RATA for the CO monitor shall be conducted in accordance with 40 CFR 60 Appendix B Performance Specification 4 Section 3.
[40 CFR 60 Appendix F]
10. A Cylinder Gas Audit (CGA) shall be conducted in three of four calendar quarters, but need not be performed in the same quarter as a RATA. The CGA shall be conducted in accordance with 40 CFR Appendix F Section 5.1.2.
[40 CFR 60 Appendix F]

**V. FEDERALLY ENFORCEABLE REQUIREMENTS -
CALPINE GREENLEAF II - GAS TURBINE (S-1) AND DUCT BURNER (S-2)
(CONTINUED)**

11. All audit gases shall have been certified by comparison to National Bureau of Standards (NBS) Standard Reference Materials or NBS/EPA Certified Reference Materials. Documentation shall be made available to the FRAQMD upon request containing gas calibration standard information, including an identification number corresponding to the gas cylinder number, gas mixture constituents and concentrations, and gas cylinder fill and expiration dates. If a gas cylinder expiration date is not provided by the gas vendor, a two (2) year expiration date from the cylinder fill date shall apply. Gas calibration standards in use beyond the expiration date will be considered a violation of this permit.
[40 CFR 60 Appendix F]
12. The permittee shall determine flow rates from the heat recovery steam generator stack based on the amount of fuel burned, water injected, excess oxygen, or other monitored parameters based on methods approved by the FRAQMD.
[FRAQMD Rule 4.5]
13. The permittee shall monitor total sulfur content of the fuel being fired in the turbine, except as provided by 40 CFR 60.334(h)(3) and Condition V.14, below. The sulfur content of the fuel must be determined using total sulfur methods described in 40 CFR 60.335(b)(10), or as otherwise provided in 40 CFR 60.334(h)(1).
[FRAQMD Rule 4.5]
14. Notwithstanding the provisions of 40 CFR 60.334(h)(1) requiring the monitoring of fuel total sulfur content, the permittee may elect not to monitor the total sulfur content of the gaseous fuel combusted in the gas turbine, if the gaseous fuel is demonstrated to meet the definition of natural gas in 40 CFR 60.331(u). The owner or operator shall use one of the following sources of information to make the required demonstration:
- a. The gas quality characteristics in a current, valid purchase contract, tariff sheet, or transportation contract for the gaseous fuel, specifying that the maximum total sulfur content of the fuel is 20.0 grains/100 scf or less; or
 - b. Representative fuel sampling data which show that the sulfur content of the gaseous fuel does not exceed 20 grains/100 scf. At a minimum, the amount of fuel sampling data specified in 40 CFR 75 Appendix D Sections 2.3.1.4 or 2.3.2.4 is required.
[40 CFR 60.334(h)(3)]

EMISSION TESTING REQUIREMENTS:

15. The permittee shall perform a VOC, NO_x, and CO source test of the gas turbine and duct burner every other calendar year or sooner if required by the FRAQMD.
- a. Except as provided in this permit, the tests shall conform to U.S. EPA or CARB methodology and procedures. Reference test methods are California Code of

**V. FEDERALLY ENFORCEABLE REQUIREMENTS -
CALPINE GREENLEAF II - GAS TURBINE (S-1) AND DUCT BURNER (S-2)
(CONTINUED)**

Regulations Title 17 Sections 94101 et. seq., 40 CFR 60 Appendix A, and 40 CFR Part 51 Appendix M.

- b. Any deviation from the emission testing requirements shall first be approved by the FRAQMD.
- c. The permittee shall submit a source test protocol to the FRAQMD at least thirty days prior to the scheduled test date.
- d. The permittee shall notify FRAQMD at least ten days prior to any scheduled source test.
- e. The permittee shall submit the results of the source test to the FRAQMD within sixty days following testing.

[FRAQMD Rule 4.5; 40 CFR 60.8(c)]

16. The gas turbine and duct burner shall be source tested at maximum operating capacity to determine the emission rates (lbs/hour) and concentrations, corrected to 15% oxygen, of the VOC, NO_x, CO, and PM.
- a. Testing for PM₁₀ or PM_{2.5} shall be optional, at the discretion of the FRAQMD.
 - b. The oxides of sulfur (SO_x) emissions may be determined by mass balance equations.
 - c. Facility operating parameters under which the test is conducted shall be reported in the test results.

[FRAQMD Rule 4.5]

17. Each performance test shall consist of three separate runs using the applicable test method.
- a. Each run shall be conducted for the time and under the conditions specified in the applicable standard.
 - b. For the purpose of determining compliance with an applicable standard, the arithmetic means of results of the three runs shall apply.
 - c. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances, beyond the permittee's control, compliance may be determined using the arithmetic mean of the results of the two other runs.

[FRAQMD Rule 4.5; 40 CFR 60.8(f)]

RECORDKEEPING REQUIREMENTS:

18. The following records shall be continuously maintained on site for the most recent five-year period and shall be made available to the FRAQMD Air Pollution Control Officer upon request.

**V. FEDERALLY ENFORCEABLE REQUIREMENTS -
 CALPINE GREENLEAF II - GAS TURBINE (S-1) AND DUCT BURNER (S-2)
 (CONTINUED)**

[FRAQMD Rule 4.5, 40 CFR 60.7; 40 CFR 70.6(c)(1)]

Frequency	Information to be Recorded
Upon occurrence	<p>a. Occurrence and duration of any:</p> <ul style="list-style-type: none"> i. Startup, shutdown or malfunction in operation of the gas turbine and duct burner. ii. Malfunction of the air pollution control equipment. iii. Periods during which a continuous monitoring system or monitoring device is inoperative. iv. Operation of the ammonia bypass system, including ammonia flow rate to the SCR and total quantity of ammonia injected. [40 CFR 60.7(b), FRAQMD Rule 4.5] <p>b. Measurements of the continuous emission monitoring, recorded in a permanent form, including:</p> <ul style="list-style-type: none"> i. Monitoring device and performance testing measurements. ii. Continuous monitoring system performance evaluations. iii. Continuous monitoring system or monitoring device calibration checks. iv. Continuous monitoring system adjustments and maintenance. [FRAQMD Rule 4.5]
When a source test is performed	<p>c. Records shall be maintained of all monitoring and support information required by any applicable federal requirement, including:</p> <ul style="list-style-type: none"> i. Date, place, and time of sampling. ii. The date(s) analyses were performed. iii. The company or entity that performed the analyses. iv. The analytical techniques or methods used. v. Operating conditions at the time of sampling. vi. Results of the analysis. [FRAQMD Rule 10.3.F.2.f; 40 CFR 70.6(a)(3)(ii)]

**V. FEDERALLY ENFORCEABLE REQUIREMENTS -
 CALPINE GREENLEAF II - GAS TURBINE (S-1) AND DUCT BURNER (S-2)
 (CONTINUED)**

Frequency	Information to be Recorded
When a breakdown occurs	d. In the event of a breakdown, malfunction, or other emergency, the permittee shall retain properly signed, contemporaneous operating logs, or other relevant evidence that: <ul style="list-style-type: none"> i. An emergency occurred. ii. The permittee identified the cause(s) of the emergency. iii. The facility was being properly operated at the time of the emergency. iv. The permittee took all reasonable steps to minimize the emissions resulting from the emergency event. [FRAQMD Rule 10.3.F.2.1.2.e; 40 CFR 70.6(g)(2)]
Hourly	e. Natural gas fuel consumption of the gas turbine. (scf/hour) [FRAQMD Rule 4.5] <ul style="list-style-type: none"> f. Natural gas fuel consumption of the duct burner. (scf/hour) [FRAQMD Rule 4.5] g. NO_x and CO emission concentrations from the gas turbine/duct burner combination. (ppmv at 15% O₂, 3-hour rolling average) [FRAQMD Rule 4.5] h. VOC, NO_x, SO₂, PM and CO hourly mass emissions from gas turbine/duct burner combination. (lbs/hour) <ul style="list-style-type: none"> i. For those pollutants directly monitored (NO_x and CO), the hourly emissions will be from the CEM system. ii. For those pollutants that are not directly monitored (VOC, SO₂ and PM), the hourly emissions shall be calculated based on FRAQMD approved emission factors. [FRAQMD Rule 4.5] i. Hourly steam injection to the turbine. (lbs/hour) [FRAQMD Rule 4.5] j. Hourly electrical production. (MW) [FRAQMD Rule 4.5]
Daily	k. VOC, NO _x , SO _x , PM and CO daily mass emissions from the gas turbine and duct burner combined. (lbs/day) [FRAQMD Rule 4.5]
Quarterly	l. VOC, NO _x , SO _x , PM and CO quarterly mass emissions from the gas turbine and duct burner combined. (lbs/quarter) [FRAQMD Rule 4.5]

**V. FEDERALLY ENFORCEABLE REQUIREMENTS -
 CALPINE GREENLEAF II - GAS TURBINE (S-1) AND DUCT BURNER (S-2)
 (CONTINUED)**

Frequency	Information to be Recorded
Yearly	m. VOC, NOx, SOx, PM and CO yearly mass emissions from the gas turbine and duct burner combined. (lbs/calendar year) [FRAQMD Rule 4.5]

REPORTING REQUIREMENTS:

19. For each calendar quarter, the facility shall submit to the FRAQMD Air Pollution Control Officer a written report within 30 days of the end of the reporting period. Each report shall contain the following information, as specified in the table below:
[FRAQMD Rule 4.5; 40 CFR 60.7]

Frequency	Information to be Reported
Quarterly Submitted by: Jan 31 Apr 30 Jul 31 Oct 31 for the previous calendar quarter	<ul style="list-style-type: none"> a. Whenever the continuous emissions monitoring system is inoperative except for zero and span checks: <ul style="list-style-type: none"> i. Date and time of non-operation of the continuous emission monitoring system. ii. Nature of the continuous emission monitoring system repairs or adjustments. b. Whenever an emission occurs as measured by the required continuous emissions monitoring system that is in excess of any emission limitation: <ul style="list-style-type: none"> i. The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h) and any conversion factors used. ii. Date and time of the commencement and completion of each period of excess emissions. iii. Periods of excess emissions due to startup, shutdown, and malfunction shall be specifically identified. iv. The nature and cause of any malfunction, if known, or the best possible cause of any malfunction if not specifically known. v. The corrective action taken or preventive measures adopted. c. If there were no excess emissions or the CEM system has not been inoperative, repaired, or adjusted for a calendar quarter such information shall be stated in the report.

**V. FEDERALLY ENFORCEABLE REQUIREMENTS -
 CALPINE GREENLEAF II - GAS TURBINE (S-1) AND DUCT BURNER (S-2)
 (CONTINUED)**

Frequency	Information to be Reported
Quarterly Submitted by: Jan 31 Apr 30 Jul 31 Oct 31 for the previous calendar quarter	d. Quarterly, daily, and hourly (daily average) VOC, NOx, SOx, PM and CO emissions from the gas turbine and duct burner combined. (lbs/quarter, lbs/day, lbs/hour) <ul style="list-style-type: none"> i. For those pollutants directly monitored (NOx and CO), the reported emissions will be from the CEM system. ii. For those pollutants that are not directly monitored (VOC, SOx and PM), the reported emissions shall be calculated based on FRAQMD approved emission factors. e. Daily net electrical production. (MW/day) f. Daily steam injection to the turbine. (lbs/day) <u>Report in 4th quarter report only</u> g. VOC, NOx, SOx, PM and CO annual mass emissions from the gas turbine and duct burner combined. (lbs/calendar year)

PERMIT SHIELD:

20. Compliance with the specified conditions of the Title V permit shall be deemed compliance with the following subsumed requirements:

[U.S. EPA Title V White Paper Number 2 for Improved Implementation of the Part 70 Operating Permits Program]

Title V Permit Condition No.	Subsumed requirement
V.1	FRAQMD Rule 3.2 - Particulate Matter Concentration
V.1	FRAQMD Rule 3.10 - Sulfur Oxides
V.1	40 CFR 60 Subpart GG - Standards of Performance for Stationary Gas Turbines (amended 02-24-2006) §60.332.a.1, §60.333.a

**VI. FEDERALLY ENFORCEABLE REQUIREMENTS -
 CALPINE GREENLEAF II - IC ENGINE (S-3)**

The information and conditions specified in this section are enforceable by the FRAQMD, U.S. EPA, CARB, and the public.

EQUIPMENT DESCRIPTION:

IC Engine (S-3)

Manufacturer: Waukesha
 Model No.: L7042G
 Type: 4 stroke, rich burn
 Emission Control: Nonselective Catalytic Reduction (NSCR)
 Fuel: Natural gas
 Max Output: 810 hp @ 1000 rpm
 Work Performed: Emergency Compressor

Air Pollution Control System for (S-3) for NOx, VOC, and CO

Control Device: 3-way NSCR catalyst
 Manufacturer: DCL
 Model: 2-DXC74x
 Venting: IC engine

EMISSION LIMIT REQUIREMENTS:

1. The IC Engine (S-3) emissions shall not exceed the following limits:

[FRAQMD Rule 10.1]

Pollutant	Maximum Allowable Emissions: IC Engine (S-3)
VOC	0.15 g/bhp-hr
NOx (as NO2)	0.15 g/bhp-hr
CO	0.6 g/bhp-hr

2. The IC Engine (S-3) emissions shall not exceed the following limit:

[FRAQMD Rule 3.2]

Pollutant	Maximum Allowable Emissions: IC Engine (S-3)
PM	0.3 grains/dscf

3. The IC Engine (S-3) emissions shall not exceed the following limit:

[FRAQMD Rule 3.10]

Pollutant	Maximum Allowable Emissions: IC Engine (S-3)
SOx	0.2% (2,000 ppmv)

**VI. FEDERALLY ENFORCEABLE REQUIREMENTS -
CALPINE GREENLEAF II - IC ENGINE (S-3)
(CONTINUED)**

4. The IC Engine (S-3) emissions shall not exceed the following mass emission limits:
[FRAQMD Rule 10.1]

Pollutant	Maximum Allowable Emissions: IC Engine (S-3)				
	January- March (lbs/quarter)	April- June (lbs/quarter)	July- September (lbs/quarter)	October- December (lbs/quarter)	Annual (tons/year)
VOC	579	585	591	591	1.17
NOx (as NO2)	579	585	591	591	1.17
SOx	8	8	8	8	0.02
CO	2,314	2,340	2,366	2,366	4.69
PM	127	129	130	130	0.26

EQUIPMENT OPERATION REQUIREMENTS:

5. The IC Engine (S-3) shall not exceed 100 hours per calendar year for maintenance and testing operations.
[FRAQMD Rule 3.22, 40 CFR 63.6640(f)]
6. The IC Engine (S-3) may be operated up to 8,760 hours per calendar year for emergency use.
[FRAQMD Rule 3.22, Rule 10.1]
7. The IC Engine (S-3) shall be equipped with a non-resettable hour meter to record the cumulative hours of operation.
[FRAQMD Rule 3.22, 40 CFR 63.6655(f)]
8. The IC Engine (S-3) shall be fired exclusively with natural gas.
[FRAQMD Rule 4.5]
9. The 3-way catalyst shall be maintained according to the manufacturer specifications.
[FRAQMD Rule 4.5]
10. The permittee shall follow the following maintenance procedures for the IC Engine:
- a. Change oil and filter every 500 hours of operation or annually, whichever comes first;
 - b. Inspect spark plugs every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and
 - c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.
[40 CFR 63.6640(f)]

**VI. FEDERALLY ENFORCEABLE REQUIREMENTS -
 CALPINE GREENLEAF II - IC ENGINE (S-3)
 (CONTINUED)**

RECORDKEEPING REQUIREMENTS:

11. The following records shall be continuously maintained on site for the most recent five-year period and shall be made available to the FRAQMD Air Pollution Control Officer upon request.

[FRAQMD Rule 4.5]

Frequency	Information to be Recorded
Upon occurrence	a. Occurrence and duration of any <ul style="list-style-type: none"> i. Operation for maintenance and testing. ii. Operation for emergency use. [FRAQMD Rule 4.5, 40 CFR 63.6640(f)] b. All records of oil and oil filter, spark plug, and hoses & belt inspections and maintenance. [FRAQMD Rule 4.5]
When a breakdown occurs	c. In the event of a breakdown, malfunction, or other emergency, the permittee shall retain properly signed, contemporaneous operating logs, or other relevant evidence that: <ul style="list-style-type: none"> i. An emergency occurred. ii. The permittee identified the cause(s) of the emergency. iii. The facility was being properly operated at the time of the emergency. iv. The permittee took all reasonable steps to minimize the emissions resulting from the emergency event. [FRAQMD Rule 4.5, Rule 10.3.F.2.1.2.e, and 40 CFR 70.6(g)(2)]
Monthly	d. Hours of operation for maintenance and testing. (hours/month) e. Hours of operation for emergency use. (hours/month) [FRAQMD Rule 4.5, 40 CFR 63.6655(f)]
Yearly	f. Hours of operation for maintenance and testing. (hours/calendar year) g. Hours of operation for emergency use. (hours/calendar year) [FRAQMD Rule 4.5, 40 CFR 63.6655(f)]

**VI. FEDERALLY ENFORCEABLE REQUIREMENTS -
 CALPINE GREENLEAF II - IC ENGINE (S-3)
 (CONTINUED)**

REPORTING REQUIREMENTS:

12. For each calendar quarter, the facility shall submit to the FRAQMD Air Pollution Control Officer a written report within 30 days of the end of the reporting period. Each report shall contain the following information, as specified in the table below:
[FRAQMD Rule 4.5; 40 CFR 60.7]

Frequency	Information to be Reported
Quarterly Submitted by: Jan 31 Apr 30 Jul 31 Oct 31 for the previous calendar quarter	a. Hours of operation for maintenance and testing. (hours/quarter) b. Hours of operation for emergency use. (hours/quarter) [FRAQMD Rule 4.5] <u>Report in 4th quarter report only</u> c. Hours of operation for maintenance and testing. (hours/calendar year) d. Hours of operation for emergency use. (hours/calendar year) [FRAQMD Rule 4.5]

**VII. FEDERALLY ENFORCEABLE REQUIREMENTS -
 YUBA CITY ENERGY CENTER - GAS TURBINE (S-4)**

The information and conditions specified in this section are enforceable by the FRAQMD, U.S. EPA, CARB, and the public.

EQUIPMENT DESCRIPTION:

Gas Turbine (S-4)

Manufacturer: General Electric
 Model No.: LM6000PC
 Type: Simple Cycle
 Emission Control: SCR and Oxidation catalyst
 Fuel: Natural gas
 Max. Heat Input: 500 MMBTU/hour
 Net Output: 48.1 MW (nominal)

Air Pollution Control System for (S-4) for NOx

Control Device: SCR (aqueous ammonia – 19%)
 Venting: Gas Turbine

Air Pollution Control System for (S-4) for CO and VOC

Control Device: Oxidation Catalyst
 Venting: Gas Turbine

EMISSION LIMIT REQUIREMENTS:

1. The gas turbine (S-4) emissions shall not exceed the following limits:
[FRAQMD Rule 4.5]

Pollutant	Maximum Allowable Emissions: Gas Turbine (S-4) (a) (b)		
	ppmvd at 15% O2	lbs/hr	lbs/day
VOC	NA	1.11	26.6
NOx (as NO2)	5	7.97	191
SOx	NA	0.30	7.32
CO	6	5.82	140
PM	NA	2.5	60.0

(a) Excluding startups and shutdowns, as defined in Conditions VIII.2 and VIII.3.

(b) All emissions are calculated on a dry basis. All emission limits shall be measured on a 3-hour average (an average of three one-hour tests for the purpose of source testing and a 3-hour rolling average for a continuous emission monitoring (CEM) system).

**VII. FEDERALLY ENFORCEABLE REQUIREMENTS -
 YUBA CITY ENERGY CENTER - GAS TURBINE (S-4)
 (CONTINUED)**

2. The gas turbine (S-4) emissions shall not exceed the following mass emission limits:
[FRAQMD Rule 4.5]

Pollutant	Maximum Allowable Emissions: Gas Turbine (S-4) (a)				
	January- March (lbs/quarter)	April- June (lbs/quarter)	July- September (lbs/quarter)	October- December (lbs/quarter)	Annual (tons/year)
VOC	1,610	1,610	1,610	1,610	3.22
NOx (as NO2)	7,000	7,000	7,000	7,000	14.0
SOx	435	435	435	435	0.87
CO	8,439	8,439	8,439	8,439	16.90
PM	3,625	3,625	3,625	3,625	7.25

(a) Excluding startups and shutdowns, as defined in Conditions VIII.2 and VIII.3.

EQUIPMENT OPERATION REQUIREMENTS:

3. The gas turbine is authorized to operate 24 hours/day, 1,450 hours per calendar quarter, and 5,800 hours per calendar year.
[FRAQMD Rule 4.5]
4. The gas turbine shall exclusively use natural gas as a fuel.
[FRAQMD Rule 4.5]
5. The gas turbine shall be limited to combusting an annual average of 500 MMBtu/hr (HHV) of natural gas.
[FRAQMD Rule 4.5]

MONITORING REQUIREMENTS:

6. The permittee shall install, maintain and operate the following continuous emission monitoring (CEM) systems for monitoring the gas turbine exhaust stack.
- A CEM system to measure stack gas NOx concentrations. The CEM system shall meet U.S. EPA monitoring performance specifications in 40 CFR Part 75.
 - A CEM system to measure stack gas CO concentrations. The CEM system shall meet U.S. EPA monitoring performance specifications in 40 CFR Part 60 Appendix B, Performance Specification 4 Section 3.
 - A CEM system to measure stack gas O2 concentrations. The CEM system shall meet U.S. EPA monitoring performance specifications in 40 CFR Part 75.

**VII. FEDERALLY ENFORCEABLE REQUIREMENTS -
YUBA CITY ENERGY CENTER - GAS TURBINE (S-4)
(CONTINUED)**

- d. VOC, SO₂, and PM emissions shall be monitored by source test derived predictive emission algorithms.
[FRAQMD Rule 4.5; 40 CFR 60 Appendix F and 40 CFR 75]
7. A Relative Accuracy Test Audit (RATA) shall be conducted at least once every four successive QA Operating Quarters.
 - a. The RATA for the NO_x monitor shall be conducted in accordance with 40 CFR 75 Appendix B Section 2.3. The RATA may be required semiannually if specified conditions in 40 CFR 75 Appendix B Section 2.3 are not met.
 - b. The RATA for the O₂ monitor shall be conducted in accordance with 40 CFR 75 Appendix B Section 2.3. The RATA may be required semiannually if specified conditions in 40 CFR 75 Appendix B Section 2.3 are not met.
 - c. The RATA for the CO monitor shall be conducted in accordance with 40 CFR 60 Appendix F.
[40 CFR 60 Appendix F and 40 CFR 75 Appendix B]
8. Source testing results shall be used to develop predictive emission algorithms to estimate mass emission rates for VOC, SO₂ and PM emissions.
[FRAQMD Rule 4.5]
9. A quality assurance/quality control (QA/QC) program for the CEM system shall be developed and maintained. At a minimum, the plan shall conform to 40 CFR 75 Appendix B Section 1 for NO_x and O₂ and 40 CFR 60 Appendix F for CO.
[40 CFR 60.13(a), 40 CFR 75 Appendix B]
10. A Cylinder Gas Audit (CGA) for the CO monitor shall be conducted in three of four calendar quarters, but need not be performed in the same quarter as a RATA. The CGA shall be conducted in accordance with 40 CFR 60 Appendix F.
[40 CFR 60 Appendix F]
11. A Linearity Check for the NO_x and O₂ monitors shall be conducted in each QA Operating Quarter. The Linearity Check shall be conducted in accordance with 40 CFR 75 Appendix B.
[40 CFR 75 Appendix B]
12. All audit gases shall have been certified by comparison to National Bureau of Standards (NBS) Standard Reference Materials, NBS/EPA Certified Reference Materials or EPA Protocol Gases.
 - a. Documentation shall be made available to the FRAQMD upon request containing gas calibration standard information, including an identification number corresponding to the gas cylinder number, gas mixture constituents and concentrations, and gas cylinder fill and expiration dates.
 - b. If a gas cylinder expiration date is not provided by the gas vendor, a two (2) year expiration date from the cylinder fill date shall apply.

**VII. FEDERALLY ENFORCEABLE REQUIREMENTS -
YUBA CITY ENERGY CENTER - GAS TURBINE (S-4)
(CONTINUED)**

- c. Gas calibration standards in use beyond the expiration date will be considered a violation of this permit.

[FRAQMD Rule 4.5; 40 CFR 60 Appendix F and 40 CFR 75 Appendix A]

13. Notwithstanding the provisions of 40 CFR 60.334(h)(1) requiring the monitoring of fuel total sulfur content, the permittee may elect not to monitor the total sulfur content of the gaseous fuel combusted in the gas turbines, if the gaseous fuel is demonstrated to meet the definition of natural gas in 40 CFR 60.331(u). The owner or operator shall use one of the following sources of information to make the required demonstration:

- a. The gas quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the gaseous fuel, specifying that the maximum total sulfur content of the fuel is 20.0 grains/100 scf or less; or
- b. Representative fuel sampling data which show that the sulfur content of the gaseous fuel does not exceed 20 grains/100 scf. At a minimum, the amount of fuel sampling data specified in 40 CFR 75 Appendix D Sections 2.3.1.4 or 2.3.2.4 is required.

[40 CFR 60.334(h)(3)]

EMISSION TESTING REQUIREMENTS:

14. The permittee shall perform a VOC, NO_x, CO, and PM source test of the gas turbine every other calendar year or sooner if required by the FRAQMD.
- a. Except as provided in this permit, the tests shall conform to U.S. EPA or CARB methodology and procedures. Reference test methods are California Code of Regulations Title 17 Sections 94101 et. seq., 40 CFR 60 Appendix A and 40 CFR Part 51 Appendix M.
- b. Any deviation from the emission testing requirements shall first be approved by the FRAQMD.
- c. The permittee shall submit a source test protocol to the FRAQMD at least thirty days prior to the scheduled test date.
- d. The permittee shall notify FRAQMD at least ten days prior to any scheduled source test.
- e. The permittee shall submit the results of the source test to the FRAQMD within sixty days following testing.

[FRAQMD Rule 4.5; 40 CFR 60.8(c)]

15. The gas turbine shall be source tested at the maximum operating capacity to determine the emission rates (lbs/hour) and concentrations corrected to 15% oxygen, of the VOC, NO_x, CO and PM.

**VII. FEDERALLY ENFORCEABLE REQUIREMENTS -
 YUBA CITY ENERGY CENTER - GAS TURBINE (S-4)
 (CONTINUED)**

- a. Testing for PM10 or PM 2.5 shall be optional, at the discretion of the FRAQMD.
- b. The oxides of sulfur (SOx) emissions may be determined by mass balance equations.
- c. Facility operating parameters under which the test is conducted shall be reported in the test results.
[FRAQMD Rule 4.5]

16. Each performance test shall consist of three separate runs using the applicable test method.

- a. Each run shall be conducted for the time and under the conditions specified in the applicable standard.
- b. For the purpose of determining compliance with an applicable standard, the arithmetic means of results of the three runs shall apply.
- c. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the permittee's control, compliance may be determined using the arithmetic mean of the results of the two other runs.
[FRAQMD Rule 4.5; 40 CFR 60.8(f)]

RECORDKEEPING REQUIREMENTS:

17. The following records shall be continuously maintained on site for the most recent five-year period and shall be made available to the FRAQMD Air Pollution Control Officer upon request.
[FRAQMD Rule 4.5, 40 CFR 60.7 and 40 CFR 70.6(c)(1)]

Frequency	Information to be Recorded
Upon occurrence	<ul style="list-style-type: none"> a. Occurrence and duration of any <ul style="list-style-type: none"> i. Startup, shutdown or malfunction in operation of the gas turbine. ii. Malfunction of the air pollution control equipment. iii. Periods during which a continuous monitoring system or monitoring device is inoperative. iv. Corrective actions taken. [40 CFR 60.7(b)]

**VII. FEDERALLY ENFORCEABLE REQUIREMENTS -
 YUBA CITY ENERGY CENTER - GAS TURBINE (S-4)
 (CONTINUED)**

Frequency	Information to be Recorded
When a source test is performed	b. Records shall be maintained of all monitoring and support information required by any applicable federal requirement, including: <ul style="list-style-type: none"> i. Date, place, and time of sampling. ii. The date(s) analyses were performed. iii. The company or entity that performed the analyses. iv. The analytical techniques or methods used. v. Operating conditions at the time of sampling. vi. Results of the analysis. <p align="center">[FRAQMD Rule 4.5, Rule 10.3.F.2.f, and 40 CFR 70.6(a)(3)(ii)]</p>
When a breakdown occurs	c. In the event of a breakdown, malfunction or other emergency, the permittee shall retain properly signed, contemporaneous operating logs, or other relevant evidence that: <ul style="list-style-type: none"> i. An emergency occurred. ii. The permittee identified the cause(s) of the emergency. iii. The facility was being properly operated at the time of the emergency. iv. The permittee took all reasonable steps to minimize the emissions resulting from the emergency event. <p align="center">[FRAQMD Rule 4.5, Rule 10.3.F.2.I.2.e, and 40 CFR 70.6(g)(2)]</p>
Hourly	d. Natural gas fuel consumption of the gas turbine. (scf/hour) [FRAQMD Rule 4.5] <ul style="list-style-type: none"> e. NOx and CO emission concentrations from the gas turbine. (ppmvd at 15% O2, 3-hour rolling average) [FRAQMD Rule 4.5] f. VOC, NOx, SO2, PM and CO hourly mass emissions from gas turbine. (lbs/hour) <ul style="list-style-type: none"> i. For those pollutants directly monitored (NOx and CO), the hourly emissions will be from the required CEM system. ii. For those pollutants that are not directly monitored (VOC, SO2 and PM), the hourly emissions shall be calculated based on FRAQMD approved emission factors. [FRAQMD Rule 4.5] g. Hourly electrical production. (MW) [FRAQMD Rule 4.5]

**VII. FEDERALLY ENFORCEABLE REQUIREMENTS -
 YUBA CITY ENERGY CENTER - GAS TURBINE (S-4)
 (CONTINUED)**

Frequency	Information to be Recorded
Daily	h. VOC, NO _x , SO _x , PM and CO daily mass emissions from the gas turbine. (lbs/day) [FRAQMD Rule 4.5]
Quarterly	i. VOC, NO _x , SO _x , PM and CO quarterly mass emissions from the gas turbine. (lbs/quarter) [FRAQMD Rule 4.5]
Yearly	j. VOC, NO _x , SO _x , PM and CO yearly mass emissions from the gas turbine. (lbs/calendar year) [FRAQMD Rule 4.5]

REPORTING REQUIREMENTS:

18. For each calendar quarter, the facility shall submit to the FRAQMD Air Pollution Control Officer a written report within 30 days of the end of the reporting period. Each report shall contain the following information, as specified in the table below:
[FRAQMD Rule 4.5; 40 CFR 60.7]

Frequency	Information to be Reported
Quarterly Submitted by: Jan 31 Apr 30 Jul 31 Oct 31 for the previous calendar quarter	a. Whenever the continuous emissions monitoring system is inoperative except for zero and span checks: <ul style="list-style-type: none"> i. Date and time of non-operation of the continuous emission monitoring system. ii. Nature of the continuous emission monitoring system repairs or adjustments. b. Whenever an emission occurs as measured by the required continuous emissions monitoring system that is in excess of any emission limitation: <ul style="list-style-type: none"> i. The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h) and any conversion factors used. ii. Date and time of the commencement and completion of each period of excess emissions. iii. Periods of excess emissions due to startup, shutdown, and malfunction shall be specifically identified. iv. The nature and cause of any malfunction, if known, or the best possible cause of any malfunction if not specifically known.

**VII. FEDERALLY ENFORCEABLE REQUIREMENTS -
 YUBA CITY ENERGY CENTER - GAS TURBINE (S-4)
 (CONTINUED)**

Frequency	Information to be Reported
Quarterly Submitted by: Jan 31 Apr 30 Jul 31 Oct 31 for the previous calendar quarter	v. The corrective action taken or preventive measures adopted. c. If there were no excess emissions or the CEM system has not been inoperative, repaired, or adjusted for a calendar quarter such information shall be stated in the report. d. Quarterly, daily, and hourly (daily average) VOC, NO _x , SO _x , PM and CO emissions from the gas turbine. (lbs/quarter, lbs/day, lbs/hour) i. For those pollutants directly monitored (NO _x and CO), the reported emissions will be from the required CEM system. ii. For those pollutants that are not directly monitored (VOC, SO _x and PM), the reported emissions shall be calculated based on FRAQMD approved emission factors. e. Daily net electrical production. (MW/day) <u>Report in 4th quarter report only</u> f. VOC, NO _x , SO _x , PM and CO annual mass emissions from the gas turbine. (lbs/year)

PERMIT SHIELD:

19. Compliance with the specified conditions of the Title V permit shall be deemed compliance with the following subsumed requirements:

[U.S. EPA Title V White Paper Number 2 for Improved Implementation of the Part 70 Operating Permits Program]

Title V Permit Condition No.	Subsumed requirement
VII.1	FRAQMD Rule 3.2 - Particulate Matter Concentration
VII.1	FRAQMD Rule 3.10 - Sulfur Oxides
VII.1	40 CFR 60 Subpart GG - Standards of Performance for Stationary Gas Turbines (amended 02-24-2006) §60.332.a.1, §60.333.a

**VII. FEDERALLY ENFORCEABLE REQUIREMENTS -
YUBA CITY ENERGY CENTER - GAS TURBINE (S-4)
(CONTINUED)**

ACID RAIN PERMIT:

The requirements specified under this subsection are issued in accordance with Title IV and Title V of the federal Clean Air Act, and are enforceable by the FRAQMD, the U.S. EPA and the public.

20. The permittee shall comply with all the applicable requirements of the Acid Rain Permit Application located in Attachment A of this permit.
[FRAQMD Rule 10.12]
21. This permit incorporates the definitions of terms in 40 CFR §72.2.
[FRAQMD Rule 10.12]
22. The Acid Rain Permit Application contained in Attachment A shall be in effect until the expiration of this permit.
[FRAQMD Rule 4.5]
23. A timely renewal application is an application that is received at least six months prior to the permit expiration date.
[FRAQMD Rule 4.5]

**VIII. FEDERALLY ENFORCEABLE REQUIREMENTS -
 FACILITY WIDE: (S-1), (S-2), (S-3), AND (S-4)**

The information and conditions specified in this section are enforceable by the FRAQMD, U.S. EPA, CARB, and the public.

EMISSION LIMIT REQUIREMENTS:

1. The combined emissions from (S-1), (S-2), (S-3), and (S-4) shall not exceed the following mass emission limits:
[FRAQMD Rule 4.5, Rule 10.1]

Pollutant	Maximum Allowable Emissions: Facility Wide – (S-1), (S-2), (S-3), and (S-4) (a)				
	January-March (lbs/quarter)	April-June (lbs/quarter)	July-September (lbs/quarter)	October-December (lbs/quarter)	Annual (tons/year)
VOC	16,229	16,391	16,553	16,553	32.86
NOx (as NO2)	29,629	29,880	30,131	30,131	59.89
SOx	918	923	929	929	1.85
CO	59,083	59,646	60,209	60,209	119.57
PM	11,096	11,180	11,262	11,262	22.40

(a) Excluding gas turbine startups and shutdowns, as defined in Conditions VIII.2 and VIII.3.

2. Startups are defined as the lesser of the following:
 - a. The first 60 minutes of continuous fuel flow to the Gas Turbine after fuel flow is initiated, or
 - b. The period of time from Gas Turbine fuel flow initiation until the Gas Turbine achieves two consecutive CEM data points in compliance with the emission concentration limits for CO and NOx.
[FRAQMD Rule 4.5]
3. Shutdowns are defined as the lesser of the following:
 - a. The first 30 minute period immediately prior to the termination of fuel flow to the Gas Turbine, or
 - b. The period of time from non-compliance with any requirement for CO or NOx until termination of fuel flow to the Gas Turbine.
[FRAQMD Rule 4.5]

**IX. NON-FEDERALLY ENFORCEABLE REQUIREMENTS -
 CALPINE GREENLEAF II - GAS TURBINE (S-1) AND DUCT BURNER (S-2)**

The information and conditions specified in this section are enforceable by the FRAQMD only.

EMISSION LIMIT REQUIREMENTS:

1. The concentration of ammonia (NH₃) emissions from the gas turbine (S-1) and duct burner combination (S-2) shall not exceed the following limit:

[FRAQMD Rule 4.5]

Pollutant	Maximum Allowable Emissions: Gas Turbine (S-1) and Duct Burner (S-2) Combined
Ammonia (NH ₃)	10 ppmv at 15% O ₂ (a) (b)

(a) Excluding startups and shutdowns, as defined in Conditions VIII.2 and VIII.3.

(b) Based on source testing conducted as requested by the Air Pollution Control Officer.

EMISSION TESTING REQUIREMENTS

2. Upon request and written notification from the Air Pollution Control Officer, the permittee shall perform an ammonia (NH₃) source test of the gas turbine and duct burner combination to verify compliance with Condition IX.1.
 - a. The permittee shall submit a source test plan to the FRAQMD Air Pollution Control Officer for approval at least 30 days prior to the scheduled test date.
 - b. The permittee shall notify the FRAQMD Air Pollution Control Officer at least 7 days prior to the source testing date.
 - c. During the source test(s), the gas turbine and duct burner combination shall be operated at the maximum firing capacity, defined as $\geq 90\%$ of the heat input capacity achievable at the time of the source test, based on then current ambient conditions and process conditions.
 - d. The permittee shall submit the source test results to the FRAQMD Air Pollution Control Officer within 60 days after the completion of the source test.

[FRAQMD Rules 4.5 and 9.3]

RECORDKEEPING REQUIREMENTS:

3. The following records shall be continuously maintained on site for at least five years from the date the record was created and shall be made available to the FRAQMD Air Pollution Control Officer upon request.

[FRAQMD Rule 4.5]

Frequency	Information to be Recorded
Hourly	a. Ammonia injection rate to the SCR system. (lbs/hour)

**IX. NON-FEDERALLY ENFORCEABLE REQUIREMENTS -
CALPINE GREENLEAF II - GAS TURBINE (S-1) AND DUCT BURNER (S-2)
(CONTINUED)**

REPORTING REQUIREMENTS:

4. For each calendar quarter, the facility shall submit to the FRAQMD Air Pollution Control Officer a written report within 30 days of the end of the reporting period. Each report shall contain the following information, as specified in the table below:
[FRAQMD Rule 4.5]

Frequency	Information to be Reported
Quarterly Submitted by: Jan 31 Apr 30 Jul 31 Oct 31 for the previous calendar quarter	a. Ammonia injection rate to the SCR system. (lbs/hour)

**X. NON-FEDERALLY ENFORCEABLE REQUIREMENTS -
 YUBA CITY ENERGY CENTER - GAS TURBINE (S-4)**

The information and conditions specified in this section are enforceable by the FRAQMD only.

EMISSION LIMIT REQUIREMENTS:

1. The concentrations of ammonia (NH₃) emissions from the gas turbine (S-4) shall not exceed the following limit:
[FRAQMD Rule 4.5]

Pollutant	Maximum Allowable Emissions: Gas Turbine (S-4)
Ammonia (NH ₃)	10 ppmv at 15% O ₂ (a) (b)

- (a) Excluding startups and shutdowns, as defined in Conditions VIII.2 and VIII.3.
- (b) Based on source testing conducted as requested by the Air Pollution Control Officer.

EMISSION TESTING REQUIREMENTS

2. Upon request and written notification from the Air Pollution Control Officer, the permittee shall perform an ammonia (NH₃) source test of the gas turbine to verify compliance with Condition X.1.
 - a. The permittee shall submit a source test plan to the FRAQMD Air Pollution Control Officer for approval at least 30 days prior to the scheduled test date.
 - b. The permittee shall notify the FRAQMD Air Pollution Control Officer at least 7 days prior to the source testing date.
 - c. During the source test(s), the gas turbine and duct burner combination shall be operated at the maximum firing capacity, defined as $\geq 90\%$ of the heat input capacity achievable at the time of the source test, based on then current ambient conditions and process conditions.
 - d. The permittee shall submit the source test results to the FRAQMD Air Pollution Control Officer within 60 days after the completion of the source test.
[FRAQMD Rules 4.5 and 9.3]

RECORDKEEPING REQUIREMENTS:

3. The following records shall be continuously maintained on site for at least five years from the date the record was created and shall be made available to the FRAQMD Air Pollution Control Officer upon request.
[FRAQMD Rule 4.5]

Frequency	Information to be Recorded
Hourly	a. Ammonia injection rate to the SCR system. (lbs/hour)

**X. NON-FEDERALLY ENFORCEABLE REQUIREMENTS -
YUBA CITY ENERGY CENTER - GAS TURBINE (S-4)
(CONTINUED)**

REPORTING REQUIREMENTS:

4. For each calendar quarter, the facility shall submit to the FRAQMD Air Pollution Control Officer a written report within 30 days of the end of the reporting period. Each report shall contain the following information, as specified in the table below:
[FRAQMD Rule 4.5]

Frequency	Information to be Reported
Quarterly Submitted by: Jan 31 Apr 30 Jul 31 Oct 31 for the previous calendar quarter	a. Ammonia injection rate to the SCR system. (lbs/hour)

XI. INSIGNIFICANT EMISSION UNITS

Insignificant emissions units may be supplemented, replaced, or modified with identical or non-identical equipment without notice provided that the New Source Review permitting requirements for the equipment have not changed, as defined in current FRAQMD or federal rules.

EXEMPT EQUIPMENT	EQUIPMENT DESCRIPTION	BASIS FOR EXEMPTION
Utility carts, man-lift, fork lift, on-road vehicles	Mobile Equipment (nonroad vehicles)	Rule 4.3.a and 4.3.g
Chiller (cooling tower)	Air intake chiller < 10,000 gpm	Rule 4.3.d Rule 10.3 Attachment 1 - B.3
Air conditioning and office heating	HVAC equipment < 60,000,000 BTU/hr	Rule 4.3.d and 4.3.e Rule 10.3 Attachment 1 - B.2.d
Parts cleaner	Solvent cleaning tank	Rule 4.3.h Rule 10.3 Attachment 1 - B.15
Turbine lube oil tanks	Turbine lube oil tanks (vapor pressure < 1.5 psig)	Rule 4.3.h Rule 10.3 Attachment 1 - B.7.d
Brazing, welding, soldering associated with maintenance.	Maintenance equipment	Rule 4.3.h Rule 10.3 Attachment 1 – B.17
Ammonia Tank 12,000 gallon (regulated only for RMP CAA §112r) 19.5% aqueous	Any valves, flanges, and unvented (except for emergency pressure relief valves) pressure vessels	Rule 4.3.h Rule 10.3 Attachment 1 – B.1
Natural gas supply lines, valves, flanges, compressors.	Any valves, flanges, and unvented (except for emergency pressure relief valves) pressure vessels	Rule 4.3.h Rule 10.3 Attachment 1 – B.11
Various oil tanks, vessels, pipelines	Turbine lube and transformer oil	Rule 4.3.h Rule 10.3 Attachment 1 – B.8

XII. ACRONYMS, ABBREVIATIONS, AND UNITS OF MEASURE

Acronyms, abbreviations and units of measure used in this permit are defined as follows:

ASTM

American Society for Testing and Materials

CAA

The federal Clean Air Act

CARB

California Air Resources Board

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

CO₂

Carbon dioxide

FRAQMD

Feather River Air Quality Management District

Federally Enforceable

All limitations and conditions which are enforceable by the Administrator of the U.S. 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 (HAP) and Part 72 (Permits Regulation, Acid Rain), including limitations and conditions contained in operating permits issued under a U.S. EPA approved program that have been incorporated into the California SIP.

HAP

Hazardous Air Pollutant – Any air pollutant listed in or pursuant to Section 112(b) of the CAA.

NESHAP

National Emission Standards for Hazardous Air Pollutants (see 40 CFR Parts 61 and 63).

XII. ACRONYMS, ABBREVIATIONS, AND UNITS OF MEASURE (CONTINUED)

NO_x

Nitrogen oxides

NSPS

New Source Performance Standards. U.S. EPA 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.

O₂

Oxygen

PM

Particulate matter

PM₁₀

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

QA Operating Quarter

A calendar quarter with greater than or equal to 168 hours of unit operation.

ROG

Reactive organic gases

SIP

State Implementation Plan. CARB and FRAQMD programs and regulations approved by U.S. EPA and developed in order to attain the National Air Ambient Quality Standards. Mandated by Title I of the federal Clean Air Act.

SO₂

Sulfur dioxide

Title V

Title V of the federal Clean Air Act. Title V requires the FRAQMD to operate a federally enforceable operating permit program for major stationary sources and other specified sources.

U.S. EPA

The federal Environmental Protection Agency

VOC

Volatile Organic Compounds

**XII. ACRONYMS, ABBREVIATIONS, AND UNITS OF MEASURE
(CONTINUED)**

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	=	inch
kg	=	kilogram
max	=	maximum
m ²	=	square meter
min	=	minute
mm	=	millimeter
MM	=	million
ppmv	=	parts per million by volume
ppmw	=	parts per million by weight
psia	=	pounds per square inch, absolute
psig	=	pounds per square inch, gauge
quarter	=	calendar quarter
scfm	=	standard cubic feet per minute
yr	=	calendar year

ATTACHMENT A

Acid Rain Permit Application – Yuba City Energy Center

Facility Name	Yuba City Energy Center
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Permit Requirements

STEP 3

Read the standard requirements.

- (1) The designated representative of each affected source and each affected unit at the source shall:
 - (i) Submit a complete Acid Rain permit application (including a compliance plan) under 40 CFR part 72 in accordance with the deadlines specified in 40 CFR 72.30; and
 - (ii) Submit in a timely manner any supplemental information that the permitting authority determines is necessary in order to review an Acid Rain permit application and issue or deny an Acid Rain permit;
- (2) The owners and operators of each affected source and each affected unit at the source shall:
 - (i) Operate the unit in compliance with a complete Acid Rain permit application or a superseding Acid Rain permit issued by the permitting authority; and
 - (ii) Have an Acid Rain Permit.

Monitoring Requirements

- (1) The owners and operators and, to the extent applicable, designated representative of each affected source and each affected unit at the source shall comply with the monitoring requirements as provided in 40 CFR part 75.
- (2) The emissions measurements recorded and reported in accordance with 40 CFR part 75 shall be used to determine compliance by the source or unit, as appropriate, with the Acid Rain emissions limitations and emissions reduction requirements for sulfur dioxide and nitrogen oxides under the Acid Rain Program.
- (3) The requirements of 40 CFR part 75 shall not affect the responsibility of the owners and operators to monitor emissions of other pollutants or other emissions characteristics at the unit under other applicable requirements of the Act and other provisions of the operating permit for the source.

Sulfur Dioxide Requirements

- (1) The owners and operators of each source and each affected unit at the source shall:
 - (i) Hold allowances, as of the allowance transfer deadline, in the source's compliance account (after deductions under 40 CFR 73.34(c)), not less than the total annual emissions of sulfur dioxide for the previous calendar year from the affected units at the source; and
 - (ii) Comply with the applicable Acid Rain emissions limitations for sulfur dioxide.
- (2) Each ton of sulfur dioxide emitted in excess of the Acid Rain emissions limitations for sulfur dioxide shall constitute a separate violation of the Act.
- (3) An affected unit shall be subject to the requirements under paragraph (1) of the sulfur dioxide requirements as follows:
 - (i) Starting January 1, 2000, an affected unit under 40 CFR 72.6(a)(2); or
 - (ii) Starting on the later of January 1, 2000 or the deadline for monitor certification under 40 CFR part 75, an affected unit under 40 CFR 72.6(a)(3).

Facility Name	Yuba City Energy Center
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Sulfur Dioxide Requirements, Cont'd.

STEP 3, Cont'd.

- (4) Allowances shall be held in, deducted from, or transferred among Allowance Tracking System accounts in accordance with the Acid Rain Program.
- (5) An allowance shall not be deducted in order to comply with the requirements under paragraph (1) of the sulfur dioxide requirements prior to the calendar year for which the allowance was allocated.
- (6) An allowance allocated by the Administrator under the Acid Rain Program is a limited authorization to emit sulfur dioxide in accordance with the Acid Rain Program. No provision of the Acid Rain Program, the Acid Rain permit application, the Acid Rain permit, or an exemption under 40 CFR 72.7 or 72.8 and no provision of law shall be construed to limit the authority of the United States to terminate or limit such authorization.
- (7) An allowance allocated by the Administrator under the Acid Rain Program does not constitute a property right.

Nitrogen Oxides Requirements

The owners and operators of the source and each affected unit at the source shall comply with the applicable Acid Rain emissions limitation for nitrogen oxides.

Excess Emissions Requirements

- (1) The designated representative of an affected source that has excess emissions in any calendar year shall submit a proposed offset plan, as required under 40 CFR part 77.
- (2) The owners and operators of an affected source that has excess emissions in any calendar year shall:
 - (i) Pay without demand the penalty required, and pay upon demand the interest on that penalty, as required by 40 CFR part 77; and
 - (ii) Comply with the terms of an approved offset plan, as required by 40 CFR part 77.

Recordkeeping and Reporting Requirements

- (1) Unless otherwise provided, the owners and operators of the source and each affected unit at the source shall keep on site at the source each of the following documents for a period of 5 years from the date the document is created. This period may be extended for cause, at any time prior to the end of 5 years, in writing by the Administrator or permitting authority:
 - (i) The certificate of representation for the designated representative for the source and each affected unit at the source and all documents that demonstrate the truth of the statements in the certificate of representation, in accordance with 40 CFR 72.24; provided that the certificate and documents shall be retained on site at the source beyond such 5-year period until such documents are superseded because of the submission of a new certificate of representation changing the designated representative;

Facility Name	Yuba City Energy Center
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Recordkeeping and Reporting Requirements, Cont'd.

STEP 3, Cont'd.

- (ii) All emissions monitoring information, in accordance with 40 CFR part 75, provided that to the extent that 40 CFR part 75 provides for a 3-year period for recordkeeping, the 3-year period shall apply.
 - (iii) Copies of all reports, compliance certifications, and other submissions and all records made or required under the Acid Rain Program; and,
 - (iv) Copies of all documents used to complete an Acid Rain permit application and any other submission under the Acid Rain Program or to demonstrate compliance with the requirements of the Acid Rain Program.
- (2) The designated representative of an affected source and each affected unit at the source shall submit the reports and compliance certifications required under the Acid Rain Program, including those under 40 CFR part 72 subpart I and 40 CFR part 75.

Liability

- (1) Any person who knowingly violates any requirement or prohibition of the Acid Rain Program, a complete Acid Rain permit application, an Acid Rain permit, or an exemption under 40 CFR 72.7 or 72.8, including any requirement for the payment of any penalty owed to the United States, shall be subject to enforcement pursuant to section 113(c) of the Act.
- (2) Any person who knowingly makes a false, material statement in any record, submission, or report under the Acid Rain Program shall be subject to criminal enforcement pursuant to section 113(c) of the Act and 18 U.S.C. 1001.
- (3) No permit revision shall excuse any violation of the requirements of the Acid Rain Program that occurs prior to the date that the revision takes effect.
- (4) Each affected source and each affected unit shall meet the requirements of the Acid Rain Program.
- (5) Any provision of the Acid Rain Program that applies to an affected source (including a provision applicable to the designated representative of an affected source) shall also apply to the owners and operators of such source and of the affected units at the source.
- (6) Any provision of the Acid Rain Program that applies to an affected unit (including a provision applicable to the designated representative of an affected unit) shall also apply to the owners and operators of such unit.
- (7) Each violation of a provision of 40 CFR parts 72, 73, 74, 75, 76, 77, and 78 by an affected source or affected unit, or by an owner or operator or designated representative of such source or unit, shall be a separate violation of the Act.

Effect on Other Authorities

No provision of the Acid Rain Program, an Acid Rain permit application, an Acid Rain permit, or an exemption under 40 CFR 72.7 or 72.8 shall be construed as:

- (1) Except as expressly provided in title IV of the Act, exempting or excluding the owners and operators and, to the extent applicable, the designated representative of an affected source or affected unit from compliance with any other provision of the Act, including the provisions of title I of the Act relating

Facility Name	Yuba City Energy Center
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Effect on Other Authorities, Cont'd.

STEP 3, Cont'd.

to applicable National Ambient Air Quality Standards or State Implementation Plans;

(2) Limiting the number of allowances a source can hold; *provided*, that the number of allowances held by the source shall not affect the source's obligation to comply with any other provisions of the Act;

(3) Requiring a change of any kind in any State law regulating electric utility rates and charges, affecting any State law regarding such State regulation, or limiting such State regulation, including any prudence review requirements under such State law;

(4) Modifying the Federal Power Act or affecting the authority of the Federal Energy Regulatory Commission under the Federal Power Act; or,

(5) Interfering with or impairing any program for competitive bidding for power supply in a State in which such program is established.

Certification

STEP 4
Read the certification statement, sign, and date.

I am authorized to make this submission on behalf of the owners and operators of the affected source or affected units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.

Name LARRY SESSIONS	
Signature <i>Larry Sessions</i>	Date 4/30/13