

**North Coast Unified
Air Quality Management District**
707 L Street, Eureka, CA 95501
(707) 443-3093
www.ncuaqmd.org



**Public Meeting of the
North Coast Unified Air Quality Management District
Governing Board of Directors**

Monday, February 3, 2020 at 1:00 pm
NCUAQMD District Office
707 L Street, Eureka, CA 95501

AGENDA

- | | | |
|-----------|---|--------------------|
| 1. | 1:00 P.M. Call to Order | Board Chair |
| 2. | Roll Call | Clerk |
| 3. | Additions and Deletions to Agenda | Board Chair |
| 4. | Public Comment Period (pursuant to Government Code section 54954.3(a)) | Board Chair |
| 5. | 2020 Calendar of Meetings <u>Action Requested:</u> Discuss and Adopt Calendar of Meetings | APCO |
| 6. | Public Hearing to Consider Petition for Variance for Title V Operating Permit No: NCU 059-12, Pacific Gas and Electric Co. at Humboldt Bay Generating Station <i>Petitioner: Charles Holm, Plant Manager; and Ryan Messinger, Environmental Compliance Manager</i> <i>District: Brian Wilson, APCO</i> | Board Chair |
| 7. | Adjournment | Board Chair |

The meeting rooms are ADA accessible. Accommodations and access to NCUAQMD meetings for people with special needs must be requested of the Clerk in advance of the meeting.

**North Coast Unified
Air Quality Management District**
707 L Street, Eureka, CA 95501
(707) 443-3093
www.ncuaqmd.org



TO: North Coast Unified Air Quality Management District Hearing Board

FROM: Brian Wilson, APCO

SUBJECT: Calendar of Meetings

DATE: February 3, 2020

ACTION REQUESTED: Discuss and Adopt a Calendar of Meetings

SUMMARY:

As the District Hearing Board has requested a bi-annual regular meeting schedule, Staff has prepared a draft Calendar of Meetings for consideration. Topics for the next meeting may include the election of Board officers, discussion of possible changes to District Regulation VI: Hearing Board, and a field trip to a Title V Source. Future meetings may include field trips to other District Sources, training, etc.

Should additional Variance requests be submitted to the District, they would be held in addition to the regular bi-annual Board meetings.

**North Coast Unified
Air Quality Management District**
707 L Street, Eureka, CA 95501
(707) 443-3093
www.ncuaqmd.org



2020 Hearing Board Meeting Calendar

Tuesday, June 2, 2020

Tuesday, November 3, 2020

Board meetings begin at 10:00 am and after agenda business, will adjourn to an off-site location to be determined and publicly noticed in accordance with California Brown Act requirements.

Board meetings are located at the NCUAQMD District office (707 L Street, Eureka, CA) and are ADA accessible. Accommodations and access to NCUAQMD meetings for people with special needs must be requested of the Clerk in advance of the meeting.

NOTICE OF PUBLIC HEARING

BEFORE THE HEARING BOARD OF THE NORTH COAST UNIFIED AIR QUALITY MANAGEMENT DISTRICT

PUBLIC NOTICE IS HEREBY GIVEN, pursuant to Health and Safety Code (H&SC) Article 2: Variances and District Rule 605, that the Chair of the Hearing Board of the North Coast Unified Air Quality Management District has scheduled a public hearing at 1:00 p.m. on Monday, February 3, 2020 at the North Coast Unified Air Quality Management District Conference Room, 707 L Street, Eureka, CA. to consider the application for Regular Variance submitted by Pacific Gas and Electric Co. (PG&E) for the Humboldt Bay Generating Station (HBGS).

PG&E seeks relief from emission standards and operating restrictions for a period of 60 days to allow the HBGS to operate at loads less than 50 percent in order to conduct short term testing for an emissions study to confirm the HBGS's readiness to operate in an island mode or as a black start unit to serve area load. In accordance with H&SC 40824, an interim variance was already granted on December 14, 2019. The hearing shall be conducted in accordance with H&SC sections 42350 et seq. and District Regulation VI, Hearing Board Procedures, Rule 605. The interim variance application is available for public inspection at the North Coast Unified Air Quality Management District Office: 707 L Street., Eureka, CA 95501, (707) 443-3093, or hbitner@ncuaqmd.org.

Heather Bitner
Clerk of the Hearing Board



Humboldt Bay 1000 King Salmon Ave.
Generating Station Eureka, CA 95503-6859

HBGS-ENV-158



December 10, 2019

Mrs. Heather Bitner
Executive Assistant and Clerk of the Board
North Coast Unified Air Quality Management District
707 L Street
Eureka, California 95501

RE: Request for Interim/Regular Variance Petition Humboldt Bay Generating Station

Dear Ms. Bitner:

Pacific Gas and Electric Company, through the Humboldt Bay Generating Station (HBGS), is submitting a timely petition for an interim and regular variance to allow HBGS to operate at loads less than 50 percent. The period of time the variance will need to be in effect will be 60 days.

HBGS believes that good cause exists for the Hearing Board to grant this request for the variance. Operating in an island mode or as a black start unit to serve area load requires up to 40 megawatt (MW) of variability in load decreases and increases to manage instant real time area load changes. That need for variability drives HBGS to request engine performance testing while operating in our lowest stable operating load to provide for that greater range of operability. We would expect that in an island scenario, our optimum operating range for each unit would be between 4 MW and 16.3 MW. We expect to set each unit at 10 MW allowing 6 MW of range up and 6 MW down in load.

Benchmarking with other black start generators of similar design has informed us that while operating in natural gas is preferred, it is typical to fail to distillate while operating in island mode. Our goal would be to continue to operate to support area load in the event that we do trip from natural gas to distillate.

Presently, HBGS is not allowed to operate engines S-1 through S-10 at loads lower than 50%. Although HBGS is currently able to collect data to demonstrate compliance at loads greater than 50%, there is no data to substantiate compliance with permit limits at loads below 50%. The variance will allow HBGS to conduct tests at various load points, all less than 50%. This data will be used to model emissions at lower load in both natural gas and in diesel to inform and support modification requests to the current operating permit under the circumstances noted in the discussion above.

HBGS respectfully requests that the Hearing Board consider this request for the variance, finding good cause to grant the petition for a 60-day variance, until February 4th, 2020.

Should you have any questions or comments please do not hesitate to contact me at (707) 269-1810 or Chuck Holm (HBGS Plant Manager) at (707) 441-2667.

Respectfully,



Ryan Messinger
Humboldt Bay Generating Station
Environmental Compliance Manager

Enclosure

cc: Chuck Holm, PG&E (electronic)
Steve Royall, PG&E (electronic)

North Coast Unified Air Quality
Management District
707 L Street, Eureka, CA 95501
(707) 443-3093 www.ncuaqmd.org



**HEARING BOARD
APPLICATION FOR HEARING**

FILING FEE: \$ 500.⁰⁰ (Rule 405, 1.0)

INSTRUCTIONS: Please type all answers. If more space is needed, attach extra sheets. Please review the attached "Guidelines for Hearing Board Application." Please note that the Petitioner must submit to the Hearing Board Clerk, ten (10) copies of all documents submitted in support of their application.

1. **Business name:** Pacific Gas and Electric Co. – Humboldt Bay Generating Station

Address: 1000 King Salmon Avenue, Eureka, CA. 95503

Phone: 707-441-2667 **Contact Person:** Charles Holm

2. Applicant is: () Individual () Partnership (X) Corporation
(If Partnership or Corporation, give names, addresses, and titles of all partners or officers).

3. Type of business or activity involved and street address at which it is conducted:

Commercial Electricity Generation=

4. Description of article, machine, equipment, or contrivance involved in the application:

Engines S-1 through S-10, Wartsila 18V50DF Dual Fuel RICE, 148.9 mmbtu/hr, 16.3 MW, 22931 bhp (each).

5. Purpose of hearing:

() Suspension or revocation of permit under Health and Safety Code, Section 42307

() Variance under Health and Safety Code, Section:

() 42351 Interim () 42359.5 Emergency (X) 42350(a) Regular

You may only check one box per application form

() Revoking or modifying variance under Health and Safety Code, Section 42356 or 42357.

() Review denial or conditional granting of authorization for Authority to Construct or Permit to Operate Rule 102 of the AQMD Rules and Regulations.

Background:

6. Please identify the specific section, rule or order with which you cannot comply:

HBGS needs to test the engines at low loads (<50%) to determine the potential emissions. HBGS can only speculate at this time, that during source testing at the lower loads requested, i.e., 25% and 40%, emissions and/or operational parameters may exceed values presented in the following permit conditions:

Condition #91 – gas mode ppm, lbs/hr, and lbs/mmbtu.
Condition #92 – gas mode, daily emissions limits
Condition #94 – diesel mode ppm, lbs/hr and lbs/mmbtu
Condition #95 – DPM emissions limits, hourly and daily only
Condition #96 – S-1 through S-10 daily emissions limits in diesel mode
Condition #111 – S-1 through S-10 load less than 50%
Condition #115 – catalyst temperature requirements
Condition #116 – CO reductions of greater than or equal to 70%

7. Reason(s) why compliance with section, rule, or order cited in line 6 above is beyond your reasonable control:

Operating in an island mode or as a black start unit to serve area load requires up to 40 MW of variability in load decreases and increases to manage instant real time area load changes. That need for variability drives us to request testing while operating in our lowest stable operating load to provide for that greater range of operability. We would expect that in an island scenario, our optimum operating range for each unit would be between 4 MW and 16.3 MW. We expect to set each unit at 10 MW allowing 6 MW of range up and 6 MW down in load.

Benchmarking with other black start generators of similar design has informed us that while operating in natural gas is preferred it is typical to fail to distillate while operating in Island mode. Our goal would be to continue to operate to support area load in the event that we do trip from natural gas to distillate.

Presently, HBGS is not allowed to operate engines S-1 through S-10 at loads lower than 50%. Based on the data presented in the Background text above, HBGS has no data to substantiate compliance with permit limits at loads below 50%. The variance will allow HBGS to conduct tests at load points less than 50%. This data will be used to support modifications to the current operating permit under the circumstances noted in the Background section above.

8. Describe your past diligence to maintain compliance with the provision noted in line 6 above (i.e., programs to monitor emissions, monitoring changes in production rates, monitoring efficiency of emission control equipment, etc.):

The HBGS facility is currently in compliance with all provisions of its current operating permit. Since the engines S-1 through S-10 are not allowed to operate at loads below 50%, there are currently no compliance issues at loads below 50%.

9. Damage or harm resulting, or which would result, from compliance with section, rule or order cited in line 6 above:

HBGS believes that any exceedances of emissions during the source tests at loads below 50% will be minimal and of short duration, and that impacts on local or regional air quality will be insignificant.

10. Period of time for which variance is sought:
Why: HBGS is seeking a interim variance for a period not to exceed 60 days.

11. Requirements which applicant can meet, if less than required by section, rule, or order cited in line 6 above:

HBGS will continue to use the SCR and CO catalyst systems during all low load tests. Based on the current source test data at loads above 50% which shows emissions to be well below the permit limits, HBGS believes that emissions at low loads will most likely not exceed permit limits as well.

12. Describe the activities the applicant will take to reduce excess emissions to the maximum degree feasible:

HBGS will operate the current APC systems to the maximum extent possible during all low load tests.

13. Advantages and disadvantages to residents of area if section, rule, or order cited in line 6 above is complied with:

Disadvantages would be the potential for short term exceedances of permit emissions limits during the source testing cycle at low loads. HBGS believes these exceedances will be minimal.

Advantages will be that a complete data set will be developed to support low load operations during the conditions described in the Background section above.

14. Would granting of variance create a public or private nuisance? No
Why: HBGS will operate, to the greatest extent possible, the existing engine APC systems in order to minimize emissions during the low load test cycle.

15. Describe how the applicant will monitor or otherwise quantify emission levels during the term of whatever action is taken by the Hearing Board on this application:

HBGS will continue to operate the APC systems, and the CEMS systems on engines S-1 through S-10 during the low load testing cycle. In addition, HBGS is not proposing to test all engines, but rather a subset of engines to minimize the testing cycle. The source test data will also be used to quantify the emissions during the low load testing cycle.

PAGE 3: Application for Hearing

16. Estimate the excess emissions of each pollutant, for the time period requested under this application, which will occur if your facility is granted a variance.

The purpose of the source test is to determine how the engines will operate at loads less than 50%. The engine manufacturer, Wartsila, has no data on engine performance or emissions at loads less than 50%. Hence the need to source test the engines to determine the low load emissions profile. HBGS, at this time, does not believe that any excess emissions will occur during the low load test cycle. HBGS estimates that if any exceedances do occur, they will be in the area of concentration (ppm) limits, but no exceedances of mass emissions limits in terms of lbs/hr or lbs/day, etc. are expected.

Please describe your method of calculation. The results of the source test will determine the method of calculation.

Also, please calculate the excess emissions fee to satisfy the requirements of Rule 405, 5.10:

At this time, the source test results are the only way to determine engine performance and emissions associated with loads less than 50%.



PUBLIC SAFETY POWER SHUTOFF (PSPS) EMISSIONS STUDY

Prepared For
Pacific Gas and Electric Company

At The
**Pacific Gas and Electric Company
Humboldt Bay Generating Station
10 Wärtsilä 18V5ODF Duel Fuel Reciprocating Engines
Eureka, California**

TRC ENVIRONMENTAL CORPORATION Protocol 374522.0000

December 5, 2019

Submitted By

James McSweeney

James McSweeney, QSTI
AMS Group Manager
(661) 619-3130, Phone
jmcsweeney@trccompanies.com, Email

TRC Environmental Corporation
2820 Pegasus Drive
Bakersfield, CA 93308

T (661) 399-1398



TABLE OF CONTENTS

| | |
|---|----|
| 1.0 INTRODUCTION | 1 |
| 1.1 Project Contact Information | 1 |
| 2.0 FACILITY AND PROCESS DESCRIPTION | 2 |
| 2.1 Process Data | 2 |
| 3.0 TEST REQUIREMENTS | 3 |
| 4.0 SPECIFIC TEST PROCEDURES | 4 |
| 5.0 TEST PROGRAM SCHEDULE | 5 |
| 6.0 PROJECT PERSONNEL AND RESPONSIBILITIES | 6 |
| 7.0 PLANT REQUIREMENTS | 6 |
| 8.0 TEST PROCEDURES | 7 |
| 8.1 Determination of Sample Point Locations by CARB Method 1 | 7 |
| 8.2 Volumetric Flow Rate Determination by CARB Method 2 | 7 |
| 8.3 Determination of the Concentration of Gaseous Pollutants Using a Multi-Pollutant Sampling System | 7 |
| 8.3.1 CO ₂ Determination by USEPA Method 3A | 8 |
| 8.3.2 O ₂ Determination by USEPA Method 3A | 8 |
| 8.3.3 NO _x Determination by USEPA Method 7E | 8 |
| 8.3.4 CO Determination by USEPA Method 10 | 8 |
| 8.4 Moisture Determination by CARB Method 4 | 8 |
| 8.5 DPM Determination by CARB Method 5 | 8 |
| 8.6 Visible Emissions Determination by USEPA Method 9 or CARB Method 22 | 8 |
| 8.7 Gaseous Organic Compound Determination by USEPA Method 18 | 9 |
| 8.8 Ammonia Determination by BAAQMD ST-1B | 9 |
| 8.9 Ammonia Determination by BAAQMD ST-1A | 9 |
| 8.10 Volatile Organic Compounds by GC/Mass Spectrometry by EPA Method TO-15 | 9 |
| 8.11 Formaldehyde Determination by USEPA Method 323 | 9 |
| 9.0 QUALITY ASSURANCE PROCEDURES | 10 |

GENERAL INFORMATION APPENDED:

Current CARB Certification
Current ASTM D-7036 accreditation

*© 2016, TRC Environmental Corporation, all rights reserved. The contents of this document are the property of TRC Environmental Corporation (TRC). No part of this work may be reproduced or transmitted in any form or by any means, except as permitted in written license agreement with TRC. TRC has made every reasonable attempt to ensure the completeness and accuracy of this document. The TRC logo is a registered trademark of TRC.
TRC Compliance Protocol revised 03/14/16*



1.0 INTRODUCTION

TRC Environmental Corporation (TRC) will perform a low load (<50%) emission test program to determine the performance of the Wärtsilä 18V5ODF Dual Fuel Reciprocating Engines at the Humboldt Bay Generating Station of Pacific Gas and Electric Company in Eureka, California. The test program is being collect data for a Public Safety Power Shutoff (PSPS) Study. This document requires measurement of:

While Firing Diesel Fuel and Natural Gas at the Outlet of the Air Pollution Control Device (APCD)

- Diesel Particulate Matter (DPM) Filterable Only
- Oxygen (O₂)
- Carbon Dioxide (CO₂)
- Oxides of Nitrogen (NO_x) – inlet and outlet
- Carbon Monoxide (CO) – inlet and outlet
- Reactive Organic Gases (ROG) – inlet and outlet
- Ammonia (NH₃)
- Toxics - acrolein, benzene, 1, 3-butadiene, ethyl benzene, propylene, toluene, and xylenes
- Acetaldehyde
- Formaldehyde
- Visible Emission Evaluation for Opacity (VEE)

This program will be completed in accordance with the methods and at the source sampling locations specified herein. All required analyses, including any quality assurance samples required by the agency in question, will be completed. Other than the engine load points at less than 50% load, the test procedures that will be performed are identical to the past methods utilized for compliance testing at the Humboldt Bay Generating Station.

1.1 Project Contact Information

| Location | Address | Contact |
|------------------------|--|--|
| Test Facility | Pacific Gas and Electric Company Humboldt Bay Generating Station 1000 King Salmon Avenue Eureka, California 95503 Facility No. (Get from Permit) | Ryan Messinger Senior Environmental Field Specialist (707) 273-7119 (phone) rymw@pge.com |
| Company Representative | TRC Environmental Corporation 2820 Pegasus Drive Bakersfield, CA 93308 | James McSweeney, QI AMS Group Manager (661) 619-3130 (phone) jmcsweeney@trcsolutions.com |



2.0 FACILITY AND PROCESS DESCRIPTION

The Pacific Gas and Electric Company (PG&E) operates a power generation facility known as the Humboldt Bay Generating Station (HBGS) in Eureka, California. HBGS is located in Humboldt County which falls under the rules and regulations of the North Coast Unified Air Quality Management District.

At HBGS PG&E operates 10 Wärtsilä 18V50DF 16.3 MW lean-burn reciprocating engines, equipped with selective catalytic reduction (SCR), oxidation catalyst, and continuous emissions monitoring systems (CEMS). The engines have the capability of being fired on natural gas or CARB diesel fuel. The primary fuel source is natural gas.

For the purposes of this test program, three (3) engines will be operated at both 4 and 6 MW loads while operating in diesel pilot/natural gas mode and diesel mode. Totaling four test conditions per engine.

2.1 Process Data

The following process operation data will be collected by PG&E:

- Pressure drop across the Oxidation Catalyst
- The inlet temperature to the Oxidation catalyst
- CEMS data
- Engine Load
- Fuel Consumption



3.0 TEST REQUIREMENTS

The table below presents the test methods, as well as the number and duration of each test run at each test location:

| Unit ID/ Sample Location | Parameter Measured | Test Method | No. of Runs | Run Duration |
|---|---------------------------------|------------------|----------------|--------------|
| 3 IC Engines Inlet ⁵ /Outlet of APCD | DPM ¹ | CARB 5 | 3 | 120 min |
| | O ₂ /CO ₂ | EPA 3A | 3 | 60 min |
| | NO _x | EPA 7E | 3 | 60 min |
| | CO | EPA 10 | 3 | 60 min |
| | ROG ² | EPA 18 | 3 | 30 min |
| | NH ₃ ³ | BAAQMD ST-1B | 3 | 30 min |
| | Toxics ⁴ | EPA TO-15 | 3 | 60 min |
| | Acetaldehyde / Formaldehyde | Modified EPA 323 | 3 | 60 min |
| | VEE | EPA 9 | 1 | 6 min |

1 – DPM will be reported as filterable only

2 – ROG analyses performed on-site using Gas Chromatography for C₁ – C₆

3 – NH₃ analyses performed on-site using BAAQMD ST-1a

4 – Toxics sampling is performed during Diesel pilot/Natural Gas Mode conditions with analysis for the following toxic air contaminants; acrolein, benzene, 1, 3-butadiene, ethyl benzene, propylene, toluene, and xylenes

5 – Inlet tests will include NO_x, CO and ROG only



4.0 SPECIFIC TEST PROCEDURES

Detailed test procedures are described in Section 8 of this protocol. Three complete test runs will be performed for each constituent in accordance with the following CARB & USEPA methods.

1. Volumetric flow will be determined utilizing CARB Methods 1 through 4, in conjunction with each PM emission test run. The location of the ports in relation to upstream and downstream disturbances will be measured and recorded.
2. A check for the presence or absence of cyclonic flow will be performed in accordance with Section 2.4 of CARB Method 1 and recorded on the data sheet appended.
3. O₂ and CO₂ content of the stack gas will be determined by USEPA Method 3A, 40CFR60 during each test run.
4. Particulate emissions will be determined in accordance with CARB Method 5. All test runs will be a minimum of 120 minutes (target 60 dry standard cubic feet of sample) in duration. DPM will be reported as filterable PM only.

All temperature settings and glassware requirements of CARB 5 will be followed. A glass lined probe will be utilized for the tests.

5. Nitrogen oxides (NO_x) emissions will be determined in accordance with USEPA Method 7E, 40CFR60. Test run duration is shown on the previous table.
6. An initial gaseous stratification test per USEPA Method 7E Section 8.1.2 will be performed in order to determine the gaseous test point strategy.
7. Opacity tests will be completed in accordance with USEPA Method 9 or CARB Method 22 during one of the particulate test runs from each engine.
8. Carbon monoxide (CO) emissions will be determined in accordance with USEPA Method 10, 40CFR60. Test run duration is shown on the previous table.
9. Reactive Organic Gases (ROG) will be determined by USEPA Method 18 modified. Each test run will consist of one 30-minute sample, extracted from a single sampling point.
10. Ammonia slip will be determined in accordance with Bay Area Air Quality Management District (BAAQMD) St-1A and ST-1b, Regulation 7-303. E



5.0 TEST PROGRAM SCHEDULE

TRC will execute the referenced scope of services according to the following schedule:

| Day | Activity | # of Staff | On-site Hours |
|--------------------------------|--|------------|---------------|
| Friday December 13, 2019 | Start Travel to Eureka | 6 | - |
| Saturday December 14, 2019 | Finish Travel/Safety Meeting-Preparation of JSA/ Set-up Equipment for simultaneous testing/Perform QA | 6 | 6 |
| Sunday December 15, 2019 | Engines A & B – 4 MW Load – Diesel Pilot/Natural Gas Mode Outlet – DPM, NO _x , CO, ROG, NH ₃ , Toxics, VEE | 6 | 10 |
| Monday December 16, 2019 | Engines A & B – 6 MW Load – Diesel Pilot/Natural Gas Mode Outlet – DPM, NO _x , CO, ROG, NH ₃ , Toxics, VEE | 6 | 10 |
| Tuesday December 17, 2019 | Engines A & B – 4 MW Load – Diesel Mode Outlet – DPM, NO _x , CO, ROG, NH ₃ , VEE | 6 | 10 |
| Wednesday December 18, 2019 | Engines A & B – 6 MW Load – Diesel Mode Outlet – DPM, NO _x , CO, ROG, NH ₃ , VEE | 6 | 10 |
| Thursday December 19, 2019 | Engine C – 4 MW Load – Diesel Pilot/Natural Gas Mode Outlet – DPM, NO _x , CO, ROG, NH ₃ , Toxics, VEE | 3 | 10 |
| Friday December 20, 2019 | Engine C – 6 MW Load – Diesel Pilot/Natural Gas Mode Outlet – DPM, NO _x , CO, ROG, NH ₃ , Toxics, VEE | 3 | 10 |
| Saturday December 21, 2019 | Engine C – 4 MW Load – Diesel Mode Outlet – DPM, NO _x , CO, ROG, NH ₃ , VEE | 3 | 10 |
| Sunday December 22, 2019 | Engine C – 6MW Load – Diesel Mode Outlet – DPM, NO _x , CO, ROG, NH ₃ , VEE | 3 | 10 |
| Monday December 23, 2019 | Contingency Day (if needed)/Demob/Travel | -- | -- |

All project days are considered consecutive weekdays and are scheduled to begin at 7:30 AM local time unless otherwise stated. TRC personnel shall not work more than fourteen hours in any day, nor more than ninety-one hours over a rolling seven day period.



6.0 PROJECT PERSONNEL AND RESPONSIBILITIES

- 1 Regional Director:
Responsible for successful completion of project including schedule, budget, reporting, and overall project quality.
- 1 Group Manager:
Responsible for successful completion of project including schedule, budget, reporting, and overall project quality.
- 1 Technical Support:
Prepares and operates the test train. Ensures all field calculations are completed. Records data. Assists in sample recovery as required.
- 4 Technician II:
Assists in preparation and operation of test trains as required.
- 1 Documentation Specialist:
Assists with data reduction, test protocol and report writing.
- 1 Laboratory Supervisor:
Coordinates preparation and recovery of sampling trains. Maintains sample chain of custody.

7.0 PLANT REQUIREMENTS

TRC must be supplied with the following items in order to complete this test program:

1. Safe access to test positions. All known potential hazards, potential exposures and facility safety requirements must be communicated to TRC in advance of test team mobilization. Delays due to unsafe working conditions or unresolved safety concerns will result in additional charges which will require a change order.
2. Parking location to place the two TRC mobile trailers within 200 feet of sampling locations with access to multiple 110 V, 20 A, 60 cycle or 480 V, 50 A, 60 cycle circuits.
3. A minimum of two 120 V, 20 A, 60 cycle electrical circuits at each of the four sampling locations.
4. Four-inch test ports installed per EPA Method 1 specifications, with covers loosened and sample ports cleaned prior to the arrival of the test team. Delays due to port covers that are difficult to remove, or sample ports that require extensive cleaning will result in additional charges which will require a change order. Test ports should be cleaned and loose prior to arrival of test crew.
5. Sufficient lighting at the test site.
6. Plant or pollution control equipment operating data, in the format required by the applicable regulatory agency, for inclusion in the report.
7. Fuel samples, if required.
8. Washroom facilities for use by members of the test crew.
9. A shelter at the test location, if weather conditions warrant.
10. Stable operations and the required load or production rate during the test period.
11. Communication between the test location and the control room.
12. Proper disposal of any hazardous waste resulting from test methods being performed on-site.



8.0 TEST PROCEDURES

All testing, sampling, analytical, and calibration procedures used for this test program will be performed in accordance with the methods presented in the following sections. Where applicable, the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods, USEPA 600/R-94/038c, September 1994 is used to supplement procedures.

8.1 Determination of Sample Point Locations by CARB Method 1

This method is applicable to gas streams flowing in ducts, stacks, and flues. It is designed to aid in the representative measurement of pollutant emissions and/or total volumetric flow rates from stationary sources. In order to qualify as an acceptable sample location, it must be located at a position at least two stack or duct equivalent diameters downstream and a half equivalent diameter upstream from any flow disturbance. The location of the ports in relation to upstream and downstream disturbances will be measured and recorded.

The cross-section of the measurement site is divided into a number of equal areas, and the traverse points are then located in the center of these areas. The minimum number of points are determined from either Figure 1-1 (particulate) or Figure 1-2 (non-particulate) of CARB Method 1.

Prior to performing volumetric flow traverses, a check for the presence or absence of cyclonic flow will be performed in accordance with Section 2.4 of CARB Method 1 and recorded on the data sheet enclosed.

8.2 Volumetric Flow Rate Determination by CARB Method 2

This method is applicable for the determination of the average velocity and the volumetric flow rate of a gas stream.

The gas velocity head (ΔP) and temperature is measured at traverse points defined by CARB Method 1. The velocity head is measured with a Type S (Stausscheibe or reverse type) Pitot tube and oil-filled manometer; the gas temperature is measured with a Type K thermocouple. The average gas velocity in the flue is calculated based on: the gas density (as determined by CARB Methods 3 and 4), the flue gas pressure, the average of the square roots of the velocity heads at each traverse point, and the average flue gas temperature.

8.3 Determination of the Concentration of Gaseous Pollutants Using a Multi-Pollutant Sampling System

Concentrations of the pollutant and diluent gases listed in the following sub-sections are determined using one sampling system. An initial gaseous stratification test per USEPA Method 7E, Section 8.1.2 will be performed in order to determine the gaseous test point strategy.

A straight extractive sampling system will be used. A data logger continuously records pollutant concentrations and generates one-minute averages of those concentrations. All calibrations and system bias checks are conducted with EPA Protocol gases. Three-point linearity checks are performed prior to sampling, and are rechecked in the event of a failing system bias or drift test (and subsequent corrective action). System bias and drift checks are performed using the low-level gas and either the mid- or high-level gas prior to, and following, each test run.

The Low Concentration Analyzers (those that routinely operate with a calibration span of less than 20 ppm) used by TRC are ambient-level analyzers. Per Section 3.12 of Method 7E, a Manufacturer's Stability Test is not required for ambient-level analyzers. Analyzer interference tests are conducted in accordance with the regulations in effect at the time that TRC places an analyzer model in service.



8.3.1 CO₂ Determination by USEPA Method 3A

This method is applicable for the determination of CO₂ concentrations in controlled and uncontrolled emissions from stationary sources only when specified within the regulations. The CO₂ analyzer is equipped with a non-dispersive infrared (NDIR) detector.

8.3.2 O₂ Determination by USEPA Method 3A

This method is applicable for the determination of O₂ concentrations in controlled and uncontrolled emissions from stationary sources only when specified within the regulations. The O₂ analyzer is equipped with a paramagnetic-based detector.

8.3.3 NO_x Determination by USEPA Method 7E

This method is applicable for the determination of NO_x concentrations in controlled and uncontrolled emissions from stationary sources only when specified within the regulations. The NO_x analyzer utilizes a photomultiplier tube to measure the linear and proportional luminescence caused by the reaction of nitric oxide and ozone.

8.3.4 CO Determination by USEPA Method 10

This method is applicable for the determination of CO concentrations in controlled and uncontrolled emissions from stationary sources only when specified within the regulations. The non-dispersive infrared analyzer (NDIR) CO analyzer is equipped with an internal gas correlation filter wheel, eliminating potential detector interference. Therefore, use of an interference removal trap is not required.

8.4 Moisture Determination by CARB Method 4

This method is applicable for the determination of the moisture content of stack gas.

A gas sample is extracted at a constant rate from the source. Moisture is removed from the sample stream by a series of pre-weighed impingers immersed in an ice bath. A minimum of 21 dry standard cubic feet of flue gas is collected during each sample run.

8.5 DPM Determination by CARB Method 5

This method is applicable for the determination of particulate matter (PM) emissions from stationary sources. CARB Methods 2-4 are performed concurrently with, and as an integral part, of these determinations.

Flue gas is withdrawn isokinetically from the source at traverse points determined per CARB Method 1, and PM is collected in the nozzle, probe liner, and on a glass fiber filter. The probe liner and filter are maintained at a temperature of 120 ± 14°C (248 ± 25°F) or such other temperature as specified by an applicable subpart of the standards, or as approved by the Administrator for a particular application. The DPM mass, which includes any material that condenses at or above the filtration temperature, is determined gravimetrically after the removal of uncombined water.

8.6 Visible Emissions Determination by USEPA Method 9 or CARB Method 22

This method is applicable for the determination of the opacity of emissions from stationary sources pursuant to § 60.11(b) and for visually determining opacity of emissions.



Opacity observations are made by a qualified observer certified by CARB. Observations are made at the point of greatest opacity in the portion of the plume where condensed water vapor is not present. Observations are made at 15-second intervals for a six minute test period.

8.7 Gaseous Organic Compound Determination by USEPA Method 18

This method is designed to measure gaseous organics emitted from an industrial source. This method will not determine compounds that (1) are polymeric (high molecular weight), (2) can polymerize before analysis, or (3) have very low vapor pressures at stack or instrument conditions.

An integrated sample of flue gas is collected in a Tedlar bag. Analysis of samples will occur on-site. The major organic components of the sample are separated by gas chromatography (GC) and individually quantified by flame ionization, photoionization, electron capture, or other appropriate detection principles.

8.8 Ammonia Determination by BAAQMD ST-1B

This method is designed to measure ammonia. The sampling apparatus will include a probe of stainless steel connected by a short piece of Teflon® tubing to a series of impingers immersed in an ice bath. The first two impingers will be charged with 0.1N hydrochloric acid solution, the third will be empty and the fourth will be charged with indicating silica gel. The ammonia probe will be attached to the CEMS probe and traversed across the stack in the same manner as the gaseous emissions probe. Sample will be drawn through the sampling apparatus with a leak-free pump, connected in series to a calibrated dry gas meter and flow metering orifice (i.e. a Method 5 type control box). Sample gas will be drawn at a rate of approximately 0.5 cfm for the duration each test run.

8.9. Ammonia Determination by BAAQMD ST-1A

This method is applicable to the determination of ammonia in effluents absorbed in dilute acid solution. An aliquot of the acid absorbing solution is made alkaline with the addition of an ammonia pH adjusting solution (ISA), thus releasing the ammonia for determination by the specific ion electrode method.

8.10 Volatile Organic Compounds by GC/Mass Spectrometry by EPA Method TO-15

The method is based on collection of whole air samples in SUMMA® passivated stainless steel canisters, or other specially prepared canisters. The VOCs are separated by gas chromatography and measured by a mass spectrometer.

The analyses will be performed by Atmospheric Analysis and Consultants for Rule 1150.1 Table 1 - Carcinogenic and Toxic Air Contaminants.

8.11 Formaldehyde Determination by USEPA Method 323 (Modified)

This method is for analyzing formaldehyde emissions from uncontrolled and controlled natural gas-fired, stationary combustion sources. A modification is requested to also analyze for acetaldehyde. An emission sample from the combustion exhaust is drawn through a midjet impinger train containing chilled reagent water to absorb formaldehyde. HPLC will be utilized to perform the analyses as the detection limit will be 4X lower for Formaldehyde and 20X lower for acetaldehyde than CARB 430.



9.0 QUALITY ASSURANCE PROCEDURES

TRC integrates our Quality Management System (QMS) into every aspect of our testing service. We follow the procedures specified in current published versions of the test Method(s) referenced in this protocol. Any modifications or deviations are specifically identified in the body of this protocol. We routinely participate in independent, third party audits of our activities and maintain:

- Accreditation from the California Air Resources Board (CARB);
- Accreditation from the Stack Testing Accreditation Council (STAC) and the American Association for Laboratory Accreditation (A2LA) that our operations conform with the requirements of ASTM D 7036 as an Air Emission Testing Body (AETB).

These accreditations demonstrate that our systems for training, equipment maintenance and calibration, document control and project management will fully ensure that project objectives are achieved in a timely and efficient manner with a strict commitment to quality.

All calibrations are performed in accordance with the test Method(s) identified in this protocol. If a method allows for more than one calibration approach, or if approved alternatives are available, the calibration documentation in the appendices of the report will specify which approach is used. All measurement devices are calibrated or verified at set intervals against standards traceable to the National Institute of Standards and Technology (NIST). NIST traceability information is available upon request.

Raw data is kept on file at the TRC office performing the sampling. All samples from the test program are retained for 60 days after the submittal of the report, after which they are discarded unless TRC is advised otherwise.

Calculations are performed on the computer. An explanation of the nomenclature and calculations along with the complete test results will be appended to the report. Also to be appended to the report are calibration data and copies of the raw field data sheets.

HBGS-ENV-164

January 29, 2020

Mr. Brian Wilson
North Coast Unified Air Quality Management District
707 L Street
Eureka, CA 95501

**RE: Next Steps for the Preparation of the Regular Variance Petition for the Humboldt Bay
Generating Station to Support the PSPS Study**

Dear Brian Wilson:

Pacific Gas and Electric Company, through the Humboldt Bay Generating Station (HBGS) is providing this letter which summarizes the next steps in our process to modify the existing permit to allow for Island Mode Operation. As you know, we recently completed our Public Safety Power Shutoff (PSPS) Study source test where engines were tested for emissions at loads less than 50 percent. However, two (2) additional testing studies will need to be undertaken in order to fully understand the permitting efforts needed to support the PSPS and to prove out modifications needed to support PSPS operation. This letter briefly describes the next steps which are proposed to be completed under the upcoming regular variance period pursuant to the application to the North Coast Unified Air Quality Management District (NCUAQMD) Board.

Next Steps

Ammonia Injection Load Point Determination Tests

Operating in an island mode or as a black start unit to serve the area load for the PSPS requires up to 40 megawatts of variability in load increases and decreases in order to manage instant real time area load changes. That need for this load variability drives us to request additional engine testing while operating at our lowest stable operating load in order to provide for the greater range of operability to support the PSPS. Specifically, the ammonia (NH₃) injection control system will need to be tuned at low loads by adding five (5) additional load points. The load points are established by operating each engine at low loads, setting the load point, and operating at the load point to prove out that the load point is set correctly. The ability to test the NH₃ injection system to rapid variations in load points that will occur in a PSPS will allow HBGS to determine the optimum operating load range for each unit in order to control the NO_x emissions to some specific level.

We would expect that in an PSPS scenario, our optimum operating range for each unit would be 10 megawatts with excursions and transit operating points between four (4) mw and ten (10) mw with five

(5) load points added to allow for rapid changes in loads and help us remain in control of ammonia injection.

Island Operation Testing

To support the PSPS, Island Operation Testing will need to be completed. This requires that two (2) engines for each of three (3) load resources (2 engines on 60 kV resource #1, 2 engines on 115 kV resource 2, and 2 engines on 60 kV resource #3) be tested.

The PSPS, Island Operation Testing will occur during or before June 2020. We request that the variance be extended to allow Island Operation Testing.

We hope that this letter summarizes our next steps which will be completed during the course of the regular variance. If you have any questions or comments, please do not hesitate to call myself at (707) 382-2372 or the HBGS Plant Manager (Chuck Holm) at (707) 441-2667.

Respectfully,



Ryan Messinger
Humboldt Bay Generating Station
Environmental Compliance Manager

Enclosure

cc: Chuck Holm, PG&E (electronic)
Steve Royall, PG&E (electronic)



District Staff Report for Regular Variance Hearing on February 3, 2020

Petitioner: Pacific Gas & Electric (PG&E)
Re: Humboldt Bay Generating Station (HBGS) Facility

Purpose of Hearing:

The regular variance requested by PG&E is to provide relief from permit conditions and permit emission limitations to allow the HBGS to conduct short term testing to confirm the HBGS's readiness to operate in an island mode or as a black start unit to serve area load. In particular, PG&E requests permission to operate at load levels less than the 50% level authorized in its current Title V Operating Permit while they conduct emission (source testing) and operational testing. The purpose of the proposed testing is to determine low load emissions profile and to determine how the engines will operate at lower loads.

The petitioner is seeking relief from the following permit conditions under their Operating Permit:

- Condition #91 – gas mode, ppm, lbs/hr, and lbs/mmbtu
- Condition #92 – gas mode, daily emissions limits
- Condition #94 – diesel mode ppm, lbs/hr and lbs/mmbtu
- Condition #95 – DPM emissions limits, hourly and daily only
- Condition #96 – S-1 through S-10 daily emission limits in diesel mode
- Condition #111 – S-1 through S-10 load less than 50%
- Condition #115 – catalyst temperature requirements
- Condition #116 – CO reductions of greater than or equal to 70%

Equipment Subject to Petition:

The primary permitted units are ten (10) Wärtsilä 18V50DF engines rated at 16.3 MW (22,931 BHp) that are dual fuel reciprocating internal combustion engines (RICE), equipped with selective catalytic reduction (SCR), oxidation catalyst, and associated support equipment including continuous emissions monitors (CEMS). The primary fuel is natural gas with diesel pilot injection. The dual-fueled units are capable of firing 100% on diesel fuel.

Documents Relevant to the Variance Request:

- PG&E Interim/Regular Variance Request cover letter (12/10/19)
- PG&E Regular Variance Application/Petition (12/10/19)

- PG&E Source Test Plan for HBGS (by TR Environmental Corporation, 12/5/19)
- PG&E letter request amending regular variance (1-29-20)
- Title V Federal Operating Permit and District Permit to Operate #NCU 059-12 for the PG&E HBGS (last revised 7/19/18)

Background:

When the Operating Permit was initially issued to PG&E for the HBGS in 2008, PG&E had requested operation of the engines S-1 through S-10 at loads no lower than 50%. Because the engines were new and there were no other engines similar in the United States, the U.S. EPA required that PG&E obtain a manufacturer guarantee for emission rates. In this case, PG&E's engine manufacturer (Wartsila), did not provide guarantee for engine operation below 50%. Consequently, PG&E presented an initial permit application for HBGS for loads no lower than 50%.

PG&E believes that operating the HBGS plant during an island mode or as a black start unit to serve area load would require operation below the 50% that was initially proposed in their Operating Permit.

On December 10, 2019, PG&E submitted an interim variance request pursuant to Health and Safety Code (HSC) §42351 and District Regulation VI, Rule 603, to conduct testing while operating three of ten Wartsila Dual Fuel reciprocating engines located at the HBGS at load lower than the 50%, the minimum load level allowed by the Operating Permit. Concurrent with its submittal of the application for interim variance, PG&E also submitted an application for a regular variance pursuant to HSC §42352.

The application for interim variance was made five days after receiving the TRC Source Test Plan to allow for testing to occur at the earliest possible time, and was not sought to avoid the greater noticing requirements for a regular variance under HSC §40826. Absent the variance, PG&E would not be able to conduct the testing needed to investigate the feasibility of operating the HBGS plant during an island mode or as a black start unit to serve area load at operation below what was initially proposed in their Operating Permit.

On December 14, 2019, the Hearing Board granted an interim variance from the identified permit conditions of the Operating Permit. During the period of the interim variance, PG&E was to conduct short term testing on the identified engines while operating under 50% load in accordance with the TRC Source Test Plan. The period of the interim variance was governed by HSC §42351(b) and would expire no later than February 4, 2019 or the date on which the Hearing Board conducted a hearing on the regular variance application. The application for regular variance is scheduled for the Hearing Board on February 3, 2020.

On January 29, 2020, PG&E submitted a letter requesting that two additional operation testing studies be included in the regular variance and that a longer period of time such as six (6) months (by June 30, 2020) be allowed rather than the 60 days initially requested. These are the two additional operational tests proposed:

- 1) *Ammonia Injection Load Point Determination Tests* – proposed in April 2020:
The ammonia injection control system will need to be tuned at low load by adding five (5) additional load points. The plant uses a Selective Catalytic Reduction (SCR) system for NOX emissions control with ammonia injection as part of the

control system. Presently these have already been determined for the engines at loads greater than 50% load, but have not yet been established for loads below 50%. This will allow the HBGS to determine the optimum operating load range for each unit in order to control the NOx emissions to some specific level. The test would require about 4 hours per engine for ten engines (less than 100 hrs of total operation).

2) *Island Operational Testing* – proposed in June 2020:

Operationally test the ability of the plant and engines to achieve real-world island operation similar to PSPS conditions, and would require that two (2) engines for each of the three (3) load resources (2 engines on 60kV resource#1 transmission line, 2 engines on 115kV resource 2 transmission line, and 2 engines on 60kV resource #3 transmission line). This test would occur over several hours on one day with all engines running but would only involve some engines going below 8MW as needed.

Relevant Regulations:

- District Regulation VI - Hearing Board Procedures contain the requirements and procedures as authorized by the California Health & Safety Code; specifically: Rule 601 – Petition Procedures, Rule 603 – Interim Variances, Rule 605 – Hearing Procedures, Rule 606 - Decisions
- Health and Safety Code (HSC) §40826, §42351, and §42532

Discussion & Recommendation:

The North Coast Unified Air Quality Management District (District) believes that PG&E meets the requirements of the regular variance petition as initially proposed with the inclusion of the two operational tests for a variance period of six (6) months. The purpose of the interim/regular variance is to allow PG&E to operate at load levels less than the 50% level authorized in its current Title V Permit to Operate while they conduct source and operational testing.

The District initially concurred with PG&E that excessive emissions were not likely to occur during the low load tests. Although diesel PM emissions were the greater area of concern, previous annual source testing for PM10 has shown that emission levels were actually drastically lower, or roughly 10% of what was initially allowed under permit.

PG&E successfully performed the testing as allowed under the terms of the initial variance from December 15-22, 2019. PG&E utilized a third-party source test company to perform the testing described in the TRC Source Test Plan during which the existing regulatory Continuous Emissions Monitoring Systems (CEMS) were operational for compliance determinations. As part of the variance order, the final source test results from the TRC Source Test Plan are to be provided within thirty (30) days after the date of expiration of the variance. However, preliminary data from the existing CEMS indicate:

- CO emissions are negligible with no exceedances of existing emission limits in diesel mode at 4 and 6MW.
- CO emissions are negligible with no exceedances of existing emission limits in natural gas mode at 4 and 6MW.
- NOx emissions are negligible with no exceedances of existing emission limits in diesel mode at 4 and 6MW.

- NOx emissions were just at or over the existing emission limits in three of the four engines in natural gas mode once at 4 MW and three times at 6MW.

The District and PG&E anticipate that performing the additionally proposed operational testing of ammonia injection tuning at the lower loads will have an effect on reducing NOx emissions in natural gas mode at the lower load points of 4MW (25%) and 6MW (36%), as this tuning has already been performed and determined for the engines at loads greater than 50% load, but have not yet been established for loads below 50%.

Required Hearing Board Findings:

Under HSC §42351 and District Regulation VI - Hearing Board Procedures, Rule 603 – Interim Variances, the Hearing Board granted an interim variance because the petition was found to meet the following two findings:

- 1) That good cause existed, and
- 2) That the interim variance was not being sought to avoid the notice and hearing requirements of a regular variance (as set out in Rule 605 (HSC §40826)), because concurrent with its submittal of the application for interim variance, PG&E also submitted an application for a regular variance pursuant to HSC § 42352.

Under HSC §42352 and District Regulation VI - Hearing Board Procedures, Rule 606 – Decisions, the Hearing Board may grant a short term or regular variance only if it makes the following six findings:

- 1) That the petitioner for a variance is, or will be, in violation of a provision of the HSC or of any rule, regulation, or order of the District, including but not limited to, any permit condition.
- 2) That due to conditions beyond the reasonable control of the petitioner, requiring compliance would result in either a) an arbitrary or unreasonable taking of property, or b) the practical closing and elimination of a lawful business.
- 3) That such closing or taking would be without a corresponding benefit in reducing air contaminants.
- 4) That the applicant for the variance has given consideration to curtailing operations of the source in lieu of obtaining a variance.
- 5) During the period the variance is in effect, that the applicant will reduce excess emissions to the maximum extent feasible.
- 6) During the period the variance is in effect, that the applicant will monitor or otherwise quantify emissions levels from the source, if requested to do so by the District, and report these emissions levels to the district pursuant to a schedule established by the District.

Finding 1):

If the variance is not granted, if PG&E were to perform the initially proposed emission source testing and the more recently proposed two operational tests, they would be in violation of Condition #111 (S-1 through S-10 load less than 50%) of the Operating Permit, with the potential to exceed other permit conditions as listed initially above and in their petition.

PG&E initially sought relief from emission standards and operating restrictions for a period of 60 days to allow the HBGS to conduct short term testing for an emissions study to confirm the HBGS's readiness to operate in an island mode or as a black start unit to serve area load. In particular, PG&E requested permission to operate at load levels less than the 50% level authorized in its current Operating Permit, and to conduct source testing at the time of low load level operation, in addition to the current CEMS operation. The purpose of the proposed source testing was to determine how the engines will operate at lower loads and to determine low load emissions profile. PG&E believes that operating the HBGS plant during an island mode or as a black start unit to serve area load would require operation below what was initially proposed in their Operating Permit.

Finding 2):

Due to conditions beyond the reasonable control of petitioner, requiring compliance would result in an arbitrary or unreasonable taking of property – in this circumstance, a denial of the variance would be tantamount to denying the petitioner the opportunity to perform testing to ascertain/determine capabilities of the plant equipment and to further quantify emissions in potential operational scenarios. Absent a variance, the Petitioner would not be able conduct the testing needed to investigate the feasibility of operating the HBGS for the benefit of the local area during PSPS events.

For example, if the petitioner had alternatively presented the project in the form of an Authority to Construct application, they may have been granted approval but not within an acceptable timeframe needed to timely determine the capabilities of the equipment and identify issues given the urgent need to confirm the HBGS's readiness to operate in an island mode or as a black start unit to serve area load. PG&E is the sole provider of electricity and it can be argued that it provides an essential public service to the region as it also provides support for public health and safety.

Finding 3):

Denying the petitioner request would not result in a corresponding benefit in reducing air contaminants. The source test emission data obtained will be used to model emissions at lower load in both natural gas and diesel modes, and to inform and support modification requests to the current Operating Permit under the various circumstances discussed above. This data will inform PG&E's decision in investigating the feasibility of operating in an island mode or as black start unit to serve area load during times of regional power outages (Public Safety Power Shutoff events, etc.). Such operation would require the HBGS to have a greater range of operability.

From an air quality perspective, discharges from a stationary source equipped with state-of-the-art pollution controls and monitoring equipment during such events, is indeed preferred over the alternative emissions from hundreds or thousands of gas or diesel back-up generators operated at private, retail, commercial, and governmental establishments in communities throughout the region. In addition, from a public safety perspective, loss of power to communities represents grave safety concerns¹ that overshadow potential air emissions.

¹ Bohn, R. & Honsal, W. (October 31, 2019). Letter to PG&E CEO Johnson and Senior VP Lewis

Operation of the HBGS to serve local area power need during PSPS events serves the public health and safety by reducing private, retail, commercial, and governmental reliance on individual back-up generators, most of which are not controlled or monitored for air emissions.

Finding 4):

Curtailing operations in lieu of the variance would not be a practical way to achieving what the petitioner needs to accomplish as proposed. The purpose of the interim/regular variance is to allow PG&E to operate at load levels less than the 50% level authorized in its current Operating Permit, while they conduct emission and operational testing to confirm the HBGS's readiness to operate in an island mode or as a black start unit to serve area load.

Finding 5):

During the period the variance is in effect, PG&E is required to reduce excess emissions to the maximum extent feasible. As part of the variance order, the District requested, and the Petitioner agrees to accept, certain conditions to maintain the lowest possible impact on air quality emissions, notably: a) HBGS will continue to adhere to all conditions in its Operating Permit, and specifically continue to use all Air Pollution Control (APC) systems (SCR and CO catalyst, etc.) to the maximum extent possible during all low load tests; and b) the HBGS will continue to adhere to all monitoring requirements as indicated in its Operating Permit (CEMS, etc.) in addition to gathering engine test data during the testing.

The emission and operational testing will be limited in duration which will greatly limit any potential emission exceedances. For example, the initial emission source tests sought by the interim variance are to be performed on four of ten engines, for less than 40 hours per engine, and for a limited duration of only one week. The proposed two operational tests will also be limited in duration – roughly 40 hours of operation for the Injection Load Point Determination Testing and about 24 hours of operation for the Island Operational Testing.

Finding 6):

During the period the variance is in effect, PG&E will still be utilizing existing regulatory monitoring (CEMS) as required by the permit, and emissions will indeed be quantified and reported during the testing along with regular operation. In fact, the initial variance will allow them to perform an emissions study via source tests while also utilizing the existing CEMS to obtain data to quantify emissions levels during the test period. A condition of the initial variance requires that a report quantifying these emissions levels is to be given to the District within thirty (30) days after the date of expiration of the variance.

Recommended Variance Order Conditions:

If a regular variance is granted by the Hearing Board, it is recommended that the Regular Variance Order include the following:

- The required findings identified under HSC §42352 and District Regulation VI - Hearing Board Procedures, Rule 606 – Decisions, have been satisfied.
- The Petitioner be granted relief from the permit conditions and limitations of the Operating Permit as listed and proposed above at load levels less than the 50% level authorized while they conduct source and operational testing to determine low load emissions profile so as to determine how the engines will operate at lower load in order to confirm the HBGS's readiness to operate in an island mode or as a black start unit to serve area load.
- The Petitioner be granted relief from the permit conditions and limitations of the Operating Permit as proposed in the petition until June 30, 2020 (rather than the initially requested petition of 60 days).
- As proposed, conduct short term testing on three of 10 Wartsila reciprocating engines while operating under 50% load in accordance with the TRC Source Test Plan.
- As proposed, conduct the operational testing of Ammonia Injection Load Point Determination as proposed by tuning all engines at low load (below 50%) by adding five (5) additional load points.
- As proposed, conduct the operational test during Island Operation to determine the ability of the plant and engines to achieve real-world island operation similar to PSPS conditions, such that two (2) engines for each of the three (3) load resources (2 engines on 60kV resource#1 transmission line, 2 engines on 115kV resource 2 transmission line, and 2 engines on 60kV resource #3 transmission line).
- HBGS will continue to adhere to all conditions in its Operating Permit, and specifically continue to use all Air Pollution Control (APC) systems (SCR and CO catalyst, etc.) to the maximum extent possible during all low load tests and operation.
- HBGS will continue to adhere to all regulatory monitoring requirements as indicated in its Operating Permit (CEMS, etc.) in addition to gathering engine test data.
- Within ten (10) days after the date of expiration of the variance, HBGS to prepare and submit a report of the emissions discharged during the term of the variance in accordance with District Rule 404 (C) – Excess Emission Fee Schedule once they obtain the final results of the proposed testing. Payment of fees shall be made according to Rule 404(C).

**NORTH COAST UNIFIED
AIR QUALITY MANAGEMENT DISTRICT
707 L Street, Eureka, CA 95501
Phone: (707)443-3093 · Fax: (707) 443-3099**



**TITLE V FEDERAL OPERATING PERMIT
&
DISTRICT PERMIT TO OPERATE**

TITLE V PERMIT NO: NCU 059-12

ISSUED TO:

Pacific Gas and Electric Company
1000 King Salmon Avenue
Eureka, CA 95503

PLANT SITE LOCATION:

Humboldt Bay Generating Station
1000 King Salmon Avenue
Eureka, CA 95503

PERMIT EXPIRES:

March 16, 2023

RESPONSIBLE OFFICIAL:

Mr. Steve Royall
Director of Fossil
Operations & Equipment
(415) 973-0629

CONTACT PERSON:

Mr. Charles Holm
HBGS, Plant Manager
(707) 441-2667

NATURE OF BUSINESS:

Commercial Electricity Generation

STANDARD INDUSTRIAL CLASSIFICATION (SIC):

4911

CONTENTS

| | |
|--|-----------|
| CONTENTS | 2 |
| PERMIT SUMMARY | 5 |
| FACILITY DESCRIPTION | 6 |
| PERMIT HISTORY | 6 |
| EQUIPMENT DESCRIPTION | 6 |
| EQUIPMENT OPERATING SCENARIOS | 7 |
| DEFINITIONS | 8 |
| FEDERALLY ENFORCEABLE GENERAL REQUIREMENTS | 11 |
| TITLE V PERMIT MODIFICATIONS AND RENEWAL | 11 |
| COMPLIANCE | 12 |
| REPORTS AND RECORDKEEPING | 13 |
| PUBLIC NUISANCE | 14 |
| VISIBLE EMISSIONS | 14 |
| PARTICULATE MATTER | 14 |
| SULFUR COMPOUNDS | 15 |
| OPEN BURNING | 15 |
| EQUIPMENT BREAKDOWNS | 16 |
| TITLE VI REQUIREMENTS (OZONE DEPLETING SUBSTANCES) | 16 |
| ASBESTOS | 16 |
| PAYMENT OF FEES | 16 |
| ACCIDENTAL RELEASES | 17 |
| CONDITIONAL TRANSFER OF OWNERSHIP | 17 |
| SEVERABILITY | 17 |
| LOCALLY ENFORCEABLE ONLY GENERAL REQUIREMENTS | 18 |
| APPLICABILITY | 18 |
| ADMINISTRATION | 18 |
| EMISSIONS & OPERATION | 20 |
| RECORDS & TRAINING | 21 |
| PERMIT TERM | 21 |
| FEDERALLY ENFORCEABLE EQUIPMENT SPECIFIC REQUIREMENTS | 22 |

| | |
|---|-----------|
| AUTHORIZED EQUIPMENT | 22 |
| EMISSION LIMITING CONDITIONS | 26 |
| HEAT INPUT & FUEL LIMITATIONS | 26 |
| EMISSION LIMITS | 28 |
| S-1 to S-10 Startup & Shutdown Periods | 28 |
| S-1 to S-10 Natural Gas Mode | 28 |
| S-1 to S-10 Diesel Mode | 29 |
| Engines S-11 and S-12 | 31 |
| OPERATIONAL CONDITIONS | 32 |
| Engines S-11 and S-12 | 34 |
| REPORTING & RECORDKEEPING | 35 |
| Engines S-1 through S-12 | 35 |
| TESTING & COMPLIANCE MONITORING | 39 |
| LOCALLY ENFORCEABLE ONLY EQUIPMENT SPECIFIC REQUIREMENTS | 41 |
| EMISSIONS | 41 |
| AMBIENT MONITORING | 41 |
| EQUIPMENT EXEMPT FROM PERMITTING REQUIREMENTS | 42 |
| AUTHORIZING SIGNATURE | 43 |

Index of Tables

| | |
|--|----|
| Table 1 – Authorized Emission Devices (Humboldt Bay Generating Station) | 22 |
| Table 2 – Authorized Control Devices | 23 |
| Table 3 – Specifications for Engines S-1 through S-12 | 23 |
| Table 4 – Fuel Specifications for Engines S-1 through S-10 | 24 |
| Table 5 – Heat Input Limitations Per Engine | 26 |
| Table 6 – Heat Input Limitations S-1 Through S-10 Engines Combined | 27 |
| Table 7 – Diesel Fuel Firing Limitations (Pilot) | 27 |
| Table 8 – Diesel Fuel Firing Limitations | 27 |
| Table 9 – Start & Shutdown Period Emission Limits | 28 |
| Table 10 – Natural Gas Mode Emission Limits | 28 |
| Table 11 – S-1 Through S-10 Combined Natural Gas Mode Daily Limits | 29 |
| Table 12 – Diesel Mode Emission Limits | 29 |
| Table 13 – Diesel Particulate Matter Limitations | 30 |
| Table 14 – S-1 Through S-10 Combined Diesel Mode Daily Limits | 30 |
| Table 15 – S-1 Through S-10 Combined Annual Emission Limits | 30 |
| Table 16 – Engines S-11 and S-12 Emission Limits | 31 |
| Table 17 – S-11 and S-12 Combined Annual Emission Limits | 31 |
| Table 18 – S-11 and S-12 Hourly Operating Limits | 34 |
| Table 19 – Hours of Operation for Emergency IC Diesel Generators S-11 & S-12 | 34 |
| Table 20 – Required Records for Engines S-1 through S-10 | 36 |
| Table 21 – Insignificant Sources | 42 |

PERMIT SUMMARY

This permit is a Title V Permit to Operate issued pursuant to North Coast Unified Air Quality Management District (District) Rules and Regulations. It also serves as the local Permit To Operate and contains conditions and requirements carried over from the original Authority to Construct and Prevention of Significant Deterioration permits.

The application for the renewal of this permit was evaluated for compliance with District, State, and federal air quality rules and regulations. The following list contains the air quality rules that were found to be applicable at the time of review.

Federally Enforceable Rules & Regulations

| Citation | Description | Adoption Date |
|---------------------------|---|---------------|
| Regulation I, Rule 102 | Permit Requirements | 7-9-15 |
| Regulation I, Rule 110 | New Source Review Standards | 7-9-15 |
| Regulation I, Rule 103 | Action on Applications | 7-9-15 |
| Regulation I, Rule 104(B) | Visible Emissions | 7-9-15 |
| Regulation I, Rule 104(C) | Particulate Matter | 7-9-15 |
| Regulation I, Rule 104(D) | Fugitive Dust | 7-9-15 |
| Regulation I, Rule 104(E) | Sulfur Oxide Emissions | 7-9-15 |
| Regulation I, Rule 111 | Federal Permitting Requirements for Sources of Greenhouse Gases | 1-20-11 |
| Regulation V | PTOs for Sources Subject to Title V | 5-19-05 |
| NSPS | 40 CFR 60 Subpart IIII – Stationary CI Engines | 7-11-2006 |
| NESHAP | 40 CFR 63 Subpart ZZZZ – Stationary IC engines | 1-18-2008 |

Non-Federally Enforceable Rules & Regulations

| Citation | Description | Adoption Date |
|-------------------------|--|---------------|
| Regulation IV, Rule 400 | Stationary Source Permit Fees | 9-18-14 |
| Regulation IV, Rule 406 | Title V Fees | 9-18-14 |
| Regulation IV, Rule 407 | Air Toxic “Hot Spots” (AB2588) Fees | 9-18-14 |
| Regulation IV, Rule 412 | Major Source Assessment | 9-18-14 |
| Title 17 CCR §93115 | ATCM for Stationary Compression Ignition Engines | 10-18-2007 |

FACILITY DESCRIPTION

PERMIT HISTORY

| | |
|--|--------------------|
| Initial Permit | March 17, 1998 |
| Minor Modification | May 1, 2000 |
| Minor Modification | November 28, 2000 |
| Application for Certification | September 29, 2006 |
| Preliminary Determination of Compliance | October 24, 2007 |
| Final Determination of Compliance, Authority to Construct / Prevention of Significant Deterioration Permit | April 14, 2008 |
| Administrative Amendment | December 2, 2009 |
| Significant Modification | February 8, 2010 |
| Administrative Amendment | March 10, 2014 |
| Title V Renewal | February 17, 2016 |
| Administrative Amendment | April 26, 2016 |
| Minor Modification | December 18, 2017 |

EQUIPMENT DESCRIPTION

Since the mid 1950's, the Pacific Gas & Electric Company (PG&E) has operated power generation equipment at the Humboldt Bay Generating Station (HBGS) located at 1000 King Salmon Avenue in Eureka, California. HBGS is located in the northwestern portion of California within the County of Humboldt and is three miles to the south of Eureka, the County seat. The facility is sited about ¼ mile to the west of State Highway 101 at Buhne Point and is located on relatively level coastal terrain with hills within ½ mile east of the plant.

Currently, the HBGS consists of ten Wärtsilä 18V50DF 16.3 MW lean-burn reciprocating engines, equipped with selective catalytic reduction (SCR), oxidation catalyst, and associated support equipment including continuous emissions monitors. The primary fuel is natural gas with diesel pilot injection; the dual-fueled units are capable of firing 100% on diesel fuel. A diesel-fired emergency back-up generator and a diesel-fired fire pump are also authorized for use.

EQUIPMENT OPERATING SCENARIOS

As a commercial power plant, market circumstances and demand will dictate the exact operation of permitted equipment. However, the following general operating modes are projected to occur.

Base Load – HBGS may be operated at maximum continuous output for as many hours per year as scheduled by load dispatch, and limited by operational constraints of the permit to operate (approximately 75% annual capacity factor). Normal operation of HBGS will occur while the reciprocating engines are fired on natural gas with a diesel pilot. Firing on natural gas with diesel pilot is defined as “Natural Gas Mode” in this Permit. The engines have the capability of switching fuel types without interruption to power generation. The number of hours of liquid fuel firing is limited by the permit to a maximum of 1,000 operating hours per year total for all ten of the engine units combined. Operation of the reciprocating engines while fired on 100% liquid fuel is defined as “Diesel Mode” in this Permit. The allowable liquid fuel types are limited to CARB Diesel, CARB Diesel with additives, and Alternative Liquid Fuel as defined in the Permit.

Load Following – The facility may be operated to meet variable load requirements. Due to the modular design of the facility, it is possible to operate each of the 10 units individually or in any combination. In addition, each engine may be operated at loads varying from 50% to 100% of capacity.

Full Shutdown – This would occur if forced by equipment malfunction, fuel supply interruption, transmission line disconnect, natural disaster, or market conditions. The facility will be the primary source of power generation for the north coast region for the next several years. As such, full shutdown for any length of time is not anticipated.

DEFINITIONS

As used in this Permit, the terms shall have the meaning set out herein.

- a. **Acfm:** actual cubic feet per minute
- b. **Alternative Liquid Fuel:** An alternative diesel fuel or CARB Diesel Fuel with fuel additives that meets the requirements of the California Air Resources Board Verification Procedure, as codified in Title 13, CCR, sections 2700-2710
- c. **APCO:** the District Air Pollution Control Officer
- d. **Calendar Day:** Any continuous 24-hour period beginning at 12:00 AM or 0000 hours
- e. **California Air Resources Board (CARB) Diesel Fuel:** Any diesel fuel that is commonly or commercially known, sold, or represented by the supplier as diesel fuel No. 1-D or No. 2-D, pursuant to the specifications in ASTM D975-81, "Standard Specification for Diesel Fuel Oils," as modified in May 1982, which is incorporated herein by reference, and that meets the specifications defined in Title 13 CCR, sections 2281, 2282 and 2284
- f. **CAM Plan:** Compliance Assurance Monitoring Plan, as defined in 40 CFR 64
- g. **CARB:** the California Air Resources Board
- h. **CEMS:** Continuous Emissions Monitoring System
- i. **CFR:** the Code of Federal Regulations
- j. **Corrected Concentration:** The concentration of any pollutant (generally NO_x, CO, ROC, or NH₃) corrected to a standard stack gas oxygen concentration. For emission points S-1 through S-12, the standard stack gas oxygen concentration is 15% O₂ by volume on a dry basis
- k. **Diesel Mode:** the firing of reciprocating engines S-1 through S-10 on CARB diesel, when the heat input from liquid fuel exceeds 2.0 MMBtu/hr.
- l. **Diesel Mode Startup:** a Startup Period during which the reciprocating engines operates in Diesel Mode for periods exceeding one hundred and twenty (120) seconds, excluding Operational Mode Transfer events.
- m. **Diesel Particulate Matter (DPM):** particulate matter created by the combustion of diesel fuel in internal combustion engines; using EPA Method 5, the filterable material collected from the exhaust of diesel fired internal combustion engines.
- n. **Diesel Particulate Matter ATCM Emergency Use:** shall only pertain to engines S-11 and S-12 and shall mean providing electrical power or mechanical work during any of the following events and subject to the following conditions:
 - i. The failure of loss of all or part of normal electrical power service or normal gas supply to the facility which is demonstrated by the Permittee to the District APCO's satisfaction to have been beyond the reasonable control of the Permittee.
 - ii. The failure of the facility's internal power distribution system which is demonstrated by the owner or operator to the District APCO's satisfaction to have been beyond the reasonable control of the Permittee.
 - iii. The pumping of water for fire suppression or protection.
- o. **District:** North Coast Unified Air Quality Management District
- p. **Dscfm:** dry standard cubic feet per minute
- q. **Dual-fuel Diesel Pilot Engine:** a dual-fueled engine that uses diesel fuel as a pilot ignition source at an annual average ratio of less than 5 parts diesel fuel to 100 parts total fuel on an energy equivalent basis.

- r. **Dual-fuel Engine:** any CI engine that is engineered and designed to operate on a combination of alternative fuels, such as compressed natural gas (CNG) or liquefied petroleum gas (LPG) and diesel fuel or an alternative diesel fuel. These engines have two separate fuel systems, which inject both fuels simultaneously in to the engine combustion chamber.
- s. **Emergency:** operation arising from a sudden and reasonably unforeseeable event beyond the control of the Permittee (e.g., an act of God) which causes the excess of a limitation under this permit and requires immediate and corrective action. An “emergency” does not include noncompliance as a result of improperly designed or installed equipment, lack of preventative maintenance, careless or improper operation, or operator error.
- t. **EPA:** the United States Environmental Protection Agency
- u. **Facility:** the site of the Humboldt Bay Generating Station at HBPP
- v. **Firing Hours:** Period of time during which fuel is flowing to a unit, measured in minutes divided by 60
- w. **HBGS:** Humboldt Bay Generating Station
- x. **Heat Input:** the energy (heat) input of the fuel combusted at the higher heating value (HHV) of the fuel
- y. **HHV:** Higher Heating Value
- z. **Hr:** one hour – a standard measurement of time
- aa. **H₂S:** Hydrogen Sulfide
- bb. **Lb:** pound – an English unit of measurement of weight and mass being equivalent to 7000 grains, 16 ounces, and 0.453 kilograms
- cc. **Maintenance and Testing – Wartsila Engines:** Operation of the Wartsila engines to (a) evaluate the ability of an engine or its supported equipment to perform during an emergency, or to facilitate the training of personnel on emergency activities; or (b) perform emissions testing; or (c) perform maintenance and operational testing of the engines, their fuel delivery systems, or supported equipment (generators, switch gear, pumps, transformers, switch gear, uninterruptable power supply, breakers, etc.); or (e) perform safety-related testing as required by the manufacturer or any government agency; or (f) satisfy a requirement of any law, regulation, rule, ordinance, standard, or contract.
- dd. **MMBtu:** million British thermal units
- ee. **Natural Gas:** any mixture of gaseous hydrocarbons containing at least 80 percent methane by volume as determined by Standard Method ASTM D1945-64
- ff. **Natural Gas Curtailment:** A reduction in the natural gas supply available to the Facility as specified below.
 - i. Curtailment directed by a regulatory agency, or automatically implemented by PG&E in accordance with procedures approved by a regulatory agency; and
 - ii. Curtailment cannot be related to fuel pricing (i.e., units will not be switched to Diesel fuel operation simply because gas prices are higher than Diesel prices).
- gg. **Natural Gas Mode:** the firing of natural gas and CARB diesel or alternative liquid fuel in the engines where the diesel fuel or alternative liquid fuel is used solely for pilot injection, and the diesel pilot heat supplied is less than or equal to 2.0 MMBtu/hr.
- hh. **Natural Gas Mode Startup:** Startup Period during which the reciprocating engine operates in Diesel Mode for 120 seconds or less.
- ii. **NFPA:** National Fire Protection Association

- jj. **Normal Operations:** the operation of the Wärtsilä reciprocating engines identified in this permit, when firing in natural gas mode with diesel pilot injection, when not in startup, shutdown or malfunction mode
- kk. **Notice:** unless otherwise stated, shall be in writing, sent postage prepaid, to the APCO and include all information required. Notice shall be sent to the APCO at the following address: 707 L Street, Eureka, CA 95501
- ll. **Operational Minute:** a 60 second period when the engines are being fired. Each Operational Minute shall be designated as either “Natural Gas Mode” or “Diesel Mode”.
- mm. **Operational Mode Transfer:** the switching of fuel mode while operating at engine loads greater than 50%.
- nn. **O₂:** Oxygen
- oo. **Permittee:** the owner or operator identified on the Permit title page (PG&E)
- pp. **PM:** Particulate Matter
- qq. **Ppmvd:** parts per million, volumetric dry
- rr. **Responsible Official:** person(s) who have direct supervisory authority or control to affect operations of the equipment authorized pursuant to this Permit, and who have the ability to certify that a source complies with all applicable federal requirements and federally enforceable permit conditions as generally defined in District Rule 101
- ss. **Rolling 3-hour Period:** Any consecutive three-hour period, not including start-up or shut-down periods
- tt. **ROC:** reactive organic compound consistent with District Rule 110
- uu. **Quarter:** calendar quarter, consisting of the following Q1 - January through March; Q2 - April through June; Q3 - July through September; Q4 - October through December
- vv. **Shutdown Period:** The 30 minute period immediately prior to the termination of fuel flow to the reciprocating engine.
- ww. **SO₂:** Sulfur Dioxide
- xx. **Startup Period:** The lesser of the first 60 minutes of continuous fuel flow to the reciprocating engine after fuel flow is initiated or the period of time from reciprocating engine fuel flow initiation until the reciprocating engine achieves two consecutive valid 15-minute average CEM data points in compliance with the emission concentration limits of Tables 5.1 and 5.3 in the Pollutant Limitations Section of this Permit.
- yy. **VEE:** Visible Emissions Evaluation
- zz. **Year:** Any consecutive twelve-month period of time

FEDERALLY ENFORCEABLE GENERAL REQUIREMENTS

TITLE V PERMIT MODIFICATIONS AND RENEWAL

1. The Permittee shall submit to the Air Pollution Control Officer a completed Title V permit application for renewal no earlier than September 16, 2016 (18 months prior to the expiration date of the Title V permit) and no later than September 16, 2017 (6 months prior to the expiration date of the Title V permit). *[District Rule 502(B)(2); 40 CFR 70.5(a)(1)(iii)]*
2. If modifications to the permit are necessary, the Permittee shall submit to the Air Pollution Control Officer a complete Title V permit application for either an Administrative, Minor, or Significant Title V permit modification. The application shall not be submitted prior to receiving any required preconstruction permit from the District. *[District Rule 502(B)(3); 40 CFR 70.5(a)(1)(ii)]*
3. The Permittee shall submit to the Air Pollution Control Officer updates to the Title V application as new requirements become applicable to the source, and in no event later than 30 days after the end of the quarter during which the new requirement takes effect. *[40 CFR 70.5(b)]*
4. Upon the discovery of inaccuracies contained within an application or supplement thereto, the Permittee shall immediately notify the APCO. The Permittee shall undertake action to correct the deficiency within the time frame specified by the APCO. *[District Rule 502(E)(3); 40 CFR 70.5(a)(2) and (b)]*
5. Upon written request of the Air Pollution Control Officer, the Permittee shall supplement any complete application with additional information within the time frame specified by the Air Pollution Control Officer. *[District Rule 502(E)(2); 40 CFR 70.5(a)(2) and (b)]*
6. When submitting an application for a permit pursuant to Regulation V, the Permittee shall include the following information: A certification by a responsible official of all reports and other documents submitted for permit application; compliance progress reports at least every 6 months for, and submitted no later than 30 days after, the periods January 1st through June 30th and July 1st through December 31st of each year; statements on compliance status with any applicable enhanced monitoring; and annual compliance plans, no later than January 30th of each year, which shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document(s) are true, accurate, and complete. *[40 CFR 70.5(c)(9) and (d)]*
7. With the exception of acid rain units subject to Title IV of the Clean Air Act and solid waste incinerators subject to section 129(e) of the Clean Air Act, each permit issued pursuant to District Regulation 5 for any source shall include a condition for a fixed term not to exceed five years from the time of issuance. A permit to operate for an acid rain unit shall have a fixed permit term of five years. A permit to operate for a solid waste incinerator shall have a permit term of 12 years. However, the permit shall be reviewed at least every five years. *[District Rule 504(K); 40 CFR 70.6(a)(2)]*

COMPLIANCE

8. The Permittee shall comply with all conditions of the Title V permit. *[District Rule 504(B)(7)]*
9. The Permittee may not assert or use as a defense, expressly, impliedly, or by operation of law or past practice, in any enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Title V permit. *[District Rule 504(B)(7)(d)]*
10. This Title V permit may be modified, revoked, reopened and reissued or terminated for cause. *[District Rule 503(l)]*
11. The Permittee shall furnish to the Air Pollution Control Officer, within 10 (ten) days of the request, any information that the Air Pollution Control Officer may request in writing to determine whether cause exists for modifying, revoking and reissuing, terminating this permit, or to determine compliance with this Title V permit. Upon request, the Permittee shall also furnish to the Air Pollution Control Officer copies of records required to be kept by conditions of this permit. For information claimed to be confidential, the Permittee may furnish such records along with a claim of confidentiality. *[40 CFR 70.6(a)(6)(v)]*
12. Noncompliance with any federally enforceable requirement in this Title V permit is grounds for Title V permit termination, revocation and reissuance, modification, enforcement action, or denial of the Title V permit renewal application. *[District Rule 504(B)(7)(c)]*
13. A pending Title V permit action (e.g. a proposed permit revision) or notification of anticipated noncompliance does not stay any permit condition. *[District Rule 504(B)(7)(e)]*
14. This Title V permit does not convey any property rights of any sort or any exclusive privilege. *[District Rule 504(B)(7)(b)]*
15. Upon presentation of credentials and other documents as may be required by law, the Permittee shall allow the Air Pollution Control Officer or an authorized representative to perform all of the following:
 - a. Enter the stationary source's premises where this source is located or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Title V permit;
 - c. Inspect at reasonable times, the stationary source, equipment (including monitoring and air pollution control equipment), practices and operations regulated or required under this Title V permit; and
 - d. As authorized by District rules or by the Federal Clean Air Act, sample or monitor at reasonable times substances or parameters for the purpose of ensuring compliance with the Title V permit conditions or applicable federal requirements. *[District Rule 504(B)(5)]*

REPORTS AND RECORDKEEPING

16. Monitoring Reports
 - a. The Permittee shall submit to the Air Pollution Control Officer at least once every six months, unless required more frequently by an applicable requirement, reports of all required monitoring set out in this Title V permit.
 - b. The reporting periods for this permit shall be for the six month periods January 1st through June 30th and July 1st through December 31st. The reports shall be submitted by July 30th and January 30th of each year respectively.
 - c. Any and all instances of deviations from Title V permit conditions must be clearly identified in such reports. 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. *[District Rule 502(K) and Rule 504(E); 40 CFR 70.6(a)(3)(ii) and (iii)]*

17. Compliance Reports
 - a. The Permittee shall submit to the Air Pollution Control Officer and to U.S. EPA (Air-3, U.S. EPA, Region IX) on an annual basis, unless required more frequently by additional applicable federal requirements, a certification of compliance by the Permittee 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 1st through December 31st. The report shall be submitted by January 30th of each year. The initial report shall be for the period January 1st 2009 through December 31st 2009 and shall be submitted by March 1st 2010.
 - 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.
 - d. The compliance certification shall include the following:
 - i. The identification of each term or condition of the Title V permit that is the basis of the certification.
 - ii. The method(s) used for determining the compliance status of the source, currently and over the reporting period, and whether such method(s) provides continuous or intermittent data.
 - iii. The status of compliance with the terms and conditions of the Title V permit for the period covered by the certification, based on the method designated in Section D (ii) of this condition.
 - iv. Such other facts as the Air Pollution Control Officer may require in order to determine the compliance status of the source.
 - v. A method for monitoring the compliance of the stationary source with its emissions limitations, standards and work practices. *[District Rule 504(J); 40 CFR 70.6(b)(5)]*

18. The Permittee shall report within 24 hours of detection any deviation from a federally enforceable Title V permit condition. In order to fulfill the reporting requirement of this condition, the Permittee shall notify the Air Pollution Control Officer by telephone, email, or fax followed by a written statement within seven (7) days describing the nature of the deviation from the federally enforceable permit condition. *[District Rule 504(E); 40 CFR 70.6(a)(3)(iii)]*

19. All monitoring data and support information required by a federally enforceable applicable requirement must be kept by the stationary source for a period of 5 years from the date of the monitoring sample, measurement, report or application. Support information includes all calibration and maintenance records, all electronic data for continuous monitoring instrumentation, and copies of all reports required by the federally enforceable applicable requirement in the Title V permit. *[District Rule 502(J) and Rule 504(C); 40 CFR 70.6(a)(3)(ii)]*

PUBLIC NUISANCE

20. The Permittee shall not discharge such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public; or which endanger the comfort, repose, health or safety of any such persons or the public; or which cause or have a natural tendency to cause injury or damage to business or property. *[District Rule 104(A)(1)]*

VISIBLE EMISSIONS

21. The Permittee shall not discharge into the atmosphere from any single source of emission, any air contaminant other than uncombined water vapor, for a period or periods aggregating more than three minutes in any one hour which is:
 - a. As dark or darker in shade as that designated No. 2 (3-minute average), on the Ringelmann Chart, as published by the United States Bureau of Mines, or
 - b. Of such opacity as to obscure a human observer's view, or a certified calibrated in-stack opacity monitoring system to a degree equal to or greater than forty percent (40%) opacity. *[H&SC §41701]*

PARTICULATE MATTER

22. Particulate Discharge Limitations
 - a. General Combustion Sources: The Permittee shall not discharge particulate matter into the atmosphere from any combustion source in excess of 0.46 grams per standard cubic meter (0.20 grains per standard cubic foot) of exhaust gas, calculated to 12 percent carbon dioxide; or in excess of the limitations of NSPS (District Rule 104(K)), as applicable.
 - b. Steam Generating Units: The Permittee shall not discharge particulate matter into the atmosphere from any steam generating unit, installed or modified after July 1, 1976, in excess of 0.23 grams per standard cubic meter (0.10 grains per standard cubic foot) of exhaust gas, calculated to 12 percent carbon dioxide; or in excess of the limitations of NSPS *[District Rule 104(K)]*.
 - c. Steam Generating Utility Power Plants: Notwithstanding the limitations set out above, no steam generating power plants which produce electric power for sale to any public utility shall discharge particulate matter into the atmosphere in excess of 0.10 pounds per million BTU heat input or any other specific applicable permit limitation, whichever is the more restrictive emission condition.
 - d. Non-Combustion Sources: The Permittee shall not discharge particulate matter into the atmosphere from any non-combustion source in excess of 0.46 grams per actual cubic meter (0.20 grains per cubic foot) of exhaust gas or in total quantities in excess of the maximum allowable process weight rate as listed in Rule 104 Table 1. *[District Rule 104]*

23. The Permittee shall not handle, transport or store, or allow open storage of materials in such a manner which allows or has the potential to allow unnecessary amounts of particulate matter to become airborne. Reasonable precautions shall be taken to prevent particulate matter from becoming airborne, including, but not limited to, the following:
- a. Covering open bodied trucks when used for transporting materials likely to give rise to airborne dust.
 - b. Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials. Containment methods can be employed during sandblasting and other similar operations.
 - c. Conduct agricultural practices in such a manner as to minimize the creation of airborne dust.
 - d. The use of water or approved dust surfactants for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads or the clearing of land.
 - e. The application of asphalt, oil, water or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which can give rise to airborne dusts.
 - f. The paving of roadways and their maintenance in a clean condition.
 - g. The prompt removal of earth or other material from paved streets onto which earth or other material has been transported by trucking or earth moving equipment, erosion by water, or other means. *[District Rule 104(D)]*

SULFUR COMPOUNDS

24. The Permittee shall not discharge into the atmosphere from any single source of emissions, sulfur oxides (calculated as sulfur dioxide (SO₂)) in excess of 1,000 ppm or in excess of the emission limitations of Federal New Source Performance Standards, as applicable. *[District Rule 104(E)]*

OPEN BURNING

25. The Permittee shall not ignite or cause to be ignited or suffer, allow or maintain any open outdoor fire for the disposal of rubber, petroleum or plastic wastes, demolition debris, tires, tar paper, wood waste, asphalt shingles, linoleum, cloth, household garbage or other combustible refuse, or for metal salvage or burning of motor vehicle bodies. No other open burning shall occur without the owner, operator(s) or Permittee having first obtained a Coordinated Authorized Burn Permit from the Air Pollution Control Officer. *[District Rules 201 & 203]*

EQUIPMENT BREAKDOWNS

26. The Permittee shall comply with the emergency provisions contained in all applicable federal requirements.
 - a. Within two working days of the emergency event, the Permittee shall notify the Air Pollution Control Officer with a description of the emergency and any mitigating or corrective actions taken. *[District Rule 502(I)]*
 - b. Within two weeks of an emergency event, the owner(s), operator(s) or the responsible official shall submit to the Air Pollution Control Officer a signed contemporaneous log or other relevant evidence which demonstrates that:
 - i. An emergency occurred.
 - ii. Identification of the cause(s) of the emergency.
 - iii. The facility was being properly operated at the time of the emergency.
 - iv. Identification of each and every step taken to minimize the emissions resulting from the emergency.
 - c. The Permittee has the burden of proof to establish that an emergency occurred in any enforcement proceeding.

TITLE VI REQUIREMENTS (OZONE DEPLETING SUBSTANCES)

27. The Permittee shall not allow or cause the opening of appliances containing CFCs for maintenance, service, repair, or disposal unless first complying with the required practices set out pursuant to 40 CFR 82.156. *[40 CFR 82 Subpart F]*
28. Equipment used during the maintenance, service, repair, or disposal of appliances containing CFCs shall comply with the standards for recycling and recovery equipment set out in and pursuant to 40 CFR 82.158. *[40 CFR 82 Subpart F]*
29. The Permittee and its contractors and agents performing maintenance, service, repair or disposal of appliances containing CFCs must be certified by an approved technician certification program set out in and pursuant to 40 CFR 82.161. *[40 CFR 82 Subpart F]*

ASBESTOS

30. The Permittee shall comply with the standards of 40 CFR 61 Subpart M which regulates demolition and renovation activities pertaining to asbestos materials.

PAYMENT OF FEES

31. The Permittee shall pay an annual permit fee and other fees as required in accordance with District Regulation IV, Rule 406, Title V Fees. Failure to pay these fees by the dates due will result in immediate suspension of this Title V Permit to Operate effective on the date the fees were due, and on notification by the Air Pollution Control Officer of such suspension. Operation without an effective Title V permit subjects the Permittee to potential enforcement action by the District and the U.S. EPA pursuant District Rules and Section 502(a) of the Clean Air Act as amended in 1990. *[District Regulation IV, Rule 406]*

ACCIDENTAL RELEASES

32. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the Permittee Title V permit shall register and submit to the U.S. 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 68.130. The list of substances, threshold quantities and accident prevention regulations promulgated under Part 68 do not limit in any way the general duty provisions under Section 112(r)(1). *[40 CFR Part 68]*
33. If subject to Section 112(r) of the CAA and 40 CFR Part 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 40 CFR 68.10(a):
 - a. June 21, 1999,
 - b. Three years after the date on which a regulated substance is first listed under 68.130, or
 - c. The date on which a regulated substance is first present above a threshold quantity in a process. *[40 CFR Part 68]*
34. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the Permittee(s) 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]*
35. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the Permittee(s) shall annually certify compliance with all applicable requirements of Section 112(r) as part of the annual compliance certification. This annual compliance certification shall be submitted and received no later than January 30th of each year. *[40 CFR Part 68]*

CONDITIONAL TRANSFER OF OWNERSHIP

36. In the event of any changes in control or ownership of these facilities, this permit together with its terms and conditions shall be binding on all subsequent owners and operators. The Permittee shall notify the succeeding owner and operator of the existence of this permit and its conditions by letter, a copy of which shall be forwarded to the District, and which shall identify the exact effective date of the transfer of ownership.
37. The new owner(s) and operator(s) of this Title V source shall notify the Air Pollution Control Officer within 30 (thirty) days of the transfer of ownership and which notification shall include a certification by the responsible party that the Title V facility operations are to be operated in the same operational parameters as set out herein, and as before the transfer of ownership.

SEVERABILITY

38. If any term or condition of this permit, for any reason, be adjudged by a court of competent jurisdiction to be invalid, such judgement shall not affect or invalidate the remainder of this permit. These permit conditions are enforceable individually and severally. *[40 CFR 60.6(a)(5); District Rule 504(B)(8)]*

LOCALLY ENFORCEABLE ONLY GENERAL REQUIREMENTS

APPLICABILITY

39. Any permit or written authorization issued pursuant herein shall not be transferable, by operation of law or otherwise, from one location to another, or from one person to another, unless such transfer occurs as a condition of this permit or as a modification to the permit and with written notification to the Air Pollution Control Officer within 30 (thirty) days of transfer of ownership.
40. Reserved.

ADMINISTRATION

41. The Permittee shall not cause or permit the construction or modification of any new source of air contaminants or modifications to an existing source, either minor or major, without first having obtained an Authority to Construct (ATC) permit from the Air Pollution Control Officer.
42. This permit is effective only upon payment of the permit fees set out in District Rules and Regulations.
43. This Permit is issued pursuant to California Health and Safety Code Section 42300. Commencement of any act or operation authorized by this Permit shall be conclusively deemed to be acceptance of all terms and conditions contained herein.
44. The Permittee shall comply with all conditions of this permit. Any violation of any condition of this Permit is a violation of District Rules and Regulations, and California State Law. [*District Rule 105(A)*]
45. The Permit Conditions shall be liberally construed for the protection of the health, safety and welfare of the people of the District. [*District Rule 100(F)(3)*]
46. The District Rules and Regulations may be superseded or revised by the District Board with notice as required by state law. It is Permittee's responsibility to stay current with Rules and Regulations governing its business. The Permittee is therefore expected to, and shall, comply with all applicable Rules and Regulations. [*District Rule 100(F); Rule 105(A)*]
47. Permit requirements apply to the facility owner and/or operator(s) and any contractor(s) or subcontractor(s) performing any activity authorized under this Permit. Any person(s) including contractor(s), subcontractor(s), not in compliance with the applicable permit requirements are in violation of State and Local laws, and are subject to appropriate civil and criminal penalties. The facility owner and/operator, and all contractor(s) or subcontractor(s) are strictly liable for the actions and violations of their employee(s). A violation committed by a contractor(s) or subcontractor(s) shall be considered a violation by the facility owner(s) and/or operator(s), and is also a violation by the contractor(s) and/or any subcontractor(s). [*District Rule 102*]

48. Prior to building, erecting, altering, or replacing any article, machine, equipment, or other contrivance where the use of said article may result in the discharge of air pollutants or in the reduction, elimination, or control of air pollutants, the Permittee shall obtain written authorization from the APCO. [*District Rule 102*]
49. Knowing and willful misrepresentation of a material fact in the application for the Permit, or failure to comply with any condition of the Permit, or of the District Rules and Regulations, or any state or federal law, shall be grounds for revocation of this Permit. [*District Rule 102*]
50. Permittee shall not construct, erect, modify, operate, or use any equipment which conceals the emission of an air contaminant, which would otherwise constitute a violation of the limitations of this Permit. [*District Rule 104(A)(2)*]
51. This Permit does not convey any property rights of any sort, or any exclusive privilege.
52. The "Right of Entry", as delineated in District Rule 109(A) and California Health and Safety Code Section 41510 of Division 26, shall apply at all times. Failure to grant immediate access to District, CARB, or other authorized personnel shall be grounds for permit suspension or revocation.
53. The APCO reserves the right to amend this Permit in order to ensure compliance with all applicable Federal, State and Local laws, Rules and Regulations or to mitigate or abate any public nuisance. Such amendments may include requirements for additional operating conditions, testing, data collection, reporting and other conditions deemed necessary by the APCO.
54. If any provision or condition of this Permit is found invalid by a court of competent jurisdiction, such finding shall not affect the validity or enforcement of the remaining provisions.
55. This Permit shall be posted in a conspicuous location at the site and shall be made available to District representatives upon request. [*District Rule 102(H)*]
56. The Permittee shall pay an annual permit fee and other fees as required in accordance with District Regulation IV. Failure to pay these fees will result in the forfeiture of this Permit. Operation without a permit subjects the source to potential enforcement action by the District. In the event of facility closure or change of ownership or responsibility, the new owner or operator shall be assessed and shall pay any unpaid fees. [*District Regulation IV - Fees*]
57. This Permit is not transferable from either one location to another, from one piece of equipment to another, or from one person to another, except as provided herein. In the event of any change in control or ownership of the subject facility, the Permittee shall notify the succeeding owner of this Permit and its conditions; and shall notify the District of the change in control or ownership within fifteen (15) days of that change. [*District Rule 400(E)*]

58. A request for Transfer of Ownership of this Permit shall be submitted to the APCO prior to commencing any operation of the subject equipment and/or operations by any owner(s) and/or operator(s) not otherwise identified in this Permit. Failure to file the Transfer of Ownership constitutes a separate and independent violation, and is cause for voiding this Permit. The burden of applying for a Transfer of Ownership is on the new owner(s) and/or operator(s). Any Permit transfer authorized pursuant to a transfer of ownership request shall contain the same conditions as this Permit. [*District Rule 400(E)*]
59. For purposes of this Permit, the terms identified in the Definition Section shall have the meaning set out in District Rule 101 and as defined in the definition section of this permit. In the event of any conflict between Rule 101 and the permit definitions, the definitions section of this permit shall prevail.

EMISSIONS & OPERATION

60. This Permit does not authorize the emission of air contaminants in excess of those allowed by the federal Clean Air Act, California Health and Safety Code or the Rules and Regulations of the District. This Permit shall not be considered as permission to violate existing laws, ordinances, regulation or statutes of other governmental agencies.
61. The Permittee shall not discharge such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public; or which endanger the comfort, repose, health or safety of any such persons or the public; or which cause or have a natural tendency to cause injury or damage to business or property. [*H&SC §41700; District Rule 104(A)(1)*]
62. The Permittee shall not discharge into the atmosphere from any source whatsoever any air contaminant which is in excess of twenty (20) percent opacity, or as dark or darker in shade as that designated as No. 1 on the Ringelmann Chart, calculated as a six minute average. Opacity observations shall be taken and recorded as described in EPA Reference Method 9. [*District Rule 104(B)(3)*]
63. The handling, transporting, or open storage of material in such a manner which allows unnecessary amounts of particulate matter to become airborne shall not be permitted. Reasonable precautions shall be taken to prevent particulate matter from becoming airborne. [*District Rule 104(D)*]
64. All equipment regulated by this Permit shall at all times be maintained in good working order, and shall be operated as efficiently as possible so as to ensure compliance with all applicable emission limits. For purposes of compliance with this requirement, good working order, efficient operation, and proper maintenance shall mean the implementation of all protocols, procedures, and activities recommended by the device manufacturer or those required by this Permit.

RECORDS & TRAINING

65. The Permittee shall provide training and instruction to all affected contractor(s), subcontractor(s), and employee(s). Training shall include the identification of all the requirements contained within this Permit, and the appropriate method to be used to comply with the permit conditions. Training shall occur prior to any of the contractor(s), subcontractor(s), or employee(s) constructing or operating equipment authorized by this permit. Records documenting the persons receiving instruction and the instruction materials shall be made available to the APCO upon request. [*District Rule 102*]
66. The Permittee shall furnish to the APCO any information that the District may request to determine compliance with this Permit or whether cause exists for modifying, revoking and reissuing, or terminating this Permit. Upon request, Permittee shall also furnish to the District copies of records required to be kept by this Permit. The information and records shall be submitted within the time period determined by the APCO. [*H&SC §42303; District Rule 103(F)*]
67. The Permittee shall record the following information in the event of an equipment breakdown or malfunction of Authorized Equipment which creates, causes, or results in a violation any emission limitation or restriction prescribed by District Rules or State law: date and time of event; event duration; a description of event; the cause of the event; what corrective measures were taken, including what actions were taken to prevent re-occurrence; if corrective actions were unsuccessful, what additional measures should be taken in the future; and the quantity of excess emissions released during the event. The Permittee shall report the information listed above to the District within 10 days of when the breakdown event was corrected. If the Permittee reports the event to the District in within one hour of its detection pursuant to Rule 105(E)(2), the APCO may elect to not take enforcement action if the requirements of Rule 105(E) are satisfied. [*District Rule 105(E)*]

PERMIT TERM

68. The Title V permit expiration terminates the Permittee's right to operate the stationary sources itemized in this permit unless a timely and complete Title V permit application for renewal has been submitted in accordance with District Regulation V Rule 502(B)(2), in which case the existing Title V permit will remain in effect until the Title V permit renewal has been issued or denied. [*District Rule 502(A)(2)*]

FEDERALLY ENFORCEABLE EQUIPMENT SPECIFIC REQUIREMENTS

The information specified under this section is enforceable collectively and severally by the District, U.S. EPA, and the public.

AUTHORIZED EQUIPMENT

69. This permit authorizes the operation of the equipment and specific components listed in Table 1 and 2. For each of the reciprocating internal combustion engines S-1 through S-10, both a Selective Catalytic Reduction system (SCR) and an oxidation catalyst are authorized and shall be designated “A-(engine number) SCR” and “B-(engine number) oxidation catalyst respectively”.
[District Rule 504(B)(1)]

Table 1 - Authorized Emission Devices (Humboldt Bay Generating Station)

| Unit No. | Equipment | Nominal Size |
|----------|---|---|
| S-1 | Wärtsilä 18V50DF Dual Fuel Reciprocating Engine #1, equipped with lean burn technology, abated by A-1 SCR and B-1oxidation catalyst | 148.9 MMBtu/hr 16.3 MW 22,931 BHp |
| S-2 | Wärtsilä 18V50DF Dual Fuel Reciprocating Engine #2, equipped with lean burn technology, abated by A-2 SCR and B-2 oxidation catalyst | 148.9 MMBtu/hr 16.3 MW 22,931 BHp |
| S-3 | Wärtsilä 18V50DF Dual Fuel Reciprocating Engine #3, equipped with lean burn technology, abated by A-3 SCR and B-3 oxidation catalyst | 148.9 MMBtu/hr 16.3 MW 22,931 BHp |
| S-4 | Wärtsilä 18V50DF Dual Fuel Reciprocating Engine #4, equipped with lean burn technology, abated by A-4 SCR and B-4 oxidation catalyst | 148.9 MMBtu/hr 16.3 MW 22,931 BHp |
| S-5 | Wärtsilä 18V50DF Dual Fuel Reciprocating Engine #5, equipped with lean burn technology, abated by A-5 SCR and B-5 oxidation catalyst | 148.9 MMBtu/hr 16.3 MW 22,931 BHp |
| S-6 | Wärtsilä 18V50DF Dual Fuel Reciprocating Engine #6, equipped with lean burn technology, abated by A-6 SCR and B-6 oxidation catalyst | 148.9 MMBtu/hr 16.3 MW 22,931 BHp |
| S-7 | Wärtsilä 18V50DF Dual Fuel Reciprocating Engine #7, equipped with lean burn technology, abated by A-7 SCR and B-7 oxidation catalyst | 148.9 MMBtu/hr 16.3 MW 22,931 BHp |
| S-8 | Wärtsilä 18V50DF Dual Fuel Reciprocating Engine #8, equipped with lean burn technology, abated by A-8 SCR and B-8 oxidation catalyst | 148.9 MMBtu/hr 16.3 MW 22,931 BHp |
| S-9 | Wärtsilä 18V50DF Dual Fuel Reciprocating Engine #9, equipped with lean burn technology, abated by A-9 SCR and B-9 oxidation catalyst | 148.9 MMBtu/hr 16.3 MW 22,931 BHp |
| S-10 | Wärtsilä 18V50DF Dual Fuel Reciprocating Engine #10, equipped with lean burn technology, abated by A-10 SCR and B-10 oxidation catalyst | 148.9 MMBtu/hr 16.3 MW 22,931 BHp |
| S-11 | Caterpillar C-15 Diesel-fired Emergency IC Engine, serial number FSE02399, powering an emergency generator | 546 HP |
| S-12 | Cummins CFP9E-F20 Diesel-fired Emergency IC Engine, serial number 73070231, powering a fire water pump | 268 HP |

Table 2 - Authorized Control Devices

| Control Equipment | Manufacturer | Model | Specifications |
|--------------------------------------|---------------------------------|---------------------------------------|--|
| Oxidation Catalyst | HUG Engineering (or equivalent) | OCT-0806-040-0062/450 (or equivalent) | Catalyst: Platinum Inlet Temperature: 608 °F to 908 °F Outlet Temperature: 608 °F to 908 °F Max Flow: 143,000 acfm Control Efficiency: 13ppmvd CO @15%O ₂ while in NG Mode; 20ppmvd CO @15%O ₂ while in Diesel Mode |
| Selective Catalytic Reduction System | HUG Engineering (or equivalent) | RFV-0890-040-200/300 (or equivalent) | Catalyst: Vanadium Pentoxide Inlet Temperature: 608 °F to 908 °F Outlet Temperature: 608 °F to 908 °F Max Flow: 143,000 acfm Control Efficiency: 6ppmvd NOx @15%O ₂ while in NG Mode; 35ppmvd NOx @15%O ₂ while in Diesel Mode |

70. The Permittee shall not modify reciprocating engines S-1 through S-10 in such a manner so as to exceed the Heat Input Capacities, or deviate from the nominal full-load design specifications as submitted in the AFC, and as identified in Table 3. Further, Natural Gas Mode heat input shall be the sum of the Higher Heating Values of the natural gas and diesel supplied. The diesel pilot heat input (total diesel supplied) for each engine shall not exceed 2.0 MMBtu/hr calculated on a three hour rolling average basis. *[District Rule 102(E); 17 CCR §93115 PSD 2/09]*

Table 3 - Specifications for Engines S-1 through S-12

| Engines S-1 through S-10 | |
|---|--|
| Primary Fuel | Natural Gas |
| Backup Fuel | CARB Diesel |
| Design Ambient Temperature | 67.5 °F |
| Natural Gas Mode (HHV) | 144.7 MMBtu/hr natural gas plus pilot fuel |
| Diesel Mode (HHV) | 148.9 MMBtu/hr CARB Diesel Fuel |
| Nominal Exhaust Temperature | 728°F |
| Nominal Exhaust Flow Rate | 121,500 acfm |
| Exhaust Release Height | 100 Feet (above grade) |
| Exhaust O ₂ Concentration, dry volume | 11.6% (Nominal) |
| Exhaust CO ₂ Concentration, dry volume | 5.3% (Nominal) |
| Emission Controls | Lean Burn Technology and SCR; Oxidation Catalyst |
| SIC | 4911 |
| SCC | 20100202 natural gas mode; 20100301 diesel mode |

Table 3 Continued.

| Engine S-11 | |
|-------------------------------|---------------|
| Primary Fuel | CARB Diesel |
| Nominal Heat Input Rate (HHV) | 4.0 MMBtu/hr |
| Heat Input, gal/hr | 29.1 |
| SIC | 4911 |
| SCC | 20100301 |
| Engine S-12 | |
| Primary Fuel | CARB Diesel |
| Nominal Heat Input Rate (HHV) | 1.94 MMBtu/hr |
| Heat Input, gal/hr | 14.2 |
| SIC | 4911 |
| SCC | 20201607 |

71. The Permittee shall only fire reciprocating engines S-1 through S-10 with fuel which meets or exceeds the fuel specifications identified in Tables 4. Prior to firing reciprocating engines S-1 through S-10 with an Alternative Fuel or CARB Diesel with additives, the Permittee shall make a request to the APCO to switch fuel types. The request shall include all necessary information to characterize emission changes which may occur as a result of the change. The Permittee shall not fire reciprocating engines S-1 through S-10 with a liquid fuel other than CARB Diesel without prior approval from the APCO. *[District Rule 102(E); PSD 2/09]*

Table 4 - Fuel Specifications for Engines S-1 through S-10

| Fuel Type | Property | Value |
|-------------|----------------|--|
| Natural Gas | Sulfur Content | < 1 gr / 100scf per test; annual average <0.33gr/100scf |
| CARB Diesel | Sulfur Content | < 15 ppm |

72. Reciprocating engines S-1 through S-10 shall be equipped with a monitoring system capable of measuring and recording hours of operation (in tenths of an hour) and fuel consumption (in cubic feet and gallons) while operating in natural gas mode and diesel mode. The measuring devices shall be accurate to plus or minus 1% at full scale, and shall be tested/calibrated at least once every twelve months for natural gas fuel meters, and once every 24 months for diesel fuel flow meters. Measuring devices shall be tested/calibrated at more frequent intervals if necessary to ensure compliance with the 1% accuracy requirement. *[District Rule 102(E); PSD 2/09]*
73. The exhaust stacks shall not be fitted with rain caps or any other similar device which would impede vertical exhaust flow. *[District Rule 102(E); PSD 2/09]*

74. The Permittee shall install and maintain a non-resettable hour meter with a minimum display capability of 9,999 hours upon the Emergency IC Diesel Engines S-11 and S-12. [*District Rule 102(E)*]
75. The Emergency IC Diesel Engines S-11 and S-12 shall use one of the following fuels:
 - a. CARB Diesel Fuel, or
 - b. An alternative diesel fuel that meets the requirements of the Verification Procedure (as codified in CCR Title 13 Sections 2700-2710), or
 - c. CARB Diesel Fuel used with fuel additives that meets the requirements of the Verification Procedure (as codified in CCR Title 13 Sections 2700-2710), or
 - d. Any combination of a) through c) above.
76. The Permittee shall install and maintain exhaust gas temperature monitoring devices at the inlet and the outlet of the oxidation catalyst. [*40 CFR §63.6625; PSD 2/09 BACT*]
77. Ammonia injection points shall be equipped with operational ammonia flow meters and injection pressure indicators. The flow meters shall be accurate to plus or minus 1% at full scale and shall be tested/calibrated at least once every twelve months, or at more frequent intervals if necessary to ensure compliance with the 1% requirement. [*District Rule 102(E); PSD 2/09*]
78. The Permittee shall install points of access to the Emission Devices, Control Devices, and Continuous Emission Monitoring Devices such that source testing in accordance with the appropriate reference test methods can be performed. All points of access shall conform to the latest Cal-OSHA safety standards. For purposes of compliance with this part, appropriate test methods shall mean the test methods identified in the Testing and Compliance Monitoring Conditions Section of this Permit; and the collection of gas samples with a portable NO_x, CO, and O₂ analyzer. Sample collection ports shall be located in accordance with 40 CFR Part 60 Appendix A, and with the CARB document entitled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [*District Rule 102(E); PSD 2/09*]
79. Each reciprocating engine S-1 through S-10 shall be equipped with a continuous emission monitor (CEM) for NO_x, CO, and O₂. Continuous emissions monitor(s) shall meet the requirements of 40 CFR part 60, Appendices B and F, and District-approved protocol during normal operations. The monitors shall be designed and operated so as to be capable of monitoring emissions during normal operating conditions and during Startup and Shutdowns Periods. [*District Regulations Appendix B; PSD 2/09*]
80. The Permittee shall demonstrate compliance with the ammonia slip limit by using the following calculation procedure: The ammonia injection rate to each SCR control system shall be continuously recorded. Correlations between the engine heat input rates, the SCR system ammonia injection rates, and corresponding ammonia emission concentration shall be determined for each fuel in accordance with the Testing and Compliance Monitoring Section of this Permit. Alternatively, the Permittee may be required to install, operate and maintain a

continuous in-stack emissions monitor for emissions of ammonia. The Permittee shall obtain APCO approval for the installation and use the ammonia CEMs equipment at least 60 days prior to the planned installation date. [District Rule 103(F)]

EMISSION LIMITING CONDITIONS

- 81. The Permittee shall not discharge particulate matter into the atmosphere from any combustion source in excess of 0.20 grains per cubic foot of dry gas calculated to 12 percent CO₂ at standard conditions. [District Rule 104(C)(1)]
- 82. The Permittee shall not discharge sulfur dioxide into the atmosphere from reciprocating engines S-1 through S-12 such in excess of 1000 ppmv for any single device or more than 40 tons per year as a combination of all devices. [District Rule 104(E)]
- 83. Visible emissions from reciprocating engines S-1 through S-12 shall not be as dark or darker in shade as that designated as No. 1 on the Ringleman Chart, or of such opacity so as to obscure an observer’s view to a degree equal to or greater than 20%, for any period or periods aggregating more than 3 minutes in any one hour. [District Rule 104(B)(3)]
- 84. The Permittee shall not operate reciprocating engines S-1 through S-12 such that the emissions of NO_x, from a combination of all engines, exceeds 392 lbs per hour. Furthermore, the Permittee shall not operate reciprocating engines S-1 through S-10 such that more than 2 units are in a Diesel Startup Period during any one Clock Hour. [District Rule 102(E); PSD 2/09]
- 85. The Permittee shall not discharge diesel particulate matter from reciprocating engines S-1 through S-10 while operating in Diesel Mode such that emissions of Diesel Particulate Matter exceed 0.11 g/bhp-hr for each engine. [NSPS 40 CFR Part 60 Subpart IIII]
- 86. The Permittee shall not discharge Carbon Monoxide from reciprocating engines S-1 through S-10 in excess of 0.14 g/bhp-hr or 20 ppmv @ 15% O₂. [40 CFR 63 Subpart ZZZZ, District Rule 110]

HEAT INPUT & FUEL LIMITATIONS

- 87. The Permittee shall not operate reciprocating internal combustion engines S-1 through S-10 in such a manner so as to exceed the heat input capacities listed in Table 5 on a per engine basis. Further, the Permittee shall not operate S-1 through S-10 such that diesel pilot heat input per engine exceeds 2.0 MMBtu/hr on a rolling three hour average basis. [District Rule 102(E); 17 CCR §93115; PSD 2/09]

Table 5 - Heat Input Limitations Per Engine

| Each Unit | Heat Input, MMBtu (HHV) | |
|------------------|----------------------------------|-------------------------|
| | Hourly (3 hr Rolling Average) | Daily (Calendar Day) |
| Natural Gas Mode | 144.7 | 3,473 |
| Diesel Mode | 148.9 | 3,574 |

88. The Permittee shall not operate reciprocating internal combustion engines S-1 through S-10 in such a manner so as to exceed the heat input capacities listed in Table 6 below calculated as a sum of all 10 engines. Further, while operating in Natural Gas Mode, the percentage of heat input derived from diesel shall not exceed 5% on an annual basis (calendar year). [District Rule 102(E); 17 CCR §93115; PSD 2/09]

Table 6 - Heat Input Limitations S-1 Through S-10 Engines Combined

| Sum of All 10 Units | Heat Input, MMBtu (HHV) |
|-------------------------------|-------------------------|
| | Annual (Calendar Year) |
| Natural Gas Mode ¹ | 9,328,809 |
| Diesel Mode | 148,900 |

Note: 1) Total Heat Input in Natural Gas Mode is the sum of natural gas and diesel pilot.

89. The Permittee shall not exceed the diesel fuel firing limits while operating reciprocating engines S-1 through S-10 in the modes listed in Tables 7 and 8 below. [District Rule 102(E); PSD 2/09]
- a. Natural Gas Mode.

Table 7 - Diesel Fuel Firing Limitations (Pilot)

| Engines S-1 Through S-10 | Gallons of Diesel Fuel | | |
|--------------------------|----------------------------------|-------------------------|-------------------------------------|
| | Hourly (3 Hr Rolling Average) | Daily (Calendar Day) | Annual (365 Day Rolling Average) |
| All Combined | 146 | 3,504 | 376,734 |

- b. Diesel Mode

Table 8 - Diesel Fuel Firing Limitations

| Engines S-1 Through S-10 | Gallons of Diesel Fuel | | |
|--------------------------|----------------------------------|-------------------------|-------------------------------------|
| | Hourly (3 Hr Rolling Average) | Daily (Calendar Day) | Annual (365 Day Rolling Average) |
| Per Engine | 1,088 | 26,106 | - |
| All Combined | 10,876 | 221,877 | 1,087,630 |

EMISSION LIMITS

S-1 to S-10 Startup & Shutdown Periods

90. The Permittee shall not operate reciprocating engines S-1 through S-10, such that they individually discharge pollutants exceeding the limits identified in Table 9 below during Startup or Shutdown Periods. *[District Rule 102(E); PSD 2/09]*

Table 9 - Start & Shutdown Period Emission Limits

| Mode of Operation | Pollutant | | | | |
|--------------------|-----------|------|------|------------------|------|
| | NOx | CO | ROC | PM ₁₀ | SOx |
| Natural Gas, lb/hr | 23.6 | 24.1 | 17.9 | 3.6 | 0.4 |
| Diesel Mode, lb/hr | 164 | 25.5 | 17.2 | 5.5 | 0.22 |

S-1 to S-10 Natural Gas Mode

91. The Permittee shall not operate reciprocating engines S-1 through S-10, such that they individually discharge pollutants exceeding the limits identified in Table 10 below based upon a three (3) hour rolling average with the exception of NOx which shall be based upon a one (1) hour average. The limits shall not apply during Startup or Shutdown Periods. *[40 CFR 63.6(f)(1), District Rule 102(E); PSD 2/09]*

Table 10 - Natural Gas Mode Emission Limits

| Pollutant | Emission Rate (per engine) | | |
|------------------|----------------------------|-------|----------|
| | ppmvd @ 15% O ₂ | lb/hr | lb/MMBtu |
| CO | 13 | 4.13 | 0.029 |
| NH ₃ | 10 | 1.9 | 0.013 |
| NOx | 6.0 | 3.1 | 0.022 |
| PM ₁₀ | - | 3.6 | - |
| ROC | 28 | 5.1 | 0.035 |
| SOx | - | 0.40 | 0.0028 |

92. The combined discharge of pollutants, from the reciprocating engines S-1 through S-10 shall not exceed the limits listed in Table 11 below during any Calendar Day in which none of the engines are operated in Diesel Mode for any period of time. For purposes of compliance with this condition, the emissions from Startup and Shutdown Periods shall be included in the daily calculation of emissions. *[District Rule 102(E); PSD 2/09]*

Table 11 - S-1 Through S-10 Combined Natural Gas Mode Daily Limits

| Pollutant | Emission Rate (lb/day) |
|------------------|------------------------|
| CO | 1,589 |
| NH ₃ | 456 |
| NO _x | 1,360 |
| PM ₁₀ | 864 |
| ROC | 1,608 |
| SO _x | 97 |

93. - Reserved

S-1 to S-10 Diesel Mode

94. The Permittee shall not discharge pollutants into the atmosphere from the reciprocating engines S-1 through S-10 while in Diesel Mode, based upon a three (3) hour rolling average, in excess of the emission limits identified in Table 12 below. The limits shall not apply during Startup or Shutdown Periods. *[District Rule 102(E); 40 CFR 63.6(f)(1); PSD 2/09]*

Table 12 - Diesel Mode Emission Limits

| Pollutant | Emission Rate (per engine) | | |
|------------------|----------------------------|-------|----------|
| | ppmvd @ 15% O ₂ | lb/hr | lb/MMBtu |
| CO | 20.0 | 6.9 | 0.047 |
| NH ₃ | 10 | 2.1 | 0.014 |
| NO _x | 35.0 | 19.9 | 0.134 |
| PM ₁₀ | - | 5.5 | 0.137 |
| ROC | 40.0 | 7.9 | 0.053 |
| SO _x | 0.40 | 0.22 | 0.0016 |

95. The discharge of Diesel Particulate Matter into the atmosphere from the reciprocating engines S-1 through S-10 while in Diesel Mode shall not exceed the emission limits identified in Table 13 below. *[District Rule 102(E); PSD 2/09]*

Table 13 - Diesel Particulate Matter Limitations

| Engines S-1 Through S-10 | Diesel Particulate Matter (pounds) | | |
|-----------------------------|-------------------------------------|-------------------------|--|
| | Hourly (3 hr Rolling Average) | Daily (Calendar Day) | Annual (365 Day Rolling Average) |
| Per Engine | 5.56 | 133.4 | - |
| All Combined | 55.6 | 1,334 | 5,560 |

96. The combined discharge of pollutants from the reciprocating engines S-1 through S-10 shall not exceed the limits listed in Table 14 below during any Calendar Day in which one or more of the engines are operated in diesel mode for any period of time. *[District Rule 102(E); PSD 2/09]*

Table 14 - S-1 Through S-10 Combined Diesel Mode Daily Limits

| Pollutant | Emission Rate (lb/day) |
|------------------|---------------------------|
| CO | 2,219 |
| NH ₃ | 506 |
| NO _x | 9,103 |
| PM ₁₀ | 1,542 |
| ROC | 2,183 |
| SO _x | 97 |

97. - Reserved

98. The combined discharge of pollutants from the reciprocating engines S-1 through S-10 during any calendar year shall not exceed the limits listed in Table 15 below. *[District Rule 102(E); PSD 2/09]*

Table 15 - S-1 Through S-10 Combined Annual Emission Limits

| Pollutant | Emission Rate (tons/yr) |
|------------------|----------------------------|
| CO | 172.7 |
| NH ₃ | 63.3 |
| NO _x | 179.1 |
| PM ₁₀ | 119.8 |
| ROC | 190.8 |
| SO _x | 4.3 |

Engines S-11 and S-12

99. The Permittee shall not operate engines S-11 and S-12 such that pollutant discharge into the atmosphere exceeds the quantities in Table 16 below. *[District Rule 102(E)]*

Table 16 - Engines S-11 and S-12 Emission Limits

| Unit | Pollutant | g/hp – hr | lb/hr |
|--------------------------------|----------------------|-----------|--------|
| S-11 Emergency Generator | CO | 0.63 | 0.65 |
| | DPM | 0.05 | 0.05 |
| | NOx | 3.47 | 3.59 |
| | ROC (non-methane HC) | 0.4 | 0.41 |
| | SOx | - | .0061 |
| S-12 Fire Pump | CO | 0.59 | .27 |
| | DPM | 0.14 | 0.06 |
| | NOx | 4.9 | 2.27 |
| | ROC (non-methane HC) | 0.5 | 0.23 |
| | SOx | - | 0.0026 |

100. The combined discharge of pollutants from the engines S-11 through S-12 during any calendar year shall not exceed the limits listed in Table 17 below. *[District Rule 102(E)]*

Table 17 - S-11 and S-12 Combined Annual Emission Limits

| Pollutant | Emission Rate Lbs/Yr |
|-----------|-------------------------|
| CO | 45 |
| NOx | 287 |
| DPM | 5.5 |
| ROC | 31.5 |
| SOx | 0.4 |

101. In the event of an excess emission incident, regardless of the cause, the Permittee shall take immediate corrective action to minimize the release of excess emissions. Notice shall be provided to the District as indicated in the Reporting and Recordkeeping Section of this Permit. For purposes of compliance with this condition, excess emissions shall mean discharge of pollutants in quantities which exceed those authorized by Federal, State, District Rules, and this Permit. *[40 CFR 70.6(a)(3)(iii)(B); District Rule 105]*

OPERATIONAL CONDITIONS

102. All equipment listed in Table 1 Authorized Emission Devices and Table 2 Authorized Control Devices shall be operated and maintained by the Permittee in accordance with manufacturer's specifications for optimum performance; and in a manner so as to minimize emissions of air contaminants into the atmosphere. *[District Rule 102(E); PSD 2/09]*
103. The Permittee shall implement and maintain a written Startup, Shutdown, and Malfunction Plan as described in 40 CFR 63.6(e) (3) which contains specific procedures for maintaining the reciprocating engines S-1 through S-12, their associated control devices, their associated CEMS, sensors, measuring devices, and their associated exhaust gas duct work, during periods of startup, shutdown, and malfunction. The plan must clearly describe the startup and shutdown sequence procedure for each unit. The Plan shall also include a specific program of corrective actions to be implemented in the event of a malfunction in either the process or control systems. Modifications to the Plan are subject to APCO approval and the Permittee shall not operate the reciprocating engines S-1 through S-12 and their associated control devices unless a District approved Startup, Shutdown, and Malfunction Plan is in effect. *[District Rule 102(E); PSD 2/09]*
104. The Permittee shall develop, implement and maintain a written Device Operational Plan that contains specific procedures for operating the reciprocating engines S-1 through S-12, their associated control devices, their associated CEMS, sensors, measuring devices, and their associated exhaust gas duct work under the varying load conditions which may occur during normal modes of operation. The Plan shall also include specific protocols to be followed when transitioning between modes of operation. This plan shall be consistent with the requirements of this Permit, and all local, state and federal laws, rules, and regulations. The plan shall include, but not be limited to, daily system integrity inspections and the recording of operational parameters. The Plan is subject to APCO approval. The Permittee shall not operate the reciprocating engines S-1 through S-12 and their associated control devices unless a District approved Device Operational Plan is in effect. *[District Rule 102(E); PSD 2/09]*
105. The Permittee shall develop, implement and maintain a written Device Maintenance & Replacement Plan that contains specific procedures for equipment maintenance and identifies replacement intervals for components of the reciprocating engines S-1 through S-12, their associated control devices, their associated CEMS, sensors, measuring devices, and their associated exhaust gas duct work. The Plan is subject to APCO approval. The Permittee shall not operate the reciprocating engines S-1 through S-12 and their associated control devices unless a District approved Device Maintenance & Replacement Plan is in effect. *[District Rule 102(E); PSD 2/09]*
106. The Permittee shall only operate the Reciprocating engines S-1 through S-10 in Natural Gas Mode except during Maintenance and Testing, and during Natural Gas Curtailments as set forth in this permit. *[District Rule 102(E); PSD 2/09]*
107. The Permittee shall not operate reciprocating engines S-1 through S-10 such that Startup Periods exceed 60 minutes in length. *[District Rule 102(E); PSD 2/09]*

108. The Permittee shall not operate reciprocating engines S-1 through S-10 such that Shutdown Periods exceed 30 minutes in length. *[District Rule 102(E); PSD 2/09]*
109. The Permittee shall not operate the reciprocating engines S-1 through S-10 such that the combined hours of operation during Startup and Shutdown Periods exceeds 30 engine-hours per day. *[District Rule 102(E); PSD 2/09]*
110. The Permittee shall not operate the reciprocating engines S-1 through S-10 such that the combined hours of operation during Startup and Shutdown Periods exceeds 3,650 engine-hours per calendar year. Of the 3,650 engine hours available hours, the hours of operation during Startup and Shutdown Periods in Diesel Mode shall not exceed 500 engine-hours per calendar year. *[District Rule 102(E); PSD 2/09]*
111. The Permittee shall not operate any of the reciprocating engines S-1 through S-10 below 50% load except during Startup and Shutdown Periods. *[District Rule 102(E); PSD 2/09]*
112. The Permittee shall not operate the reciprocating engines S-1 through S-10 for more than 80 engine-hours per Calendar Day at loads less than 12.0 MW. *[District Rule 102(E); PSD 2/09]*
113. While operating the reciprocating engines S-1 through S-10 in Diesel Mode, the Permittee shall fire the engines: *[District Rule 102(E); PSD 2/09]*
 - a. Only with CARB Diesel as specified in Table 3 Fuel Specifications for S-1 through S-10;
 - b. For not more than 50 hours per year for maintenance and testing per engine; and
 - c. Such that the combined engine operating hours do not exceed 1,000.0 engine hours per year on a 365 day rolling average basis.
114. For each Oxidation Catalyst installed, during the performance testing required pursuant to the Testing and Monitoring Section of this Permit, the Permittee shall determine the pressure drop across each catalyst. The Permittee shall operate the reciprocating engines S-1 through S-10 such that the pressure drop across the catalyst does not exceed the following acceptable range for any period of time: The acceptable pressure range is two inches of water column (plus or minus 10%) deviation from the pressure drop established during performance testing. This Condition shall not apply during Startup or Shutdown Periods. *[40 CFR 63 Subpart ZZZZ]*
115. The Permittee shall not operate reciprocating engines S-1 through S-10 if the inlet temperature of the oxidation catalyst is outside of the acceptable operating range for any period of time. The acceptable operating range of the oxidation catalyst is greater than or equal to 450 °F and less than or equal to 1350 °F. Each reciprocating engine is paired with a single oxidation catalyst unit. For purposes of compliance with this condition, each engine and catalyst pair is evaluated separately. This Condition shall not apply during Startup or Shutdown Periods. *[40 CFR 63 Subpart ZZZZ]*
116. The Permittee shall not operate reciprocating engines S-1 through S-10 unless the CO emissions from the units are abated by the oxidation catalyst at a rate greater than or equal to 70% over uncontrolled emission levels, calculated on a 3 hour rolling average. Verification of the emissions reduction shall be completed in accordance with 40 CFR 63 Subpart ZZZZ. *[40 CFR 63 Subpart ZZZZ]*

Engines S-11 and S-12

- 117. The Permittee shall not operate engines S-11 and S-12 for the purpose of maintenance and testing, within the same Calendar Day. *[District Rule 102(E); PSD 2/09]*
- 118. The Permittee shall not operate engines S-11 and S-12, for the purpose of maintenance and testing, in excess of the hour limits listed in Table 18 below *[District Rule 102(E)]*:

Table 18 - S-11 and S-12 Hourly Operating Limits

| Device | Daily | 1 st Quarter | 2 nd Quarter | 3 rd Quarter | 4 th Quarter |
|--------|-------|-------------------------|-------------------------|-------------------------|-------------------------|
| S-11 | 1 | 12 | 12 | 13 | 13 |
| S-12 | 1 | 12 | 12 | 13 | 13 |

- 119. The Permittee shall not operate the engines S-11 and S-12, for the purpose of maintenance and testing, when any of the reciprocating engines S-1 through S-10 are operating in diesel mode. *[District Rule 102(E)]*
- 120. The Permittee shall not operate reciprocating engine S-11, for the purpose of maintenance and testing, for more than 45 minutes in any Clock Hour. *[District Rule 102(E); PSD 2/09]*
- 121. The Emergency IC Diesel Generators S-11, and S-12 shall use one of the following fuels:
 - a. CARB Diesel Fuel, or
 - b. An alternative diesel fuel that meets the requirements of the Verification Procedure (as codified in CCR Title 13 Sections 2700-2710), or
 - c. CARB Diesel Fuel used with fuel additives that meets the requirements of the Verification Procedure (as codified in CCR Title 13 Sections 2700-2710), or
 - d. Any combination of a) through c) above.
- 122. The Emergency IC Diesel Generators S-11, and S-12 are authorized the following maximum allowable annual hours of operation as listed in Table 19 below. *[17 CCR §93115]*

Table 19 - Hours of Operation for Emergency IC Diesel Generators S-11 & S-12

| Emergency Use | Non-Emergency Use | |
|-------------------------|-------------------------------------|-----------------------|
| | Emission Testing to show compliance | Maintenance & Testing |
| Not Limited by the ATCM | Not Limited by the ATCM | 50 hours/year |

REPORTING & RECORDKEEPING

Engines S-1 through S-12

123. The Permittee shall report all occurrences of breakdowns of the equipment listed in Table 1 Authorized Emission Devices or Table 2 Authorized Control Devices which result in the release of emissions in excess of the limits identified in this Permit. Said report shall be submitted to the District in accordance with the timing requirements of District Rule 105(D).
124. The Permittee shall maintain a Breakdown log that describes the breakdown or malfunction, includes the date and time of the malfunction, the cause of the malfunction, corrective actions taken to minimize emissions and the date and time when the malfunction was corrected. *[District Rule 105(D)]*
125. The Permittee shall immediately record the following information when an event occurs where emissions from the equipment listed in Table 1 Authorized Emission Devices are in excess of any limits incorporated within this permit:
 - a. Date and time of the excess emission event,
 - b. Duration of the excess emission event,
 - c. Description of the condition or circumstance causing or contributing to the excess emission event,
 - d. Emission unit or control device or monitor affected,
 - e. Estimation of the quantity and type of pollutants released,
 - f. Description of corrective action taken, and
 - g. Actions taken to prevent reoccurrence of excess emission event.
126. The Permittee shall provide to the District, a completed "Compliance Certification" form signed by the Facility's Responsible Official which certifies the compliance status of the facility twice per calendar year. The compliance certification forms (VK series) must be submitted to the District according to the following schedule: The semiannual certification (covering quarters 1 and 2) must be submitted prior to July 31st of the reporting year; and the annual certification (covering quarters 1, 2, 3, and 4) prior to March 1st of the following calendar year. The content of the Annual Certification shall include copies of the records designated in Table 20 to be kept "Annually".
127. The Permittee shall maintain a log of usage for the Emergency IC Diesel Generators S-11 and S-12 in accordance with applicable Reporting Requirements for Emergency Standby Engines, Item (e)(4)(I) of Section 93115, Title 17, California Code of Regulations, Air Toxic Control Measure (ATCM) for Stationary Compression Ignition (CI) engines. The log of usage shall list and document the nature of use for each operational event category listed below by recording the beginning and ending hour meter readings and time of day of each operational event:
 - a. Emergency use hours of operation;
 - b. Maintenance and testing hours of operation (e.g., load testing, weekly testing, rolling blackout, general power outage, etc
 - c. Hours of operation for emission testing to show compliance with §93115(e)(2)(A)3 and (e)(2)(B)3 of the ATCM;
 - d. Hours of operation to comply with requirements of NFPA 25;
 - e. Hours of operation for all other uses other than those specified in section (e)(2)(A)3 and (e)(2)(B)3 of the ATCM;

- f. Fuel used through the retention of fuel purchase records that account for all fuel used in the engine and all fuel purchased for use in the engine, and, at a minimum, contain the following information for each individual fuel purchase transaction:
- i. Identification of the fuel purchased as either CARB Diesel, or an alternative diesel fuel that meets the requirements of the Verification Procedure;
 - ii. Sulfur content of the fuel;
 - iii. Amount of fuel purchased;
 - iv. Date when the fuel was purchased;
 - v. Signature of owner or operator or representative of Permittee who received the fuel; and
 - vi. Signature of fuel provider indicating fuel was delivered.

128. The Permittee shall continuously maintain onsite for the most recent five year period and shall be made available to the District APCO upon request, the records as listed in Table 20 below.

Table 20 - Required Records for Engines S-1 through S-10

| Frequency | Information to be Recorded |
|--|---|
| Upon Occurrence | A. Records of maintenance conducted on engines (40 CFR 60 Subpart IIII) B. Time, duration, and fuel firing mode for each engine startup C. Time, duration, and fuel firing mode for each engine shutdown D. Time, duration and reason for each period of operation in Diesel Mode E. For each bulk delivery of diesel fuel received, certification from the supplier that the diesel fuel meets or exceeds CARB Diesel specifications F. For each bulk delivery of diesel fuel received, the higher heating value (HHV) and sulfur content of the fuel G. Fuel Mode – each operating minute shall be designated as either “Natural Gas” or “Diesel Mode” |
| At least one electronic reading every 15 minutes | A. NO _x (ppmvd @15% O ₂) B. CO (ppmvd @15% O ₂) C. O ₂ (%) D. Exhaust gas temperature as SCR inlet (°F) E. Exhaust gas temperature at OC inlet (°F) F. Engine load (%) |
| Hourly (for each engine) | A. NO _x - ppmvd @15% O ₂ , lb/hr, and lb/MMBtu - all on a 1 hour average basis B. CO - ppmvd @15% O ₂ , lb/hr, and lb/MMBtu - all on a rolling 3 hour average basis C. ROC - ppmvd @15% O ₂ , lb/hr, and lb/MMBtu -all on a rolling 3 hour average basis D. NH ₃ - ppmvd @15% O ₂ , lb/hr, and lb/MMBtu -all on a rolling 3 hour average basis E. SO _x - ppmvd @15% O ₂ , lb/hr, and lb/MMBtu –all on a rolling 3 hour average basis F. Natural gas fuel consumption during Natural Gas Mode (MMBtu HHV, hourly average) G. Diesel fuel consumption during Natural Gas Mode (MMBtu HHV, hourly average) H. Percentage of total heat input derived from diesel during Natural Gas Mode (MMBtu HHV, hourly average) I. Diesel fuel consumption during Diesel Mode (MMBtu HHV, hourly average) |

| Frequency | Information to be Recorded |
|---|--|
| Daily | <ul style="list-style-type: none"> A. NO_x (lbs/day, total for all engines) B. CO (lbs/day, total for all engines) C. ROC (lbs/day, total for all engines) D. SO_x (lbs/day, total for all engines) E. PM₁₀ (lbs/day, total for all engines) F. Diesel Particulate Matter (lbs/day, total for all engines) G. Natural gas fuel consumption (MMBtu HHV, and cubic feet consumed) for each engine and the total for all engines) H. Diesel pilot fuel consumption (MMBtu HHV, all engines combined) I. Diesel fuel consumption during Diesel Mode (MMBtu HHV, and gallons for each engine and total for all engines) J. Engine load – For all engines over the calendar day, the total hours operated at less than 12 MW. K. Hours of operation – Total for each engine and total for all engines as a sum of operating minutes) |
| Monthly | <ul style="list-style-type: none"> A. Sulfur content of natural gas (gr/100 scf, monthly fuel testing) B. Natural gas sulfur content (gr/100 scf, 12 month rolling average) |
| Quarterly (combined total for all engines) | <ul style="list-style-type: none"> A. NO_x (tons) B. CO (tons) C. SO_x (tons) D. ROC(tons) E. PM (tons) F. Diesel Particulate Matter (tons) G. Natural gas fuel consumption (MMBtu HHV, and cubic feet) H. Diesel pilot fuel consumption (MMBtu HHV, and gallons) I. Diesel fuel consumption during Diesel Mode (MMBtu HHV, and gallons) J. Sulfur content of natural gas (gr/100 scf, 12 month rolling average) K. Hours of operation (for each fuel mode) |
| Annually (combined total for all engines) | <ul style="list-style-type: none"> A. NO_x (tons) B. CO (tons) C. SO_x (tons) D. ROC(tons) E. PM (tons) F. Diesel Particulate Matter (tons) G. Natural gas fuel consumption (MMBtu HHV, and cubic feet) H. Diesel pilot fuel consumption (MMBtu HHV, and gallons) I. Diesel fuel consumption during Diesel Mode (MMBtu HHV, and gallons) J. Sulfur content of natural gas (gr./100 scf, annual average) K. Hours of operation (for each fuel mode) |

129. For each Quarter, the Permittee shall submit a written report to the APCO detailing the following items for the operation of the CEMS. The report shall conform to the requirements of District Rules and Regulations Appendix B, Section 2.2, and shall be submitted within 30 days of the end of the quarter.
 - a. Time intervals;
 - b. Date and magnitude of excess emissions;
 - c. Nature and cause of excess (if known);
 - d. Corrective actions taken and preventive measures adopted;
 - e. Averaging period used for data reporting shall correspond to the averaging period for each respective emission standard;
 - f. Applicable time and date of each period during which the CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; and
 - g. A negative declaration when no excess emissions occurred.

130. The Permittee shall provide notification and record keeping as required pursuant to 40 CFR, Part 60, Subpart A, 60.7.

131. The Permittee shall annually prepare and submit a comprehensive facility wide emission inventory report for all criteria pollutants and toxic air contaminants emitted from the facility. The inventory and report shall be prepared in accordance with the most recent version of CARB and California Office of Health Hazard Assessment guidance documents. The inventory report shall be submitted to the District APCO no later than March 1st of the following calendar year. The inventory report is subject to District APCO approval. *[District Rule 102(E)]*

132. Not later than 24 hours after determining that diesel mode operation is to occur as a result of an expected Natural Gas Curtailment, the Permittee shall notify the APCO by telephone, email, electronic page, or facsimile. The notification shall include, but not be limited to, the following: *[District Rule 102(E); PSD 2/09]*
 - a. The anticipated start time and duration of operation in diesel mode under the Natural Gas Curtailment; and
 - b. The anticipated quantity of Diesel fuel expected to be burned under the Natural Gas Curtailment.

133. Not later than 48 hours following the end of a period of any diesel mode operation that results in the consumption of 500 or more gallons of diesel fuel, the Permittee shall notify the APCO by email or facsimile of the following *[District Rule 102(E); PSD 2/09]*:
 - a. The actual start time and end time of the period of diesel mode operation;
 - b. The identification of the Reciprocating engines that were operated and the average load at which each reciprocating engine was operated on Diesel fuel during the diesel mode operating period; and
 - c. The actual quantity of Diesel fuel consumed during the diesel mode operation.

TESTING & COMPLIANCE MONITORING

134. The Permittee shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment for reciprocating engines S-1 through S-10 in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F.
135. The Permittee shall monitor and record exhaust gas temperature at the inlet and at the outlet of the oxidation catalyst. *[40 CFR 63 Subpart ZZZZ]*
136. Not less than thirty days prior to the date of any source test required by this Permit, the Permittee shall provide the District APCO with written notice of the planned date of the test and a copy of the source test protocol.
137. Source test results shall be summarized in a written report and submitted to the District APCO directly from the independent source testing firm on the same day, the same time, and in the same manner as submitted to Permittee. Source Test results shall be submitted to the District APCO no later than 60 days after the testing is completed.
138. The Permittee shall demonstrate compliance with the Natural Gas Mode emission limits via source testing conducted in accordance with the Test Methods listed below. For purposes of compliance with this condition, testing shall be conducted while the engines are operated in Natural Gas Mode, and shall be conducted at the intervals and at the operating loads specified in Condition #139. Alternative test methods may be approved by the APCO. *[District Rule 102(E); PSD 2/09 amended 6/15]*
 - a. Particulate Matter – CARB Method 5 (front and back half) or EPA Methods 201a and 202
 - b. Visible Emissions - Permittee shall perform a “Visible Emission Evaluation” (VEE) concurrent with particulate matter testing. A CARB certified contractor shall perform such an evaluation.
 - c. Ammonia – Bay Area Air Quality Management Method ST-1B
 - d. Reactive Organic Gases – CARB Method 100
 - e. Nitrogen Oxides – CARB Method 100
 - f. Carbon Monoxide – CARB Method 100
 - g. Oxygen – CARB Method 100
 - i. Oxygen shall be measured at the inlet and outlet of the oxidation catalyst
 - ii. Oxygen measurements shall be made at the same time as the CO measurements
 - h. Pressure drop measurements across the catalyst shall be made at the same time as the CO measurements
 - i. Natural Gas Fuel Sulfur Content – ASTM D3246
139. To demonstrate compliance with the Natural Gas Mode emission limits, reciprocating engines S-1 through S-10 shall be tested on a rotating basis where each engine is: 1) Tested each year; 2) Tested while operating at one of the designated operating loads; and 3) Tested at all three operating loads with a three year period. The designated operating loads, plus or minus 2.5%, shall be 52.5%, 75%, and 95%. The APCO may waive some or all of the testing requirements if the results of previous compliance tests have demonstrated compliance with permitted emission limits by a sufficient margin. *[District Rule 102(E); PSD 2/09 amended 6/15]*

140. The Permittee shall demonstrate compliance with the Diesel Mode emission limits via source testing conducted in accordance with the Test Methods listed below. For purposes of compliance with this condition, testing shall be conducted while the engines are operated in Diesel Mode, and shall be conducted at the intervals and at the operating loads specified in Condition #141. Alternative test methods may be approved by the APCO. *[District Rule 102(E); PSD 2/09 amended 6/15]*
- a. Particulate Matter - CARB Method 5 (front and back half), or EPA Methods 201a and 202.
 - b. Diesel Particulate Matter – CARB Method 5 (front half only)
 - c. Visible Emissions - U.S. EPA Method 9
 - d. Ammonia – Bay Area Air Quality Management District Method ST-1B
 - e. Reactive Organic Gases – ARB Method 100
 - f. Nitrogen Oxides -- ARB Method 100
 - g. Carbon Monoxide – ARB Method 100
 - h. CO shall be measured at the inlet and outlet of the oxidation catalyst.
 - i. Oxygen – ARB Method 100
 - i. Oxygen shall be measured at the inlet and outlet of the oxidation catalyst.
 - ii. Oxygen measurements shall be made at the same time as the CO measurements.
 - j. Liquid Fuel Sulfur Content – ASTM D5453-93
141. To demonstrate compliance with the Diesel Mode emission limits, reciprocating engines S-1 through S-10 shall be tested on a rotating basis pursuant to Condition #140 where each engine is: 1) Tested while operating in Diesel Mode once every five years or following each 200 hours of operation of an individual engine in Diesel Mode whichever is sooner; 2) Tested while operating at one of the designated operating loads; and 3) Tested at all three designated operating loads with a 15 year period. The designated operating loads, plus or minus 2.5%, shall be 52.5%, 75%, and 95%. In addition, within 30 days of returning an engine to service after the completion of repair or maintenance activities, the Permittee shall conduct RATA testing on the affected engine's CEMs components. RATA testing shall be conducted in accordance with the applicable requirements of 40 CFR 60, Appendix B. The specific repair and maintenance activities triggering the RATA testing requirement shall be identified in the Facility's Device Maintenance & Replacement Plan. The APCO may waive some or all of the testing requirements if the results of previous compliance tests have demonstrated compliance with permitted emission limits by a sufficient margin. *[District Rule 102(E); PSD 2/09 amended 6/15]*
142. The Permittee shall demonstrate compliance with the hourly, daily, and annual ROC emission limits through the use of valid CO CEM data and the ROC/CO relationship determined by annual CO and ROC source tests; and APCO approved emission factors and methodology. *[40 CFR 63 Subpart ZZZZ; District Rule 102(E); PSD 2/09]*
143. The Permittee shall demonstrate compliance with the hourly, daily, and annual SO_x emission limits for reciprocating engines S-1 through S-10 through the use of valid fuel use records, natural gas sulfur content, diesel fuel sulfur content, mass balance calculations; and APCO approved emission factors and methodology. The natural gas sulfur content shall be determined on a monthly basis using ASTM D3246. *[District Rule 102(E); PSD 2/09]*
144. The Permittee shall demonstrate compliance with the hourly, daily, and annual PM emission limits, and the diesel particulate matter emission limits, for reciprocating engines S-1 through S-

10 through the use of valid fuel use records, source tests, and APCO approved emission factors and methodology. *[District Rule 102(E); PSD 2/09]*

145. Relative accuracy test audits (RATAs) shall be performed on each CEMS for reciprocating engines S-1 through S-10 at least once every twelve months, in accordance with the requirements of 40 CFR 60, Appendix B. Calibration Gas Audits of continuous emission monitors for reciprocating engines S-1 through S-10 shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. The District shall be notified in writing at least 30 days in advance of the scheduled date of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District within 60 days after the testing was performed. *[District Rule 102(E); PSD 2/09]*

LOCALLY ENFORCEABLE ONLY EQUIPMENT SPECIFIC REQUIREMENTS

EMISSIONS

146. Reserved.

AMBIENT MONITORING

147. The Permittee shall provide full funding for the purchase and installation of a new monitoring station (Shelter; CO, NO_x, PM₁₀/PM_{2.5}, and other sampling equipment as determined by the APCO) to be installed at a location approved by the APCO. The funding shall include all costs associated with the purchase, installation, operation and maintenance (including personnel costs) of the monitoring station for an initial period of not less than five (5) years. PG&E shall reimburse the District for costs incurred within 30 days of receiving an invoice from the District. At the conclusion of that period, the APCO may extend the operation of the site if deemed in the best interest of the District, and PG&E will continue to fund all costs associated with its continued operation. The District shall manage the procurement, operation and maintenance of the site, and District staff will be responsible for collecting, securing, and quality assuring all data. *[District Rule 102(E)]*
148. The Permittee shall provide full funding for the purchase and installation of a new meteorological monitoring station to be installed at a location approved by the APCO. The funding shall include all costs associated with the purchase, installation, operation and maintenance (including personnel costs) of the meteorological monitoring station for an initial period of not less than five (5) years. PG&E shall reimburse the District for costs incurred within 30 days of receiving an invoice from the District. At the conclusion of that period, the APCO may extend the operation of the site if deemed in the best interest of the District, and PG&E will continue to fund all costs associated with its continued operation. The District shall manage the procurement, operation and maintenance of the site, and District staff will be responsible for collecting, securing, and quality assuring all data. The data collected at the station shall meet the requirements of EPA-454/R-99-005 "Meteorological Monitoring Guidance for Regulatory Modeling Applications" February 2000. *[District Rule 102(E)]*

EQUIPMENT EXEMPT FROM PERMITTING REQUIREMENTS

149. The following equipment units and emissions are considered to be insignificant, and as such, are not required to obtain operating permits. However, these units and emission sources are required to comply with all applicable Federal and Local Enforceable Only general requirements and will be included in the facility's emission inventory. *[District Rule 102(D)(13)]*

Table 21 - Insignificant Sources

| Exempt Equipment / Emissions |
|---|
| Air Conditioning Units |
| Combustion Emissions from the Propulsion of Mobile Sources |
| Equipment Operated in Accordance with a Valid California Portable Equipment Registration (PERP) |
| Diesel Fire Pump Fuel Tank(s) |
| Diesel Fuel Dispensing Equipment |
| Distilled Oil Storage Tank(s) |
| Gasoline Dispensing Equipment (non-retail) |
| Lube Oil Tank(s) |
| Oil/Water Separator(s) |
| Portable Sandblasting Unit(s) |

AUTHORIZING SIGNATURE

**NORTH COAST UNIFIED
AIR QUALITY
MANAGEMENT DISTRICT**

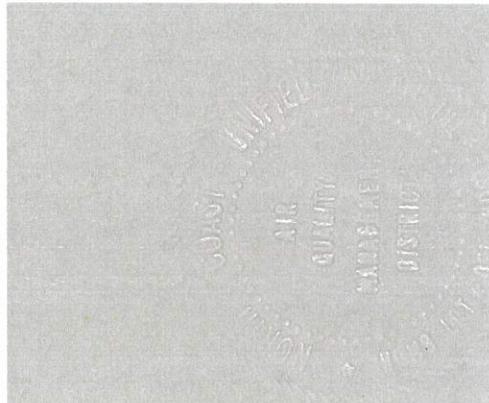
707 L STREET
EUREKA, CALIFORNIA 95501

PHONE (707) 443-3093
FAX (707) 443-3099

Date: July 19, 2018

By: 

Brian Wilson
Air Pollution Control Officer



Permit Seal