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Operating in Low Load and Black Start Modes for the Humboldt Bay Generating Station (06-AFC-07C)

Petition for Post-certification License Amendment

Submitted to:

California Energy Commission

Submitted by:

Pacific Gas and Electric Company®

With Technical Assistance by:

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and

Atmospheric Dynamics, Inc.

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Executive Summary

Pacific Gas and Electric (PG&E) respectfully submits this petition to the California Energy Commission (CEC) for post-certification license modification for the Humboldt Bay Generating Station (HBGS) (06-AFC-07C). The HBGS consists of ten dual fuel (natural gas and/or #2 diesel) Wartsila 18V50DF 16.3-megawatt (MW) reciprocating engine generator sets and associated equipment with a combined nominal generating capacity of 163 MW.

This petition for post-certification license amendment (Petition to Amend) proposes to provide the HBGS the flexibility to operate at engine loads less than 50 percent, down to three (3) megawatts (MW) to support flexible facility operations which could include low load mode or black start events. The ability to operate at loads less than 50 percent which the current license does not currently allow, would allow HBGS to provide local power during emergency events that impact local electric power transmission lines, such as, but not limited to Public Safety Power Shutdown (PSPS) events, storms, etc. The Petition to Amend (PTA) includes the following actions:

- Request to amend the CEC Conditions of Certification for 06-AFC-07C to allow operations less than 50 percent load, down to three (3) MW per engine to support local operations including "low loading mode" and "black start mode".

PG&E (HBGS) expects the North Coast Unified Air Quality Management District (NCUAQMD) to issue a Determination of Compliance (DOC) that will result in the modification of the Air Quality Conditions of Certifications (COC). As such, PG&E (HBGS) is not proposing changes to the Air Quality COCs but will wait for the NCUAQMD to issue the DOC with revised permit conditions, which will then be submitted to the CEC for review.

The environmental impacts assessment presented in Section 3 concludes that there will be no significant environmental impacts associated with air quality or public health, with the implementation of the actions specified in this Petition to Amend, and that the project, as modified, will comply with all applicable laws, ordinances, regulations, and standards.

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1. Introduction

1.1 Background

The CEC approved the HBGS project in September 2008 (CEC, 2008a). The project is located at 1000 King Salmon Avenue, Eureka, California, on 5.4 acres within a 143-acre parcel formerly occupied by the existing PG&E Humboldt Bay Power Plant. HBGS is a load following power plant consisting of 10 natural gas fired Wärtsilä 18V50DF 16.3 MW reciprocating engine generator sets and associated equipment with a combined nominal generating capacity of 163 MW. This project is a replacement of the original 105 MW Units 1 and 2 and the two 15 MW Mobile Emergency Power Plants (MEPP) at PG&E's Humboldt Bay Power Plant site. HBGS was certified on September 24, 2008 and began commercial operation on October 1, 2010. Since certification, PG&E has requested multiple modifications and amendments as follows:

- In November 2008, PG&E submitted notification of a name change from the Humboldt Bay Repowering Project to the Humboldt Bay Generating Station. The CEC approved this name change in December 2008.
- PG&E submitted a petition to modify the Humboldt Bay Generating Station Project in January 2009 to allow PG&E to temporarily use two additional laydown areas during project construction. The CEC approved the proposed changes in April 2009.
- PG&E submitted a petition to modify the CEC license and NCUAQMD air quality permit in April 2009. The modifications were approved by the NCUAQMD on December 2, 2009 and the CEC approved the proposed changes in April 2010.
- PG&E filed a petition of the CEC license for installation of five additional emergency eyewash and shower stations in February 2015. The CEC approved the proposed changes in April 2015.
- PG&E filed a petition to expand the project site boundary in May 2015. In August 2016, PG&E withdrew its petition, and this action was approved by the CEC.
- A petition was filed by PG&E to add a spare 60-kV, 75 MVA, spare transformer in June 2015 to enhance plant reliability. The CEC approved the proposed changes to Amend in August 2015.
- PG&E submitted a petition to allow for the installation of a temporary tent for the storage of large equipment components and spare parts in August 2015. The CEC approved the proposed changes in October 2015.
- PG&E submitted a petition to install a fiber optic communications system, relocation of the network communications system, installation of a new microwave dish and monopole, and re-routing of an existing water line segment in May 2016. The CEC approved the proposed changes in September 2016.
- PG&E submitted a petition for relocation of a gas meter in June 2016. The CEC approved the proposed changes in September 2016.
- In late 2019, PG&E began requesting multiple variances from NCUAQMD for changes to permit conditions to allow for low loading operations as follows:
- December 14, 2019, PG&E was granted an Interim Variance by the NCUAQMD to test a subset of engines at low loads (<50%) to determine the potential emissions from low load operations which at the time of the application of the Variance, was defined as Island Mode. Emission testing was performed on December 15-17, 2019.

- February 3, 2020, PG&E received an approved Regular Variance Order from the NCUAQMD to tune the ammonia injection control system by adding ammonia injection load points at loads less than 50%, and also to conduct Low Load Mode Testing. This Regular Variance terminated on June 30, 2020.
- April 15, 2020 – HBGS met with CEC staff (remotely due to COVID) to discuss path forward for pursuing amendments to the CEC license and NCUAQMD permit to allow for low load operations during emergency or other events.
- May 27, 2020, PG&E submitted an application for variance to obtain relief from Operating Permit conditions and permit emission limitations for two purposes: 1) to conduct engine tuning at low loads (less than 50 percent) in an attempt to improve engine operation and reduce air emissions during engine startups in low load operations mode; and 2) to operate the HBGS in low load mode during emergency events such as PSPS events/storm events while seeking modification of the HBGS Operating Permit. The variance was approved on July 10, 2020 with an expiration date of July 10, 2021.

Table 1 shows a brief history of permitting actions by the local air district and the CEC.

Table 1. Permitting Action History for HBGS

NCUAQMD Actions	Date	CEC Actions	Date
Initial Permit	3/1998	AFC Submitted (06-AFC-7)	9/2006
Minor Modification	5/2000	CEC PSA Issued	11/2007
AFC Submitted	9/2006	CEC FSA Issued	5/2008
PDOC Issued	10/2007	CEC Final Decision	9/2008
FDOC Issued/ATC Issued/PSD Permit Issued	4/2008	CEC Amendment 06-AFC-7A	
Administrative Amendment	12/2009	CEC Amendment 06-AFC-7B	
Significant Modification	2/2010	CEC Amendment 06-AFC-7C	5/2018
Administrative Amendment	3/2014		
Title V Renewal	2/2016		
Administrative Amendment	4/2016		
Minor Modification	12/2017		
Title V Renewal	7/2018		

1.2 Overview of Proposed Amendments

This PTA addresses the operational impacts associated with operating the facility at loads less than 50 percent, down to three (3) MW per engine in order to support regional power demands which would include low load mode and black start unit operations. This PTA will enable the facility to provide local power during emergency events or as the local power needs dictate. In low load mode operations, HBGS will be able to operate at the low load levels necessary or as a black start unit to serve the local area load, or to perform engine tuning at loads less than 50 percent. The emissions at low loads for both natural gas and diesel fuel will be less than the full load operations for both criteria pollutants and hazardous air pollutants. The PTA includes changes to the Air Quality COC's. The Public Health COCs do not need to be

revised as the low load operations have emissions that are less than the previously analyzed full load operations.

In order to facilitate operations in either "low load mode" or "black start mode", amendments to conditions in the current Title V operating permit as well as similar amendments to the CEC Conditions of Certification must be obtained. The proposed amendments address the following basic areas:

- Amendments to operational load restrictions
- Addition of low load and black start operations as additional operating scenarios,
- Revising the engine startup limits in terms of the total number of engines and hours
- Addition of needed definitions of terms, and
- Amendments to selected emissions limitations.

No changes to equipment will occur thus there will be no construction or earth moving impacts related to this amendment.

Detailed descriptions of the proposed modifications are included in Section 2.

This PTA contains all of the information that is required pursuant to the CEC's Siting Regulations (California Code of Regulations [CCR] Title 20, Section 1769, Post Certification Amendments and Changes). The information necessary to fulfill the requirements of Section 1769 is contained in Sections 1 through 6 as summarized in Table 2.

Table 2. Informational Requirements for Post-certification Modifications

Section 1769 Requirement	Section of Petition Fulfilling Requirement
(A) A complete description of the proposed modifications, including new language for any conditions that will be affected	Section 2— Proposed modifications Section 3 — Proposed changes to COCs, if necessary, are located at the end of each technical section
(B) A discussion of the necessity for the proposed modifications	Section 1.3
(C) If the modification is based on information that was known by the petitioner during the certification proceeding, an explanation why the issue was not raised at that time	Section 1.3
(D) If the modification is based on new information that changes or undermines the assumptions, rationale, findings, or other bases of the final decision, an explanation of why the change should be permitted	Sections 1.4 and 3.0
(E) An analysis of the impacts the modification may have on the environment and proposed measures to mitigate any significant adverse impacts	Section 3
(F) A discussion of the impact of the modification on the facility's ability to comply with applicable laws, ordinances, regulations, and standards;	Section 3
(G) A discussion of how the modification affects the public	Section 4
(H) A list of property owners potentially affected by the modification	Section 5

Table 2. Informational Requirements for Post-certification Modifications

Section 1769 Requirement	Section of Petition Fulfilling Requirement
(I) A discussion of the potential effect on nearby property owners, the public and the parties in the application proceedings.	Section 6

1.3 Necessity of Proposed Changes

The CEC Siting Regulations require a discussion of the necessity for the proposed revisions to HBGS certification and whether the amendment is based on information known by the petitioner during the certification proceeding (Title 20, CCR, Sections 1769 (a)(1)(B), and (C)). This PTA proposes to allow PG&E the flexibility to operate in low load or as a black start unit to provide the flexibility to support local power demands as needed which could include events that impact local electric power transmission lines, such as, but not limited to Public Safety Power Shutdown (PSPS) events, storms, etc. This type of flexible support is not currently available to HBGS as the existing permit limits all engine loads to greater than 50%. The ability to operate at low loads would allow for the support of local load swings during these periods. At the time of the original licensing of the project, there was no available data on engine performance (emissions) for loads less than 50%, the recent NCUAQMD-approved low-load testing program has allowed HBGS and the NCUAQMD to be able to gain an understanding of the emissions performance during low load operations.

1.4 Consistency of Changes with Certification

The CEC Siting Regulations also require a discussion of the consistency of the proposed project revision with the applicable laws, ordinances, regulations, and standards (LORS) and whether the modifications are based on new information that changes or undermines the assumptions, rationale, findings, or other basis of the final decision (Title 20, CCR Section 1769 (a)(1)(D)). If the project is no longer consistent with the certification, the Petition to Amend must provide an explanation why the modification should be permitted.

The proposed project modifications are consistent with all applicable LORS, as discussed in Section 3, and this Petition to Amend is not based on new information that changes or undermines any basis for the final decision.

Attachment A presents the most current version of the facility Title V Operating Permit (NCU 059-12), issued on 7-19-18, which expires on 3-16-2023. This permit contains a detailed listing of applicable LORS. The facility has consistently been in compliance with all applicable LORS, and PG&E believes that continued compliance with applicable LORS as noted in this permit will be maintained if the "low load and black start" modes of operations are approved. No additional LORS have been identified that would apply only to these proposed operating modes.

Attachment B presents a series of detailed emissions and operations tables regarding existing operations, and proposed operations in low load or black start modes.

Attachment C presents the most current version of the CEC Conditions of Certification (Staff Analysis on Petition to Amend, TN#223310, 06-AFC-7C, submitted 6-6-2016, approved 5-2-2018).

Attachment D contains the LORS summary tables.

The proposed project change would allow the HBGS facility to continue to run efficiently, and to meet environmental goals and the current increased demand for electricity. The HBGS facility would continue to operate in compliance with all applicable LORS. Therefore, the findings and conclusions contained in the Final Commission Decision for HBGS (CEC 800-2008-005-CMF, Sept 2008)) and subsequent amendments would remain applicable to the project, as modified. Appendices D1 and D2 contain LORS Summaries for Air Quality and Public Health.

1.5 Summary of Environmental Impacts

The CEC Siting Regulations require that an analysis be conducted to address the potential impacts the proposed modifications may have on the environment and proposed measures to mitigate any potentially significant adverse impacts (Title 20, CCR, Section 1769 (a)(1)(E)). The regulations also require a discussion of the impact of the modification on the facility's ability to comply with applicable LORS (Section 1769 (1)(a)(F)). Section 3 of this Petition to Amend includes a discussion of the potential environmental impacts associated with the modifications as well as a discussion of the consistency of the modification with LORS.

Currently, PG&E (HBGS) believes that only two environmental technical areas may be impacted by the proposed amendment, i.e., air quality and public health. HBGS does not believe that any impacts from the proposed amendment will significantly affect the following environmental technical areas; Biological resources, Cultural resources, Facility deign, Geological and Paleontological resources, Hazardous Materials management, Land use, Noise and Vibration, Socioeconomics, Soil or Water resources, Traffic or Transportation, Transmission line safety and nuisance, Transmission system engineering, Visual resources, Waste management, and Worker safety and fire protection.

Section 3 also includes updated environmental baseline information if changes have occurred since the AFC was last amended that would have a bearing on the environmental analysis of this Petition to Amend. Section 3 concludes that there will be no significant environmental impacts associated with implementing the actions specified in this Petition to Amend and that the project, as modified, will comply with all applicable LORS.

1.6 Conditions of Certification

This PTA proposes to change the Air Quality COCs based on the NCUAQMD's issuance of a DOC with revised permit conditions. No other changes to any other COCs are proposed in this post-certification amendment.

2. Description of Proposed Amendments

This section includes a description of the proposed project modifications, consistent with CEC Siting Regulations (Title 20, CCR, Section 1769 (a)(1)(A)).

The Pacific Gas and Electric Company (PG&E) is seeking approval of proposed modifications to its' current Title V Operating Permit #NCU 059-12 (expires 3/16/23) for the Humboldt Bay Generating Station (HBGS). In particular, PG&E requests permission to operate at load levels less than the 50% level authorized in its current Title V Permit to Operate, in order to support the regional electric grid in both "black start" mode, and "low load" mode.

This Petition to Amend proposes to allow PG&E the flexibility to operate at loads less than 50% or as a black start unit to provide local power during emergency events that impact local electric power transmission lines, such as, but not limited to Public Safety Power Shutdown (PSPS) events, storms, etc. The low load cases were not evaluated in the previous licensing efforts as this mode of operation was not anticipated nor expected as a normal operational scenario. The recent variance allowed for the engines to be run at low loads in order to determine performance characteristics (emissions). Through the recent NCUAQMD-approved low-load testing, HBGS and the NCUAQMD has been able to gain an understanding of emissions performance during low load and low load operations." .

When the operating permit was initially issued to PG&E for the HBGS, 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 (Wärtsilä), did not provide guarantees for engine operation below 50%. Consequently, PG&E presented an initial permit application for HBGS for loads no lower than 50%. Presently, PG&E believes that operating the HBGS plant in low load or black start mode to serve area load would require operation below what was initially proposed, and currently allowed, in the Title V Operating Permit.

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 California certified ultra-low sulfur diesel fuel.

PG&E believes that the NCUAQMD and the CEC should grant the permit modifications for the reasons presented below.

Beyond typical operation, PG&E has investigated the feasibility of operating in low load mode or as a black start unit to serve area load during times of regional power outages (Public Safety Power Shutoff events (PSPS) or to provide flexibility to support the local demand as needed. These investigations have been comprised of several conference calls with PG&E senior leadership and CEC staff on April 14th, 2020 and then with NCUAQMD staff on December 14th 2019, and February 3rd, 2020 all of which allowed for the extensive additional source testing and operations analyses at lower loads through the application of the variance process. This also included additional consultation with NCUAQMD staff on May 27th, 2020 plus consultation with the engine manufacturer. Black start and low load operations would allow the HBGS to have a greater range of operability while not exceeding any of the mass based emission limits for either short-term and annual period of operation. The results of the testing have demonstrated that the mass emissions for all pollutants will be less than the full load emissions as currently permitted. From an Air District perspective, emissions occurring at a stationary source with state of-the-art pollution controls and

monitoring during such events as a black start scenario or low loads during PSPS, is preferred, when compared to the emissions that can occur from hundreds or thousands of gas or diesel back-up generators operated at private, retail, commercial, and governmental establishments in communities throughout the HBGS service region. In addition, from a public safety perspective, loss of power to communities represents grave safety concerns beyond the issue of air emissions.

The following are the typical operational modes for the engines at HBGS:

Base Load – Means operation 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 (diesel) 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% diesel fuel is defined as "Diesel Mode" in this 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 currently 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 dis-connect, natural disaster, or market conditions. PG&E has previously indicated in their Hearing Board variance applications for the various low-load source testing programs that benchmarking with other black start generators of similar design indicates that while operating in natural gas mode is preferred, it is typical to end up running (or tripping to) diesel operation while operating in low load mode. PG&E's goal under the proposed permit modifications would be to continue to operate to support area load in the event the engine(s) trip from natural gas (primary fuel) to diesel fuel (secondary fuel) operation.

Secondary Fuel – Because the single natural gas pipeline which services the area is highly susceptible to damage, reliance upon the single pipeline as a fuel source during natural disasters has been deemed inadequate by the California Independent System Operator. The permit allows engine firing on California certified ultra-low sulfur diesel fuel on a limited basis. The facility is also subject to periodic curtailment of the natural gas supply. In such a circumstance, the reciprocating engines may be fired on #2 diesel fuel. The engines have the capability of switching fuel types without interruption to power generation.

2.1 Proposed Additional Modes of Operation

Black Start Mode - Black start mode is the process of restoring an electric power station or a portion of an electric grid to operation without relying on the wide-area external transmission network. If all ten engines at HBGS are shut down and the need arises for the engines to be put back online while still without grid connection, HBGS will use the emergency backup generator (S-11) to start one or more of the reciprocating internal combustion engines (S-1 through S-10). The generator-initiated engines can then provide power to start up any additional engines needed to tie back into either a localized low loaded grid or the wide-area external transmission network. The amendment will limit the black start capability to no more than six (6) engines in black start mode while on diesel fuel and up to ten (10) engines on natural gas. It is expected that the engines will operate in natural gas mode during a majority of black start events.

Low Load Mode – Low Load mode is the ability to operate each engine at loads down to three (3) MW to provide local grid flexibility in order to support local power demands. It could also support island mode of

operation which is defined as being able to intentionally isolate a local facility circuit from the local electric power system as defined in IEEE 1547.4. The circuit is then powered by the operation of a pre-determined plant, such as the HBGS. The mode duration will be the time that the system is commanded into low load mode to the time that the system can no longer sustain the loads of the circuit. The low load mode duration will be from the time that HBGS is directed to conduct pre-low load engine stabilization measures in HBGS preparation for disconnection, to the time that resynchronization back to the grid and resynchronization engine stabilization measures have been conducted. It is expected that the engines will operate in natural gas mode during a majority of low load modes of operation.

2.2 Low Load and Black Start Operations Description

Low Load Mode – Low load mode is the ability to operate each engine at loads down to three (3) MW to provide plant flexibility in order to support local power demands. It is expected that the engines will operate in natural gas mode during a majority of low load modes of operation.

Black Start Mode - Black start mode is the process of restoring an electric power station or a portion of an electric grid to operation without relying on the wide-area external transmission network. It is expected that the engines will operate in natural gas mode during a majority of black start modes of operation.

2.3 Electrical Output Variances in Low Load Mode

The licensed electrical output of HBGS is 163 MWs, and the implementation of the proposed project would not increase this output value. It should be noted that operations in "low load or black start" modes typically are at power production levels below the rated capacity of the facility.

2.4 Proposed Permit Changes and Amendments

PG&E (HBGS) staff are proposing the following modifications to the current Title V permit which would allow the operation of the Wartsila engines (S-1 through S-10) in black start and/or low load modes. Based on the expected decrease in hourly emissions during the low load and black start modes of operation, there will be no increases in the actual or potential emissions and thus, the project will not trigger the requirements of the Prevention of Significant Deterioration (PSD) permitting program. While the low load modes of operation will not exceed the exiting permitted mass emission limits, the concentration limits for the low load of operation are proposed to be replaced with the mass emission limits as specified through the NCUAQMD best available control technology (BACT) requirements, as discussed below.

Modification #1 – Add the following operating scenario under EQUIPMENT OPERATING SCENARIOS on page 7 of 43, as follows:

Black start and/or Low load mode – HBGS may be operated in black start mode and/or low load mode at loads less than or equal to 100% down to three (3) MW's per engine. Due to the modular design of the facility, it is possible to operate each of the 10 units individually or in any combination during a black start and/or low load mode period so long as not more than six (6) engines are started during the same hour with diesel fuel. It is expected that the engines will operate in natural gas mode during a majority of black start/low load modes of operation.

Addition of low load mode and black start mode as EQUIPMENT OPERATING SCENARIOS simply identifies these modes of operation as allowed and defined within the current Title V permit.

Modification #2 – Add the following definitions to the DEFINITION section starting at page 8 of 43:

Add: Low load mode (LLM) means the process of operating each engine on natural gas for diesel fuel at loads down to three (3) MW.

Add: Black start mode (BSM) means the process of restoring an electric power station or a portion of an electric grid to operation without relying on the wide-area external transmission network.

Add: Low Load mode (ISM) means the ability to operate each engine at loads no less than three (3) MW so support local demand requirements. This could include the option to intentionally isolate a local facility circuit from the local electric power system as defined in IEEE 1547.4. The circuit is then powered by the operation of a pre-determined plant, such as the HBGS.

Addition of these definitions provides clarification as to what each mode is and provides the basis for the remaining permit amendments.

~~Amend the definition of Emergency to read as follows: "**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. *An emergency also includes natural disasters such as, earthquakes, floods, fires, Public Safety Power Shutoff (PSPS) or other unforeseen events beyond the control of the equipment operator, its officers, employees, and contractors that threatens public health and safety and that would benefit from the immediate operation of equipment under the operators control to help alleviate the threat to public health and safety."*~~

Modification #3 – Modify Condition 84 to read as follows:

84 a. The Permittee shall not operate reciprocating engines S-1 through S-12 such that the emissions of NOx, 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 6 units are in a Diesel Startup Period during any one Clock Hour. *[District Rule 102(E); PSD 2/09]*

84 b. Notwithstanding the above, during periods of ~~requested and authorized~~ black start and/or low load mode operations, the Permittee may operate engines S-1 through S-10 such that no more than six (6) units are in Diesel Startup mode during any one Clock Hour.

The addition of condition 84b recognizes the potential need for HBGS staff to start more than 2 units in Diesel firing mode during any clock hour under a situation where black start or low load mode operations are requested and approved. Dispersion modeling supports the ability to change the condition to include up to six (6) engines starting with diesel fuel.

Modification #4 – Removal of Condition 86:

Condition 86 reads as follows:

> 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]*

HBGS is requesting that this condition be removed based upon a change in applicability of the engines under Subpart ZZZZ. HBGS is submitting, as Attachment E, the reconsideration of HBGS as a major source of hazardous air pollutants (HAPs) and the subsequent removal of the 40 CFR 63, Subpart ZZZZ applicability requirements.

Modification #5 – Condition 90, Table 9, add the following row to Table 9 Startup and Shutdown Period Emissions Limits:

Table 9. Condition 90

Permit Table 9 from Title V Permit-Proposed Changes to Startup and Shutdown Emissions Limits

Mode of Operation	NOx	CO	ROC	PM10	SOx
Diesel Fuel	164	25.5	17.9	5.5	0.40
Black Start or Low Load Mode, lb./hr.	164	25.5	17.9	5.5	0.4

The addition of the proposed line item in Permit Table 9 is to address the potential problem of excessive NOx emissions which may occur during startups and shutdowns associated with black start and/or low load modes as noted in source testing (CEMS) data for the four (4) and six (6) MW load points.

Modification #6 – Condition 91, Permit Table 10, add the following text below the table: "The ppmvd @15% O2 values and the lb./MMBtu values shall not apply during periods of black start and/or low load mode operations."

Due to operational challenges presented by low load point operations, HBGS is requesting that during periods of black start and/or low load modes, that the ppm and lb./mmbtu limits be replaced with mass limits and that compliance would be based on the mass emissions limits delineated in Permit Table 10, dependent upon fuel type.

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. In addition, only the mass emissions limits in terms of lb./hr., as listed in Table 10, will apply at loads below 50%. *[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% O2	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

Modification #7 – Condition 94, Permit Table 12, add the following text below the table: "The ppmvd @15% O2 values and the lb./MMBtu values shall not apply during periods of black start and/or low load mode operations."

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. In addition, only the mass emissions limits in terms of lb./hr., as listed in Table 12, will apply at loads below 50%. *[District Rule 102(E); 40 CFR 63.6(f)(1); PSD 2/09]*

Due to operational challenges presented by low load point operations, HBGS is requesting that during periods of black start and/or low load modes, that the ppm and lb./mmbtu limits be replaced with mass limits and that compliance would be based on the mass emissions limits delineated in Permit Table 12.

Table 12. Diesel Mode Emission Limits

Pollutant	Emission Rate (per engine)		
	ppmvd @ 15% O2	lb./hr.	lb./MMBtu
CO	20.0	6.9	0.047
NH_3	10	2.1	0.014
NOx	35.0	19.9	0.134
PM_{10}	-	5.5	0.137
ROC	40.0	7.9	0.053
SOx	0.40	0.22	0.0016

Modification #8 – Condition 106, add the following text. "Notwithstanding the foregoing, engines S-1 through S-10 may be operated in diesel mode ~~during any requested and authorized~~ period of black start and/or low load mode operations."

The additional text in Condition 106 provides the flexibility to operate in diesel mode during periods of black start and/or low load modes of operation.

Modification #9 -Condition 109, –Based on the revised modeling analysis for 1-hour NOx and CO and 24 hour PM10 and PM2.5 impacts, this condition can be removed.

Modification #10 – Condition 111, add the following text. "Notwithstanding the foregoing, engines S-1 through S-10 may be operated at loads below 50% but not less than three (3) MW per engine during periods of ~~of requested and authorized~~ black start and/or low load mode operations."

Operations in black start and/or low load modes will require HBGS to operate the engines S-1 through S-10 at loads below 50%. Source testing has demonstrated that the engines can operate at loads below 50% and maintain compliance with the stated mass emissions limits.

Modification #11 – Condition 112, we propose to remove this condition as the 80-engine hour per calendar day limit is no longer required. ~~*"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]*~~

Operations in black start and/or low load modes may require HBGS to operate the engines S-1 through S-10 at loads below 12.0 MW for more than 80 hours per calendar day. Source testing has shown that the engines can operate at loads below 12 MW and maintain compliance with the stated mass emissions limits.

Modification #12 – Removal of Conditions 114, 115, and 116.

Consistent with proposed modification #4, HBGS is submitting a revised applicability analysis for the engines under Subpart ZZZZ, which is provided as Attachment E.

Modification #13 - Condition 123 is proposed to be removed as it has been demonstrated that the emission limits during low load or black start conditions will not exceed the current permitted limits.

~~**123 a.** 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).~~

~~**123 b.** In addition to the provisions in part 123 a. above, the permittee shall report all occurrences of requested and authorized black start and/or low load mode operations in accordance with the timing requirements of District Rule 105(D).~~

Modification #14 – Condition 129, add item "h" to read as follows. "h. for periods of ~~requested and authorized~~ black start and/or low load mode operations; period start and stop times, total duration of period, emissions during the period, operational parameters and other emissions support data during the period as deemed necessary by the NCUAQMD."

Addition of Condition 129h simply delineates the data to be reported by HBGS, to the District, during authorized periods of black start and/or low load mode operations.

Modification #15 – Condition 132, amend condition to read as follows. "Not later than 24 hours after determining that diesel mode operation is to occur as a result of an expected Natural Gas Curtailment or a period of black start or low load mode operation, 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 or black start or low load mode operations; and

b. The anticipated quantity of Diesel fuel expected to be burned under the Natural Gas Curtailment or black start or low load mode operations.

The additions and clarifications proposed in Condition 132 require HBGS to provide timely notifications, not only for gas curtailments, but for black start and low load modes of operation as well.

Modification #16 – Condition 135. Consistent with proposed modification #4, condition 135 is requested to be revised to remove the regulatory reference to 40 CFR 63 subpart ZZZZ and to replace this with a regulatory reference to District Rule 102 (E).

Modification #17 – Condition 142. Consistent with proposed modification #4, condition 142 is requested to be revised to remove the regulatory reference to 40 CFR 63 subpart ZZZZ and to retain the remaining regulatory references to District Rule 102 (E) and PSD (2/09).

3. Environmental Analysis of Proposed Amendments

The proposed operating conditions to the HBGS would be limited to the operational impacts associated with the existing components. No ground disturbance or excavation is expected and no other physical changes to HBGS are planned. As a result, the environmental analysis for most of the environmental disciplines does not differ significantly from that described in the AFC and the impacts associated with this PTA would be less than significant. However, for completeness, a review of the impacts and LORS compliance is provided for two applicable topic areas, Air Quality and Public Health.

The following subsections present a discussion of the potential impacts that the proposed changes may have on the environmental analysis as presented in applicable sections of the AFC. Each discussion includes an environmental analysis, an assessment of compliance with applicable LORS, proposed mitigation measures, and, if applicable, proposed changes to the COCs that are necessary as a result of project modifications.

3.1 Environmental Review

The proposed project changes do not require any physical alteration of the Wartsila engines or the project site. The only changes will be in the mode of operation of the engines and control software. Therefore, environmental impacts for those discipline areas associated with earthmoving/construction activities will not be affected. These include the following disciplines.

- Biological Resources
- Cultural and Tribal Resources
- Geology and Soils
- Hazardous Material Handling
- Hydrology and Water Quality
- Mineral Resources
- Noise and Vibration
- Population and Public Housing
- Public Services
- Recreation
- Transportation
- Utilities and Service Systems
- Wildfires
- Environmental Justice

As no potential impacts to the above disciplines are expected, the following environmental analysis address the air quality/greenhouse gases, public health, and land use impacts.

3.2 Air Quality and Greenhouse Gases

3.2.1 Introduction

The environmental impacts assessment presented in herein concludes that there will be no significant environmental impacts associated with air quality or public health, with the implementation of the actions specified in this Petition to Amend, and that the project, as modified, will comply with all applicable laws, ordinances, regulations, and standards.

The emissions of criteria pollutants and toxics are expected to remain below current permit limits on an hourly basis. The low load emissions data based on source test results does not reflect the use of

additional emissions control strategies over the existing BACT limits. The applicant proposes to maintain the existing hourly, daily and annual permitted limits for all pollutants. The emissions analyses below support the use of the existing permit limits, and that with the black start/low load mode operating scenario, the project will continue to comply with the current limits for NO_x, CO, VOC's, PM10/2.5 and SO_x.

3.2.2 Environmental Baseline Information

The following summarizes the environmental compliance baseline since beginning operations in 2010:

- The facility has an excellent compliance record with respect to meeting its obligations pursuant to the permits issued by the NCUAQMD and the CEC Conditions of Certification.
- Upsets, breakdowns, and malfunctions have occurred on a very limited basis.
- Emissions compliance (short and long term) has been achieved to the satisfaction of the NCUAQMD and CEC.
- Source testing data beginning with the initial compliance tests in 2010-2011 through 2020 have consistently showed compliance with all applicable District permit limits and CEC conditions of certification. Over this period, if any particular source test run showed a compliance problem, retesting was subsequently performed to confirm compliance.
- CEMS data for NOx and CO over this same period has also shown consistent compliance with District permit limits and CEC conditions of certification.
- Source test data for air toxics and hazardous air pollutants have also been shown to be well below the limits stated in the District permit and/or CEC Conditions of Certification.
- Special projects or investigations have always been conducted under properly obtained variances, with full cooperation from the NCUAQMD.

3.2.3 Environmental Consequences

As stated above, the purpose of the proposed permit changes is to allow operation of HBGS in black start and/or low loading modes. As shown in the emissions summaries, operations of the engines in low load mode with either diesel or natural gas will result in emissions that are less than the current permitted limits. Thus, running the facility in low loading mode with black start would likely result in a net decrease in emissions, both in terms of short term (pounds per hour) and long term annual (tons per year). A significant amount of time in these modes will be at loads below the current permit limit of 50%, and as such, the proposed changes address these concerns. HBGS has conducted extensive source testing on the engines at loads below 50%, i.e., 4MW and 6 MW, which represent loads of approximately 25% and 37% respectively.

Based on the performance data from the source test results, emissions of criteria pollutants are expected to decrease on an hourly basis as compared to the currently permitted emission limits. The ability to run in black start/low load mode will not result in any potential increases to the currently permitted limits.

The following tables are presented in Attachment B. These tables present summary data on the low load testing in support of the compliance determination for the proposed permit language changes.

Table B1	Presents a summary of the current permit emissions and operational limits.
Table B2	Presents a summary of the low load testing data for the 4 MW case.
Table B3	Presents a summary of the low load testing data for the 6 MW case.

Table B4	Presents a summary of the DPM emissions while in diesel firing mode for tests conducted from 2010 through 2019, including the low load tests at 4 and 6 MWs.
Table B5	Presents a summary of PM10, DPM, acetaldehyde, and formaldehyde emissions for the 4 and 6 MW load scenarios in natural gas firing mode.
Table B6	Presents a summary of the 4 and 6 MW load test stack data for both natural gas and diesel firing modes.
Table B7	Presents a summary of predicted mass emissions for NOx, CO, and VOC as the ppm values increase for the 4 and 6 MW scenarios for both fuels. This table indicates that ppm values at these lower loads must increase substantially before the mass emissions limits in the permit are equaled or exceeded. Data in this table should not be construed as indicating compliance with ambient air quality standards.
Table B8	Presents an overview summary of the low load testing data for 4 and 6 MWs for both natural gas and diesel fuel.

Table 3 below, presents an overall summary of the 4MW and 6MW load testing.

Table 3. Summary of the 4MW and 6MW Load Source Testing Data

HBGS Public Safety Power Shutoff Test Report				Stack Test Averages			Stack Test 3-Run Avg. Emissions (lbs./hr.)			
		Fuel	MW	Engine	acfm	T(deg.F)	NOx	CO	PM10	DPM
1	12/19/2019	Nat. Gas	4	S3	40,660	731.6	1.18	0.34	0.24	0.11
7	12/17/2019	Nat. Gas	4	S5	38,050	674.3	0.70	0.14	0.18	0.12
9	12/15/2019	Nat. Gas	4	S9	37,493	724.4	0.99	0.06	0.17	0.09
		AVERAGE	4	S3,S5,S9	38,734	710.1	0.96	0.18	0.20	0.11
				Modeling Parameters	**8.87 m/s**	**649.9 K**	**0.121 g/s**	**0.023 g/s**	**0.025 g/s**	**0.014 g/s**
2	12/20/2019	Nat. Gas	6	S3	54,965	756.6	2.24	0.33	0.44	0.14
6	12/16/2019	Nat. Gas	6	S4	53,402	749.2	0.84	0.19	0.23	0.17
10	12/16/2019	Nat. Gas	6	S9	57,888	784.8	1.88	0.06	0.35	0.25
		AVERAGE	6	S3,S4,S9	55,418	763.5	1.65	0.19	0.34	0.19
				Modeling Parameters	**12.69 m/s**	**679.5 K**	**0.208 g/s**	**0.024 g/s**	**0.043 g/s**	**0.024 g/s**
3	12/21/2019	Diesel	4	S3	40,343	591.5	0.60	0.10	0.44	0.31
5	12/15/2019	Diesel	4	S4	41,157	617.0	2.93	0.06	0.44	0.36
11	12/17/2019	Diesel	4	S9	44,584	610.9	5.13	0.03	0.55	0.46
		AVERAGE	4	S3,S4,S9	42,028	606.5	2.89	0.06	0.48	0.38
				Modeling Parameters	**9.62 m/s**	**592.3 K**	**0.364 g/s**	**0.008 g/s**	**0.060 g/s**	**0.048 g/s**
4	12/22/2019	Diesel	6	S3	59,037	638.1	1.70	1.36	0.41	0.30
8	12/18/2019	Diesel	6	S5	52,612	637.1	2.31	0.48	0.39	0.36
12	12/18/2019	Diesel	6	S9	61,572	669.8	8.95	0.03	0.59	0.53
		AVERAGE	6	S3,S5,S9	57,740	648.3	4.32	0.62	0.46	0.40
				Modeling Parameters	13.22 m/s	615.5 K	**0.544 g/s**	**0.078 g/s**	**0.058 g/s**	**0.050 g/s**
Worst-Case Emissions Stack Test Averages										
12	12/18/2019	Diesel	6	S9	61,572	669.8	8.95	-	0.59	0.53
				Modeling Parameters	14.10 m/s	627.5 K	**1.128 g/s**		**0.074 g/s**	**0.067 g/s**

Table 3. Summary of the 4MW and 6MW Load Source Testing Data (continued)

	HBGS Public Safety Power Shutoff Test Report				NOx (ppm@15%O2)		Stack Test Max. Run Emissions (lbs./hr.)				Permit Limits, lbs./hr. Gas			
		Fuel	MW	Engine	3-Run Avg	Max. Run	NOx	CO	PM_{10}	DPM	NOx	CO	PM_{10}	DPM
											3.1	4.13	3.6	NA
1	12/19/2019	Nat. Gas	4	S3	6.47	6.77	1.21	0.35	0.34	0.13				
7	12/17/2019	Nat. Gas	4	S5	4.05	4.79	0.81	0.15	0.20	0.14	**Permit Limits, lbs./hr. Diesel**			
9	12/15/2019	Nat. Gas	4	S9	6.03	6.16	0.99	0.06	0.18	0.12	**NOx**	**CO**	**PM_{10}**	**DPM**
		AVERAGE	4	S3,S5,S9	5.52	6.77	1.21	0.35	0.34	0.14	19.90	6.90	5.50	5.56
				Modeling Parameters	**Permit = 6.0 ppm**		**0.152 g/s**	**0.044 g/s**	**0.043 g/s**	**0.018 g/s**				
											SU/SD Permit Limits, lbs./hr. Gas			
2	12/20/2019	Nat. Gas	6	S3	9.06	9.33	2.30	0.34	0.49	0.15	**NOx**	**CO**	**PM_{10}**	**DPM**
6	12/16/2019	Nat. Gas	6	S4	3.61	4.14	0.99	0.19	0.30	0.21	23.60	24.10	3.60	NA
10	12/16/2019	Nat. Gas	6	S9	7.44	8.65	2.22	0.07	0.39	0.33				
		AVERAGE	6	S3,S4,S9	6.70	9.33	2.30	0.34	0.49	0.33	**SU/SD Permit Limits, lbs./hr. Diesel**			
				Modeling Parameters	**Permit = 6.0 ppm**		**0.290 g/s**	**0.043 g/s**	**0.062 g/s**	**0.042 g/s**	**NOx**	**CO**	**PM_{10}**	**DPM**
											164.00	25.50	5.50	NA
3	12/21/2019	Diesel	4	S3	3.63	3.84	0.65	0.14	0.61	0.42				
5	12/15/2019	Diesel	4	S4	17.17	17.71	2.98	0.07	0.48	0.40				
11	12/17/2019	Diesel	4	S9	28.38	28.63	5.16	0.03	0.58	0.46				
		AVERAGE	4	S3,S4,S9	16.39	28.63	5.16	0.14	0.61	0.46				
				Modeling Parameters	**Permit = 35.0 ppm**		**0.650 g/s**	**0.018 g/s**	**0.077 g/s**	**0.058 g/s**				
4	12/22/2019	Diesel	6	S3	7.00	12.19	3.02	2.90	0.46	0.34				
8	12/18/2019	Diesel	6	S5	9.94	15.74	3.69	1.16	0.40	0.38				
12	12/18/2019	Diesel	6	S9	34.38	36.52	9.65	0.03	0.64	0.59				
		AVERAGE	6	S3,S5,S9	17.11	36.52	9.65	2.90	0.64	0.59				
				Modeling Parameters	**Permit = 35.0 ppm**		**1.216 g/s**	**0.365 g/s**	**0.081 g/s**	**0.074 g/s**				

In the Table 3 summary data, operations on natural gas at both the 4MW and 6MW load points showed problems in meeting the BACT concentration limits of 6 ppm @ 15%O_2. Although the NOx ppm limit was exceeded at the low load point, the mass emissions remained well below the mass emissions limits on the current permit. All other pollutant emissions and operational limits were shown to be in compliance at the load points below 50%. HBGS conducted follow-on engine tuning in mid-2020 under a variance issued by the NCUAQMD to better understand the issues involved with engine operations at low loads versus the operation of the SCR catalyst and ammonia injection system. Although HBGS believes they can operate in compliance with the NOx BACT limit, they have proposed changes to the permit language that would allow some flexibility while operating in black start and low load modes, while still maintaining compliance with mass emissions limits.

As part of this proposal, HBGS is proposing that during periods of low load, i.e., less than 50% load down to three (3) MW on either natural gas or diesel fuel, the concentration based emissions limits, in units of ppm at 15% O2, be suspended and the mass emissions limits as currently stated in the permit become the compliance based value.

HBGS notes that this compliance basis, i.e., mass emissions (lb/hr) in lieu of concentration based limits (ppm) is currently used in a myriad of air pollution control permits and by EPA/CARB to establish the tiered emission limits for reciprocating engines. The mass based BACT limits have been in place for many years and is proposed for use on large reciprocating engine like the units at HBGS.

For example:

1) The Wartsila engines proposed for the Cogentrix Quail Brush project in San Diego County proposed a BACT mass-based limit for each pollutant, not a concentration based limit. Like the HBGS plant this proposed facility would have had CEMs/PEMs which would monitor each engine for pollutants such as NOx and CO, and use those concentration values to calculate compliance with the mass based BACT limits.
2) In addition, most engines evaluated for purposes of air quality permitting are evaluated on the basis of mass limits such as g/bhp-hr., g/KWe-hr, lbs./hr., etc. This is confirmed by reviewing the BACT databases of Districts within California, as well as agencies outside of California including EPA, which indicate that BACT values are typically stated in terms of g/bhp-hr., g/KWe-hr, lbs./hr., etc.
3) The reason for the mass based limits, which is supported by manufacturers data indicates that as the engines are operated at reduced loads, the ppm values will show increases, but due to reduced exhaust flow rates, the actual emissions will remain below the BACT mass emissions limits established at high to full load conditions, since most engine permit mass emissions limits are based on fuel load operations.

As such, HBGS is proposing to continue to use the current mass based emissions BACT limits in terms of lbs./hour, which will assure compliance with BACT across the entire range of operational loads, including low loads below 50%, for the proposed Wartsila engines. The applicant also notes that these limits are readily enforceable through the use of periodic source testing, and the existing CEMs/PEMs to monitor, calculate, report, and record the necessary data to show compliance with the proposed BACT mass emissions limits for low load operations.

3.2.4 Air Quality Impact Analysis

The evaluation of the potential air quality impacts and health risks were based on the estimate of the ambient air concentrations that could result from the HBGS emission sources. This section discusses the selection of the dispersion model, the data that was used in the dispersion model (pollutants modeled

with appropriate averaging times, source characterization, building downwash, terrain, and meteorology), etc.

Assessments of ambient concentrations resulting from pollutant emissions (called air quality impacts) are normally conducted using USEPA-approved air quality dispersion models. These models are based on mathematical descriptions of atmospheric diffusion and dispersion processes in which a pollutant source impact can be calculated over a given area and for a specific period of time (called averaging period). By using mathematical models, the assessment of emissions can be determined for both existing sources as well as future sources not yet in operation. Inputs required by most dispersion models, which must be specified by the user, include the following:

- Model options, such as averaging time to be calculated.
- Meteorological data used by the model to estimate the dispersion conditions experience by the source emissions.
- Source data, such as source location and characteristics – stack emissions like those considered here are modeled as "point" sources, which require user inputs of the release height, exit temperature and velocity, and stack diameter (used by the dispersion model to estimate the mechanical and buoyant plume rise that will occur due to the release of emissions from a stack); and
- Receptor data, which are the location(s) of the given area where ambient concentrations are to be calculated by the dispersion model.

3.2.4.1 Dispersion Modeling

To estimate ambient air concentrations, the latest version (version 19191) of the AERMOD dispersion model was used. AERMOD is appropriate for use in estimating ground-level short-term ambient air concentrations resulting from non-reactive buoyant emissions from sources located in simple, intermediate, and complex terrain. AERMOD is the preferred guideline model recommended by USEPA for these types of assessments and is based on conservative assumptions (i.e., the model tends to over-predict actual impacts by assuming steady state conditions, no pollutant loss through conservation of mass, no chemical reactions, etc.). AERMOD is capable of assessing impacts from a variety of source types such as point, area, line, and volume sources (as noted above, point source types are used to model stack sources like the HBGS emissions); downwash effects; gradual plume rise as a function of downwind distance; time-dependent exponential decay of pollutants; and can account for settling and dry deposition of particulates. The model is capable of estimating concentrations for a wide range of averaging times (from one hour to the entire period of meteorological data provided).

AERMOD calculates ambient concentrations in areas of simple terrain (receptor base elevations below the stack release heights), intermediate terrain (receptor base elevations between stack release and final plume height), and complex terrain (receptor base elevations above final plume height). AERMOD assesses these impacts for all meteorological conditions, including those that would limit the amount of final plume rise. Plume impaction on elevated terrain, such as on the slope of a nearby hill, can cause high ground level concentrations, especially under stable atmospheric conditions. Due to the relatively flat nature of the project terrain area, including the surrounding properties, plume impaction effects would not be expected to occur. AERMOD also considers receptors located above the receptor base elevation, called flagpole receptors.

Another dispersion condition that can cause high ground level pollutant concentrations is caused by building downwash. Building downwash can occur during high wind speeds or a building or structure is in close proximity to the emission source. This can result in building wake effects where the plume is drawn down toward the ground by the lower pressure region that exists in the lee side (downwind) of the building

or structure. This AERMOD feature was also used in modeling the HBGS emission sources as described later.

Table 4. USEPA Models and Versions

USEPA Model	Version
AERMOD	19191
AERMET	19191
AERMINUTE	15272
AERMAP	18081
AERSURFACE	20060
BPIP-PRIME	04274

AERMOD is a steady-state plume dispersion model that simulates transport and dispersion from multiple point, area, or volume sources based on updated characterizations of the atmospheric boundary layer. AERMOD uses Gaussian distributions in the vertical and horizontal for stable conditions, and in the horizontal for convective conditions; the vertical distribution for convective conditions is based on a bi-Gaussian probability density function of the vertical velocity. For elevated terrain AERMOD incorporates the concept of the critical dividing streamline height, in which flow below this height remains horizontal, and flow above this height tends to rise up and over terrain. AERMOD also uses the advanced PRIME algorithm to account for building wake effects.

Regulatory agencies have traditionally applied "significant impact levels" ("SILs") as a *de minimis* value, which represents the offsite concentration predicted to result from a source's emissions that does not warrant additional analysis or mitigation. If a source's modeled impact at any offsite location exceeds the relevant SIL, the source owner may need to assess multi-source or cumulative air quality analysis to determine whether or not the source's emissions will cause or contribute to a violation of the relevant NAAQS or CAAQS.

The HBGS impacts were analyzed pursuant to NCUAPCD and EPA modeling requirements. These include:

- Default (DFAULT) model option with the u-star adjustment (ADJ_U*);
- Use of AERMOD meteorological data for the nearest representative site; and
- Receptor grids referenced in NAD83 coordinates, with locations and spacing meeting PCAPCD requirements, and elevations and hill slope factors computed by AERMAP from National Elevation Database (NED) files.
- Rural dispersion option was utilized based on a review of the 3 Km region around the site using the Auer land use procedure.

Figure 1 presents the location of the project and includes the digitized buildings and fence line.

Figure 1. Site Location

3.3 Background Air Quality

The nearest criteria pollutant air quality monitoring sites to the proposed project site would be the Humboldt Hill monitoring station for the period 2014 through 2018, which was installed as part of the original HBGS permit requirements. The station ceased operations at the end of 2018. The next closest monitoring station is the Jacobs site which was used for PM10 and the 2019 NO_2 data. Ambient monitoring data for these sites for the most recent three-year period is summarized in Table 5. All data was derived from the CARB and EPA AIRS monitoring summaries.

Table 5. Measured Ambient Air Quality Concentrations by Year and Design Concentrations

Pollutant	Units	Avg. Time Data Source	Basis of Yearly/ Design Concentrations	2016	2017	2018	Design
Ozone	ppb	1-Hr (a)	CAAQS-1st Highs/3-yr Max	58	91	54	91
		8-Hr (a)	CAAQS-1st Highs/3-yr Max	51	84	50	84
			NAAQS-4th Highs/3-yr Avg	49	53	49	50
NO_2	ppb	1-Hr (a)	CAAQS-1st Highs/3-yr Max	9	18	11	18
			NAAQS-98thO%s/3-yr Avg	6.2	7.0	6.0	6.4
		Annual (b)	CAAQS/NAAQS-AAM/3-yr Max	0.79	0.04	0.51	0.79
CO	ppm	1-Hr (b)	CAAQS-1st Highs/3-yr Max	0.5	2.4	0.5	2.4
			NAAQS-2nd Highs/3-yr Max	0.5	2.3	0.5	2.3
		8-Hr (b)	CAAQS-1st Highs/3-yr Max	0.5	2.2	0.5	2.2
			NAAQS-2nd Highs/3-yr Max	0.5	1.8	0.5	1.8
SO_2	ppb	1-Hr (b)	CAAQS-1st Highs/3-yr Max	1.3	2.8	0.6	2.8
			NAAQS-99thO%s/3-yr Avg	1	1	0	1
		24-Hr (b)	CAAQS-1st Highs/3-yr Max	1.2	0.3	0.3	1.2
			NAAQS-2nd Highs/3-yr Max	1.1	0.2	0.2	1.1
		Annual (b)	CAAQS/NAAQS-AAM/3-yr Max	0.09	0.19	0.06	0.19
PM10*	$\mu g/m^3$	24-Hr (b)	CAAQS-1st Highs/3-yr Max	53	41	47	53
			NAAQS-2nd Highs/3-yr 4th High	42	41	45	42
		Annual (a)	CAAQS-AAM/3-yr Max	16.1	17.4	18.6	18.6
PM2.5	$\mu g/m^3$	24-Hr (b)	NAAQS-98thO%/3-yr Avg	10	14	8	11
		Annual (b)	CAAQS –AAM/3-yr Max	3.5	4.9	4.3	4.9
			NAAQS-AAM/3-yr Avg				4.2

Notes: Values for Humboldt Hill Station for all pollutants except PM10 (*PM10 from Jacobs Station).
Data sources: (a) CARB iADAM Top-4 website; (b) USEPA AIRS Monitor Values Report website.
AAM = Annual Arithmetic Mean

Supplemental NO_2 Data for 2019 from the Jacobs Station (see note below)

Pollutant	Units	Avg. Time Data Source	Basis of Yearly/ Design Concentrations	2017	2018	2019	Design
NO_2	ppb	1-Hr (a)	CAAQS-1st Highs/3-yr Max	22	58	27	30
			NAAQS-98thO%s/3-yr Avg	20	21	17	19
		Annual (b)	CAAQS/NAAQS-AAM/3-yr Max	2.6	2.5	2.2	2

Notes: The Humboldt Hill station closed in 2019. The data above is for NO_2 from the Jacobs station.

Table 6 shows the background air quality values based upon the data presented in Table 5. The background values represent the highest values reported for the site during any single year of the most recent three-year period. The Humboldt Hill monitoring station was chosen for this assessment based on the location(s) of the expected maximums on the hillside due to operations at HBGS. While the Humboldt Hill site ceased operations after 2018, the data set is considered to be the most applicable to the project.

Table 6. Background Air Quality Data Summary

Pollutant and Averaging Time	Background Value (µg/m3)
Ozone – 1-hour Maximum CAAQS	179
Ozone – 8-hour Maximum CAAQS/ 3-year average 4th High NAAQS	165/98
PM10 – 24-hour Maximum CAAQS/ 24-hour 3-year 4th High NAAQS	53/42
PM10 – Annual Maximum CAAQS	18.6
PM2.5 – 3-Year Average of Annual 24-hour 98th Percentiles NAAQS	11
PM2.5 – Annual Maximum CAAQS/ 3-Year Average of Annual Values NAAQS	4.9/4.2
CO – 1-hour Maximum CAAQS/ 1-hour High, 2nd High NAAQS	2,748/2,634
CO – 8-hour Maximum CAAQS/ 8-hour High, 2nd High NAAQS	2,519/2,016
NO2 – 1-hour Maximum CAAQS/ 3-Year Average of Annual 98th Percentile 1-hour Daily Maxima NAAQS	58/19
NO2 – Annual Maximum CAAQS/NAAQS	2.6
SO2 – 1-hour Maximum CAAQS/ 3-Year Average of Annual 99th Percentile 1-hour Daily Maxima NAAQS	7.3/2.6
SO2 – 3-hour Maximum NAAQS (Not Available - Used 1-hour Maxima)	7.3
SO2 – 24-hour Maximum CAAQS 24-hour High, 2nd High NAAQS	3.1/2.9
SO2 – Annual Maximum NAAQS	0.5

Values for Humboldt Hill Station for all pollutants except PM10 (PM10 from Jacobs Station).
Conversion of ppm/ppb measurements to µg/m^3 concentrations based on:
µg/m^3 = ppm x 40.9 x MW, where MW = 48, 28, 46, and 64 for ozone, CO, NO_2, and SO_2, respectively.

3.3.1 GEP Stack Height Analysis

Good Engineering Practice (GEP) stack height for the engines was calculated at 34.30 meters (112.5 feet) based on the engine hall and support structures. The as built design stack height of 30.48 meters (100 feet) is less than GEP stack height, so downwash effects were included in the modeling analysis.

BPIP-PRIME was used to generate the wind direction specific building dimensions for input into AERMOD. Details of the structures used in the BPIP downwash analysis are provided in the attachment.

3.3.2 Receptor Grid Selection and Coverage

Receptor and source base elevations were determined from United States Geological Survey (USGS) National Elevation Dataset (NED) The NED data was processed with the USEPA-model AERMAP for the receptor locations selected. All coordinates (both sources and receptors) were referenced to UTM North American Datum 1983 (NAD83, Zone 10) in accordance with NCUAPCD guidance.

Receptor grids were based on the 1/3-arcsecond (~10 meter) NED data. The NED files were extended beyond the receptor grid boundaries being evaluated as appropriate for the hill slope factors.

Cartesian coordinate receptor grids were used to provide adequate spatial coverage surrounding the project area for assessing ground-level pollution concentrations, to identify the extent of significant impacts, and to identify maximum impact locations. For the full impact analyses, a nested grid was developed to fully represent the initial location and extent of significance area(s) and maximum impact area(s). The nested grid was comprised of the following and are presented in Figure 2.

- Receptors were placed along the HBGS project fence line with a spacing of about 10 meters or less between adjacent receptors.
- The downwash receptor grid with a receptor spacing of 20 meters extended from the project fence line out to 2500 meters from the project, enclosing Humboldt Hill.
- An intermediate receptor grid with 50-meter receptor spacing extended from the downwash receptor grid out to 1000 meters from the project.
- The first coarse receptor grid with 100-meter receptor spacing was extended from the intermediate receptor grid outwards to two (2) kilometers (km) from the project in all directions.
- The second coarse grid with 250-meter receptor spacing was developed out five (5) km from the project in all directions.
- The third coarse grid with 500 m receptor spacing was developed out to 10 (10) km from the project in all directions.
- Where maximum impacts occur in areas outside the 20-meter spaced receptor grid, additional refined receptor grids were developed with 20-meter resolution and were placed around the maximum impacts and extended as necessary to determine maximum impacts.
- Ambient concentrations within the facility fence line were not calculated.

3.3.3 Meteorological Data Selection

AERMOD requires a meteorological input file to characterize the transport and dispersion of pollutants in the atmosphere. Surface and upper air meteorological data inputs, along with surface parameter data describing the land use and surface characteristics near a site, are first processed using AERMET, the meteorological preprocessor to AERMOD. The output files generated by AERMET are the surface and upper air meteorological input files required by AERMOD.

AERMOD uses hourly meteorological data to characterize plume dispersion. AERMOD calculates the dispersion conditions for each hour of meteorological data for the emission sources modeled at the user-specific receptor locations. The resulting 1-hour impacts are then averaged by AERMOD for the averaging time(s) specified by the user (accounting for calm winds and missing meteorological data as specified in the model options). Surface ASOS meteorological data from the Arcata Airport were processed

along with Oakland upper air data for the period of 2014 through 2018 to coincide with the ambient monitoring data collected on Humboldt Hill. The representativeness of the meteorological data is dependent on the proximity of the meteorological monitoring site to the area under consideration; the complexity of the terrain, the exposure of the meteorological monitoring site, and the period of time during which the data are collected. The data was collected approximately 25 kilometers from the northern edge of the HBGS project boundary and were processed with the u* option and AERMINUTE options as the most appropriate meteorological data for this modeling analysis. The AERMINUTE, AERSURFACE and AERMET programs were used to process the surface and upper air data. Data recovery exceeded 90 percent on a quarterly basis.

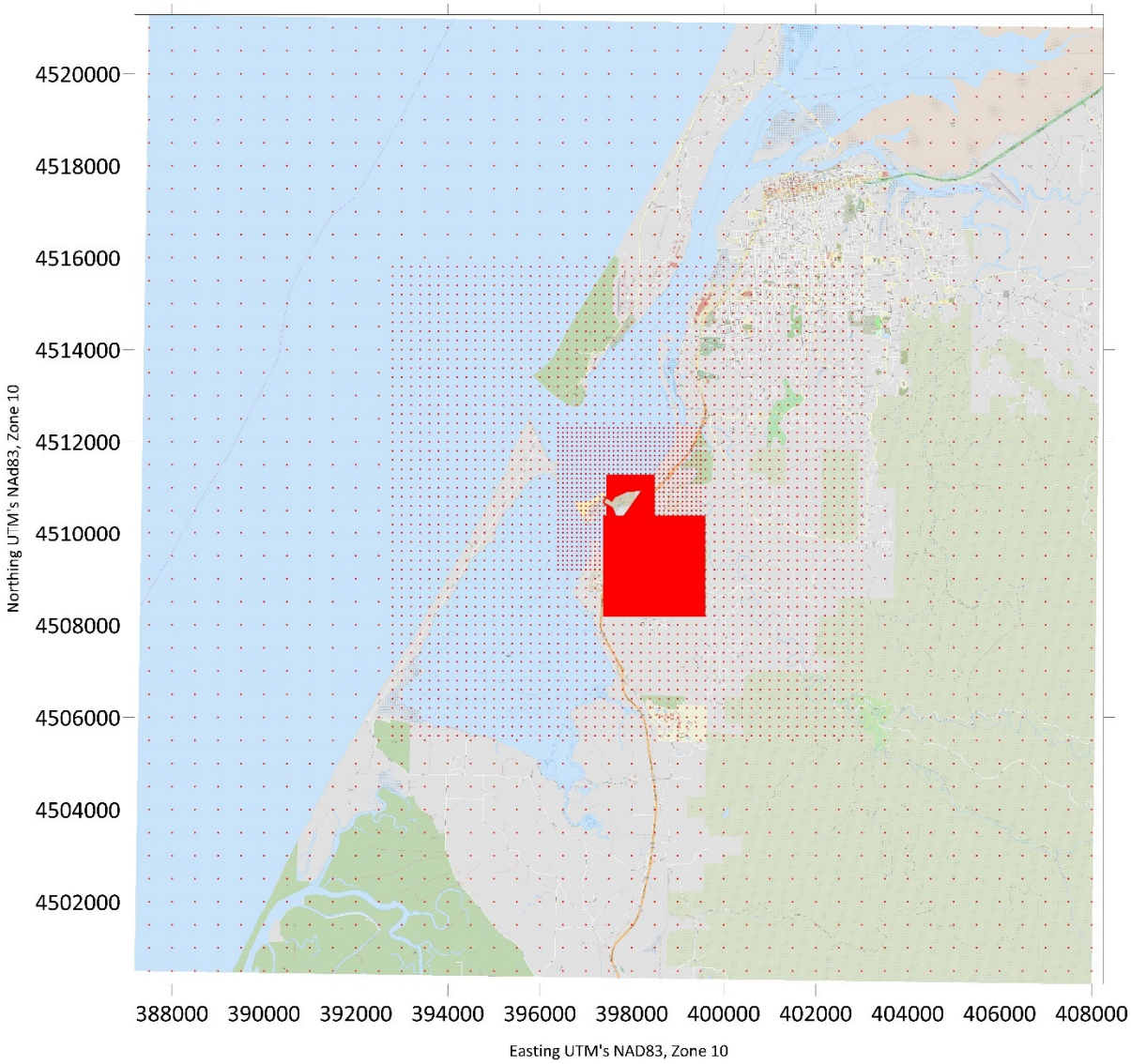

Figure 2. Receptor Grids

AERSURFACE was used to determine the surface characteristics at the Arcata Airport site. Monthly AERSURFACE values were calculated for the following options: surface roughness calculated for an area circumscribed by a one (1) kilometer radius; airport = YES; continuous snow cover = NO; average moisture conditions; arid region = NO; 12 sectors of 30°; and default monthly seasonal assignments to calculate annual average values.

3.4 Modeling Analysis

Facility sources were modeled in the analysis for comparisons with the short-term Significant Impact Levels (SILs) and California Ambient Air Quality Standards and National Ambient Air Quality Standards (CAAQS/NAAQS), as necessary.

For the engines, start-up and low load emissions were included in the analysis for short-term averages in the air quality modeling. Since the black start/low load mode of operations would only occur for short time periods, impacts to the long-term annual averages were not assessed as the black start/low load mode of operations will result in emissions that are less than full load operations (the currently permitted design). Based on the data in Table 3, the six (6) MW case for both diesel and natural gas were considered the worst case for modeling.

The modeling input information for each pollutant and short-term averaging period based on the maximum results of the source test data in Table 3 and are shown in Table 7 for normal operating conditions and engine start-up/shutdown conditions. For all pollutants, the six (6) MW diesel mode of operation always resulted in the highest short-term emission rates. To assess the short-term impacts, several emissions scenarios were evaluated:

- For the 1-hour NO_2 and CO startup modeling, up to six (6) engines were in black start in diesel mode with simultaneous operation of the emergency generator and the remaining four (4) engines in natural gas mode. All were at six (6) MW load.
- For the 8-hour CO, all ten engines were assumed to startup in diesel (1-hour) and operate for the seven (7) remaining hours in diesel mode.
- For 24-hour PM10 and PM2.5 modeling, all ten (10) engines were in diesel black start for a 1-hour period plus 23 additional hours in diesel mode. All were at six (6) MW load. The emergency generator was operated for 1-hour. This is worst-case for 24-hour average PM10 and PM2.5 impact analyses.
- SO_2 assumed to be in diesel mode for all averaging periods (1,3 and 24-hour).

Table 7. Modeled Stack Parameters and Emission Rates

	Stack Height (m)	Stack Temp. (Kelvin)	Exit Velocity (m/s)	Stack Diameter (m)	Emission Rates (g/s)			
					NO_x	SO_2	CO	PM_{10}/ $PM_{2.5}$
Averaging Period: 1-hour for Black Start/Low Load Mode								
Each engine (diesel)	30.48	615.5	13.22	1.62	20.664	0.0504	3.213	-
Averaging Period: 3-hours for Black Start/Low Load Mode								
Each engine (diesel)	30.48	615.5	13.22	1.62	-	0.0504	-	-
Averaging Period: 8-hours for Black Start/Low Load Mode								
Each engine (diesel)	30.48	615.5	13.22	1.62	-	-	0.722	-
Averaging Period: 24-hours for Black Start/Low Load Mode								
Each engine (diesel)	30.48	615.5	13.22	1.62	-	0.0504	-	0.1062

1g/s = gram(s) per second
m/s = meter(s) per second
m = meter(s)

For the 1-hour NO_2 modeling assessments, the EPA Plume Volume Molar Ratio Method (PVMRM) was used in the modeling analyses with an in-stack NO_2/NO_x ratio of 0.0522 for the engines (EPA ISR data base for Wärstilä using diesel fuel) and 0.2 (EPA ISR data base for large natural gas engines). The emergency generator used 0.1 also from the ISR data base. Concurrent hourly ozone data from the 2014-2018 Humboldt hill monitoring site was used and processed as follows:

- Any period of missing of O_3 data that was missing less or equal to 6 hours was replaced by the maximum O_3 value on either side of the missing period,
- any period of missing of O_3 data that exceeded 6 hours was left as missing, and therefore, AERMOD assumed full NO_x to NO_2 conversion.

Most maximum facility impacts occurred well inside the 20-meter receptor grids which covered Humboldt Hill. The 20-meter downwash grid was extended as needed to capture the capture all maximum impact locations as summarized in Figure 1.

Maximum HBGS concentrations are compared in Table 8 to the CAAQS and NAAQS. The combined impacts (modeled + background) are less than all the CAAQS and NAAQS for all pollutants. With the assumption that no more than six (6) engines will be in black startup (diesel) and remaining four engines operating in natural gas mode (at 6 MW), the worst-case 1-hour NO_2 impacts will demonstrate compliance with the CAAQS and NAAQS. This would be the only applied limit to the black start/low load mode of operation as the assumptions for the remaining pollutants (CO, SO_2 and PM10/2.5) would not require any short-term operational limits to demonstrate compliance with the short-term CAAQS and NAAQS.

Thus, operation in black start/low load mode will not result in any violations of either the CAAQS or the NAAQS.

Table 8. Air Quality Impact Results– Ambient Air Quality Standards

Pollutant	Averaging Period	Maximum Concentration ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total ($\mu g/m^3$)	Ambient Air Quality Standards ($\mu g/m^3$)	
					CAAQS	NAAQS
Normal Operating Conditions						
NO_2*	1-hour maximum (CAAQS)	276.1	58	334.1	339	-
	3-year average of 1-hour yearly 98th % (NAAQS)	151.6	19	170.6	-	188
CO	1-hour maximum	1,026.4	2,748	3,774.4	23,000	40,000
	8-hour maximum	59.14	2,519	2,578.1	10,000	10,000
SO_2	1-hour maximum (CAAQS)	15.72	7.3	23.02	655	-
	3-year average of 1-hour yearly 99th % (NAAQS)	13.18	2.6	15.78	-	196
	3-hour maximum	6.60	7.3	13.9	-	1,300
	24-hour maximum	1.80	3.1	4.9	105	365
PM_{10}	24-hour maximum (CAAQS)	3.74	53	56.74	50	-

Table 8. Air Quality Impact Results– Ambient Air Quality Standards

Pollutant	Averaging Period	Maximum Concentration (µg/m³)	Background (µg/m³)	Total (µg/m³)	Ambient Air Quality Standards (µg/m³)	
					CAAQS	NAAQS
	24-hour 4th highest over 3 years (NAAQS)	2.12	42	44.12	-	150
$PM_{2.5}$	3-year average of 24-hour yearly 98th %	1.40	11	12.4	-	35

*1-hour and annual NO_2 impacts for all operating conditions were evaluated with PVMRM for CAAQS and NAAQS.

3.4.1 Regulatory Requirements

The NCUAQMD is the authorized local air agency with jurisdiction over air quality permitting for both New Source Review and Prevention of Significant Deterioration. The local district in its' review of the proposed changes will evaluate compliance with respect to the following basic regulations:

- Regulation 1, Rule 102 Basic Permitting Requirements
- Regulation 1, Rule 110 NSR and PSD Requirements
- Regulation 1, Rule 103 Actions on Applications
- Regulation 1, Rule 104(B) Visible Emissions Standards
- Regulation 1, Rule 104(C) Particulate Matter Standards
- Regulation 1, Rule 104(E) Sulfur Oxide Emissions Standards
- Regulation 1, Rule 111 Federal Permitting for GHG Sources
- Regulation V PTOs for Sources Subject to Title V
- NSPS Subpart IIII Stationary CI Engines
- NESHAP Subpart ZZZZ Stationary CI Engines
- Regulation IV, Rule 412 Major Source Assessment

The District compliance and regulatory evaluation will be forwarded to the CEC as part of the Determination of Compliance (DoC). The DoC will contain the final approved permit language changes as approved by the District.

3.4.2 Mitigation Measures

The HBGS engines are equipped with air pollution control systems that meet BACT, i.e., SCR for NOx control, oxidation catalysts for CO and VOC control, and the exclusive use of clean fuels such as natural gas and California certified ultra-low sulfur diesel. The HBGS impacts on air quality are less than significant, and, therefore, will not require additional mitigation measures.

3.4.3 Consistency with LORS

The project currently complies with all applicable LORS related to air quality. HBGS believes that the proposed project will also show compliance with all applicable LORS. See Appendices D1 and D2.

3.4.4 Conditions of Certification

The proposed changes to the Conditions of Certification will be similar to the changes requested for the NCUAQMD Title V permit noted above in Section 2.3.

3.4.5 References for Air Quality and Public Health

North Coast Unified AQMD, Title V Operating Permit and District Permit to Operate, NCU 059-12, Issued 7-19-2018, Expires 3-16-2023.

CEC, TN#223310, 5-2-2018 (Docket Date), Humboldt Bay Generating Station-Compliance, Petition to Amend, 06-AFC-7C.

Supplemental Screening HRA for PG&E's Humboldt Bay Repowering Project, Sierra Research, 11-9-2007.

Humboldt Bay Repowering Project-PG&E, Supplemental Screening HRA, 2-6-2008, Sierra Research, Docket 06-AFC-7.

Revised HRA for Humboldt Bay Generating Station Project, PG&E, Atmospheric Dynamics, Inc., 2-2011.

Source Test reports supplied by HBGS for the period 2010-2020.

CEC, Final Commission Decision, CEC800-2008-005-CMF, 06-AFC-7, 9-2008.

3.5 Public Health

3.5.1 Environmental Baseline Information

This Petition to Amend does not require changes to the Public Health environmental baseline information as described in the AFC, as amended per 06-AFC-7C. The expected short-term operation at low loads will result in emissions of toxics, including DPM at levels that are less than the full load operations which were analyzed previously

Additionally, in the May 2018 amendment CEC staff placed a diesel fuel limit on the facility in an effort to address the absence of risk calculations due to diesel fuel use in the engine pilots. This limit was 1,464,364 gallons of diesel fuel per year. This limit is implemented in the facility Title V permit at Condition 89, as follows:

89a, Table 7, limits pilot diesel fuel use (all engines) to 376,734 gallons per year, and,

89b, Table 8, limits diesel fuel use (all engines) in diesel mode to 1,087,630 gallons per year.

No change is being proposed to the above noted diesel fuel limit.

3.5.2 Environmental Consequences

The proposed HBGS modifications will result in the following:

- No physical modifications to the engines, APC systems, or support systems.
- No construction emissions or impacts.
- Changes to NCUAQMD permit conditions and similar changes to the current version of the CEC conditions of certification.

3.5.3 Mitigation Measures

The HBGS engines are equipped with air pollution control systems that meet BACT, i.e., SCR for NOx control, oxidation catalysts for CO and VOC control, and uses exclusively clean fuels such as natural gas

and California certified ultra-low sulfur diesel. The HBGS impacts on public health are less than significant, and, therefore, will not require additional mitigation measures.

3.5.4 Consistency with LORS

The project currently complies with all applicable LORS related to public health. HBGS believes that the proposed project will also show compliance with all applicable LORS. See Appendices D1 and D2.

3.5.5 Conditions of Certification

The proposed modifications do not require changes to the current COCs for public health.

3.6 Land Use

The site is within the Coastal Zone in unincorporated Humboldt County, and would normally be covered by Humboldt County's certified Local Coastal Program (LCP). However, after the initial licensing of the HBGS, the California Energy Commission retains jurisdiction over HBGS site. During the licensing of the HBGS, the CEC determined that HBGS conformed to the LCP, with the incorporation of Conditions of Certification Land-1 and Land-2.

The proposed changes to the HBGS do not alter the Commission's determinate relative to the HBGS's conformance to the LCP as they do not require the physical alteration of the project nor does it increase the overall electrical generation at the site. Therefore, the proposed low loading/black start project does not result in a significant land use impact and is consistent with applicable LORS.

As there are no increase in air, GHG, or public health impacts, no cumulative impacts are expected.

4. Potential Effects on the Public

This section discusses the potential effects on the public that may result from the modifications proposed in this PTA, in accordance with CEC Siting Regulations (Title 20, CCR, Section 1769(a)(1)(G)).

With the implementation of the modifications proposed, the project would have no adverse effect on the public. As previously mentioned, the operation of HBGS will provide PG&E the flexibility to operate in low load mode or as a black start unit to provide local power during emergency events that impact local electric power transmission lines, such as, but not limited to Public Safety Power Shutdown (PSPS) events, storms, etc. No adverse effects on the public will occur because of the changes to the project as proposed in this PTA, and in fact the flexibility will benefit the surrounding communities by both providing electricity during emergency events, as well as will serve 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.

5. List of Property Owners

A list of the property owners in accordance with the CEC Siting Regulations (Title 20, CCR, Section 1769(a)(1)(H)) whose property is located within 1,000 feet of HBGS is provided under separate cover.

6. Potential Effects on Property Owners, the Public, and Parties in the Proceeding

This section addresses potential effects of the project changes proposed in this PTA on nearby property owners, the public, and parties in the application proceeding, in accordance with CEC Siting Regulations (Title 20, CCR, Section 1769 (a)(1)(I)).

The project as modified will not differ significantly in potential effects on adjacent land owners, compared with the project as previously certified. Operation of the HBGS utilizing the enhanced capabilities as proposed will have no adverse effect on nearby property owners, the public, or other parties in the application proceeding. Operation of HBGS will provide PG&E the flexibility to operate in low load mode or as a black start unit to provide local power during events that impact local electric power transmission lines, such as, but not limited to Public Safety Power Shutdown (PSPS) events, storms, etc. The project, therefore, would have no adverse effects on nearby property owners, the public, or other parties in the application proceeding and will in fact improve 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.

Attachment A
Title V Operating Permit

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

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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 NH_3) corrected to a standard stack gas oxygen concentration. For emission points S-1 through S-12, the standard stack gas oxygen concentration is 15% O_2 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. **H_2S**: 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. **O_2:** 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 supervisorial 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. **SO_2**: 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(I)]*

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 (SO_2)) 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 O2 Concentration, dry volume	11.6% (Nominal)
Exhaust CO2 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 NOx, CO, and O_2 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 NOx, CO, and O_2. 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 CO_2 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 NOx, 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% O_2. *[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
NOx	1,360
PM_{10}	864
ROC	1,608
SOx	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
NOx	35.0	19.9	0.134
PM_{10}	-	5.5	0.137
ROC	40.0	7.9	0.053
SOx	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
NOx	9,103
PM_{10}	1,542
ROC	2,183
SOx	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
NOx	179.1
PM_{10}	119.8
ROC	190.8
SOx	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	1st Quarter	2nd Quarter	3rd Quarter	4th 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. NOx (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. NOx - 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. SOx - 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	A. NOx (lbs/day, total for all engines) B. CO (lbs/day, total for all engines) C. ROC (lbs/day, total for all engines) D. SOx (lbs/day, total for all engines) E. PM_{10} (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	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)	A. NOx (tons) B. CO (tons) C. SOx (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)	A. NOx (tons) B. CO (tons) C. SOx (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 SOx 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, NOx, PM10/PM2.5, 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

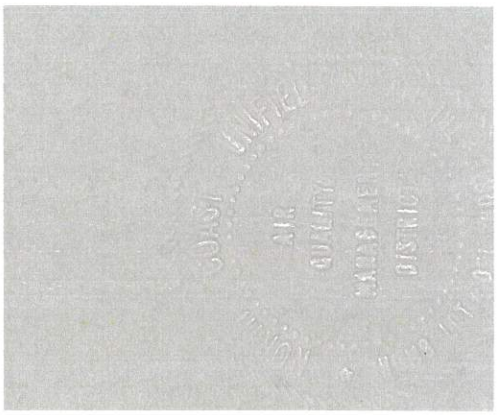
707 L STREET
EUREKA, CALIFORNIA 95501

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

Date: July 19, 2018

By: _____

Brian Wilson
Air Pollution Control Officer



Permit Seal

Attachment B
Detailed Emissions Data

Table B1 HBGS Current Permit Operational and Emissions Limits

Engines S-1 through S-10 All data from T5 Permit #NCU 059-12, 7/19/18. RA=rolling average

Natural Gas and Diesel Mode Specifications

mmbtu/hr	144.7	Gas
mmbtu/hr	148.9	Diesel
MW	16.3	
BHP	22931	
Stack Temp F	728	Nominal
Stack ACFM	121500	Nominal
Stack O2 %	11.6	Nominal
Stack CO2 %	5.3	Nominal
Stack Ht, ft	100	
Stack Diam, ft	5.32	
SCR	Yes	
OX Cat	Yes	

Fuel Sulfur Limits

Gas S limit	1	gr/100scf short term
Gas S limit	0.33	gr/100scf annual avg
Diesel S limit	<15	ppmw

Heat Input Limits (HHV basis)

Gas	144.7	mmbtu/hr/engine
Gas	3473	mmbtu/day/engine
Gas	9328809	mmbtu/yr/all engines
Diesel	148.9	mmbtu/hr/engine
Diesel	3574	mmbtu/day/engine
Diesel	148900	mmbtu/yr/all engines
Diesel Pilot	2	mmbtu/hr/engine, 3 hr RA

Diesel Fuel Limitations

Gas Mode w/Diesel Pilot	146	gal/hr/all engines
Gas Mode w/Diesel Pilot	3504	gal/day/all engines
Gas Mode w/Diesel Pilot	376734	gal/yr/all engines
Diesel Mode	1088	gal/hr/engine
Diesel Mode	26106	gal/day/engine
Diesel Mode	NA	gal/yr/engine
Diesel Mode	10876	gal/hr/all engines
Diesel Mode	221877	gal/day/all engines
Diesel Mode	1087630	gal/yr/all engines

Nautral Gas Mode Emissions

	Per Engine				*All Engines*
	SU/SD	*ppmvd*			*S-1 to S-10*
	lbs/hr	*at 15% O2*	*lbs/hr*	*lb/mmbtu*	*lbs/day*
NOx	23.6	6	3.1	0.022	1360
CO	24.1	13	4.13	0.029	1589
ROC (VOC)	17.9	28	5.1	0.035	1608
SOx	0.4	NA	0.4	0.0028	97
PM10	3.6	NA	3.6	NA	864
NH3	NA	10	1.9	0.013	456

Nox based on a 1 hr avg, all others on a 3 hr RA.

Annual Emissions Limits, All Engines, All Fuels

NOx	179.1	TPY
CO	172.2	TPY
ROC (VOC)	190.8	TPY
SOx	4.3	TPY
PM10	119.8	TPY
NH3	63.3	TPY

Diesel Mode Emissions

	Per Engine				*All Engines*
	SU/SD	*ppmvd*			*S-1 to S-10*
	lbs/hr	*at 15% O2*	*lbs/hr*	*lb/mmbtu*	*lbs/day*
NOx	164	35	19.9	0.134	9103
CO	25.5	20	6.9	0.047	2219
ROC (VOC)	17.2	40	7.9	0.053	2183
SOx	0.22	0.4	0.22	0.0016	97
PM10	5.5	NA	5.5	0.137	1542
NH3	NA	10	2.1	0.014	506

All based on a 3 hr RA.

DPM	lbs/hr	lbs	lbs/yr
	3 hr avg	calendar day	365 day RA
DPM, per engine	5.56	133.4	NA
DPM, all engines	55.6	1334	5560

Other Limitations

Only 2 diesel engines in SU mode in any 1 hour.
DPM in diesel mode <= 0.11 g/bhp-hr, NSPS IIII
CO in any fuel mode <= 0.14 g/bhp-hr or 20 ppmv, NESHAPs ZZZZ
Opacity in any fuel mode <= 20% or Ringleman 1
Operating Loads >= 50% only

SU per engine <= 60 minutes
SD per engine <= 30 minutes
Diesel mode SU+SD <= 500 hrs/yr
Diesel mode only 2 engines in SU mode in any clock hour
SU+SD (all modes) <= 30 hours per day

Table B2 HBGS Current Permit Operational and Emissions Limits-4 MW Case

Engines S-1 through S-10 All data from T5 Permit #NCU 059-12, 7/19/18. RA=rolling average

Data in Red represents the highest average value from any 3 run series for the 4 MW tests (concentration vs mass emissions may not be from the same test run).

Natural Gas and Diesel Mode Specifications

mmbtu/hr	144.7	Gas
mmbtu/hr	148.9	Diesel
MW	16.3	4
BHP	22931	
Stack Temp F	728	
Stack ACFM	121500	
Stack O2 %	11.6	
Stack CO2 %	5.3	
Stack Ht, ft	100	
Stack Diam, ft	5.32	
SCR	Yes	
OX Cat	Yes	

Fuel Sulfur Limits

Gas S limit	1	gr/100scf short term
Gas S limit	0.33	gr/100scf annual avg
Diesel S limit	<15	ppmw

Heat Input Limits (HHV basis)

Gas	144.7	mmbtu/hr/engine
Gas	3473	mmbtu/day/engine
Gas	9328809	mmbtu/yr/all engines
Diesel	148.9	mmbtu/hr/engine
Diesel	3574	mmbtu/day/engine
Diesel	148900	mmbtu/yr/all engines
Diesel Pilot	2	mmbtu/hr/engine, 3 hr RA

Diesel Fuel Limitations

Gas Mode w/Diesel Pilot	146	gal/hr/all engines
Gas Mode w/Diesel Pilot	3504	gal/day/all engines
Gas Mode w/Diesel Pilot	376734	gal/yr/all engines
Diesel Mode	1088	gal/hr/engine
Diesel Mode	26106	gal/day/engine
Diesel Mode	NA	gal/yr/engine
Diesel Mode	10876	gal/hr/all engines
Diesel Mode	221877	gal/day/all engines
Diesel Mode	1087630	gal/yr/all engines

Nautral Gas Mode Emissions

		Per Engine			*All Engines*
	SU/SD	*ppmvd*			*S-1 to S-10*
	lbs/hr	*at 15% O2*	*lbs/hr*	*lb/mmbtu*	*lbs/day*
NOx	23.6	6/**6.47**	3.1/**1.18**	0.022	1360
CO	24.1	13/**3.10**	4.13/**0.34**	0.029	1589
ROC (VOC)	17.9	28/<**2.3**	5.1/<**0.18**	0.035	1608
SOx	0.4	NA	0.4/**.034**	0.0028	97
PM10	3.6	NA	3.6/**0.24**	NA	864
NH3	NA	10/**0.1**	1.9/**0.01**	0.013	456
DPM	NA		**0.12**		

Nox based on a 1 hr avg, all others on a 3 hr RA.

Annual Emissions Limits, All Engines, All Fuels

NOx	179.1	TPY
CO	172.2	TPY
ROC (VOC)	190.8	TPY
SOx	4.3	TPY
PM10	119.8	TPY
NH3	63.3	TPY

Diesel Mode Emissions

		Per Engine			*All Engines*
	SU/SD	*ppmvd*			*S-1 to S-10*
	lbs/hr	*at 15% O2*	*lbs/hr*	*lb/mmbtu*	*lbs/day*
NOx	164	35/**28.4**	19.9/**5.13**	0.134	9103
CO	25.5	20/**1.0**	6.9/**0.10**	0.047	2219
ROC (VOC)	17.2	40/<**1.6**	7.9/<**0.09**	0.053	2183
SOx	0.22	0.4	0.22/**.055**	0.0016	97
PM10	5.5	NA	5.5/**0.55**	0.137	1542
NH3	NA	10/**0.16**	2.1/**0.01**	0.014	506

All based on a 3 hr RA.

Other Limitations

Only 2 diesel engines in SU mode in any 1 hour.
DPM in diesel mode <= 0.11 g/bhp-hr, NSPS IIII
CO in any fuel mode <= 0.14 g/bhp-hr or 20 ppmv, NESHAPs ZZZZ
Opacity in any fuel mode <= 20% or Ringleman 1
Operating Loads >= 50% only

SU per engine <= 60 minutes
SD per engine <= 30 minutes
Diesel mode SU+SD <= 500 hrs/yr
Diesel mode only 2 engines in SU mode in any clock hour
SU+SD (all modes) <= 30 hours per day

SO2 Values load/fuel ratio values

DPM	lbs/hr 3 hr avg	lbs calendar day	lbs/yr 365 day RA
DPM, per engine	5.56/**0.46**	133.4	NA
DPM, all engines	55.6	1334	5560

Emissions Scenarios

1. 10 Engines Starting Up on Diesel in a 1 hour period, 23 hours of Ops at 4 MWs

# Engines:	10	lbs						
	Period, Hrs	Nox	CO	VOC	SOx	PM10	DPM	NH3
SU/SD	1	1640	255	172	2.2	55	55	0
4 MW Ops	23	1179.9	23	20.7	12.65	126.5	105.8	2.3
Daily, Lbs		2819.9	278.0	192.7	14.9	181.5	160.8	2.3
Safety Factor	1.25							
Daily, Lbs		3524.9	347.5	240.9	18.6	226.9	201.0	2.9

2. 10 Engines Starting Up on Gas in a 1 hour period, 23 hours of Ops at 4 MWs

# Engines:	10	lbs						
	Period, Hrs	Nox	CO	VOC	SOx	PM10	DPM	NH3
SU/SD	1	236	241	179	4	36	36	0
4 MW Ops	23	271.4	78.2	41.4	7.82	55.2	27.6	2.3
Daily, Lbs		507.4	319.2	220.4	11.8	91.2	63.6	2.3
Safety Factor	1.25							
Daily, Lbs		634.3	399.0	275.5	14.8	114.0	79.5	2.9

Table B3 HBGS Current Permit Operational and Emissions Limits-6 MW Case

Engines S-1 through S-10 All data from T5 Permit #NCU 059-12, 7/19/18. RA=rolling average

Data in Red represents the highest average value from any 3 run series for the 6 MW tests (concentration vs mass emissions may not be from the same test run).

Natural Gas and Diesel Mode Specifications

mmbtu/hr	144.7	Gas
mmbtu/hr	148.9	Diesel
MW	16.3	6
BHP	22931	
Stack Temp F	728	
Stack ACFM	121500	
Stack O2 %	11.6	
Stack CO2 %	5.3	
Stack Ht, ft	100	
Stack Diam, ft	5.32	
SCR	Yes	
OX Cat	Yes	

Fuel Sulfur Limits

Gas S limit	1	gr/100scf short term
Gas S limit	0.33	gr/100scf annual avg
Diesel S limit	<15	ppmw

Heat Input Limits (HHV basis)

Gas	144.7	mmbtu/hr/engine
Gas	3473	mmbtu/day/engine
Gas	9328809	mmbtu/yr/all engines
Diesel	148.9	mmbtu/hr/engine
Diesel	3574	mmbtu/day/engine
Diesel	148900	mmbtu/yr/all engines
Diesel Pilot	2	mmbtu/hr/engine, 3 hr RA

Diesel Fuel Limitations

Gas Mode w/Diesel Pilot	146	gal/hr/all engines
Gas Mode w/Diesel Pilot	3504	gal/day/all engines
Gas Mode w/Diesel Pilot	376734	gal/yr/all engines
Diesel Mode	1088	gal/hr/engine
Diesel Mode	26106	gal/day/engine
Diesel Mode	NA	gal/yr/engine
Diesel Mode	10876	gal/hr/all engines
Diesel Mode	221877	gal/day/all engines
Diesel Mode	1087630	gal/yr/all engines

Nautral Gas Mode Emissions

	Per Engine				*All Engines*
	SU/SD	*ppmvd*			*S-1 to S-10*
	lbs/hr	*at 15% O2*	*lbs/hr*	*lb/mmbtu*	*lbs/day*
NOx	23.6	6/**9.06**	3.1/**2.24**	0.022	1360
CO	24.1	13/**2.22**	4.13/**0.33**	0.029	1589
ROC (VOC)	17.9	28/<**1.7**	5.1/<**0.12**	0.035	1608
SOx	0.4	NA	0.4/.05	0.0028	97
PM10	3.6	NA	3.6/**0.44**	NA	864
NH3	NA	10/**0.18**	1.9/**0.02**	0.013	456
DPM			**0.25**		

Nox based on a 1 hr avg, all others on a 3 hr RA.

Annual Emissions Limits, All Engines, All Fuels

NOx	179.1	TPY
CO	172.2	TPY
ROC (VOC)	190.8	TPY
SOx	4.3	TPY
PM10	119.8	TPY
NH3	63.3	TPY

Diesel Mode Emissions

	Per Engine				*All Engines*
	SU/SD	*ppmvd*			*S-1 to S-10*
	lbs/hr	*at 15% O2*	*lbs/hr*	*lb/mmbtu*	*lbs/day*
NOx	164	35/**34.4**	19.9/**8.95**	0.134	9103
CO	25.5	20/**9.25**	6.9/**1.36**	0.047	2219
ROC (VOC)	17.2	40/<**3.6**	7.9/<**0.28**	0.053	2183
SOx	0.22	0.4	0.22/0.0814	0.0016	97
PM10	5.5	NA	5.5/**0.59**	0.137	1542
NH3	NA	10/**0.21**	2.1/**0.02**	0.014	506

All based on a 3 hr RA.

DPM

	lbs/hr	lbs	lbs/yr
	3 hr avg	calendar day	365 day RA
DPM, per engine	5.56/**0.53**	133.4	NA
DPM, all engines	55.6	1334	5560

Other Limitations

Only 2 diesel engines in SU mode in any 1 hour.
DPM in diesel mode <= 0.11 g/bhp-hr, NSPS IIII
CO in any fuel mode <= 0.14 g/bhp-hr or 20 ppmv, NESHAPs ZZZZ
Opacity in any fuel mode <= 20% or Ringleman 1
Operating Loads >= 50% only

SU per engine <= 60 minutes
SD per engine <= 30 minutes
Diesel mode SU+SD <= 500 hrs/yr
Diesel mode only 2 engines in SU mode in any clock hour
SU+SD (all modes) <= 30 hours per day

SO2 Values load/fuel ratio values

Emissions Scenarios

1. 10 Engines Starting Up on Diesel in a 1 hour period, 23 hours of Ops at 6 MWs

# Engines:	10				lbs			
	Period, Hrs	Nox	CO	VOC	SOx	PM10	DPM	NH3
SU/SD	1	1640	255	172	2.2	55	55	0
6 MW Ops	23	2058.5	312.8	64.4	18.722	135.7	121.9	4.6
Daily, Lbs		3698.5	567.8	236.4	20.9	190.7	176.9	4.6
Safety Factor	1.25							
Daily, Lbs		4623.1	709.8	295.5	26.2	238.4	221.1	5.8

2. 10 Engines Starting Up on Gas in a 1 hour period, 23 hours of Ops at 6 MWs

# Engines:	10				lbs			
	Period, Hrs	Nox	CO	VOC	SOx	PM10	DPM	NH3
SU/SD	1	236	241	179	4	36	36	0
6 MW Ops	23	515.2	75.9	27.6	11.5	101.2	57.5	4.6
Daily, Lbs		751.2	316.9	206.6	15.5	137.2	93.5	4.6
Safety Factor	1.25							
Daily, Lbs		939.0	396.1	258.3	19.4	171.5	116.9	5.8

Table B4 HBGS DPM vs. Load for All Test Data 2010-2019							
		Diesel Mode					
DPM Permit Limit:		**5.56**	**lbs/hr**	Current DPM Limit for 50-100% Loads			
PM10 Permit Limit		**5.5**	**lbs/hr**	Current PM10 Limit for 50-100% Loads			
~MW	**16.3**	**12.2**	**8.1**	**6**	**4**		
	100 % Load	**75% Load**	**50% Load**	**37% Load**	**25% Load**		
	lb/hr	**lb/hr**	**lb/hr**	**lb/hr**	**lb/hr**		
	1.12	0.7	0.5	0.3	0.31		
	1.07	0.5	0.5	0.36	0.36		
	0.78	0.62	0.6	0.53	0.46		
	0.37	0.77	0.5				
	0.238	0.73	0.6				
	0.452	1.03	0.7				
	0.384	1.81	0.84				
	0.652	0.57	0.91				
	0.86	0.514	0.55				
	0.86	0.387	0.56				
	1.56	0.19	0.9				
	0.462	0.189	0.347				
	0.2	0.711	0.336				
	0.664	0.278	0.318				
	0.733	0.51	0.327				
	0.912	0.493	0.373				
	0.293	0.555	0.395				
	0.445	0.387	0.786				
	1.01	0.547	0.552				
	0.279	0.391	0.572				
	1.69	0.503	0.42				
	0.96		0.41				
	0.81		1.08				
	0.761		0.73				
	0.777		0.42				
	0.829		0.4				
	0.655		0.444		**Other DPM Permit Limits**		
			0.422		1 Eng	lbs/day	133.4
					10 Engs	lbs/day	1334
					10 Engs	lbs/yr	5560
Min	0.20	0.19	0.32	0.30	0.31		
Max	1.69	1.81	1.08	0.53	0.46		
Avg	0.73	0.59	0.55	0.40	0.38		

Table B5 HBGS Compilation of PM10-DPM and Toxics for NG Mode with Diesel Pilot for Low Loads

Year 2019

	lbs/Hr					lbs/Hr			
4MW	**DPM**	**PM10**	**Form**	**Acet**	**6MW**	**DPM**	**PM10**	**Form**	**Acet**
	0.11	0.17	0.24	0.00946		0.15	0.42	0.35	0.00873
	0.09	0.23	0.21	0.00928		0.13	0.49	0.18	0.00237
	0.13	0.34	0.32	0.00247		0.13	0.42	0.3	0.00783
	0.01	0.15	0.11	0.0095		0.21	0.3	0.11	0.0141
	0.12	0.2	0.11	0.0803		0.19	0.25	0.07	0.00685
	0.14	0.19	0.11	0.00346		0.1	0.12	0.03	0.0104
	0.09	0.17	0.2	0.0222		0.21	0.32	1.79	0.00499
	0.05	0.15	0.4	0.00747		0.2	0.34	3.06	0.0209
	0.12	0.18	0.16	0.00483		0.33	0.39	1.4	0.0452
AVGs	0.0956	0.1978	0.2067	0.0166		0.1833	0.3389	0.1733	0.0135

Outliers not included in averages (test results are questionable)

DPM Fraction of PM10 0.4831

DPM Fraction of PM10 0.5410

4MW =~ 25% Load

6MW =~ 37% Load

Table B6 PG&E HBGS Low Load Test Summary for Stack Flow Parameters

						STACK	
Engine #	**Fuel**	**MW**	**Run #**	**DSCFM**	**Frac. H2O**	**F°**	**ACFM**
3	Gas	4	1	15997	0.101	730	40070
			2	16317	0.102	731	40961
			3	16280	0.103	733	40949
3	Gas	6	1	21544	0.102	756	55090
			2	21369	0.103	756	54684
			3	21530	0.101	758	55122
3	#2 LSFO	4	1	18663	0.058	583	39420
			2	18918	0.057	594	40359
			3	19238	0.059	598	41251
3	#2 LSFO	6	1	26169	0.064	645	59359
			2	26429	0.06	634	59030
			3	26169	0.062	635	58721
4	#2 LSFO	4	1	19220	0.065	621	41824
			2	19105	0.06	615	41108
			3	18749	0.064	615	40540
4	Gas	6	1	21841	0.096	749	54825
			2	21211	0.095	750	53196
			3	20818	0.096	748	52184
5	Gas	4	1	16306	0.094	668	38413
			2	15972	0.104	680	38447
			3	15719	0.095	675	37291
5	#2 LSFO	6	1	24061	0.061	631	53239
			2	23222	0.063	642	51994
			3	23461	0.966	639	52603
9	Gas	4	1	15639	0.094	670	36714
			2	15013	0.098	752	37971
			3	14959	0.097	752	37794
9	Gas	6	1	22473	0.099	780	59015
			2	22068	0.099	788	57319
			3	22403	0.101	787	58330
9	#2 LSFO	4	1	20945	0.056	612	45023
			2	20719	0.054	612	44447
			3	20708	0.054	609	44282
9	#2 LSFO	6	1	27578	0.056	655	62638
			2	27079	0.063	672	61919
			3	26249	0.064	673	60159

All temps rounded to nearest degree.
All values derived from the source test report appendices.

Avg Gas DSCFM at 4 MW:	15800
Avg Gas DSCFM at 6 MW:	21695
Avg FO DSCFM at 4 MW:	19585
Avg FO DSCFM at 6 MW:	25602

Table B7 Predicted HBGS Engine Emissions at Low Loads

STP, F:	68	**ATM**	1	**Gas DCSFM at 4 MW**	15800	**Gas Permit Limits**		
cf/lb-mol:	385.4	385400000		**Gas DCSFM at 6 MW**	21695	NOx	3.1	lbs/hr
NOX MW	46			**FO DCSFM at 4 MW**	19585	CO	4.13	lbs/hr
CO MW	28			**FO DCSFM at 6 MW**	25602	VOC	5.1	lbs/hr
VOC MW	44	as NMHC (VOC)				**FO Permit Limits**		
						NOx	19.9	lbs/hr
						CO	6.9	lbs/hr
						VOC	7.9	lbs/hr

*All ppm values are raw stack values, not corrected to 15% O2

Gas at 4 MW

Nox, ppm	CO, ppm	VOC, ppm	Nox ,lb/hr	CO, lb/hr	VOC, lb/hr
3	5	5	0.3	0.3	0.5
4	6	10	0.5	0.4	1.1
5	7	15	0.6	0.5	1.6
6	8	20	0.7	0.6	2.2
7	9	25	0.8	0.6	2.7
8	10	28	0.9	0.7	3.0
9	11	30	1.0	0.8	3.2
10	12	35	1.1	0.8	3.8
11	13	40	1.2	0.9	4.3
12	14	45	1.4	1.0	4.9
13	15	46	1.5	1.0	5.0
14	16	47	1.6	1.1	5.1
15	17		1.7	1.2	
20	18		2.3	1.2	
25	19		2.8	1.3	
27	20		3.1	1.4	
	25			1.7	
	30			2.1	
	35			2.4	
	40			2.8	
	45			3.1	
	50			3.4	
	55			3.8	
	60			4.1	

Gas at 6 MW

Nox, ppm	CO, ppm	VOC, ppm	Nox ,lb/hr	CO, lb/hr	VOC, lb/hr
3	5	5	0.5	0.5	0.7
4	6	10	0.6	0.6	1.5
5	7	15	0.8	0.7	2.2
6	8	20	0.9	0.8	3.0
7	9	25	1.1	0.9	3.7
8	10	28	1.2	0.9	4.2
9	11	30	1.4	1.0	4.5
10	12	32	1.6	1.1	4.8
11	13	34	1.7	1.2	5.1
12	14		1.9	1.3	
13	15		2.0	1.4	
14	16		2.2	1.5	
15	17		2.3	1.6	
20	18		3.1	1.7	
	19			1.8	
	20			1.9	
	25			2.4	
	30			2.8	
	35			3.3	
	40			3.8	
	42			4.0	
	43			4.1	

FO at 4 MW

Nox, ppm	CO, ppm	VOC, ppm	Nox ,lb/hr	CO, lb/hr	VOC, lb/hr
20	15	30	2.8	1.3	4.0
25	20	35	3.5	1.7	4.7
30	25	40	4.2	2.1	5.4
35	30	45	4.9	2.6	6.0
40	35	50	5.6	3.0	6.7
45	40	55	6.3	3.4	7.4
50	50	57	7.0	4.3	7.6
55	55	58	7.7	4.7	7.8
60	60		8.4	5.1	
65	65		9.1	5.5	
70	70		9.8	6.0	
75	75		10.5	6.4	
80	80		11.2	6.8	
85			11.9		
90			12.6		
100			14.0		
120			16.8		
130			18.2		
140			19.6		

FO at 6 MW

Nox, ppm	CO, ppm	VOC, ppm	Nox ,lb/hr	CO, lb/hr	VOC, lb/hr
20	15	30	3.7	1.7	5.3
25	20	35	4.6	2.2	6.1
30	25	40	5.5	2.8	7.0
35	30	45	6.4	3.3	7.9
40	35		7.3	3.9	
45	40		8.3	4.5	
50	50		9.2	5.6	
55	55		10.1	6.1	
60	60		11.0	6.7	
65	62		11.9	6.9	
70			12.8		
75			13.8		
80			14.7		
85			15.6		
90			16.5		
100			18.3		
105			19.3		

This table should not be interpreted to imply that the mass emissions will be in compliance with AAQS. Since the stack parameters change with load. These emissions values are meant only as an indicator that ppm values can increase significantly while maintaining compliance with mass emissions limits.

Table 8A HBGS Public Safety Power Shutoff Test Report

					Stack Test Averages		Stack Test 3-Run Avg.Emissions (lbs/hr)				NOx (ppm@15%O2)		Stack Test Max.Run Emissions (lbs/hr)			
		Fuel	MW	Engine	acfm	T(deg.F)	NOx	CO	PM10	DPM	3-Run Avg	Max.Run	NOx	CO	PM10	DPM
1	12/19/2019	Nat.Gas	4	S3	40,660	731.6	1.18	0.34	0.24	0.11	6.47	6.77	1.21	0.35	0.34	0.13
7	12/17/2019	Nat.Gas	4	S5	38,050	674.3	0.70	0.14	0.18	0.12	4.05	4.79	0.81	0.15	0.20	0.14
9	12/15/2019	Nat.Gas	4	S9	37,493	724.4	0.99	0.06	0.17	0.09	6.03	6.16	0.99	0.06	0.18	0.12
		AVERAGE	4	S3,S5,S9	38,734	710.1	0.96	0.18	0.20	0.11	5.52	6.77	1.21	0.35	0.34	0.14
			Modeling Parameters		**8.87 m/s**	**649.9 K**	**0.121 g/s**	**0.023 g/s**	**0.025 g/s**	**0.014 g/s**	**Permit = 6.0 ppm**		**0.152 g/s**	**0.044 g/s**	**0.043 g/s**	**0.018 g/s**
2	12/20/2019	Nat.Gas	6	S3	54,965	756.6	2.24	0.33	0.44	0.14	9.06	9.33	2.30	0.34	0.49	0.15
6	12/16/2019	Nat.Gas	6	S4	53,402	749.2	0.84	0.19	0.23	0.17	3.61	4.14	0.99	0.19	0.30	0.21
10	12/16/2019	Nat.Gas	6	S9	57,888	784.8	1.88	0.06	0.35	0.25	7.44	8.65	2.22	0.07	0.39	0.33
		AVERAGE	6	S3,S4,S9	55,418	763.5	1.65	0.19	0.34	0.19	6.70	9.33	2.30	0.34	0.49	0.33
			Modeling Parameters		**12.69 m/s**	**679.5 K**	**0.208 g/s**	**0.024 g/s**	**0.043 g/s**	**0.024 g/s**	**Permit = 6.0 ppm**		**0.290 g/s**	**0.043 g/s**	**0.062 g/s**	**0.042 g/s**
3	12/21/2019	Diesel	4	S3	40,343	591.5	0.60	0.10	0.44	0.31	3.63	3.84	0.65	0.14	0.61	0.42
5	12/15/2019	Diesel	4	S4	41,157	617.0	2.93	0.06	0.44	0.36	17.17	17.71	2.98	0.07	0.48	0.40
11	12/17/2019	Diesel	4	S9	44,584	610.9	5.13	0.03	0.55	0.46	28.38	28.63	5.16	0.03	0.58	0.46
		AVERAGE	4	S3,S4,S9	42,028	606.5	2.89	0.06	0.48	0.38	16.39	28.63	5.16	0.14	0.61	0.46
			Modeling Parameters		**9.62 m/s**	**592.3 K**	**0.364 g/s**	**0.008 g/s**	**0.060 g/s**	**0.048 g/s**	**Permit = 35.0 ppm**		**0.650 g/s**	**0.018 g/s**	**0.077 g/s**	**0.058 g/s**
4	12/22/2019	Diesel	6	S3	59,037	638.1	1.70	1.36	0.41	0.30	7.00	12.19	3.02	2.90	0.46	0.34
8	12/18/2019	Diesel	6	S5	52,612	637.1	2.31	0.48	0.39	0.36	9.94	15.74	3.69	1.16	0.40	0.38
12	12/18/2019	Diesel	6	S9	61,572	669.8	8.95	0.03	0.59	0.53	34.38	36.52	9.65	0.03	0.64	0.59
		AVERAGE	6	S3,S5,S9	57,740	648.3	4.32	0.62	0.46	0.40	17.11	36.52	9.65	2.90	0.64	0.59
			Modeling Parameters		13.22 m/s	615.5 K	**0.544 g/s**	**0.078 g/s**	**0.058 g/s**	**0.050 g/s**	**Permit = 35.0 ppm**		**1.216 g/s**	**0.365 g/s**	**0.081 g/s**	**0.074 g/s**
Worst-Case Emissions Stack Test Averages																
12	12/18/2019	Diesel	6	S9	61,572	669.8	8.95	-	0.59	0.53			9.65	-	0.64	0.59
			Modeling Parameters		14.10 m/s	627.5 K	**1.128 g/s**		**0.074 g/s**	**0.067 g/s**			**1.216 g/s**		**0.081 g/s**	**0.074 g/s**
Worst-Case Stack (4&6 MW) Stack Test Averages								**Permit Limits (lbs/hr)**								
3	12/21/2019	Diesel	4	S3	40,343	591.5	**19.9**	**6.9**	**5.5**	**5.5**						
			Modeling Parameters		9.24 m/s	584.0 K	**2.507 g/s**		**0.693 g/s**	**0.693 g/s**						

1.62 m Stack Diameter

Permit Limits, lbs/hr Gas

NOx	CO	PM10	DPM
3.1	4.13	3.6	NA

Permit Limits, lbs/hr Diesel

NOx	CO	PM10	DPM
19.90	6.90	5.50	5.56

SU/SD Permit Limits, lbs/hr Gas

NOx	CO	PM10	DPM
23.60	24.10	3.60	NA

SU/SD Permit Limits, lbs/hr Diesel

NOx	CO	PM10	DPM
164.00	25.50	5.50	NA

Tale 8B HBGS Public Safety Power Shutoff Test Report

Engine	S3	
Fuel	Nat.Gas	pp.7,25-26
MW	4	pp.50,52
Date	12/19/2019	

Parameter	Run 1	Run 2	Run 3	Average	Emission Limits
ARB 5 Volumetric Flowrate					
dscfm	15,997	16,317	16,280	16,198	-
acfm	40,070	40,961	40,949	40,660	-
Temp (deg.F)	730.2	731.3	733.2	731.6	-
%Moisture	10.1	10.2	10.3	10.2	-
%CO2 (dry/dry)	5.13	5.10	5.08	5.10	-
%O2 (dry/dry)	11.68	11.64	11.63	11.65	-
Oxides of Nitrogen (NO_X)					
ppmvd @ 15% O_2	6.77	6.44	6.19	6.47	6.0
lb/hr	1.21	1.18	1.13	1.18	3.1
lb/MMBtu	0.026	0.025	0.024	0.025	0.022
Carbon Monoxide (CO)					
ppmvd @ 15% O_2	3.06	3.11	3.13	3.10	13
lb/hr	0.33	0.35	0.35	0.34	4.13
lb/MMBtu	0.007	0.007	0.007	0.007	0.029
Ammonia Slip (NH_3)					
ppmvd @ 15% O_2	0.08	0.06	0.04	0.06	10
lb/hr	0.01	0.00	0.00	0.00	1.9
lb/MMBtu	0.0001	0.0001	0.0001	0.0001	0.013
Gaseous Organic Compounds (ROG)					
ppmvd @ 15% O_2	< 1.3	< 1.3	< 1.3	< 1.3	28
lb/hr	< 0.07	< 0.07	< 0.07	< 0.07	5.1
lb/MMBtu	< 0.002	< 0.002	< 0.002	< 0.002	0.035
Diesel Particulate Matter (PM)					
lb/hr	0.11	0.09	0.13	0.11	3.6
Total Particulate Matter (PM_{10})					
lb/hr	0.17	0.23	0.34	0.24	3.6
Carbon Monoxide Inlet					
ppmvd @ 15% O_2	789.4	416.5	1144.2	783.4	-
Carbon Monoxide Outlet					
ppmvd @ 15% O_2	3.1	3.1	3.1	3.1	-
CO Reduction					
%	99.6	99.3	99.7	99.5	> 70%
Oxides of Nitrogen Inlet					
ppmvd @ 15% O_2	13.4	81.7	73.3	56.2	-
Oxides of Nitrogen Outlet					
ppmvd @ 15% O_2	6.8	6.4	6.2	6.5	-
Oxides of Nitrogen Reduction					
%	49.6	92.1	91.6	77.8	-
Formaldehyde					
lb/hr	0.24	0.21	0.32	0.26	-
Acetaldehyde					
lb/hr	9.46E-03	9.28E-03	2.47E-03	7.07E-03	-
Toxics					
lb/hr	-	-	-	< 4.07E-03	

Table 8C HBGS Public Safety Power Shutoff Test Report

Engine	S3		
Fuel	Nat.Gas		pp.8,27-28
MW	6	*NH3 lb/MMBtu and	pp.77,79,87,102
Date	12/20/2019	Run 2 Acetaldehyde corrected w/ Appendix values	

Parameter	Run 1	Run 2	Run 3	Average	Emission Limits
ARB 5 Volumetric Flowrate					
dscfm	21,544	21,369	21,530	21,481	-
acfm	55,090	54,684	55,122	54,965	-
Temp (deg.F)	755.7	755.8	758.3	756.6	-
%Moisture	10.2	10.3	10.1	10.2	-
%CO2 (dry/dry)	5.34	5.27	5.28	5.30	-
%O2 (dry/dry)	11.47	11.38	11.38	11.41	-
Oxides of Nitrogen (NO_X)					
ppmvd @ 15% O_2	9.10	9.33	8.77	9.06	6.0
lb/hr	2.24	2.30	2.18	2.24	3.1
lb/MMBtu	0.034	0.035	0.033	0.034	0.022
Carbon Monoxide (CO)					
ppmvd @ 15% O_2	2.21	2.24	2.21	2.22	13
lb/hr	0.33	0.34	0.34	0.33	4.13
lb/MMBtu	0.005	0.005	0.005	0.005	0.029
Ammonia Slip (NH_3)					
ppmvd @ 15% O_2	0.04	0.04	0.04	0.04	10
lb/hr	0.00	0.00	0.00	0.00	1.9
lb/MMBtu	0.0001*	0.0001*	0.0001*	0.0001*	0.013
Gaseous Organic Compounds (ROG)					
ppmvd @ 15% O_2	< 1.3	< 1.3	< 1.3	< 1.3	28
lb/hr	< 0.10	< 0.10	< 0.10	< 0.10	5.1
lb/MMBtu	< 0.002	< 0.002	< 0.002	< 0.002	0.035
Diesel Particulate Matter (PM)					
lb/hr	0.15	0.13	0.13	0.14	3.6
Total Particulate Matter (PM_{10})					
lb/hr	0.42	0.49	0.42	0.44	3.6
Carbon Monoxide Inlet					
ppmvd @ 15% O_2	634.6	538.6	615.2	596.2	-
Carbon Monoxide Outlet					
ppmvd @ 15% O_2	2.2	2.2	2.2	2.2	-
CO Reduction					
%	99.7	99.6	99.6	99.6	> 70%
Oxides of Nitrogen Inlet					
ppmvd @ 15% O_2	117.5	99.6	71.5	96.2	-
Oxides of Nitrogen Outlet					
ppmvd @ 15% O_2	9.1	9.3	8.8	9.1	-
Oxides of Nitrogen Reduction					
%	92.3	90.6	87.7	90.2	-
Formaldehyde					
lb/hr	0.35	0.18	0.30	0.28	-
Acetaldehyde					
lb/hr	8.73E-03	2.37E-02*	7.83E-03	1.34E-02	-
Toxics					
lb/hr	-	-	-	< 5.97E-03	-

Table 8D HBGS Public Safety Power Shutoff Test Report

Engine	S3	
Fuel	Diesel	pp.9,29-30
MW	4	pp.104,106
Date	12/21/2019	

Parameter	Run 1	Run 2	Run 3	Average	Emission Limits
ARB 5 Volumetric Flowrate					
dscfm	18,663	18,918	19,238	18,939	-
acfm	39,420	40,359	41,251	40,343	-
Temp (deg.F)	582.6	594.4	597.7	591.5	-
%Moisture	5.8	5.7	5.9	5.8	-
%CO2 (dry/dry)	5.11	5.06	5.02	5.06	-
%O2 (dry/dry)	13.70	13.66	13.66	13.67	-
Oxides of Nitrogen (NO_X)					
ppmvd @ 15% O_2	3.65	3.39	3.84	3.63	35.0
lb/hr	0.60	0.56	0.65	0.60	19.9
lb/MMBtu	0.011	0.01	0.012	0.011	0.134
Carbon Monoxide (CO)					
ppmvd @ 15% O_2	0.86	0.84	1.31	1.00	20.0
lb/hr	0.09	0.08	0.14	0.10	6.9
lb/MMBtu	0.002	0.002	0.003	0.002	0.047
Ammonia Slip (NH_3)					
ppmvd @ 15% O_2	0.08	0.08	0.08	0.08	10
lb/hr	0.00	0.00	0.00	0.00	2.1
lb/MMBtu	0.0001	0.0001	0.0001	0.0001	0.014
Gaseous Organic Compounds (ROG)					
ppmvd @ 15% O_2	< 1.6	< 1.6	< 1.6	< 1.6	40.0
lb/hr	< 0.08	< 0.09	< 0.09	< 0.09	7.9
lb/MMBtu	< 0.002	< 0.002	< 0.002	< 0.002	0.053
Diesel Particulate Matter (DPM)					
lb/hr	0.27	0.26	0.42	0.31	5.5
Total Particulate Matter (PM_{10})					
lb/hr	0.36	0.34	0.61	0.44	5.5
Carbon Monoxide Inlet					
ppmvd @ 15% O_2	50.0	50.0	47.6	49.2	-
Carbon Monoxide Outlet					
ppmvd @ 15% O_2	0.9	0.8	1.3	1.0	-
CO Reduction					
%	98.3	98.3	97.2	97.9	> 70%
Oxides of Nitrogen Inlet					
ppmvd @ 15% O_2	735.6	724.0	688.3	715.9	-
Oxides of Nitrogen Outlet					
ppmvd @ 15% O_2	3.7	3.4	3.8	3.6	-
Oxides of Nitrogen Reduction					
%	99.5	99.5	99.4	99.5	-

Table 8E HBGS Public Safety Power Shutoff Test Report

Engine	S3	
Fuel	Diesel	pp.10,31-32
MW	6	pp.121,123
Date	12/22/2019	

Parameter	Run 1	Run 2	Run 3	Average	Emission Limits
RB 5 Volumetric Flowrate					
dscfm	26,169	26,429	26,169	26,256	-
acfm	59,359	59,030	58,721	59,037	-
Temp (deg.F)	645.4	633.7	635.4	638.1	-
%Moisture	6.4	6.0	6.2	6.2	-
%CO2 (dry/dry)	5.41	5.34	5.23	5.33	-
%O2 (dry/dry)	13.59	13.18	13.39	13.39	-
Oxides of Nitrogen (NO_X)					
ppmvd @ 15% O_2	3.39	12.19	5.43	7.00	35.0
lb/hr	0.79	3.02	1.30	1.70	19.9
lb/MMBtu	0.01	0.037	0.016	0.021	0.134
Carbon Monoxide (CO)					
ppmvd @ 15% O_2	9.69	17.19	0.89	9.25	20.0
lb/hr	1.37	2.9	0.13	1.36	6.9
lb/MMBtu	0.022	0.038	0.002	0.021	0.047
Ammonia Slip (NH_3)					
ppmvd @ 15% O_2	0.23	0.22	0.18	0.21	10
lb/hr	0.02	0.02	0.02	0.02	2.1
lb/MMBtu	0.0003	0.0003	0.0002	0.0003	0.014
Gaseous Organic Compounds (ROG)					
ppmvd @ 15% O_2	< 4.1	< 3.6	< 3.1	< 3.6	40.0
lb/hr	< 0.31	< 0.28	< 0.24	< 0.28	7.9
lb/MMBtu	< 0.005	< 0.004	< 0.004	< 0.004	0.053
Diesel Particulate Matter (DPM)					
lb/hr	0.33	0.34	0.23	0.30	5.5
Total Particulate Matter (PM_{10})					
lb/hr	0.46	0.44	0.34	0.41	5.5
Carbon Monoxide Inlet					
ppmvd @ 15% O_2	25.7	22.6	22.6	23.6	-
Carbon Monoxide Outlet					
ppmvd @ 15% O_2	9.7	17.2	0.9	9.3	-
CO Reduction					
%	62.3	23.9	96.1	60.7	> 70%
Oxides of Nitrogen Inlet					
ppmvd @ 15% O_2	721.4	730.8	742.1	731.4	-
Oxides of Nitrogen Outlet					
ppmvd @ 15% O_2	3.4	12.2	5.4	7.0	-
Oxides of Nitrogen Reduction					
%	99.5	98.3	99.3	99.0	-

Table 8F HBGS Public Safety Power Shutoff Test Report

Engine	S4	
Fuel	Diesel	pp.11,33-34
MW	4	pp.138,140-146
Date	12/15/2019	

Parameter	Run 1	Run 2	Run 3	Average	Emission Limits
ARB 5 Volumetric Flowrate					
dscfm	19,220	19,105	18,749	19,025	-
acfm	41,824	41,108	40,540	41,157	-
Temp (deg.F)	620.9	614.7	615.4	617.0	-
%Moisture	6.5	6.0	6.4	6.3	-
%CO2 (dry/dry)	5.17	5.16	5.13	5.16	-
%O2 (dry/dry)	13.52	13.47	13.51	13.50	-
Oxides of Nitrogen (NO_X)					
ppmvd @ 15% O_2	16.49	17.31	17.71	17.17	35.0
lb/hr	2.84	2.98	2.98	2.93	19.9
lb/MMBtu	0.050	0.052	0.054	0.052	0.134
Carbon Monoxide (CO)					
ppmvd @ 15% O_2	0.58	0.63	0.63	0.61	20.0
lb/hr	0.06	0.07	0.06	0.06	6.9
lb/MMBtu	0.001	0.001	0.001	0.001	0.047
Ammonia Slip (NH_3)					
ppmvd @ 15% O_2	0.16	0.11	0.21	0.16	10
lb/hr	0.01	0.01	0.01	0.01	2.1
lb/MMBtu	0.0002	0.0002	0.0002	0.0002	0.014
Gaseous Organic Compounds (ROG)					
ppmvd @ 15% O_2	< 1.5	< 1.5	< 1.5	< 1.5	40.0
lb/hr	< 0.09	< 0.09	< 0.09	< 0.09	7.9
lb/MMBtu	< 0.002	< 0.002	< 0.002	< 0.002	0.053
Diesel Particulate Matter (DPM)					
lb/hr	0.40	0.28	0.39	0.36	5.5
Total Particulate Matter (PM_{10})					
lb/hr	0.48	0.38	0.47	0.44	5.5
Carbon Monoxide Inlet					
ppmvd @ 15% O_2	63.4	62.9	61.5	62.3	-
Carbon Monoxide Outlet					
ppmvd @ 15% O_2	0.6	0.6	0.6	0.6	-
CO Reduction					
%	99.1	99.0	99.0	99.0	> 70%
Oxides of Nitrogen Inlet					
ppmvd @ 15% O_2	363.2	369.3	387.0	373.2	-
Oxides of Nitrogen Outlet					
ppmvd @ 15% O_2	16.5	17.3	17.7	17.2	-
Oxides of Nitrogen Reduction					
%	95.5	95.3	95.4	95.4	-

Table 8G HBGS Public Safety Power Shutoff Test Report

Engine	S4	
Fuel	Nat.Gas	pp.12,35-36
MW	6	pp.155,157
Date	12/16/2019	*Run 1 NOx ppmvd corrected w/ Appendix values

Parameter	Run 1	Run 2	Run 3	Average	Emission Limits
ARB 5 Volumetric Flowrate					
dscfm	21,841	21,211	20,818	21,290	-
acfm	54,825	53,196	52,184	53,402	-
Temp (deg.F)	748.9	750.3	748.3	749.2	-
%Moisture	9.6	9.5	9.6	9.6	-
%CO2 (dry/dry)	5.00	4.99	5.00	5.00	-
%O2 (dry/dry)	11.86	11.95	11.92	11.91	-
Oxides of Nitrogen (NO_X)					
ppmvd @ 15% O_2	4.14*	3.43	3.25	3.61	6.0
lb/hr	0.99	0.79	0.74	0.84	3.1
lb/MMBtu	0.016	0.013	0.012	0.014	0.022
Carbon Monoxide (CO)					
ppmvd @ 15% O_2	1.32	1.35	1.35	1.34	13
lb/hr	0.19	0.19	0.19	0.19	4.13
lb/MMBtu	0.003	0.003	0.003	0.003	0.029
Ammonia Slip (NH_3)					
ppmvd @ 15% O_2	0.29	0.15	0.09	0.18	10
lb/hr	0.03	0.01	0.01	0.02	1.9
lb/MMBtu	0.0004	0.0002	0.0001	0.0002	0.013
Gaseous Organic Compounds (ROG)					
ppmvd @ 15% O_2	< 2.4	< 1.3	< 1.3	< 1.7	28
lb/hr	< 0.18	< 0.10	< 0.09	< 0.12	5.1
lb/MMBtu	< 0.003	< 0.002	< 0.002	< 0.002	0.035
Diesel Particulate Matter (PM)					
lb/hr	0.21	0.19	0.10	0.17	3.6
Total Particulate Matter (PM_{10})					
lb/hr	0.30	0.25	0.12	0.23	3.6
Carbon Monoxide Inlet					
ppmvd @ 15% O_2	286.1	305.7	297.5	296.4	-
Carbon Monoxide Outlet					
ppmvd @ 15% O_2	1.3	1.4	1.4	1.3	-
CO Reduction					
%	99.5	99.6	99.5	99.5	> 70%
Oxides of Nitrogen Inlet					
ppmvd @ 15% O_2	28.2	30.2	31.3	29.9	-
Oxides of Nitrogen Outlet					
ppmvd @ 15% O_2	4.1	3.4	3.3	3.6	-
Oxides of Nitrogen Reduction					
%	85.3	88.6	89.6	87.9	-
Formaldehyde					
lb/hr	0.11	0.07	0.03	0.07	-
Acetaldehyde					
lb/hr	1.41E-02	6.85E-03	1.04E-02	1.05E-02	-
Toxics					
lb/hr	-	-	-	< 4.51E-02	

Table 8H HBGS Public Safety Power Shutoff Test Report

Engine	S5	
Fuel	Nat.Gas	pp.13,37-38
MW	4	pp.182,184
Date	12/17/2019	

Parameter	Run 1	Run 2	Run 3	Average	Emission Limits
RB 5 Volumetric Flowrate					
dscfm	16,306	15,972	15,719	15,999	-
acfm	38,413	38,447	37,291	38,050	-
Temp (deg.F)	668.2	679.9	674.8	674.3	-
%Moisture	9.4	10.4	9.5	9.8	-
%CO2 (dry/dry)	4.99	4.96	5.06	5.00	-
%O2 (dry/dry)	11.97	11.92	12.06	11.98	-
Oxides of Nitrogen (NO_X)					
ppmvd @ 15% O_2	3.68	3.69	4.79	4.05	6.0
lb/hr	0.65	0.64	0.81	0.70	3.1
lb/MMBtu	0.014	0.014	0.018	0.015	0.022
Carbon Monoxide (CO)					
ppmvd @ 15% O_2	1.22	1.21	1.44	1.29	13
lb/hr	0.13	0.13	0.15	0.14	4.13
lb/MMBtu	0.003	0.003	0.003	0.003	0.029
Ammonia Slip (NH_3)					
ppmvd @ 15% O_2	0.15	0.09	0.07	0.10	10
lb/hr	0.01	0.01	0.01	0.01	1.9
lb/MMBtu	0.0002	0.0001	0.0001	0.0001	0.013
Gaseous Organic Compounds (ROG)					
ppmvd @ 15% O_2	< 1.3	< 1.3	< 1.3	< 1.3	28
lb/hr	< 0.07	< 0.07	< 0.07	< 0.07	5.1
lb/MMBtu	< 0.002	< 0.002	< 0.002	< 0.002	0.035
Diesel Particulate Matter (PM)					
lb/hr	0.10	0.12	0.14	0.12	3.6
Total Particulate Matter (PM_{10})					
lb/hr	0.15	0.20	0.19	0.18	3.6
Carbon Monoxide Inlet					
ppmvd @ 15% O_2	491.5	489.3	467.3	482.7	-
Carbon Monoxide Outlet					
ppmvd @ 15% O_2	1.2	1.2	1.4	1.3	-
CO Reduction					
%	99.8	99.8	99.7	99.7	> 70%
Oxides of Nitrogen Inlet					
ppmvd @ 15% O_2	13.9	12.5	12.3	12.9	-
Oxides of Nitrogen Outlet					
ppmvd @ 15% O_2	3.7	3.7	4.8	4.1	-
Oxides of Nitrogen Reduction					
%	73.4	70.5	61.1	68.4	-
Formaldehyde					
lb/hr	0.11	0.11	0.11	0.11	-
Acetaldehyde					
lb/hr	9.50E-03	8.03E-02	3.46E-03	3.11E-02	-
Toxics					
lb/hr	-	-	-	< 5.60E-03	

Table 8I HBGS Public Safety Power Shutoff Test Report

Engine	S5	
Fuel	Diesel	pp.14,39-40
MW	6	pp.209,211
Date	12/18/2019	

Parameter	Run 1	Run 2	Run 3	Average	Emission Limits
ARB 5 Volumetric Flowrate					
dscfm	24,061	23,222	23,461	23,582	-
acfm	53,239	51,994	52,603	52,612	-
Temp (deg.F)	630.5	641.8	639.1	637.1	-
%Moisture	6.1	6.3	6.6	6.4	-
%CO2 (dry/dry)	5.84	5.84	5.82	5.83	-
%O2 (dry/dry)	12.91	12.84	12.66	12.80	-
Oxides of Nitrogen (NO_x)					
ppmvd @ 15% O_2	5.40	8.67	15.74	9.94	35.0
lb/hr	1.26	1.97	3.69	2.31	19.9
lb/MMBtu	0.016	0.025	0.047	0.029	0.134
Carbon Monoxide (CO)					
ppmvd @ 15% O_2	0.34	1.65	8.08	3.36	20.0
lb/hr	0.05	0.23	1.16	0.48	6.9
lb/MMBtu	0.001	0.004	0.018	0.007	0.047
Ammonia Slip (NH_3)					
ppmvd @ 15% O_2	0.05	0.07	0.07	0.06	10
lb/hr	0.00	0.01	0.01	0.01	2.1
lb/MMBtu	0.0001	0.0001	0.0001	0.0001	0.014
Gaseous Organic Compounds (ROG)					
ppmvd @ 15% O_2	< 1.4	< 1.3	< 1.3	< 1.3	40.0
lb/hr	< 0.11	< 0.07	< 0.07	< 0.07	7.9
lb/MMBtu	< 0.002	< 0.002	< 0.002	< 0.002	0.053
Diesel Particulate Matter (DPM)					
lb/hr	0.38	0.34	0.35	0.36	5.5
Total Particulate Matter (PM_{10})					
lb/hr	0.39	0.37	0.40	0.39	5.5
Carbon Monoxide Inlet					
ppmvd @ 15% O_2	60.6	49.5	40.6	50.2	-
Carbon Monoxide Outlet					
ppmvd @ 15% O_2	0.3	1.6	8.1	3.4	-
CO Reduction					
%	99.4	96.7	80.1	92.1	> 70%
Oxides of Nitrogen Inlet					
ppmvd @ 15% O_2	514.5	507.9	435.4	485.9	-
Oxides of Nitrogen Outlet					
ppmvd @ 15% O_2	5.4	8.7	15.7	9.9	-
Oxides of Nitrogen Reduction					
%	98.9	98.3	96.4	97.9	-

Table 8J HBGS Public Safety Power Shutoff Test Report

Engine	S9	
Fuel	Nat.Gas	pp.15,41-42
MW	4	pp.226,228
Date	12/15/2019	*Average Acetaldehyde corrected w/ Appendix values

Parameter	Run 1	Run 2	Run 3	Average	Emission Limits
ARB 5 Volumetric Flowrate					
dscfm	15,639	15,013	14,959	15,204	-
acfm	36,714	37,971	37,794	37,493	-
Temp (deg.F)	669.5	752.2	751.5	724.4	-
%Moisture	9.4	9.8	9.7	9.6	-
%CO2 (dry/dry)	5.00	5.02	5.01	5.01	-
%O2 (dry/dry)	11.98	12.04	12.02	12.01	-
Oxides of Nitrogen (NO_X)					
ppmvd @ 15% O_2	5.87	6.16	6.07	6.03	6.0
lb/hr	0.99	0.99	0.98	0.99	3.1
lb/MMBtu	0.022	0.023	0.023	0.023	0.022
Carbon Monoxide (CO)					
ppmvd @ 15% O_2	0.57	0.59	0.60	0.59	13
lb/hr	0.06	0.06	0.06	0.06	4.13
lb/MMBtu	0.001	0.001	0.001	0.001	0.029
Ammonia Slip (NH_3)					
ppmvd @ 15% O_2	0.06	0.04	0.04	0.05	10
lb/hr	0.00	0.00	0.00	0.00	1.9
lb/MMBtu	0.0001	0.0001	0.0001	0.0001	0.013
Gaseous Organic Compounds (ROG)					
ppmvd @ 15% O_2	< 2.3	< 2.3	< 2.3	< 2.3	28
lb/hr	< 0.18	< 0.18	< 0.18	< 0.18	5.1
lb/MMBtu	< 0.003	< 0.003	< 0.003	< 0.003	0.035
Diesel Particulate Matter (PM)					
lb/hr	0.09	0.05	0.12	0.09	3.6
Total Particulate Matter (PM_{10})					
lb/hr	0.17	0.15	0.18	0.17	3.6
Carbon Monoxide Inlet					
ppmvd @ 15% O_2	467.7	479.4	478.7	475.3	-
Carbon Monoxide Outlet					
ppmvd @ 15% O_2	0.6	0.6	0.6	0.6	-
CO Reduction					
%	99.9	99.9	99.9	99.9	> 70%
Oxides of Nitrogen Inlet					
ppmvd @ 15% O_2	87.1	87.2	87.9	87.4	-
Oxides of Nitrogen Outlet					
ppmvd @ 15% O_2	5.9	6.2	6.1	6.0	-
Oxides of Nitrogen Reduction					
%	93.3	92.9	93.1	93.1	-
Formaldehyde					
lb/hr	0.20	0.40	0.16	0.25	-
Acetaldehyde					
lb/hr	2.22E-02	7.47E-03	4.83E-03	1.15E-02*	-
Toxics					
lb/hr	-	-	-	< 2.74E-02	

Table 8K HBGS Public Safety Power Shutoff Test Report

Engine	S9	
Fuel	Nat.Gas	pp.16,43-44
MW	6	pp.253,255
Date	12/16/2019	

Parameter	Run 1	Run 2	Run 3	Average	Emission Limits
ARB 5 Volumetric Flowrate					
dscfm	22,473	22,068	22,403	22,314	-
acfm	58,015	57,319	58,330	57,888	-
Temp (deg.F)	779.8	787.5	787.0	784.8	-
%Moisture	9.9	9.9	10.1	10.0	-
%CO2 (dry/dry)	5.25	5.19	5.22	5.22	-
%O2 (dry/dry)	11.51	11.64	11.56	11.57	-
Oxides of Nitrogen (NO_X)					
ppmvd @ 15% O_2	8.65	6.40	7.28	7.44	6.0
lb/hr	2.22	1.59	1.85	1.88	3.1
lb/MMBtu	0.033	0.024	0.027	0.028	0.022
Carbon Monoxide (CO)					
ppmvd @ 15% O_2	0.41	0.43	0.43	0.42	13
lb/hr	0.06	0.06	0.07	0.06	4.13
lb/MMBtu	0.001	0.001	0.001	0.001	0.029
Ammonia Slip (NH_3)					
ppmvd @ 15% O_2	0.02	0.02	0.04	0.03	10
lb/hr	0.00	0.00	0.00	0.00	1.9
lb/MMBtu	0.0000	0.0000	0.0001	0.0001	0.013
Gaseous Organic Compounds (ROG)					
ppmvd @ 15% O_2	< 1.3	< 1.3	< 1.3	< 1.3	28
lb/hr	< 0.10	< 0.10	< 0.10	< 0.10	5.1
lb/MMBtu	< 0.002	< 0.002	< 0.002	< 0.002	0.035
Diesel Particulate Matter (PM)					
lb/hr	0.21	0.20	0.33	0.25	3.6
Total Particulate Matter (PM_{10})					
lb/hr	0.32	0.34	0.39	0.35	3.6
Carbon Monoxide Inlet					
ppmvd @ 15% O_2	255.1	277.0	271.2	267.8	-
Carbon Monoxide Outlet					
ppmvd @ 15% O_2	0.4	0.4	0.4	0.4	-
CO Reduction					
%	99.8	99.8	99.8	99.8	> 70%
Oxides of Nitrogen Inlet					
ppmvd @ 15% O_2	43.4	33.4	20.6	32.5	-
Oxides of Nitrogen Outlet					
ppmvd @ 15% O_2	8.6	6.4	7.3	7.4	-
Oxides of Nitrogen Reduction					
%	80.1	80.8	64.7	75.2	-
Formaldehyde					
lb/hr	1.79	3.06	1.40	2.08	-
Acetaldehyde					
lb/hr	4.99E-03	2.09E-02	4.52E-02	2.37E-02	-
Toxics					
lb/hr	-	-	-	< 9.09E-03	

Table 8M HBGS Public Safety Power Shutoff Test Report

Engine S9
Fuel Diesel pp.18,47-48
MW 6 pp.298,300
Date 12/18/2019 *Average PM10 corrected w/ Appendix values

Parameter	Run 1	Run 2	Run 3	Average	Emission Limits
ARB 5 Volumetric Flowrate					
dscfm	27,578	27,079	26,249	26,968	-
acfm	62,638	61,919	60,159	61,572	-
Temp (deg.F)	664.8	671.6	673.2	669.8	-
%Moisture	5.6	6.3	6.4	6.1	-
%CO2 (dry/dry)	5.67	5.70	5.74	5.70	-
%O2 (dry/dry)	13.01	12.96	12.89	12.95	-
Oxides of Nitrogen (NO_X)					
ppmvd @ 15% O_2	36.52	35.06	31.56	34.38	35.0
lb/hr	9.65	9.15	8.06	8.95	19.9
lb/MMBtu	0.107	0.103	0.093	0.101	0.134
Carbon Monoxide (CO)					
ppmvd @ 15% O_2	0.20	0.20	0.21	0.20	20.0
lb/hr	0.03	0.03	0.03	0.03	6.9
lb/MMBtu	0.000	0.000	0.000	0.000	0.047
Ammonia Slip (NH_3)					
ppmvd @ 15% O_2	0.07	0.05	0.05	0.06	10
lb/hr	0.01	0.00	0.00	0.00	2.1
lb/MMBtu	0.0001	0.0001	0.0001	0.0001	0.014
Gaseous Organic Compounds (ROG)					
ppmvd @ 15% O_2	< 1.4	< 1.4	< 1.4	< 1.4	40.0
lb/hr	< 0.01	< 0.01	< 0.01	< 0.01	7.9
lb/MMBtu	< 0.002	< 0.002	< 0.002	< 0.002	0.053
Diesel Particulate Matter (DPM)					
lb/hr	0.47	0.52	0.59	0.53	5.5
Total Particulate Matter (PM_{10})					
lb/hr	0.50	0.64	0.62	0.59*	5.5
Carbon Monoxide Inlet					
ppmvd @ 15% O_2	37.3	37.3	38.2	37.6	-
Carbon Monoxide Outlet					
ppmvd @ 15% O_2	0.20	0.20	0.21	0.20	-
CO Reduction					
%	99.5	99.5	99.5	99.5	> 70%
Oxides of Nitrogen Inlet					
ppmvd @ 15% O_2	536.3	526.9	501.1	521.5	-
Oxides of Nitrogen Outlet					
ppmvd @ 15% O_2	36.5	35.1	31.6	34.4	-
Oxides of Nitrogen Reduction					
%	93.2	93.3	93.7	93.4	-

Table 8L HBGS Public Safety Power Shutoff Test Report

Engine	S9	
Fuel	Diesel	pp.17,45-46
MW	4	pp.281,283
Date	12/17/2019	

Parameter	Run 1	Run 2	Run 3	Average	Emission Limits
ARB 5 Volumetric Flowrate					
dscfm	20,945	20,719	20,708	20,790	-
acfm	45,023	44,447	44,283	44,584	-
Temp (deg.F)	611.7	611.9	609.2	610.9	-
%Moisture	5.6	5.4	5.4	5.5	-
%CO2 (dry/dry)	5.10	5.12	5.15	5.12	-
%O2 (dry/dry)	13.79	13.73	13.70	13.74	-
Oxides of Nitrogen (NO_X)					
ppmvd @ 15% O_2	28.53	28.63	27.97	28.38	35.0
lb/hr	5.16	5.16	5.06	5.13	19.9
lb/MMBtu	0.084	0.084	0.082	0.083	0.134
Carbon Monoxide (CO)					
ppmvd @ 15% O_2	0.21	0.23	0.25	0.23	20
lb/hr	0.02	0.03	0.03	0.03	6.9
lb/MMBtu	0.000	0.001	0.001	0.001	0.047
Ammonia Slip (NH_3)					
ppmvd @ 15% O_2	0.10	0.08	0.05	0.08	10
lb/hr	0.01	0.01	0.01	0.01	2.1
lb/MMBtu	0.0001	0.0001	0.0001	0.0001	0.014
Gaseous Organic Compounds (ROG)					
ppmvd @ 15% O_2	< 1.6	< 1.6	< 1.6	< 1.6	40.0
lb/hr	< 0.09	< 0.09	< 0.09	< 0.09	7.9
lb/MMBtu	< 0.002	< 0.002	< 0.002	< 0.002	0.053
Diesel Particulate Matter (DPM)					
lb/hr	0.46	0.46	0.46	0.46	5.5
Total Particulate Matter (PM_{10})					
lb/hr	0.54	0.54	0.58	0.55	5.5
Carbon Monoxide Inlet					
ppmvd @ 15% O_2	59.1	57.4	57.2	57.9	-
Carbon Monoxide Outlet					
ppmvd @ 15% O_2	0.2	0.2	0.2	0.2	-
CO Reduction					
%	99.6	99.6	99.6	99.6	> 70%
Oxides of Nitrogen Inlet					
ppmvd @ 15% O_2	723.9	615.9	490.2	610.0	-
Oxides of Nitrogen Outlet					
ppmvd @ 15% O_2	28.5	28.6	28.0	28.4	-
Oxides of Nitrogen Reduction					
%	96.1	95.4	94.3	95.2	-

Attachment C
CEC Conditions of Certification

DOCKETED

Docket Number:	06-AFC-07C
Project Title:	Humboldt Bay Generating Station - Compliance
TN #:	223310
Document Title:	Letter Regarding Staff Analysis on Petition to Amend
Description:	PG&E proposes to make several administrative changes, and the following substantive changes, to the air quality conditions of certification (conditions), as written in the September 24, 2008 Final Decision.
Filer:	Raquel Rodriguez
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	5/2/2018 1:41:41 PM
Docketed Date:	5/2/2018

CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5512
www.energy.ca.gov

DATE: May 2, 2018

TO: Interested Parties

FROM: Keith Winstead, Siting Project Manager

SUBJECT: **Humboldt Bay Generating Station (06-AFC-07C)**
Staff Analysis on Petition to Amend

On June 6, 2016, Pacific Gas & Electric (PG&E) docketed a Petition to Amend (PTA) the Humboldt Bay Generating Station (HBGS) Final Commission Decision. The 163-megawatt facility was certified by the California Energy Commission in its Final Decision on September 24, 2008, and began commercial operation in 2010. The facility is located in the city of Eureka, in Humboldt County, California.

DESCRIPTION OF PROPOSED MODIFICATION

PG&E proposes to make several administrative changes, and the following substantive changes, to the air quality conditions of certification (conditions), as written in the September 24, 2008 Final Decision:

- Increase in the pilot heat limit from 0.8 MMBtu/hour to 2.0 MMBtu/hour;
- Decrease the PM10 emission rate from 10.8 lb/hour to 5.5 lb/hour; and
- Reduce diesel source testing frequency from a 3-year testing cycle at near full load to a 5-year testing cycle at one of three load points (~50 percent load, ~75 percent load, and ~100 percent load) with diesel toxic air contaminants (TAC) emissions testing reduced from every 10 years to every 15 years at 100 percent load (while retaining the initial 10-year TAC source testing requirement).

The purpose of this PTA is to improve reliable operation of the HBGS when fueled primarily with natural gas and to align the Energy Commission conditions with the recently modified conditions to the Title V Operating Permit to Operate issued by the North Coast Unified Air Quality Management District (NCUAQMD).

The proposed modifications do not increase any emission standard above the levels previously analyzed in the Final Decision or any amendments thereto, and therefore, would not result in any new or different environmental impacts.

With the adoption of the attached amended conditions of certification, the amended HBGS project would conform with applicable federal, state, and NCUAQMD air quality laws, ordinances, regulations, and standards, and would not result in significant air quality or public health related impacts.

Staff has reviewed the potential impacts to public health and determined that the proposal to increase the diesel pilot fuel use limit would not change the ability of the HBGS to comply with existing permitted emissions limits that have been previously

found by staff to not create a significant risk to attainment of ambient air quality standards, or to public health.

Greenhouse gas emissions from the project are not affected by this PTA.

The Energy Commission's webpage for this facility, http://www.energy.ca.gov/sitingcases/humboldt/index.html, has a link to the PTA and the staff analysis on the right side of the webpage in the box labeled "Compliance Proceeding." Click on the "Documents for this Proceeding (Docket Log)" option. After the Energy Commission decision on this PTA, the Order regarding this PTA will also be available on the same webpage.

This staff assessment has been mailed to the Energy Commission's list of interested parties and property owners adjacent to the facility site. It has also been emailed to the facility listserv. The listserv is an automated system by which information about this facility is emailed to parties who have subscribed. To subscribe, go to the Energy Commission's webpage for this facility, cited above, scroll down the right side of the project webpage to the box labeled "Subscribe," and provide the requested contact information.

Any person may comment on the staff analysis. Those who wish to comment are asked to submit their comments by 5:00 p.m., June 1, 2018. To use the Energy Commission's electronic commenting feature, go to the webpage for this facility cited above, click on the "Submit e-Comment" link, and follow the instructions in the on-line form. Be sure to include the facility name in your comments.

Written comments may also be mailed or hand-delivered to:

California Energy Commission
Dockets Unit, MS-4
Docket No. 06-AFC-07C
1516 Ninth Street
Sacramento, CA 95814-5512

All comments and materials filed with and approved by the Dockets Unit will be added to the facility's Docket Log and become publically accessible on the Energy Commission's webpage for the facility.

If you have questions about this notice, please contact Keith Winstead, Siting Project Manager, at (916) 654-5191, or by fax to (916) 654-3882, or via e-mail to keith.winstead@energy.ca.gov.

For information on participating in the Energy Commission's review of the PTA, please call the Public Adviser, Alana Mathews, at (800) 822-6228 (toll-free in California) or send your e-mail to publicadviser@energy.ca.gov. News media inquiries should be directed to the Energy Commission Media Office at (916) 654-4989, or by e-mail to mediaoffice@energy.ca.gov.

Mail List 7212
Humboldt Power Plant List Serve

HUMBOLDT BAY GENERATING STATION (06-AFC-7C)

Petition to Modify Air Quality Conditions of Certification

Executive Summary

Keith Winstead

INTRODUCTION

On June 6, 2016, Pacific Gas & Electric (PG&E) docketed a Petition To Amend (PTA) the Commission Final Decision for the Humboldt Bay Generating Station (HBGS). The 163-megawatt facility was certified by the California Energy Commission on September 24, 2008, and began commercial operation on October 1, 2010. The facility is located in the city of Eureka, in Humboldt County, California.

The purpose of the Energy Commission's review process is to assess any impacts the proposed modifications would have on environmental quality and on public health and safety. The process includes an evaluation of the consistency of the proposed changes with the Energy Commission's Final Decision (Decision) and an assessment of whether the project, as modified, would remain in compliance with applicable laws, ordinances, regulations, and standards (LORS) (Cal. Code Regs., tit. 20, § 1769).

Energy Commission staff has completed its review of all materials received. The staff analysis below is staff's assessment of the project owner's proposal to conform the air quality conditions of certification to a recent amendment to the Title V Permit to Operate (PTO) issued by the North Coast Unified Air Quality Management District (NCUAQMD) for the HBGS.

PROJECT LOCATION AND DESCRIPTION

The HGBS is a 163-megawatt (MW) reciprocating engine facility normally fueled by natural gas with a diesel pilot fuel used to ignite the natural gas. The engines are capable of converting to diesel fuel use automatically if there is a justified need. The facility is located in the city of Eureka in Humboldt County, California.

DESCRIPTION OF PROPOSED MODIFICATIONS

PG&E proposes to make several administrative changes, and the following substantive changes, to the air quality conditions of certification (conditions), as written in the September 24, 2008 Final Decision:

- Increase in the pilot heat limit from 0.8 MMBtu/hour to 2.0 MMBtu/hour;
- Decrease the PM10 emission rate from 10.8 lb/hour to 5.5 lb/hour; and
- Reduce diesel source testing frequency from a 3-year testing cycle at near full load to a 5-year testing cycle at one of three load points (~50 percent load, ~75 percent load, and ~100 percent load) with diesel TAC emissions testing reduced from every 10 years to every 15 years at 100 percent load (while retaining the initial 10-year TAC source testing requirement).

The purpose of this PTA is to improve reliable operation when the HBGS is fueled primarily with natural gas and to align the Energy Commission conditions with the recently modified conditions to the Title V PTO issued by the NCUAQMD for the HBGS.

The proposed modifications do not increase any emission standard above the levels previously analyzed in the Final Decision or any amendments thereto, and therefore, would not result in any new or different environmental impacts.

With the adoption of the attached amended conditions of certification, the amended HBGS project would conform with applicable federal, state, and NCUAQMD air quality LORS, and would not result in significant air quality or public health related impacts.

Staff has reviewed the potential impacts to public health and determined that the proposal to increase the diesel pilot fuel use limit would not change the ability of the HBGS to comply with existing permitted emissions limits that have been previously found by staff to not create a significant risk to attainment of ambient air quality standards, or to public health.

Greenhouse gas emissions from the project are not affected by this PTA.

NECESSITY FOR THE PROPOSED MODIFICATIONS

In accordance with existing air quality rules and regulations, the District issued the PTO to the HBGS, Permit Number NCU 059-12, dated February 17, 2016. The PTO contains modifications to the current set of air quality conditions of certification. The purpose of this petition is to align the Commission's air quality conditions of certification with the District PTO.

STAFF'S ASSESSMENT OF THE PROPOSED PROJECT CHANGES

The technical analyses contained in this staff analysis include staff-recommended changes to the existing conditions of certification. Staff believes with the implementation of these new and revised conditions, the facility would remain in compliance with applicable LORS, and the proposed changes to conditions of certification would not result in any significant, adverse, direct, indirect, or cumulative impacts to the environment (Cal. Code Regs., tit. 20, § 1769). Staff's conclusions in each technical area are summarized in **Executive Summary Table 1**.

Executive Summary Table 1 Summary of Impacts for Each Technical Area

TECHNICAL AREAS REVIEWED	STAFF RESPONSE			Revised Conditions of Certification Recom-mended
	Technical Area Not Affected *	No Significant Environmental Impact*	Process As Amendment	
Air Quality			**X**	**X**
Biological Resources	**X**			
Cultural Resources	**X**			
Facility Design	**X**			
Geological & Paleontological Resources	**X**			
Hazardous Materials Management	**X**			
Land Use	**X**			
Noise & Vibration	**X**			
Public Health			**X**	**X**
Socioeconomics	**X**			
Soil & Water Resources	**X**			
Traffic & Transportation	**X**			
Transmission Line Safety & Nuisance	**X**			
Transmission System Engineering	**X**			
Visual Resources	**X**			
Waste Management	**X**			
Worker Safety & Fire Protection	**X**			

***There is no possibility that the proposed modifications may have a significant effect on the environment, and the modifications will not result in a change in or deletion of a condition adopted by the Commission in the Final Decision, or make changes that would cause project noncompliance with any applicable laws, ordinances, regulations, or standards (Cal. Code Regs., tit. 20, § 1769 (a)(2)).

Energy Commission technical staff reviewed the petition for potential environmental effects and consistency with applicable LORS. Staff has determined that the following technical or environmental areas are not affected by the proposed changes: **Biological Resources, Cultural Resources, Facility Design, Geological and Paleontological Resources, Hazardous Materials Management, Land Use, Noise and Vibration, Socioeconomics, Soil and Water Resources, Traffic and Transportation, Transmission Line Safety and Nuisance, Transmission System Engineering, Visual Resources, Waste Management,** and **Worker Safety and Fire Protection**.

Staff determined, however, that the technical areas of **Air Quality** and **Public Health** would be affected by the proposed project changes and has proposed new air quality and public health conditions of certification. Given the large number of modifications to conditions and renumbering, **Air Quality Table 5** has been provided to summarize the changes provided in the **Air Quality** staff analysis below in order to assure compliance

with LORS and to reduce potential environmental impacts to a less than significant level. The proposed changes to conditions of certification are provided in the **Air Quality** and **Public Health** staff analysis below.

ENVIRONMENTAL JUSTICE

Environmental Justice Figure 1 shows 2010 census blocks in the six-mile radius of the HBGS with a minority population greater than or equal to 50 percent. The population in these census blocks represents an environmental justice (EJ) population based on race and ethnicity as defined in the United States Environmental Protection Agency's *Guidance on Considering Environmental Justice During the Development of Regulatory Actions*.

Based on California Department of Education data in the **Environmental Justice Table Population 1** and presented **Environmental Justice Figure 2**, staff concluded that the percentage of those living in the school districts of Loleta Union Elementary, South Bay Union Elementary, and Peninsula Union Elementary (in a six-mile radius of the project site) and enrolled in the free or reduced price meal program is larger than those in the reference geography, thus those populations are considered an EJ population based on low income as defined in *Guidance on Considering Environmental Justice During the Development of Regulatory Actions*.

Environmental Justice Population Table 1
Low Income Data within the Project Area

SCHOOL DISTRICTS IN SIX-MILE RADIUS	Enrollment Used for Meals	Free or Reduced Price Meals	
Loleta Union Elementary School District	305	239	78.4%
South Bay Union Elementary School District	915	617	67.4%
Cutten Elementary School District	622	231	37.1%
Peninsula Union Elementary School District	36	30	83.3%
REFERENCE GEOGRAPHY			
Humboldt County	18,446	10,326	56.0%
Source: CDE 2017. California Department of Education, DataQuest, Free or Reduced Price Meals, District level data for the year 2016-2017, <http://dq.cde.ca.gov/dataquest/>.			

Staff's environmental justice impact analysis evaluates the project's impacts on the EJ population living within a six-mile radius of the project site. Staff uses a six-mile radius around the project site, based on the parameters for dispersion modeling used in staff's air quality analysis, to obtain data to gain a better understanding of the demographic makeup of the communities potentially impacted by the project. Air quality impacts are generally the type of project impacts that extend the furthest from a project site. Beyond

a six-mile radius air emissions have either settled out of the air column or mixed with surrounding air to the extent the potential impacts are less than significant.

ENVIRONMENTAL JUSTICE CONCLUSIONS

If affected, the following technical areas would discuss impacts to EJ populations: air quality, cultural resources (indigenous people), hazardous materials management, land use, noise and vibration, public health, socioeconomics, soil and water resources, traffic and transportation, transmission line safety and nuisance, visual resources, and waste management. None of these areas are affected by the proposed petition other than air quality and public health. In the air quality and public health analysis, staff proposes changes to conditions of certification. Staff has determined that by adopting the proposed changes to the existing conditions of certification, the amended project would not cause significant air quality or public health impacts for any population in the project's six-mile radius and beyond, including the EJ population represented in **Environmental Justice – Figure 1** and **Figure 2** and **Table 1**. Impacts to the EJ population are less than significant.

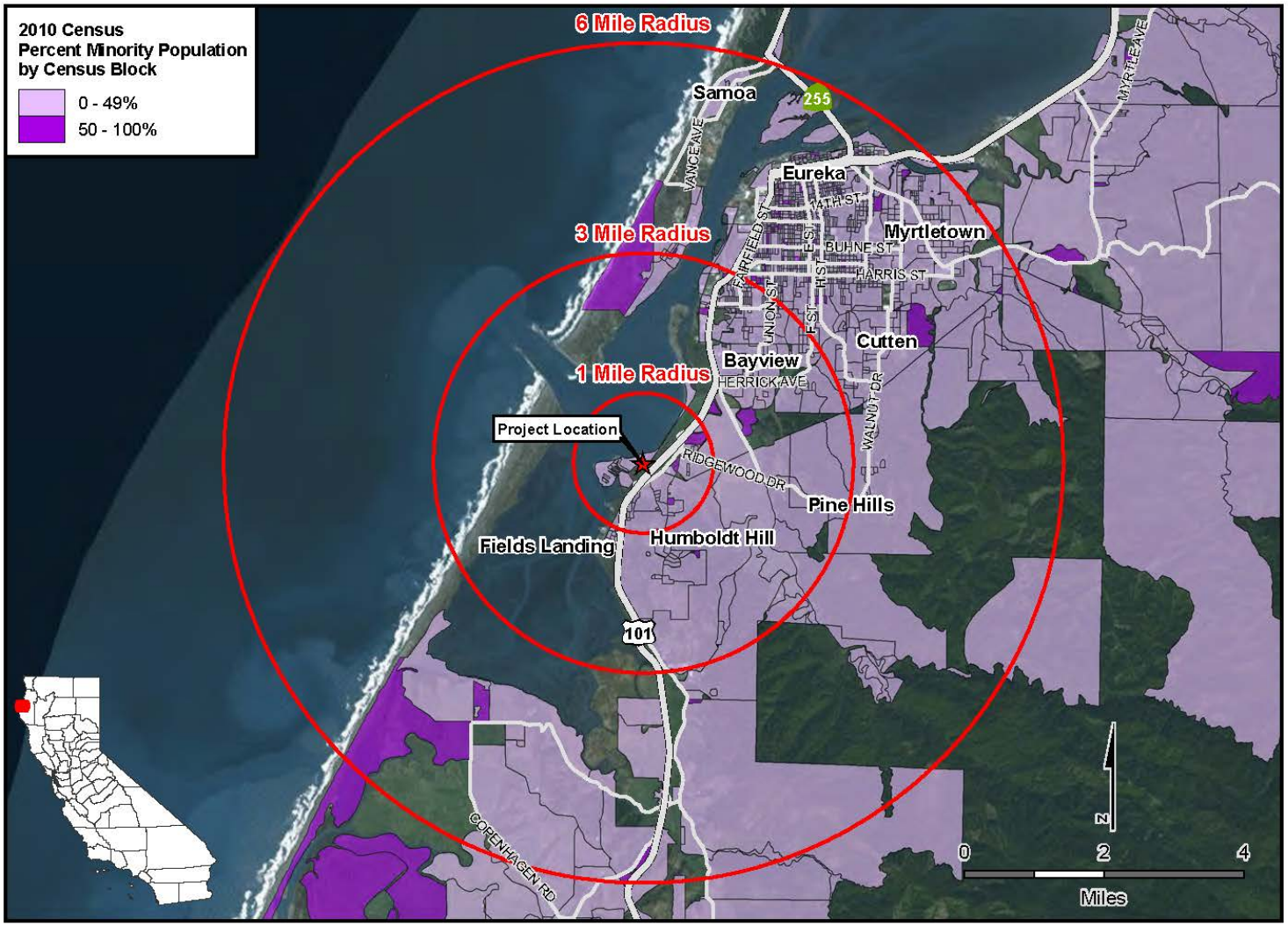
STAFF RECOMMENDATIONS AND CONCLUSIONS

Staff concludes that the following required findings, mandated by Title 20, California Code of Regulations, section 1769 (a)(3), can be made, and staff recommends approval of the petition by the Energy Commission:

- The facility would remain in compliance with all applicable LORS;
- The change will be beneficial to the applicant and the modifications proposed in the petition are necessary to integrate the operation of the HBGS with intermittent renewable energy resources (e.g. wind and solar), to remain in compliance with applicable air quality regulations and permits;
- The proposed modification is justified because there has been a substantial change in circumstances since the Energy Commission certification, in that the original data used as the basis for project licensing were considered the best available data at the time. In addition, the proposed changes in the increase in monthly startups and shutdowns are necessary to integrate the operation of the HBGS with intermittent renewable energy resources in compliance with applicable air quality regulations and permits.

ENVIRONMENTAL JUSTICE - FIGURE 1

Humboldt Bay Generating Station - Census 2010 Minority Population by Census Block

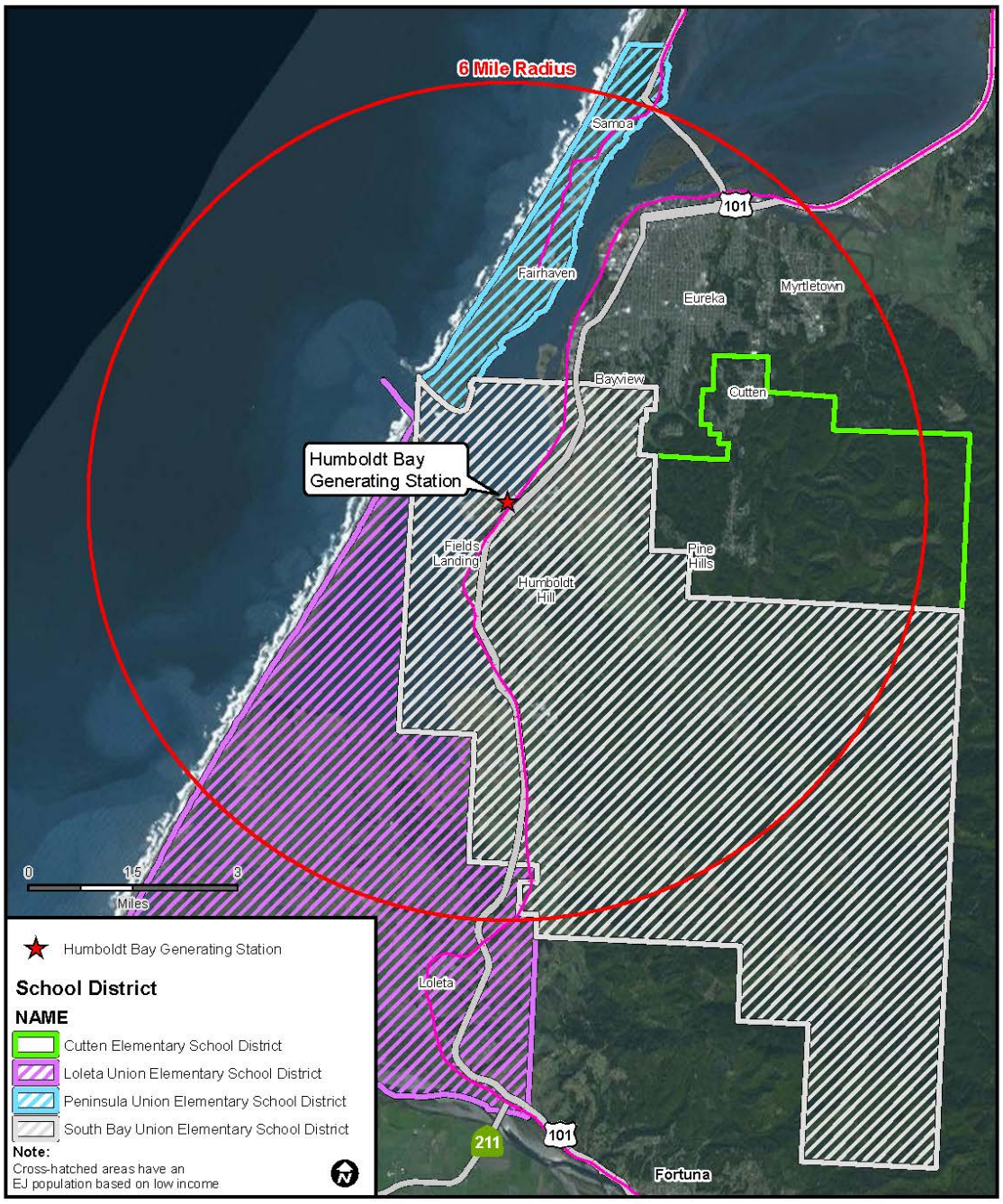


CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: Census 2010 PL 94-171 Data

ENVIRONMENTAL JUSTICE - FIGURE 2

Humboldt Bay Generating Station- Environmental Justice Population Based on Low Income



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCES: TIGER Data, CA Dept. of Education Data Quest

AIR QUALITY AND PUBLIC HEALTH

William Walters, P.E.; Brewster Birdsall, P.E., QEP; Alvin Greenberg, Ph.D.
May 2018

SUMMARY OF CONCLUSIONS

The HBGS is a dual-fueled power plant that began initial commercial operation in 2010. The primary fuel is natural gas with diesel pilot injection; the secondary mode is to operate exclusively on diesel fuel.

With the adoption of the attached amended conditions of certification (COCs), the proposed amended HBGS project would conform with applicable federal, state, and North Coast Unified Air Pollution Control District (District or NCUAQMD) air quality laws, ordinances, regulations, and standards (LORS), and the proposed amended HBGS project would not result in significant air quality or public health related impacts.

This amendment presents new information and changed circumstances requiring new air quality analysis for the following reasons: (1) PG&E's amendment proposes an increase to the hourly and daily (but not annual) diesel pilot fuel used during natural gas operating mode; (2) the amendment includes a number of changes to the District permit conditions that have occurred and these changes need to be incorporated into the Energy Commission's license for this project since the last air quality amendment for this project was processed in 2010 (CEC 2010a, CEC Order No. 10-0421-3).

All air quality issues related to the amended project have been addressed in the District's current Title V Permit for the amended project, most recently revised by the District on December 18, 2017 (NCUAQMD 2017a); PG&E has filed to renew the current Title V Permit, which expired on March 16, 2018. Since the last amendment by the Energy Commission in 2010, the District has also modified the project's Title V permit to address other administrative permit issues. This amendment addresses all changes to the District's Title V permit for this project that have occurred since the 2010 amendment approval.

Staff has reviewed the potential impacts to public health due to this amendment and has determined that the proposal to increase the diesel pilot fuel use limit would not change the ability of the HBGS to comply with existing permitted emissions limits that have been previously found by staff to not create a significant risk to attainment of ambient air quality standards or to public health.

Greenhouse gas (GHG) emissions from the project are not affected by this amendment.

INTRODUCTION

This analysis evaluates the expected air quality impacts of the emissions of criteria air pollutants due to the operation of the proposed amended HBGS by PG&E. The HBGS is a load-following power plant consisting of ten (10) natural gas-and diesel-fired Wärtsilä 18V50DF 16.3 megawatt (MW) reciprocating engine-generator sets and

associated equipment with a combined nominal generating capacity of 163 MW. The facility operates primarily on natural gas but can operate exclusively on diesel fuel when the natural gas pipeline does not have enough capacity to serve the power plant along with other natural gas demand in the area, especially for wintertime space heating requirements.

The HBGS project certified by the Energy Commission in 2008 replaced the aging 105 MW Units #1 and #2 and the two 15 MW Mobile Emergency Power Plants (MEPP) at PG&E's Humboldt Bay Power Plant. The HBGS completed all initial commissioning activities and started partial commercial operation in 2010, with full operation of all new units in 2011.

A petition to amend the air quality COCs was submitted by PG&E on June 6, 2016 (PG&E 2016; Docket Number 06-AFC-07C, TN 211728). After Energy Commission staff conducted initial discovery and one round of data requests, the petition to amend was substantially revised on June 29, 2017 (PG&E 2017a; TN 219973).

PG&E's 2017 amendment seeks to revise permit conditions for the project, but does not seek to make any physical changes to the engines, the fuel delivery system, or the emissions control devices.

In this amendment PG&E proposes to (PG&E 2016, 2017a):

1. Increase the natural gas operating mode diesel pilot heat limit from 0.8 MMBtu/hour to 2.0 MMBtu/hour on a maximum hourly and daily basis for each of the 10 engine/generators.

2. Reduce the PM10 emissions rate during diesel mode operation from 10.8 lbs/hour to 5.5 lbs/hour, to allow HBGS to operate all 10 engines in diesel mode for 24 hours a day and not exceed the 24-hour combined engine PM10 emissions limit.

3. Reduce source test frequency for diesel mode operation, which will reduce the project's diesel fuel use relative to existing operations.

4. Align the Energy Commission's air quality conditions of certification with the District's current Title V Permit conditions.

The current conditions of certification for this project were set by the May 2010 Energy Commission Decision on the first PG&E amendment request for air quality (CEC 2010a, CEC Order No. 10-0421-3). This is the second proposed amendment to the air quality conditions of certification for this project.

This staff analysis evaluates the consistency of the proposed changes with the Energy Commission's amended 2010 decision and whether the project as modified would remain in compliance with applicable laws, ordinances, regulations, and standards, and whether the proposed modifications would result in a significant adverse direct or cumulative impact to the environment [Title 20, California Code of Regulations, section 1769(a)(2) and (a)(3)].

Staff's analysis includes a summary update of relevant setting information and a discussion of the emissions and impacts related to the amendment. Many of the project's operating air quality conditions have been revised by the District since the 2010 Commission amendment approval. The complete revisions required to align the Commission decision with the District's current Title V permit for HBGS are provided in this analysis. Most of the District's conditions have had some form of editing or have been renumbered.

SETTING

AMBIENT AIR QUALITY STANDARDS

The U.S. Environmental Protection Agency (U.S. EPA) and the California Air Resources Board (CARB) have both established allowable maximum ambient concentrations of criteria air pollutants. Ambient air quality standards are designed to protect people who are most susceptible to respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and people engaged in strenuous work or exercise. The federal ambient air quality standards are also set to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

The California Ambient Air Quality Standards (CAAQS), established by CARB, are typically lower (more stringent) than the federally established national ambient air quality standards (NAAQS). See **Air Quality Table 1,** below. The averaging time for the various ambient air quality standards (the duration of time the measurements are taken and averaged) ranges from one hour to one year. The standards are read as a concentration, in parts per million (ppm), parts per billion (ppb), or as a weighted mass of material per unit volume of air, in milligrams (mg) or micrograms (µg) of pollutant in a cubic meter (m^3) of ambient air, drawn over the applicable averaging period.

The 1-hour federal NO_2 and SO_2 standards were promulgated after the HBGS was initially licensed in 2008, and were implemented after the 2010 amendment. The operational changes proposed in this requested amendment were evaluated to ensure compliance with these newer and current ambient air quality standards.

AMBIENT AIR QUALITY ATTAINMENT STATUS

HBGS is south of Eureka, within unincorporated Humboldt County and the North Coast Air Basin (NCAB). This portion of the NCAB is in attainment/unclassified of all NAAQS (U.S. EPA 2017b) and is in attainment of all CAAQS except PM10 (CARB 2017b). These federal and state ambient air quality attainment status designations have not changed since the original 2008 Energy Commission Decision for HBGS.

Air Quality Table 1
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Standard	California Standard
Ozone (O_3)	8 Hour	0.070 ppm (137 µg/m^3)[a]	0.070 ppm (137 µg/m^3)
	1 Hour	—	0.09 ppm (180 µg/m^3)
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
	1 Hour	35 ppm (40 mg/m^3)	20 ppm (23 mg/m^3)
Nitrogen Dioxide (NO_2)	Annual	53 ppb (100 µg/m^3)	30 ppb (57 µg/m^3)
	1 Hour	100 ppb (188 µg/m^3)[b]	180 ppb (339 µg/m^3)
Sulfur Dioxide (SO_2)	24 Hour	—	0.04 ppm (105 µg/m^3)
	3 Hour	0.5 ppm (1300 µg/m^3)	—
	1 Hour	75 ppb (196 µg/m^3)[c]	0.25 ppm (655 µg/m^3)
Respirable Particulate Matter (PM10)	Annual	—	20 µg/m^3
	24 Hour	150 µg/m^3	50 µg/m^3
Fine Particulate Matter (PM2.5)	Annual	12 µg/m^3	12 µg/m^3
	24 Hour	35 µg/m^3	—
Sulfates (SO_4)	24 Hour	—	25 µg/m^3
Lead	30 Day Average	—	1.5 µg/m^3
	Rolling 3-Month Average	1.5 µg/m^3	—
Hydrogen Sulfide (H_2S)	1 Hour	—	0.03 ppm (42 µg/m^3)
Vinyl Chloride (chloroethene)	24 Hour	—	0.01 ppm (26 µg/m^3)
Visibility Reducing Particulates	8 Hour	—	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.

Source: CARB 2016
Notes: [a] Fourth- highest maximum 8 – hour concentration, averaged over 3 years.
[b] 98th percentile of daily maximum value, averaged over 3 years
[c] 99th percentile of daily maximum value, averaged over 3 years

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

No LORS applicable to the proposed amendment have changed since the amended Energy Commission decision was published in May 2010, other than the 1-hour NO_2 and SO_2 NAAQS that were subsequently implemented (CEC 2010b; NCUAQMD 2017b).

ANALYSIS

OPERATION SUMMARY

The ten dual-fuel engine-generator sets (S-1 to S-10) at HBGS can operate on either natural gas or diesel fuel. When the facility is operated on natural gas, a small amount of diesel fuel must be used as a pilot to ignite the natural gas. This occurs when the dual-fueled engines are in the “natural gas mode” and the co-fired diesel fuel is called “diesel pilot fuel.” The engines have the capability of switching fuel types without interruption to power generation.

PG&E is requesting to increase the short-term (hourly and daily) natural gas mode diesel pilot fuel use from the currently permitted 0.79 MMBtu/hour per engine to up to 2.0 MMBtu/hour per engine. The primary reason for this request was to stabilize engine operation in the primary natural gas mode because the engine trips to diesel mode when in-cylinder temperatures drop below a critical temperature. PG&E expects to avoid these low temperature conditions with the proposed higher diesel pilot fuel flow rate.

The petition to amend was originally filed by PG&E on June 6, 2016, and at that time, it requested a substantial increase in the limitation on annual diesel pilot fuel use during operation in the natural gas mode, from 376,734 gallons per year to 948,562 gallons per year. After Energy Commission staff conducted initial discovery and one round of data requests, PG&E revised its 2016 request with a letter dated June 28, 2017 to maintain the originally licensed maximum annual diesel pilot fuel use while proposing only to increase the allowable hourly and daily diesel pilot fuel use. While the limits on hourly and daily diesel pilot fuel use would increase with this amendment, the total annual permitted rate of diesel fuel use would not change.

Air Quality Table 2 summarizes the existing and proposed fuel firing limitations for both fuels.

Air Quality Table 2
HBGS, Engines S-1 to S-10, Summary of Fuel Firing Limitations

Operating Mode	Fuel Type	Hourly (per engine)	Daily (per engine)	Annual (all engines combined)
Existing Limits				
Natural Gas Mode	Natural Gas	143.9 MMBtu	3,454 MMBtu	9,277,233 MMBtu
	Diesel (pilot)	0.8 MMBtu (5.84 gallons)	19 MMBtu (140.2 gallons)	51,576 MMBtu (376,734 gallons)
Diesel Mode	Diesel	148.9 MMBtu (1,088 gallons)	3,574 MMBtu (26,106 gallons)	148,900 MMBtu (1,087,630 gallons)
All Modes Combined	Diesel	---	---	1,464,364 gallons
Proposed Limits				
Natural Gas Mode	Diesel (pilot)	**2.0 MMBtu** (14.61 gallons)	**48 MMBtu** (350 gallons)	(No change)

Source: Existing Limits (CEC 2010a); Proposed Limits (PG&E 2017a; TN 219973).

Staff explored the need for changing the pilot fuel use limits and provided PG&E with questions and data requests on September 19, 2016. PG&E's responses (PG&E 2017a and 2017b; TN 219973 and TN 219972) indicated that the engine manufacturer remains engaged with PG&E in discussions regarding "dependability" problems. However, PG&E did not indicate why occasional engine trips to diesel mode were a substantial problem to engine operation. PG&E indicates that each unplanned trip lasts an average of 3.3 minutes of time spent in diesel mode. For all ten engines combined, the time spent in diesel mode due to unplanned trips was 18.4 hours in 2015 and 13.1 hours in 2016 (PG&E 2017b; TN 219972).

Staff also sought a comprehensive review of fuel use to assess whether the current situation represents an unnecessary or wasteful use of diesel, in a data request on September 26, 2017. Data on fuel use showed that the quantity of diesel used during short-term unplanned engine trips to diesel mode was relatively small, at roughly 9,000 gallons in 2015 and 6,500 gallons in 2016 (PG&E 2017c; Responses to Data Request No. 2, TN 222028).

Air Quality Table 3 summarizes the existing annual diesel fuel use rates, the reasons for diesel use, and shows how the historic use of diesel has been well within the limits.

Air Quality Table 3
HBGS, Engines S-1 to S-10, Historic Annual Diesel Fuel Used (in gallons)

Mode	Reason for Diesel Use	2011	2012	2013	2014	2015	2016	Annual Limits
Natural Gas Mode	Pilot Fuel	170,363	157,152	143,375	149,225	167,716	86,276	**376,734**
Diesel Mode	Unplanned Trips	4,294	4,278	2,714	4,554	8,999	6,506	**1,087,630**
	Natural Gas Curtailment	95,722	44,316	90,402	0	0	0	
	Source Testing	94,447	62,952	59,144	78,624	43,099	11,119	
	Routine O&M Testing	23,953	45,404	3,687	151	400	1,876	
Total Diesel Use (Engines S-1 to S-10 combined, in gallons)								
All Modes	Total Diesel	388,781	314,102	299,322	232,554	220,213	105,776	**1,464,364**

Note: The total diesel consumed in all modes contains +/- 1 percent error due to minor inaccuracies in the historic summations of the different modes of operation and totalizing parameters, which PG&E is "actively working" to improve.
Source: Responses to data requests on historic total diesel usage per year (PG&E 2017c; TN 222028).

PG&E's data (**Air Quality Table 3**) shows that in recent years (2014-2016) more diesel has been used for natural gas mode pilot fuel than for diesel mode. With no curtailments of natural gas supplies in recent years, the engines entered diesel mode only for testing and the unplanned trips. Because the amounts of diesel used as a pilot in natural gas mode exceed the relatively small amounts of diesel used in diesel mode, increasing the use of diesel as a pilot in natural gas mode could cause a measurable increase in facility wide diesel use.

Allowing the hourly and daily diesel pilot fuel flows to increase above the existing short-term limit of 0.8 MMBtu/hour per engine would give PG&E more control over how diesel is used. PG&E describes the fuel delivery system as follows: "*There are a total of 4 diesel flow meters on each engine. Two each for [diesel] pilot and diesel [mode], consisting of an inlet and outlet meter. The fuel coming out of the unit (outlet) is recorded against the fuel going into the unit (inlet), to determine the fuel consumption. This applies for both the pilot and diesel meters. It is a bulk monitoring system, and the fuel is applied evenly across all cylinders. There is no way to enrich individual cylinders with extra diesel fuel.*" (PG&E 2017c; Response to Data Request No. 2, TN 222028). Because pilot fuel heat cannot be injected into specific cylinders that fall below the critical temperature, staff agrees with PG&E that greater amounts of pilot fuel should be allowed to flow into each engine, on an hourly or daily basis.

Allowing more diesel pilot fuel to enter each engine should avoid the low temperature conditions in specific cylinders and also avoid the unplanned and unnecessary trips into diesel mode. Therefore, this change should significantly reduce or eliminate the amount diesel used during short-term unplanned trips, from up to 9,000 gallons annually. This reduction would offset the proposed increase in use of diesel as a pilot in natural gas mode.

The petition to amend would also reduce the amount of time spent in source testing for diesel mode. PG&E stated in the petition that a "reduction in diesel source testing should result in a significant reduction in the total amount of diesel fuel burned per year" and that "the modifications proposed in this petition will have no effect on the public." (PG&E 2016; TN 211728, Section 1.5, pp. 1-2 to 1-3.) In the responses to the first data requests, PG&E additionally stated "On an annual basis, PG&E expects a decrease in the annual average diesel use. . ." (PG&E 2017b; TN 219972, p.1).

Based on the staff review of historic operations and comprehensive fuel use data (**Air Quality Table 3**), staff expects no substantial change in annual diesel use. Facility-wide use of diesel should continue to vary within permit limits and within historic totals. While diesel would be increasingly used for pilot fuel in natural gas mode, the annual limits would not change, and less diesel would be used for source tests and unplanned trips.

EMISSIONS ANALYSIS

Based on our review of operations, staff anticipates little annual change in overall diesel use by the facility as a result of this petition. Although the petition to amend would increase the allowable level of hourly and daily diesel use to achieve adequate pilot heat, PG&E has a financial interest in using as little diesel fuel as possible because natural gas is available at much lower cost. PG&E expects to continue operating near the current pilot heat input limit (0.8 MMBtu/hr) to avoid unnecessary use of diesel (PG&E 2017b; TN 219972).

To evaluate the potential effects on engine emissions, staff conducted a comprehensive review of source testing results provided for compliance purposes by PG&E to the Energy Commission between 2010 and 2016.

The requested changes to the operating conditions would not increase permitted emissions limits. The only emissions limit change requested is a reduction in the hourly PM10 emissions limit during diesel mode operation, from 10.8 lb/hr as in the Energy Commission's license to 5.5 lb/hr per engine (PG&E 2016; TN211728). However, this amendment does not change the permitted daily or annual PM10 emissions limits. Staff agrees to the reduction in the diesel mode hourly PM10 emission limit, and notes that all source tests conducted since 2010 have complied with this proposed emissions limit.

Staff specifically examined the source tests for findings on the portion of PM10 emissions that are categorized as diesel particulate matter (DPM), because DPM is a toxic air contaminant subject to limits in the **Air Quality** and **Public Health** conditions of certification. By regulatory definition, DPM is the filterable particulate matter (PM) measured using U.S. EPA Method 5. For HBGS in diesel mode, DPM is limited in the Energy Commission's license to 5.56 lb/hr per engine, and would be effectively limited

by the overall requested change to the PM10 limit of 5.5 lb/hr per engine. In natural gas mode, only a small portion of the overall heat input is from the combustion of diesel fuel. In contrast, the regulatory test methods require all of the filterable PM from the dual-fuel engines to be deemed 100% DPM (17 CCR 93115.13 and 93115.14). Staff believes this conservatively overestimates DPM in natural gas mode because the majority of the heat input is from the combustion of natural gas not diesel. The measured DPM emissions are effectively limited by the overall PM10 limits.

Air Quality Table 4 summarizes staff's review of historic source tests for actual DPM emissions in diesel mode and in natural gas mode, measured according to the regulatory and permitted definition of DPM. **Air Quality Table 4** shows how the average measured DPM emissions have been well within the current and proposed emissions limits.

Air Quality Table 4
HBGS, Engines S-1 to S-10, Average Source Test Results (DPM lb/hr per engine)

Operating Mode	2010 Tests	2011 Tests	2012 Tests	2013 Tests	2014 Tests	2015 Tests	Limits
Natural Gas Mode	0.600	0.588	ND	ND	0.099	ND	**3.6 (PM10 limit)**
Diesel Mode	0.601	0.501	0.756	0.835	0.430	1.243	**5.56 (DPM limit) 5.50 (New PM10 limit)**

Source: Staff review of PG&E source test reports submitted to the Energy Commission.
Notes: DPM is measured using U.S. EPA Method 5, with all of the filterable PM from the dual-fuel engines deemed 100% DPM (17 CCR §93115.13 and 93115.14). Tests in 2016 were for partial load operation and are not included here. ND: Not detected.

Increasing the hourly and daily amount of diesel used as a pilot in natural gas mode may slightly increase the DPM emissions during natural gas mode operation, but any increase would not be expected to cause the DPM emission rates to exceed the natural gas mode emissions limits, which are in terms of PM10, not DPM. **Air Quality Table 4** demonstrates that hourly DPM emission rates are well within the short term limits for PM10 and DPM, and tend to be lower when in natural gas mode. (Note averaged test results in 2011 were higher in natural gas mode than diesel mode.) As stated earlier, the emissions limits would not increase, and existing annual limits on fuel use would not change. Based on this review of historic diesel fuel use, and the related emissions, staff agrees that the increase in short-term diesel pilot fuel use would not cause an adverse air quality impact.

PG&E is also requesting to change the frequency and types of source tests required. There have been many source tests conducted since 2010, at various load levels in each engine in both diesel and natural gas modes, with all tests showing compliance with emissions limits. PG&E also provided estimates of diesel fuel use while in diesel mode operation for source testing, and that estimate indicates that source testing requirements have caused between 38.3 to 91.4 percent of the total annual diesel mode diesel fuel use from 2012 through 2016, and an overall average total of 52.3 percent combined during this period, which is 24.3 percent of the average total diesel fuel use, including diesel pilot fuel, during this period. Therefore, given the ongoing compliance

demonstration with facility emission limits and the beneficial reduction in diesel fuel use that would occur with a reduction in source test mandated diesel mode operation, staff agrees that the frequency of diesel mode source testing can be reduced without causing an adverse air quality impact.

Major administrative changes completed by the District to the HBGS Title V Permit include removal of all conditions related to the main engine commissioning period, the Health Risk Assessment (HRA), equivalent engine design, other conditions found to be duplicates or otherwise unnecessary, and a condition regarding the initiation of the Title V permitting process. Minor administrative changes include renumbering the District conditions citations to match current District rules and regulations numbering format and including reference to the U.S. EPA Prevention of Significant Deterioration permit where appropriate. Staff did not include minor editorial revisions such as capitalization where such edits are non-substantive and/or not completed consistently throughout the conditions and in those cases staff chose a consistent method which may or may not exactly match the District conditions.

AIR QUALITY IMPACTS ANALYSIS

The results of the air quality impact analysis performed in 2008 during initial permitting would not be affected by the requested changes to the operating conditions. The permitted maximum emissions of each pollutant, during the averaging periods relevant to the ambient air quality standards, have not changed. However, since the time of that original analysis, new 1-hour SO_2 and NO_2 NAAQS have been implemented. The original modeling analysis conducted for the HBGS did not include appropriate frequency determination of impacts to properly analyze compliance with these NAAQS because the 1-hour SO_2 and NO_2 NAAQS are based on the three-year average of the 99^{th} and 98^{th} percentile of the maximum daily 1-hour peak concentrations, respectively. However, because the absolute peak HBGS hourly modeled impacts for SO_2 (139.6 $\mu g/m^3$) were determined to be below the 1-hour SO_2 NAAQS (196 $\mu g/m^3$), the existing and permitted HBGS emissions would comply with the newer three-year SO_2 standard (see CEC 2008; Tables 17 and 18).

To determine compliance with the 1-hour NO_2 NAAQS, staff conducted a review of the air quality monitoring data from the two currently operating Eureka ambient air quality monitoring stations. One is the Eureka-Humboldt Hill station and the other is the Eureka-Jacobs (ARB 2017b) station. Both monitoring stations have been in operation at least since 2011, essentially since the HBGS has been in commercial operation. The maximum monitored NO_2 concentrations since 2011, in terms of the 1-hour NO_2 NAAQS 98th percentile basis, are 6.5 $\mu g/m^3$ and 25.7 $\mu g/m^3$, respectively. These background concentrations include the emissions from the existing and permitted HBGS and are substantially below the 100 $\mu g/m^3$ NAAQS. Based on this data, operation of the HBGS has not caused or contributed to, and is not likely to cause or contribute to, a violation of the newer NO_2 NAAQS, even with the proposed increase in diesel pilot fuel use during the natural gas mode of operation. Emissions of NOx from the dual-fuel engines S-1 through S-10 are controlled with a selective catalytic reduction (SCR) system including continuous emissions monitors.

Therefore, staff concludes that this amendment does not change the impact conclusions of either the 2008 Final Staff Assessment or the 2010 Amendment Staff Assessment. The amended project, with the recommended conditions of certification, would not create significant air quality impacts.

Environmental Justice

Staff's analysis considers the amended project's air quality impacts on sensitive populations, which would include those identified as environmental justice populations. As Air Quality impacts would be reduced to less than significant for the sensitive populations, likewise the impacts would be reduced to less than significant for the environmental justice population identified near the project.

PUBLIC HEALTH IMPACTS ANALYSIS

In 2008, staff conducted a human health risk assessment (HRA) for the then-proposed project assuming 510 hours in diesel mode per year and determined that the risk of cancer due to emissions from the Wärtsilä engine stacks (18 excess cancers in one million) would be above the level of significance (10 excess cancers in one million) (CEC 2008). This modeling also concluded that no acute (short-term) or chronic (long-term) non-cancer health impacts would be expected to occur to any members of the public including low income and minority populations. The applicant's HRA concluded that the risk would be less (9.8 excess cancers in one million) and therefore less than the level of significance.

Staff determined the difference between the applicant's and staff's results was most likely due to the different air dispersion models used. The applicant used both the AERMOD and CTSCREEN models while staff used the AERMOD model. Both models are EPA-approved and at that time both were approved for use by the California Office of Environmental Health Hazard Assessment (OEHHA) in human health risk assessments when complex (elevated) terrain is present. Staff does not believe that the use of AERMOD alone for elevated terrain is a simplification of assumptions and treatment of elevated terrain, as suggested by the applicant. Nor did staff believe that the applicant's use of both AERMOD and the screening model CTSCREEN is less simple or more sophisticated. However, staff reviewed the applicant's use of the CTSCREEN model and found that it was used and applied correctly.

Therefore, given that neither air dispersion model has a significant advantage over the other and thus neither is more precise than the other, staff agreed to accept the applicant's modeling and concluded that the risk of cancer is below the level of significance. The 2008 Condition of Certification **Public Health-1** restricted the use of the Wärtsilä engines in diesel mode to 510 hours per year (total from all 10 engines), and included **Public Health-2**, which required the project owner to provide a revised HRA incorporating the results of source tests on the engines after they started commercial operation.

After reaching commercial operations, the project owner filed a Revised HRA (Atmospheric Dynamics 2011) as a compliance submittal for condition **Public Health-1** and **Public Health-2** that used measured DPM emissions from source tests and

requested that the annual hourly limit of diesel fuel use when operating in diesel mode be increased to 1,000 hours. Total site annual diesel fuel use was not changed. Staff reviewed and approved this increase (CEC 2011).

It should be noted that the original staff public health assessment (CEC 2008), the applicant's public health assessment in the AFC, and the applicant's 2011 Revised HRA, all prepared and presented HRAs considering the impacts of DPM emissions only from diesel fuel used when in diesel mode. The previous HRAs did not assess the impacts of DPM emissions from diesel used as a pilot fuel during natural gas mode or during emissions testing (see Conditions of Certification **Public Health-1** and **Public Health-2**, Final Decision 2008). When in natural gas mode, the emissions limits are in terms of PM10, not DPM. When in natural gas mode, the original diesel heat input rate in the pilot was no more than 0.56% of the total fuel heat input, and the proposed amendment would change this limit to 1.39%. Therefore, DPM would be a small portion of the natural gas mode PM10 hourly emissions under this amendment.

Staff reviewed the current version of the revised Petition to Amend (PG&E 2017a; TN 219973), and determined that the original restriction on time spent in diesel mode, as in **Public Health-1**, does not adequately address the potential emissions of DPM or the health risks posed by the use of diesel fuel at all sources at the facility. The original restriction on time in diesel mode did not include the DPM emissions during use of diesel as a pilot fuel, and DPM from the other emergency-use diesel engines (S-11 and S-12) at the facility. Therefore, staff proposes that existing condition **Public Health-1** be revised to reflect a limit in the total number of gallons of diesel used in any one-year period, regardless of when and how that diesel fuel is used (i.e., in diesel mode, as a pilot in natural gas mode, during source testing, or during emergency diesel pump/generator testing). Staff proposes to limit facility-wide diesel fuel use by all stationary engines including emergency-use engines (S-11 and S-12) at a level equal to the limit for the 10 dual-fuel engine-generator sets in Condition of Certification **AQ-89.** This ensures that no more than 1,464,364 gallons of diesel fuel per year would be used for all uses combined. This revision simplifies and clarifies the limit of diesel fuel allowed to be used each year.

Staff also proposes to delete the requirement for initial commercial operation TAC emissions testing and revising the HRA as found in existing condition **Public Health-2** because these requirements were satisfied in 2011. Further source testing of the Wärtsilä engines will continue to be required by conditions **AQ-138**, **AQ-139**, **AQ-140**, and **AQ-141**, and the engines are subject to continuous emissions monitoring (CEM) for criteria air pollutants (**AQ-79**). Condition **AQ-131** requires a complete emissions inventory be prepared annually that includes TACs and for this information to be submitted to the District Air Pollution Control Officer and the Energy Commission by March of the following year.

Accordingly, staff proposes to revise **Public Health-2** to retain source testing for TACs consistent with the schedule specified by the original permit (after 10 years of commercial operation) and to add to that requirement that this testing be conducted every subsequent 15 years of operations, and at or near 100% load, in conjunction with the testing required in conditions **AQ-138**, **AQ-139**, **AQ-140**, and **AQ-141**. Staff

concludes that source testing for TACs every 15 years at or near 100% load will allow the project owner and Energy Commission staff the ability to monitor TAC emissions over time as the engines age and thus further protect public health.

Staff's concerns about the potential health risk posed to the neighboring community from the permitted level of 1,464,364 gallons diesel fuel per year is mitigated by the following facts:

1. The project has not used the permitted volume of diesel fuel in any of the past eight years of commissioning and operations, the amount of diesel used by the HBGS each year for all uses is far below the permitted amount, and thus the actual health risks are lower than what would be calculated using the permitted level.

2. With this amendment PG&E did not request any changes that would increase the existing permitted emissions limits.

3. If PG&E had proposed to increase a permitted emissions limit that could lead to an increase in potential health risks, staff would have required PG&E to update the HRA.

Environmental Justice

Staff's analysis considers the amended project's Public Health impacts on sensitive populations, which would include those identified as environmental justice populations. As Public Health impacts would be reduced to less than significant for the sensitive populations, likewise the impacts would be reduced to less than significant for the environmental justice population identified near the project.

CONCLUSIONS AND RECOMMENDATIONS

Staff concludes that:

- The amended project would comply with applicable District rules and regulations, and staff recommends inclusion of the District's HBGS Title V Permit conditions as Conditions of Certification **AQ-1** through **AQ-149**.
- The project's amended operating conditions of certification would not cause new exceedances of any NO_2, SO_2, PM2.5, or CO ambient air quality standards; therefore, the amended project's direct operation NOx, SOx, PM2.5, and CO emission impacts are not significant.
- The project's amended operating conditions of certification would not change the ability of the HBGS to comply with existing permitted emissions limits or cause substantial new emissions of toxic air contaminants; therefore, the operations of HBGS would not change from those previously found to not create a significant risk.
- With the conditions of certification recommended by staff, and the amended conditions of certification in the District's Determination of Compliance, the project will comply with all applicable LORS.
- The maximum permitted greenhouse gas (GHG) emissions from the amended project are not affected by the revisions to the project's operating conditions. Therefore, the GHG emissions impacts would not change from what has been previously analyzed.
- Staff has considered the demographics of the population surrounding the site. See **Environmental Justice Figure 1**, **Figure 2**, and **Table 1** and information updated by PG&E in response to staff data requests (PG&E 2017b; TN 219972). Since the amended project's direct and cumulative air quality and public health impacts have been reduced to less than significant and impacts in these technical areas are measured for sensitive populations, which include those identified as an environmental justice population, air quality and public health impacts from the modification are reduced to less than significant for the environmental justice population.

PROPOSED AMENDED AIR QUALITY CONDITIONS OF CERTIFICATION

Staff recommends the following modified conditions of certification to incorporate the District's edits to the HBGS Title V Permit. This permit has been modified since the Energy Commission's 2010 amendment approval to address the PG&E's amendment requests, and the permit has also been modified by the District to address administrative issues.

DEFINITIONS

All definitions are new to the Energy Commission license and incorporated from the District HBGS Title V Permit. As used for these conditions and verifications, the following terms shall have the meaning set out herein.

Acfm: actual cubic feet per minute

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

APCO: the District Air Pollution Control Officer

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

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

CAM Plan: Compliance Assurance Monitoring Plan, as defined in 40 CFR 64

CARB or ARB: the California Air Resources Board

CEMS: Continuous Emissions Monitoring System

CFR: the Code of Federal Regulations

Corrected Concentration: The concentration of any pollutant (generally NO_x, CO, ROC, or NH_3) corrected to a standard stack gas oxygen concentration. For emission points S-1 through S-12, the standard stack gas oxygen concentration is 15% O_2 by volume on a dry basis

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.

Diesel Mode Startup: a Startup Period during which the reciprocating engines operates in Diesel Mode for periods not exceeding one hundred and twenty (120) seconds, excluding Operational Mode Transfer events.

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.

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 or 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.

District: North Coast Unified Air Quality Management District

Dscfm: dry standard cubic feet per minute

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.

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.

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.

EPA or U.S. EPA: the United States Environmental Protection Agency

Facility: the site of the Humboldt Bay Generating Station at HBPP

Firing Hours: Period of time during which fuel is flowing to a unit, measured in minutes divided by 60

HBGS: Humboldt Bay Generating Station

Heat Input: the energy (heat) input of the fuel combusted at the higher heating value (HHV) of the fuel

HHV: Higher Heating Value

Hr: one hour – a standard measurement of time

H_2S: Hydrogen Sulfide

Lb: pound – an English unit of measurement of weight and mass being equivalent to 7000 grains, 16 ounces, and 0.453 kilograms

Maintenance and Testing – Wärtsilä Engines: Operation of the Wärtsilä 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.

MMBtu: million British thermal units

Natural Gas: any mixture of gaseous hydrocarbons containing at least 80 percent methane by volume as determined by Standard Method ASTM D1945-64

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).

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.

Natural Gas Mode Startup: Startup Period during which the reciprocating engine operates in Diesel Mode for 120 seconds or less.

NFPA: National Fire Protection Association

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

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

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”.

Operational Mode Transfer: the switching of fuel mode while operating at engine loads greater than 50%.

O_2: Oxygen

Permittee: the owner or operator identified on the Permit title page (PG&E)

PM: Particulate Matter

Ppmvd: parts per million, volumetric dry

Responsible Official: person(s) who have direct supervisorial 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

Rolling 3-hour Period: Any consecutive three-hour period, not including start-up or shut-down periods

ROC: reactive organic compound consistent with District Rule 110

Quarter: calendar quarter, consisting of the following Q1 - January through March; Q2 - April through June; Q3 - July through September; Q4 - October through December

Shutdown Period: The 30 minute period immediately prior to the termination of fuel flow to the reciprocating engine.

SO_2: Sulfur Dioxide

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.

VEE: Visible emissions evaluation

Year: Any consecutive twelve-month period of time

STAFF RECOMMENDED CONDITIONS OF CERTIFICATION

Staff Conditions of Certification (**AQ-SC1** through **AQ-SC9**) have not changed since the Energy Commission's 2010 amendment approval. However, many are currently obsolete. Staff proposes to retain most of these conditions to be used for any minor construction activities but would recommend updating them in a future amendment analysis if major construction is to be conducted at that time; other conditions require additional clarity and staff recommends that these conditions be retained and amended. The conditions of certification below include approved conditions of certification from the licensed HBGS related to construction of the HBGS and GHG emissions inventory requirements that pre-date ARB GHG emissions inventory regulations. The GHG emissions inventory requirement is now state law and this condition is no longer needed. (Note: Deleted text is in ~~strikethrough~~, new text is **bold and underlined**.)

AQ-SC1 Air Quality Construction Mitigation Manager (AQCMM): The project owner shall designate and retain an on-site AQCMM who shall be responsible for directing and documenting compliance with conditions **AQ-SC3, AQ-SC4** and

AQ-SC5 for the entire project site and linear facility construction. The on-site AQCMM may delegate responsibilities to one or more AQCMM delegates. The AQCMM and AQCMM delegates shall have full access to all areas of construction on the project site and linear facilities, and shall have the authority to stop any or all construction activities as warranted by applicable construction mitigation conditions. The AQCMM and AQCMM delegates may have other responsibilities in addition to those described in this condition. The AQCMM shall not be terminated without written consent of the Energy Commission Compliance Project Manager (CPM).

Verification: At least 60 days prior to the start of ground disturbance, the project owner shall submit to the CPM for approval the name, resume, qualifications, and contact information for the on-site AQCMM and all AQCMM delegates. The AQCMM and all delegates must be approved by the CPM before the start of ground disturbance.

AQ-SC2 Air Quality Construction Mitigation Plan (AQCMP): The project owner shall provide, for approval, an AQCMP that details the steps to be taken and the reporting requirements necessary to ensure compliance with Conditions of Certification **AQ-SC3, AQ-SC4** and **AQ-SC5**.

Verification: At least 60 days prior to the start of any ground disturbance, the project owner shall submit the AQCMP to the CPM for approval. The CPM will notify the project owner of any necessary modifications to the plan within 30 days from the date of receipt. The AQCMP must be approved by the CPM before the start of ground disturbance.

AQ-SC3 Construction Fugitive Dust Control: The AQCMM shall submit documentation to the CPM in each monthly compliance report (MCR) that demonstrates compliance with the following mitigation measures for purposes of preventing all fugitive dust plumes from leaving the project site and linear facility routes. Any deviation from the following mitigation measures shall require prior CPM notification and approval.

A. All unpaved roads and disturbed areas in the project and linear construction sites shall be watered as frequently as necessary to comply with the dust mitigation objectives of **AQ-SC4**. The frequency of watering may be either reduced or eliminated during periods of precipitation.

B. No vehicle shall exceed 15 miles per hour within the construction site.

C. The construction site entrances shall be posted with visible speed limit signs.

D. All construction equipment vehicle tires shall be inspected and washed as necessary to be free of dirt prior to entering paved roadways.

E. Gravel ramps of at least 20 feet in length must be provided at the tire washing/cleaning station.

F. All unpaved exits from the construction site shall be graveled or treated to

prevent track-out to public roadways.

G. All construction vehicles shall enter the construction site through the treated entrance roadways unless an alternative route has been submitted to and approved by the CPM.

H. Construction areas adjacent to any paved roadway shall be provided with sandbags or other measures as specified in the Storm Water Pollution Prevention Plan (SWPPP) to prevent run-off to roadways.

I. All paved roads within the construction site shall be swept at least twice daily (or less during periods of precipitation) on days when construction activity occurs to prevent the accumulation of dirt and debris.

J. At least the first 500 feet of any public roadway exiting from the construction site shall be swept at least twice daily (or less during periods of precipitation) on days when construction activity occurs or on any other day when dirt or run-off from the construction site is visible on the public roadways.

K. All soil storage piles and disturbed areas that remain inactive for longer than 10 days shall be covered or treated with appropriate dust suppressant compounds.

L. All vehicles that are used to transport solid bulk material on public roadways and that have the potential to cause visible emissions

M. shall be provided with a cover, or the materials shall be sufficiently wetted and loaded onto the trucks to provide at least two feet of freeboard.

N. Wind erosion control techniques (such as windbreaks, water, chemical dust suppressants, and/or vegetation) shall be used on all construction areas that may be disturbed. Any windbreaks installed to comply with this condition shall remain in place until the soil is stabilized or permanently covered with vegetation.

Verification: The project owner shall include in the MCR: (1) a summary of all actions taken to maintain compliance with this condition; (2) copies of any complaints filed with the air district in relation to project construction; and (3) any other documentation deemed necessary by the CPM and AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion.

AQ-SC4 Dust Plume Response Requirement: The AQCMM or an AQCMM delegate shall monitor all construction activities for visible dust plumes. Observations of visible dust plumes with the potential to be transported off the project site, 200 feet beyond the centerline of the construction of linear facilities, or within 100 feet upwind of any regularly occupied structures not owned by the project owner indicate that existing mitigation measures are not providing effective mitigation. The AQCMM or delegate shall then implement the following

procedures for additional mitigation measures in the event that such visible dust plumes are observed.

Step 1: The AQCMM or delegate shall direct more intensive application of the existing mitigation methods within 15 minutes of making such a determination.

Step 2: The AQCMM or delegate shall direct implementation of additional methods of dust suppression if Step 1 specified above fails to result in adequate mitigation within 30 minutes of the original determination.

Step 3: The AQCMM or delegate shall direct a temporary shutdown of the activity causing the emissions if Step 2 specified above fails to result in effective mitigation within one hour of the original determination. The activity shall not restart until the AQCMM or delegate is satisfied that appropriate additional mitigation or other site conditions have changed so that visual dust plumes will not result upon restarting the shutdown source. The owner/operator may appeal to the CPM any directive from the AQCMM or delegate to shut down an activity, provided that the shutdown shall go into effect within one hour of the original determination, unless overruled by the CPM before that time.

Verification: The AQCMP shall include a section detailing how additional mitigation measures will be accomplished within specified time limits.

AQ-SC5 Diesel-Fueled Engine Control: The AQCMM shall submit to the CPM, in the MCR, a construction mitigation report that demonstrates compliance with the following mitigation measures for purposes of controlling diesel construction-related emissions. Any deviation from the following mitigation measures shall require prior CPM notification and approval.

A. All diesel-fueled engines used in the construction of the facility shall have clearly visible tags issued by the on-site AQCMM showing that the engine meets the conditions set forth herein.

B. All construction diesel engines with a rating of 100 hp or higher shall meet, at a minimum, the Tier 2 California Emission Standards for Off-Road Compression-Ignition Engines, as specified in California Code of Regulations, Title 13, section 2423(b)(1), unless certified by the on-site AQCMM that such engine is not available for a particular item of equipment. In the event that a Tier 2 engine is not available for any off-road engine larger than 100 hp, that engine shall be equipped with a Tier 1 engine. In the event a Tier 1 engine is not available for any off-road engine larger than 100 hp, that engine shall be equipped with a diesel particulate filter (DPF) unless certified by engine manufacturers or the on-site AQCMM that the use of such devices is not practical for specific engine types. For purposes of this condition, the use of such devices is “not practical” for the following, as well as other, reasons.

1. There is no available DPF that has been verified by either the California Air Resources Board or U.S. Environmental Protection Agency for the engine in question; or

2. The construction equipment is intended to be on site for 10 days or less.

3. The CPM may grant relief from this requirement if the AQCMM can demonstrate a good faith effort to comply with this requirement and that compliance is not possible.

C. The use of a soot filter may be terminated immediately if one of the following conditions exists, provided that the CPM is informed within 10 working days of the termination:

1. The use of the soot filter is excessively reducing the normal availability of the construction equipment due to increased down time for maintenance, and/or reduced power output due to an excessive increase in back pressure.

2. The soot filter is causing or is reasonably expected to cause significant engine damage.

3. The soot filter is causing or is reasonably expected to cause a significant risk to workers or the public.

4. Any other seriously detrimental cause which has the approval of the CPM prior to implementation of the termination.

D. All heavy earth-moving equipment and heavy duty construction-related trucks with engines meeting the requirements of (b) above shall be properly maintained and the engines tuned to the engine manufacturer's specifications.

E. All diesel heavy construction equipment shall not idle for more than five minutes, to the extent practical.

Verification: The project owner shall include in the MCR: (1) a summary of all actions taken to maintain compliance with this condition; (2) a list of all heavy equipment used on site during that month, including the owner of that equipment and a letter from each owner indicating that the equipment has been properly maintained; and (3) any other documentation deemed necessary by the CPM and AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion.

AQ-SC6 The project owner shall submit to the CPM for review and approval any **proposed new air permit or** modification ~~proposed by the project owner~~ to any **existing** project air permit. The project owner shall submit to the CPM any modification to any permit proposed by the **project owner, the** District,

ARB, or U.S. EPA **including any associated application**, and any revised permit issued by the District or U.S. EPA, for the project.

Verification: The project owner shall submit any **request or application for a new air permit or modification of any existing air permit** ~~proposed air permit modification~~ to the CPM within five working days of its submittal**. This includes proposed air permits and modifications** either by: 1) the project owner to an agency, or 2) receipt of proposed modifications from an agency. The project owner shall submit all modified air permits to the CPM within 15 days of receipt.

AQ-SC7 Deleted on (insert date of CEC Business Meeting) ~~The project owner shall provide emission reductions in the form of "actual emission reductions" (calculated per NCUAQMD Rule 110) or emission reduction credits (ERCs) to offset NO_x, ROC, PM10, and SO_x emissions. The project owner shall demonstrate that the reductions are provided in the form and amount required by the District.~~

~~The project owner shall surrender the ERCs from among those that are listed in the table below or a modified list, as allowed by this condition. If additional ERCs are submitted, the project owner shall submit an updated table including the additional ERCs to the CPM. The project owner shall request CPM approval for any substitutions, modifications, or additions to the listed credits.~~

~~The CPM, in consultation with the District, may approve any such change to the ERC list provided that the project remains in compliance with all applicable laws, ordinances, regulations, and standards, and that the requested change(s) will not cause the project to result in a significant environmental impact. The District must also confirm that each requested change is consistent with applicable federal and state laws and Regulations.~~

~~Emission Reduction Certificate Number, Location~~	~~NOx (tpy)~~	~~ROC (tpy)~~	~~PM10 (tpy)~~	~~SOx (tpy)~~
~~ERC #07-098-12 Eel River Sawmills, Redcrest, CA~~	~~0~~	~~1.6~~	~~6.4~~	~~0~~
~~Proposed Offsets Provided by HBPP Shutdown~~	~~154.3~~	~~23.4~~	~~24.9~~	~~0~~
~~Surplus Reductions from HBPP Needed to Mitigate HBRP~~	~~508.1~~	~~0~~	~~0~~	~~4.3~~

Verification: ~~The project owner shall submit to the CPM records showing that the project's offset requirements have been met prior to initiating construction. If the CPM approves a substitution or modification to the list of ERCs, the CPM shall file a statement of the approval with the project owner and Commission docket. The CPM shall maintain an updated list of approved ERCs for the project.~~

AQ-SC8 **Deleted on (insert date of CEC Business Meeting)** ~~Until the ARB enacts a program to report and restrict GHG emissions from the electricity sector under the California Global Warming Solutions Act of 2006 (AB 32), the project owner shall either participate in a climate action registry approved by the CPM or report on a annual basis to the CPM the quantity of greenhouse gases (GHG) emitted as a direct result of facility electricity production. When CARB's GHG reporting regulations become effective, the project owner shall comply with the requirements of that GHG program, and the reporting requirements of this condition of certification shall cease, provided that the Energy Commission continues to receive the data required by the CARB program. Until then, the project owner shall do what is described in the following paragraphs.~~

~~The project owner shall maintain a record of fuel types and carbon content used on-site for the purpose of power production. These fuels shall include but are not limited to each fuel type burned: (1) in combustion turbines, (2) HRSGs (if applicable) or auxiliary boiler (if applicable), (3) internal combustion engines, (4) flares, and (5) for the purpose of startup, shutdown, operation or emission controls.~~

~~The project owner may perform annual source tests of CO_2 and CH_4 emissions from the exhaust stacks while firing the facility's primary fuel, using the following test methods or other test methods as approved by the CPM. The project owner shall produce fuel-based emission factors in units of lbs CO_2 equivalent per mmBtu of fuel burned from the annual source tests. If a secondary fuel is approved for the facility, the project owner may also perform these source tests while firing the secondary fuel.~~

~~**Pollutant**~~	~~**Test Method**~~
~~CO_2~~	~~EPA Method 3A~~
~~CH_4~~	~~EPA Method 18 (POC measured as CH_4)~~

~~As an alternative to performing annual source tests, the project owner may use the Intergovernmental Panel on Climate Change (IPCC) Methodologies for Estimating Greenhouse Gas Emissions (MEGGE). If MEGGE is chosen, the project owner shall calculate the CO_2, CH_4 and N_2O emissions using the appropriate fuel-based carbon content coefficient (for CO_2) and the appropriate fuel-based emission factors (for CH_4 and N_2O).~~

~~The project owner shall convert the N_2O and CH_4 emissions into CO_2 equivalent emissions using the current IPCC Global Warming Potentials (GWP). The project owner shall maintain a record of all SF_6 that is used for replenishing on-site high voltage equipment. At the end of each reporting period, the project owner shall total the mass of SF_6 used and convert that to a CO_2 equivalent emission using the IPCC GWP for SF_6. The project owner shall maintain a record of all PFCs and HFCs that are used for replenishing~~

~~on-site refrigeration and chillers directly related to electricity production. At the end of each reporting period, the project owner shall total the mass of PFCs and HFCs used and not recycled and convert that to a CO_2 equivalent emission using the IPCC GWP.~~

~~On an annual basis, the project owner shall report the CO_2 and CO_2 equivalent emissions from the described emissions of CO_2, N_2O, CH_4, SF_6, PFCs, and HFCs.~~

Verification: ~~The project annual GHG emissions shall be reported as required by the ARB under the California Global Warming Solutions Act of 2006 (AB 32) and, until such requirements are enacted, as a CO_2 equivalent, by the project owner to a climate action registry approved by the CPM, or to the CPM annually as part of the operational report required (**AQ-SC9**) or the annual Air Quality Report.~~

AQ-SC9 The project owner shall submit to the CPM semi-annual operation reports that include operational and emissions information as necessary to demonstrate compliance with the conditions of certification. The semi-annual operation report**s** shall specifically note or highlight incidences of noncompliance. **All deviations and violations shall be reported and shall include a description of the event and the status or resolution of the reported event.**

The project owner shall submit to the CPM, in the second calendar year's semi-annual report, an annual operation summary certifying compliance with all conditions of certification.

Verification: The project owner shall submit semi-annual operation reports to the CPM and the Air Pollution Control Officer (APCO) no later than 30 days following December 31 and June 30 of each calendar year. **Reports previously submitted such as source test reports used to demonstrate compliance with the conditions of certification do not need to be resubmitted in their entirety in the semi-annual reports. The semi-annual reports only need to identify the reports previously submitted to the CPM, along with the date of submittal, and a summary of the report's compliance determination.** The report for ~~following~~ December 31 ~~can~~ **shall** be an annual compliance summary for the preceding **calendar** year **and can be submitted as part of the Annual Compliance Report (COMPLIANCE-7)**. This information shall be maintained on site for a minimum of five years and shall be provided to the CPM and District personnel upon request.

DISTRICT CONDITIONS

The revised District conditions, with appropriate staff-proposed verification language added for each condition, are provided below. Given the large number of changes and condition renumbering, **Air Quality Table 5** has been provided to summarize the changes. (Note: Deleted text is in ~~strikethrough~~, new text is **bold and underlined**.)

Air Quality Table 5
District HBGS Title V Permit Condition Edits Summary

Existing	Amended	Condition Type Description
FEDERALLY ENFORCEABLE GENERAL REQUIREMENTS		
AQ-1	AQ-1	Title V Permit Modification and Renewal (Note: New AQ-7 provides requirements for Title IV Acid Rain permitting, deleted AQ-7 condition related to issuance of the Title V permit for HBGS that occurred in 2010.)
AQ-2	AQ-2	
AQ-3	AQ-3	
AQ-4	AQ-4	
AQ-5	AQ-5	
AQ-6	AQ-6	
AQ-7	Deleted	
	AQ-7 (new)	
AQ-7	AQ-8	Compliance (Note: Second existing AQ-7 was an inadvertent typographical error/duplication in numbering.)
	AQ-9 (new)	
AQ-8	AQ-10	
AQ-9	AQ-11	
AQ-10	AQ-12	
AQ-11	AQ-13	
AQ-12	AQ-14	
AQ-13	AQ-15	
AQ-14	AQ-16	Reports and Recordkeeping
AQ-15	AQ-17	
AQ-16	AQ-18	
AQ-17	AQ-19	
AQ-18	AQ-20	Public Nuisance
AQ-19	AQ-21	Visible Emissions
AQ-20	AQ-22	Particulate Matter
AQ-21	AQ-23	
AQ-22	AQ-24	Sulfur Compounds
AQ-23	AQ-25	Open Burning
AQ-24	AQ-26	Equipment Breakdown
AQ-25	AQ-27	Title VI Requirements (ozone depleting substances)
AQ-26	AQ-28	
AQ-27	AQ-29	
AQ-28	AQ-30	Asbestos
AQ-29	AQ-31	Payment of Fees
AQ-30	AQ-32	Accidental Releases
AQ-31	AQ-33	

Existing	Amended	Condition Type Description
AQ-32	AQ-34	
AQ-33	AQ-35	
AQ-34	AQ-36	Conditional Transfer of Ownership (Note: Condition AQ-34 split into two conditions.)
AQ-34	AQ-37	
AQ-35	AQ-38	Severability
LOCAL ENFORCEABLE ONLY, GENERAL REQUIREMENTS		
AQ-36	Deleted	Applicability
	AQ-39 (new)	
	AQ-40 (reserved)	
AQ-37	AQ-41	Administration (Note: Existing conditions AQ-37, -38, now conditions AQ-41, -42 are moved from Applicability to Administration subheading.)
AQ-38	AQ-42	
AQ-39	AQ-43	
AQ-40	AQ-44	
AQ-41	AQ-45	
AQ-42	AQ-46	
AQ-43	AQ-47	
AQ-44	Deleted	
	AQ-48 (new)	
AQ-45	AQ-49	
AQ-46	AQ-50	
AQ-47	AQ-51	
AQ-48	AQ-52	
AQ-49	AQ-53	
AQ-50	Deleted	
AQ-51	AQ-54	
AQ-52	AQ-55	
AQ-53	AQ-56	
AQ-54	AQ-57	
AQ-55	AQ-58	
AQ-56	AQ-59	
AQ-57	AQ-60	Emissions & Operations
AQ-58	AQ-61	
AQ-59	AQ-62	
AQ-60	AQ-63	
AQ-61	AQ-64	
AQ-62	AQ-65	Records & Training
AQ-63	AQ-66	

Existing	Amended	Condition Type Description
AQ-142	AQ-67	(Note: Existing AQ-64, now AQ-68 is moved to new Permit Term subheading.)
AQ-64	AQ-68	
AQ-65	Deleted	
AQ-66	Deleted	
FEDERALLY ENFORCEABLE EQUIPMENT SPECIFIC REQUIREMENTS		
AQ-67	AQ-69	Authorized Equipment (Note: Deleted conditions AQ-74 to AQ-77 relate to requirements for equipment design/equivalent design that have been addressed, and deleted condition AQ-83 is the offset condition that was fulfilled prior to commercial operation.)
AQ-68	AQ-70	
AQ-69	AQ-71	
AQ-70	AQ-72	
AQ-71	AQ-73	
AQ-72	AQ-74	
AQ-73	AQ-75	
AQ-74	Deleted	
AQ-75	Deleted	
AQ-76	Deleted	
AQ-77	Deleted	
AQ-78	AQ-76	
AQ-79	AQ-77	
AQ-80	AQ-78	
AQ-81	AQ-79	
AQ-82	AQ-80	
AQ-83	Deleted	
AQ-84	AQ-81	Emission Limiting Conditions
AQ-85	AQ-82	
AQ-86	AQ-83	
AQ-87	AQ-84	
AQ-88	AQ-85	
AQ-89	AQ-86	
AQ-90	AQ-87	Heat Input & Fuel Limitations
AQ-91	AQ-88	
AQ-92	AQ-89	
AQ-93	AQ-90	Emission Limits S-1 to S-10 Startup & Shutdown Periods
AQ-94	AQ-91	Emission Limits S-1 to S-10 Natural Gas Mode
AQ-95	AQ-92	
	AQ-93 (reserved)	
AQ-96	AQ-94	Emission Limits

Existing	Amended	Condition Type Description
AQ-97	AQ-95	S-1 to S-10 Diesel Mode (Note: Existing condition AQ-97 was split into two conditions AQ-95 and AQ-96; and deleted existing condition AQ-98 related to a PM10 limitation that was removed/unnecessary considering the other limiting conditions.)
AQ-97	AQ-96	
	AQ-97 (reserved)	
AQ-98	Deleted	
AQ-99	AQ-98	
AQ-100	AQ-99	Emission Limits S-11 and S-12
AQ-101	AQ-100	
AQ-121	AQ-101	
AQ-102	Deleted	Startup Commissioning & Simultaneous Operation (Note: These conditions were deleted because initial commissioning was completed in 2010 and 2011.)
AQ-103	Deleted	
AQ-104	Deleted	
AQ-105	Deleted	
AQ-106	Deleted	
AQ-107	Deleted	
AQ-108	Deleted	
AQ-109	Deleted	
AQ-110	Deleted	
AQ-111	Deleted	
AQ-112	Deleted	
AQ-113	Deleted	
AQ-114	Deleted	
AQ-115	Deleted	
AQ-116	Deleted	
AQ-117	Deleted	
AQ-118	Deleted	
AQ-119	Deleted	
AQ-120	Deleted	
AQ-121	AQ-101	Operational Conditions Engines S-1 through S-10
AQ-122	AQ-102	
AQ-123	AQ-103	
AQ-124	AQ-104	
AQ-125	AQ-105	
AQ-126	AQ-106	
AQ-127	AQ-107	
AQ-128	AQ-108	
AQ-129	AQ-109	
AQ-130	AQ-110	

Existing	Amended	Condition Type Description
AQ-131	AQ-111	
AQ-132	AQ-112	
AQ-133	AQ-113	
AQ-134	AQ-114	
AQ-135	AQ-115	
AQ-136	AQ-116	
AQ-138	AQ-117	Operational Conditions Engines S-11 and S-12
AQ-137	AQ-118	
AQ-139	AQ-119	
AQ-140	AQ-120	
AQ-168	AQ-121	
AQ-171	AQ-122	
AQ-141	AQ-123	Reporting & Recordkeeping Engines S-1 through S-12 (Note: deleted conditions AQ-150 and AQ-151 relate to Health Risk Assessment requirements that the District considers fulfilled.)
AQ-142	AQ-124	
AQ-143	AQ-125	
AQ-144	AQ-126	
AQ-145	AQ-127	
AQ-146	AQ-128	
AQ-147	AQ-129	
AQ-148	AQ-130	
AQ-149	AQ-131	
AQ-150	Deleted	
AQ-151	Deleted	
AQ-152	AQ-132	
AQ-153	AQ-133	
AQ-154	AQ-134	Testing and Compliance Monitoring (Note: Deleted conditions AQ-158 and AQ-161 were deleted as they related to the initial commissioning period that was completed in 2010 and 2011.)
AQ-155	AQ-135	
AQ-156	AQ-136	
AQ-157	AQ-137	
AQ-158	Deleted	
AQ-159	AQ-138	
AQ-160	AQ-139	
AQ-161	Deleted	
AQ-162	AQ-140	
AQ-163	AQ-141	
AQ-164	AQ-142	
AQ-165	AQ-143	

Existing	Amended	Condition Type Description
AQ-166	AQ-144	
AQ-167	AQ-145	
LOCALLY ENFORCEABLE ONLY EQUIPMENT SPECIFIC CONDITIONS		
	AQ-146 (reserved)	Emissions
AQ-168	(AQ-121)	Fuel Usage
AQ-169	Deleted	Emissions
AQ-170	Deleted	Operational Conditions
AQ-171	(AQ-122)	
AQ-172	AQ-147	Ambient Monitoring
AQ-173	AQ-148	
EQUIPMENT EXEMPT FROM PERMITTING REQUIREMENTS		
	AQ-149 (new)	Insignificant Sources Definition

DISTRICT-RECOMMENDED CONDITIONS OF CERTIFICATION

FEDERALLY ENFORCEABLE GENERAL REQUIREMENTS

TITLE V PERMIT MODIFICATIONS AND RENEWAL

AQ-1 The permittee shall submit to the Air Pollution Control Officer (APCO) a completed Title V permit application for renewal **according to the schedule established by the EPA and District.** ~~no earlier than September 17, 2011~~**16, 2016** ~~(18 months prior to the expiration date of the Title V permit) and no later than September 17, 2012~~**16, 2017** ~~(6 months prior to the expiration date of the Title V permit).~~ *[District Rule 502**(B)(2)** ~~§2.2~~; 40 CFR 70.5(a)(1)(iii)]* ~~The Authority to Construct permit shall serve as the Prevention of Significant Deterioration preconstruction permit for the sources identified herein, and is issued pursuant to the Rules and Regulations of the North Coast Unified Air Quality Management District.~~

Verification: The project owner shall submit any request or application for a new air permit or modification of any existing air permit to the CPM within five working days of its submittal to the District. This includes proposed air permits and modifications either by: 1) the project owner to an agency, or 2) receipt of proposed modifications from an agency. The project owner shall submit all modified air permits to the CPM within 15 days of receipt (see AQ-SC6). ~~No verification needed.~~

AQ-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.** ~~NCUAQMD. [NCUAQMD Rule 102] [NCUAQMD Reg V Rule 502 §2.3] [40 C.F.R. 70.5(a)(1)(ii).]~~***[District Rule 502(B)(3); 40 CFR 70.5(a)(1)(ii)]***

Verification: The project owner shall submit any request or application for a new air permit or modification of any existing air permit to the CPM within five working days of its submittal to the District. This includes proposed air permits and modifications either by: 1) the project owner to an agency, or 2) receipt of proposed modifications from an agency. The project owner shall submit all modified air permits to the CPM within 15 days of receipt (see AQ-SC6). ~~The project owner shall submit to both the district and CPM the Title V modification application after receiving applicable preconstruction permit(s).~~

AQ-3 The permittee shall submit to the Air Pollution Control Officer ~~timely~~ updates to the Title V application as new requirements become applicable to the source, and in no event ~~less than quarterly (i.e., every three months).~~**later than 30 days after the end of the quarter during which the new requirement takes effect.** *[40 CFR 70.5(b)]*

Verification: The project owner shall submit any request or application for a new air permit or modification of any existing air permit to the CPM within five working days of its submittal to the District. This includes proposed air permits and modifications either by: 1) the project owner to an agency, or 2) receipt of proposed modifications from an agency. The project owner shall submit all modified air permits to the CPM within 15 days of receipt (see AQ-SC6).

AQ-4 **Upon the** discovery of ~~the submittal of any inaccurate information as part of the~~ **inaccuracies contained within an** application or ~~as a~~ supplement thereto~~; or of any additional relevant facts previously omitted which are needed for accurate analysis of the application; and including inaccurate information known, or which should have been known or should be known,~~**, the permittee shall immediately notify the APCO. The permittee shall undertake action to correct the deficiency within the time frame specified** by the **APCO**~~permittee(s). [NCUAQMD Rule 103 Section 6.0]~~***[District Rule 502(E)(3); 40 CFR 70.5(a)(2) and (b)]***

Verification: The project owner shall submit to both the ~~d~~**D**istrict and CPM the information as needed.

AQ-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 APCO. ~~[NCUAQMD Rule 103 Section 6.0]~~ **.** ***[District Rule 502(E)(2); 40 CFR 70.5(a)(2) and (b)]***

Verification: The project owner shall submit to both the ~~d~~**D**istrict and CPM the additional information as needed.

AQ-6 ~~Prior to first operation of the equipment authorized pursuant to this permit, the permittee shall possess a valid Title V Permit to Operate for the engines. [NCUAQMD Regulation V Rule 501]~~ **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)]***

Verification: The project owner shall make the site **and records** available for inspection by representatives of the ~~d~~**D**istrict, California Air Resources Board (ARB), and **Energy** Commission upon request.

AQ-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)]*

Verification: No verification needed.

~~**AQ-7** PSD preconstruction 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 has been submitted, in which case the existing PSD preconstruction permit will remain in effect until the Title V permit has been issued or denied. In order to be considered timely, a complete Title V permit application must be submitted prior to the expiration of the PSD preconstruction permit. [NCUAQMD Reg 5 Rule 400(b)(c) and (d)] [NCUAQMD Reg V Rule 502 § 1.2, 1.3, and 1.4] [40 C.F.R. 70.7(b) and (e)(2) (v).]~~

~~**Verification:** The project owner shall submit to both the District and CPM the Title V application prior to expiration of the applicable PSD preconstruction permit.~~

COMPLIANCE

AQ-~~7~~8 The permittee shall comply with all conditions of the **Title V** permit. ~~[NCUAQMD Rule 105] [NCUAQMD Rule 504 §2.7.]~~ ***[District Rule 504(B)(7)]***

Verification: The project owner shall make the site **and records** available for inspection by representatives of the ~~d~~**D**istrict, ARB, and **Energy** Commission upon request.

AQ-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)]***

Verification: No verification needed.

AQ-~~8~~10 This **Title V** permit may be modified, revoked, reopened~~,~~ and reissued or terminated for cause. ***[District Rule 503(l)]*** ~~[NCUAQMD Rule 102]~~

Verification: No verification needed.

AQ-11~~10~~ The permittee shall furnish to the APCO, within 10 (ten) days of the request, any information that the APCO may request in writing to determine whether cause exists for modifying, revoking and reissuing, ~~or~~ terminating ~~the~~**the District's** permit~~:~~**,** or to determine compliance with the ~~Authority to Construct/PSD~~**Title V** permit. Upon request, the permittee shall also furnish to the APCO copies of records required to be kept by conditions of this permit. For information claimed to be confidential, the permittee may furnish such records ~~directly to the EPA~~ along with a claim of confidentiality. ~~[District Rule 103 Section 6]~~***[40 CFR 70.6(a)(6)(v)]***

Verification: The project owner shall submit to both the ~~d~~**D**istrict and CPM the permit compliance information within ten days of request by the APCO.

AQ-12~~10~~ 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. ~~[NCUAQMD Rule 102 Section 9]~~ ***[District Rule 504(B)(7)(c)]***

Verification: No verification needed.

AQ-13~~11~~ A pending **Title V** permit action (e.g. a proposed permit revision) or notification of anticipated noncompliance does not stay any permit condition. ~~[~~NCUAQMD Rule 102 Section 5.0~~]~~ ***[District Rule 504(B)(7)(e)]***

Verification: No verification needed.

AQ-14~~12~~ This ~~Authority to Construct/PSD~~**Title V** permit does not convey any property rights of any sort or any exclusive privilege. ~~[NCUAQMD Rule 102 Section 5.0]~~ ***[District Rule 504(B)(7)(b)]***

Verification: No verification needed.

AQ-15~~13~~ Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the APCO or an authorized representative to perform all of the following:

A. Enter ~~upon~~ 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 ~~Authority to Construct/PSD~~ **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 ~~Authority to Construct/PSD~~ **Title V** permit; and

D. As authorized by **District rule or by** the Federal Clean Air Act, sample or monitor at reasonable times substances or parameters for the purpose of ensuring compliance with the ~~Authority to Construct/PSD~~ **Title V** permit conditions or applicable federal requirements. ~~[NCUAQMD Rule 109 and Rule 504 § 2.5]~~***[District Rule 504(B)(5)]***

Verification: The project owner shall make the site **and records** available for inspection by representatives of the ~~d~~**D**istrict, ARB, and **Energy** Commission upon request.

REPORTS AND RECORDKEEPING

AQ-16~~14~~ Monitoring Reports

A. The permittee shall submit to the APCO at least once every six months, unless required more frequently by an applicable requirement, reports of all required monitoring set out in this ~~Authority to Construct/PSD~~**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 ~~March 1~~**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. ~~[NCUAQMD Rule 103 Section 6] [NCUAQMD Rule 502 §11 and Rule 504 §5 and 40 C.F.R. 70.6(a)(3)(ii) and (iii).]~~***[District Rule 502(K) and Rule 504(E); 40 CFR 0.6(a)(3)(ii) and (iii)]***

Verification: The project owner shall submit to the CPM and APCO the **monitoring reports in the** semi-annual operation~~al~~ reports**.** ~~that include monitoring results~~ **The monitoring reports shall identify all instances of non-compliance with the Title V permit conditions** (**AQ-SC9**).

AQ-17~~15~~ Compliance Reports

A. The permittee shall submit to the APCO 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:

1. The identification of each term or condition of the ~~Authority to Construct/PSD~~**Title V** permit that is the basis of the certification.

2. 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.

3. The status of compliance with the terms and conditions of the ~~Authority to Construct/PSD~~**Title V** permit for the period covered by the certification, based on the method designated in Section D (**ii**~~2~~) of this condition.

4. Such other facts as the APCO may require in order to determine the compliance status of the source.

5. A method for monitoring the compliance of the stationary source with its emissions limitations, standards, and work practices. [NCUAQMD Rule 102 Section 5.0] ~~[NCUAQMD Rule 504 § 10]~~***[District Rule 504(J); 40 CFR 70.6(b)(5)]***

Verification: The project owner shall submit to the CPM and APCO the annual **compliance certifications in the semi-annual** operation~~al~~ report~~s that include compliance results~~(**AQ-SC9**).

AQ-18~~6~~ The permittee shall report within 24 hours of detection any deviation from a federally enforceable ~~Authority to Construct/PSD~~**Title V** permit condition ~~not attributable to an emergency.~~. In order to fulfill the reporting requirement of this condition, the permittee shall notify the APCO 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. ~~[NCUAQMD Rule 102 Section 5.0] [NCUAQMD Rule 504 Section 5 [~~***[District Rule 504(E);*** *40* ~~C.F.R.~~***CFR*** *70.6(a)(3)(iii)]*

Verification: The project owner shall submit to both the ~~d~~**D**istrict and CPM the notification within 24 hours after determining any deviation from a federally enforceable permit condition.

AQ-19~~7~~ 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 ~~and~~**,** all ~~original strip-chart recordings~~**electronic data** for continuous monitoring instrumentation, and copies of all reports required by the federally enforceable applicable requirement in the ~~Authority to Construct/PSD~~**Title V** permit. ~~[NCUAQMD Rule 102 Section 5.0] [NCUAQMD Rule 502 Section 10] [~~***[District Rule 502(J) and Rule 504(C);*** *40* ~~C.F.R.~~***CFR*** *70.6(a)(3)(ii)]*

Verification: The project owner shall make the site **and records** available for inspection by representatives of the ~~d~~**D**istrict, ARB, and **Energy** Commission upon request.

PUBLIC NUISANCE

AQ-20~~18~~ The permittee~~(s)~~ 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. ~~[NCUAQMD Rule 104 Section 1.1]~~***[District Rule 104(A)(1)]***

Verification: The project owner shall make the site **and records** available for inspection by representatives of the ~~d~~**D**istrict, ARB, and **Energy** Commission upon request. **The project owner shall submit all air quality complaints received to the CPM within 10 days (see COMPLIANCE-10).**

VISIBLE EMISSIONS

AQ-21~~19~~ The ~~owner, operator or~~ permittee ~~of this source~~ shall not discharge into the atmosphere from any single source of emission**,** ~~whatsoever~~ 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%) ~~[NCUAQMD Rule 104 Section 2]~~***[H&SC §41701]***

Verification: The project owner shall make the site **and records** available for inspection by representatives of the ~~d~~**D**istrict, ARB, and **Energy** Commission upon request. **The project owner shall submit all air quality complaints received to the CPM within 10 days (see COMPLIANCE-10).**

PARTICULATE MATTER

AQ-22~~20~~ Particulate Discharge Limits

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 ~~New Source Performance Standards (~~NSPS~~)~~ ~~(~~***[***District Rule 104 ***(K)]***~~Section 11.0)~~ *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 ~~follows~~**listed in Rule 104 Table 1.**~~:~~ ***[District Rule 104]***

~~(Note: Table 1 below is deleted)~~

TABLE I

ALLOWABLE RATE OF EMISSION BASED ON PROCESS WEIGHT RATE					
Process Weight Rate		**Emission**	**Process Weight Rate**		**Emission**
Lb/Hr	Kg/Hr	Lb/Hr	Lb/Hr	Kg/Hr	Lb/Hr
100	45	0.55	6,000	2,720	8.6
200	92	0.88	7,000	3,380	9.5
400	183	1.4	8,000	3,680	10.4
600	275	1.83	9,000	4,134	11.2
~~800~~	~~377~~	~~2.22~~	~~10,000~~	~~4,540~~	~~12.0~~
1,000	454	2.58	12,000	5,460	13.6
1,500	681	3.38	16,000	7,260	16.5
2,000	920	4.1	18,000	8,220	17.9
2,500	1,147	4.76	20,000	9,070	19.2
3,000	1,362	5.38	30,000	13,600	25.2
3,500	1,690	5.96	40,000	18,100	30.5
4,000	1,840	6.52	50,000	22,700	35.4
5,000	2,300	7.58	60,000	27,200	40.0

~~Where the process weight per hour is between two listed figures, such process weight and maximum allowable particulate emission per hour shall be interpolated linearly. The total process weight of all similar process operations located at a single plant or of similar multiple plants located on a single premise, shall be used for determining the maximum allowable particulate emission from the combination of such operations. [NCUAQMD Rule 104]~~

Verification: The project owner shall submit the results of source tests to both the ~~d~~**D**istrict and CPM in accordance with Condition **AQ-137~~159~~**.

AQ-23~~21~~ The permittee shall not handle, transport**,** 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. ~~*[NCUAQMD Rule 104 Section 4]*~~***[District Rule104(D)]***

Verification: The project owner shall make the site **and records** available for inspection by representatives of the ~~d~~**D**istrict, ARB, and **Energy** Commission upon request. **The project owner shall submit all air quality complaints received to the CPM within 10 days (see COMPLIANCE-10).**

SULFUR COMPOUNDS

AQ-2~~2~~4 The **permittee** shall not discharge into the atmosphere from any single source of emissions**,** sulfur oxides **(**calculated as sulfur dioxide (SO_2)**)** in excess of 1,000 ppm~~;~~ or in excess of the ~~specific source~~ emission limitations of Federal New Source Performance Standards, as applicable. ***[District Rule 104(E)]*** ~~[NCUAQMD Rule 104 Section 5~~]

Verification: The project owner shall submit the results of source tests to both the ~~d~~**D**istrict and CPM in accordance with Condition **AQ-137~~159~~**.

OPEN BURNING

AQ-2~~3~~5 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 APCO. ~~[NCUAQMD Rules 200 & 201.]~~ ***[District Rules 201 & 203]***

Verification: The project owner shall make the site **and records** available for inspection by representatives of the ~~d~~**D**istrict, ARB, and **Energy** Commission upon request.

EQUIPMENT BREAKDOWNS

AQ-~~24~~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 APCO 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 ~~permittee's~~**the** responsible official shall submit to the APCO a signed contemporaneous log or other relevant evidence which demonstrates that:

1. An emergency occurred.

2. Identification of the cause(s) of the emergency.

3. The facility was being properly operated at the time of the emergency.

4. Identification of each and every step taken to minimize the emissions resulting from the emergency.

~~5. Within two working days of the emergency event, the permittee shall notify the APCO with a description of the emergency and any mitigating or corrective actions taken.~~

C~~B~~. The permittee has the burden of proof to establish that an emergency occurred in any enforcement proceeding. ~~[NCUAQMD Rule 105 Section 5.0]~~

Verification: The project owner shall submit all required notifications and reports to the APCO and CPM within the timeframes outlined above. The project owner shall also report all emergency events in the semi-annual operation reports~~A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operational report~~ (**AQ-SC9**).

TITLE VI REQUIREMENTS (OZONE DEPLETING SUBSTANCES)

AQ-2~~5~~7 The permittee shall not allow or cause the opening of appliances containing **chlorofluorocarbons (**CFCs**)** for maintenance, service, repair, or disposal unless first complying with the required practices set out pursuant to 40 ~~C.F.R.~~**CFR** 82.156. *[40 ~~C.F.R.~~**CFR** 82 Subpart F~~.~~]*

Verification: The project owner shall make the site **and records** available for inspection by representatives of the ~~d~~**D**istrict, ARB, and **Energy** Commission upon request.

AQ-2~~6~~8 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 ~~C.F.R.~~**CFR** 82.158. *[40 ~~C.F.R.~~**CFR** 82 Subpart F.~~]~~]*

Verification: The project owner shall make the site **and records** available for inspection by representatives of the ~~d~~**D**istrict, ARB, and **Energy** Commission upon request.

AQ-2~~7~~9 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 ~~C.F.R.~~**CFR** 82.161. *[40 ~~C.F.R.~~**CFR** 82 Subpart F.~~]~~]*

Verification: The project owner shall make the site **and records** available for inspection by representatives of the ~~d~~**D**istrict, ARB, and **Energy** Commission upon request.

ASBESTOS

AQ-~~28~~30 The permittee shall comply with the standards of 40 ~~C.F.R.~~**CFR** 61 Subpart M which regulates demolition and renovation activities pertaining to asbestos materials.

Verification: The project owner shall make the site **and records** available for inspection by representatives of the ~~d~~**D**istrict, ARB, and **Energy** Commission upon request.

PAYMENT OF FEES

AQ-~~29~~31 The permittee shall pay an annual permit fee and other fees as required in accordance with ~~NCUAQMD Rules.~~**District Regulation IV, Rule 406, Title V Fees.** Failure to pay these fees by the dates due will result in immediate suspension of this ~~Authority to Construct/PSD~~**Title V** Permit **to Operate** effective on the date the fees were due, and on notification by the APCO of such suspension. Operation without an effective ~~Authority to Construct/PSD~~ **Title V** permit subjects the ~~owner(s), operator(s) and~~ permittee~~(s)~~ to potential enforcement action by the ~~NCUAQMD~~**District** and the U.S. EPA pursuant ~~to~~**District Rules and** Section 502(a) of the Clean Air Act as amended in 1990. *[~~NCUAQMD~~**District** Regulation IV**,** Rule 406]*

Verification: The project owner shall submit **a statement of compliance in the semi-annual operation report.**~~to the CPM and APCO the annual operational reports that include information on fees paid~~ (**AQ-SC9** ~~and~~ **AQ-15**~~**-**~~).

ACCIDENTAL RELEASES

AQ-3~~2~~0 If subject to Section 112(r) of the Clean Air Act ~~(CAA)~~ and 40 ~~C.F.R.~~**CFR** Part 68, the Title V permittee~~(s)~~ 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 ~~C~~.F.R.**CFR** Part 68.~~]~~]*

Verification: Refer to **Condition of Certification** Haz-2.

AQ-33~~31~~ If subject to Section 112(r) of the CAA and 40 **CFR**~~C.F.R.~~ Part 68, the permittee shall comply with the requirements of 40 **CFR**~~C.F.R.~~ Part 68 no later than the latest of the following dates as provided in 40 **CFR**~~C.F.R.~~ 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**~~C.F.R.~~ Part 68.]

Verification: The project owner shall submit to both the ~~d~~**D**istrict and CPM the information required under this condition.

AQ-3~~2~~4 If subject to Section 112(r) of the CAA and 40 **CFR**~~C.F.R.~~ 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**~~C.F.R.~~ Part 68. ***[40 CFR Part 68]***

Verification: The project owner shall submit to both the ~~d~~**D**istrict and CPM the information required under this condition.

AQ-3~~3~~5 If subject to Section 112(r) of the CAA and 40 **CFR**~~C.F.R.~~ 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 30 of each year. [40 **CFR**~~C.F.R.~~ Part 68.]

Verification: The project owner shall submit to the CPM and APCO the **annual compliance** certification requirement as part of the **semi-**annual **operation report** ~~compliance certification~~ (**AQ-SC9**).

CONDITIONAL TRANSFER OF OWNERSHIP

AQ-3~~4~~6 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 ~~C~~**c**onditions by letter, a copy of which shall be forwarded to the ~~NCUAQMD~~**District**, and which shall identify the exact effective date of the transfer of ownership.

~~The new owner(s) and operator(s) of this source shall notify the APCO within 30 (thirty) days of the transfer of ownership and which notification shall~~

~~include a certification by the responsible party that the facility operations are to be operated in the same operational parameters as set out herein, and as before the transfer of ownership.~~

~~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 APCO within 30 (thirty) days of transfer of ownership. [NCUAQMD Rule 102 Section 5.0]~~

Verification: The **outgoing** project owner shall submit to both the ~~d~~**D**istrict and CPM **a copy of** the notification **letter** within 30 days of the transfer of ownership (see also **AQ-5~~7~~4 and COMPLIANCE-14**).

AQ-37 **The new owner(s) and operator(s) of this Title V source shall notify the APCO 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.**

Verification: The new project owner shall submit to both the District and CPM the notification within 30 days of the transfer of ownership (see also AQ-57 and COMPLIANCE-14).

SEVERABILITY

AQ-3~~5~~8 If any term or condition of this permit, for any reason, be adjudged by a court of competent jurisdiction to be invalid, such judgment 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)]*** ~~[NCUAQMD Rule 102 Section 5.0]~~

Verification: No verification needed.

LOCAL ENFORCEABLE ONLY~~,~~ GENERAL REQUIREMENTS

APPLICABILITY

~~**AQ-36** The requirements outlined in this section are non-federally enforceable local permit requirements. [NCUAQMD Rule 102]~~

~~**Verification:** No verification needed.~~

AQ-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 APCO within 30 (thirty) days of transfer of ownership.**

Verification: No verification needed.

AQ-40 - *Reserved*

ADMINISTRATION

AQ-41~~37~~ The permittee of this source 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 APCO.

Verification: The project owner shall make the site **and records** available for inspection by representatives of the ~~d~~**D**istrict, ARB, and **Energy** Commission upon request. **The project owner shall submit any request or application for a new air permit or modification of any existing air permit to the CPM within five working days of its submittal. This includes proposed air permits and modifications either by: 1) the project owner to an agency, or 2) receipt of proposed modifications from an agency. The project owner shall submit all modified air permits to the CPM within 15 days of receipt (AQ-SC6).**

AQ-42~~38~~ This permit is effective only upon payment of the initial permit fees set out in **District** ~~NCUAQMD~~ Rules and Regulations.

Verification: No verification needed.

AQ-~~39~~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.

Verification: The project owner shall make the site available for inspection by representatives of the District, ARB and Energy Commission upon request.~~No verification needed.~~

AQ-40~~4~~ The permittee shall comply with all conditions of this permit. Any violation of any condition of this permit is a violation of ~~NCUAQMD~~**District** Rules and Regulations, and California State Law. ~~[NCUAQMD Rule 105 §1.0.]~~***[District Rule 105(A)]***

Verification: No verification needed.

AQ-41~~5~~ The permit conditions shall be liberally construed for the protection of the health, safety and welfare of the people of the **District**~~NCUAQMD~~. ~~[NCUAQMD Rule 100 §6.3; Rule 102 §5.0.]~~***[District Rule 100(F)(3)]***

Verification: No verification needed.

AQ-42~~6~~ The ~~NCUAQMD~~**District** Rules and Regulations may be superseded or revised by the ~~NCUAQMD~~**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. ~~[NCUAQMD Rule 100 §6.0; Rule 105 §1.0]~~***~~[District Rule 100(F)(3); Rule 105(A)]~~***

~~Verification~~: No verification needed.

AQ-4~~3~~7 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 ~~s~~**S**tate and ~~l~~**L**ocal 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). ~~[NCUAQMD Rule 105 §5.0]~~***[District Rule 102]***

~~Verification~~: No verification needed.

~~**AQ-44** Changes in plans, specifications, and other representations proposed in the application documents shall not be made if they will increase the discharge of emissions or cause a change in the method of control of emissions or in the character of emissions. Any proposed changes, regardless of emissions consequence, shall be submitted as a modification to this permit. No modification shall be made prior to issuance of a permit revision for such modification. [NCUAQMD Rule 102.]~~

~~**Verification:** The project owner shall submit to both the district and CPM the applications for permit modifications as needed.~~

AQ-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*]

Verification: The project owner shall submit any requests to both the District and CPM for approval as needed. The project owner shall submit any request or application for a new air permit or modification of any existing air permit to the CPM within five working days of its submittal. This includes proposed air permits and modifications either by: 1) the project owner to an agency, or 2) receipt of proposed modifications from an agency. The project owner shall submit all modified air permits to the CPM within 15 days of receipt (AQ-SC6).

AQ-4~~5~~9 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 ~~NCUAQMD~~**District** Rules and Regulations, or any state or federal law, shall be grounds for revocation of this permit. ~~[NCUAQMD Rule 102.]~~***[District Rule 102]***

Verification: No verification needed.

AQ-5046 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. [NCUAQMD *Rule* 104 §1.2.]***[District Rule 104(A)(2)]***

Verification: The project owner shall make the site **and records** available for inspection by representatives of the d**D**istrict, ARB, and Commission upon request.

AQ-5147 This permit does not convey any property rights of any sort, or any exclusive privilege.

Verification: No verification needed.

AQ-5248 The "Right of Entry", as delineated in NCUAQMD**District** Rule 109**(A)** §1.0 and California Health and Safety Code Section 41510 of Division 26, shall apply at all times. Failure to grant immediate access to NCUAQMD**District**, CARB, or other authorized personnel shall be grounds for permit suspension or revocation.

Verification: The project owner shall make the site **and records** available for inspection by representatives of the d**D**istrict, ARB, and Commission upon request.

AQ-4953 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.

Verification: The project owner shall make the site **and records** available for inspection by representatives of the d**D**istrict, ARB, and **Energy** Commission upon request. **The project owner shall submit all modified air permits to the CPM within 15 days of receipt (AQ-SC6).**

AQ-50 The permit conditions shall be liberally construed for the protection of thehealth, safety and welfare of the people of the NCUAQMD. In the event that two or more conditions may apply, and such conditions both cannotapply without conflict, the condition(s) most restrictive shall prevail. [NCUAQMD Rule 100 §6.3; NCUAQMD Rule 102 §5.0.]

Verification: No verification needed.

AQ-5451 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. [NCUAQMD Rule 102 §5.0.]

Verification: No verification needed.

AQ-525 This permit shall be posted in a conspicuous location at the site and shall be made available to NCUAQMD**District** representatives upon request. [NCUAQMD Rule 102 §8.0.]***[District Rule 102(H)]***

Verification: The project owner shall make the site **and records** available for inspection by representatives of the d**D**istrict, ARB, and **Energy** Commission upon request.

AQ-5~~3~~6 The permittee shall pay an annual permit fee and other fees as required in accordance with ~~NCUAQMD~~**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 ~~NCUAQMD~~**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. ~~[NCUAQMD Regulation IV – Fees.]~~***[District Regulation IV – Fees]***

Verification: The project owner shall submit an annual statement of compliance in the semi-annual operation report (AQ-SC9). ~~The project owner shall submit to the CPM and APCO the annual operational reports that include information on fees paid (**AQ-SC9** and **AQ-15**).~~

AQ-5~~4~~7 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 ~~NCUAQMD~~**District** of the change in control or ownership within fifteen (15) days of that change. [~~NCUAQMD Rule 400 §5.0.~~]***[District Rule 400(E)]***

Verification: The project owner shall submit to both the ~~d~~**D**istrict and CPM the notification within 15 days of the change in control or ownership (see also **AQ-3~~6~~4, AQ-37 and COMPLIANCE-14**).

AQ-5~~5~~8 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. [~~NCUAQMD Rule 400 §5.0; Rule 102 §5.0.~~]***[District Rule 400(E)]***

Verification: The project owner shall submit to both the ~~d~~**D**istrict and CPM the request for transfer of ownership before commencing operation by a previously unidentified owner and/or operator (see also **AQ-3~~6~~4, AQ-37 and COMPLIANCE-14**).

AQ-5~~6~~9 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. ~~[NCUAQMD Rule 102 §5.0.]~~

Verification: No verification needed.

EMISSIONS & OPERATION

AQ-60~~57~~ 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 ~~NCUAQMD~~**District**. This permit shall not be considered as permission to violate existing laws, ordinances, regulation~~s~~ or statutes of other governmental agencies.

Verification: No verification needed.

AQ-61~~58~~ **The p**ermittee 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. ~~The opacity limitation is in effect at all times, including but not limited to startup, shutdown, and malfunction. [CH&S §41700; NCUAQMD Rule 104 §1.1.~~***[H&SC §41700; District Rule 104(A)(1)]***

Verification: The project owner shall make the site **and records** available for inspection by representatives of the ~~d~~**D**istrict, ARB, and **Energy** Commission upon request. **The project owner shall submit all air quality complaints received to the CPM within 10 days (see COMPLIANCE-10).**

AQ-62~~59~~ **The** ~~P~~**p**ermittee shall not discharge into the atmosphere from any source whatsoever any air contaminant ~~for a period or periods more than three (3) minutes in any one hour~~ which is **in excess of twenty (20) percent opacity, or** as dark or darker in shade as that designated as No. ~~2~~**1** on the Ringelmann Chart, **calculated** as ~~published by the United States Bureau of Mines; or of such opacity~~**a six minute average. Opacity observations shall be taken and recorded** as **described in EPA Reference Method 9.** ***[District Rule 104(B)(3)]*** ~~to obscure an observer's view to a degree equal to or greater than Ringelmann 2 or forty (40) percent opacity. [California Health and Safety Code (CH&S) §41701; NCUAQMD Rule 104 §2.0]~~

Verification: The project owner shall make the site **and records** available for inspection by representatives of the ~~d~~**D**istrict, ARB, and **Energy** Commission upon request. **The project owner shall submit all visible emission complaints received to the CPM within 10 days (see COMPLIANCE-10).**

AQ-63~~0~~ 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. ~~[NCUAQMD Rule 104 §4.0.]~~ ***[District Rule 104(D)]***

Verification: The project owner shall make the site **and records** available for inspection by representatives of the ~~d~~**D**istrict, ARB, and **Energy** Commission upon request.

AQ-64~~1~~ 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. [NCUAQMD Rule 102 §5.0.]

Verification: The project owner shall make the site **and records** available for inspection by representatives of the d**D**istrict, ARB, and **Energy** Commission upon request.

RECORDS & TRAINING

AQ-652 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. [NCUAQMD Rule 105 §5.0.]***[District Rule 102]***

Verification: The project owner shall make the site **and records** available for inspection by representatives of the d**D**istrict, ARB, and **Energy** Commission upon request.

AQ-663 **The** P**p**ermittee shall furnish to the APCO, within a reasonable time, any information that the NCUAQMD**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 NCUAQMD**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.** [CH&S *§42303;* NCUAQMDRule 103 §6.0, Rule 102 §5.0]***[H&SC §42303; District Rule 103(F)]***

Verification: The project owner shall submit to both the d**D**istrict and CPM the compliance information as needed.

AQ-67142 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 of any emission limitation or restriction prescribed by District Rules or State law**: date and time of event; event duration; **a** description of event; identification of the cause of the event; identify what corrective measures were taken**, including what actions were taken to prevent re-occurrence;** and, if **corrective actions were** unsuccessful, what additional measures should be taken in the future; and quantification**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.** The permittee shall maintain this information in 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. [NCUAQMD Rule 102 §5.0] [District Rule 105 §5.0]~~ ***[District Rule 105(E)]***

Verification: The project owner shall submit all required notifications and reports to the APCO and CPM within the timeframes outlined above. The project owner shall also report all emergency events in the semi-annual operation reports~~A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operational report~~ (**AQ-SC9**).

PERMIT TERM

AQ-64~~8~~ **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)** ~~§2.2~~, in which case the existing Title V permit will remain in effect until the Title V permit renewal has been issued or denied. ~~[40 CFR 70.7(c) (1) (ii)]~~ **[*District Rule 502(A)(2)*]**

Verification: No verification needed.

~~**AQ-65** The authorization for equipment installation and construction activities identified in this permit shall expire no more than 545 days from date of issue, unless extended by the APCO for good cause shown. [NCUAQMD Rule 102 §5.0.]~~

~~**Verification:** No verification needed.~~

~~**AQ-66** Once the subject equipment has been constructed in compliance with the conditions of this permit, this Authority to Construct Permit shall serve as a Temporary Permit to Operate for a period not to exceed one hundred and eighty (180) days of operation. Should the need arise, the Temporary Permit to Operatemay be extended by the APCO for up to an additional ninety (90) days for good cause shown. The burden of proof lies with the permittee to demonstrate good cause for such action. [CH&S §42301.1; NCUAQMD Rule 102 §2.0.]~~

~~**Verification:** No verification needed.~~

FEDERALLY ENFORCEABLE,
EQUIPMENT SPECIFIC REQUIREMENTS

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

AUTHORIZED EQUIPMENT

AQ-69~~67~~ ~~The permittee shall install and construct the project as described in Authority to Construct application September 29, 2006 and its series of amendments ending with the most recent submittal of April 6, 2009. Should discrepancies or contradictions exist between the application and this permit, the provisions of this permit shall prevail. The~~**This permit authorizes the operation of the equipment and** specific components ~~authorized are~~ listed in Table 1.~~0~~ and **2**~~Table 1.1 below~~. 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." ~~[NCUAQMD Rule 504 §2.1.]~~***[District Rule 504(B)(1)]***

Table 1.~~0~~ - 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-1 oxidation 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

Unit No.	Equipment	Nominal Size
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**~~DM8149 (or equivalent)~~ Diesel-fired Emergency ~~Reciprocating~~ IC Engine**, serial number FSE02399,** powering a**n** ~~350kW~~ ~~electrical~~ generator	**546**~~469~~ HP
S-12	**Cummins CFP9E-F20**~~Clarke/John Deere JU6H UF50 (or equivalent)~~ Diesel-fired Emergency ~~Reciprocating~~ IC Engine**, serial number 73070231,** powering a fire water pump	**268**~~210~~ HP

Table 2~~2.0 1.1~~ - Authorized Control Devices

Control Equipment	Manufacturer	Model	Specifications
Oxidation Catalyst	HUG Engineering (or equivalent)	OCT-0806-040-0062/450 (or equivalent)	Catalyst: Platinum Reactor 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 **Natural Gas** Mode; 20ppmvd CO @15%O_2 while in **D**~~d~~iesel **M**~~m~~ode
Selective Catalytic Reduction System	HUG Engineering (or equivalent)	RFV-0890-040-200/300 (or equivalent)	Catalyst: Vanadium Pentoxide Reactor 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 **D**~~d~~iesel **M**~~m~~ode

Verification: The project owner shall make the site **and records** available for inspection by representatives of the ~~d~~**D**istrict, ARB, and **Energy** Commission upon request.

AQ-70~~68~~ The permittee shall not modify **reciprocating engines S-1 through S-10**~~the equipment subject to this permit~~ 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**~~2.0, Table 2.1, or Table 2.2~~. **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]*** ~~[NCUAQMD Rule 102 §5.0.]~~

Table ~~3~~2.0 ~~-~~ ~~S-1 Through S-10 Engine~~ 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
~~Nominal Heat Input Rate~~ **Natural Gas Mode** (HHV)	**144.7**~~143.9~~ MMBtu/hr natural gas plus ~~0.79 MMBtu~~ pilot fuel ~~(natural gas mode) – OR – 148.9 MMBtu/hr CARB Diesel Fuel (diesel mode)~~
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)
~~Nominal~~ Exhaust O_2 Concentration, dry volume	11.6% **(Nominal)**
~~Nominal~~ Exhaust CO_2 Concentration, dry volume	5.3% **(Nominal)**
Emission Controls	Lean Burn Technology and SCR; Oxidation Catalyst
SIC	4911
SCC	20100202 **N**~~n~~atural **G**~~g~~as **M**~~m~~ode; 20100301 **D**~~d~~iesel **M**~~m~~ode

~~**Table 2.1**~~
~~**S-11 Engine Specifications**~~

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

~~**Table 2.2**~~
~~**S-12 Engine Specifications**~~

Engine S-12	
Primary Fuel	CARB Diesel
Nominal Heat Input Rate (HHV)	**1.94**~~1.68~~ MMBtu/hr
Heat Input, gal/hr	**14.2**~~12.3~~
SIC	4911
SCC	20201607

Verification: The project owner shall make the site **and records** available for inspection by representatives of the ~~d~~**D**istrict, ARB, and **Energy** Commission upon request.

AQ-71~~69~~ The permittee shall only fire reciprocating engines S-1 through S-10 with fuel which meets or exceeds the fuel specifications identified in ~~Table 2.3~~**Table 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. ~~[NCUAQMDRule 102 §5.0]~~***[District Rule 102(E); PSD 2/09]***

Table ~~4~~2.3 - Fuel Specifications for 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

Verification: The project owner shall submit all requests to switch fuel types to the APCO and CPM for approval prior to switching fuel types in reciprocating engines S-1 through S-10. A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation~~al~~ report (**AQ-SC9**).

AQ-70~~2~~ 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 **N**~~n~~atural **G**~~g~~as~~/diesel pilot~~ **M**~~m~~ode and **D**~~d~~iesel **M**~~m~~ode. 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 ~~or~~**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**%** ~~percent~~ accuracy requirement. ~~[NCUAQMD Rule 102§5.0]~~***[District Rule 102(E); PSD 2/09]***

Verification: The project owner shall make the site **and records** available for inspection by representatives of the ~~d~~**D**istrict, ARB, and **Energy** Commission upon request. **The project owner shall submit records indicating the fuel monitoring system measuring devices are calibrated according to the schedule outlined above in the semi-annual operation report (AQ-SC9).**

AQ-7~~1~~3 The exhaust stacks shall not be fitted with rain caps or any other similar device which would impede vertical exhaust flow. ~~[NCUAQMD Rule 102 §5.0]~~***[District Rule 102(E); PSD 2/09]***

Verification: The project owner shall make the site available for inspection by representatives of the ~~d~~**D**istrict, ARB, and **Energy** Commission upon request.

AQ-7~~2~~4 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 ~~Generators~~**Engines** S-11 and S-12. ~~[NCUAQMD Rule 102 §5.0]~~***[District Rule 102(E)]***

Verification: The project owner shall make the site available for inspection by representatives of the ~~d~~**D**istrict, ARB, and **Energy** Commission upon request.

AQ-75~~73~~ The Emergency IC Diesel **Engines**~~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**~~a~~) through **C**~~d~~) above.

Verification: The project owner shall make the site **and fuel records** available for inspection by representatives of the ~~d~~**D**istrict, ARB, and **Energy** Commission upon request.

~~**AQ-74** The reciprocating engines S-11 and S-12 shall be certified to meet the EPA Tier 3 emission levels. The permittee shall submit documentation of EPA Tier 3 certification a minimum of 30 days prior to installation of the devices. [40 C.F.R. 60 Subpart IIII]~~

~~**Verification:** The project owner shall make the site available for inspection by representatives of the district, ARB, and Commission upon request.~~

~~**AQ-75** The permittee shall obtain APCO approval for the use of any equivalent engine for S-11 or S-12 not specifically approved by this Authority to Construct. Approval of an equivalent engine shall be made only after the APCO's determination that the submitted design and performance data for the proposed IC engine is equivalent to the approved engine. [NCUAQMD Rule 102 §5.0]~~

Verification: The project owner shall submit to both the district and CPM the application for equivalent emergency engines as needed.

AQ-76 The permittee's request for approval of an equivalent engine shall include the following information: engine manufacturer and model number, horsepower (hp) rating, exhaust stack information, and manufacturer's guaranteed emission concentrations. [NCUAQMD Rule 504 §4.0; NCUAQMD Rule102 §5.0]

Verification: The project owner shall submit to both the district and CPM the application for equivalent emergency engines as needed.

AQ-77 The permittee's request for approval of an equivalent engine shall be submitted to the NCUAQMD at least thirty (30) days prior to the planned installation date. The permittee shall also notify the NCUAQMD at least ten (10) days prior to the actual installation of the NCUAQMD approved equivalent engine. [NCUAQMD Rule 103 §6.0]

Verification: The project owner shall submit to both the district and CPM the application for equivalent emergency engines at least thirty (30) days prior to the planned installation date.

AQ-768 The permittee shall install exhaust gas temperature monitoring devices at the inlet and the outlet of the oxidation catalyst. [40 C.F.R. §63.6625; BACT]***[40 CFR §63.6625; PSD 2/09 BACT]***

Verification: The project owner shall make the site **and records** available for inspection by representatives of the d**D**istrict, ARB, and **Energy** Commission upon request.

AQ-779 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**%** percent 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**%** percent requirement. [NCUAQMD Rule 102 §5.0]***[District Rule 102(E); PSD 2/09]***

Verification: The project owner shall make the site **and records** available for inspection by representatives of the d**D**istrict, ARB, and **Energy** Commission upon request. **The project owner shall submit records indicating the ammonia flow meter devices are calibrated according to the schedule outlined above in the semi-annual operation report (AQ-SC9).**

AQ-7880 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 NOx, CO, and O_2 analyzer. Sample collection ports shall be located in accordance with 40 **CFR**C.F.R. 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. ~~[NCUAQMD Rule 102 §5.0]~~***[District Rule 102(E); PSD 2/09]***

Verification: The project owner shall make the site **and records** available for inspection by representatives of the ~~d~~**D**istrict, ARB, and **Energy** Commission upon request.

AQ-79~~81~~ Each reciprocating engine S-1 through S-10 shall be equipped with a continuous emission monitor (CEM) for NOx, CO, and O_2. Continuous emissions monitor(s) shall meet the requirements of 40 **CFR**~~C.F.R.~~ part 60, Appendices B and F, and ~~NCUAQMD~~**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 shutdown periods. ~~[NCUAQMD Regulations Appendix B]~~***[District Regulations Appendix B; PSD 2/09]***

Verification: The project owner shall make the site **and records** available for inspection by representatives of the ~~d~~**D**istrict, ARB, and **Energy** Commission upon request.

AQ-80~~82~~ 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. ~~[NCUAQMD Rule 103 §6.0]~~***[District Rule 103(F)]***

Verification: The project owner shall submit ammonia slip calculations demonstrating compliance with ammonia slip limits (AQ-91, -92, -94, 96 and -98)~~A summary of significant operation and maintenance events and monitoring records required shall be included~~ in the semi-annual operation report (**AQ-SC9**).

EMISSION LIMITING CONDITIONS

AQ-814 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 CO_2 at standard conditions. ~~[NCUAQMD Rule 104 §3.1]~~***[District Rule 104(C)(1)]***

Verification: The project owner shall submit the results of source tests to both the ~~d~~**D**istrict and CPM in accordance with condition **AQ-137~~159~~**.

AQ-825 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. ~~[NCUAQMD Rule 104 §5.0]~~***~~[~~District Rule 104(E)~~]~~***

Verification: The project owner shall make the site and records available for inspection by representatives of the District, ARB and Energy Commission upon request. The project owner shall submit the results of source tests to both the ~~d~~**D**istrict and CPM in accordance with condition **AQ-137~~159~~**.

AQ-83~~6~~ 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 Ringelmann Chart, or of such opacity so as to obscure an observer's view to a degree equal to or greater than 20**%** ~~percent~~, for any period or periods **aggregating** more than 3 minutes in any one hour. ~~This visible emission limitation shall not apply during startup or shutdown periods, or during the commissioning period. [NCUAQMD Rule 102 §5.0]~~***~~[~~District Rule 104(B)(3)~~]~~***

Verification: The project owner shall make the site **and records** available for inspection by representatives of the ~~d~~**D**istrict, ARB, and Commission upon request. **The project owner shall submit all visible emission complaints received to the CPM within 10 days (see COMPLIANCE-10).**

AQ-84~~7~~ The permittee shall not operate reciprocating engines S-1 through S-12 such that the emissions of NOx, from a combination of all engines, exceeds 392 lbs per hour. Furthermore, ~~except during the commissioning period,~~ 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]***

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation~~al~~ report**s** (**AQ-SC9**).

AQ-85~~8~~ The permittee shall not discharge diesel particulate matter from reciprocating engines S-1 through S-10 while operating in **D**~~d~~iesel **M**~~m~~ode such that emissions of diesel particulate matter exceed 0.11 g/bhp-hr for each engine. [NSPS 40 **CFR**~~C.F.R.~~ Part 60 Subpart IIII]

Verification: The project owner shall make the site and records available for inspection by representatives of the District, ARB and Energy Commission upon request. The project owner shall submit the results of source tests to both the ~~d~~**D**istrict and CPM in accordance with condition **AQ-137~~159~~**.

AQ-86~~9~~ 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~~d~~ @ 15% O_2. [40 **CFR**~~C.F.R.~~ 63 Subpart ZZZZ**; District Rule 110**]

Verification: The project owner shall submit the results of source tests to both the ~~d~~**D**istrict and CPM in accordance with condition **AQ-137~~159~~**. A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation~~al~~ report (**AQ-SC9**).

HEAT INPUT & FUEL LIMITATIONS

~~**Engines S-1 Through S-10**~~

AQ-~~90~~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**~~4.0~~ on a per engine basis. **Further, when operating in Natural Gas Mode, 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]*** ~~[NCUAQMD Rule 102 §5.0]~~

Table 5~~4.0~~ - Heat Input Limitations Per Engine

Each Unit[1]	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

~~**Notes:**~~

~~1) Each unit can only run in either natural gas or diesel mode, not both simultaneously.~~

~~2) Heat input in natural gas mode is the sum of natural gas and diesel pilot also.~~

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation~~al~~ report**s** (**AQ-SC9**).

AQ-~~88~~91 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**~~4.1~~ 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).** ~~Fuel combusted during compliance testing shall not accrue toward the limitations established in this condition. [NCUAQMD Rule 102 §5.0]~~***[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.	

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation report (**AQ-SC9**).

AQ-8992 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**.** ~~Fuel combusted during compliance testing shall not accrue toward the limitations established in this condition. [NCUAQMD Rule 102 §5.0]~~***[District Rule 102(E); PSD 2/09]***

A. Natural Gas Mode.

Table 4.27 - 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	14658	3,5041,402	376,734

B. Diesel Mode.

Table 4.38 - 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

Verification: All Diesel Mode and Natural Gas Mode **operation fuel consumption**, diesel and natural gas consumption, **and hours of operation, including operations consuming both above and below 500 gallons, shall be listed separated** by operation mode **and reported in the semi-annual reports, and the** second semi-annual **report shall** also **include the fuel use totals** reported in **the** first semi-annual **report and** summed **annual** totals**. The total number of hours operating in Diesel Mode** and Natural Gas Mode **shall be provided per engine in the semi-annual reports.** A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operational report**s** (**AQ-SC9**). **The project owner shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon request.**

EMISSION LIMITS

S-1 to S-10 Startup & Shutdown Periods

AQ-90~~93~~ 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**~~5.0~~ below during startup or shutdown periods. ~~[NCUAQMD Rule 102 §5.0]~~***[District Rule 102(E); PSD 2/09]***

Table 9~~5.0~~ - Start & Shutdown Period Emission Limits

Mode of Operation	Pollutant				
	NOx	CO	ROC	PM10	SOx
Natural Gas **Mode**, 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

Verification: The project owner shall make the site and records available for inspection by representatives of the District, ARB and Energy Commission upon request. A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation~~al~~ report**s** (**AQ-SC9**).

S-1 – S-10 Natural Gas Mode

AQ-91~~94~~ 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**~~5.1~~ below based upon a three (3) hour 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 C.F.R. 63.6(f)(1), NCUAQMD Rule 102 §5.0]~~***[40 CFR 63.6(f)(1); District Rule 102(E); PSD 2/09]***

Table 10~~5.1 -~~ Natural Gas Mode Emission Limits~~ – per engine~~

Pollutant	Emission Rate		
	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

Verification: The project owner shall make the site and records available for inspection by representatives of the District, ARB and Energy Commission upon request. A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation~~al~~ report**s** (**AQ-SC9**).

AQ-92~~95~~ The combined discharge of pollutants, from the reciprocating engines S-1 through S-10 shall not exceed the limits listed in Table **11**~~5.2~~ below during any calendar day in which none of the engines are operated in **D**~~d~~iesel **M**~~m~~ode 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. ~~[NCUAQMD Rule 102 §5.0]~~***[District Rule 102(E); PSD 2/09]***

Table 11~~5.2~~ - S-1 Through S-10
Combined Natural Gas Mode Daily Limits

Pollutant	Emission Rate lb/Day
CO	1,589
NH_3	456
NOx	1,360
PM_{10}	864
ROC	1,608
SOx	97

Verification: The project owner shall make the site and records available for inspection by representatives of the District, ARB and Energy Commission upon request. A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation~~al~~ report**s** (**AQ-SC9**).

AQ-93 - *Reserved*

S-1 to S-10 Diesel Mode

AQ-94~~96~~ The permittee shall not discharge pollutants into the atmosphere from the reciprocating engines S-1 through S-10 while in **D**~~d~~iesel **M**~~m~~ode, based upon a three (3) hour rolling average, in excess of the emission limits identified in Table **12**~~5.3~~ below. The limits shall not apply during startup or shutdown periods. ~~[40 C.F.R. 63.6(f)(1), NCUAQMD Rule 102 §5.0.]~~***[District Rule 102(E); 40 CFR 63.6(f)(1); PSD 2/09]***

Table 12~~5.3~~ - Diesel Mode Emission Limits ~~– per engine~~

Pollutant	Emission Rate		
	ppmvd @ 15% O_2	lb/hr	lb/MMBtu
CO	20.0	6.9	0.047
NH_3	10	2.1	0.014
NOx	35.0	19.9	0.134
PM_{10}	-	**5.5**~~10.8~~	0.137
ROC	40.0	7.9	0.053
SOx	0.40	0.22	0.0016

Verification: The project owner shall make the site and records available for inspection by representatives of the District, ARB and Energy Commission upon request. A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation~~al~~ report**s** (**AQ-SC9**).

AQ-95~~97~~ The discharge of diesel particulate matter into the atmosphere from the reciprocating engines S-1 through S-10 while in **D**~~d~~iesel **M**~~m~~ode shall not exceed

the emission limits identified in Table **13**~~5.4~~ below. ~~The limits shall not apply during the commissioning period as defined in this permit. [NCUAQMD Rule 102 §5.0]~~***[District Rule 102(E); PSD 2/09]***

Table 13~~5.4~~ - 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

~~The combined discharge of pollutants from the reciprocating engines S-1 through S-10 during any calendar day shall not exceed the limits listed in Table 5.5 below during any calendar day in which one or more of the engines are operated in diesel mode for any period of time.~~

~~**Table 5.5**~~

~~**S-1 Through S-10 Combined Diesel Mode Limit**~~

~~Pollutant~~	~~Emission Rate lb/Day~~
~~CO~~	~~2,219~~
~~NH_3~~	~~506~~
~~NOx~~	~~9,103~~
~~PM10~~	~~1,542~~
~~ROC~~	~~2,183~~
~~SOx~~	~~97~~

Verification: The project owner shall make the site and records available for inspection by representatives of the District, ARB and Energy Commission upon request. A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation~~al~~ report**s** (**AQ-SC9**).

AQ-96~~97~~ 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
NOx	9,103
PM10	1,542
ROC	2,183
SOx	97

Verification: The project owner shall make the site and records available for inspection by representatives of the District, ARB and Energy Commission upon request. A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation reports (AQ-SC9).

AQ-97 - *Reserved*

~~**AQ-98** For purposes of determining compliance of reciprocating engines S-1 through S-10 with the daily PM10 limit in Table 5.5, the permittee shall calculate and record PM10 emissions from each engine for each calendar day as follows: 0.180 pounds per minute times the number of operational minutes in diesel mode during that calendar day; plus 0.060 pounds per minute times the number of natural gas mode operational minutes during that calendar day. In no event shall the permittee not operate the engines such that their combined hours of operation in diesel mode exceed 142 hours per calendar day. [NCUAQMD Rule 102 §5.0]~~

~~**Verification:** A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operational report (**AQ-SC9**).~~

AQ-98~~99~~ 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 **1**5.~~6~~ below. ~~[NCUAQMD Rule 102 §5.0]~~***[District Rule 102(E); PSD 2/09]***

Table 15.6 - S-1 Through S-10
Combined Annual Emission Limits

Pollutant	Emission Rate (Tons/Yr)
CO	172.7
NH_3	63.3
NOx	179.1
PM10	119.8
ROC	190.8
SOox	4.3

Verification: The project owner shall **annually** submit to the CPM and APCO the annual operational reports that include monitoring and compliance results **in the semi-annual operation report** (**AQ-SC9** and **AQ-1715**).

Engines S-11 and S-12

AQ-**99**100 The permittee shall not operate reciprocating engines S-11 and S-12 such that pollutant discharge into the atmosphere exceeds the quantities in Table **16**5.7 below. [NCUAQMD Rule 102 §5.0]***[District Rule 102(E)]***

Table 165.7 - Reciprocating Engines S-11 and S-12 Emission Limits

Unit	Pollutant	g/hHp – 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	—	0.0061
S-12 Fire Pump	CO	0.59	0.27
	DPM	0.14	0.06
	NOx	4.9	2.27
	ROC (non-methane HC)	0.5	0.23
	SOx	—	0.0026

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operational reports (**AQ-SC9**).

AQ-100101 The combined discharge of pollutants from the reciprocating engines S-11 through S-12 during any calendar year shall not exceed the limits listed in Table **17**5.8 below. [NCUAQMD Rule 102 §5.0]***[District Rule 102(E)]***

Table 17~~5.8~~ - 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

Verification: The project owner shall **annually** submit to the CPM and APCO ~~the annual operational reports that~~ include monitoring and compliance results **in the semi-annual operation report** (**AQ-SC9** and **AQ-17~~15~~**).

AQ-~~121~~101 In the event of an excess emission incident, regardless of the cause, the permittee shall immediately take corrective action to minimize the release of excess emissions. Notice shall be provided to the **District**~~NCUAQMD~~ 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**~~NCUAQMD~~ Rules, and this permit. *[40 **CFR**~~C.F.R.~~ 70.6(a)(3)(iii)(B); ~~NCUAQMD~~ **District** Rule 105~~§5.0.~~]*

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation~~al~~ report**s** (**AQ-SC9**).

~~STARTUP COMMISSIONING & SIMULTANEOUS OPERATION~~

~~**AQ-102** The permittee shall discontinue operation of permit units NS-020 (Boiler #1), NS-021 (Boiler #2) and NS-057 (Turbines #2 and #3) and shall surrender the Permits to Operate for these permit units within 180 days after initial startup of reciprocating engines S-1 through S-10. [NCUAQMD Rule 102 §5.0]~~

~~**Verification:** No verification needed.~~

~~**AQ-103** The permittee shall develop, implement, and maintain a written commissioning plan for reciprocating engines S-1 through S-10 that describes specific procedures to be followed during the commissioning period. The commissioning plan shall be submitted to the NCUAQMD at least thirty (30) days prior to the first operation of the first of reciprocating engines S-1 through S-10. The plan shall include a description of each commissioning activity, the anticipated duration of each activity in hours, and the purpose of the activity. The activities described shall include, but not be limited to, the tuning of the reciprocating engines, the installation and operation of the SCR systems and the oxidation catalysts, the installation, calibration, and testing of the NOx and CO continuous emissions monitors, and any activities requiring the firing of each unit without abatement by an SCR system or oxidation catalyst. The~~

plan shall provide that the reciprocating engines S-1 through S-10 shall be commissioned in two groups of five engines each; that each of the existing boilers [NCUAQMD Permit Units NS-020 (Boiler #1) and NS-021 (Boiler #2)] shall be replaced by one of the groups of engines; and that each boiler and its associated group of engines shall not be in operation simultaneously for more than 90 calendar days. Operation of a boiler and any of its associated engines for any portion of a calendar day shall accrue toward the maximum limit of 90 days applicable to that boiler. [NCUAQMD Rule 102 §5.0; Rule 110 Section 8.8]

Verification: The project owner shall submit to the CPM and APCO for approval the commissioning plan at least 30 days prior to the first operation of the reciprocating engines.

AQ-104 The commissioning plan is subject to NCUAQMD review and approval. If the NCUAQMD does not act to approve, reject, or request additional information within thirty (30) days of receipt of the plan submitted by the permittee, the plan shall be considered to be approved. The permittee shall not commission reciprocating engines S-1 through S-10 unless an NCUAQMD approved commissioning plan is in effect. [NCUAQMD Rule 102 §5.0]

Verification: The project owner shall submit to the CPM and APCO for approval the commissioning plan at least 30 days prior to the first operation of the reciprocating engines.

AQ-105 In accordance with the NCUAQMD approved commissioning plan required under the Startup, Commissioning & Simultaneous Operation section of this permit, the reciprocating engines shall be tuned to minimize emissions in the time frame specified in the approved commissioning plan. [NCUAQMD Rule 102 §5.0]

Verification: The project owner shall submit to the CPM and APCO for approval the commissioning plan as required in **AQ-103**.

AQ-106 The permittee shall notify the NCUAQMD of the anticipated date of initial startup of the reciprocating engines S-1 through S-10 not more than 60 days, or less than 30 days prior to initial startup. The permittee shall notify the APCO of the actual startup of reciprocating engines S-1 through S-10 not more than 15 days after actual initial startup. [NCUAQMD Rule 102 §5.0]

Verification: The project owner shall submit to the CPM and APCO the notification of reciprocating engine startup not more than 60 days or less than 30 days prior to initial startup, and notification of actual startup not more than 15 days after initial startup.

AQ-107 The existing generating units at Humboldt Bay Power Plant shall be shut down as soon as possible following the commercial operation of all of the reciprocating engines S-1 through S-10. The existing generating units at Humboldt Bay Power Plant [NCUAQMD Permit Units NS-020 (Boiler #1), NS-021 (Boiler #2) and NS-057 (Turbines)] and any of the new HBGS reciprocating engines S-1 through S-10 shall not be in simultaneous operation for more than 180 calendar days, including their individual commissioning periods; and

shall be shutdown and their Permits to Operate (PTOs) surrendered once engines S-1 through S-10 have successfully completed their commissioning phase as defined elsewhere in this permit. Operation of the existing plant units and any engine or engines for any portion of a calendar day, shall accrue toward the maximum limit of 180 days. Commissioning activities may be further limited in scope and duration by the NCUAQMD approved commissioning plan. [NCUAQMD Rule 110, Rule 102 §5.0]

Verification: The project owner shall surrender to the CPM and APCO the permits for each existing boiler (NCUAQMD Permit Units NS-020 and NS-021) and the turbines (Permit Units NS-057) at Humboldt Bay Power Plant within 180 days after initial startup of the new reciprocating engines.

AQ-108 Selective catalytic reduction (SCR) systems and oxidation catalysts shall serve each of the reciprocating engines S-1 through S-10 except as provided for in the district approved commissioning plan required under the Startup, Commissioning & Simultaneous Operation section of this permit. Permittee shall submit SCR and oxidation catalyst design details to the NCUAQMD for review and approval at least 90 days prior to scheduled delivery of these systems to the site. The permittee shall not install or operate the SCR and oxidation catalyst systems without authorization from the APCO. [NCUAQMD Rule 110, Rule 102 §5.0]

Verification: The project owner shall submit to the CPM and APCO for approval the design details for control devices not less than 90 days prior to scheduled delivery.

AQ-109 Permittee shall submit continuous emission monitor design, installation, and operational details to the NCUAQMD within 120 days following commencement of construction. [NCUAQMD Rule 102 §5.0]

Verification: The project owner shall submit to the CPM and APCO for approval the details for continuous emission monitors not more than 120 days after commencing construction.

AQ-110 In accordance with the NCUAQMD approved commissioning plan required under the Startup, Commissioning & Simultaneous Operation section of this permit, the Selective Catalytic Reduction (SCR) system and the oxidation catalyst shall be installed, adjusted, and operated to minimize emissions from each reciprocating engine in the time frame specified in the commissioning plan. [NCUAQMD Rule 102 §5.0]

Verification: The project owner shall submit to the CPM and APCO for approval the commissioning plan as required in **AQ-103**.

AQ-111 The continuous monitors specified in the Authorized Equipment section of this permit shall be installed, calibrated, and operational prior to the first firing of reciprocating engines S-1 through S-10. After first firing, the detection range of the CEMS shall be adjusted as necessary to accurately measure the resulting range of NOx and CO emission concentrations. [NCUAQMD Rule 102 §5.0]

Verification: The project owner shall make the site available for inspection by representatives of the district, ARB, and Commission upon request.

AQ-112 The permittee shall record and monitor the parameters identified in Table 7.0 of this permit at least once every 15 minutes (excluding normal calibration periods or when the monitored source is not in operation). The permittee shall use APCO approved methods to calculate heat input rates, oxides of nitrogen mass emission rates (reported as nitrogen dioxide), carbon monoxide mass emission rates, and NOx and CO emission concentrations, summarized for each hour and each day. [NCUAQMD Rule 102 §5.0; NCUAQMD Regulation Appendix B]

Verification: The project owner shall make the site available for inspection by representatives of the district, ARB, and Commission upon request.

AQ-113 The total number of firing hours of each reciprocating engine S-1 through S-10 without abatement of emissions by the SCR system and the oxidation catalyst shall not exceed 100 hours for each engine during the commissioning period. Such operation of each reciprocating engine without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR system and the oxidation catalyst in place. Upon completion of these activities for each engine, the permittee shall provide written notice to the NCUAQMD and the unused balance of the allowable firing hours without abatement for that engine shall expire. [NCUAQMD Rule 102 §5.0]

Verification: The project owner shall submit to the CPM and APCO for approval the commissioning plan as required in **AQ-103**.

AQ-114 A. When one or more reciprocating engines S-1 through S-10 are undergoing commissioning activities without an SCR system and oxidation catalyst installed, the permittee shall not: [NCUAQMD Rule 102 §5.0]

a. Fire more than five uncontrolled reciprocating engines simultaneously.

b. Operate the uncontrolled engines such that their combined hours of operation exceed 90 engine-hours during any Calendar Day.

B. When one or more reciprocating engines S-1 through S-10 are undergoing commissioning activities, including the test run and tune phase, the permittee shall not:

a. Simultaneously operate more than five units which have not yet completed commissioning.

b. Operate in diesel mode startup any unit which has completed commissioning while there are any non-commissioned units in operation.

Verification: The project owner shall submit to the CPM and APCO for approval the commissioning plan as required in **AQ-103**.

AQ-115 During the commissioning period, the permittee shall not operate reciprocating engines S-1 through S-10, such that the combined emissions from all of the engines regardless of their commissioning status, exceed any of the limits in Table 5.9 below: [NCUAQMD Rule 102 §5.0]

Table 5.9
S-1 through S-10 Combined Commissioning Emission Limits

Pollutant	lbs/hr	lbs/day
CO	197.2	2,662
NOx	392	4,365
PM_{10}	54	1,296
ROC (as Methane)	86.6	1,559
SOx (SO_2)	2.0	48.4

Verification: The project owner shall submit to the CPM and APCO for approval the commissioning plan as required in **AQ-103**.

AQ-116 For each engine during its commissioning period, after steady-state operation of the SCR system and the oxidation catalyst has occurred, the NOx and CO emissions from that reciprocating engine shall thereafter comply with the limits specified in the Pollutant Limitations section of this permit. For purposes of compliance with this condition, steady-state operation shall mean: the engine, SCR system, and oxidation catalyst all functioning according to manufacturers' specifications and operating in compliance with emission limits and are ready for performance testing in accordance with the requirements of Testing and Compliance Monitoring section of this permit. In no event shall the commissioning period for each engine exceed 180 consecutive calendar days beginning on the first day the engine is first fired. [NCUAQMD Rule 102 §5.0]

Verification: The project owner shall submit to the CPM and APCO for approval the commissioning plan as required in **AQ-103**.

AQ-117 Firing hours on 100 percent CARB Diesel Fuel or Alternative Liquid Fuel during the commissioning period shall not be considered maintenance and testing for purposes of compliance with the annual operating hour limitations specified in the Operational Conditions section of this permit. [NCUAQMD Rule 102 §5.0]

Verification: The project owner shall submit to the CPM and APCO for approval the commissioning plan as required in **AQ-103**.

AQ-118 The total mass emissions of NOx, CO, ROC, PM10, and SOx that are emitted from the reciprocating engines during the commissioning period shall accrue towards the annual emission limits specified in Pollutant Limitations section of this permit. [NCUAQMD Rule 102 §5.0]

Verification: The project owner shall submit to the CPM and APCO for approval the commissioning plan as required in **AQ-103**.

~~**AQ-119** Not later than 90 days prior to first operation, the permittee shall prepare and submit to the NCUAQMD for approval a plan for complying with the requirements of 40 C.F.R. 63 Subpart ZZZZ. This compliance plan shall provide for an initial performance test on each of the reciprocating engines S-1 through S-10 to demonstrate that each oxidation catalyst is achieving a minimum 70 percent reduction in CO over a four hour period. During the initial performance test, the continuous emission monitors shall successfully complete a performance evaluation in accordance using Performance Specification (PS) 3 and PS 4A of 40 C.F.R. Part 60 Appendix B; the oxidation catalyst pressure drop and inlet temperature shall be measured using ASTM D6522-00 [§63.6625(a)]; and the CEMS data collected in accordance with §63.6625(a) with the data reduced to 1-hour averages.~~

~~**Verification:** The project owner shall submit to the CPM and APCO for approval the 40 C.F.R. 63 Subpart ZZZZ compliance plan no less than 90 days before operation. If the district does not act to approve, reject, or request additional information within thirty (30) days of receipt of the plan submitted by the permittee, the plan shall be considered to be approved by the district.~~

~~**AQ-120** Not later than 90 days prior to first operation, the permittee shall prepare and submit to the NCUAQMD for approval a plan for complying with the requirements of 40 C.F.R. 60 Subpart IIII. This compliance plan shall provide for an initial performance test on each of the reciprocating engines S-1 through S-10 to demonstrate compliance with the NOx and PM limitations of 40 C.F.R. §60.4204(c)(1) and (c)(2) and shall establish operating parameters to be monitored continuously to ensure that each reciprocating engine continues to meet the applicable emission standards.~~

~~**Verification:** The project owner shall submit to the CPM and APCO for approval the 40 C.F.R. 60 Subpart IIII compliance plan no less than 90 days before operation. If the district does not act to approve, reject, or request additional information within thirty (30) days of receipt of the plan submitted by the permittee, the plan shall be considered to be approved by the district.~~

OPERATIONAL CONDITIONS

~~Engines S-1 through S-10~~

AQ-102~~122~~ All equipment listed in Table 1~~.0~~ Authorized Emission Devices and **Table 2**~~1.1~~ 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. ~~[NCUAQMD Rule 102 §5.0]~~***[District Rule 102(E); PSD 2/09]***

Verification: The project owner shall make the site **and records** available for inspection by representatives of the ~~d~~**D**istrict, ARB, and **Energy** Commission upon request.

AQ-103~~123~~ The permittee shall implement and maintain a written Startup, Shutdown, and Malfunction plan as described in 40 **CFR**~~C.F.R.~~ 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**~~NCUAQMD~~ approved Startup, Shutdown, and Malfunction plan is in effect. ~~The plan shall be submitted to the NCUAQMD not less than thirty (30) calendar days prior to the commissioning period for any of reciprocating engines S-1 through S-10. [NCUAQMD Rule 102 §5.0]~~***[District Rule 102(E); PSD 2/09]***

Verification: The project owner shall submit modifications to the plan to the District for approval and shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon request.~~The project owner shall submit to the CPM and APCO for approval the startup, shutdown, and malfunction plan at least 30 days prior to the commissioning period. If the district does not act to approve, reject, or request additional information within thirty (30) days of receipt of the plan submitted by the permittee, the plan shall be considered to be approved by the district.~~

AQ-104~~124~~ 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 **r**~~R~~egulations. The plan shall include, but not be limited to, daily system integrity inspections and the recording of operational parameters. ~~The plan shall be submitted to the NCUAQMD not more than sixty (60) calendar days following expiration of the commissioning period for any of reciprocating engines S-1 through S-10.~~ 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~~, after the expiration of the commissioning period for any of the reciprocating engines plus 60 days~~, unless a **District**~~NCUAQMD~~ approved Device Operational Plan is in effect. ~~[NCUAQMD Rule 102 §5.0]~~***[District Rule 102(E); PSD 2/09]***

Verification: The project owner shall submit modifications to the plan to the District for approval and shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon

request.~~The project owner shall submit to the CPM and APCO for approval the Device Operational Plan within 60 days after the commissioning period.~~

AQ-105~~125~~ 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 shall be submitted to the NCUAQMD not more than thirty (30) calendar days following expiration of the commissioning period for any of reciprocating engines S-1 through S-10.~~ 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~~, after the expiration of the commissioning period for any of the reciprocating engines plus 60 days,~~ unless a **District**~~NCUAQMD~~ approved Device Maintenance & Replacement Plan is in effect. ~~[NCUAQMD Rule 102 §5.0]~~***[District Rule 102(E); PSD 2/09]***

Verification: The project owner shall submit modifications to the plan to the District for approval and shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon request.~~The project owner shall submit to the CPM and APCO for approval the device maintenance and replacement plan within 30 days after the commissioning period.~~

AQ-106~~126~~ The permittee shall only operate the Reciprocating engines S-1 through S-10 in **N**~~n~~atural **G**~~g~~as **M**~~m~~ode except during ~~the commissioning period, during~~ maintenance and testing, and during natural gas curtailments as set forth in this permit. ~~[NCUAQMD Rule 102 §5.0]~~***[District Rule 102(E); PSD 2/09]***

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation~~a~~l report**s** (**AQ-SC9**).

AQ-107~~127~~ The permittee shall not operate reciprocating engines S-1 through S-10 such that startup periods exceed 60 minutes in length. ~~This limitation shall not apply during the commissioning period.~~ ~~[NCUAQMD Rule 102 §5.0]~~***[District Rule 102(E); PSD 2/09]***

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation~~a~~l report**s** (**AQ-SC9**).

AQ-108~~128~~ The permittee shall not operate reciprocating engines S-1 through S-10 such that shutdown periods exceed 30 minutes in length. ~~This limitation shall not apply during the commissioning period.~~ ~~[NCUAQMD Rule 102 §5.0]~~***[District Rule 102(E); PSD 2/09]***

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation~~a~~l report**s** (**AQ-SC9**).

AQ-109~~129~~ 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. ~~This limitation shall not apply during the commissioning period. [NCUAQMD Rule 102 §5.0]~~***[District Rule 102(E); PSD 2/09]***

Verification: A summary of combined engine-hours of operation during startup and shutdown periods shall be included in the semi-annual operation~~al~~ report**s** (**AQ-SC9**).

AQ-110~~130~~ 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, the hours of operation during startup and shutdown periods in **D**~~d~~iesel **M**~~m~~ode shall not exceed 500 engine-hours per calendar year. ~~For the purpose of determining compliance with this condition, startup and shutdown periods during the commissioning period shall not accrue toward these limitations. [NCUAQMD Rule 102 §5.0]~~***[District Rule 102(E); PSD 2/09]***

Verification: A summary of combined engine-hours of operation during startup and shutdown periods and startup and shutdown periods in **D**~~d~~iesel **M**~~m~~ode shall be included in the semi-annual operation~~al~~ report (**AQ-SC9**).

AQ-111~~131~~ The permittee shall not operate any of the reciprocating engines S-1 through S-10 below 50 percent load except during startup and shutdown periods. ~~This limitation shall not apply during the commissioning period. [NCUAQMD Rule 102 §5.0]~~***[District Rule 102(E); PSD 2/09]***

Verification: A summary of engine operations below 50 percent load shall be included in the semi-annual operation~~al~~ report**s** (**AQ-SC9**).

AQ-112~~132~~ 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. ~~This limitation shall not apply during the commissioning period. [NCUAQMD Rule 102 §5.0]~~***[District Rule 102(E); PSD 2/09]***

Verification: A summary of total engine-hours per calendar day at loads less than 12.0 MW per engine based on readings taken every 15 minutes shall be included in the semi-annual operation~~al~~ report (**AQ-SC9**).

AQ-113~~133~~ 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**~~2.3~~ Fuel Specifications for S-1 through S-10;

B. For no more than 50 hours per year for maintenance and testing per engine; and

C. Such that the combined engine operating hours do not exceed 1000.0 engine hours per year on a 365 day rolling average basis~~ or the combined~~

~~engine hours specified in Condition of Certification PUBLIC HEALTH-1, whichever is less~~.

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation~~al~~ report**s** (**AQ-SC9**).

AQ-114~~134~~ 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**%** ~~percent~~) deviation from the pressure drop established during performance testing. **This Condition shall not apply during startup or shutdown periods.** *[40 **CFR**~~C.F.R.~~ 63 Subpart ZZZZ]*

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation~~al~~ report**s** (**AQ-SC9**).

AQ-115~~135~~ 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 does not apply during startup or shutdown periods~~, during the commissioning period, or during malfunctions~~. *[40 **CFR**~~C.F.R.~~ 63 Subpart ZZZZ]*

Verification: A summary of significant operation and maintenance events and monitoring records required (**AQ-128~~146~~**) shall be included in the semi-annual operation~~al~~ report**s** (**AQ-SC9**).

AQ-116~~136~~ 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**%** ~~percent~~ over uncontrolled emission levels, calculated on a 3 hour rolling average. Verification of the emissions reduction shall be completed in accordance with 40 **CFR**~~C.F.R.~~ 63 Subpart ZZZZ. ~~This Condition does not apply during startup or shutdown periods, during the commissioning period, or during malfunctions.~~ *[40 **CFR**~~C.F.R.~~ 63 Subpart ZZZZ]*

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation~~al~~ report**s** (**AQ-SC9**).

Engines S-11 and S-12

AQ-117~~138~~ The permittee shall not operate ~~the reciprocating~~ engines S-11 and S-12~~,~~ for the purpose of maintenance and testing, within the same **Calendar Day**~~24 hour period. [NCUAQMD Rule 102 §5.0]~~***[District Rule 102(E); PSD 2/09]***

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation~~a~~l report**s** (**AQ-SC9**).

AQ-118~~137~~ The permittee shall not operate ~~the reciprocating~~ engines S-11 and S-12, for the purpose of maintenance and testing, in excess of the hour limits listed in Table **18**~~6.0~~ below ~~[NCUAQMD Rule 102 §5.0]~~***[District Rule 102(E)]***:

Table 18~~6.0~~ - S-11 and S-12 Hourly Operating Limits

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

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation~~a~~l report**s** (**AQ-SC9**).

AQ-119~~139~~ The permittee shall not operate the ~~reciprocating~~ 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 **D**~~d~~iesel **M**~~m~~ode. ~~[NCUAQMD Rule 102 §5.0]~~***[District Rule 102(E)]***

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation~~a~~l report (**AQ-SC9**).

AQ-120~~140~~ 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.**~~60 minute period. [NCUAQMD Rule 102 §5.0]~~***[District Rule 102(E); PSD 2/09]***

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation~~a~~l report**s** (**AQ-SC9**).

AQ-121~~168~~ 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**~~Cal. Code Regs., tit. 13 §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**~~Cal. Code Regs., tit. 13 §§2700-2710~~), or

D. Any combination of a) through **c**~~d~~) above.

Verification: The project owner shall make the site **and fuel records** available for inspection by representatives of the ~~d~~**D**istrict, ARB, and **Energy** Commission upon request.

AQ-122~~**171**~~ 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**~~8.0~~ below ~~[Cal. Code Regs., tit. 17 §93115]~~***[17 CCR §93115]***:

Table 19~~**8.0**~~ **- 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

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation~~al~~ report (**AQ-SC9**) **and AQ-127 reporting**.

REPORTING & RECORDKEEPING

Engines S-1 through S-12

AQ-123~~**141**~~ The permittee shall report all occurrences of breakdowns of the equipment listed in Table 1~~.0~~ Authorized Emission Devices or Table **21**~~**.1**~~ 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**~~NCUAQMD~~ in accordance with the timing requirements of **District**~~NCUAQMD~~ Rule 105**(D)** ~~§5.0~~.

Verification: The project owner shall submit all breakdown notifications and reports to the CPM in the semi-annual and annual operation reports~~A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operational report~~ (**AQ-SC9**).

AQ-124~~**142**~~ ~~The permittee shall record the following information in the event of an equipment breakdown or malfunction: date and time of event; event duration; description of event; identification of the cause of the event; identify what corrective measures were taken and, if unsuccessful, what additional measures should be taken in the future; and quantification of excess emissions released during the event.~~ The permittee shall maintain ~~this information in 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. ~~[NCUAQMD Rule 102 §5.0] [District Rule 105 §5.0]~~***~~[District Rule 105(D)]~~***

Verification: The project owner shall make the site and records available for inspection by representatives of the District, ARB and Energy Commission upon request. A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation~~al~~ report**s** (**AQ-SC9**).

AQ-125~~143~~ The permittee shall immediately record the following information when an event occurs where emissions from the equipment listed in Table 1~~.0~~ 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**,**

G. Actions taken to prevent reoccurrence of excess emission event.

Verification: The project owner shall make the site and records available for inspection by representatives of the District, ARB and Energy Commission upon request. A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation~~al~~ report**s** (**AQ-SC9**).

AQ-126~~144~~ The permittee shall provide to the **District**~~NCUAQMD~~, 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 form**s (VK series)** must be submitted to the **District**~~NCUAQMD~~ 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**~~7.0~~ to be kept "annually".

Verification: A copy of the signed "Compliance Certification"~~A summary of significant operation and maintenance events and monitoring records required~~ shall be included in the semi-annual operation~~al~~ report**s** (**AQ-SC9**).

AQ-127~~145~~ 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:

1. Identification of the fuel purchased as either CARB diesel, or an alternative diesel fuel that meets the requirements of the verification procedure;

2. Sulfur content of the fuel;

3. Amount of fuel purchased;

4. Date when the fuel was purchased;

5. Signature of owner or operator or representative of permittee who received the fuel; and

6. Signature of fuel provider indicating fuel was delivered.

Verification: The project owner shall make the site and records available for inspection by representatives of the District, ARB and Energy Commission upon request. The log of operational events including AQ-127 subparts A through E requirements, A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operational report**s** (**AQ-SC9**).

AQ-128~~146~~ The permittee shall continuously maintain onsite for the most recent five year period and shall be made available to the **District**~~NCUAQMD~~ APCO upon request, the records as listed in Table **20**~~7.0~~ below.

Table 20~~7.0~~ - 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**~~C.F.R.~~ 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 **D**~~d~~iesel **M**~~m~~ode 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 "**N**~~n~~atural **G**~~g~~as **Mode**" or "**D**~~d~~iesel **M**~~m~~ode"
At least one electronic reading every 15 minutes	A. NOx (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 (%)

Frequency	Information to be Recorded
Hourly (for each engine)	A. NOx (ppmvd @15% O_2) and lb/hr, **all** on a 1 hour average B. CO (ppmvd @15% O_2) and lb/hr, **all** on a rolling 3 hour average C. ROC (ppmvd @15% O_2) and lb/hr, **all** on a rolling 3 hour average D. NH3 (ppmvd @15% O_2) and lb/hr, **all** on a rolling 3 hour average E. SOx (ppmvd @15% O_2) and lb/hr, **all** on a rolling 3 hour average 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 **D**~~d~~iesel **M**~~m~~ode (MMBtu HHV, hourly average) ~~H. Volumetric proportion of natural gas to diesel pilot injection when operating in natural gas mode~~
Daily	A. NOx (lbs/day, total for all engines) B. CO (lbs/day, total for all engines) C. ROC (lbs/day, total for all engines) D. SOx (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 total for all engines) H. Diesel pilot fuel consumption (MMBtu HHV, all engines combined) I. Diesel fuel consumption during **D**~~d~~iesel **M**~~m~~ode (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**~~(% load on a 24 hour average for each engine and total for all engines)~~ K. Hours of operation **-** ~~(~~**total for** each engine and total for all engines as a sum of operating minutes~~)~~
Monthly	A. Sulfur content of natural gas (gr/100scf, monthly fuel testing) B. Natural gas sulfur content (gr/100scf, 12 month rolling average)

Frequency	Information to be Recorded
Quarterly (combined total for all engines)	A. NOx (tons) B. CO (tons) C. SOx (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 **D**~~d~~iesel **M**~~m~~ode (MMBtu HHV, and gallons) J. Sulfur content of natural gas (gr/100scf, 12 month rolling average) K. Hours of operation (for each fuel mode)
Annually (combined total for all engines)	A. NOx (tons) B. CO (tons) C. SOx (tons) D. ROC(tons) E. PM (tons) F. Diesel particulate matter (tons) G. Natural gas fuel consumption (MMBtu HHV) H. Diesel pilot fuel consumption (MMBtu HHV) I. Diesel fuel consumption during **D**~~d~~iesel **M**~~m~~ode (MMBtu HHV, and gallons) J. Sulfur content of natural gas (gr/100scf, annual average) K. Hours of operation (for each fuel mode)

Verification: The project owner shall make the site **and records** available for inspection by representatives of the ~~d~~**D**istrict, ARB, and **Energy** Commission upon request.

AQ-129~~147~~ For each ~~Q~~**q**uarter, 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**~~NCUAQMD~~ 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.

Verification: The project owner shall submit **the CEMS quarterly monitoring reports** to the ~~CPM and~~ APCO **quarterly as required by the condition, and shall submit the CEMS** quarterly monitoring reports **to the CPM in the semi-annual operation reports** ~~that include updates to the semi-annual monitoring results~~ (**AQ-SC9**).

AQ-130~~148~~ The permittee shall provide notification and record keeping as required pursuant to 40 **CFR**~~C.F.R.~~, Part 60, Subpart A, 60.7.

Verification: The project owner shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon request.~~No verification needed~~.

AQ-131~~149~~ 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 CAPCOA / CARB reference document *Emission Inventory Criteria Guidelines*~~. The inventory report shall be submitted to the **District**~~NCUAQMD~~ APCO no later than March 1st of the following calendar year. The inventory report is subject to **District**~~NCUAQMD~~ APCO approval. ~~[NCUAQMD Rule 102 §5.0]~~***[District Rule 102(E)]***

Verification: The project owner shall **annually** submit **the inventory report** to the CPM and APCO ~~the annual operational reports that include monitoring and compliance results~~ (**AQ-SC9** and **AQ-17~~15~~**).

~~**AQ-150** The permittee shall submit a health risk assessment protocol to the NCUAQMD APCO for review no later than 9 months after the Commissioning Period for the reciprocating engines S-1 through S-10 has concluded. [NCUAQMD Rule 102 §5.0]~~

~~**Verification:** The project owner shall submit to both the district and CPM for approval the health risk assessment protocol within 9 months after the commissioning period.~~

~~**AQ-151** No later than 120 days after the health risk assessment protocol required pursuant to this section has been approved by the APCO, the permittee shall submit to the APCO a health risk assessment. prepared pursuant to the approved protocol [NCUAQMD Rule 102 §5.0]~~

~~**Verification:** The project owner shall submit to both the district and CPM the revised health risk assessment within 120 days of the protocol being approved.~~

AQ-132~~152~~ Not later than 24 hours after determining that **D**~~d~~iesel **M**~~m~~ode 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 ~~[NCUAQMD Rule 102 §5.0]~~ ***[District Rule 102(E); PSD 2/09]***:

A. The anticipated start time and duration of operation in **D**~~d~~iesel **M**~~m~~ode under the natural gas curtailment; and

B. The anticipated quantity of diesel fuel expected to be burned under the natural gas curtailment.

Verification: The project owner shall submit to both the ~~d~~**D**istrict and CPM the notification within 24 hours after determining that **D**~~d~~iesel **M**~~m~~ode operation is to occur.

AQ-133~~153~~ Not later than 24 hours following the end of a period of any **D**~~d~~iesel **M**~~m~~ode operation, the permittee shall notify the APCO by email or facsimile of the following ~~[NCUAQMD Rule 102 §5.0]~~***[District Rule 102(E); PSD 2/09]***:

A. The actual start time and end time of the period of **D**~~d~~iesel **M**~~m~~ode 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 **D**~~d~~iesel **M**~~m~~ode operating period; and

C. The actual quantity of diesel fuel consumed during the **D**~~d~~iesel **M**~~m~~ode operation.

Verification: The project owner shall submit to ~~both~~ the ~~d~~**D**istrict ~~and CPM~~ the notification within 24 hours after the end of **D**~~d~~iesel **M**~~m~~ode operation. **The project owner shall submit to the CPM notification within 24 hours after the end of any Diesel Mode operation if any single engine consumed greater than 500 gallons. The project owner shall submit the total quantity of diesel fuel actually used for the prior six-month and twelve-month period in the semi-annual operation reports. The project owner shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon request.**

TESTING & COMPLIANCE MONITORING

AQ-134~~154~~ 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**~~C.F.R.~~ Part 60, Appendix F.

Verification: The project owner shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon request.~~No verification needed~~.

AQ-135~~155~~ The permittee shall monitor and record exhaust gas temperature at the inlet and at the outlet of the oxidation catalyst. [40 **CFR**~~C.F.R.~~ 63 Subpart ZZZZ]

Verification: A summary of significant operation and maintenance events and monitoring records required (**AQ-128~~146~~**) shall be included in the semi-annual operation~~al~~ report**s** (**AQ-SC9**).

AQ-136~~156~~ Not less than thirty days prior to the date of any source test required by this permit, the permittee shall provide the **District**~~NCUAQMD~~ APCO with written notice of the planned date of the test and a copy of the source test protocol.

Verification: The project owner shall submit the proposed protocol for the source tests 30 days prior to the proposed source test date to both the ~~d~~**D**istrict and CPM for approval.

AQ-137~~157~~ Source test results shall be summarized in a written report and submitted to the **District**~~NCUAQMD~~ 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**~~NCUAQMD~~ APCO no later than 60 days after the testing is completed.

Verification: The project owner shall submit source test results no later than 60 days following the source test date to both the ~~d~~**D**istrict and CPM.

~~**AQ-158** The permittee shall demonstrate compliance with all the emission limits identified in this permit prior to the end of the commissioning period of each of the reciprocating engines S-1 through S-10 using the following methods. Testing shall be conducted both while the engines are operated in natural gas mode and while operated in diesel mode. All compliance tests shall be conducted at 50 percent, 75 percent, and 95 percent or greater of the operating capacity of each reciprocating engine. Alternative test methods may be approved by the APCO.~~

~~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).~~

~~C. Visible emissions.~~

~~1. Permittee shall perform a "Visible Emission Evaluation" (VEE) concurrent with particulate matter testing. A CARB certified contractor shall perform such an evaluation.~~

~~D. Ammonia – Bay Area Air Quality Management District Source Test Procedure ST-1B.~~

~~E. Reactive organic gases – CARB Method 100.~~

~~F. Nitrogen oxides – CARB Method 100.~~

~~G. Carbon monoxide – CARB Method 100 & ASTM D6522-00 [NESHAP ZZZZ].~~

~~H. Oxygen – CARB Method 100 & ASTM D6522-00 [NESHAP ZZZZ].~~

~~1. Oxygen shall be measured at the inlet and outlet of the oxidation catalyst.~~

~~2. Oxygen measurements shall be made at the same time as the CO measurements.~~

~~3. 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.~~

~~J. Liquid fuel sulfur content – ASTM D5453-93.~~

~~**Verification:** The project owner shall submit the proposed protocol for the source tests 30 days prior to the proposed source test date to both the district and CPM for approval. The project owner shall notify the district and CPM no later than 7 days prior to the proposed source test date and time. The project owner shall submit source test results no later than 60 days following the source test date to both the district and CPM.~~

AQ-138~~159~~ The permittee shall demonstrate compliance with ~~all~~ the **Natural Gas Mode** emission limits **via source testing conducted in accordance with the test methods listed below.**~~identified in this permit for the reciprocating engines S-1 through S-10 once per calendar year unless indicated below, using the following methods.~~ For purposes of compliance with this condition, testing shall be conducted while the engines are operated in **N**~~n~~atural **G**~~g~~as **M**~~m~~ode**, and shall be conducted at the intervals and at the operating loads specified in Condition AQ-139.**~~. All compliance tests shall be conducted at an operating capacity of 50 percent, 75 percent, or 95 percent or greater during the testing of each reciprocating engine.~~ Alternative test methods may be approved by the APCO. ~~[NCUAQMD Rule 102 §5.0]~~***[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 - **p**~~P~~ermittee 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 District ~~Source Test Procedure~~**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.

1. Oxygen shall be measured at the inlet and outlet of the oxidation catalyst.

2. Oxygen measurements shall be made at the same time as the CO measurements.

~~3. Pressure drop measurements across the catalyst 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~~H~~. Natural gas fuel sulfur content – ASTM D3246.

Verification: The project owner shall submit the proposed protocol for the source tests 30 days prior to the proposed source test date to both the ~~d~~**D**istrict and CPM for approval. The project owner shall notify the ~~d~~**D**istrict and CPM no later than 7 days prior to the proposed source test date and time. The project owner shall submit source test results no later than 60 days following the source test date to both the ~~d~~**D**istrict and CPM.

AQ-139~~160~~ **To demonstrate compliance with the Natural Gas Mode emission limits, reciprocating** ~~The~~ 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.**~~with all of the engines to be tested in natural gas mode each year and all engines tested at the three different load values at least once every three years; and that each engine is tested at a different load each year. Each engine shall be tested, at the following loads (50 percent, 75 percent , ≥95 percent) or under conditions determined by the APCO to most challenge the emission control equipment~~. **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. ~~[NCUAQMD Rule 102 §5.0]~~***[District Rule 102(E); PSD 2/09 amended 6/15]***

Verification: The project owner shall submit the proposed protocol for the source tests to both the ~~d~~**D**istrict and CPM for approval in accordance with condition **AQ-136**~~159~~.

~~**AQ-161** Prior to the end of the commissioning period, the permittee shall conduct district-approved source testing on each of the reciprocating engines S-1 through S-10 to determine the maximum allowable ammonia (NH_3) injection rate necessary to demonstrate compliance with the ammonia slip limits in the Pollutant Limitations section of this permit. Each test shall be conducted over the expected operating range of the engines (including, but not limited~~

~~to, 50%, 75% and 95% and greater loads) to establish the range of ammonia injection rates necessary to achieve NOx emission reductions while maintaining ammonia slip to acceptable levels. Compliance with the ammonia slip limits in the Pollutant Limitations section of this permit shall be demonstrated through calculations of corrected ammonia concentrations based upon the source test correlations and continuous records of ammonia injection rates. The source tests shall determine the correlation between measured parameters, which shall include, but need not be limited to: engine heat input rate, ammonia injection rate, NOx concentration upstream and downstream of the SCR catalyst, and the corresponding NH_3 ammonia concentration at the point of discharge (exhaust stack).~~

~~**Verification:** The project owner shall submit the proposed protocol for the source tests to both the district and CPM for approval in accordance with Condition **AQ-156**. The project owner shall submit to the CPM and APCO the annual operational reports that include monitoring and compliance results (**AQ-SC9** and **AQ-15**).~~

AQ-140~~162~~ **The p**~~P~~ermittee shall demonstrate compliance with **the Diesel Mode** ~~permitted~~ 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 both while the engines are operated in Diesel Mode, and shall be conducted at the intervals and at the operating loads specified in Condition AQ-141.**~~for Engines S-1 through S-10 while operating in diesel mode once every three years or following each 200 hours of operation of an individual engine in diesel mode whichever is sooner. Compliance shall be demonstrated as indicated below using the following methods. All compliance tests shall be conducted while an engine is operated in diesel mode at 50 percent, 75 percent or 95 percent or greater operating capacity of each engine; or under conditions determined by the APCO to most challenge the emission control equipment~~. Alternative test methods may be approved by the APCO ~~[NCUAQMD Rule 102 §5.0]~~ ***[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 ~~Source Test Procedure~~**Method** ST-1B.

E. Reactive organic gases – **C**ARB Method 100.

F. Nitrogen oxides -- **C**ARB Method 100.

G. Carbon monoxide – **C**ARB Method 100.

~~1. CO shall be measured at the inlet and outlet of the oxidation catalyst.~~

H. CO shall be measured at the inlet and outlet of the oxidation catalyst

I~~H~~. Oxygen – **C**ARB Method 100.

1. Oxygen shall be measured at the inlet and outlet of the oxidation catalyst.

2. Oxygen measurements shall be made at the same time as the CO measurements.

J~~I~~. Liquid fuel sulfur content – ASTM D5453-93.

Verification: The project owner shall submit the proposed protocol for the source tests 30 days prior to the proposed source test date to both the ~~d~~**D**istrict and CPM for approval. The project owner shall notify the ~~d~~**D**istrict and CPM no later than 7 days prior to the proposed source test date and time. The project owner shall submit source test results no later than 60 days following the source test date to both the ~~d~~**D**istrict and CPM.

AQ-141~~63~~ 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 AQ-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 within 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]* ~~The engines shall be tested at various loads (50 percent, 75 percent, ≥95 percent) on a rotating basis, with one third of the engines to be tested in diesel mode in each year; and tested at each of the three loads. 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. The engines shall be tested on a rotating basis with all engines tested at the three different load values at least once every nine years; and that each engine is tested at a different load each rotation. [NCUAQMD Rule 102 §5.0]~~

Verification: The project owner shall submit the proposed protocol for the source tests to both the District and CPM for approval in accordance with condition **AQ-136~~159~~**.

AQ-142~~164~~ 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**~~C.F.R.~~ 63 Subpart ZZZZ; **District Rule 102(E); PSD 2/09 amended 6/15]**~~NCUAQMD Rule 102 §5.0]~~*

Verification: The project owner shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon request. A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation~~al~~ report**s** (**AQ-SC9**).

AQ-143~~165~~ The permittee shall demonstrate compliance with the hourly, daily, and annual SOx 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. ~~[NCUAQMD Rule 102 §5.0, PSD]~~***[District Rule 102(E); PSD 2/09]***

Verification: The project owner shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon request. A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation~~al~~ report**s** (**AQ-SC9**).

AQ-144~~166~~ 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. ~~[NCUAQMD Rule 102 §5.0, PSD]~~ ***[District Rule 102(E); PSD 2/09]***

Verification: The project owner shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon request. A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operation~~al~~ report**s** (**AQ-SC9**).

AQ-145~~167~~ 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**~~C.F.R.~~ 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**~~NCUAQMD~~ 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**~~NCUAQMD~~ within 60 days after the testing was performed. ***[District Rule 102(E); PSD 2/09]***

Verification: The project owner shall submit to the CPM and APCO **the** quarterly **compliance reports and** results of relative accuracy test audits (RATAs) ~~as updates to~~**in** the semi-annual **operation reports**~~monitoring results~~ (**AQ-SC9**).

~~**AQ-1674****5**~~ ~~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 C.F.R.~~**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 NCUAQMD~~**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 NCUAQMD~~**District** ~~within 60 days after the testing was performed.~~ ***[District Rule 102(E); PSD 2/09]***

Verification: ~~The project owner shall submit to the CPM and APCO quarterly results of relative accuracy test audits (RATAs) as updates to the semi-annual monitoring results (~~**~~AQ-SC9~~**~~).~~

LOCALLY ENFORCEABLE ONLY~~,~~
EQUIPMENT SPECIFIC REQUIREMENTS

~~FUEL USAGE~~

~~(~~**~~AQ-168~~** ~~moved to~~ **~~AQ-121~~**~~)~~

EMISSIONS

~~**AQ-169**~~ ~~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 0.15 g/bhp-hr. [Cal. Code Regs., tit. 17 §93115.]~~

Verification: ~~The project owner shall submit the results of source tests to both the district and CPM in accordance with condition~~ **~~AQ-162~~**~~.~~

AQ-146 ***Reserved.***

~~OPERATIONAL CONDITIONS~~

~~**AQ-170**~~ ~~While operating the reciprocating engines S-1 through S-10 in diesel mode, the permittee shall fire the engines for no more than 50 hours per year for each engine for maintenance and testing. [Cal. Code Regs., tit. 17 §93115.]~~

Verification: ~~A summary of significant operation and maintenance events and monitoring records required shall be included in the semi-annual operational report (~~**~~AQ-SC9~~**~~).~~

~~(~~**~~AQ-171~~** ~~moved to~~ **~~AQ-122~~**~~)~~

AMBIENT MONITORING

AQ-147~~172~~ The permittee shall provide full funding for the purchase and installation of a new monitoring station (Shelter; CO, NOx, PM10/PM2.5, 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 ~~d~~**D**istrict for costs incurred within 30 days of receiving an invoice from the ~~d~~**D**istrict. At the conclusion of that period, the APCO may extend the operation of the site if deemed in the best interest of the ~~d~~**D**istrict, and PG&E will continue to fund all costs associated with its continued operation. The ~~d~~**D**istrict shall manage the procurement, operation and maintenance of the site, and ~~d~~**D**istrict staff will be responsible for collecting, securing, and quality assuring all data. *[District Rule 102**(E)** ~~§5.0~~]*

Verification: The project owner shall **provide an annual statement of compliance in the semi-annual operation report (AQ-SC9). The statement of compliance shall include a status of the monitoring station.** ~~certify providing the district full funding for the ambient air quality monitoring station.~~ A copy of **any**~~each~~ payment submitted by the project owner in response to a ~~d~~**D**istrict invoice shall be submitted to the CPM within 15 days of issuance.

AQ-148~~173~~ 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 ~~d~~**D**istrict for costs incurred within 30 days of receiving an invoice from the ~~d~~**D**istrict. At the conclusion of that period, the APCO may extend the operation of the site if deemed in the best interest of the ~~d~~**D**istrict, and PG&E will continue to fund all costs associated with its continued operation. The ~~d~~**D**istrict shall manage the procurement, operation and maintenance of the site, and ~~d~~**D**istrict 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)** ~~§5.0~~]*

Verification: The project owner shall **provide an annual statement of compliance in the semi-annual operation report (AQ-SC9). The statement of compliance shall include a status of the monitoring station.** ~~certify providing the district full funding for the meteorological station.~~ A copy of **any**~~each~~ payment submitted by the project owner in response to a ~~d~~**D**istrict invoice shall be submitted to the CPM within 15 days of issuance.

EQUIPMENT EXEMPT FROM PERMITTING REQUIREMENTS

AQ-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)

Verification: The project owner shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon request.

PROPOSED AMENDED PUBLIC HEALTH CONDITIONS OF CERTIFICATION

PUBLIC HEALTH-1 The project owner shall not operate **any stationary** ~~the Wärtsilä~~ engines **on the site** on diesel fuel ~~for a period~~ exceeding **1,464,364 gallons diesel fuel per year for all uses combined for all diesel-fueled stationary engines.** ~~510 hours per year total for all 10 engines, with the exception of the first year when commissioning and compliance testing is required and the hours may not exceed 650. Once the health risk assessment prepared pursuant to PUBLIC HEALTH-2 is approved by the CPM, the CPM will notify the project owner of the total number of engine hours on diesel fuel the project may operate annually, as determined by what the health risk assessment shows as the maximum number of hours that achieve a theoretical maximum cancer risk at the point of maximum impact of less than~~

~~10 in one million and acute and chronic Hazard Indices of less than 1.0. The CPM may also, based upon the results of the compliance testing and the health risk assessment, allow the use of an emission rate in pounds per year (lbs/yr) of diesel particulate matter as the limitation of operation when on diesel fuel in lieu of hours per year so long as the CPM can verify the emissions on a daily and yearly basis through objective criteria. The 510 total hours of operation for all engines using diesel fuel, and any subsequently adjusted number of hours, shall not include time needed for compliance testing required as per Condition AQ-163 if the testing is conducted when the wind direction is out of the east or south east.~~

Verification: The project owner shall provide **all source test results to the CPM in a timely manner as per conditions AQ-138, AQ-139, AQ-140, and AQ-141 with an annual log of diesel fuel usage (AQ-133).** ~~hourly logs of diesel fuel usage to the CPM in the annual compliance report summary. The log shall include the unit number, duration, and purpose (annual compliance testing, natural gas curtailment or emergency). The log shall also include wind direction for any hour the project owner is seeking to exclude.~~

PUBLIC HEALTH-2 The project owner shall, when conducting testing at 100% load at the tenth year after commencing commercial operation and every 15 years thereafter, according to the requirements of conditions AQ-140 and AQ-141, include the quantitative analysis and assessment of the following toxic air contaminants: diesel particulate matter in the exhaust stream both before and after the oxidative catalyst, acetaldehyde, acrolein, benzene, 1, 3-butadiene, ethyl benzene, formaldehyde, propylene, toluene, and xylenes. ~~The project owner shall provide the results of a source test using diesel fuel on the number of engine exhaust stacks required below and a human health risk assessment (HRA) to the Compliance Project Manager (CPM). The source test and human health risk assessment shall be conducted according to protocols reviewed and commented on by the North Coast Unified Air Quality Management District and reviewed and approved by the CPM, and the protocols shall be submitted to the CPM no later than 60 days after the date of starting commercial operations. The source test shall be consistent with and conducted at the same time as testing required under Condition of Certification AQ-163. The source test and HRA shall include the quantitative analysis and assessment of the following toxic air contaminants: diesel particulate matter in the exhaust stream both before and after the oxidative catalyst, acetaldehyde, acrolein, benzene, 1, 3-butadiene, ethyl benzene, formaldehyde, propylene, toluene, and xylenes.~~

~~The number of engine exhaust stacks to be sampled shall be determined in the following manner:~~

~~1. Four (4) engines chosen randomly shall be tested first. If stack testing results for each contaminant described above on all four engines falls within two standard deviations of the arithmetic mean of each individual contaminant, no further engines need be tested.~~

~~2. If any contaminants measured in the stack test fall outside two standard deviations of the arithmetic mean for that contaminant, three (3) engines chosen randomly shall be tested for all contaminants that fell outside two standard deviations of the arithmetic mean. If stack testing results for each contaminant described above on all seven engines tested fall within two standard deviations of the arithmetic mean of each individual contaminant, no further engines need be tested. The project owner may request relief from this and further stack testing by providing the CPM a written request with documentation explaining that further testing would not result in a significant change in the health risk assessment results.~~

~~3. This process shall be continued until either the results for all engines tested fall within two standard deviations of the arithmetic mean of each individual contaminant for all engines tested or all ten (10) engines are tested.~~

~~4. The HRA described above shall be based on all data produced for all engines tested tinder this protocol.~~

This source testing shall **occur** ~~be repeated three years after the initial source test and again~~ after 10 years of commencing commercial operations **and again every 15~~0~~ years after that**.

Verification: ~~-~~**At the same time – or as close in time as possible -- as a submittal of results of source testing for sources S-1 through S-10 as per conditions AQ-140 and AQ-141, the project owner shall ensure that the 10-year tests~~ ~~-~~ **and the subsequent 15-year tests for the toxic air contaminants listed above are included for submittal to and review and approval of the CPM.** ~~No later than 60 days after the start of commercial operations, the project owner shall provide a copy of the source test and human health risk assessment protocols to the NCUAQMD for review and comment and to the CPM for review and approval. No later than 60 days after each group of source tests has been completed, the project owner shall provide the source test results to the NCUAQMD and the CPM. When the project owner has fulfilled the requirement for testing, the project owner shall submit all test results and the HRA to the NCUAQMD for review and comment and to the CPM for approval within 90 days of the date of the last test or not later than 9 months after the date of starting commercial operations for all ten engines, whichever is sooner.~~

~~Source test results from testing performed concurrently with Conditions AQ-159, AQ-160, AQ-162, and AQ-163 may be used to meet the requirements of this condition, provided that the testing includes the quantitative analysis and assessment of toxic air contaminants and diesel particulate matter as required by this condition.~~

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Attachment D
LORS Summary Table

Summary of Laws, Ordinances, Regulations, Standards (LORS) Air Quality

LORS	Purpose	Regulating Agency	Compliance Status
Federal			
Clean Air Act (CAA) §160-169A and implementing regulations, Title 42 United States Code (USC) §7470-7491 (42 USC 7470-7491), Title 40 Code of Federal Regulations (CFR) Parts 51 & 52 (40 CFR 51 & 52) (Prevention of Significant Deterioration Program)	Requires prevention of significant deterioration (PSD) review and facility permitting for construction of new or modified major stationary sources of air pollution. PSD review applies to pollutants for which ambient concentrations are lower than NAAQS.	NCUAQMD with USEPA oversight	In Compliance
CAA §171-193, 42 USC §7501 et seq. (New Source Review)	Requires new source review (NSR) facility permitting for construction or modification of specified stationary sources. NSR applies to pollutants for which ambient concentration levels are higher than NAAQS.	NCUAQMD with USEPA oversight	In Compliance
CAA §401 (Title IV), 42 USC §7651 (Acid Rain Program)	Requires reductions in NO_x and SO_2 emissions.	NCUAQMD with USEPA oversight	In Compliance
CAA §501 (Title V), 42 USC §7661 (Federal Operating Permits Program)	Establishes comprehensive permit program for major stationary sources.	NCUAQMD with USEPA oversight	In Compliance
CAA §111, 42 USC §7411, 40 CFR Part 60 (New Source Performance Standards [NSPS])	Establishes national standards of performance for new stationary sources.	NCUAQMD with USEPA oversight	In Compliance
CAA §112, 42 USC §7412, 40 CFR Part 63 (NESHAP)	Establishes national emission standards for hazardous air pollutants.	NCUAQMD with USEPA oversight	In Compliance
State			
California Health & Safety Code (H&SC) §41700 (Nuisance Regulation)	Outlaws discharge of such quantities of air contaminants that cause injury, detriment, nuisance, or annoyance.	NCUAQMD with CARB oversight	In Compliance
H&SC §44300-44384; California Code of Regulations (CCR) §93300-93347 (Toxic “Hot Spots” Act)	Requires preparation and biennial updating of facility emission inventory of hazardous substances; risk assessments.	NCUAQMD with CARB oversight	In Compliance
California Public Resources Code §25523(a); 20 CCR §1752, 2300-2309 (CEC & CARB Memorandum of Understanding)	Requires that CEC’s decision on AFC or subsequent amendments include requirements to assure protection of environmental quality; AFC and subsequent amendments required to address air quality protection.	CEC	In Compliance
Local			
NCUAQMD Rule 104 §1.1 (Public Nuisance)	Prohibits emissions in quantities that adversely affect public health, other businesses, or property.	NCUAQMD with CARB oversight	In Compliance
NCUAQMD Rule 110 (New Source Review and Prevention of Significant Deterioration)	NSR and PSD: Requires that preconstruction review be conducted for all proposed new or modified sources of air pollution, including BACT, emissions offsets, and air quality impact analysis.	NCUAQMD with CARB oversight	In Compliance
NCUAQMD Rules 501-504 (Title V)	Implements operating permits requirements of CAA Title V	NCUAQMD with USEPA oversight	In Compliance
NCUAQMD Rules 501-504 (Title IV)	Acid rain regulations of CAA Title IV.	NCUAQMD with USEPA oversight	In Compliance

Summary of Laws, Ordinances, Regulations, Standards (LORS) Air Quality

LORS	Purpose	Regulating Agency	Compliance Status		
NCUAQMD Rule 104 §2.1 (Visible Emissions)	Limits visible emissions to no darker than Ringelmann No. 2 for periods greater than 3 minutes in any hour.	NCUAQMD with CARB oversight	In Compliance		
NCUAQMD Rule 104 §3.1 (Particulate Matter)	Limits PM emissions to less than 0.20 gr/dscf.	NCUAQMD with CARB oversight	In Compliance		
NCUAQMD Rule 104 §5.0 (Sulfur Dioxide)	Limits SO_2 emissions to <1,000 ppm	NCUAQMD with CARB oversight	In Compliance		

Attachment E
Reconsideration of HBGS as a Major Source

Reconsideration of the HAPs Major Source Status 40 CFR 63.9(j) and 40 CFR 63 Subpart ZZZZ Applicability to HBGS

Plant Site Location:

Pacific Gas & Electric
Humboldt Bay Generating Station
1000 King Salmon Avenue
Eureka, CA 95503

Pacific Gas and Electric (PG&E) currently owns and operates the Humboldt Bay Generating Station (HBGS). The station is comprised of ten (10) Wartsila 16.3 MW dual-fueled engines. Prior to the construction of the new Wartsila engines the site was comprised of two (2) power boilers, and two (2) gas turbines. In addition to the 10 new engines, the site also has two (2) small stationary ICE-CI engines used for emergency power and emergency fire pump operations.

Final permitting for the proposed new facility was completed by the North Coast Unified AQMD in early 2008, and the final CEC decision was rendered in the late-fall of 2008. Construction operations were initiated shortly thereafter, with commissioning and operations beginning in late-summer 2010. Initial compliance testing occurred in late August and September 2010.

The power boilers and turbines noted above were taken out of service in mid-2010, and fully decommissioned by April 2012. These sources were demolished and removed from the site, as was a 63 MW nuclear plant.

In the CEC Final Staff Assessment (FSA) dated May 2008, the CEC indicates in Table 6 in the Public Health analysis that the cumulative emissions of federal HAPs do not exceed the 25 tpy criteria in Title III, but emissions of formaldehyde are listed as 10.6 tpy. The formaldehyde emissions would place the proposed facility in the category of being a “major source” of federal HAPS.

In May 2010, a request was made to EPA Region IX for a determination of applicability of the appropriate NSPS and NESHAPs standards to apply to the new Wartsila engines. EPA Region IX’s response, dated May 20, 2010 concluded that the facility was subject to 40 CFR 60 Subpart IIII and 40 CFR 63 Subpart ZZZZ. This determination seemed to focus on the engine design and operations and did not address the source HAPs status, i.e., it may have been assumed that the previous FSA determination was still valid.

In the compliance plans submitted for Subparts ZZZZ and IIII (February 2010 and revised in June 2014), it is stated in the summary section of both documents that the facility is a “major source” of HAPS. A statement similar to this is made in the FDOC dated April 2008. A major source of HAPs is a source that has potential or actual emissions of a single HAP in excess of 10 tons per year, or a combination of HAPs whose emissions are in excess of 25 tons per year. A source that has HAP emissions less than the foregoing values is considered to be an “area source” of HAPs. It is essential to understand the HAPs status of a source in determining the applicability of Subpart ZZZZ.

As noted above, in 2010, when EPA made its determination of Subpart ZZZZ and Subpart IIII applicability, there is no mention of how the Subpart ZZZZ applicability determination was arrived at with regards to the HAPs status of the facility.

HBGS believes that the initial determination and subsequent compliance plans need to be re-evaluated in light of the actual HAPS status of the facility since 2011. HBGS understands that a reasonable estimate of the HAPs status, considering the new engines coupled with the existing boilers and turbines, may have been correct, but there was ample data in 2007 and 2008 that indicated that the new facility would potentially not be a major source of HAPs, as follows:

1. The HRA dated November 2007 clearly indicated that the HAPs emissions for the proposed new engines would be less than 17 tpy, and no single HAP would be in excess of 10 tpy (Table 8.1A-8A, Rev 11/2007).
2. The updated HRA dated February 2008 also indicated that the HAPs emissions for the proposed new engines would be less than 20 tpy, and no single HAP would be in excess of 10 tpy (Table 8.1A-8, Rev 2008).

In addition to the above data, in 2019, ADI conducted a re-evaluation of HAPS emissions for the existing facility, i.e., the 10 new Wartsila engines and the two (2) small CI engines. This analysis used test data gathered from the facility during 2010-11 and 2013. This data was supplemented by data (emissions factors from AP-42, Ventura County APCD emissions factors, and emissions profile data compiled by the San Joaquin Valley APCD) in an effort to evaluate a much broader range of HAPS, and to produce a conservative inventory of potential HAPs for the facility. Using actual annual fuel use values from 2011 through 2020, actual HAP emissions are well below the major source threshold values noted above. Using the maximum permitted fuel use rates for the engines in conjunction with the established emissions factors results in maximum potential HAP emissions well below the major source threshold values as well. We conclude from the above that the new facility has been an “area source” of HAPs as far back as at least early 2011 up to the present based on actual and potential emissions. See Table 1 attached to this analysis for the annual HAPS and HAPS PTE evaluations. Additional explanatory notes on Table 1 are presented at the end of this submittal.

Furthermore, HBGS notes that there is nothing in the Title III implementing regulations that states that a major source cannot become an area source and vice versa for HAPS. We also note that in 2020 EPA specifically amended specific sections in 40 CFR 63 Subpart A to formalize the process allowing a source to submit a petition to the permitting authority for a re-classification from “major” to “area” source status (or vice versa) with respect to HAPs.

Applicability of 40 CFR 63 Subpart ZZZZ is essentially based on two basic criteria, i.e., (1) the status of each engine as either “new, existing, or reconstructed”, and (2) the emissions status of the source for HAPs.

Based on the above, one of the determination criteria for Subpart ZZZZ is established, i.e., the facility is an “area source” for HAPS, not a “major source” as earlier supposed. This “area source” status has been consistent from 2011 to the present.

The next criteria under 40 CFR 63 Subpart ZZZZ would be the applicability dates for existing or new engines.

The following data will be used in the next evaluation:

1. Construction of the new facility commenced in the winter of 2008.
2. Each engine is rated at 22931 HP.
3. The cylinder displacement on each engine is ~ 50 liters per cylinder.
4. The engines are classified (by EPA) as compression ignition, 4 stroke-lean burn.

A careful reading of 40 CFR 63 Subpart ZZZZ (as derived from EPA https://www.ecfr.gov/cgi-bin/text-idx?c=ecfr;rgn=div6;view=text;node=40%3A14.0.1.1.1.1;idno=40;sid=e94dcfde4a04b27290c445a56e635e58;cc=ecfr) shows the following:

Section 63.6585 states: "You are subject to this subpart if you own or operate a stationary RICE at a major or area source of HAP emissions, except if the stationary RICE is being tested at a stationary RICE test cell/stand." Other than the explanatory provisions in subsection (a) through (d), nothing else in this section applies.

Section 65.6590 presents the applicability definitions to determine if an engine is an affected source based upon its status as "new, existing, or reconstructed".

Under 65.6590 subsections (a)(1-3) we see the applicability criteria for new, existing, and reconstructed affected units.

- Subsections (a)(1)(i-iv) address existing engines, but none of these provisions apply to the HBGS engines, so these engines would not be classified as "existing".
- Subsections (a)(2)(i-iii) address new engines, and (a)(2)(iii) specifically applies to the HBGS engines since they are located at an "area source" of HAPS and construction commenced after June 12, 2006. Therefore, the HBGS engines would be classified as "new" under Subpart ZZZZ.
- It is interesting to note, that these engines would also be classified as "new" under (a)(2)(i) if they were located at a "major source" of HAPS and construction commenced after December 12, 2002.
- Subsection (a)(3) applies to reconstructed engines and it does not apply to the HBGS engines.
- Subsections (b)(1)(i-ii) apply to engines that only have to meet limited requirements under ZZZZ. The HBGS engines do not meet these criteria.
- Subsection (b)(2) exempts certain engines firing landfill gas from specific parts of ZZZZ. This does not apply to the HBGS engines.
- Subsections (b)(3)(i-v) list a series of exemptions from ZZZZ, Subpart A, and the notification requirements of ZZZZ. None of these apply to the HBGS engines.
- Subsection (c) reads as follows: *Stationary RICE subject to Regulations under 40 CFR Part 60.* An affected source that meets any of the criteria in paragraphs (c)(1) through (7) of this section must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart IIII, for compression ignition engines or 40 CFR part 60 subpart JJJJ, for spark ignition engines. No further requirements apply for such engines under this part.
- Subsections (c)(1-7) lists a series of exemptions from subpart ZZZZ, but these exempted engines must comply with NSPS Subpart IIII. Subsection (c)(1) states "A new or reconstructed stationary RICE located at an area source;". This section clearly applies to the HBGS engines because the engines are classified as "new" and they are located at an "area source" of HAPs.

We therefore conclude that the HBGS engines are currently exempt from 40 CFR 63 Subpart ZZZZ, and that the exemption requires the engines to meet the requirements of NSPS Subpart IIII, and that such compliance will be deemed compliance with Subpart ZZZZ.

Compliance Requirements under NSPS Subpart IIII

A review of NSPS Subpart IIII as derived from https://www.ecfr.gov/cgi-bin/text-idx?node=sp40.7.60.iiii shows the following:

- The HBGS engines are subject to Subpart IIII per Section 60.4200 (a)(2)(i).
- The requirements under 60.4201 applicable to manufacturers do not apply to the HBGS engines.
- The requirements under 60.4202 applicable to manufacturers of emergency engines do not apply to the HBGS engines.
- Section 60.4203 does not apply to the HBGS engines.
- Section 60.4204 (c)(1(i-iii) requires NOx compliance with the following limits (based on the maximum rated RPM of the engine):
  (i) 12.7 g/hp-hr if RPM < 130
  (ii) (34)(n^-0.2) g/hp-hr if RPM is > 130 but < 2000
  (iii) 7.3 g/hp-hr if RPM is >= 2000

  Engine specification data for the Wartsila 18V50DF engines indicates that the RPM is in the the range of 500-514. This would indicate that the NOx compliance limit under 60.4204 would be 9.756 g/bhp-hr. The current permit BACT limits for gas and oil, i.e., 3.1 lbs/hr and 19.9 lbs/hr respectively, ensure compliance with the subpart IIII NOx requirements.

- Section 60.4206 requires emissions compliance over the lifetime of the engine. The current permit conditions with respect to emissions limits and operational limits will ensure compliance with this requirement.
- Section 62.4207 relates to fuel sulfur standards. The use of CA ULSD meets these standards.
- Section 60.4208 does not apply to the HBGS engines.
- Section 60.4209 does not apply to the HBGS engines (no DPF's are used)
- Section 60.4210 does not apply to the HBGS engines.
- Section 60.4211 compliance requirements are being met by HBGS as applicable.
- Section 60.4212 does not apply to the HBGS engines.
- Section 60.4213 testing requirements are being met by compliance with the District testing conditions delineated in the current facility permit.
- Section 60.4214 notification and reporting requirements are being met by compliance with the District permit conditions.
- Sections 60.4215, 4216, and 4217 do not apply to the HBGS engines.
- Section 60.4219 are the definitions applicable to the rule and apply to the HBGS engines as applicable.
- The performance test procedures as outlined in Table 7 apply to the engines at HBGS, but the current permit testing requirements and procedures ensure compliance with the Table 7 requirements.

Conclusion

Based on the clear exemption from Subpart ZZZZ due to the present (and past) status as an "area source" of HAPs, and the engine classification as "new", and the known requirements of Subpart IIII, the following permit changes should be pursued:

a. Removal of all 40 CFR 63 Subpart ZZZZ requirements and references in the current Title V permit.

Additional notes on the 2019 HAPS testing data presented in Table 1:

DPM, ammonia, and propylene are not federal HAPs and are therefore not included in the HAPs emissions evaluations.

Natural Gas

1. A total of 11 federal HAPs were evaluated in the 2007 and 2008 HRAs. These same 11 HAPS were noted in the FDOC. The FDOC factors were listed as uncontrolled but were converted to controlled values in the 2007/2008 HRAs.
2. The 2019 analysis prepared by ADI included a total of 26 HAPs. These values were listed as controlled values.
3. A comparison of the substance emissions factors used in the 2007/2008 HRA and the 2019 ADI analysis shows that 8 of the ADI factors are higher than the earlier values, 2 values are the same as the earlier values, and 1 is lower than the earlier values.
4. With the inclusion of the additional 15 extra substances in the 2019 ADI analysis, the emissions as calculated are conservative.

Diesel Fuel

1. A total of 8 federal HAPs were evaluated in the 2007/2008 HRAs, but a total of 9 were stated in the FDOC for purposes of emissions calculations. These factors were listed as uncontrolled but were converted to controlled values in the HRAs.
2. The 2019 analysis by ADI included a total of 19 substances. These values were listed as controlled.
3. 8 of the ADI values were derived from HBGS test data. Of these 8 values, 3 are lower than the values used in the FDOC and 2007/2008 HRAs, 3 are higher, and 2 had no data to compare them to in the FDOC or 2007/2008 HRAs.
4. With the inclusion of the additional 11 substances in the 2019 ADI analysis, the emissions as calculated are conservative.

Table 1 HBGS Federal HAP Emissions by Pollutant and Year

		Actual Emissions, lbs/Yr											Max PTE
	Year	2010	2011	2012	2013*	2014	2015	2016	2017	2018	2019	2020	Lbs/Yr
Engines S-1 to S-10													
Nat Gas, Total MMSCF/Yr		NA	3987.02	3506.516	-	2932.204	3398.91	3102.46	3563.83	2907.34	3272.05	3520.1	**9136.04**
Engines S-1 to S-12													
Diesel Fuel, Total 10^3 Gal/Yr		NA	315.25	255.03	-	177.95	157.57	104.46	200.06	83.07	176.4	228.17	**1466.529**
Nat Gas HAPs	**lb/MMSCF**												
1122 Tetrachloroethane	0.0096	NA	38.28	33.66	-	28.15	32.63	29.78	34.21	27.91	31.41	33.79	**87.71**
112 Trichloroethane	0.00763	NA	30.42	26.75	-	22.37	25.93	23.67	27.19	22.18	24.97	26.86	**69.71**
11 Dichloroethane	0.00566	NA	22.57	19.85	-	16.60	19.24	17.56	20.17	16.46	18.52	19.92	**51.71**
13 Butadiene*	0.3672	NA	1464.03	1287.59	-	1076.71	1248.08	1139.22	1308.64	1067.58	1201.50	1292.58	**3354.75**
224 Trimethylpentane	0.06	NA	239.22	210.39	-	175.93	203.93	186.15	213.83	174.44	196.32	211.21	**548.16**
POM (PAHs) as BaP*	0.0003	NA	1.20	1.05	-	0.88	1.02	0.93	1.07	0.87	0.98	1.06	**2.74**
Naphthalene*	0.0251	NA	100.07	88.01	-	73.60	85.31	77.87	89.45	72.97	82.13	88.35	**229.31**
Acetaldehyde*	0.5295	NA	2111.13	1856.70	-	1552.60	1799.72	1642.75	1887.05	1539.44	1732.55	1863.89	**4837.53**
Acrolein*	0.0591	NA	235.63	207.24	-	173.29	200.88	183.36	210.62	171.82	193.38	208.04	**539.94**
Benzene*	0.2183	NA	870.37	765.47	-	640.10	741.98	677.27	777.98	634.67	714.29	768.44	**1994.40**
Biphenyl	0.0509	NA	202.94	178.48	-	149.25	173.00	157.92	181.40	147.98	166.55	179.17	**465.02**
Carbon Tet	0.00881	NA	35.13	30.89	-	25.83	29.94	27.33	31.40	25.61	28.83	31.01	**80.49**
Chlorobenzene	0.0073	NA	29.11	25.60	-	21.41	24.81	22.65	26.02	21.22	23.89	25.70	**66.69**
Chloroform	0.00684	NA	27.27	23.98	-	20.06	23.25	21.22	24.38	19.89	22.38	24.08	**62.49**
Ethyl benzene*	0.0712	NA	283.88	249.66	-	208.77	242.00	220.90	253.74	207.00	232.97	250.63	**650.49**
Ethylene dibromide	0.0106	NA	42.26	37.17	-	31.08	36.03	32.89	37.78	30.82	34.68	37.31	**96.84**
Ethylene dichloride	0.00566	NA	22.57	19.85	-	16.60	19.24	17.56	20.17	16.46	18.52	19.92	**51.71**
Formaldehyde*	0.6232	NA	2484.71	2185.26	-	1827.35	2118.20	1933.45	2220.98	1811.85	2039.14	2193.73	**5693.58**
Hexane*	1.1322	NA	4514.10	3970.08	-	3319.84	3848.25	3512.61	4034.97	3291.69	3704.62	3985.46	**10343.82**
Methanol	0.6	NA	2392.21	2103.91	-	1759.32	2039.35	1861.48	2138.30	1744.40	1963.23	2112.06	**5481.62**
Methylene chloride	0.0048	NA	19.14	16.83	-	14.07	16.31	14.89	17.11	13.96	15.71	16.90	**43.85**
Phenol	0.00576	NA	22.97	20.20	-	16.89	19.58	17.87	20.53	16.75	18.85	20.28	**52.62**
Styrene	0.00566	NA	22.57	19.85	-	16.60	19.24	17.56	20.17	16.46	18.52	19.92	**51.71**
Toluene*	0.2397	NA	955.69	840.51	-	702.85	814.72	743.66	854.25	696.89	784.31	843.77	**2189.91**
Vinyl chloride	0.00358	NA	14.27	12.55	-	10.50	12.17	11.11	12.76	10.41	11.71	12.60	**32.71**
Xylenes (mixed)*	0.6467	NA	2578.41	2267.66	-	1896.26	2198.08	2006.36	2304.73	1880.18	2116.03	2276.45	**5908.28**

		Actual Emissions, lbs/Yr											Max PTE
	Year	2010	2011	2012	2013*	2014	2015	2016	2017	2018	2019	2020	Lbs/Yr
Engines S-1 to S-10													
Nat Gas, Total MMSCF/Yr		NA	3987.02	3506.516	-	2932.204	3398.91	3102.46	3563.83	2907.34	3272.05	3520.1	**9136.04**
Engines S-1 to S-12													
Diesel Fuel, Total 10^3 Gal/Yr		NA	315.25	255.03	-	177.95	157.57	104.46	200.06	83.07	176.4	228.17	**1466.529**
#2 Diesel Fuel HAPs	**lbs/1000 gal**												
Benzene*	0.0009	NA	0.284	0.230	-	0.160	0.142	0.094	0.180	0.075	0.159	0.205	**1.32**
Toluene*	0.00089	NA	0.281	0.227	-	0.158	0.140	0.093	0.178	0.074	0.157	0.203	**1.31**
Xylenes (mixed)*	0.00108	NA	0.340	0.275	-	0.192	0.170	0.113	0.216	0.090	0.191	0.246	**1.58**
Formaldehyde*	0.3815	NA	120.268	97.294	-	67.888	60.113	39.851	76.323	31.691	67.297	87.046	**559.48**
Acetaldehyde*	0.0891	NA	28.089	22.723	-	15.855	14.039	9.307	17.825	7.402	15.717	20.330	**130.67**
Acrolein*	0.0344	NA	10.845	8.773	-	6.121	5.420	3.593	6.882	2.858	6.068	7.849	**50.45**
POM (PAHs) as BaP	0.00833	NA	2.626	2.124	-	1.482	1.313	0.870	1.666	0.692	1.469	1.901	**12.22**
Naphthalene	0.00278	NA	0.876	0.709	-	0.495	0.438	0.290	0.556	0.231	0.490	0.634	**4.08**
Arsenic	0.0016	NA	0.504	0.408	-	0.285	0.252	0.167	0.320	0.133	0.282	0.365	**2.35**
Beryllium	0	NA	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.00**
Cadmium	0.0015	NA	0.473	0.383	-	0.267	0.236	0.157	0.300	0.125	0.265	0.342	**2.20**
Total chromium	0.0006	NA	0.189	0.153	-	0.107	0.095	0.063	0.120	0.050	0.106	0.137	**0.88**
Lead	0.0083	NA	2.617	2.117	-	1.477	1.308	0.867	1.660	0.689	1.464	1.894	**12.17**
Manganese	0.0031	NA	0.977	0.791	-	0.552	0.488	0.324	0.620	0.258	0.547	0.707	**4.55**
Mercury	0.002	NA	0.631	0.510	-	0.356	0.315	0.209	0.400	0.166	0.353	0.456	**2.93**
Nickel	0.0039	NA	1.229	0.995	-	0.694	0.615	0.407	0.780	0.324	0.688	0.890	**5.72**
Selenium	0.0022	NA	0.694	0.561	-	0.391	0.347	0.230	0.440	0.183	0.388	0.502	**3.23**
Ethyl benzene*	0.00108	NA	0.340	0.275	-	0.192	0.170	0.113	0.216	0.090	0.191	0.246	**1.58**
1-3 Butadiene*	0.00046	NA	0.145	0.117	-	0.082	0.072	0.048	0.092	0.038	0.081	0.105	**0.67**
Max Single HAP, lbs/yr		NA	4514.10	3970.08	-	3319.84	3848.25	3512.61	4034.97	3291.69	3704.62	3985.46	10343.82
Max Single HAP, tpy		NA	2.26	1.99	-	1.66	1.92	1.76	2.02	1.65	1.85	1.99	**5.17**
Cumulative HAPs, lbs/hr		NA	18931.05	16637.48	-	13893.38	16078.32	14654.64	16877.36	13724.95	15491.62	16686.84	**43782.93**
Cumulative HAPs, tpy		NA	9.47	8.32	-	6.95	8.04	7.33	8.44	6.86	7.75	8.34	**21.89**

Nat Gas notes:

Ref #1 - 2010 Test data, initial compliance tests.

Ref #2 - SJVUAPCD Toxics Profile #239, 3/27/2017.

Ref #3 - NCUAQMD FDOC 8/2008 and Qualil Brush AFC 8/2011. Gas HHV = 1021.1 btu/scf, Diesel = 136903 btu/gal, FDOC Table 6.

Diesel fuel notes:

DPM is NOT a Federal HAP and is not calculated or counted in the yearly or max PTE summations.

AP-42, Chap 3, Section 3, per SJVUAPCD AB2588 Profile #230. Assumes Oxidation catalyst at 76% control.

Ventura County APCD, Internal Combustion-Diesel, 5/17/2001.

* Source Test data from 2010 and 2013.