



OCT 18 2010

Mike Strehlow  
Pacific Gas & Electric Co  
Air Quality Permits  
PO Box 7640  
San Francisco, CA 94120

**Re: Notice of Preliminary Decision - Authority to Construct**  
**Project Number: C-1103170**

Dear Mr. Strehlow:

Enclosed for your review and comment is the District's analysis of Pacific Gas & Electric Co's application for an Authority to Construct for the installation of a temporary 2,696 bhp IC engine powering an electrical generator, at the Helms Office Complex-Woodchuck in Shaver Lake.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Jesse A. Garcia of Permit Services at (559) 230-5918.

Sincerely,

David Warner  
Director of Permit Services

DW:jag

Enclosures

**Seyed Sadredin**  
Executive Director/Air Pollution Control Officer

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**Northern Region**  
4800 Enterprise Way  
Modesto, CA 95356-8718  
Tel: (209) 557-6400 FAX: (209) 557-6475

**Central Region (Main Office)**  
1990 E. Gettysburg Avenue  
Fresno, CA 93726-0244  
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**Southern Region**  
34946 Flyover Court  
Bakersfield, CA 93308-9725  
Tel: 661-392-5500 FAX: 661-392-5585



OCT 18 2010

Mike Tollstrup, Chief  
Project Assessment Branch  
Stationary Source Division  
California Air Resources Board  
PO Box 2815  
Sacramento, CA 95812-2815

**Re: Notice of Preliminary Decision - Authority to Construct  
Project Number: C-1103170**

Dear Mr. Tollstrup:

Enclosed for your review and comment is the District's analysis of Pacific Gas & Electric Co's application for an Authority to Construct for the installation of a temporary 2,696 bhp IC engine powering an electrical generator, at the Helms Office Complex-Woodchuck in Shaver Lake.

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Fresno Bee  
Fresno Bee

**NOTICE OF PRELIMINARY DECISION  
FOR THE PROPOSED ISSUANCE OF  
AN AUTHORITY TO CONSTRUCT**

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Authority to Construct to Pacific Gas & Electric Co for the installation of a temporary 2,696 bhp IC engine powering an electrical generator, at the Helms Office Complex-Woodchuck in Shaver Lake.

The analysis of the regulatory basis for this proposed action, Project #C-1103170, is available for public inspection at [http://www.valleyair.org/notices/public\\_notices\\_idx.htm](http://www.valleyair.org/notices/public_notices_idx.htm) and the District office at the address below. Written comments on this project must be submitted within 30 days of the publication date of this notice to **DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 1990 EAST GETTYSBURG AVENUE, FRESNO, CA 93726.**

# San Joaquin Valley Air Pollution Control District

## Authority to Construct Application Review

### Transportable Diesel-Fired IC Engine Powering Electrical Generator

Facility Name: Pacific Gas & Electric  
Mailing Address: PO Box 7640  
San Francisco, CA 94120  
Date: October 13, 2010  
Engineer: Jesse A. Garcia  
Lead Engineer: Joven Refuerzo  
Contact Person: Mark Strehlow  
Telephone: (415) 973-2889  
FAX: (415) 973-5855  
Application No: C-3197-3-0  
Project No: C-1103170  
Deemed Complete: October 12, 2010

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#### I. PROPOSAL

Pacific Gas & Electric (PG&E) has requested an Authority to Construct (ATC) for a temporary 2,696 bhp Caterpillar Tier 2 transportable diesel-fired IC engine powering an electrical generator. The engine generator will be used to provide power while PG&E performs upgrades on electrical system and until power can be restored to the system.

#### II. Applicable Rules

Rule 2201 New and Modified Stationary Source Review Rule (12/18/08)  
Rule 2520 Federally Mandated Operating Permits (6/21/01)  
Rule 4001 New Source Performance Standards (4/14/99)  
Rule 4002 National Emissions Standards for Hazardous Air Pollutants (5/20/04)  
Rule 4101 Visible Emissions (2/17/2005)  
Rule 4102 Nuisance (12/17/1992)  
Rule 4201 Particulate Matter Concentration (12/17/1992)  
Rule 4701 Internal Combustion Engines (8/21/2003)  
Rule 4702 Internal Combustion Engines – Phase 2 (1/18/2007)  
Rule 4801 Sulfur Compounds (12/17/1992)  
California Health & Safety Code 41700  
Title 13 California Code of Regulations (CCR), Section 2423 – Exhaust Emission Standards and Test Procedures, Off-Road Compression-Ignition Engines and Equipment  
Title 17 CCR, Section 93116 - Airborne Toxic Control Measure (ATCM) for Portable Engines rated at 50 horsepower and greater  
California Health & Safety Code 42310.6 (School Notice)  
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines

## II. Project location

The facility is located at Helms Village in Shaver Lake, CA. The District has verified that equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

## III. Process Description

The IC engine powering an electrical generator provides power while electrical upgrades are performed to PG&E's existing lines and equipment. Once the upgrades are complete, the engine will be removed from site and from the stationary source permanently.

## V. Equipment Listing

**C-3197-3-0:** TEMPORARY 2,696 BHP CATERPILLAR MODEL 3516B TIER 2 CERTIFIED DIESEL-FIRED IC ENGINE POWERING AN ELECTRICAL GENERATOR

## VI. Emission Control Technology Evaluation

The engine is equipped with:

- Turbocharger
- EPA – Certified Tier 2 compliance and CARB Certified
- Very Low (0.0015%) sulfur diesel

The emission control devices/technologies and their effect on diesel engine emissions detailed below are from *Non-catalytic NO<sub>x</sub> Control of Stationary Diesel Engines*, by Don Koeberlein, CARB.

The turbocharger reduces the NO<sub>x</sub> emission rate from the engine by approximately 10% by increasing the efficiency and promoting more complete burning of the fuel.

The use of very low sulfur (0.0015% by weight sulfur maximum) diesel fuel reduces SO<sub>x</sub> emissions by over 99% from standard diesel fuel.

## VII. General Calculations

### A. Assumptions

- Fuel Consumption Rate from Engine Manufacturer: 147.5 gal/hr
- The daily operating schedule is 24 hr/day. The annual limit expressed as a fuel usage limit of 128,243 gal/yr as proposed by the applicant to allow more flexibility and to not exceed the 19,999 lbs-NO<sub>x</sub> threshold that would trigger offset requirements and make the facility a major source.
- The 128,243 gal/yr fuel limit was back-calculated by determining the number of hours the engine could operate to equal the 19,999 lbs-NO<sub>x</sub> threshold less the SSPE1. The maximum number of hours resulting from the previously

described calculation was then converted to an annual fuel limit using the fuel consumption rate of 147.5 gal/hr. This can be seen in the following calculations:

$$\text{Annual hours of operation} \div 147.5 \text{ gal/hr} = \text{Annual fuel limit}$$

Where so as to not exceed 19,999 lbs-NO<sub>x</sub>,  
 Annual hours of operation = (19,999 lbs-NO<sub>x</sub> – SSPE1) ÷ (Emission Factor x BHP ÷ 454 conversion factor) and SSPE1 and the Emission Factor for NO<sub>x</sub> are presented in the following sections  
 Annual hours of operation = (19,999 -588) ÷ (3.76 x 2,696 ÷ 454) = 869 hours

$$\text{Therefore, Annual fuel limit} = 869 \text{ hours} \div 147.5 \text{ gal/hr} = 128,243 \text{ gal/yr}$$

- Density of diesel fuel: 7.1 lb/gal
- EPA F-factor (adjusted to 60 °F): 9,051 dscf/MMBtu
- Fuel heating value: 137,000 Btu/gal
- BHP to Btu/hr conversion: 2,542.5 Btu/bhp-hr
- Thermal efficiency of engine: commonly ≈ 35%
- PM<sub>10</sub> fraction of diesel exhaust: 0.96 (CARB, 1988)
- Tier 2 certification includes only a certified CARB emissions factor for NO<sub>x</sub> and VOC emissions combined. The certified NO<sub>x</sub> + VOC emissions are 3.96 g/bhp-hr. It will be assumed the NO<sub>x</sub> + VOC emission factor is split 95% NO<sub>x</sub> and 5% VOC (per the District's Carl Moyer program).

**B. Emission Factors**

Pollutant	Emission Factor (g/bhp-hr)	Source
NO <sub>x</sub>	3.76	Tier 2 Standard
SO <sub>x</sub>	0.0051	Mass Balance Equation Below
PM <sub>10</sub>	0.08	Tier 2 Standard
CO	0.90	Tier 2 Standard
VOC	0.20	Tier 2 Standard

$$\frac{0.000015 \text{ lb} - S}{\text{lb} - \text{fuel}} \times \frac{7.1 \text{ lb} - \text{fuel}}{\text{gallon}} \times \frac{2 \text{ lb} - SO_2}{1 \text{ lb} - S} \times \frac{1 \text{ gal}}{137,000 \text{ Btu}} \times \frac{1 \text{ bhp input}}{0.35 \text{ bhp out}} \times \frac{2,542.5 \text{ Btu}}{\text{bhp} - \text{hr}} \times \frac{453.6 \text{ g}}{\text{lb}} = 0.0051 \frac{\text{g} - SO_x}{\text{bhp} - \text{hr}}$$

**C. Calculations**

**1. Pre-Project Potential to Emit (PE1)**

Since this is a new emissions unit, PE1 = 0 for all pollutants.

**2. Post Project PE (PE2)**

$$\text{Daily emissions} = \text{Emission Factor} \times \text{horsepower rating} \times \text{daily hours of operation} \div 454 \text{ conversion factor}$$

$$\text{Annual emissions} = \text{Emission Factor} \times \text{horsepower rating} \times \text{annual hours of operation} \div 454 \text{ conversion factor}$$

Project Emissions (PE2)						
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Daily Hours of Operation (hrs/day)	Annual Hours of Operation (hrs/yr)	Daily PE2 (lb/day)	Annual PE2 (lb/yr)
NO <sub>x</sub>	3.76	2696	24	869	535.9	19,403
SO <sub>x</sub>	0.0051	2696	24	869	0.7	26
PM <sub>10</sub>	0.08	2696	24	869	11.4	413
CO	0.90	2696	24	869	128.3	4,644
VOC	0.20	2696	24	869	28.5	1,032

### 3. Pre-Project Stationary Source Potential to Emit (SSPE1)

Pursuant to Section 4.9 of District Rule 2201, the Pre-Project Stationary Source Potential to Emit (SSPE1) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

There are currently two valid permits and one unimplemented ATC and the emissions are taken from PAS emissions profiles and are summarized below:

Pre Project Stationary Source Potential to Emit [SSPE1] (lb/year)					
Permit Unit	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
C-3197-1-0	189	5	4	21	3
C-3197-2-0	399	0	14	108	41
Pre Project SSPE (SSPE1)	588	5	18	129	44

### 4. Post Project Stationary Source Potential to Emit (SSPE2)

Pursuant to Section 4.10 of District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

This facility does not contain ERCs which have been banked at the source; therefore, no adjustment to SSPE2 is necessary.

<b>Post Project Stationary Source Potential to Emit [SSPE2] (lb/year)</b>					
Permit Unit	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
C-3197-1-0	189	5	4	21	3
C-3197-2-0	399	0	14	108	41
C-3197-3-0	19,403	26	413	4,644	1,032
Post Project SSPE (SSPE2)	19,991	31	431	4,773	1,076

## 5. Major Source Determination

Pursuant to Section 3.24 of District Rule 2201, a Major Source is a stationary source with post-project emissions or a Post Project Stationary Source Potential to Emit (SSPE2), equal to or exceeding one or more of the following threshold values. However, Section 3.24.2 states, "for the purposes of determining major source status, the SSPE2 shall not include the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site."

<b>Major Source Determination (lb/year)</b>					
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
Pre-Project SSPE (SSPE1)	588	5	18	129	44
Post Project SSPE (SSPE2)	19,991	31	431	4,773	1,076
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	No

As seen in the table above, the facility is not an existing Major Source and also is not becoming a Major Source as a result of this project.

## 6. Baseline Emissions (BE)

The BE calculation (in lbs/year) is performed pollutant-by-pollutant for each unit within the project, to calculate the QNEC and if applicable, to determine the amount of offsets required.

Pursuant to Section 3.7 of District Rule 2201, BE = Pre-project Potential to Emit for:

- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, located at a Major Source.

otherwise,



BE = Historic Actual Emissions (HAE), calculated pursuant to Section 3.22 of District Rule 2201.

Since this is a new emissions units, BE = PE1 = 0 for all pollutants.

## **7. Major Modification**

Major Modification is defined in 40 CFR Part 51.165 as "*any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act.*"

As discussed in Section VII.C.5 above, the facility is not a Major Source for any pollutant; therefore, the project does not constitute a Major Modification.

## **8. Federal Major Modification**

As discussed in Section VII.C.5 above, the facility is not a Major Source for any criteria pollutant; therefore, the project does not constitute a Federal Major Modification.

## **9. Quarterly Net Emissions Change (QNEC)**

The QNEC is calculated solely to establish emissions that are used to complete the District's PAS emissions profile screen. Detailed QNEC calculations are included in **Attachment V**.

# **VIII. Compliance**

## **Rule 2201 New and Modified Stationary Source Review Rule**

### **A. Best Available Control Technology (BACT)**

#### **1. BACT Applicability**

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis for the following\*:

- a. Any new emissions unit with a potential to emit exceeding two pounds per day,
- b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
- c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or
- d. Any new or modified emissions unit, in a stationary source project, which results in a Major Modification.

\*Except for CO emissions from a new or modified emissions unit at a Stationary Source with an SSPE2 of less than 200,000 pounds per year of CO.

**a. New emissions units – PE > 2 lb/day**

As seen in Section VII.C.2 of this evaluation, the applicant is proposing to install a new diesel-fired IC engine with a PE greater than 2 lb/day for NO<sub>x</sub>, PM<sub>10</sub>, CO, and VOC. BACT is triggered for NO<sub>x</sub>, PM<sub>10</sub>, and VOC since the PEs are greater than 2 lbs/day; however, BACT is not triggered for CO since the SSPE2 for CO is less than 200,000 lbs/year, as demonstrated in Section VII.C.5 of this document.

**b. Relocation of emissions units – PE > 2 lb/day**

As discussed in Section I above, there are no emissions units being relocated from one stationary source to another; therefore BACT is not triggered.

**c. Modification of emissions units – AIPE > 2 lb/day**

As discussed in Section I above, there are no modified emissions units associated with this project; therefore BACT is not triggered.

**d. Major Modification**

As discussed in Section VII.C.7 above, this project does not constitute a Major Modification; therefore BACT is not triggered.

**2. BACT Guideline**

This project will focus on two different BACT Determination Guidelines, 3.2.11 for Transportable Compression – Ignited IC Engines (Non-Agricultural, Non-Electric Generation) and 3.3.12 for Fossil Fuel Fired IC Engines. The latter BACT was developed for a 4,157 bhp natural gas-fired engine with a selective catalytic reduction (SCR) system and CO and VOC catalysts to be used to generate electricity on a fulltime basis for a facility in the business of power generation. For the purpose of the determination of an applicable BACT for this 2,696 bhp diesel-fired transportable IC engine, the following must be considered: 1) it is a rental unit; 2) transportable engine within the stationary source to be used for limited time until electrical service upgrades can be completed and power from the normal source can be provided once again. Based on the above and due to the unavailability of natural gas fired engines for rent, the Permit Services Director has provided guidance for the use of BACT Guideline 3.2.11.

**3. Top-Down BACT Analysis**

Per Permit Services Policies and Procedures for BACT, a Top-Down BACT analysis shall be performed as a part of the application review for each

application subject to the BACT requirements pursuant to the District's NSR Rule.

Pursuant to the attached Top-Down BACT Analysis (**Attachment III**), BACT has been satisfied with the following:

NO<sub>x</sub>, PM<sub>10</sub> and VOC: TIER 2 EPA Certified Non-Road Transportable Engine

**B. Offsets**

**1. Offset Applicability**

Pursuant to Section 4.5.3, offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the Post Project Stationary Source Potential to Emit (SSPE2) equals to or exceeds the offset threshold levels in Table 4-1 of Rule 2201.

The following table compares the SSPE2 with the offset thresholds to determine if offsets will be required for this project. See Section VII.C.4 and Section VII.C.5 for the SSPE2 and SSPE1 calculations.

<b>Offset Determination (lb/year)</b>					
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
SSPE2	19,991	31	431	4,773	1,076
SSPE1	588	5	18	129	44
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	No	No	No	No	No

**2. Quantity of Offsets Required**

As seen above, the SSPE2 is not greater than the offset thresholds for all the pollutants; therefore offset calculations are not necessary and offsets will not be required for this project.

**C. Public Notification**

**1. New Major Source**

New Major Sources are new facilities, which are also Major Sources. Since this is not a new facility, public noticing is not required for this project for New Major Source purposes.

**2. Major Modification**

As demonstrated in VII.C.7, this project does not constitute a Major Modification; therefore, public noticing for Major Modification purposes is not required.

**3. PE > 100 lb/day**

The PE2 for this new unit is compared to the daily PE Public Notice thresholds in the following table:

<b>PE &gt; 100 lb/day Public Notice Thresholds</b>			
Pollutant	PE2 (lb/day)	Public Notice Threshold	Public Notice Triggered?
NO <sub>x</sub>	535.9	100 lb/day	Yes
SO <sub>x</sub>	0.7	100 lb/day	No
PM <sub>10</sub>	11.4	100 lb/day	No
CO	128.3	100 lb/day	Yes
VOC	28.5	100 lb/day	No

Therefore, public noticing for PE > 100 lb/day purposes is required.

**4. Offset Threshold**

The following table compares pollutant will trigger public noticing requirements. As seen the SSPE1 with the SSPE2 in order to determine if any offset thresholds have been surpassed with this project.

<b>Offset Threshold</b>				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO <sub>x</sub>	588	19,991	20,000 lb/year	No
SO <sub>x</sub>	5	31	54,750 lb/year	No
PM <sub>10</sub>	18	431	29,200 lb/year	No
CO	129	4,773	200,000 lb/year	No
VOC	44	1,076	20,000 lb/year	No

As detailed above, there were no thresholds surpassed as a result of this project; therefore public noticing is not required for offset purposes.

**5. SSIPE > 20,000 lb/year**

Public notification is required for any permitting action that results in a Stationary Source Increase in Permitted Emissions (SSIPE) of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE is calculated as the Post Project Stationary Source Potential to Emit (SSPE2) minus the Pre-Project Stationary Source Potential to Emit (SSPE1), i.e. SSIPE = SSPE2 – SSPE1. The values for SSPE2 and SSPE1 are calculated according to Rule 2201, Sections 4.9 and 4.10, respectively. The only change in emissions is due the installation of one new IC engine; therefore, the PE2 = SSIPE. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table:

<b>Stationary Source Increase in Permitted Emissions [SSIPE] – Public Notice</b>					
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO <sub>x</sub>	588	19,991	19,403	20,000 lb/year	No
SO <sub>x</sub>	5	31	26	20,000 lb/year	No
PM <sub>10</sub>	18	431	413	20,000 lb/year	No
CO	129	4,773	4,644	20,000 lb/year	No
VOC	44	1,076	1,032	20,000 lb/year	No

As demonstrated above, the SSIPEs for all pollutants were less than 20,000 lb/year; therefore public noticing for SSIPE purposes is not required.

## 2. Public Notice Action

As discussed above, public noticing is required for this project for NO<sub>x</sub> and CO emissions in excess of 100 lb/day. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATC for this equipment.

## D. Daily Emission Limits (DELs)

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.15 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. Per Sections 3.15.1 and 3.15.2, the DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT; therefore, the following conditions will be added to the permit to ensure compliance:

- Emissions from the IC engine shall not exceed any of the following limits: 3.76 g-NO<sub>x</sub>/bhp-hr, 0.90 g-CO/bhp-hr, or 0.20 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93116]
- The PM<sub>10</sub> emissions rate from the engine shall not exceed 0.08 g/hp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102]
- Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801]
- Operation of the engine shall not exceed 128,243 gallons of fuel used per calendar year, as determined by an operational nonresettable elapsed operating fuel meter or other APCO approved alternative. [District Rules 2201, 4102 and 4702]

## **E. Compliance Assurance**

### **1. Source Testing**

Pursuant to District Policy APR 1705, source testing is not required to demonstrate compliance with Rule 2201.

### **2. Monitoring**

No monitoring is required to demonstrate compliance with Rule 2201.

### **3. Recordkeeping**

Recordkeeping is required to demonstrate compliance with the offset, public notification and daily emission limit requirements of Rule 2201. The following condition will appear on the permit to operate:

- {Modified 3847} The permittee shall maintain an engine-operating log to demonstrate compliance. The engine operating log shall include, on a monthly basis, the following information: total gallons of fuel used, type of fuel used, maintenance or modifications performed, monitoring data, and any other information necessary to demonstrate compliance with Rule 4702. [District Rule 4702]

Recordkeeping is required to demonstrate compliance with the offset, public notification, and daily emission limit requirements of Rule 2201. As required by District Rule 4702, *Stationary Internal Combustion Engines - Phase 2*, this IC engine is subject to recordkeeping requirements. Recordkeeping requirements, in accordance with District Rule 4702, will be discussed in Section VIII, *District Rule 4702*, of this evaluation.

## **F. Ambient Air Quality Analysis**

Section 4.14.1 of this Rule requires that an ambient air quality analysis (AAQA) be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The Technical Services Division of the SJVAPCD conducted the required analysis. Refer to Attachment IV of this document for the AAQA summary sheet.

The proposed location is in an attainment area for CO. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for the criteria pollutants.

See a summary of the Criteria Pollutant Modeling Results below:

Diesel ICE	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO <sub>x</sub>	Pass	X	X	X	Pass
SO <sub>x</sub>	Pass	Pass	X	Pass	Pass
PM <sub>10</sub>	X	X	X	Pass	Pass

#### 4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

#### Rule 2520 Federally Mandated Operating Permits

Since this facility's potential emissions do not exceed any major source thresholds of Rule 2201, this facility is not a major source, and Rule 2520 does not apply.

#### Rule 4001 New Source Performance Standards (NSPS)

This rule incorporates NSPS from Part 60, Chapter 1, Title 40, Code of Federal Regulations (CFR); and applies to all new sources of air pollution and modifications of existing sources of air pollution listed in 40 CFR Part 60. However, no subparts of 40 CFR Part 60 apply to reciprocating transportable IC engines.

#### Rule 4002 National Emission Standards for Hazardous Air Pollutants (NESHAPs)

This rule incorporates NESHAPs from Part 61, Chapter I, Subchapter C, Title 40, CFR and the NESHAPs from Part 63, Chapter I, Subchapter C, Title 40, CFR; and applies to all sources of hazardous air pollution listed in 40 CFR Part 61 or 40 CFR Part 63. However, no subparts of 40 CFR Part 61 or 40 CFR Part 63 apply to this IC engine.

#### Rule 4101 Visible Emissions

Rule 4101 states that no air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity.

Based on experience with similar operations, compliance with visible emission limits is expected under normal operating conditions and the following condition will be added to the permit to ensure compliance:

- No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]

**Rule 4102 Nuisance**

Section 4.0 prohibits discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of these operations provided the equipment is well maintained. Therefore, compliance with this rule is expected and the following condition will be added to the permit to ensure compliance:

- {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

**California Health & Safety Code 41700 (Health Risk Assessment)**

District Policy APR 1905 – Risk Management Policy for Permitting New and Modified Sources specifies that for an increase in emissions associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite.

An HRA is not required for a project with a total facility prioritization score of less than one. According to the Technical Services Memo for this project (Attachment IV), the total facility prioritization score including this project was greater than one. Therefore, a health risk assessment was required to determine the short-term acute and long-term chronic exposure from this project.

The cancer risk for this project is shown below:

<b>HRA Summary</b>		
<b>Unit</b>	<b>Cancer Risk</b>	<b>T-BACT Required</b>
C-3197-3-0	1.68 per million	Yes

**Discussion of T-BACT**

BACT for toxic emission control (T-BACT) is required if the cancer risk exceeds one in one million. As demonstrated above, T-BACT is required for this project because the HRA indicates that the risk is above the District's thresholds for triggering T-BACT requirements.

For this project T-BACT is triggered for PM<sub>10</sub>. T-BACT is satisfied with BACT for PM<sub>10</sub> (see Attachment II), which is the CARB certification for a particular horsepower range; therefore, compliance with the District's Risk Management Policy is expected.

District policy APR 1905 also specifies that the increase in emissions associated with a proposed new source or modification not have acute or chronic indices, or a cancer risk greater than the District's significance levels (i.e. acute and/or chronic indices greater than 1 and a cancer risk greater than 10 in a million). As outlined by the HRA Summary in Attachment IV of this report, the emissions increases for this



project was determined to be less than significant; however, the following special conditions are required:

- The PM10 emissions rate from the engine shall not exceed 0.08 g/hp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102 and 13 CCR 2423 and 17 CCR 93116]
- Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801 and 17 CCR 93116]
- [1898] The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
- Operation of the engine shall not exceed 128,243 gallons of fuel used per calendar year, as determined by an operational nonresettable elapsed operating fuel meter or other APCO approved alternative. [District Rules 2201, 4102 and 4702 and 17 CCR 93116]

#### Rule 4201 Particulate Matter Concentration

Particulate matter emissions from the engine will be less than or equal to the rule limit of 0.1 grain per cubic foot of gas at dry standard conditions as shown by the following:

$$0.15 \frac{g - PM_{10}}{bhp - hr} \times \frac{1g - PM}{0.96g - PM_{10}} \times \frac{1bhp - hr}{2,542.5 Btu} \times \frac{10^6 Btu}{9,051 dscf} \times \frac{0.35 Btu_{out}}{1 Btu_{in}} \times \frac{15.43 grain}{g} = 0.020 \frac{grain - PM}{dscf}$$

Since 0.020 grain-PM/dscf is  $\leq$  to 0.1 grain per dscf, compliance with Rule 4201 is expected.

Therefore, the following condition will be listed on the ATC to ensure compliance:

- {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

#### Rule 4701 Stationary Internal Combustion Engines – Phase I

Pursuant to Section 7.5.2.3 of District Rule 4702, as of June 1, 2006 District Rule 4701 is no longer applicable to full time IC engines. Therefore, this engine will comply with the requirements of District Rule 4702 and no further discussion is required.

#### Rule 4702 Internal Combustion Engines – Phase 2

The purpose of this rule is to limit the emissions of nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), and volatile organic compounds (VOC) from internal combustion engines.

This rule applies to any internal combustion engine with a rated brake horsepower greater than 50 horsepower and that requires a Permit-to-Operate (PTO).

Section 5.1 requires that the owner of an internal combustion engine shall not operate it in such a manner that results in emissions exceeding the limits in the Engine Emission Limits table below for the appropriate engine type, according to the compliance schedule listed in Section 7.0. An engine shall be restricted by permit condition to emissions limits, in ppmv (corrected to 15% oxygen on a dry basis), that meet or exceed the following applicable emission limits pursuant to Section 5.1 or Section 8.2.

Engine Type	Emission Limit/ Standard	Compliance Date
<b>1. Non-Certified Compression-Ignited Engine</b>		
a. Greater than 50 bhp but not more than 500 bhp	EPA Tier 3 or Tier 4	1/1/2010
b. Greater than 500 bhp but not more than 750 bhp and less than 1000 annual operating hours	EPA Tier 3	1/1/2010
c. Greater than 750 bhp and less than 1000 annual operating hours	EPA Tier 4	7/1/2011
d. Greater than 500 bhp and greater than or equal to 1000 annual operating hours	80 ppm NO <sub>x</sub> , 2,000 ppm CO, 750 ppm VOC	1/1/2008 or, if owner has an agreement to electrify, comply by 1/1/2010
<b>2. Certified Compression-Ignited Engine</b>		
a. EPA Certified Tier 1 or Tier 2 Engine	EPA Tier 4	1/1/2015 or 12 years after installation date, whichever is later
b. EPA Certified Tier 3 or Tier 4 Engine	Meet Certified Compression-Ignited Engine Standard in effect at time of installation	At time of installation

The engine involved with this project is a compression-ignited IC engine that is an EPA Certified Tier 2 engine. Therefore, the IC engine involved with this project meets the emission limit/standard, and the following condition will be included to ensure compliance:

- An Authority to Construct (ATC) application shall be submitted on or before July 1, 2014 or 12 years from the installation of the engine, whichever is later, to be in compliance with Rule 4702. [District Rule 4702

Section 5.2 requires that all continuous emission monitoring systems (CEMS) emissions measurements shall be averaged over a period of 15 consecutive minutes. Any 15-consecutive minute block average CEMS measurement exceeding the applicable emission limits of this rule shall constitute a violation of this rule. The IC engine involved with this project does not have a CEMS installed; therefore this section of the rule is not applicable.

Section 5.7.1 requires that the owner of an engine subject to the requirements of Sections 5.1 or 4.2 comply with the requirements specified in Sections 5.7.2 through 5.7.5.

Since the IC engine is subject to the requirements of Section 4.2, it must comply with the requirements specified in Sections 5.7.2 through 5.7.5.

Section 5.7.2 requires the owner to properly operation and maintain each engine as recommended by the engine manufacturer or emission control system supplier; therefore, the following conditions will be added to the permit:

- {3405} This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702]

Section 5.7.3 requires the owner to monitor the operational characteristics of each engine as recommended by the engine manufacturer or emission control system supplier; therefore, the following conditions will be added to the permit:

- {4037} During periods of operation, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702]

Section 5.7.4 requires each engine to install and operate a nonresettable elapsed operating time meter. In lieu of installing a nonresettable time meter, the owner of an engine may use an alternative device, method, or technique, in determining operating time provided that the alternative is approved by the APCO and is allowed by Permit-to-Operate or Stationary Equipment Registration condition. The owner of the engine shall properly maintain and operate the time meter or alternative device in accordance with the manufacturer's instructions; therefore, the following conditions will be added to the permit:

- {Modified 3846} This engine shall be equipped with an operational nonresettable elapsed fuel meter or other APCO approved alternative. [District Rule 4702]

Section 5.7.5 is applicable to spark-ignited IC engines retrofitted with a NOx exhaust control. The IC engine in this project is not spark-ignited; therefore, the requirements of Section 5.7.5 do not apply.

Section 6.1 requires that the owner of an engine subject to the requirements Section 5.1 or Section 8.0 except for an engine specified in Section 6.1.1, shall submit to the APCO an emission control plan of all actions to be taken to satisfy the emission requirements of Section 5.1 and the compliance schedules of Section 7.0.

Section 6.1.1 states that the requirements to submit an emission control plan shall not apply to an engine specified in Section 6.1.1.1 through 6.1.1.6

Section 6.1.1.1 exempts certified compression-ignited engines that have not been retro-fitted with an exhaust control system and is not subject to Section 8.0 from Sections 6.5.2 through 6.5.9. Therefore, this section of the rule is not applicable.

Section 6.2 requires that except for engines subject to Section 4.0, the owner of an engine subject to the requirements of this rule shall maintain an engine operating log to demonstrate compliance with this rule. This information shall be retained for a period of at least five years, shall be readily available, and be made available to the APCO upon request. The engine operating log shall include, on a monthly basis, the following information:

- Total hours of operation,
- Type and quantity (cubic feet of gas or gallons of liquid) of fuel used,
- Maintenance or modifications performed,
- Monitoring data,
- Compliance source test results, and
- Any other information necessary to demonstrate compliance with this rule.

Therefore, the following condition will added to the permit:

- The permittee shall maintain an engine operating log to demonstrate compliance. The engine operating log shall include, on a monthly basis, the following information: total gallons of fuel used, type of fuel used, maintenance or modifications performed, monitoring data, compliance source test results, and any other information necessary to demonstrate compliance.  
[District Rule 4702]

Section 6.2.2 requires that the data collected pursuant to the requirements of Section 5.6 shall be maintained for at least five years, shall be readily available, and made available to the APCO upon request. Therefore, the following condition will be added to the permit:

- All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702]

Section 6.3 applies to an engine subject to the requirements of Section 5.1 or the requirements of Section 8.0 except for engines specified in Section 6.3.1. Per Section 6.3.1 the following engines are not subject to the requirements of Sections 6.3.2 through 6.3.4,

- A certified compression-ignited engine that has not been retrofitted with an exhaust control and is not subject to the requirements of Section 8.0.
- A certified spark-ignited engine that has not been retro-fitted with an exhaust control and is not subject to the requirements of Section 8.0.
- An AO spark-ignited engine that has not been retro-fitted with a catalytic emission control device and is not subject to the requirements of Section 8.0.
- An engine subject to Section 4.2.
- An engine subject to Section 4.3.
- An engine with an operating exhaust control system that has been certified in accordance with Section 9.0 Exhaust Control System Certification Requirements.

The engine proposed in this project is a certified compression-ignited engine that has not been retrofitted with an exhaust control and is not subject to the requirements of Section 8.0. Therefore, the requirements of this section of the rule do not apply.

Section 6.4 requires that the compliance with the requirements of Section 5.0 shall be determined in accordance with the following test procedures or any other method approved by EPA and the APCO:

- Oxides of nitrogen - EPA Method 7E, or ARB Method 100.
- Carbon monoxide - EPA Method 10, or ARB Method 100.
- Stack gas oxygen - EPA Method 3 or 3A, or ARB Method 100.
- Volatile organic compounds - EPA Method 25A or 25B, or ARB Method 100.
- Operating horsepower determination - any method approved by EPA and the APCO.

Therefore, the following condition will be added to the permit to ensure compliance:

- {3210} The following test methods shall be used: NO<sub>x</sub> (ppmv) - EPA Method 7E or ARB Method 100, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100, and VOC (ppmv) - EPA Method 25A or 25B, or ARB Method 100. [District Rules 1081 and 4702]

Section 6.5 requires that the owner of an engine subject to the emission limits in Section 5.1 or the requirements of Section 8.2, except for an engine specified in Section 6.5.1, shall submit to the APCO for approval, an I&M plan that specifies all actions to be taken to satisfy the following requirements and the requirements of Section 5.6. The actions to be identified in the I&M plan shall include, but are not limited to, the information specified below:

Per Section 6.5.1, the requirements of Section 6.5.2 through Section 6.5.9 shall not apply to any of the following engines:

- A certified compression-ignited engine that has not been retrofitted with an exhaust control and is not subject to the requirements of Section 8.0.
- A certified spark-ignited engine that has not been retro-fitted with an exhaust control and is not subject to the requirements of Section 8.0.
- An AO spark-ignited engine that has not been retro-fitted with a catalytic emission control device and is not subject to the requirements of Section 8.0.
- An engine subject to Section 4.2.
- An engine subject to Section 4.3.
- An engine with an operating exhaust control system that has been certified in accordance with Section 9.0 Exhaust Control System Certification Requirements.

The engine proposed in this project is a certified compression-ignited engine that has not been retrofitted with an exhaust control and is not subject to the requirements of Section 8.0. Therefore, this engine is not required to meet the requirements of Sections 6.5.2 through 6.5.9.

Section 7.6 requires that the owner of an engine subject to the requirements of this rule shall not operate the engine unless the owner demonstrates and maintains the engine in compliance with the applicable requirements of this rule by the dates indicated in Compliance Schedule 1 of Section 7.6.2.

The proposed engine meets all the requirements of Rule 4702.

### **Rule 4801 Sulfur Compounds**

Rule 4801 requires that sulfur compound emissions (as SO<sub>2</sub>) shall not exceed 0.2% by volume. Using the ideal gas equation, the sulfur compound emissions are calculated as follows:

$$\text{Volume SO}_2 = (n \times R \times T) \div P$$

$$n = \text{moles SO}_2$$

$$T (\text{standard temperature}) = 60 \text{ }^\circ\text{F or } 520 \text{ }^\circ\text{R}$$

$$R (\text{universal gas constant}) = \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot \text{ }^\circ\text{R}}$$

$$\frac{0.000015 \text{ lb - S}}{\text{lb - fuel}} \times \frac{7.1 \text{ lb}}{\text{gal}} \times \frac{64 \text{ lb - SO}_2}{32 \text{ lb - S}} \times \frac{1 \text{ MMBtu}}{9,051 \text{ scf}} \times \frac{1 \text{ gal}}{0.137 \text{ MMBtu}} \times \frac{\text{lb - mol}}{64 \text{ lb - SO}_2} \times \frac{10.73 \text{ psi - ft}^3}{\text{lb - mol - }^\circ\text{R}} \times \frac{520^\circ\text{R}}{14.7 \text{ psi}} \times 1,000,000 = 1.0 \text{ ppmv}$$

Since 1.0 ppmv is  $\leq$  2,000 ppmv, this engine is expected to comply with Rule 4801. Therefore, the following condition (previously proposed in this engineering evaluation) will be listed on the ATC to ensure compliance:

- Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801 and 17 CCR 93116]

### Code of Federal Regulations (CFR), Title 40, Part 89

The term “non-road” is defined in Title 40 Code of Federal Regulations (CFR) Part 89 (Control Of Emissions From New and In-Use Nonroad Compression-Ignition Engines). Like District “transportable” engines, federal “non-road” engines are also mobile.

Per 40 CFR Part 89, non-road engines include compression ignited engines that, by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indications of transportability include but are not limited to wheels, skids, carrying handles, dollies, trailers, or platforms.

An internal combustion engine is NOT a non-road engine if:

1. The engine is used to propel a motor vehicle or a vehicle used solely for competition; or is subject to standards promulgated under section 202 of the Clean Air Act; or
2. The engine is regulated by a New Source Performance Standard promulgated under section 111 of the Clean Air Act; or
3. The engine will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. A location is any single site (i.e. footprint) at a building, structure, facility, or installation. Any engine (or engines) that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced will be included in calculating the consecutive time period. An engine located at a seasonal source is an engine that remains at a seasonal source during the full annual operating period of the seasonal source. A seasonal source is a stationary source that remains in a single location on a permanent basis (i.e., at least 2 years) and that operates at that single location approximately three months (or more) each year.

In addition, there are several categories that are not included in the definition of non-road (or subject to 40 CFR 89). These categories are:

1. Aircraft Engines
2. Mining Engines
3. Locomotive Engines
4. Marine Engines
5. Hobby Engines (less than 50 cc per cylinder)
6. Tier 4 Engines that are subject to emissions standards under 40 CFR Part 1039

The proposed engine meets the definition of a non-road engine, and is therefore subject to this part.

40 CFR Part 89 identifies emissions certification requirements for new non-road engines. There are no emission requirements for existing engines.

Per 40 CFR Part 89.2, "new" means:

"a nonroad engine, nonroad vehicle, or nonroad equipment the equitable or legal title to which has never been transferred to an ultimate purchaser. Where the equitable or legal title to the engine, vehicle, or equipment is not transferred to an ultimate purchaser until after the engine, vehicle, or equipment is placed into service, then the engine, vehicle, or equipment will no longer be new after it is placed into service. A nonroad engine, vehicle, or equipment is placed into service when it is used for its functional purposes."

The proposed IC engine is existing and so was in service prior to its proposed use for this project i.e. the equitable or legal title had been transferred to an ultimate purchaser. Therefore the engine is not new.

The certification requirements of this regulation are known as either Tier 1, Tier 2, or Tier 3 certifications.

Pursuant to 40 CFR Part 89, Appendix A to Subpart A:

"EPA believes that states are not precluded (*or prevented*) under section 209 from regulating the use and operation of non-road engines, such as regulations on hours of usage, daily mass emission limits, or sulfur limits on fuel; nor are permits regulating such operations precluded (*or prevented*), once the engine is no longer new. EPA believes that states are precluded from requiring retrofitting of used nonroad engines except that states are permitted to adopt and enforce any such retrofitting requirements identical to California requirements which have been authorized by EPA under section 209 of the Clean Air Act."

Therefore, beyond the requirements of Part 89, local authorities can only regulate the use and operation of non-road engines such as regulations on the hours of usage, daily mass emission limits, or sulfur limits on fuel. Local authorities cannot require retrofitting of used nonroad engines except those that are identical to California requirements that have been authorized by EPA, e.g. in the California Code of Regulations (CCR).



The existing engine proposed was the latest certification (Tier 2) for the applicable rated power category when installed; therefore, this part is satisfied.

**California Code of Regulations (CCR), Title 13 (Motor Vehicles), Division 3 (Air Resources Board), Chapter 9 (Off-Road Vehicles and Engines Pollution Control Devices), Article 4 (Off-Road Compression-Ignition Engines and Equipment)**

§ 2420 - Applicability:

This article is applicable to new heavy-duty compression-ignited engines produced on or after January 1, 1996 and all other new 2000 model year and later off-road compression-ignition engines, with the exception of all engines and equipment that fall within the scope of the preemption of Section 209(e)(1)(A) of the Federal Clean Air ACT and as defined by regulation of the U.S. Environmental Protection Agency. The engine proposed falls under the applicability of this article since they are "off-road" as defined below.

§ 2421 - Definitions

Like District "transportable" engines and federal "non-road" engines, California "off-road" engines are also mobile. "Off-road" engines are defined as:

"(A) Except as specified in paragraph (B) of this definition, an off-road compression-ignition engine is any internal combustion engine:

1. In or on a piece of equipment that is self-propelled or serves as a dual purpose by both propelling itself and performing another function and is primarily used off the highways (such as garden tractors, off-highway mobile cranes and bulldozers); or
2. In or on a piece of equipment that is intended to be propelled while performing its function (such as lawnmowers and string trimmers); or
3. That, by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to wheels, skids, carrying handles, dolly, trailer, or platform.

(B) An internal combustion engine is not an off-road compression-ignition engine if:

1. The engine is used to propel a vehicle subject to the emission standards contained in Title 13, California Code of Regulations, Sections 1950-1978, or a vehicle used solely for competition, or is subject to standards promulgated under Section 202 of the federal Clean Air Act (42 U.S.C. 7521); or

2. The engine is regulated by a federal New Source Performance Standard promulgated under Section 111 of the federal Clean Air Act (42 U.S.C. 7511); or
3. The engine otherwise included in paragraph (A)3 of this definition remains or will remain at a location for more than 12 consecutive months or a shorter time for an engine located at a seasonal source. A location is any single site at a building, structure, facility, or installation. Any engine (or engines) that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced will be included in calculating the consecutive period. An engine located at a seasonal source is an engine that remains at a seasonal source during the full operating period of the seasonal source. A seasonal source is a stationary source that remains in a single location on a permanent basis (i.e., at least two years) and that operates at a single location approximately three months (or more) each year. This paragraph does not apply to an engine after the engine is removed from the location.”

§ 2423 - Emission Standards:

This section requires subject engines to meet the tier certification requirements identified in this section, which are taken from 40 CFR Part 89 for Tiers 1 thru 3. The proposed engine was the latest available CARB certification (Tier 3) when installed; therefore, it meets the requirements listed in this section.

**California Code of Regulations (CCR), Title 17 (Public Health), Division 3 (Air Resources), Chapter 1 (Air Resources Board), Subchapter 7.5 (Air Toxic Control Measures), Measure 93116 (Portable Diesel Engines)**

§ 93116.1 - Applicability

Except as provided in §93116.1(b), all portable engines having a maximum rated hp of 50 bhp and greater and fueled with diesel are subject to this regulation. The proposed engine(s) are portable and are subject to this regulation.

§ 93116.2 - Definitions

Like District “transportable”, federal “non-road”, and California “off-road” engines, California “portable” engines are also mobile.

(bb) Portable means designed and capable of being carried or moved from one location to another. Indicia of portability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform. For the purposes of this regulation, dredge engines on a boat or barge are considered portable. The engine is not portable if:

- (1) the engine or its replacement is attached to a foundation, or if not so attached, will reside at the same location for more than 12 consecutive months. The period during which the engine is maintained at a storage facility shall be excluded from

the residency time determination. Any engine, such as a back-up or stand-by engine, that replace engine(s) at a location, and is intended to perform the same or similar function as the engine(s) being replaced, will be included in calculating the consecutive time period. In that case, the cumulative time of all engine(s), including the time between the removal of the original engine(s) and installation of the replacement engine(s), will be counted toward the consecutive time period; or

- (2) the engine remains or will reside at a location for less than 12 consecutive months if the engine is located at a seasonal source and operates during the full annual operating period of the seasonal source, where a seasonal source is a stationary source that remains in a single location on a permanent basis (at least two years) and that operates at that single location at least three months each year; or
- (3) the engine is moved from one location to another in an attempt to circumvent the portable residence time requirements.

#### § 93116.2 - Requirements

##### Fuel and Fuel Additive Requirements:

This regulation stipulates that diesel-fueled portable engines shall use one of the following fuels:

1. CARB Diesel Fuel; or
2. An alternative diesel fuel that has been verified through the Verification Procedure for In-Use Strategies to Control Emissions from Diesel Engines; or
3. CARB diesel fuel utilizing fuel additives that have been verified through the Verification Procedure for In-Use Strategies to Control Emissions from Diesel Engines.

The proposed engine will use CARB certified diesel fuel.

##### Diesel PM Standards:

Portable diesel-fueled engines that have not been permitted or registered prior to January 1, 2006, (meaning new engines) are subject to "the most stringent of the federal or California emission standard for nonroad engines".

Prior to this permitting action, the engine was the latest CARB certification (Tier 1 or better) when it was installed.

##### Fleet Requirements:

The earliest fleet average PM requirement is 1/1/2013; therefore, there is no applicable fleet requirement at this time.

### **California Health & Safety Code 42301.6 (School Notice)**

The District has verified that this site is not located within 1,000 feet of a school. Therefore, pursuant to California Health and Safety Code 42301.6, a school notice is not required.

### **California Environmental Quality ACT (CEQA)**

The California Environmental Quality Act (CEQA) requires each public agency to adopt objectives, criteria, and specific procedures consistent with CEQA Statutes and the CEQA Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental documents. The San Joaquin Valley Unified Air Pollution Control District (District) adopted its *Environmental Review Guidelines* (ERG) in 2001. The basic purposes of CEQA are to:

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities.
- Identify the ways that environmental damage can be avoided or significantly reduced.
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

The District performed an Engineering Evaluation (this document) for the proposed project and determined that the project consists of permitting a transportable IC engine that will be operated temporarily for a period of approximately four (4) months. There is no evidence before the District to support a conclusion that the project has the potential to cause a significant environmental impact. Therefore, the District finds that the project is exempt per the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

Per District Policy – *Addressing GHG Emission Impacts for Stationary Source Projects under CEQA When Serving as the Lead Agency* (APR 2005), projects exempt under CEQA do not require analysis of greenhouse gas emissions.

### **IX. Recommendation**

Issue Authority to Construct C-3197-3-0 subject to the permit conditions listed on the draft Authority to Construct in **Attachment I**.

**X. Billing Information**

Filing fees have been submitted with this application. The annual permit fees will be based on the following schedule.

Permit Number	Fee Schedule	Fee Description
C-3197-3-0	3020-10-F	2,696 hp

**Attachments**

Attachment I: Draft ATC

Attachment II: BACT Guideline

Attachment III: BACT Analysis and Tier Certification & Exhaust Emission Standards

Attachment IV: HRA & AAQA

Attachment V: QNEC Calculations

# Attachment I

Draft ATC

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

**ISSUANCE DATE: DRAFT**

**PERMIT NO:** C-3197-3-0

**LEGAL OWNER OR OPERATOR:** PACIFIC GAS & ELECTRIC CO  
**MAILING ADDRESS:** ATTN: AIR QUALITY PERMITS  
PO BOX 7640  
SAN FRANCISCO, CA 94120

**LOCATION:** HELMS OFFICE COMPLEX-WOODCHUCK  
SHAVER LAKE, CA 93664

**EQUIPMENT DESCRIPTION:**  
TEMPORARY 2,696 BHP CATERPILLAR MODEL 3516B TIER 2 CERTIFIED DIESEL-FIRED IC ENGINE POWERING AN ELECTRICAL GENERATOR

**CONDITIONS**

1. An Authority to Construct (ATC) application shall be submitted on or before July 1, 2014 or 12 years from the installation of the engine, whichever is later, to be in compliance with Rule 4702. [District Rule 4702]
2. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
4. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
5. Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801 and 17 CCR 93116]
6. This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702]
7. The engine shall be equipped with an operational nonresettable elapsed fuel meter or other APCO approved alternative. [District Rule 4702]
8. This transportable nonroad engine shall not be operated at one location for more than 12 consecutive months and shall meet all the requirements of a transportable nonroad engine, per CFR Title 40 Part 89. [CCR, Title 17 and District Rule 4701]

CONDITIONS CONTINUE ON NEXT PAGE

**YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT.** This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director APCO

DAVID WARNER, Director of Permit Services

C-3197-3-0 Oct 14 2010 8:32AM -- GARCIAJ Joint Inspection NOT Required

9. Operation of the engine shall not exceed 128,243 gallons of fuel used per calendar year, as determined by an operational nonresettable elapsed operating fuel meter or other APCO approved alternative. [District Rules 2201, 4102 and 4702 and 17 CCR 93116]
10. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
11. Emissions from the IC engine shall not exceed any of the following limits: 3.76 g-NO<sub>x</sub>/bhp-hr, 0.90 g-CO/bhp-hr, or 0.20 g-VOC/bhp-hr. [District Rule 2201]
12. The PM<sub>10</sub> emissions rate from the engine shall not exceed 0.08 g/hp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102 and 13 CCR 2423 and 17 CCR 93116]
13. {4037} During periods of operation, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702]
14. The permittee shall maintain an engine operating log to demonstrate compliance. The engine operating log shall include, on a monthly basis, the following information: total gallons of fuel used, type of fuel used, maintenance or modifications performed, monitoring data, compliance source test results, and any other information necessary to demonstrate compliance. [District Rules 2201 and 4702]
15. {3795} All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702]

DRAFT



# Attachment II

## BACT Guideline

Per » B A C T » Bact Guideline.asp?category Level1=3&category Level2=2&category Level3=11&last Update=10 » 30 :

[Back](#)

[Details Page](#)

**Best Available Control Technology (BACT ) Guideline 3.2.11  
Last Update: 10/30/2008**

**Transportable Compression - Ignited IC Engines (Non-Agricultural, Non-Electric Generation)**

<b>Pollutant</b>	<b>Achieved in Practice or in the SIP</b>	<b>Technologically Feasible</b>	<b>Alternate Basic Equipment</b>
VOC	The proposed engine shall meet the latest available CARB certification standard for the particular horsepower range. (Example: a 200 bhp engine proposed in 2007 shall be Tier 3 certified and meet the emission standard of =< 0.149 g-PM10/bhp-hr)		LPG/Propane Fired Engine
NOx	The proposed engine shall meet the latest available CARB certification standard for the particular horsepower range. (Example: a 200 bhp engine proposed in 2007 shall be Tier 3 certified and meet the emission standard of =< 0.149 g-PM10/bhp-hr)		LPG/Propane Fired Engine
CO	The proposed engine shall meet the latest available CARB certification standard for the particular horsepower range. (Example: a 200 bhp engine proposed in 2007 shall be Tier 3 certified and meet the emission standard of =< 0.149 g-PM10/bhp-hr)		LPG/Propane Fired Engine
PM10	The proposed engine shall meet the latest available CARB certification standard for the particular horsepower range. (Example: a 200 bhp engine proposed in 2007 shall be Tier 3 certified and meet the emission standard of =< 0.149 g-PM10/bhp-hr)		LPG/Propane Fired Engine
SOX	Very Low Sulfur Fuel		

(0.0015% fuel S by weight)

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

**This is a Summary Page for this Class of Source - Permit Specific BACT Determinations on Details Page.**

# Attachment III

## BACT Analysis and Tier Certification & Exhaust Emission Standards

### NO<sub>x</sub>, PM<sub>10</sub>, CO and VOC (same requirements)

#### **Step 1 - Identify All Possible Control Technologies**

#### **Option 1: Latest Available Certified Compression-Ignited Engine**

The latest available certification is considered achieved-in-practice (AIP) for BACT Guideline 3.2.11.

No additional control options for the engine will be considered at this time since, as shown above in Section II.A, federal law prohibits local authorities from regulating beyond the use and operation (hours, mass emission limits, or fuel sulfur content). Local authorities cannot require retrofitting of used nonroad engines except those that are identical to California requirements that have been authorized by EPA, e.g. in the California Code of Regulations (CCR). As a result, add-on controls (e.g. selective catalytic reduction, positive crankcase ventilation, turbocharging, intercooling, etc.) will not be considered as control options for this class and category or source.

#### **Option 2: Propane/Liquid Petroleum Gas (LPG) Fueled Engine**

The use of LPG results in lower emissions overall when compared to diesel emissions. The table below identifies emission factors (EFs) for LPG-fired IC engines:

<b>Pollutant</b>	<b>EF</b>	<b>Source</b>
NO <sub>x</sub>	25 ppmvd @ 15% O <sub>2</sub>	District Rule 4702 (Achieved-In-Practice)
SO <sub>x</sub>	0.012 g/bhp-hr	CARB Emissions Inventory Database
PM <sub>10</sub>	0.063 g/bhp-hr	AP-42 (7/00) Table 3.2-3
CO	400 ppmvd @ 15% O <sub>2</sub>	District Rule 4702 (Achieved-In-Practice)
VOC	100 ppmvd @ 15% O <sub>2</sub>	District Rule 4702 (Achieved-In-Practice)

\*g/hp·hr equivalent of lb/MMBtu values is calculated as follows: (example SO<sub>x</sub>)

$$0.35 \frac{lb}{1,000 \text{ gal}} \times \frac{gal}{94,000 \text{ Btu}} \times \frac{2,542.5 \text{ Btu}}{hp \cdot hr} \times \frac{1 \text{ hp}_m}{0.35 \text{ hp}_{om}} \times \frac{453.6 \text{ g}}{lb} = 0.012 \frac{g}{hp \cdot hr}$$

### Step 3 - Rank Remaining Control Technologies

Control Technology	Rank	Emission Factors (g/bhp-hr)	Technology Classification for BACT
LPG/Propane Engine + 3-way catalyst system	1	NO <sub>x</sub> : 0.35 (≈ 25 ppmvd @ 15% O <sub>2</sub> ) VOC: 0.5 (≈ 100 ppmvd @ 15% O <sub>2</sub> ) CO: 3.4 (≈ 400 ppmvd @ 15% O <sub>2</sub> ) PM <sub>10</sub> : 0.063	ABE
Latest Tier Certification Levels	2	NO <sub>x</sub> + VOC: 3.0 - 5.6 CO: 2.6 - 3.7 PM <sub>10</sub> : 0.149 - 0.3	AIP

### Step 4 - Cost Effectiveness Analyses

#### LPG Engines

**LPG engine 2,696 bhp is not cost effective\***

\* Using the annual operation of the equivalent of 869 hours/year and a linear extrapolation of Appendix A of District BACT analysis for Transportable Compression – Ignited IC Engines (Non-Agricultural, Non-Electric Generation) dated October 29, 2009 demonstrates that a LPG-fired engines 2,696 hp is not cost effective and is not required as Alternate Basic Equipment.

#### Latest Available Certified Compression-Ignited Engine

Per District BACT Policy, a cost effectiveness analysis is not required for AIP controls since the control must be implemented.

### Step 5 - Select BACT

The remaining control not eliminated in Step 4 (latest available certification) is considered AIP BACT for this class and category of source for NO<sub>x</sub> and VOC.

**Title 13 CCR 2423**  
**(December 2005)**  
**Tier Certification & Exhaust Emission Standards**  
(grams per brake horsepower-hour)

Power Rating (hp)	Tier	Model Year	NO <sub>x</sub>	HC	NMHC +NO <sub>x</sub>	CO	PM
50 ≤ hp < 75	1	1998 – 2003	6.9	-	-	3.7	-
	2	2004 - 2007	-		5.6		0.3
	3	2008 - 2011			3.5		
	4*	2008 – 2012 (Interim)			3.5		0.22
75 ≤ hp < 100	1	1998 – 2003	6.9	-	-	3.7	-
	2	2004 – 2007	-		5.6		0.3
	3	2008 – 2011			3.5		
100 ≤ hp < 175	1	1997 – 2002	6.9	-	-	3.7	-
	2	2003 – 2006	-		4.9		0.22
	3	2007 – 2011			3.0		
175 ≤ hp < 300	1	1996 – 2002	6.9	1.0	-	8.5	0.4
	2	2003 – 2005	-	-	4.9	2.6	0.15
	3	2006 - 2010			3.0		
300 ≤ hp < 600	1	1996 – 2000	6.9	1.0	-	8.5	0.4
	2	2001 – 2005	-	-	4.8	2.6	0.15
	3	2006 – 2010			3.0		
600 ≤ hp ≤ 750	1	1996 – 2001	6.9	1.0	-	8.5	0.4
	2	2002 – 2005	-	-	4.8	2.6	0.15
	3	2006 – 2010			3.0		
> 750	1	2000 – 2005	6.9	1.0	-	8.5	0.4
	2	2006 – 2010	-	-	4.8	2.6	0.15

\* Manufacturers may optionally certify engine families to the interim Tier 4 for this power category through 2012.

# Attachment IV

HRA & AAQA

# San Joaquin Valley Air Pollution Control District Risk Management Review

To: Jesse A. Garcia, AQE – Permit Services  
 From: Jennifer Hart, AQS – Technical Services  
 Date: October 14, 2010  
 Facility Name: Pacific Gas & Electric Co  
 Location: Helms Office Complex-Woodchuck, Shaver Lake  
 Application #(s): C-3197-3-0  
 Project #: C-1103170

## A. RMR SUMMARY

<b>RMR Summary</b>			
<b>Categories</b>	<b>DICE (Unit 3-0)</b>	<b>Project Totals</b>	<b>Facility Totals</b>
<b>Prioritization Score</b>	NA <sup>1</sup>	NA <sup>1</sup>	NA <sup>1</sup>
<b>Acute Hazard Index</b>	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>
<b>Chronic Hazard Index</b>	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>
<b>Maximum Individual Cancer Risk (10<sup>-6</sup>)</b>	1.68	1.68	1.68
<b>T-BACT Required?</b>	<b>Yes</b>		
<b>Special Permit Conditions?</b>	<b>Yes</b>		

- 1 Prioritization for this unit was not conducted since it has been determined that all diesel-fired IC engines will result in a prioritization score greater than 1.0.
- 2 Acute and Chronic Hazard Indices were not calculated since there is not risk factor or the risk factor is so low that it has been determined to be insignificant for this type of unit.

### Proposed Permit Conditions

To ensure that human health risks will not exceed District allowable levels; the following permit conditions must be included for:

#### Unit # 3-0

1. The PM10 emissions rate shall not exceed 0.08 g/bhp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201]
2. Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801 and 17 CCR 93115]
3. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
4. Fuel consumption will be limited to 128,243 gal/yr.



## B. RMR REPORT

### I. Project Description

Technical Services received a request on October 12, 2010, to perform an Ambient Air Quality Analysis and a Risk Management Review for a temporary 2,696 bhp Tier 2 certified diesel-fired IC engine powering an electrical generator.

### II. Analysis

Technical Services performed a screening level health risk assessment using the District developed DICE database.

The following parameters were used for the review:

<b>Analysis Parameters Unit 3-0</b>			
<b>Source Type</b>	Point	<b>Location Type</b>	Rural
<b>BHP</b>	2696	<b>PM<sub>10</sub> g/hp-hr</b>	0.08
<b>Closest Receptor (m)</b>	76.2	<b>Quad</b>	3
<b>Max Hours per Year</b>	869	<b>Type of Receptor</b>	Residential

Technical Services performed modeling for criteria pollutants CO, NO<sub>x</sub>, SO<sub>x</sub> and PM<sub>10</sub>; as well as a RMR. The emission rates used for criteria pollutant modeling were 128.3 lb/day CO, 535.9 lb/day NO<sub>x</sub>, 0.7 lb/day SO<sub>x</sub>, and 11.4 lb/day PM<sub>10</sub>. The engineer supplied the maximum fuel rate for the IC engine used during the analysis.

The results from the Criteria Pollutant Modeling are as follows:

#### Criteria Pollutant Modeling Results\*

Diesel ICE	1 Hour	3 Hours	8 Hours.	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO <sub>x</sub>	Pass <sup>1</sup>	X	X	X	Pass
SO <sub>x</sub>	Pass <sup>2</sup>	Pass	X	Pass	Pass
PM <sub>10</sub>	X	X	X	Pass <sup>3</sup>	Pass <sup>3</sup>

\*Results were taken from the attached PSD spreadsheet.

<sup>1</sup>The project was compared to the 1-hour NO<sub>2</sub> National Ambient Air Quality Standard that became effective on April 12, 2010 using the District's approved procedures. The criteria pollutant 1-hour value passed using TIER II NO<sub>2</sub> NAAQS modeling

<sup>2</sup>The project was compared to the 1-hour SO<sub>2</sub> National Ambient Air Quality Standard that became effective on August 23, 2010 using the District's approved procedures.

<sup>3</sup>The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

### III. Conclusion

The emissions from the proposed equipment will not cause or contribute significantly to a violation of the State and National AAQS.

The cancer risk associated with the operation of the proposed diesel IC engine is greater than 1.0 in a million, but less than 10 in a million. In accordance with the District's Risk Management Policy, the project is approved with Toxic Best Available Control Technology (T-BACT) for PM10.

To ensure that human health risks will not exceed District allowable levels; the permit conditions listed on page 1 of this report must be included for this proposed unit .

These conclusions are based on the data provided by the applicant and the project engineer. Therefore, this analysis is valid only as long as the proposed data and parameters do not change.

**Attachments:**

- A. RMR request from the project engineer
- B. Additional information from the applicant/project engineer
- C. Facility Toxic Emissions Summary
- D. Diesel IC Engines (DICE) Printout
- E. AAQA Results
- F. NO<sub>2</sub> NAAQS Report
- G. AERMOD Non-Regulatory Option Checklist

# Facility Summary: PACIFIC GAS & ELECT

REGION: C

FACID: 3197

PROJECT	Unit ID	MOD #	EQUIPMENT	Prioritization Scores			Risk Scores		
				CANCER	ACUTE	CHRONIC	CANCER	ACUTE	CHRONIC
1103170	3	0	2696 BHP DICE	0.000	0.000	0.000	1.68E-06	0.00E+00	0.00E+00
<i>Project Totals</i>				0.000	0.000	0.000	1.68E-06	0.00E+00	0.00E+00
<i>Facility Totals</i>				0.000	0.000	0.000	1.68E-06	0.00E+00	0.00E+00

# Diesel I.C. Engines (DICE) Screening Risk Tool

### Project Information

Region  Facility ID:  Unit #:   
 Project #:   
 Date:

### Met Station

District:   
 Met Site:   
 Model Type:   
 Year:

### Engine Data

BHP:	<input type="text" value="2696"/>	Convert to G/BHP
% Load:	<input type="text" value="100"/>	
PM10 EF (g/BHP):	<input type="text" value="0.08"/>	Convert to G/KW
Hours / Yr:	<input type="text" value="869"/>	
Lbs / Yr:	<input type="text" value="413.20"/>	

### Receptor Data

Quad:   
 Distance(m):   
 Miles:  Feet:   
 Yards:  10th Mi:

NW	N	NE	
W	Quad 4 Quad 3	Quad 1 Quad 2	E
SW	S	SE	

### Cancer Risk

Resident Risk:	Maximum Res. Risk
In a Million: <input type="text" value="1.68"/>	<input type="text" value="25.06"/>
Worker Adjustment Factor %: <input type="text"/>	
Worker Risk:	Maximum Worker Risk
In a Million: <input type="text"/>	
<input type="button" value="Calculate Risk"/>	Quad: <input type="text" value="2"/>
<input type="button" value="Print Form"/>	Distance: <input type="text" value="100"/>

**AAQA for Pacific Gas & Electric Co ( C-3197-3-0 )**  
**All Values are in ug/m<sup>3</sup>**

	NOx 1 Hour	NOx Annual	CO 1 Hour	CO 8 Hour	SOx 1 Hour	SOx 3 Hour	SOx 24 Hour	SOx Annual	PM 24 Hour	PM Annual
STCK1	3.230E+02	5.539E-01	7.732E+01	5.986E+01	4.223E-01	3.456E-01	1.228E-01	7.418E-04	1.997E+00	1.178E-02
Background	1.069E+02	2.678E+01	3.612E+03	2.680E+03	1.920E+01	1.332E+02	7.193E+01	2.664E+01	7.800E+01	4.000E+01
<b>Facility Totals</b>	4.299E+02	2.733E+01	3.689E+03	2.739E+03	1.962E+01	1.335E+02	7.205E+01	2.664E+01	8.000E+01	4.001E+01
<b>AAQS</b>	188.68	56	23000	10000	195	1300	105	80	50	30
	<b>Fail</b>	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Fail	Fail

**EPA's Significatance Level (ug/m<sup>3</sup>)**

NOx 1 Hour	NOx Annual	CO 1 Hour	CO 8 Hour	SOx 1 Hour	SOx 3 Hour	SOx 24 Hour	SOx Annual	PM 24 Hour	PM Annual
0.0	1.0	2000.0	500.0	0.0	25.0	5.0	1.0	5.0	1.0

NOx annual  
 0.5539  
 x 1.5  
 -----  
 0.83085  
 + 27.33  
 -----  
 28.16085 mg/m<sup>3</sup> < 56  
 (PASS)

SOx annual  
 0.1228  
 x 1.5  
 -----  
 0.1842  
 + 71.93  
 -----  
 72.1142 mg/m<sup>3</sup> < 80  
 (PASS)

PM 24 hour  
 1.997 mg/m<sup>3</sup> < 5  
 (PASS)

PM annual  
 0.01178  
 x 1.5  
 -----  
 0.01767 mg/m<sup>3</sup> < 1  
 (PASS)

## AAQA Emission (g/sec)

<i>Device</i>	NOx 1 Hour	NOx Annual	CO 1 Hour	CO 8 Hour	SOx 1 Hour	SOx 3 Hour	SOx 24 Hour	SOx Annual	PM 24 Hour	PM Annual
STCK1	2.81E+00	2.79E-01	6.73E-01	6.73E-01	3.68E-03	3.68E-03	3.68E-03	3.74E-04	5.98E-02	5.94E-03

Facility ID **Pacific Gas & Electric Co**  
 Monitor Site Name **Fresno-1st Street**

Commissioning	Modeling	Design Value	Impact	NAAQS Limit	Pass / Fail	Margin
District Tiers	ug/m3					
ARM 100 %			0.00	188.68	P	188.68
Tier I (max yr)	<b>0.00</b>		0.00	188.68	P	188.68
Tier II (max 8th)	<b>0.00</b>		0.00	188.68	P	188.68
Tier III (ave.5yr)			0.00	188.68	P	188.68
Tier IV			0.00	188.68	P	188.68

Year	2004	2005	2006	2007	2008	Max
Tier I (max yr)						<b>0</b>
Tier II (max 8th)						<b>0</b>

Operational	Modeling	Design Value	Impact	NAAQS Limit	Pass / Fail	Margin
District Tiers	ug/m3					
ARM 100%	<b>323</b>	<b>106.9</b>	429.90	188.68	F	-241.22
Tier I (max yr)	<b>85.26</b>	<b>106.9</b>	192.16	188.68	F	-3.48
Tier II (max 8th)	<b>52.40</b>	<b>106.9</b>	159.30	188.68	P	29.38
Tier III (ave.5yr)			0.00	188.68	P	188.68
Tier IV			0.00	188.68	P	188.68

Year	2005	2006	2007	2008	2009	Max
Tier I (max yr)	<b>51.10695</b>	<b>78.1426</b>	<b>81.29671</b>	<b>81.63434</b>	<b>85.25909</b>	<b>85.2591</b>
Tier II (max 8th)	<b>38.06097</b>	<b>39.92716</b>	<b>37.81113</b>	<b>38.41115</b>	<b>52.39534</b>	<b>52.3953</b>

Unit ID:	Rating	Equipment	Fuel Type	Operation Type
<b>3</b>	<b>2696</b>	<b>IC Engine</b>	<b>Diesel</b>	<b>Normal</b>

## AERMOD Non-Regulatory Option Checklist (ARM / OLM / PVMRM)

<b>Approved</b>	<b>Site Specific Parameters</b> Items that are required for a Case – By – Case determination are noted with an *	
	<b>Facility Information</b>	
	Permit ID	C-3197
	Name	Pacific Gas & Electric Co
	Address	Helms Office Complex-Woodchuck
	City / State	Shaver Lake, CA
<b>Comments</b>		
	<b>Project Information</b>	
	Project ID	C-1103170
	Unit ID / Mod (s)	3-0
	Description	2,696 BHP Tier 2 Certified Diesel-Fired IC Engine Powering an Electrical Generator
<b>Comments</b>		
	<b>Modeling Information*</b>	
	Model	EPA AERMOD Version (6.4.0)
	Operating Scenario	Normal
	<b>Met Data</b>	
	Site Name	Fresno-1 <sup>st</sup> Street
	Years	Start: 2005 End: 2009
	Type	NWS
	Terrain	Flat
	Site Location	Zone: 11 UTME: 252.55632 UTMN: 4074.23309
	Ozone Limiting	ARM and OLM
	Source Parameter	See Tables Below
	<b>Background Site</b>	
	Name	Fresno-1 <sup>st</sup> Street
	Location	Zone: 11 UTME: 252.55632 UTMN: 4074.23309
	Years	Start: 2005 End: 2009
	Location Type	Rural
	Distance From Project (km)	0
<b>Comments</b>		
	<b>Final Results*</b>	
	Averaging Period / Concentration (Background + Model)	SIL: 4 ppb Local Hour ARM: 0.9 Tier I – Maximum 1-hour : 192.16 Tier II – 8 <sup>th</sup> Highest : 159.30 Tier III – 98 <sup>th</sup> Percentile : Tier IV – Paired Sum :
<b>Comments</b>		
	<b>Conclusion*</b>	
	It has been determined that enough information has been provided to conclude that OLM or PVMRM are appropriate for the above modeling scenario.	
	Supervisor Name	<i>Esther Davis</i>
	Supervisor Signature	<i>Esther Davis</i>
<b>Comments</b>		



**Source Parameter:**

Each different source that is modeled should have a separate table.

<b>Source Parameters For Unit 3-0</b>			
<b>Source Type</b>	Point	<b>Location Type</b>	Rural
<b>Stack Height (m)</b>	4.115	<b>Max Hours per Year</b>	869
<b>Stack Diameter. (m)</b>	0.2032	<b>Fuel Type</b>	Diesel
<b>Stack Exit Velocity (m/s)</b>	249.98	<b>NO<sub>2</sub> / NO<sub>x</sub> Ratio (%)</b>	20%
<b>Stack Exit Temp. (°K)</b>	777.43	<b>Rating (bhp)</b>	2,696

# Attachment V

## QNEC Calculations

## Quarterly Net Emissions Change (QNEC)

The Quarterly Net Emissions Change is used to complete the emission profile screen for the District's PAS database. The QNEC shall be calculated as follows:

$QNEC = PE2 - PE1$ , where:

- QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr.
- PE2 = Post Project Potential to Emit for each emissions unit, lb/qtr.
- PE1 = Pre-Project Potential to Emit for each emissions unit, lb/qtr.

Using the values in Sections VII.C.2 and VII.C.6 in the evaluation above, quarterly PE2 and quarterly PE1 can be calculated as follows:

$$\begin{aligned} PE2_{\text{quarterly}} &= PE2_{\text{annual}} \div 4 \text{ quarters/year} \\ &= 413 \text{ lb/year} \div 4 \text{ qtr/year} \\ &= 103.25 \text{ lb PM}_{10}/\text{qtr} \end{aligned}$$

$$\begin{aligned} PE1_{\text{quarterly}} &= PE1_{\text{annual}} \div 4 \text{ quarters/year} \\ &= 0 \text{ lb/year} \div 4 \text{ qtr/year} \\ &= 0 \text{ lb PM}_{10}/\text{qtr} \end{aligned}$$

Quarterly NEC [QNEC]			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO <sub>x</sub>	4850.75	0	4850.75
SO <sub>x</sub>	6.5	0	6.5
PM <sub>10</sub>	103.25	0	103.25
CO	1,161	0	1,161
VOC	258	0	258