



SEP 27 2010

Anthony Smith
Oakdale Fire Station #2
455 South Fifth Avenue
Oakdale, CA 95361

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: N-1102807

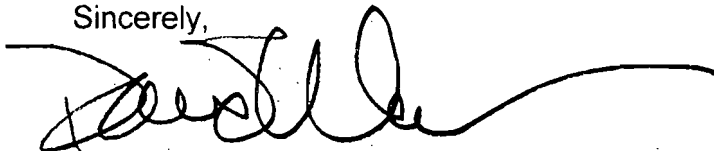
Dear Mr. Smith:

Enclosed for your review and comment is the District's analysis of Oakdale Fire Station #2's application for an Authority to Construct for the existing 539 bhp diesel-fired emergency standby IC engine powering an electrical generator, at 450 South Willowood Avenue in Oakdale.

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. Wai-Man So of Permit Services at (209) 557-6449.

Sincerely,



David Warner
Director of Permit Services

DW:WMS

Enclosures

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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
Tel: (559) 230-6000 FAX: (559) 230-6061

Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: 661-392-5500 FAX: 661-392-5585



SEP 27 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: N-1102807

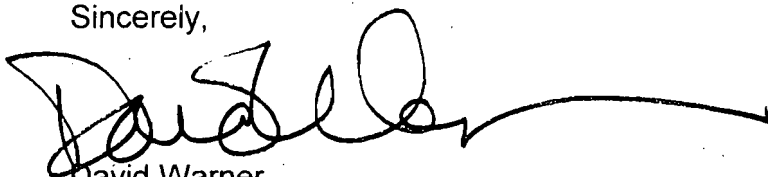
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Modesto Bee
Modesto Bee

**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 Oakdale Fire Station #2 for the existing 539 bhp diesel-fired emergency standby IC engine powering an electrical generator, at 450 South Willowood Avenue in Oakdale.

The analysis of the regulatory basis for this proposed action, Project #N-1102807, is available for public inspection at 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, 4800 ENTERPRISE WAY, MODESTO, CA 95356-8718.**

III. PROJECT LOCATION

This facility is located at 450 South Willowood Avenue, Oakdale in California. The District has verified that the facility is not located within 1,000 feet of the outer boundary of any K-12 School. Therefore, the public notification requirement of California Health and Safety Code 42301.6 (School Notice) is not applicable to this project.

IV. PROCESS DESCRIPTION

The diesel-fired emergency standby IC engine powers an emergency electrical generator. Other than emergency operation, the engine may be operated up to 50 hours per calendar year for maintenance and testing purposes.

V. EQUIPMENT LISTING

539 BHP VOLVO PENTA MODEL TAD1241GE TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR (OAKDALE FIRE STATION #2 AND SEWERAGE LIFT STATION #9)

VI. EMISSION CONTROL TECHNOLOGY EVALUATION

The engine is equipped with:

- Turbocharger
- Intercooler/aftercooler
- Injection timing retard (or equivalent per District Policy SSP-1805, dated 8/14/1996)
- Positive Crankcase Ventilation (PCV) or 90% efficient control device
- This engine is required to be, and is UL certified
- Catalytic particulate filter
- 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_x Control of Stationary Diesel Engines*, by Don Koeberlein, CARB.

The turbocharger reduces the NO_x emission rate from the engine by approximately 10% by increasing the efficiency and promoting more complete burning of the fuel.

The intercooler/aftercooler functions in conjunction with the turbocharger to reduce the inlet air temperature. By reducing the inlet air temperature, the peak combustion temperature is lowered, which reduces the formation of thermal NO_x. NO_x emissions are reduced by approximately 15% with this control technology.

The PCV system reduces crankcase VOC and PM₁₀ emissions by at least 90% over an uncontrolled crankcase vent.

The use of very low-sulfur diesel fuel (0.0015% by weight sulfur maximum) reduces SO_x emissions by over 99% from standard diesel fuel.

VII. GENERAL CALCULATIONS

A. Assumptions

| | |
|-----------------------------------|--------------------|
| Emergency operating schedule: | 24 hours/day |
| Non-emergency operating schedule: | 50 hours/year |
| 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 |

B. Emission Factors

Pre-Project Emission Factors (EF1)

This is a new emissions unit. Therefore, EF1 is equal to zero.

Post-Project Emission Factors (EF2)

Emissions factors are taken from the ARB Executive Order (see Appendix III of this document for detail).

The engine has certified NO_x + VOC emissions of 4.33 g/bhp-hr (equivalent to 5.8 g/kW-hr). It will be assumed the NO_x + VOC emissions factor is split 95% NO_x and 5% VOC (per the District's Carl Moyer program).

Only California Air Resources Board (CARB) certified diesel fuel containing no more than 0.0015% sulfur by weight could be used. The emission factor for SO_x is calculated by following equation:

$$\frac{0.000015 \text{ lb - S}}{\text{lb - fuel}} \times \frac{7.1 \text{ lb - fuel}}{\text{gallon}} \times \frac{2 \text{ lb - SO}_2}{1 \text{ lb - S}} \times \frac{1 \text{ gal}}{137,000 \text{ Btu}} \times \frac{1 \text{ bhp input}}{0.35 \text{ bhp out}} \times \frac{2,542.5 \text{ Btu}}{\text{bhp - hr}} \times \frac{453.6 \text{ g}}{\text{lb}}$$

$$= 0.0051 \frac{\text{g - SO}_x}{\text{bhp - hr}}$$

| Pollutant | Post-Project Emission Factors (EF2) | Source |
|------------------|-------------------------------------|-----------------------------|
| NO _x | 4.11 g/hp-hr | ARB Certification |
| SO _x | 0.0051 g/hp-hr | Mass balance equation above |
| PM ₁₀ | 0.11 g/hp-hr | ARB Certification |
| CO | 0.52 g/hp-hr | ARB Certification |
| VOC | 0.22 g/hp-hr | ARB Certification |

C. Potential to Emit (PE) Calculations

1. Daily and Annual PE

Pre-Project Potential to Emit (PE1)

This is a new emissions unit. Therefore, PE1 is equal to zero.

Post-Project Potential to Emit (PE2)

The PE2 for each pollutant is calculated as follow:

$$PE2 = EF2 \text{ (g/hp-hr)} \times \text{Power Rating (hp)} \times \text{Operating Schedule (hr/day or hr/year)} \div \text{Conversion (g/lb)}$$

$$\text{Daily PE2} = EF2 \text{ (g/hp-hr)} \times 539 \text{ (hp)} \times 24 \text{ (hr/day)} \div 453.6 \text{ (g/lb)}$$

$$\text{Annual PE2} = EF2 \text{ (g/hp-hr)} \times 539 \text{ (hp)} \times 50^1 \text{ (hr/yr)} \div 453.6 \text{ (g/lb)}$$

For this unit, both daily and annual post-project potential to emit (PE2) for all criteria pollutants are listed in the table below.

| Pollutant | Post-Project Potential to Emit (PE2) | | | | | |
|------------------|--------------------------------------|-------------------|-----------------------------|-------------------|--------------------|--------------------|
| | EF2 (g/hp-hr) | Power Rating (hp) | Operating Schedule (hr/day) | Conversion (g/lb) | Daily PE2 (lb/day) | Annual PE2 (lb/yr) |
| NO _x | 4.11 | 539 | 24 | 453.6 | 117.2 | 244 |
| SO _x | 0.0051 | 539 | 24 | 453.6 | 0.1 | 0 |
| PM ₁₀ | 0.11 | 539 | 24 | 453.6 | 3.1 | 7 |
| CO | 0.52 | 539 | 24 | 453.6 | 14.8 | 31 |
| VOC | 0.22 | 539 | 24 | 453.6 | 6.3 | 13 |

2. Quarterly Net Emissions Change

The Quarterly Net Emissions Changes (QNEC) is calculated for each pollutant, for each unit, as the difference between the quarterly PE2 and the quarterly baseline emissions (BE). The annual emissions are evenly distributed throughout each quarter using the following equation:

$$QNEC \text{ (lb/quarter)} = [\text{Annual PE2} - \text{Annual PE1}] \text{ (lb/year)} / 4 \text{ (quarter/year)}$$

The QNEC for all criteria pollutants are shown in the table below:

¹ The maximum annual operating hours of this diesel-fired IC engine is limited to 50 hr/yr (per Title 17 CCR, Section 93115).

| Pollutant | Quarterly Net Emissions Change (QNEC) | | | |
|------------------|---|---|---|---|
| | 1 st Quarter (lb/quarter) | 2 nd Quarter (lb/quarter) | 3 rd Quarter (lb/quarter) | 4 th Quarter (lb/quarter) |
| NO _x | 61 | 61 | 61 | 61 |
| SO _x | 0 | 0 | 0 | 0 |
| PM ₁₀ | 1 | 2 | 2 | 2 |
| CO | 7 | 8 | 8 | 8 |
| VOC | 3 | 3 | 3 | 4 |

3. Adjusted increase in Permitted Emissions (AIPE)

AIPE is used to determine if Best Available Control Technology (BACT) is required for emission units that are being modified.

This is a new emission unit. Therefore, AIPE calculations are not required

D. Facility Emissions

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

Pursuant to District Rule 2201, § 4.9, 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.

SSPE1 values are taken from engineering evaluation N-1101553, (originally under facility N-7896, project N-1084367).

| Permit Number | Pollutants (lb/yr) | | | | |
|------------------------------|--------------------|-----------------|------------------|---------|--------|
| | NO _x | SO _x | PM ₁₀ | CO | VOC |
| N-8017-1-0 | 0 | 0 | 0 | 0 | 863 |
| SSPE1 | 0 | 0 | 0 | 0 | 863 |
| Major Source Threshold Level | 20,000 | 140,000 | 140,000 | 200,000 | 20,000 |
| Major Source? | No | No | No | No | No |
| Offset Threshold Level | 20,000 | 54,750 | 29,200 | 200,000 | 20,000 |
| Offset Triggered? | No | No | No | No | No |

2. Post-Project Stationary Source Potential to Emit (SSPE2)

Pursuant to District Rule 2201, § 4.10, 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.

| Permit Number | Pollutants (lb/yr) | | | | |
|------------------------------|--------------------|-----------------|------------------|---------|--------|
| | NO _x | SO _x | PM ₁₀ | CO | VOC |
| N-8017-1-0 | 0 | 0 | 0 | 0 | 863 |
| ATC N-8017-2-0 | 244 | 0 | 7 | 31 | 13 |
| SSPE2 | 244 | 0 | 7 | 31 | 876 |
| Major Source Threshold Level | 20,000 | 140,000 | 140,000 | 200,000 | 20,000 |
| Major Source? | No | No | No | No | No |
| Offset Threshold Level | 20,000 | 54,750 | 29,200 | 200,000 | 20,000 |
| Offset Triggered? | No | No | No | No | No |

3. Stationary Source Increase in Permitted Emissions (SSIPE)

SSIPE calculations are used to determine if the project triggers public notice pursuant to District Rule 2201, § 5.4.5. If SSIPE results greater than 20,000 lb/yr for any one pollutant then project requires public notification. At this time, it is District Practice to define the SSIPE as the difference of SSPE2 to SSPE1, and calculated by the following equation:

$$\text{SSIPE (lb/yr)} = \text{SSPE2 (lb/yr)} - \text{SSPE1 (lb/yr)}$$

| SSIPE | Pollutants (lb/yr) | | | | |
|-------|--------------------|-----------------|------------------|----|-----|
| | NO _x | SO _x | PM ₁₀ | CO | VOC |
| SSPE2 | 244 | 0 | 7 | 31 | 876 |
| SSPE1 | 0 | 0 | 0 | 0 | 863 |
| SSIPE | 244 | 0 | 7 | 31 | 13 |

As shown above, SSIPE is less than 20,000 lb/yr for any pollutant. Therefore, public notification and publication requirement are not required for this purpose.

4. Major Source Determination

Pursuant to District Rule 2201, § 3.23, a major source is a stationary source a Post-Project Stationary Source Potential to Emit (SSPE2), equal to or exceeding one or more of the Major Source threshold values (excluding ERCs banked on-site that have not been used on-site).

As shown in Section VII.D.2 of this document, this facility is not becoming a Major Source as a result of this project.

5. Baseline Emissions (BE)

The BE calculation (in lb/year) is performed on a pollutant-by-pollutant basis to determine the amount of offsets required, where necessary, when the SSPE1 is greater than the offset threshold. Pursuant to section 3.7, baseline emissions shall be equal to the sum of:

- 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.

As shown in Section VII.D.2 of this document, the facility is not a major source for any pollutant. Therefore, the baseline emissions are equal to the pre-project potential to emit for each unit. BE = PE1.

• 6. Major Modification

Major Modification calculation is to determine the following:

- 1) Pursuant to District Rule 2201, section 4.1.3, if Best Available Control Technology (BACT) is triggered for a new or modified emission unit that results in a Major Modification; and
- 2) Pursuant to District Rule 2201, section 5.4.1, if a public notification is triggered.

As shown in Section VII.D.2 of this document, this facility is not a major source for any pollutant. Therefore, the proposed project cannot trigger a District Rule 2201 Major Modification.

7. Federal Major Modification

Federal Major Modification is to determine the following:

- 1) Pursuant to Rule 2201, section 4.2.3.5, if a Rule-compliance project qualifies for District Rule 2201's Best Available Control Technology (BACT) and offset exemptions and
- 2) Pursuant to Rule 2201, section 4.15, if an Alternate Siting analysis must be performed; and if the applicant must provide certification that all California stationary sources owned, operated, or controlled by the applicant that are subject to emission limits are in compliance with those limits or are on a schedule for compliance with all applicable emission limits and standards; and
- 3) Pursuant to Rule 2201, section 5.4.1, if a public notification is triggered.

As discussed above, the facility is not a major source for any pollutant, as the project's emissions are less than the significant thresholds in Table 3-3 of Rule 2201 for any pollutants. Therefore, the project will not trigger Federal Major Modification.

VIII.COMPLIANCE

District Rule 2201 New and Modified Stationary Source Review Rule

1. Best Available Control Technology (BACT)

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.

As discussed in Section I of this document, the facility is proposing to permit an existing emergency standby IC engine. Additionally, as determined in Section VII.D.6, this project does not result in a Major Modification. Therefore, BACT can only be triggered if the daily emissions exceed 2.0 lb/day for any pollutant.

The daily emissions from the existing engine are compared to the BACT threshold levels in the following table:

| New Emissions Unit BACT Applicability | | | | |
|---------------------------------------|--|------------------------------------|---------------|-----------------|
| Pollutant | Daily Emissions for unit -2-0 (lb/day) | BACT Threshold (lb/day) | SSPE2 (lb/yr) | BACT Triggered? |
| NO _x | 117.2 | > 2.0 | n/a | Yes |
| SO _x | 0.1 | > 2.0 | n/a | No |
| PM ₁₀ | 3.1 | > 2.0 | n/a | Yes |
| CO | 14.8 | > 2.0 and SSPE2 ≥ 200,000 lb/yr | 31 | No |
| VOC | 6.3 | > 2.0 | n/a | Yes |

As shown above, BACT will be triggered for NO_x, PM₁₀, and VOC emissions from the engine for this project.

Per FYI 98, BACT for equipment installed without an ATC, option 2 states that the equipment installed with BACT should use the BACT guideline at the time of installation.

BACT Guideline 3.1.1, third quarter 2005 lists NO_x, PM₁₀, and VOC emissions control requirements for emergency diesel IC engine greater than 400 bhp. These requirements are listed in the following table:

| Pollutant | Achieved in Practice or contained in the SIP | Technologically Feasible | Alternate Basic Equipment |
|------------------|--|--------------------------|---------------------------|
| NO _x | Certified emissions of 6.9 g/bhp-hr or less | | |
| PM ₁₀ | 0.1 grams/bhp-hr (if TBACT is triggered) 0.4 grams/bhp-hr (if TBACT is not triggered) | | |
| VOC | Positive crankcase ventilation (PCV) | | |

The "Top-Down BACT Analysis" for NO_x, PM₁₀, and VOC emissions is preformed in Appendix II of this document.

According to this analysis, the proposal satisfied District BACT requirements.

2. Offsets

Since emergency IC engines are exempt from the offset requirements of Rule 2201, per Section 4.6.2, offsets are not required for this engine, and no offset calculations are required.

3. Public Notification

District Rule 2201, § 5.4, requires a public notification for the affected pollutants from the following types of projects:

a. New Major Source

There is no new major source as a result of this project. Therefore, public noticing for this purpose is not required.

b. Major Modification

The facility is not a major source, so it cannot trigger a major modifications threshold. Therefore, public noticing for this purpose is not required.

c. New emission unit with PE > 100 lb/day for any one pollutant

As shown in Section VII.C.1 of this document, daily emission for NO_x is greater than 100 pounds; therefore public noticing for this purpose is required.

d. Modifications with SSPE1 below an Offset threshold and SSPE2 above an Offset threshold on a pollutant-by-pollutant basis:

The propose project does not result in SSPE from below offset threshold level to above offset threshold level for any pollutant. Therefore, public noticing for this purpose is not required.

e. New stationary sources with SSPE2 exceeding Offset thresholds:

As shown in Section VII.D.2 of this document, SSPE2 is not exceeding any offset thresholds. Therefore public noticing for this purpose is not required.

f. Any permitting action with an SSIPE exceeding 20,000 lb/yr for any one pollutant:

As shown in Section VII.D.3 of this document, SSIPE is less than 20,000 lb/yr for any pollutant. Therefore public noticing for this purpose is not required.

As discussed above, this project will require public noticing. 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.

4. 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. Therefore, the following conditions will be listed on the ATC to ensure compliance:

- *Emissions from this IC engine shall not exceed any of the following limits: 4.11 g-NO_x/bhp-hr, 0.52 g-CO/bhp-hr, or 0.22 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]*
- *Emissions from this IC engine shall not exceed 0.11 g-PM₁₀/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]*

In addition, the DEL for SO_x is established by the sulfur content of the fuel being combusted in the engine. Therefore, the following condition 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 93115]*

5. Compliance Assurance

a. Source Testing

Pursuant to District Policy APR 1705, source testing is not required for emergency standby IC engines to demonstrate compliance with Rule 2201.

b. Monitoring

No monitoring is required to demonstrate compliance with Rule 2201.

c. Recordkeeping

Recordkeeping requirements, in accordance with District Rule 4702, will be discussed in Section VIII, *District Rule 4702*, of this evaluation.

d. Reporting

No reporting is required to ensure compliance with Rule 2201.

6. 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.

The proposed location is in an attainment area for NO_x, CO, SO_x, and PM₁₀. As shown in the AAQA summary sheet in Appendix IV, the proposed equipment will not cause a violation of an air quality standard for NO_x, CO, SO_x, or PM₁₀.

Therefore, this project is not expected to cause or make worse a violation of an air quality standard.

District Rule 2520 Federally Mandated Operating Permit

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

District Rule 4001 New Source Performance Standards (NSPS)

40 CFR 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

This subpart is applicable to owners and operators of stationary compression ignited internal combustion engines that commence construction after July 11, 2005, where the engines are:

- 1) Manufactured after April 1, 2006, if not a fire pump engine.
- 2) Manufactured as a National Fire Protection Association (NFPA) fire pump engine after July 1, 2006.

Since the proposed engine was manufactured in 2004 and was installed on site in September, 2005. Therefore, this subpart does not apply.

District Rule 4002 National Emission Standards for Hazardous Air Pollutants

40 CFR 63 Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Emissions (RICE)

Emergency engines are subject to this subpart if they are operated at a major or area source of Hazardous Air Pollutant (HAP) emissions. A major source of HAP emissions is a facility that has the potential to emit any single HAP at a rate of 10 tons per year or greater or any combinations of HAPs at a rate of 25 tons per year or greater. An area source of HAPs is a facility is not a major source of HAPs.

The proposed engine is an existing stationary RICE located at an area source of HAP emissions. However, pursuant to §63.6590(b)(3) of this subpart, this existing engine is not subject to the requirements of this subpart.

District Rule 4101 Visible Emissions

District Rule 4101, Section 5.0, indicates 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 dark or darker than Ringelmann 1 or equivalent to 20% opacity. The following condition will be listed on the permit to ensure compliance:

- *{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]*

District 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. The following condition will be listed on 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 1905-1 (March 2, 2001) - 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.

The health risk assessment results are as follow:

| RMR Summary | | | |
|--|---|------------------|------------------|
| Categories | Emergency Diesel-fired IC engine (Unit 2-0) | Project Totals | Facility Totals |
| Prioritization Score | N/A ² | N/A ² | N/A ² |
| Acute Hazard Index | N/A ³ | N/A ³ | N/A ³ |
| Chronic Hazard Index | N/A ³ | N/A ³ | N/A ³ |
| Maximum Individual Cancer Risk (10 ⁻⁶) | 1.76 | 1.76 | 1.76 |
| T-BACT Required? | Yes | | |
| Special Permit Conditions? | Yes | | |

The cancer risk associated with the proposed 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).

To ensure that human health risks will not exceed District allowable levels. The following conditions will be listed on the permit to ensure compliance with this Safety Code.

- *Emissions from this IC engine shall not exceed 0.11 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rule 2201 and 4102 and 17 CCR 93115]*
- *The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper okay), roof overhang, or any other obstruction. [District Rule 4102] N*
- *The engine shall be operated only for maintenance, testing, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per year. [District Rule 2201 and 4702 and 17 CCR 93115] N*

District Rule 4201 Particulate Matter Concentration

Section 3.0 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation in excess of 0.1 grain per dry standard cubic foot, which, as calculated below, is equivalent to a PM₁₀ emission factor of 0.4 g-PM₁₀/bhp-hr.

$$0.1 \frac{\text{grain-PM}}{\text{dscf}} \times \frac{\text{g}}{15.43 \text{ grain}} \times \frac{1 \text{ Btu}_{in}}{0.35 \text{ Btu}_{out}} \times \frac{9,051 \text{ dscf}}{10^6 \text{ Btu}} \times \frac{2,542.5 \text{ Btu}}{1 \text{ bhp-hr}} \times \frac{0.96 \text{ g-PM}_{10}}{1 \text{ g-PM}} = 0.4 \frac{\text{g-PM}_{10}}{\text{bhp-hr}}$$

² 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.

³ Acute and Chronic Hazard Indices were not calculated since there is no risk factor, or the risk factor is so low that the risk has been determined to be insignificant for this type of unit.

The engine has a PM₁₀ emission factor less than 0.4 g/bhp-hr. Therefore, compliance with District Rule 4201 requirements is expected and a permit condition will be listed on the permit as follows:

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

District Rule 4701 Internal Combustion Engines – Phase 1

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

District Rule 4702 Internal Combustion Engines – Phase 2

The following table demonstrates how the proposed engine will comply with the requirements of District Rule 4702.

| District Rule 4702 Requirements Emergency Standby IC Engines | Proposed Method of Compliance with District Rule 4702 Requirements |
|---|---|
| Operation of emergency standby engines is limited to 100 hours or less per calendar year for non-emergency purposes, verified through the use of a non-resettable elapsed operating time meter. | The Air Toxic Control Measure for Stationary Compression Ignition Engines (Stationary ATCM) limits this engine maintenance and testing to 50 hours/year. Thus, compliance is expected. |
| Emergency standby engines cannot be used to reduce the demand for electrical power when normal electrical power line service has not failed, or to produce power for the electrical distribution system, or in conjunction with a voluntary utility demand reduction program or interruptible power contract. | The following conditions will be included on the permit: <ul style="list-style-type: none"> • {3807} An emergency situation is an unscheduled electrical power outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702] • {3808} This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rule 4702] |
| The owner/operator must operate and maintain the engine(s) and any installed control devices according to the manufacturers written instructions. | A permit condition enforcing this requirement was shown earlier in the evaluation. |
| The owner/operator must monitor the operational characteristics of each engine as recommended by the engine manufacturer or emission control system supplier. | The following condition will be included on the permit: <ul style="list-style-type: none"> • {3478} During periods of operation for maintenance, testing, and required regulatory purposes, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission |

| | |
|---|--|
| | <p>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]</p> |
| <p>Records of the total hours of operation of the emergency standby engine, type of fuel used, purpose for operating the engine, all hours of non-emergency and emergency operation, and support documentation must be maintained. All records shall be retained for a period of at least five years, shall be readily available, and be made available to the APCO upon request.</p> | <p>The following conditions will be included on the permit:</p> <ul style="list-style-type: none"> • {3479} The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115] • The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115] • {3475} 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 and 17 CCR 93115] |

District Rule 4801 Sulfur Compounds

Rule 4801 requires that sulfur compound emissions (as SO₂) shall not exceed 0.2% by volume. Using the ideal gas equation, the sulfur compound emissions are calculated as follows:

Volume SO₂ = (n x R x T) ÷ P

n = moles SO₂

T (standard temperature) = 60 °F or 520 °R

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

$$\frac{0.000015 \text{ lb} - \text{S}}{\text{lb} - \text{fuel}} \times \frac{7.11 \text{ lb}}{\text{gal}} \times \frac{64 \text{ lb} - \text{SO}_2}{32 \text{ lb} - \text{S}} \times \frac{1 \text{ MMBtu}}{9,051 \text{ scf}} \times \frac{1 \text{ gal}}{0.137 \text{ MMBtu}} \times \frac{\text{lb} - \text{mol}}{64 \text{ lb} - \text{SO}_2} \times \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} - \text{mol} \cdot \text{°R}} \times \frac{520 \text{°R}}{14.7 \text{ psi}} \times 1,000,000 = 1.0 \text{ ppmv}$$

Since 1.0 ppmv is \leq 2,000 ppmv, this engine is expected to comply with Rule 4801. Therefore, the following condition will be listed on the permit 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 93115]

California Health & Safety Code 42301.6 (School Notice)

As discussed in Section III of this document, the equipment is not located within 1,000 feet of Schools. Therefore, a school notice is not required for this project.

Title 17 California Code of Regulations (CCR), Section 93115

– Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines

The following table demonstrates how the proposed engine will comply with the requirements of Title 17 CCR Section 93115.

| Title 17 CCR Section 93115 Requirements for New Emergency IC Engines Powering Electrical Generators | Proposed Method of Compliance with Title 17 CCR Section 93115 Requirements |
|---|--|
| Emergency engine(s) must be fired on CARB diesel fuel, or an approved alternative diesel fuel. | The applicant has proposed the use of CARB certified diesel fuel. The proposed permit condition, requiring the use of CARB certified diesel fuel, was included earlier in this evaluation. |
| The engine(s) must emit diesel PM at a rate less than or equal to 0.15 g/bhp-hr or must meet the diesel PM standard, as specified in the Off-road compression ignition standards for off-road engines with the same maximum rated power (Title 13 CCR, Section 2423). | The applicant has proposed the use of engine that is certified to the latest EPA Tier Certification level for the applicable horsepower range, and guaranteeing compliance with the emission standards. Additionally, the proposed diesel PM emissions rate is less than 0.15 g/bhp-hr. |
| The engine may not be operated more than 50 hours per year for maintenance and testing purposes. | The following condition will be included on the permit: <ul style="list-style-type: none"> • This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rule 4702 and 17 CCR 93115] |
| New stationary emergency standby diesel-fueled CI engines (> 50 bhp) must meet the standards for off-road engines of the same model year and maximum rated power as specified in the Off-Road Compression Ignition Engine Standards (title 13, CCR, section 2423). | The applicant has proposed the use of engine(s) that are certified to the latest EPA Tier Certification level for the applicable horsepower range. |
| Engines, with a PM10 emissions rate greater than 0.01 g/bhp-hr and located at | The District has verified that this engine is not located within 500 feet of a school. |

| | |
|---|---|
| <p>schools, may not be operated for maintenance and testing whenever there is a school sponsored activity on the grounds. Additionally, engines located within 500 feet of school grounds may not be operated for maintenance and testing between 7:30 AM and 3:30 PM</p> | |
| <p>An owner or operator shall maintain monthly records of the following: emergency use hours of operation; maintenance and testing hours of operation; hours of operation for emission testing; initial start-up testing hours; hours of operation for all other uses; and the type of fuel used. All records shall be retained for a minimum of 36 months.</p> | <p>Permit conditions enforcing these requirements were shown earlier in the evaluation.</p> |

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.

Consistent with California Environmental Quality Act (CEQA) and CEQA Guidelines requirements, the San Joaquin Valley Air Pollution Control District (District) has adopted procedures and guidelines for implementing CEQA. The District's Environmental Review Guidelines (ERG) establishes procedures for avoiding unnecessary delay during the District's permitting process while ensuring that significant environmental impacts are thoroughly and consistently addressed. The ERG includes policies and procedures to be followed when processing permits for projects that are exempt under CEQA.

The State Legislature granted a number of exemptions from CEQA, including projects that require only ministerial approval. Based upon analysis of its own laws and consideration of CEQA provisions, the District has identified a limited number of District permitting activities considered to be ministerial approvals. As set forth in §4.2.1 of the ERG, projects permitted consistent with the District's *Guidelines for Expedited Application Review* (GEAR) are standard application reviews in which little or no discretion is used in issuing Authority to Construct (ATC) documents.

For the proposed project, the District performed an Engineering Evaluation (this document) and determined that the project qualifies for processing under the procedures set forth in the District's Permit Services Procedures Manual in the Guidelines for Expedited Application Review (GEAR). Thus, as discussed above, this issuance of such ATC(s) is a ministerial approval for the District and is not subject to CEQA provisions.

On December 17, 2009, the District's Governing Board adopted the first comprehensive regional policy and guidance on addressing and mitigating GHG emission impacts caused by industrial, commercial, and residential development in the San Joaquin Valley. The adopted District policy – *Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency* applies to projects for which the District has discretionary approval authority over the project and serves as the lead agency for CEQA purposes. The policy relies on the use of performance based standards, otherwise known as Best Performance Standards (BPS) to assess significance of project specific greenhouse gas emissions on global climate change during the environmental review process, as required by CEQA.

Use of BPS is a method of streamlining the CEQA process of determining significance and is not a required emission reduction measure. However, consistent with the District's objective to achieve the GHG emission reduction targets established pursuant to AB 32, BPS will be incorporated into the District's GEAR application review process. In the interim, projects meeting the existing GEAR requirements will continue to be processed as ministerial approvals.

IX. RECOMMENDATION

Pending a successful Public Noticing period, issue Authority to Construct N-8017-2-0 permit subject to the permit conditions listed on the attached draft Authority to Construct in Appendix I.

X. BILLING INFORMATION

| Annual Permit Fees | | | |
|--------------------|---|-----------------|------------|
| Permit Number | Fee Schedule | Fee Description | Annual Fee |
| N-8017-2-0 | 3020-10-D (400 or greater but less Than 800 bhp) | 539 bhp | \$ 479 |

APPENDICES

- Appendix I: Draft Authority to Construct (ATC)*
- Appendix II: BACT Guideline & Top-Down T-BACT Analysis*
- Appendix III: CARB Executive Order*
- Appendix IV: RMR & AAQA Summary*

APPENDIX I

Draft Authority to Construct (ATC)

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: N-8017-2-0

LEGAL OWNER OR OPERATOR: OAKDALE FIRE STATION #2
MAILING ADDRESS: 325 EAST G STREET
OAKDALE, CA 95361

LOCATION: 450 SOUTH WILLOWOOD AVENUE
OAKDALE, CA 95361

EQUIPMENT DESCRIPTION:

539 BHP VOLVO PENTA MODEL TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR (OAKDALE FIRE STATION #2 AND SEWERAGE LIFT STATION #9)

CONDITIONS

1. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
2. {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]
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. {1897} This engine shall be equipped with either a positive crankcase ventilation (PCV) system that recirculates crankcase emissions into the air intake system for combustion, or a crankcase emissions control device of at least 90% control efficiency. [District Rule 2201]
5. {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]
6. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702 and 17 CCR 93115]
7. 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]
8. Emissions from this IC engine shall not exceed any of the following limits: 4.11 g-NOx/bhp-hr, 0.52 g-CO/bhp-hr, or 0.22 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 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

N-8017-2-0 : Sep 22 2010 8:08AM - SOV : Joint Inspection NOT Required

9. Emissions from this IC engine shall not exceed 0.11 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102 and 17 CCR 93115]
10. 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]
11. {3810} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rule 4702 and 17 CCR 93115]
12. {3807} An emergency situation is an unscheduled electrical power outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702]
13. {3808} This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rule 4702]
14. {3478} During periods of operation for maintenance, testing, and required regulatory purposes, 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]
15. {3479} The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]
16. The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]
17. {3475} 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 and 17 CCR 93115]

DRAFT

APPENDIX II

BACT Guideline & Top-Down BACT (T-BACT) Analysis

[Per » B A C T » Bact Guideline.asp?category Level1=3&category Level2=1&category Level3=3&last Update=6 » 30 :](#)

[Back](#)

[Details Page](#)

**Best Available Control Technology (BACT) Guideline 3.1.3
Last Update: 6/30/2001**

Emergency Diesel I.C. Engine = or > 400 hp

| Pollutant | Achieved in Practice or In the SIP | Technologically Feasible | Alternate Basic Equipment |
|------------------|--|---------------------------------|----------------------------------|
| CO | 2.0 grams/brake horsepower-hour | = or < 1.4 grams/bhp-hr | |
| NOx | Certified emissions of 6.9 g/bhp-hr or less | | |
| PM10 | 0.1 grams/bhp-hr (if TBACT is triggered) 0.4 grams/bhp-hr (if TBACT is not triggered) | | |
| SOx | Low-sulfur diesel fuel (500 ppmw sulfur or less) or Very Low-sulfur diesel fuel (15 ppmw sulfur or less), where available. | | |
| VOC | Positive crankcase ventilation | | |

1. Any engine model included in the ARB or EPA diesel engine certification lists and identified as having a PM10 emission rate of 0.149 grams/bhp-hr or less, based on ISO 8178 test procedure, shall be deemed to meet the 0.1 grams/bhp-hr requirement. 2. A site-specific Health Risk Analysis is used to determine if TBACT is triggered. (Clarification added 05/07/01)

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.](#)

Top-Down BACT Analysis for NO_x emissions

The following NO_x emission control technologies are listed in BACT guideline 3.1.1, 3rd quarter, 2005 (when the engine was installed) for emergency diesel IC engine greater than 400 hp as follows:

Step 1 - Identify all control technologies

Achieved in Practice or contained in the SIP:

Certified emissions of 6.9 g/bhp-hr or less

Technologically Feasible:

There is no technologically feasible option listed on this guideline.

Alternate Basic Equipment:

There is no alternate basic equipment listed on this guideline.

Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options that can be eliminated from step 1.

Step 3 - Rank remaining options by control effectiveness

Ranking of the control technologies is not required, since the applicant has proposed utilize the only control technology, achieved in practice control technology listed on this guideline.

Step 4 - Cost Effectiveness Analysis

Pursuant to District BACT Policy APR 1305 IX.D.3 (11/99), a cost-effective analysis is not required since the applicant has proposed utilize the most stringent control technology option listed in Step 3. Therefore, the cost effectiveness analysis is not required.

Step 5 - Select BACT

BACT for NO_x emissions from this emergency diesel-fired IC engine greater than 400 hp is certified emissions of 6.9 g/bhp-hr or less. The proposed engine is a 539 bhp certified Tier 2 emergency standby diesel-fired IC engine with certified NO_x emissions of 4.11 g/bhp-hr. Therefore, BACT for NO_x emissions is satisfied.

Top-Down BACT Analysis for VOC emissions

Volatile organic compounds (VOC) are emitted from the crankcase of the engine as a result of piston ring blow-by.

The following VOC emission control technologies are listed in BACT guideline 3.1.1, 3rd quarter, 2005 (when the engine was installed) for emergency diesel IC engine as follows:

Step 1 - Identify all control technologies

Achieved in Practice or contained in the SIP:

Positive Crankcase Ventilation

Technologically Feasible:

There is no technologically feasible control technology listed on this guideline.

Alternate Basic Equipment:

There is no alternate basic equipment listed on this guideline.

Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options that can be eliminated from step 1.

Step 3 - Rank remaining options by control effectiveness

Ranking of the control technologies is not required, since the applicant has proposed utilize the only control technology, achieved in practice control technology listed on this guideline.

Step 4 - Cost Effectiveness Analysis

Pursuant to District BACT Policy APR 1305 IX.D.3 (11/99), a cost-effective analysis is not required since the applicant has proposed utilize the most stringent control technology option listed in Step 3. Therefore, the cost effectiveness analysis is not required.

Step 5 - Select BACT

BACT for VOC emissions from the emergency diesel-fired IC engine greater than 400 hp is an engine equipped with Positive Crankcase Ventilation System. The proposed engine is a 539 bhp certified Tier 2 emergency diesel IC engine that equipped with Positive Crankcase Ventilation System. Therefore, BACT for VOC emissions is satisfied.

Top-Down T-BACT Analysis for PM₁₀ Emissions

Particulate matter (PM₁₀) emissions occur from the reaction of various elements in the diesel fuel including fuel sulfur.

The following PM₁₀ emission control technologies are listed in BACT guideline 3.1.1 3rd quarter, 2005 (when the engine was installed) for emergency diesel IC engine as follows:

Step 1 - Identify all control technologies

Achieved in Practice or contained in SIP:

0.1 g/bhp-hr (if TBACT is triggered),
0.4 g/bhp-hr (if TBACT is not triggered)

Technologically Feasible:

There is no technologically feasible control technology listed on this guideline.

Alternate Basic Equipment:

There is no Alternate Basic Equipment listed on this guideline.

Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options to eliminate from step 1.

Step 3 - Rank remaining options by control effectiveness

Ranking of the control technologies is not required, since the applicant has proposed utilize the only control technology, achieved in practice control technology listed on this guideline.

Step 4 - Cost Effectiveness Analysis

Pursuant to District BACT Policy APR 1305 IX.D.3 (11/99), a cost-effective analysis is not required since the applicant has proposed utilize the most stringent control technology option listed in Step 3. Therefore, the cost effectiveness analysis is not required.

Step 5 - Select BACT

T-BACT requirement for PM₁₀ emissions from the emergency standby diesel-fired IC engine greater than 400 hp is certified emissions of 0.1 g/bhp-hr. The proposed engine is a 539 bhp certified Tier 2 emergency standby diesel-fired IC engine with certified emissions of 0.1 g-PM₁₀/bhp-hr; therefore T-BACT for PM₁₀ emissions is satisfied.

APPENDIX III
CARB Executive Order

| | | |
|--|-----------------------|--|
|  AIR RESOURCES BOARD | AB VOLVO PENTA | EXECUTIVE ORDER U-R-014-0074 |
| | | New Off-Road Compression-Ignition Engines |

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engines and emission control system produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

| MODEL YEAR | ENGINE FAMILY | DISPLACEMENT (liters) | FUEL TYPE | USEFUL LIFE (hours) |
|---|---------------|-----------------------|--------------------------------------|---------------------|
| 2004 | 4VPXL12.1ACB | 12.1 | Diesel | 8000 |
| SPECIAL FEATURES & EMISSION CONTROL SYSTEMS | | | TYPICAL EQUIPMENT APPLICATION | |
| Direct Diesel Injection, Turbocharger, Charge Air Cooler, Electronic Control Module, Smoke Puff Limiter | | | Generator Set | |

The engine models and codes are attached.

The following are the exhaust certification standards (STD) and certification levels (CERT) for hydrocarbon (HC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kW-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

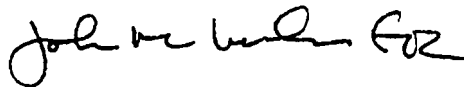
| RATED POWER CLASS | EMISSION STANDARD CATEGORY | | EXHAUST (g/kW-hr) | | | | | OPACITY (%) | | |
|-------------------|----------------------------|------|-------------------|-----|----------|-----|------|-------------|-----|------|
| | | | HC | NOx | NMHC+NOx | CO | PM | ACCEL | LUG | PEAK |
| 225 ≤ kW < 450 | Tier 2 | STD | N/A | N/A | 6.4 | 3.5 | 0.20 | N/A | N/A | N/A |
| | | CERT | - | - | 5.8 | 0.7 | 0.15 | - | - | - |

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed at El Monte, California on this 19th day of February 2004.



Allen Lyons, Chief
 Mobile Source Operations Division

Engine Model Summary Form

Manufacturer: **AB VOLVO PENTA**
 Engine category: **Nonroad CI**
 EPA Engine Family: **4VPXL12.1ACB**
 Mfr Family Name: **TAD124XGE**
 Process Code: **New Submission**

Attachment 1 of 1
 U-R-014-0074

| 1.Engine Code | 2.Engine Model | 3.BHP@RPM (SAE Gross) | 4.Fuel Rate: mm/stroke @ peak HP (for diesel only) | 5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only) | 6.Torque @ RPM (SEA Gross) | 7.Fuel Rate: mm/stroke@peak torque | 8.Fuel Rate: (lbs/hr)@peak torque | 9.Emission Control Device Per SAE J1930 |
|---------------|----------------|--------------------------|--|--|-------------------------------|--|--------------------------------------|--|
| 7 | TAD1242GE | 534 @ 1500 | 355 @ 534 | 179 @ 534 | 1869 @ 1500 | 355 @ 1869 | 179 @ 1869 | SPL DPF, TC, CAC, ECU |
| 8 | TAD1242GE | 602 @ 1800 | 359 @ 602 | 217 @ 602 | 1757 @ 1800 | 359 @ 1757 | 217 @ 1757 | |
| 9 | TAD1241GE | 486 @ 1500 | 320 @ 486 | 158 @ 486 | 1704 @ 1500 | 320 @ 1704 | 158 @ 1704 | |
| 10 | TAD1241GE | 527 @ 1800 | 300 @ 527 | 180 @ 527 | 1538 @ 1800 | 300 @ 1538 | 180 @ 1538 | |
| 5 | TAD1240GE | 429 @ 1500 | 277 @ 429 | 139 @ 429 | 1503 @ 1500 | 277 @ 1503 | 139 @ 1503 | |
| 6 | TAD1240GE | 462 @ 1800 | 259 @ 462 | 156 @ 462 | 1350 @ 1800 | 259 @ 1350 | 156 @ 1350 | |

APPENDIX IV

RMR Summary

San Joaquin Valley Air Pollution Control District Risk Management Review

To: Wai-Man So, AQE – Permit Services
 From: Jennifer Hart, AQS – Technical Services
 Date: August 6, 2010
 Facility Name: Oakdale Fire Station #2
 Location: 450 South Willowood Ave, Oakdale
 Application #(s): N-8017-2-0
 Project #: N-1102807

A. RMR SUMMARY

| Categories | Diesel IC Engine (Unit 2-0) | Project Totals | Facility Totals |
|--|-----------------------------|------------------|------------------|
| Prioritization Score | NA ¹ | NA ¹ | NA ¹ |
| Acute Hazard Index | N/A ² | N/A ² | N/A ² |
| Chronic Hazard Index | N/A ² | N/A ² | N/A ² |
| Maximum Individual Cancer Risk (10 ⁻⁶) | 1.76 | 1.76 | 1.76 |
| T-BACT Required? | Yes | | |
| Special Permit Conditions? | Yes | | |

- 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 # 2-0

1. The PM10 emissions rate shall not exceed 0.11 g/bhp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201]
2. 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]
3. This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

B. RMR REPORT

I. Project Description

Technical Services received a request on August 3, 2010, to perform an Ambient Air Quality Analysis and a Risk Management Review for a 538 bhp Tier 2 diesel-fired emergency standby IC Engine powering an electrical generator.

II. Analysis

Technical Services performed a screening level health risk assessment using the District's Diesel Internal Combustion Engine (DICE) database.

The following parameters were used for the review:

| Analysis Parameters for Units 2-0 | | | | | | |
|-----------------------------------|--------|--------------------------|--------------|------|------------|-------|
| Unit #s | bhp-hr | PM ₁₀ g/hp-hr | Receptor (m) | Quad | Hours/Year | Load% |
| 2-0 | 539 | 0.11 | 22.86* | 3 | 50 | 100 |
| Location Type Urban | | | | | | |
| Receptor Type | | | Residence | | | |

* A higher risk was found at a distance of 50 meters; therefore, the risk at 50 meters was used for this project.

Technical Services also performed modeling for criteria pollutants CO, NO_x, SO_x and PM₁₀; as well as a RMR. The emission rates used for criteria pollutant modeling were 14.8 lb/day CO, 117.2 lb/day NO_x, 0.1 lb/day SO_x, and 3.1 lb/day PM₁₀. 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 _x | Pass | X | X | X | Pass |
| SO _x | Pass | Pass | X | Pass | Pass |
| PM ₁₀ | X | X | X | Pass | Pass |

*Results were taken from the attached PSD spreadsheet.

¹The project was compared to the 1-hour NO₂ 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 III NO₂ NAAQS modeling

²The 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 emergency standby 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).

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. Toxic emissions summary
- D. Diesel Internal Combustion Engine (DICE) prinout
- E. AAQA report
- F. NO₂ NAAQS report
- G. AERMOD Non-Regulatory Option Checklist
- H. Distance Calculation