

# San Joaquin Valley Air Pollution Control District Authority to Construct Application Review

Diesel-Fired Emergency Firewater Pump IC Engine

Facility Name: [Facility Name] Date: [Date]  
Mailing Address: [Mailing Address] Engineer/ [Your Name]  
Specialist:  
Lead Engineer: [Lead Engr Name]

Contact Person: [Contact Person]  
Telephone: [Phone #]  
E-mail: [E-mail address]  
Application #: [ATC #]  
Project #: [Project #]

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Note: This GEAR is to be used for **direct-drive emergency firewater pump** IC engines only. Section 4.3 of District Rule 4702 defines an “Emergency Engine” as an internal combustion engine which is operated exclusively to preserve or protect property, human life, or public health during a disaster or state of emergency, such as a fire or flood.

This GEAR is only to be used for new emergency standby IC engines that power fire suppression systems at non-major source facilities. If this document is used for any major source, the project will no longer be a GEAR. For projects at a major source facility only, please expand the proposal, discussions, and tables as necessary to accommodate extra units or special cases (PSD significant emissions increase, Major Modification, CEQA etc...) using APR-1010.

Prior to starting this evaluation, verify that the new IC engine meets the latest applicable off-road emissions standards (Tier rating) for the bhp rating range of the proposed engine (see Supervisor for guidance), and also verify that the PM10 emissions factor is compliant with BACT/T-BACT requirements (if triggered). If the engine does not meet these standards, the project may not be approvable (talk to your lead).

## I. Proposal

**Facility Name** is proposing to install a **XXX** bhp diesel-fired emergency standby internal combustion (IC) engine powering a fire suppression system.

## II. Applicable Rules

Rule 2201 New and Modified Stationary Source Review Rule (8/15/19)  
Rule 2410 Prevention of Significant Deterioration (6/16/11)

Rule 2520 Federally Mandated Operating Permits (8/15/19)  
Rule 4001 New Source Performance Standards (4/14/99)  
Rule 4002 National Emission Standards for Hazardous Air Pollutants (5/20/04)  
Rule 4101 Visible Emissions (2/17/05)  
Rule 4102 Nuisance (12/17/92)  
Rule 4201 Particulate Matter Concentration (12/17/92)  
Rule 4701 Internal Combustion Engines - Phase 1 (8/21/03)  
Rule 4702 Internal Combustion Engines (8/19/21)  
Rule 4801 Sulfur Compounds (12/17/92)  
CH&SC 41700 Health Risk Assessment  
CH&SC 42301.6 School Notice  
Title 17 CCR, Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines  
Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)  
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines

### III. Project Location

*{For facilities with Street Addresses, use the following:}*

The equipment will be located at 1132 N. Belmont Rd. in Exeter, CA.

*{For facilities with a Mount Diablo Base Meridian Location, use the following:}*

The equipment will be located at the 31X oil and water treatment plant in the Cymric Oil Field, within the SW/4 of Section 31, Township 29S, Range 21E.

*{For facilities with a descriptive location, use the following:}*

The equipment will be located on the eastern side of 25<sup>th</sup> Avenue, approximately one mile south of State Route (SR) 198, in Kings County.

*{Verify whether or not the equipment is or will be located within 1,000 feet of the nearest outer boundary of a K-12 school (using Google maps, etc.). If there is a school within 1,000 feet, check to see if there is another school with ¼ mile of the emissions source and include that school with the school notice.}*

The District has verified that the equipment [is/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/is not] applicable to this project.

### IV. Process Description

Note: Depending on the requirements of the ATCM, detailed in Section VIII, the annual hours of operation for non-emergency use will vary between 100 and 20. This section at the end of the EE should be completed first so that the annual hours of operation for the engine can then be used throughout the EE.

The emergency engine powers a firewater pump. Other than emergency operation, the engine may be operated up to [100 to 20, depending on the PM10 emissions factor] hours per year for maintenance and testing purposes.

## V. Equipment Listing

{Note: The maximum intermittent bhp rating of the engine shall be used in the equipment description.}

**X-XXXX-XX-XX:** [XXX] BHP (INTERMITTENT) [MAKE] MODEL [MODEL #] TIER [X] CERTIFIED DIESEL-FIRED EMERGENCY IC ENGINE POWERING A FIREWATER PUMP

## VI. Emission Control Technology Evaluation

The applicant has proposed to install a Tier X certified diesel-fired IC engine that is fired on very low-sulfur diesel fuel.

The proposed engine meets the latest Tier Certification requirements for emergency standby engines; therefore, the engine meets the latest ARB/EPA emissions standards for diesel particulate matter, hydrocarbons, nitrogen oxides, and carbon monoxide (see Appendix C for a copy of the [emissions data sheet and/or the ARB/EPA executive order](#)).

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

## VII. General Calculations

### A. Assumptions

Emergency operating schedule:	24 hours/day
Non-emergency operating schedule:	up to 100 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
Thermal efficiency of engine:	commonly ≈ 35%
PM <sub>10</sub> fraction of diesel exhaust:	0.96 (CARB, 1988)

*{Include the following assumption if only a NO<sub>x</sub> + VOC emission factor is available.}*

The engine has certified NO<sub>x</sub> + VOC emissions of X.XX 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 Carl Moyer program).

### B. Emission Factors

*{Emission Factors Table: Use this table if the applicant has supplied a manufacturer's engine specific data sheet or if you are using ARB/EPA Certification emission factors. If using ARB/EPA Certification emission factors, the CERT values may be used (see FYI 320).}*

<b>Emission Factors</b>			
<b>Pollutant</b>	<b>Emission Factor (g/bhp-hr)</b>	<b>Emission Factor (g/kw-hr)</b>	<b>Source</b>
NO <sub>x</sub>	X.XX	X.XX	Engine Manufacturer
SO <sub>x</sub>	0.0051	0.0068	Mass Balance Equation Below
PM <sub>10</sub>	X.XX	X.XX	ARB/EPA Certification
CO	X.XX	X.XX	ARB/EPA Certification
VOC	X.XX	X.XX	Engine Manufacturer

$$\frac{0.000015 \text{ lb-S}}{\text{lb-fuel}} \times \frac{7.1 \text{ lb-fuel}}{\text{gallon}} \times \frac{2 \text{ lb-SO}_2}{1 \text{ lb-S}} \times \frac{1 \text{ gal}}{137,000 \text{ Btu}} \times \frac{1 \text{ bhp input}}{0.35 \text{ bhp out}} \times \frac{2,542.5 \text{ Btu}}{\text{bhp-hr}} \times \frac{453.6 \text{ g}}{\text{lb}} = 0.0051 \frac{\text{g-SO}_x}{\text{bhp-hr}}$$

### C. Calculations

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

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

#### 2. Post-Project Potential to Emit (PE2)

*{Note: The maximum intermittent bhp rating of the engine shall be used in the emission calculations.}*

The daily and annual PE2 are calculated as follows:

$$\text{Daily PE2 (lb-pollutant/day)} = \text{EF (g-pollutant/bhp-hr)} \times \text{rating (bhp)} \times \text{operation (hr/day)} / 453.6 \text{ g/lb}$$

$$\text{Annual PE2 (lb-pollutant/yr)} = \text{EF (g-pollutant/bhp-hr)} \times \text{rating (bhp)} \times \text{operation (hr/yr)} / 453.6 \text{ g/lb}$$

*{Note: Enter data in cells for Emissions Factor, Rating, Daily and Annual Hours of Operation then Highlight cells for PE2 and press F9 to calculate emissions}*

<b>Post Project Emissions (PE2)</b>						
<b>Pollutant</b>	<b>Emissions Factor (g/bhp-hr)</b>	<b>Rating (bhp)</b>	<b>Daily Hours of Operation</b>	<b>Annual Hours of Operation</b>	<b>Daily PE2 (lb/day)</b>	<b>Annual PE2 (lb/yr)</b>

			(hrs/day)	(hrs/year)		
NO <sub>x</sub>	XXX	XXX	XXX	XXX	0.0	0
SO <sub>x</sub>	XXX	XXX	XXX	XXX	0.0	0
PM <sub>10</sub>	XXX	XXX	XXX	XXX	0.0	0
CO	XXX	XXX	XXX	XXX	0.0	0
VOC	XXX	XXX	XXX	XXX	0.0	0

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

Pursuant to District Rule 2201, the SSPE1 is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATCs) or Permits to Operate (PTOs) at the Stationary Source and the quantity of Emission Reduction Credits (ERCs) which have been banked since September 19, 1991 for Actual Emissions Reductions (AER) that have occurred at the source, and which have not been used on-site.

*{For a new facility use the following:}*

Since this is a new facility, there are no valid ATCs, PTOs, or ERCs at the Stationary Source. Therefore, the SSPE1 is equal to zero.

*{If this is an existing facility use the following statement, otherwise delete:}*

SSPE1 is summarized in the following table. See Appendix F for detailed SSPE calculations.

SSPE1 (lb/year)					
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
SSPE1	XXX	XXX	XXX	XXX	XXX

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

Pursuant to District Rule 2201, the Post-Project Stationary Source Potential to Emit (SSPE2) is the PE from all units with valid ATCs or PTOs, except for emissions units proposed to be shut down as part of the Stationary Project, at the Stationary Source and the quantity of ERCs which have been banked since September 19, 1991 for AER that have occurred at the source, and which have not been used on-site.

For this project the change in emissions for the facility is due to the installation of the new emergency standby IC engine. Thus:

SSPE2 (lb/year)

Permit Unit	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
SSPE1	XXX	XXX	XXX	XXX	XXX
X-XXXX-X-X	XXX	XXX	XXX	XXX	XXX
<b>SSPE2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

## 5. Major Source Determination

### Rule 2201 Major Source Determination:

Pursuant to District Rule 2201, a Major Source is a stationary source with a SSPE2 equal to or exceeding one or more of the following threshold values. For the purposes of determining major source status the following shall not be included:

- any ERCs associated with the stationary source
- Emissions from non-road IC engines (i.e. IC engines at a particular site at the facility for less than 12 months)
- Fugitive emissions, except for the specific source categories specified in 40 CFR 51.165

Rule 2201 Major Source Determination (lb/year)						
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	CO	VOC
SSPE1	XXX	XXX	XXX	XXX	XXX	XXX
SSPE2	XXX	XXX	XXX	XXX	XXX	XXX
Major Source Threshold	20,000	140,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	No	No

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

### Rule 2410 Major Source Determination:

The facility is not an existing Major Source for PSD for at least one pollutant. Therefore the facility is not an existing Major Source for PSD.

## 6. Baseline Emissions (BE)

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 District Rule 2201

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

### **7. SB 288 Major Modification**

SB 288 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."

Since this facility is not a major source for any of the pollutants addressed in this project, this project does not constitute an SB 288 major modification.

### **8. Federal Major Modification**

District Rule 2201 states that a Federal Major Modification is the same as a "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA.

Since this facility is not a Major Source for any pollutants, this project does not constitute a Federal Major Modification.

### **9. Rule 2410 - Prevention of Significant Deterioration (PSD) Applicability Determination**

The project potential to emit, by itself, will not exceed any PSD major source thresholds. Therefore Rule 2410 is not applicable and no further discussion is required.

### **10. 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 Appendix [E](#).

## **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<sup>1</sup>:

- 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 an SB288 Major Modification or a Federal Major Modification, as defined by the rule.

As discussed in Section I, the facility is proposing to install a new emergency standby IC engine. Additionally, as determined in Sections VII.C.7 and VII.C.8, this project does not result in an SB288 Major Modification or a Federal Major Modification, respectively. Therefore, BACT can only be triggered if the daily emissions exceed 2.0 lb/day for any pollutant.

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

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<sup>1</sup> 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.



<b>New Emissions Unit BACT Applicability</b>				
Pollutant	Daily Emissions for the new unit (lb/day)	BACT Threshold (lb/day)	SSPE2 (lb/yr)	BACT Triggered?
NO <sub>x</sub>	XXX	> 2.0	n/a	Yes/No
SO <sub>x</sub>	XXX	> 2.0	n/a	Yes/No
PM <sub>10</sub>	XXX	> 2.0	n/a	Yes/No
CO	XXX	> 2.0 and SSPE2 ≥ 200,000 lb/yr	XXX	No
VOC	XXX	> 2.0	n/a	Yes/No

As shown above, BACT will be triggered for NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, and VOC emissions from the engine for this project.

## 2. BACT Guideline

BACT Guideline 3.1.4, which appears in Appendix B of this report, covers diesel-fired emergency IC engines.

## 3. Top Down BACT Analysis

Per District Policy APR 1305, Section IX, “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 for source categories or classes covered in the BACT Clearinghouse, relevant information under each of the following steps may be simply cited from the Clearinghouse without further analysis.”

Pursuant to the attached top down BACT Analysis, which appears in Appendix B of this report, BACT is satisfied with:

**{Delete the pollutants listed that do not trigger BACT}**

- NO<sub>x</sub>: Latest Available Tier Certification level for applicable horsepower
- VOC: Latest Available Tier Certification level for applicable horsepower
- SO<sub>x</sub>: Very low sulfur diesel (15 ppmw sulfur or less)
- PM<sub>10</sub>: 0.1 g/bhp-hr (if TBACT is triggered)  
0.15 g/bhp-hr (if TBACT is not triggered)

The applicant has proposed to install a XXX bhp Tier X certified IC engine (with a PM<sub>10</sub> emissions rate of XX g/bhp-hr), and using very low sulfur diesel fuel. Therefore, BACT is satisfied for NO<sub>x</sub>, SO<sub>x</sub>, VOC, and PM<sub>10</sub>. (edit as necessary).

## B. Offsets

### 1. Offset Applicability

Pursuant to Section 4.6.2 of this rule, offsets are not required for emergency IC engines. The engine in this project is an emergency IC engine; therefore, this exemption is applicable to this project.

## C. Public Notification

### 1. Applicability

Public noticing is required for:

a. New Major Sources, SB288 Major Modifications, and Federal Major Modifications

As shown in Sections VII.C.5, VII.C.7, and VII.C.8, this facility is not a new Major Source, not an SB 288 Major Modification, and not a Federal Major Modification, respectively.

b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any pollutant

{Choose the appropriate sentence}

As calculated in Section VII.C.2, daily emissions for all pollutants are less than 100 lb/day.

{OR}

As calculated in Section VII.C.2, daily emissions for **NO<sub>x</sub>** and **CO** are greater than 100 lb/day.

c. Any project which results in the offset thresholds being surpassed

Public notification is required if the **SSPE1** is increased from a level below the offset threshold to a level exceeding the emissions offset threshold, for any pollutant.

The SSPE1 and SSPE2 are compared to the offset thresholds in the following table.

Offset Thresholds				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO <sub>x</sub>	XXX	XXX	20,000 lb/year	No
SO <sub>x</sub>	XXX	XXX	54,750 lb/year	No
PM <sub>10</sub>	XXX	XXX	29,200 lb/year	No
CO	XXX	XXX	200,000 lb/year	No
VOC	XXX	XXX	20,000 lb/year	No

*Example (a): (For a project not surpassing the offset threshold.)*

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

*Example (b): (For a project surpassing the offset threshold.)*

As detailed above, offset thresholds were surpassed for NO<sub>x</sub> with this project; therefore public noticing is required for offset purposes.

*(Note: Public notification is independent of whether or not Offsets are required. For example, if this project involves the installation of emergency (offset-exempt) equipment and the offset threshold is surpassed, then public notification would still be triggered.)*

- d. Any project with a Stationary Source Project Increase in Permitted Emissions (SSPIE) greater than 20,000 lb/year for any pollutant

For this project, the proposed engine is the only emissions unit that will generate an increase in Potential to Emit. Since the proposed engine emissions are well below 20,000 lb/year for all pollutants (See Section VII.C.2), the SSPIE for this project will be below the public notice threshold.

- e. Any project which results in a Title V significant permit modification

Since this facility does not have a Title V operating permit, this change is not a Title V significant Modification, and therefore public noticing is not required.

## 2. Public Notice Action

*{For a project not requiring public notice.}*

As demonstrated above, this project will not require public noticing.

*{For a project requiring public notice.}*

As demonstrated 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 electronically published on the District's website prior to the issuance of the ATC for this equipment.

#### **D. Daily Emissions Limits**

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Rule 2201 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. 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. Therefore, the following conditions will be listed on the ATC as a mechanism to ensure compliance:

- {4771} Emissions from this IC engine shall not exceed any of the following limits: X.XX g-NOx/bhp-hr, X.XX g-CO/bhp-hr, or X.XX g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- {4772} Emissions from this IC engine shall not exceed X.XX g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
- {4258} 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]

#### **E. Compliance Assurance**

##### **1. Source Testing**

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

##### **2. Monitoring**

No monitoring is required to demonstrate compliance with District Rule 2201.

##### **3. Recordkeeping**

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

##### **4. Reporting**

No reporting is required to ensure compliance with District Rule 2201.

*(Note: Section F is applicable only when public notice is triggered, otherwise delete the following section for AAQA.)*

#### **F. Ambient Air Quality Analysis (AAQA)**

An AAQA is conducted by the Technical Services group, for any project which has an increase in emissions and triggers public notification requirements. Discuss the AAQA results as follows.

An AAQA shall 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 District's Technical Services Division conducted the required analysis. Refer to Appendix D of this document for the AAQA summary sheet.

The proposed location is in an attainment area for NO<sub>x</sub>, CO, and SO<sub>x</sub>. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for NO<sub>x</sub>, CO, or SO<sub>x</sub>.

The proposed location is in a non-attainment area for the state's PM<sub>10</sub> as well as federal and state PM<sub>2.5</sub> thresholds. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for PM<sub>10</sub> and PM<sub>2.5</sub>.

*(Note: Special permit conditions may be required as a result of the AAQA.)*

#### **Rule 2410 Prevention of Significant Deterioration**

As shown in Section VII.C.9 above, this project does not result in a new PSD major source or PSD major modification. No further discussion is required.

#### **Rule 2520 Federally Mandated Operating Permits**

Since this facility's potential to emit does 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)**

##### **40 CFR 60 Subpart III - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines**

The District has not been delegated the authority to implement Subpart III requirements for non-Major Sources; therefore, no requirements shall be included on the permit.

## **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)**

The District has not been delegated the authority to implement NESHAP regulations for Area Source requirements for non-Major Sources; therefore, no requirements shall be included on the permit.

## **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. Therefore, the following condition will be listed on the ATC as a mechanism 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]

## **Rule 4102 Nuisance**

Rule 4102 states that no air contaminant shall be released into the atmosphere which causes a public nuisance. Public nuisance conditions are not expected as a result of these operations, provided the equipment is well maintained. Therefore, the following condition will be listed on the ATC as a mechanism 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)**

**Discuss whether a Health Risk Assessment is required and/or the results of the HRA, including any special conditions to consider when issuing the ATC(s).**

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.

*Example (a): (For a project with a Prioritization score  $\leq 1$ .)*

An HRA is not required for a project with a total facility prioritization score of less than or equal to one. According to the Technical Services Memo for this project

(Appendix D), the total facility prioritization score including this project was less than or equal to one. Therefore, no further analysis is required to determine the impact from this project and compliance with the District’s Risk Management Policy is expected.

Example (b): (For a project with a Prioritization score > 1.)

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 (Appendix D), the total facility prioritization score including this project was greater than one. Therefore, an HRA was required to determine the short-term acute and long-term chronic exposure from this project.

<b>RMR Summary</b>			
<b>Categories</b>	<b>Emergency IC Engine (Unit #-0)</b>	<b>Project Totals</b>	<b>Facility Totals</b>
<b>Prioritization Score</b>	XXX	XXX	XXX
<b>Acute Hazard Index</b>	XXX	XXX	XXX
<b>Chronic Hazard Index</b>	XXX	XXX	XXX
<b>Maximum Individual Cancer Risk</b>	XXX	XXX	XXX
<b>T-BACT Required?</b>	XXX		
<b>Special Permit Conditions?</b>	XXX		

**Discussion of T-BACT**

Discuss whether a T-BACT is or is not triggered and the requirements which satisfy T-BACT (if any).

Example (a): (For a project where T-BACT not triggered.)

BACT for toxic emission control (T-BACT) is required if the cancer risk exceeds one in one million. As demonstrated above, T-BACT is not required for this project because the HRA indicates that the risk is not above the District’s thresholds for triggering T-BACT requirements; therefore, compliance with the District’s Risk Management Policy is expected.

Example (b): (For a project where T-BACT is triggered.)

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 (see Appendix B), which is:

PM<sub>10</sub>: 0.15 g/bhp-hr

Therefore, compliance with the District’s Risk Management Policy is expected.

Also discuss whether the project has acute or chronic indices, or a cancer risk greater than the District’s significance levels.

For example: (For most projects.)

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 20 in a million). As outlined by the Technical Services Memo in Appendix D of this report, the emissions increases for this project were determined to be less than significant.

The following conditions will be listed on the ATC as a mechanism to ensure compliance with the RMR:

Note: Delete the following if not applicable. Include any additional RMR conditions, as necessary.

- {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]
- {4772} Emissions from this IC engine shall not exceed X.XX g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
- {4920} 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 Rules 2201, 4102, and 4702, and 17 CCR 93115]

### Rule 4201 Particulate Matter Concentration

Rule 4201 limits particulate matter emissions from any single source operation to 0.1 g/dscf, which, as calculated below, is equivalent to a PM<sub>10</sub> emission factor of 0.4 g-PM<sub>10</sub>/bhp-hr.

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

The new engine has a PM<sub>10</sub> emission factor less than 0.4 g/bhp-hr. Therefore, compliance is expected and the following condition will be listed on the ATC as a mechanism to ensure compliance:



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

### **Rule 4701 Internal Combustion Engines - Phase 1**

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. Except as provided in Section 4.0, the provisions of this rule apply to any internal combustion engine, rated greater than 50 bhp, that requires a PTO.

The proposed engine is also subject to District Rule 4702, Internal Combustion Engines. Since emissions limits of District Rule 4702 and all other requirements are equivalent or more stringent than District Rule 4701 requirements for emergency engines, compliance with District Rule 4702 requirements will satisfy requirements of District Rule 4701.

### **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.

Pursuant to Section 4.3, except for the requirements of Section 6.2.3, the requirements of this rule shall not apply to an internal combustion engine that meets the following conditions:

- 1) The engine is operated exclusively to preserve or protect property, human life, or public health during a disaster or state of emergency, such as a fire or flood, and
- 2) Except for operations associated with Section 4.3.1.1, the engine is limited to operate no more than 100 hours per calendar year as determined by an operational nonresettable elapsed operating time meter, for periodic maintenance, periodic readiness testing, and readiness testing during and after repair work of the engine, and
- 3) The engine is operated with 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. 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 emergency IC engine involved with this project will only have to meet the requirements of Section 6.2.3 of this Rule.

Section 6.2.3 requires that an owner claiming an exemption under Section 4.2 or Section 4.3 shall maintain annual operating records. This information shall be retained for at least five years, shall be readily available, and submitted to the APCO upon request and at the end of each calendar year in a manner and form approved by the APCO. Therefore, the following conditions will be listed on the ATC to ensure compliance:

*{If the  $PM_{10}$  emissions factor is  $> 0.01$  g/bhp-hr, use the following condition:}*

- {3816} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. For testing purposes, the engine shall only be operated the number of hours necessary to comply with the testing requirements of the National Fire Protection Association (NFPA) 25 - "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems", 1998 edition. Total hours of operation for all maintenance, testing, and required regulatory purposes shall not exceed 100 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

*{If the  $PM_{10}$  emissions factor is  $\leq 0.01$  g/bhp-hr, use the following condition instead:}*

- {3809} 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 100 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

*{Use the following condition for all engines:}*

- {3489} 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, and the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.). 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]
- {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]

*{If the engine is located in a remote location, use the following condition in place of the condition above:}*

- {3476} 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. For units at unstaffed sites or operated remotely, records may be maintained and retained at a District-approved off-site location. [District Rule 4702 and 17 CCR 93115]

In addition, the following conditions will be listed on the ATC to ensure compliance:

- {3404} This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702]
- {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]

### **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 = moles SO<sub>2</sub>

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

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

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

Since 1.0 ppmv is ≤ 2,000 ppmv, this engine is expected to comply with Rule 4801. Therefore, the following condition will be listed on the ATC as a mechanism to ensure compliance:

- {4258} 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)**

*Reference project location and its proximity to a school and state whether or not school notice is required for this project.*

Example (a): (For a Non-School Notice project - > 1,000 feet.)

The District has verified that this engine 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.

Example (b): (For a Non-School Notice project – no increase in emissions)

The District has verified that this site is located within 1,000 feet of a school. However, pursuant to California Health and Safety Code 42301.6, since this project will not result in an increase in emissions, a school notice is not required.

Example (c): (For a School Notice project.)

The District has verified that this engine is located within 1,000 feet of the following school:

School Name: [Name]  
Address: [Address]

Therefore, pursuant to California Health and Safety Code 42301.6, a school notice is required.

Prior to the issuance of the ATC for this equipment, notices will be provided to the parents/guardians of all students of the affected school, and will be sent to all residents within 1,000 feet of the site.

**[If there is no school w/in ¼ mile of the emissions increase, include the following discussion, otherwise delete]:**

The District has verified that there are no additional schools within one-quarter mile of the emission source.

**[If there is a school w/in ¼ mile of the emissions increase, include the following discussion, otherwise delete]:**

Since a school notice has been triggered (due to the above-listed school within 1,000 feet of the emission source), notices will also be provided to the parents/guardians of all students from all school sites within one-quarter mile of the emission source. The following school(s) is within one-quarter mile of the emission source:

School Name: [Name]  
Address: [Address]  
(add additional schools if necessary)

***(Note: Refer to FYI - 71 for guidance on how to process a School Notice project.)***

**Title 17 California Code of Regulations (CCR), Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines**

### Emergency Operating Requirements:

This regulation stipulates that no owner or operator shall operate any new or in-use stationary diesel-fueled compression ignition (CI) emergency standby engine, in response to the notification of an impending rotating outage, unless specific criteria are met.

This section applies to emergency standby IC engines that are permitted to operate during non-emergency conditions for the purpose of providing electrical power. However, District Rule 4702 states that emergency standby IC engines may only be operated during non-emergency conditions for the purposes of maintenance and testing. Therefore, this section does not apply and no further discussion is required.

### Fuel and Fuel Additive Requirements:

This regulation also stipulates that as of January 1, 2006 an owner or operator of a new or in-use stationary diesel-fueled CI emergency standby engine shall fuel the engine with CARB Diesel Fuel.

Since the engine involved with this project is a new or in-use stationary diesel-fueled CI emergency standby engine, these fuel requirements are applicable. Therefore, the following condition (previously proposed in this engineering evaluation) will be listed on the ATC to ensure compliance:

- {3395} 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]

### At-School and Near-School Provisions:

This regulation stipulates that no owner or operator shall operate a new stationary emergency diesel-fueled CI engine, with a PM<sub>10</sub> emissions factor > than 0.01 g/bhp-hr, for non-emergency use, including maintenance and testing, during the following periods:

1. Whenever there is a school sponsored activity, if the engine is located on school grounds, and
2. Between 7:30 a.m. and 3:30 p.m. on days when school is in session, if the engine is located within 500 feet of school grounds.

*{Example 1: If the engine is not located within 500 ft of the outermost boundary of a K-12 school, use the following:}*

The District has verified that the engine is not located within 500 feet of a K-12 school. Therefore, conditions prohibiting non-emergency usage of the engine during school hours will not be placed on the permit.

*{Example 2: If the engine is located within 500 ft of the outermost boundary of a K-12 school or at a K-12 school and the PM<sub>10</sub> emissions factor for the engine is ≤ 0.01 g/bhp-hr, use the following:}*

The District has verified that the engine is located within 500 feet of a K-12 school or is located at K-12 school (Note: Specify where the engine is located). However, the PM<sub>10</sub> emissions factor for this engine is ≤ 0.01 g/bhp-hr. Therefore, conditions prohibiting non-emergency usage of the engine during school hours will not be placed on the permit.

*{Example 3: If the engine is located within 500 ft of the outermost boundary of a K-12 school and the PM<sub>10</sub> emissions factor for the engine is > 0.01 g/bhp-hr, use the following:}*

The District has verified that the engine is located within 500 feet of a K-12 school and that the PM<sub>10</sub> emissions factor for the engine is > 0.01 g/bhp-hr. Therefore, the following condition will be listed on the ATC to ensure compliance:

- {3392} This engine shall not be operated for maintenance and testing purposes between 7:30 a.m. and 3:30 p.m. on days when school is in session. [17 CCR 93115]

*{Example 4: If the engine is located at a K-12 school and the PM<sub>10</sub> emissions factor for the engine is > 0.01 g/bhp-hr, use the following statement:}*

The District has verified that the engine is located at a K-12 school and that the PM<sub>10</sub> emissions factor for the engine is > 0.01 g/bhp-hr. Therefore, the following conditions will be listed on the ATC to ensure compliance:

- {3392} This engine shall not be operated for maintenance and testing purposes between 7:30 a.m. and 3:30 p.m. on days when school is in session. [17 CCR 93115]
- {3394} This engine shall not be operated for maintenance and testing purposes whenever there is a school sponsored activity. [17 CCR 93115]

Recordkeeping Requirements:

This regulation stipulates that as of January 1, 2005, each owner or operator of an emergency diesel-fueled CI engine shall keep a monthly log of usage that shall list and document the nature of use for each of the following:

- a. Emergency use hours of operation;
- b. Maintenance and testing hours of operation;
- c. Hours of operation for emission testing;
- d. Initial start-up hours; and
- e. If applicable, hours of operation to comply with the testing requirements of National Fire Protection Association (NFPA) 25 — “Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems,” 1998 edition;
- f. Hours of operation for all uses other than those specified in sections ‘a’ through ‘d’ above; and
- g. For in-use emergency diesel-fueled engines, the fuel used. The owner or operator shall document fuel use through the retention of fuel purchase records that account for all fuel used in the engine and all fuel purchased for use in the engine, and, at a minimum, contain the following information for each individual fuel purchase transaction:
  - I. Identification of the fuel purchased as either CARB Diesel, or an alternative diesel fuel that meets the requirements of the Verification Procedure, or an alternative fuel, or CARB Diesel fuel used with additives that meet the requirements of the Verification Procedure, or any combination of the above;
  - II. Amount of fuel purchased;
  - III. Date when the fuel was purchased;
  - IV. Signature of owner or operator or representative of owner or operator who received the fuel; and
  - V. Signature of fuel provider indicating fuel was delivered.

The proposed emergency diesel IC engine powering a firewater pump is exempt from the operating hours limitation provided the engine is only operated the amount of hours necessary to satisfy National Fire Protection Association (NFPA) regulations. Therefore, the following conditions will be listed on the ATC to ensure compliance:



- {3489} 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, and the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.). 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]
- {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]

*{For all new firewater pump engines rated from 49.6 to 174.2 bhp, use the following section:}*

PM Emissions and Hours of Operation Requirements for New Diesel Engines:

This regulation stipulates that as of January 1, 2005, no person shall operate any new stationary emergency diesel-fueled CI engine that has a rated brake horsepower greater than 50, unless it meets all of the following applicable emission standards and operating requirements.

1. Emits diesel PM at a rate greater than 0.01 g/bhp-hr or less than or equal to 0.15 g/bhp-hr; or
2. Meets the current model year diesel PM standard specified in the Off-Road Compression Ignition Engine Standards for off-road engines with the same maximum rated power (Title 13 CCR, Section 2423), whichever is more stringent; and
3. Does not operate more than 50 hours per year for maintenance and testing purposes. Engine operation is not limited during emergency use and during emissions source testing to show compliance with the ATCM.

The proposed emergency diesel IC engine powering a firewater pump is exempt from the PM emissions rate limitation because the engine is rated at 49.6 to 174.2 bhp and is also exempt from the operating hours limitation provided the engine is only operated the amount of hours necessary to satisfy National Fire Protection Association (NFPA) regulations. Therefore, the following conditions (previously proposed in this engineering evaluation) will be listed on the ATC to ensure compliance:

- {edited 3486} Emissions from this IC engine shall not exceed X.XX g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102 and 13 CCR 2423 and 17 CCR 93115]



- {3816} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. For testing purposes, the engine shall only be operated the number of hours necessary to comply with the testing requirements of the National Fire Protection Association (NFPA) 25 - "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems", 1998 edition. Total hours of operation for all maintenance, testing, and required regulatory purposes shall not exceed 100 hours per calendar year. [District Rule 4702 and 17 CCR 93115]
- {3809} 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 100 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

*{For all new firewater pump engines rated  $\geq 174.3$  bhp with a  $PM_{10}$  emissions factor  $\leq 0.01$  g/bhp-hr, use the following section:}*

PM Emissions and Hours of Operation Requirements for New Diesel Engines:

This regulation stipulates that as of January 1, 2005, no person shall operate any new stationary emergency standby diesel-fueled CI engine that has a rated brake horsepower greater than 50 unless it meets all of the following applicable emission standards and operating requirements.

1. Emits diesel PM at a rate less than or equal to 0.01 g/bhp-hr; or
2. Meets the current model year diesel PM standard specified in the Off-Road Compression Ignition Engine Standards for off-road engines with the same maximum rated power (Title 13 CCR, Section 2423), whichever is more stringent; and
3. Does not operate more than 51 to 100 hours per year (upon approval by the District) for maintenance and testing purposes. Engine operation is not limited during emergency use and during emissions source testing to show compliance with the ATCM.

The proposed emergency diesel IC engine powering a firewater pump has a  $PM_{10}$  emissions factor that is  $\leq 0.01$  g/bhp-hr. Therefore, this engine is allowed to operate up to 100 hrs/yr for maintenance and testing. Therefore, the following conditions (previously proposed in this engineering evaluation) will be listed on the ATC to ensure compliance:

- {edited 3486} Emissions from this IC engine shall not exceed X.XX g- $PM_{10}$ /bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102 and 13 CCR 2423 and 17 CCR 93115]

- {3809} 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 100 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

*{For all new firewater pump engines rated  $\geq 174.3$  bhp with a  $PM_{10}$  emissions factor  $> 0.01$  g/bhp-hr, use the following section:}*

PM Emissions and Hours of Operation Requirements for New Diesel Engines:

This regulation stipulates that as of January 1, 2005, no person shall operate any new stationary emergency diesel-fueled CI engine that has a rated brake horsepower greater than 50, unless it meets all of the following applicable emission standards and operating requirements.

1. Emits diesel PM at a rate greater than 0.01 g/bhp-hr or less than or equal to 0.15 g/bhp-hr; or
2. Meets the current model year diesel PM standard specified in the Off-Road Compression Ignition Engine Standards for off-road engines with the same maximum rated power (Title 13 CCR, Section 2423), whichever is more stringent; and
3. Does not operate more than 50 hours per year for maintenance and testing purposes. Engine operation is not limited during emergency use and during emissions source testing to show compliance with the ATCM.

The proposed emergency diesel IC engine powering a firewater pump is exempt from the operating hours limitation provided the engine is only operated the amount of hours necessary to satisfy National Fire Protection Association (NFPA) regulations. Therefore, the following conditions (previously proposed in this engineering evaluation) will be listed on the ATC to ensure compliance:

- {edited 3486} Emissions from this IC engine shall not exceed X.XX g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102 and 13 CCR 2423 and 17 CCR 93115]

- {3816} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. For testing purposes, the engine shall only be operated the number of hours necessary to comply with the testing requirements of the National Fire Protection Association (NFPA) 25 - "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems", 1998 edition. Total hours of operation for all maintenance, testing, and required regulatory purposes shall not exceed 100 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

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

**Reminder:** Use the following language if this project qualifies as a GEAR (engine located at non-Major Source):

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 qualifies for ministerial approval under the District's Guideline for Expedited Application Review (GEAR). Section 21080 of the Public Resources Code exempts from the application of CEQA those projects over which a public agency exercises only ministerial approval. Therefore, the District finds that this project is exempt from the provisions of CEQA.

### **Indemnification Agreement/Letter of Credit Determination**

According to District Policy APR 2010 (CEQA Implementation Policy), when the District is the Lead or Responsible Agency for CEQA purposes, an indemnification agreement and/or a letter of credit may be required. The decision to require an indemnity agreement and/or a letter of credit is based on a case-by-case analysis of a particular

project's potential for litigation risk, which in turn may be based on a project's potential to generate public concern, its potential for significant impacts, and the project proponent's ability to pay for the costs of litigation without a letter of credit, among other factors.

As described above, the project requires only ministerial approval, and is exempt from the provisions of CEQA. As such, an Indemnification Agreement or a Letter of Credit will not be required for this project in the absence of expressed public concern.

## IX. Recommendation

*{For a project where noticing (public, school, or EPA) is not required, use the following:}*  
Compliance with all applicable rules and regulations is expected. Issue Authority to Construct X-XXXX-X-X subject to the permit conditions on the attached draft ATC in Appendix A.

*{For a project where public noticing is triggered, use the following:}*  
Pending a successful NSR public noticing period, issue Authority to Construct X-XXXX-X-X subject to the permit conditions on the attached draft ATC in Appendix A.

*{For a project where school noticing is triggered, use the following:}*  
Pending a successful school noticing period, issue Authority to Construct X-XXXX-X-X subject to the permit conditions on the attached draft ATC in Appendix A.

## X. Billing Information

*{Note: Expand the following table as necessary to include extra units.}*

Billing Schedule			
Permit Number	Fee Schedule	Fee Description	Fee Amount
X-XXXX-XX-X	3020-10-X	XXX bhp IC engine	\$XXX

## Appendices

*Note: Adjust the following appendices as necessary.*

- A. Draft ATC and Emissions Profile *{Note: For public notice projects, the emissions profile is not included as a part of the Engineering Evaluation package.}*
- B. BACT Guideline and BACT Analysis
- C. Emissions Data Sheet and/or ARB/EPA Certification
- D. RMR and AAQA
- E. QNEC Calculations
- F. SSPE1 Calculations

Appendix A  
Draft ATC and Emissions Profile

## Appendix B

# BACT Guideline and BACT Analysis

**San Joaquin Valley  
Unified Air Pollution Control District  
Best Available Control Technology (BACT) Guideline 3.1.4**

**Emissions Unit:** Emergency Diesel Fired IC Engine  
Powering a Fire Pump

**Industry Type:** All

**Equipment Rating:** All

**Last Update:** March 2, 2020

Pollutant	Achieved-in-Practice or contained in SIP	Technologically Feasible	Alternate Basic Equipment
NOx	Latest EPA Tier Certification level for applicable horsepower range		
VOC			
CO			
PM10	<ul style="list-style-type: none"> <li>• 0.1 grams/bhp-hr<sup>2</sup> (if TBACT<sup>3</sup> is triggered)</li> <li>• 0.15 grams/bhp-hr (if TBACT<sup>2</sup> is not triggered)</li> </ul>		
SOx	Diesel fuel with sulfur content no greater than 0.0015% 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 Next Page(s)**

<sup>2</sup> Any engine model included in the ARB or EPA diesel engine certification lists and identified as having a PM10 emission rate of 0.149 g/bhp-hr or less, based on ISO 8178 test procedure, shall be deemed to meet the 0.1 g/bhp-hr requirement.

<sup>3</sup> A site-specific Health Risk Analysis is used to determine if T-BACT is triggered.

**[Select only the appropriate BACT Analyses]**

## **Top Down BACT Analysis for the Emergency IC Engine**

This application was deemed complete on <enter date project was deemed complete>. Therefore, BACT Guideline 3.1.4 (March 2, 2020) was in effect at the time the project was deemed complete and will be used for this emergency diesel IC engine. In accordance with the District BACT policy, information from that guideline will be utilized without further analysis.

**{Delete pollutants for which BACT is not triggered}**

### **1. BACT Analysis for NO<sub>x</sub>, VOC, and CO Emissions:**

#### **a. Step 1 - Identify all control technologies**

BACT Guideline 3.1.1 identifies only the following option:

- *Latest EPA Tier Certification level for applicable horsepower range*

To determine the latest applicable Tier level, the following steps were taken:

- Conduct a survey of all the emergency IC engines permitted in the District to determine the latest EPA Tier certification level that has been permitted for the proposed engine size
- Conduct a survey of the major IC engine manufacturers/genset vendors to determine the latest EPA Tier certification level that is readily available for the proposed engine size and use
- Review Title 17 CCR, Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines to determine the latest Tier certification level required in California for the proposed engine size

#### Survey of Permitted Units:

A review of the emergency standby fire pump IC engines permitted in the District revealed that the District has permitted 98 Tier 3 certified emergency standby fire pump CI engines, ranging in size from 86 bhp to 575 bhp.

The following permitted units were found which utilize Tier 4I IC engines:

- C-8915-1-0 (64 BHP JOHN DEERE MODEL 4045TF290 TIER 4I)
- S-8324-1-0 (64 BHP JOHN DEERE MODEL JU4H-UFAEE8 TIER 4I)
- S-8689-1-0 (64 BHP JOHN DEERE MODEL 4045TF290 TIER 4I)



No Tier 4F certified units have been permitted.

Survey of IC Engine Manufacturers/Genset Vendors:

An internet search for emergency standby fire pump IC engines revealed only one manufacturer, Clark Fire (<http://www.clarkefire.com/>), which offers Tier 2 and Tier 3 certified units. No Tier 4F certified units could be found.

Stationary ATCM:

The requirements set forth in Table 2 of CARB's Stationary Air Toxic Control Measure (ATCM) for stationary emergency standby diesel-fired IC engines are summarized in the table below.

Maximum Engine Power	NMHC+NOx	CO
50 ≤ bhp < 75	3.5 (Tier 4i)	3.7 (Tier 4i)
75 ≤ bhp < 100	3.5 (Tier 3)	3.7 (Tier 3)
100 ≤ bhp < 175	3.0 (Tier 3)	3.7 (Tier 3)
175 ≤ bhp < 750	3.0 (Tier 3)	2.6 (Tier 3)
≥ 750 bhp	4.8 (Tier 2)	2.6 (Tier 2)

Summary:

Based on a survey of currently permitted units, manufacturer availability, and State ATCM requirements, the District considers the following table to represent the latest available EPA Tier certification levels for this class and category of source at this time:

Engine Size	NOx	VOC	CO
50 ≤ bhp < 100	Tier 4i	Tier 4i	Tier 4i
100 ≤ bhp < 750	Tier 3	Tier 3	Tier 3
≥ 750 bhp	Tier 2	Tier 2	Tier 2

**b. Step 2 - Eliminate technologically infeasible options**

The control option listed in Step 1 is not technologically infeasible.

**c. Step 3 - Rank remaining options by control effectiveness**

No ranking needs to be done because there is only one control option listed in Step 1.

**d. Step 4 - Cost Effectiveness Analysis**

The applicant has proposed the only control option remaining under consideration. Therefore, a cost effectiveness analysis is not required.

**e. Step 5 - Select BACT**

The applicant has proposed to install a XXX bhp Tier X certified IC engine. Therefore, BACT for NO<sub>x</sub>, VOC, and CO is satisfied.

**{Delete if BACT not triggered for SO<sub>x</sub>}**

**2. BACT Analysis for SO<sub>x</sub> Emissions:**

**a. Step 1 - Identify all control technologies**

BACT Guideline 3.1.1 identifies only the following option:

- *Very low sulfur diesel fuel (15 ppmw sulfur or less)*

**b. Step 2 - Eliminate technologically infeasible options**

The control option listed in Step 1 is not technologically infeasible.

**c. Step 3 - Rank remaining options by control effectiveness**

No ranking needs to be done because there is only one control option listed in Step 1.

**d. Step 4 - Cost Effectiveness Analysis**

The applicant has proposed the only control option remaining under consideration. Therefore, a cost effectiveness analysis is not required.

**e. Step 5 - Select BACT**

BACT for SO<sub>x</sub> is the use of very low sulfur diesel fuel (15 ppmw sulfur or less). The applicant is proposing the use of CARB certified diesel fuel that is rated at 15 ppmw sulfur or less. Therefore, BACT will be satisfied.

**{Delete if BACT/TBACT not triggered for PM<sub>10</sub>}**

### **3. BACT Analysis for PM<sub>10</sub> Emissions:**

Particulate matter (PM<sub>10</sub>) emissions occur from the reaction of various elements in the diesel fuel including fuel sulfur.

#### **a. Step 1 - Identify all control technologies**

BACT guideline 3.1.4, identifies the following achieved in practice BACT for PM<sub>10</sub> emissions from emergency diesel IC engines powering a firewater pump:

- 0.1 grams/bhp-hr (if TBACT is triggered)
- 0.15 grams/bhp-hr (if TBACT is not triggered)

#### **b. Step 2 - Eliminate technologically infeasible options**

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

#### **c. Step 3 - Rank remaining options by control effectiveness**

No ranking needs to be done because the applicant has proposed the achieved in practice option.

#### **d. Step 4 - Cost Effectiveness Analysis**

The applicant has proposed the only control achieved in practice in the ranking list from Step 3. Therefore, per SJVUAPCD BACT policy, the cost effectiveness analysis is not required.

#### **e. Step 5 - Select BACT**

BACT for PM<sub>10</sub> emissions from this emergency diesel IC engine powering a firewater pump is having certified emissions of (0.15 g-PM<sub>10</sub>/bhp-hr or 0.1 g-PM<sub>10</sub>/bhp-hr) or less. The applicant has proposed to install a XXX bhp emergency diesel IC engine powering a firewater pump with certified emissions of (0.15 g-PM<sub>10</sub>/bhp-hr or 0.1 g-PM<sub>10</sub>/bhp-hr) or less; therefore BACT for PM<sub>10</sub> emissions is satisfied.

*{If applicable, include the following statement:}*

Pursuant to the BACT Guideline, any engine model included in the ARB or EPA diesel engine certification lists and identified as having a PM<sub>10</sub> 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

## Appendix C

### Emissions Data Sheet and or ARB/EPA Certification

Appendix D  
Technical Services Memo and AAQA

# Appendix E

## 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

Since this is a new unit, PE1 = 0 for all pollutants. Thus, QNEC = PE2 (lb/qtr).

Using the PE2 (lb/yr) values calculated in Section VII.C.2, Quarterly PE2 is calculated as follows:

$$PE2_{\text{quarterly}} = PE2 \text{ (lb/yr)} \div 4 \text{ quarters/year} = \text{QNEC}$$

{After entering the data in column 2, highlight column 3 and press F9:}

QNEC		
Pollutant	PE2 Total (lb/yr)	Quarterly PE2 (lb/qtr)
NO <sub>x</sub>	XXX	0.0
SO <sub>x</sub>	XXX	0.0
PM <sub>10</sub>	XXX	0.0
CO	XXX	0.0
VOC	XXX	0.0

## Appendix F SSPE1 Calculations

[Attach SSPE1 Calculations if applicable.]



## ATC Conditions

*{For ATC w/ COC, use the following two conditions:}*

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District NSR Rule]
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4]

*{For ATC w/o COC, use the following condition:}*

3. {1829} The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520]

*{For all engines, use the following conditions:}*

4. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
5. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
6. {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]
7. {3395} 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]
8. {3404} This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702]
9. {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]
10. {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]

*{If the engine is located in a remote location, use the following condition in place of #10 above:}*

11. {3476} 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. For units at unstaffed sites or operated remotely, records may be maintained and retained at a District-approved off-site location. [District Rule 4702 and 17 CCR 93115]

*{If the engine is located within 500 ft of the outermost boundary of a K-12 school and the PM<sub>10</sub> emissions factor for the engine is > 0.01 g/bhp-hr, use the following condition:}*

12. {3392} This engine shall not be operated for maintenance and testing purposes between 7:30 a.m. and 3:30 p.m. on days when school is in session. [17 CCR 93115]

*{If the engine is located at a K-12 school and the PM<sub>10</sub> emissions factor for the engine is > 0.01 g/bhp-hr, use the following conditions:}*

13. {3392} This engine shall not be operated for maintenance and testing purposes between 7:30 a.m. and 3:30 p.m. on days when school is in session. [17 CCR 93115]

14. {3394} This engine shall not be operated for maintenance and testing purposes whenever there is a school sponsored activity. [17 CCR 93115]

*{If the engine is equipped with or required by BACT to be equipped with a catalytic particulate filter, use the following condition:}*

15. {3396} This IC engine shall be equipped with a catalytic particulate filter. [District Rules 2201 and 4102]

*{For all engines, use the following conditions:}*

16. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap, roof overhang, or any other obstruction. [District Rule 4102]

17. {3489} 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, and the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.). 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]

18. {edited 3485} Emissions from this IC engine shall not exceed any of the following limits: X.XX g-NO<sub>x</sub>/bhp-hr, X.XX g-CO/bhp-hr, or X.XX g-VOC/bhp-hr. [District Rule 2201 and 13 CCR 2423 and 17 CCR 93115]

19. {edited 3486} Emissions from this IC engine shall not exceed X.XX g-PM<sub>10</sub>/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102 and 13 CCR 2423 and 17 CCR 93115]

*{If the  $PM_{10}$  emissions factor is  $> 0.01$  g/bhp-hr, use the following condition:}*

20. {3816} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. For testing purposes, the engine shall only be operated the number of hours necessary to comply with the testing requirements of the National Fire Protection Association (NFPA) 25 - "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems", 1998 edition. Total hours of operation for all maintenance, testing, and required regulatory purposes shall not exceed 100 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

*{If the  $PM_{10}$  emissions factor is  $\leq 0.01$  g/bhp-hr, use the following condition instead:}*

21. {3809} 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 100 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

*{If the engine is limited to operation of less than 24 hours/day, use the following condition:}*

22. {new} Operation of this engine for all purposes combined shall not exceed XX hours in any rolling 24 hr period. [District Rules 2201 and 4102]