

March 11, 2021

Paul Wilson  
Amazon.com Services LLC  
PO Box 80842  
Seattle, WA 98108

**Re: Notice of Preliminary Decision - Authority to Construct**  
**Facility Number: S-9738**  
**Project Number: S-1204690**

Dear Mr. Wilson:

Enclosed for your review and comment is the District's analysis of Amazon.com Services LLC's application for an Authority to Construct for a new diesel emergency generator and a new diesel emergency firewater pump, at 3315 North Kelsey Drive, Visalia.

The notice of preliminary decision for this project has been posted on the District's website ([www.valleyair.org](http://www.valleyair.org)). After addressing all comments made during the 30-day public notice period, the District intends to issue the Authority to Construct. Please submit your written comments on this project within the 30-day public comment period, as specified in the enclosed public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Dan Klevann of Permit Services at (661) 392-5500.

Sincerely,



Brian Clements  
Director of Permit Services

BC:dk

Enclosures

cc: Courtney Graham, CARB (w/ enclosure) via email

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# San Joaquin Valley Air Pollution Control District

## Authority to Construct

### Application Review

Diesel-Fired Emergency Standby IC Engine and  
Diesel-Fired Emergency Firewater Pump IC Engine

Facility Name: [Amazon.com Services LLC](#) Date: [January 26, 2021](#)  
Mailing Address: [PO Box 80842](#) Engineer: [Dan Klevann](#)  
[Seattle, WA 98108](#) Lead Engineer: [Rich Karrs](#)  
*RWK 3/5/2021*  
Contact Person: [Paul Wilson](#)  
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Application #: [S-9738-1-0, '-2-0](#)  
Project #: [S-1204690](#)  
Deemed Complete: [January 14, 2021](#)

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#### I. Proposal

[Amazon.com Services LLC \(Amazon\)](#) is proposing to install a 909 bhp diesel-fired emergency standby internal combustion (IC) engine powering an electrical generator as well as a 488 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 ([11/14/13](#))  
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

The equipment will be located at [3315 North Kelsey Dr. in Visalia, CA.](#)

### IV. Process Description

The 909 BHP emergency standby engine powers an electrical generator. Other than emergency standby operation, the engine may be operated up to [50](#) hours per year for maintenance and testing purposes.

The 488 BHP emergency standby engine powers a firewater pump. Other than emergency standby operation, the engine may be operated up to [100](#) hours per year for maintenance and testing purposes.

### V. Equipment Listing

**S-9738-1-0:** 909 BHP PERKINS MODEL 2806C-E18TAG3 TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR

**S-9738-2-0:** 488 BHP CATERPILLAR MODEL C18HO-UFAD12 TIER 3 CERTIFIED DIESEL-FIRED EMERGENCY IC ENGINE POWERING A FIREWATER PUMP

### VI. Emission Control Technology Evaluation

The applicant has proposed for the generator to install a Tier [2](#) certified diesel-fired IC engine and for the firewater pump to install a Tier 3 certified diesel-fired IC engine both are fired on very low-sulfur diesel fuel.

The proposed engines 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 generator: 50 hours/year  
 Non-emergency operating schedule firewater: 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)  
 Conversion factor: 1.34 bhp/kw

**B. Emission Factors**

Emission Factors 909 bhp Perkins		
Pollutant	Emission Factor (g/bhp-hr)	Source
NO <sub>x</sub>	3.88	Engine Manufacturer
SO <sub>x</sub>	0.0051	Mass Balance Equation Below
PM <sub>10</sub>	0.05	Engine Manufacturer
CO	0.6	Engine Manufacturer
VOC	0.08	Engine Manufacturer

Emission Factors 488 bhp Caterpillar/Clarke		
Pollutant	Emission Factor (g/bhp-hr)	Source
NO <sub>x</sub>	2.88	Engine Manufacturer
SO <sub>x</sub>	0.0051	Mass Balance Equation Below
PM <sub>10</sub>	0.07	Engine Manufacturer
CO	0.45	Engine Manufacturer
VOC	0.04	Engine Manufacturer

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

**C. Calculations**

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

Since these are new emissions units, PE1 = 0.

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

The daily and annual PE2 are calculated as follows:

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

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

<b>S-9738-1-0 Post Project Emissions (PE2)</b>						
<b>Pollutant</b>	<b>Emissions Factor (g/bhp-hr)</b>	<b>Rating (bhp)</b>	<b>Daily Hours of Operation (hrs/day)</b>	<b>Annual Hours of Operation (hrs/year)</b>	<b>Daily PE2 (lb/day)</b>	<b>Annual PE2 (lb/yr)</b>
NO <sub>x</sub>	3.88	909	24	50	186.6	389
SO <sub>x</sub>	0.0051	909	24	50	0.2	1
PM <sub>10</sub>	0.05	909	24	50	2.4	5
CO	0.6	909	24	50	28.9	60
VOC	0.08	909	24	50	3.8	8

<b>S-9738-2-0 Post Project Emissions (PE2)</b>						
<b>Pollutant</b>	<b>Emissions Factor (g/bhp-hr)</b>	<b>Rating (bhp)</b>	<b>Daily Hours of Operation (hrs/day)</b>	<b>Annual Hours of Operation (hrs/year)</b>	<b>Daily PE2 (lb/day)</b>	<b>Annual PE2 (lb/yr)</b>
NO <sub>x</sub>	2.88	488	24	100	74.4	310
SO <sub>x</sub>	0.0051	488	24	100	0.1	1
PM <sub>10</sub>	0.07	488	24	100	1.8	8
CO	0.45	488	24	100	11.6	48
VOC	0.04	488	24	100	1.0	4

**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.

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.

**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	0	0	0	0	0
S-9738-1-0	389	1	5	60	8
S-9738-2-0	310	1	8	48	4
<b>SSPE2</b>	<b>699</b>	<b>2</b>	<b>13</b>	<b>108</b>	<b>12</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	0	0	0	0	0	0

SSPE2	699	2	13	13	108	12
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

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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.



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:

<b>New Emissions Unit BACT Applicability</b>				
<b>Pollutant</b>	<b>Daily Emissions for S-9738-1 (lb/day)</b>	<b>BACT Threshold (lb/day)</b>	<b>SSPE2 (lb/yr)</b>	<b>BACT Triggered?</b>
NO <sub>x</sub>	186.6	> 2.0	n/a	Yes
SO <sub>x</sub>	0.2	> 2.0	n/a	No
PM <sub>10</sub>	2.4	> 2.0	n/a	Yes
CO	28.9	> 2.0 and SSPE2 ≥ 200,000 lb/yr	108	No
VOC	3.8	> 2.0	n/a	Yes

<b>New Emissions Unit BACT Applicability</b>				
<b>Pollutant</b>	<b>Daily Emissions for S-9738-2 (lb/day)</b>	<b>BACT Threshold (lb/day)</b>	<b>SSPE2 (lb/yr)</b>	<b>BACT Triggered?</b>
NO <sub>x</sub>	74.4	> 2.0	n/a	Yes
SO <sub>x</sub>	0.1	> 2.0	n/a	No
PM <sub>10</sub>	1.8	> 2.0	n/a	No
CO	11.6	> 2.0 and SSPE2 ≥ 200,000 lb/yr	108	No
VOC	1.0	> 2.0	n/a	No

As shown above, BACT will be triggered for NO<sub>x</sub>, PM<sub>10</sub>, and VOC emissions from engine S-9738-1 and BACT will be triggered for NO<sub>x</sub> from engine S-9738-2, in this project.

## 2. BACT Guideline

BACT Guidelines 3.1.1 and 3.1.4, which appear 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:

NO<sub>x</sub>: Latest Available Tier Certification level for applicable horsepower  
 VOC: Latest Available Tier Certification level for applicable horsepower  
 PM<sub>10</sub>: 0.15 g/bhp-hr

The facility has proposed to install a 909 bhp Tier 2 certified IC engine (with a PM<sub>10</sub> emissions rate of 0.07 g/bhp-hr), and using very low sulfur diesel fuel. Therefore, BACT is satisfied for NO<sub>x</sub>, VOC, and PM<sub>10</sub>.

The facility has proposed to install a 488 bhp Tier 3 certified IC engine (with a PM<sub>10</sub> emissions rate of 0.07 g/bhp-hr), and using very low sulfur diesel fuel. Therefore, BACT is satisfied for NO<sub>x</sub>, VOC, and PM<sub>10</sub>.

**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.

However, even when there is an applicable exemption, the SSPE2 values are compared to the offset threshold to determine if offsets are triggered. In its PAS database, the District keeps track of facilities where offsets are triggered but an exemption applies. The SSPE2 values are compared to the offset trigger thresholds in the following table:

Offset Determination (lb/year)					
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
SSPE2	699	2	13	108	12
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets Triggered?	No	No	No	No	No

**2. Quantity of Offsets Required**

As shown in the table above, no offset thresholds are exceeded with this project. Further, as previously stated, the offset exemption from Section 4.6.2 of District Rule 2201 is applicable to this project; therefore, offset calculations are not necessary and offsets are not required.

**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

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

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

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>	0	699	20,000 lb/year	No
SO <sub>x</sub>	0	2	54,750 lb/year	No
PM <sub>10</sub>	0	13	29,200 lb/year	No
CO	0	108	200,000 lb/year	No
VOC	0	12	20,000 lb/year	No

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

d. Any project with a Stationary Source Project Increase in Permitted Emissions (SSIPE) 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 SSIPE 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

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:

### S-9738-1

- {4771} Emissions from this IC engine shall not exceed any of the following limits: 3.88 g-NOx/bhp-hr, 0.6 g-CO/bhp-hr, or 0.08 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- {4772} Emissions from this IC engine shall not exceed 0.05 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]

### S-9738-2

- {4771} Emissions from this IC engine shall not exceed any of the following limits: 2.88 g-NOx/bhp-hr, 0.45 g-CO/bhp-hr, or 0.04 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- {4772} Emissions from this IC engine shall not exceed 0.07 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.

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

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>.

## **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 IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines**

The District has not been delegated the authority to implement Subpart IIII 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)**

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

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

Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required	Special Permit Requirements
1-0	N/A <sup>1</sup>	N/A <sup>2</sup>	0.00	3.78E-08	No	Yes
2-0	N/A <sup>1</sup>	N/A <sup>2</sup>	0.00	7.84E-08	No	Yes
<b>Project Totals</b>	N/A <sup>1</sup>	N/A <sup>2</sup>	0.00	1.16E-07		
<b>Facility Totals</b>	N/A <sup>1</sup>	N/A <sup>2</sup>	0.00	1.16E-07		

Notes:

- 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 Hazard Index was not calculated since there is no risk factor or the risk factor is so low that it has been determined to be insignificant for this type of unit.

### Discussion of T-BACT

BACT for toxic emission control (T-BACT) is required if the cancer risk exceeds one in one million. As demonstrated above, T-BACT is 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.

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:

#### Unit # 1-0

1. The PM10 emissions rate shall not exceed **0.05** g/bhp-hr based on US EPA certification using ISO 8178 test procedure.
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.



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.

### **Unit # 2-0**

1. The PM10 emissions rate shall not exceed **0.07** g/bhp-hr based on US EPA certification using ISO 8178 test procedure.
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.
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 **100** hours per calendar year.

### **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.

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

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**

For the engine powering the emergency generator, emergency standby engines are subject to District Rule 4702 requirements. Emergency standby engines are defined in Section 3.0 of District Rule 4702 as follows:

*3.15 Emergency Standby Engine: an internal combustion engine which operates as a temporary replacement for primary mechanical or electrical power during an unscheduled outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the operator. An engine shall be considered to be an emergency standby engine if it is used only for the following purposes: (1) periodic maintenance, periodic readiness testing, or readiness testing during and after repair work; (2) unscheduled outages, or to supply power while maintenance is performed or repairs are made to the primary power supply; and (3) if it is limited to operate 100 hours or less per calendar year for non-emergency purposes. An engine shall not be considered to be an emergency standby engine if it is used: (1) to reduce the demand for electrical power when normal electrical power line service has not failed, or (2) to produce power for the utility electrical distribution system, or (3) in conjunction with a voluntary utility demand reduction program or interruptible power contract.*

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:

- {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 and 17 CCR 93115]
- {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 and 17 CCR 93115]

The 100 hour requirement is less stringent than the Air Toxic Control Measure operating limitations for emergency standby engines. Therefore, compliance with the applicable Air Toxic Control Measure requirements ensures compliance with the 100 hour requirement.

Operation of emergency standby engines are limited to 100 hours or less per calendar year for non-emergency purposes. The Air Toxic Control Measure for Stationary Compression Ignition Engines (Stationary ATCM) limits this engine's maintenance and testing to 50 hours/year; therefore, compliance is expected. The following conditions will be included on the permit:

- {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]

The following exemption in Section 4.2 of District Rule 4702 applies to emergency standby engines:

*4.2 Except for the requirements of Section 5.9 and Section 6.2.3, the requirements of this rule shall not apply to:*

*4.2.1 An emergency standby engine as defined in Section 3.0 of this rule, and provided that it is operated with a nonresettable elapsed operating time meter. In lieu of a nonresettable time meter, the owner of an emergency 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.*

Pursuant to the exemption in Section 4.2, the following requirements of Section 5.9 are applicable to emergency standby engines

Section 5.9 requires the owner to:

*5.9.2 Properly operate and maintain each engine as recommended by the engine manufacturer or emission control system supplier.*

*5.9.3 Monitor the operational characteristics of each engine as recommended by the engine manufacturer or emission control system supplier.*

*5.9.4 Install and operate a nonresettable elapsed operating time meter. In lieu of installing a nonresettable time meter, the owner of an engine may use an alternative device, method, or technique, in determining operating time provided that the alternative is approved by the APCO and is allowed by Permit-to-Operate or Permit-Exempt Equipment Registration condition. The owner of the engine shall properly maintain and operate the time meter or alternative device in accordance with the manufacturer's instructions.*

Properly operate and maintain each engine as recommended by the engine manufacturer or emission control system supplier. The following condition will be included on the permit:

- {4261} 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]

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:

- {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]

Install and operate a nonresettable elapsed time meter. In lieu of installing a nonresettable elapsed time meter, the operator may use an alternative device, method, or technique, in determining operating time provided that the alternative is approved by the APCO and EPA and is allowed by Permit-to-Operate condition. The operator shall properly maintain and operate the nonresettable elapsed time meter or alternative device in accordance with the manufacturer's instructions. The following condition will be included on the permit:

- {4749} This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history. [District Rule 4702 and 17 CCR 93115]

The exemption in Rule 4702 Section 4.2 for emergency standby engines requires the engines to comply with Section 6.2.3, shown below.

*6.2.3 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 provided to the APCO upon request. The records shall include, but are not limited to, the following:*

*6.2.3.1 Total hours of operation,*

*6.2.3.2 The type of fuel used,*

*6.2.3.3 The purpose for operating the engine,*

*6.2.3.4 For emergency standby engines, all hours of non-emergency and emergency operation shall be reported, and*

*6.2.3.5 Other support documentation necessary to demonstrate claim to the exemption.*

Records of the total hours of operation, type of fuel used, purpose for operating the engine, all hours of non-emergency and emergency operation, and other 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. The following conditions will be included on the permit:

- {3496} 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]
- {4263} 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]

For the engine powering the firewater pump, 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:

- {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]
- {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]

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

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

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

Since 1.0 ppmv is ≤ 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)**

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.

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

The following requirements apply to the new engine powering the generator set (those installed after 1/1/05):

<p><b>Title 17 CCR Section 93115 Requirements for New Emergency IC Engines Powering Electrical Generators</b></p>	<p><b>Proposed Method of Compliance with Title 17 CCR Section 93115 Requirements</b></p>
<p>Emergency engine(s) must be fired on CARB diesel fuel, or an approved alternative diesel fuel.</p>	<p>The applicant has proposed the use of CARB certified diesel fuel. The proposed permit condition, requiring the use of CARB certified diesel fuel, is included on the permit.</p>

	<ul style="list-style-type: none"> <li>{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]</li> </ul>
The engine(s) must meet the emission standards in Table 1 of the ATCM for the specific power rating and model year of the proposed engine.	The applicant has proposed the use of an engine that is certified to the latest EPA Tier Certification standards for the applicable horsepower range, guaranteeing compliance with the emission standards of the ATCM. Additionally, the proposed diesel PM emissions rate is less than or equal to 0.15 g/bhp-hr.
The engine may not be operated more than 50 hours per year for maintenance and testing purposes unless the PM emissions are $\leq 0.01$ g/bhp-hr, then the engine is allowed 100 hours per year. Emissions from this engine are certified at 0.05 g/bhp-hr, therefore the engine is allowed 50 hours.	<p>The following conditions will be included on the permit:</p> <ul style="list-style-type: none"> <li>{4772} Emissions from this IC engine shall not exceed 0.05 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]</li> <li>{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]</li> </ul>
Engines, with a PM10 emissions rate greater than 0.01 g/bhp-hr and located at 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	The District has verified that this engine is not located within 500' of a school.
A non-resettable hour meter with a minimum display capability of 9,999 hours shall be installed upon engine installation, or by no later than January 1, 2005, on all engines subject to all or part of the requirements of sections 93115.6, 93115.7, or 93115.8(a) unless the District determines on a case-by-case basis that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history.	<p>The following condition will be included on the permit:</p> <ul style="list-style-type: none"> <li>{4749} This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history. [District Rule 4702 and 17 CCR 93115]</li> </ul>
	The following condition will be included on the permit:



<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>	<ul style="list-style-type: none"><li>• {3496} 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]</li></ul>
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The following requirements are for the firewater pump engine.

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.

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.

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]

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)**

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

Pending a successful NSR public noticing period, issue Authorities to Construct S-9738-1-0, '-2-0 subject to the permit conditions on the attached draft ATCs in Appendix A.

## X. Billing Information

<b>Billing Schedule</b>			
<b>Permit Number</b>	<b>Fee Schedule</b>	<b>Fee Description</b>	<b>Fee Amount</b>
<a href="#">S-9738-1-0</a>	3020-10-E	909 bhp IC engine	\$723
<a href="#">S-9738-2-0</a>	3020-10-D	488 bhp IC engine	\$577

## Appendixes

- A. Draft ATC
- B. BACT Guideline and BACT Analysis
- C. [Emissions Data Sheet and/or ARB/EPA Certification](#)
- D. RMR [and AAQA](#)
- E. QNEC Calculations

Appendix A  
Draft ATC

*San Joaquin Valley  
Air Pollution Control District*

## AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT  
**DRAFT**

**PERMIT NO:** S-9738-1-0

**LEGAL OWNER OR OPERATOR:** AMAZON.COM SERVICES LLC

**MAILING ADDRESS:** PO BOX 80842  
SEATTLE, WA 98108

**LOCATION:** 3315 NORTH KELSEY DRIVE  
VISALIA, CA 93291

**EQUIPMENT DESCRIPTION:**

909 BHP PERKINS MODEL 2806C-E18TAG3 TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE  
POWERING AN ELECTRICAL GENERATOR

## CONDITIONS

1. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
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. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. {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]
5. {4749} This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history. [District Rule 4702 and 17 CCR 93115]
6. {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]
7. Emissions from this IC engine shall not exceed any of the following limits: 3.88 g-NOx/bhp-hr, 0.6 g-CO/bhp-hr, or 0.08 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
8. Emissions from this IC engine shall not exceed 0.05 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]

CONDITIONS CONTINUE ON NEXT PAGE

**YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 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.

Samir Sheikh, Executive Director / APCO

**Brian Clements, Director of Permit Services**

S-9738-1-0 : Mar 5 2021 9:34AM - KLEVANN : Joint Inspection NOT Required

9. {4261} 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]
10. {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]
11. {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 and 17 CCR 93115]
12. {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 and 17 CCR 93115]
13. {3496} 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]
14. {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]
15. {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]
16. {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



*San Joaquin Valley  
Air Pollution Control District*

## AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT  
**DRAFT**

**PERMIT NO:** S-9738-2-0

**LEGAL OWNER OR OPERATOR:** AMAZON.COM SERVICES LLC

**MAILING ADDRESS:** PO BOX 80842  
SEATTLE, WA 98108

**LOCATION:** 3315 NORTH KELSEY DRIVE  
VISALIA, CA 93291

**EQUIPMENT DESCRIPTION:**

488 BHP CATERPILLAR MODEL C18HO-UFAD12 TIER 3 CERTIFIED DIESEL-FIRED EMERGENCY IC ENGINE  
POWERING A FIREWATER PUMP

## CONDITIONS

1. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
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. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. {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]
5. {4749} This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history. [District Rule 4702 and 17 CCR 93115]
6. {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]
7. Emissions from this IC engine shall not exceed any of the following limits: 2.88 g-NOx/bhp-hr, 0.45 g-CO/bhp-hr, or 0.04 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
8. Emissions from this IC engine shall not exceed 0.07 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]

CONDITIONS CONTINUE ON NEXT PAGE

**YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 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.

Samir Sheikh, Executive Director / APCO

**Brian Clements, Director of Permit Services**

S-9738-2-0 : Mar 5 2021 9:43AM - KLEVANN : Joint Inspection NOT Required

9. {4261} 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]
10. {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]
11. {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 and 17 CCR 93115]
12. {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 and 17 CCR 93115]
13. {3496} 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]
14. {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". 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]
15. {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]
16. {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 B  
BACT Guideline and BACT Analysis

# San Joaquin Valley Unified Air Pollution Control District

**Best Available Control Technology (BACT) Guideline 3.1.1**  
**Last Update: 6/13/2019**  
**Emergency Diesel IC Engine**

Pollutant	Achieved in Practice or in the SIP	Technologically Feasible	Alternate Basic Equipment
CO	Latest EPA Tier Certification level for applicable horsepower range		
NOX	Latest EPA Tier Certification level for applicable horsepower range		
PM10	0.15 g/bhp-hr or the Latest EPA Tier Certification level for applicable horsepower range, whichever is more stringent. (ATCM)		
SOX	Very low sulfur diesel fuel (15 ppmw sulfur or less)		
VOC	Latest EPA Tier Certification level for applicable horsepower range		

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.

**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.

## Top Down BACT Analysis for the Emergency IC Engine S-9738-1

This application was deemed complete on January 14, 2021. Therefore, BACT Guideline 3.1.1 (June 13, 2019) 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.

### 1. BACT Analysis for **NOx and VOC** 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:

The proposed emergency IC engine is rated at **909 bhp**. Based on the latest survey of all permitted emergency IC engines powering electrical generators in the horsepower range applicable to the proposed unit, the District found that a Tier 2 certification level is the highest certification level that has been permitted for an IC engine of the size associated with the proposed project.

#### Survey of IC Engine Manufacturers/Genset Vendors:

Based on the latest survey of the major IC engine/genset manufacturers and vendors (Cummins, Caterpillar, Kohler, MQ Power, etc.) to determine the availability of Tier 4F certified units in the size range associated with the proposed project that are suitable for stationary emergency standby applications, the District concluded that no Tier 4F certified unit is suitable and available for stationary emergency standby use in the size range appropriate for the proposed project.

### Stationary ATCM:

Table 1 of the CARB Stationary Air Toxic Control Measure (ATCM) for stationary emergency standby diesel-fired IC engines requires a Tier 2 certification level for IC engines rated greater than 750 bhp. The ATCM does not require a Tier certification level higher than Tier 2 for engines rated greater than 750 bhp.

### Summary:

The proposed emergency IC engine is rated at 909 bhp. The District has not permitted any emergency diesel-fired IC engines rated greater than 750 bhp with a tier certification level higher than Tier 2. Moreover, according to the engine manufacturers and genset vendors contacted, a Tier 2 certification level is the latest available for a 909 bhp emergency standby diesel-fired IC engine powering a generator.

Based on the above analysis, the District finds that a Tier 4F emergency IC engine/generator with a rating of approximately 909 bhp is not readily available.

Consequently, the District considers a Tier 2 certification level to be the latest available Tier certification level for the proposed engine size. Furthermore, a Tier 2 certification level satisfies the stationary ATCM requirement for emergency standby IC engines rated greater than 750 bhp.

### **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**

Ranking is not necessary since 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 NOx and VOC will be the use of an EPA Tier 2 certified engine. The applicant is proposing such a unit. Therefore, BACT will be satisfied.

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

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

BACT Guideline 3.1.1 identifies only the following option:

- *0.15 g/bhp-hr or the Latest EPA Tier Certification level for applicable horsepower range, whichever is more stringent. (ATCM)*

The latest EPA Tier Certification level for an engine of the proposed model year and horsepower rating is Tier 2. Refer to the Top-Down BACT analysis for NOx for a discussion regarding the determination of the EPA Tier level to be considered.

Please note the proposed Tier 2 IC engine has a PM emission factor of 0.05 g/hp-hr. Additionally, the ATCM requires a PM emission standard of 0.15 g/hp-hr for all new emergency standby diesel IC engines.

Therefore, the proposed PM/PM<sub>10</sub> emission factor of 0.05 g/hp-hr meets BACT requirements, and also satisfies the stationary ATCM requirement for new emergency standby diesel IC engines.

### **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 PM<sub>10</sub> is emissions of 0.15 g/hp-hr or less. The applicant is proposing an engine that meets this requirement. Therefore, BACT will be satisfied.



## Top Down BACT Analysis for the Emergency IC Engine S-9738-2

This application was deemed complete on [January 14, 2021](#). 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.

### 1. BACT Analysis for **NO<sub>x</sub>** 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.

**Table 2: Emission Standards for New Stationary Emergency Standby Direct-Drive Fire Pump Engines > 50 BHP in g/bhp-hr (equivalent EPA Tier level)**

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 488 bhp Tier 3 certified IC engine. Therefore, BACT for NOx is satisfied.

Appendix C  
Emissions Data Sheet and or ARB/EPA Certification

# STATEMENT OF EXHAUST EMISSIONS

## 2019 PERKINS DIESEL FUELED GENERATOR

The measured emissions values provided here are proprietary to Generac and its authorized dealers. This information may only be disseminated upon request, to regulatory governmental bodies for emissions permitting purposes or to specifying organizations as submittal data when expressly required by project specifications, and shall remain confidential and not open to public viewing. This information is not intended for compilation or sales purposes and may not be used as such, nor may it be reproduced without the expressed written permission of Generac Power Systems, Inc. The data provided shall not be meant to include information made public by Generac.

Generator Model:	<b>SD/MD600</b>	EPA Certificate Number:	<b>KCPXL18.1NYS-009</b>
kW <sub>e</sub> Rating:	<b>600</b>	CARB Certificate Number:	<b>Not Applicable</b>
Engine Family:	<b>KCPXL18.1NYS</b>	SCAQMD CEP Number:	<b>545379</b>
Engine Model:	<b>2806C-E18TAG3</b>	Emission Standard Category:	<b>Tier 2</b>
Rated Engine Power (BHP)*:	<b>909</b>	Certification Type:	<b>Stationary Emergency CI</b>
Fuel Consumption (gal/hr)*:	<b>41.4</b>		<b>(40 CFR Part 60 Subpart IIII)</b>
Aspiration:	<b>Turbo/Aftercooled</b>		
Rated RPM:	<b>1800</b>		

\*Engine Power and Fuel Consumption are declared by the Engine Manufacturer of Record and the U.S. EPA.

**Emissions based on engine power of specific Engine Model.  
(These values are actual composite weighted exhaust emissions results over the EPA 5-mode test cycle.)**

CO	NOx + NMHC	PM	
<b>0.80</b>	<b>5.20</b>	<b>0.07</b>	Grams/kW-hr
<b>0.60</b>	<b>3.88</b>	<b>0.05</b>	Grams/bhp-hr

- The stated values are actual exhaust emission test measurements obtained from an engine representative of the type described above.
- Values based on 5mode testing are official data of record as submitted to regulatory agencies for certification purposes. Testing was conducted in accordance with prevailing EPA protocol, which is typically accepted by SCAQMD and other regional authorities.
- No emissions values provided above are to be construed as guarantees of emission levels for any given Generac generator unit.
- Generac Power Systems, Inc. reserves the right to revise this information without prior notice.
- Consult state and local regulatory agencies for specific permitting requirements.
- The emission performance data supplied by the equipment manufacturer is only one element required toward completion of the permitting and installation process. State and local regulations may vary on a case-by-case basis and local agencies must be consulted by the permit application/equipment owner prior to equipment purchase or installation. The data supplied herein by Generac Power Systems cannot be construed as a guarantee of installability of the generating set.



## C18H0-UFAD12 INSTALLATION & OPERATION DATA (I&O) USA Produced

### Basic Engine Description

Engine Manufacturer .....	Caterpillar
Ignition Type .....	Compression (Diesel)
Number of Cylinders .....	6
Bore and Stroke - in (mm) .....	5.71 (145) X 7.2 (183)
Displacement - in <sup>3</sup> (L) .....	1106 (18.1)
Compression Ratio .....	16.3:1
Valves per cylinder	
Intake .....	2
Exhaust .....	2
Combustion System .....	Direct Injection
Engine Type .....	In-Line, 4 Stroke Cycle
Fuel Management Control .....	Electronic, Unit Injector
Firing Order (CW Rotation) .....	1-5-3-6-2-4
Aspiration .....	Turbocharged
Charge Air Cooling Type .....	Raw Water Cooled
Rotation, viewed from front of engine, Clockwise (CW) .....	Standard
Engine Crankcase Vent System .....	Open
Installation Drawing .....	D857
Weight - lb (kg) .....	4100 (1860)

### Power Rating

	<b>1470</b>	<b>1760</b>	<b>1900</b>	<b>2100</b>
Nameplate Power - HP (kW) <sup>1</sup> .....	450 (336)	460 (343)	488 (359)	488 (364)

### Cooling System - [C051389]

	<b>1470</b>	<b>1760</b>	<b>1900</b>	<b>2100</b>
Engine Coolant Heat - Btu/sec (kW) .....	165 (174)	192 (203)	202 (213)	232 (245)
Engine Radiated Heat - Btu/sec (kW) .....	50 (52.8)	41 (43.3)	43 (45.4)	57 (60.1)
Heat Exchanger Minimum Flow				
60°F (15°C) Raw H <sub>2</sub> O - gal/min (L/min) .....	16 (60.6)	18 (68.1)	20 (75.7)	23 (87.1)
100°F (37°C) Raw H <sub>2</sub> O - gal/min (L/min) .....	22 (83.3)	24 (90.8)	26 (98.4)	31 (117)
Heat Exchanger Maximum Cooling Raw Water				
Inlet Pressure - psi (bar) .....	60 (4.1)			
Flow - gal/min (L/min) .....	190 (719)			
Typical Engine H <sub>2</sub> O Operating Temp - °F (°C) .....	185 (85) - 200 (93.3)			
Thermostat				
Start to Open - °F (°C) .....	189 (87.2)			
Fully Opened - °F (°C) .....	208 (97.8)			
Engine Coolant Capacity - qt (L) .....	40 (37.9)			
Coolant Pressure Cap - lb/in <sup>2</sup> (kPa) .....	10 (68.9)			
Maximum Engine Coolant Temperature - °F (°C) .....	219 (104)			
Minimum Engine Coolant Temperature - °F (°C) .....	160 (71.1)			
High Coolant Temp Alarm Switch - °F (°C) .....	217 (103)			

### Electric System - DC

	<b>Standard</b>	
System Voltage (Nominal) .....	24	
Battery Capacity for Ambients Above 32°F (0°C)		
Voltage (Nominal)12 .....	12	{C07633}
Qty, Per Battery Bank .....	2	
SAE size per J537 .....	8D	
CCA @ 0°F (-18°C) per J537 .....	1400	
Reserve Capacity - Minutes per J537 .....	430	
Battery Cable Circuit, Max Resistance - ohm .....	0.0012	
Battery Cable Minimum Size		
0-120 in. Circuit Length <sup>2</sup> .....	00	
121-160 in. Circuit Length <sup>2</sup> .....	000	
161-200 in. Circuit Length <sup>2</sup> .....	0000	
Charging Alternator Maximum Output - Amp, .....	50	{1693345}
Starter Cranking Amps, Rolling - @60°F (15°C) .....	375	{C072743}

\* All footnotes are at the bottom of Page 2



## C18H0-UFAD12 INSTALLATION & OPERATION DATA (I&O) USA Produced

### Exhaust System (Single Exhaust Outlet)

	<b>1470</b>	<b>1760</b>	<b>1900</b>	<b>2100</b>
Exhaust Flow - ft. <sup>3</sup> /min (m <sup>3</sup> /min) .....	2945 (83.4)	3170 (89.8)	3470	3830 (108)
Exhaust Temperature - °F (°C) .....	996 (536)	880 (471)	908 (487)	953 (512)
Maximum Allowable Back Pressure - in H <sub>2</sub> O (kPa) .....	40 (10)	40 (10)	40 (10)	40 (10)
Minimum Exhaust Pipe Dia. - in (mm) <sup>3</sup> .....	8 (203)	8 (203)	8 (203)	8 (203)

### Fuel System

	<b>1470</b>	<b>1760</b>	<b>1900</b>	<b>2100</b>
Fuel Consumption - gal/hr (L/hr) .....	27.4 (104)	26.5 (100)	29.6 (112)	31.5 (119)
Fuel Return - gal/hr (L/hr) .....	72.5 (274)	72.5 (274)	71.3 (270)	68.5 (259)
Fuel Supply - gal/hr (L/hr) .....	99.9 (378)	99.0 (375)	100.9 (382)	100.0 (378)
Fuel Pressure - lb/in <sup>2</sup> (kPa) .....	90 (621) - 110 (758)			
Minimum Line Size - Supply - in. ....	.75 Schedule 40 Steel Pipe			
Pipe Outer Diameter - in (mm) .....	1.05 (26.7)			
Minimum Line Size - Return - in. ....	.50 Schedule 40 Steel Pipe			
Pipe Outer Diameter - in (mm) .....	0.848 (21.5)			
Max. Allowable Fuel Pump Suction Lift w/ clean Filter at Customer Connection Block - in H <sub>2</sub> O (mH <sub>2</sub> O) .....	.71 (1.8)			
Maximum Allowable Fuel Head above Fuel pump, Supply or Return - ft (m) .....	15 (4.6)			
Fuel Filter Micron Size .....	2 (Secondary)			
Maximum fuel supply temperature - °F (°C) .....	174 (78.9)			

### Heater System

	<b>Standard</b>	<b>Optional</b>
Engine Coolant Heater		
Wattage (Nominal) .....	3500	
Voltage - AC, 1 Phase .....	230	
Part Number .....	{C127975}	

### Air System

	<b>1470</b>	<b>1760</b>	<b>1900</b>	<b>2100</b>
Combustion Air Flow - ft. <sup>3</sup> /min (m <sup>3</sup> /min) .....	1135 (32.1)	1189 (33.7)	1350 (38.2)	1505 (42.6)
Air Cleaner .....	<b>Standard</b>		<b>Optional</b>	
Part Number .....	{C03595}		{C03330}	
Type .....	Indoor Service Only, with Shield		Canister, Single-Stage	
Cleaning method .....	Washable		Disposable	
Air Intake Restriction Maximum Limit				
Dirty Air Cleaner - in H <sub>2</sub> O (kPa) .....	25 (6.2)		25 (6.2)	
Clean Air Cleaner - in H <sub>2</sub> O (kPa) .....	15 (3.7)		15 (3.7)	
Maximum Allowable Temperature (Air To Engine Inlet) - °F (°C) .....	120 (48.9)			

### Lubrication System

Oil Pressure - normal - lb/in <sup>2</sup> (kPa) .....	64 (441) - 70 (483)
Low Oil Pressure Alarm Switch - lb/in <sup>2</sup> (kPa) .....	5 (34.5)
In Pan Oil Temperature - °F (°C) .....	200 (93.3) - 230 (110)
Total Oil Capacity with Filter - qt (L) .....	48 (45.4)

### Lube Oil Heater

	<b>Optional</b>	<b>Optional</b>
Wattage (Nominal) .....	300	300
Voltage .....	120V (+5%, -10%)	240V (+5%, -10%)
Part Number .....	{C04559}	{C04560}

### Performance

	<b>1470</b>	<b>1760</b>	<b>1900</b>	<b>2100</b>
BMEP - lb/in <sup>2</sup> (kPa) .....	219 (1510)	187 (1290)	184 (1270)	166 (1140)
Piston Speed - ft/min (m/min) .....	1764 (538)	2112 (644)	2280 (695)	2520 (768)
Mechanical Noise - dB(A) @ 1m .....	C138028			
Power Curve .....	C137955			

*NOTE: This engine is intended for indoor installation or in a weatherproof enclosure. <sup>1</sup> Derate 3% per every 1000 ft. 304.8m above 300 ft. 91.4m and derate 1% for every 10°F 5.55 °C above 77°F 25°C. <sup>2</sup> Positive and Negative Cables Combined Length. <sup>3</sup> Minimum Exhaust Pipe Diameter is based on: 15 feet of pipe, one 90° elbow, and one Industrial silencer. A Back-pressure flow analysis must be performed on the actual field installed exhaust system to assure engine maximum allowable back pressure is not exceeded. See Exhaust Sizing Calculator on [www.clarkefire.com](http://www.clarkefire.com). { } indicates component reference part number.*



## C18H0 ENGINE MODELS ENGINE MATERIALS AND CONSTRUCTION

### Air Cleaner

Type..... Indoor Usage Only  
Oiled Fabric Pleats  
Material..... Surgical Cotton, Aluminum Mesh

### Air Cleaner - Optional

Type..... Canister  
Material..... Pleated Paper  
Housing..... Enclosed

### Camshaft

Material..... Forged Steel, Hardened  
Location..... In Head  
Drive..... Gear, Spur  
Type of Cam..... Ground

### Charge Air Cooler

Type..... Raw Water Cooled

Materials (in contact with raw water)

Tubes..... 90/10 CU/NI  
Headers..... 36500 Muntz  
Covers..... 83600 Red Brass  
Plumbing..... 316 Stainless Steel/ Brass  
90/10 Silicone

### Coolant Pump

Type..... Centrifugal  
Drive..... Gear

### Coolant Thermostat

Type..... Full Blocking  
Qty..... 2

### Cooling Loop (Galvanized)

Tees, Elbows, Pipe..... Galvanized Steel  
Ball Valves..... Brass ASTM B 124  
Solenoid Valve..... Brass  
Pressure Regulator..... Bronze  
Strainer..... Cast Iron (1/2" - 1" Loops)  
or Bronze (1.25" - 2" Loops)

### Cooling Loop (Sea Water)

Tees, Elbows, Pipe..... 316 Stainless Steel  
Ball Valves..... 316 Stainless Steel  
Solenoid Valve..... 316 Stainless Steel  
Pressure Regulator/Strainer..... Cast Brass ASTM B176 C87800

### Cooling Loop (316SS)

Tees, Elbows, Pipe..... 316 Stainless Steel  
Ball Valves..... 316 Stainless Steel  
Solenoid Valve..... 316 Stainless Steel  
Pressure Regulator/Strainer..... 316 Stainless Steel

### Connecting Rod

Type..... I-Beam Taper  
Material..... Forged Steel Alloy

### Crank Pin Bearings

Type..... Precision Half Shell  
Number..... 1 Pair Per Cylinder  
Material..... Steel-backed Copper  
with Lead Tin Overlay

### Crankshaft

Material..... Forged Steel  
Type of Balance..... Dynamic

### Cylinder Block

Type..... One Piece  
Material..... Grey Iron

### Cylinder Head

Type..... Slab 4 Valve  
Material..... Cast Iron

### Cylinder Liners

Type..... Centrifugal Cast, Wet Liner  
Material..... Compacted Graphite and Iron

### Valves

Type..... Poppet  
Material..... Steel Alloy  
Arrangement..... Overhead Valve  
Number/Cylinder..... 2 intake/2 exhaust  
Operating Mechanism..... Mechanical Rocker Arm  
Type of Lifter..... Solid Roller  
Valve Seat Insert..... Replaceable

### Exhaust Manifold

Material..... Iron Alloy

### Fuel Pump

Type..... Gear  
Drive..... Cam Lobe

### Heat Exchanger

Type..... Shell & Tube

### Materials

Tube & Headers..... Copper  
Shell..... Copper  
Electrode..... Zinc

### Injection Pump

Type..... Electronic Unit Injector  
Drive..... Cam Shaft

### Lubrication Cooler

Type..... Shell & Tube

### Lubrication Pump

Type..... Gear Pump  
Drive..... Gear

### Main Bearings

Type..... Precision Half Shells  
Material..... Steel Backed-Aluminum Lined

### Piston

Type and Material..... Single-piece Steel

Cooling..... Oil Jet Spray

### Piston Pin

Type..... Full Floating

### Piston Rings

Number/Piston..... 3

Clarke Model	C18H0-UFAD12			
Derived Rating	364	kW	488	hp
Rated Speed	2100	rpm	2100	rpm
NOx	2.94	g/kW-hr	2.19	g/hp-hr
HC	0.17	g/kW-hr	0.12	g/hp-hr
PM	0.199	g/kW-hr	0.149	g/hp-hr
CO	1.90	g/kW-hr	1.41	g/hp-hr
Certified Rating	470 kW		630 hp	
Rated Speed	2100 rpm		2100 rpm	
NOx	3.86 g/kW-hr		2.88 g/hp-hr	
HC	0.05 g/kW-hr		0.04 g/hp-hr	
PM	0.09 g/kW-hr		0.07 g/hp-hr	
CO	0.60 g/kW-hr		0.45 g/hp-hr	

-Applicable to Cat C18 700hp Tier 3, 630hp Tier 3 fire pump driver engines.

-PQ3060, PQ3061 respectively

-700 hp and 630 hp ratings are U.S. EPA certified as variable speed Emergency Stationary engines per 40 CFR Part 60 Subpart IIII.

-Estimated Nominal Emissions data for the fire pump rating cycle emissions are shown above.

-These engines are Certified to the variable speed 8 Mode C1 cycle that can be used in either constant or variable speed applications.

-This information is Caterpillar Confidential. Unauthorized distribution of this information beyond its intended audience is prohibited.



Appendix D  
Technical Services Memo [and AAQA](#)

# San Joaquin Valley Air Pollution Control District Risk Management Review

To: Dan Klevann – Permit Services  
 From: Georgia Stewart – Technical Services  
 Date: March 4, 2021  
 Facility Name: Amazon.com Services  
 Location: 3315 N Kelsey, Visalia  
 Application #(s): S-9738-1-0 & 2-0  
 Project #: S-1204690

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## 1. Summary

### 1.1 RMR

Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required	Special Permit Requirements
1-0	N/A <sup>1</sup>	N/A <sup>2</sup>	0.00	3.78E-08	No	Yes
2-0	N/A <sup>1</sup>	N/A <sup>2</sup>	0.00	7.84E-08	No	Yes
<b>Project Totals</b>	N/A <sup>1</sup>	N/A <sup>2</sup>	0.00	1.16E-07		
<b>Facility Totals</b>	N/A <sup>1</sup>	N/A <sup>2</sup>	0.00	1.16E-07		

Notes:

- 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 Hazard Index was not calculated since there is no risk factor or the risk factor is so low that it has been determined to be insignificant for this type of unit.

## 1.2 AAQA

Pollutant	Air Quality Standard (State/Federal)				
	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	NA		NA		
NO <sub>x</sub>	NA				Pass
SO <sub>x</sub>	NA	NA		NA	Pass
H <sub>2</sub> S	NA				
PM10				NA	Pass
PM2.5				NA	Pass
Ozone	NA		NA		

Notes:

1. Results were taken from the attached AAQA Report.
2. The project is an intermittent source as defined in APR-1920. In accordance with APR-1920, compliance with short-term (i.e., 1-hour, 3-hour, 8-hour and 24-hour) standards is not required.
3. <sup>2</sup>The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2) unless otherwise noted.
4. Modeled PM10 concentrations were below the District SIL for non-fugitive sources of 1 µg/m<sup>3</sup> for the annual concentration.
5. Modeled PM2.5 concentrations were below the District SIL for non-fugitive sources of 0.2 µg/m<sup>3</sup> for the annual concentration.

## 1.3 Proposed Permit Requirements

To ensure that human health risks will not exceed District allowable levels; the following shall be included as requirements for:

### Unit # 1-0

1. The PM10 emissions rate shall not exceed **0.05** g/bhp-hr based on US EPA certification using ISO 8178 test procedure.
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.
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.

### Unit # 2-0

1. The PM10 emissions rate shall not exceed **0.07** g/bhp-hr based on US EPA certification using ISO 8178 test procedure.
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.
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 **100** hours per calendar year.

## 2. Project Description

Technical Services received a request on January 26, 2021, to perform an Ambient Air Quality Analysis and a Risk Management Review for the following:

- Unit 1-0: 909 BHP PERKINS MODEL 2806C-E18TAG3 TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR
- Unit 2-0: 488 BHP DIESEL-FUELED IC ENGINE POWERING A 2288 KW EMERGENCY FIREPUMP

## 3. RMR Report

### 3.1 Analysis

The District performed an analysis pursuant to the District's Risk Management Policy for Permitting New and Modified Sources (APR 1905, May 28, 2015) to determine the possible cancer and non-cancer health impact to the nearest resident or worksite. This policy requires that an assessment be performed on a unit by unit basis, project basis, and on a facility-wide basis. If a preliminary prioritization analysis demonstrates that:

- A unit's prioritization score is less than the District's significance threshold and;
- The project's prioritization score is less than the District's significance threshold and;
- The facility's total prioritization score is less than the District's significance threshold

Then, generally no further analysis is required.

The District's significant prioritization score threshold is defined as being equal to or greater than 1.0. If a preliminary analysis demonstrates that either the unit(s) or the project's or the facility's total prioritization score is greater than the District threshold, a screening or a refined assessment is required.

If a refined assessment is greater than one in a million but less than 20 in one million for carcinogenic impacts (Cancer Risk) and less than 1.0 for the Acute and Chronic hazard indices (Non-Carcinogenic) on a unit by unit basis, project basis and on a facility-wide basis the proposed application is considered less than significant. For units that exceed a cancer risk of 1 in one million, Toxic Best Available Control Technology (TBACT) must be implemented.

Toxic emissions for this project were calculated using the following methods:

- Toxic emissions for this proposed unit were calculated by the processing engineer for Diesel Particulate Matter

These emissions were input into the San Joaquin Valley APCD's Hazard Assessment and Reporting Program (SHARP). In accordance with the District's Risk Management Policy, risks from the proposed unit's toxic emissions were prioritized using the procedure in the 2016 CAPCOA Facility Prioritization Guidelines. The prioritization score for this proposed facility was greater than 1.0 (see RMR Summary Table). Therefore, a refined health risk assessment was required.

The AERMOD model was used, with the parameters outlined below and meteorological data for 2007-2010 from Visalia (Urban RMR) to determine the dispersion factors (i.e., the predicted concentration or X divided by the normalized source strength or Q) for a receptor grid. These dispersion factors were input into the SHARP Program, which then used the Air Dispersion Modeling and Risk Tool (ADMRT) of the Hot Spots Analysis and Reporting Program Version 2 (HARP 2) to calculate the chronic and acute hazard indices and the carcinogenic risk for the project.

The following parameters were used for the review:

<b>Analysis Parameters Unit 1-0</b>			
<b>Source Type</b>	Point	<b>Location Type</b>	Urban
<b>Stack Height (m)</b>	2.93	<b>Closest Receptor (m)</b>	224
<b>Stack Diameter. (m)</b>	0.203	<b>Type of Receptor</b>	Business
<b>Stack Exit Velocity (m/s)</b>	74.00	<b>Max Hours per Year</b>	50
<b>Stack Exit Temp. (°K)</b>	897.44	<b>Fuel Type</b>	Diesel
<b>PM10 (lb/hr)</b>	0.1	<b>PM10 (lb/yr)<sup>1</sup></b>	5

<sup>1</sup>Annual rate based on 50 hours of operation per calendar year.

<b>Analysis Parameters Unit 2-0</b>			
<b>Source Type</b>	Point	<b>Location Type</b>	Urban
<b>Stack Height (m)</b>	1.89	<b>Closest Receptor (m)</b>	224
<b>Stack Diameter. (m)</b>	0.203	<b>Type of Receptor</b>	Business
<b>Stack Exit Velocity (m/s)</b>	55.74	<b>Max Hours per Year</b>	50
<b>Stack Exit Temp. (°K)</b>	784.67	<b>Fuel Type</b>	Diesel
<b>PM10 (lb/hr)</b>	0.08	<b>PM10 (lb/yr)<sup>1</sup></b>	8

<sup>1</sup>Annual rate based on 100 hours of operation per calendar year.

#### 4. AAQA Report

The District modeled the impact of the proposed project on the National Ambient Air Quality Standard (NAAQS) and/or California Ambient Air Quality Standard (CAAQS) in accordance with District Policy APR-1925 (Policy for District Rule 2201 AAQA Modeling) and EPA's Guideline for Air Quality Modeling (Appendix W of 40 CFR Part 51). The District uses a progressive three level approach to perform AAQAs. The first level (Level 1) uses a very conservative approach. If this analysis indicates a likely exceedance of an AAQS or Significant Impact Level (SIL), the analysis proceeds to the second level (Level 2) which implements a more refined approach. For the 1-hour NO<sub>2</sub> standard, there is also a third level that can be implemented if the Level 2 analysis indicates a likely exceedance of an AAQS or SIL.

The modeling analyses predicts the maximum air quality impacts using the appropriate emissions for each standard's averaging period. Required model inputs for a refined AAQA include background ambient air quality data, land characteristics, meteorological inputs, a receptor grid, and source parameters including emissions. These inputs are described in the sections that follow.

Ambient air concentrations of criteria pollutants are recorded at monitoring stations throughout the San Joaquin Valley. Monitoring stations may not measure all necessary pollutants, so background data may need to be collected from multiple sources. The following stations were used for this evaluation:

<b>Monitoring Stations</b>				
<b>Pollutant</b>	<b>Station Name</b>	<b>County</b>	<b>City</b>	<b>Measurement Year</b>
CO	Visalia-Church	Tulare	Visalia	2018
NOx	Visalia-Church	Tulare	Visalia	2018
SOx	Fresno-Garland	Fresno	Fresno	2018
PM10	Visalia-Church	Tulare	Visalia	2018
PM2.5	Visalia-Church	Tulare	Visalia	2018

Technical Services performed modeling for criteria pollutants CO, NO<sub>x</sub>, SO<sub>x</sub>, and PM10 with the emission rates below:

<b>Emission Rates (lbs/hour)</b>						
<b>Unit ID</b>	<b>Process</b>	<b>NOx</b>	<b>SOx</b>	<b>CO</b>	<b>PM10</b>	<b>PM2.5</b>
1-0	1	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>

1. The project is an intermittent source as defined in APR-1920. In accordance with APR-1920, compliance with short-term (i.e., 1-hour, 3-hour, 8-hour and 24-hour) standards is not required.

<b>Emission Rates (lbs/year)</b>						
<b>Unit ID</b>	<b>Process</b>	<b>NOx</b>	<b>SOx</b>	<b>CO</b>	<b>PM10</b>	<b>PM2.5</b>
1-0	1	389	1	60	5	5

<b>Emission Rates (lbs/hour)</b>						
<b>Unit ID</b>	<b>Process</b>	<b>NOx</b>	<b>SOx</b>	<b>CO</b>	<b>PM10</b>	<b>PM2.5</b>
2-0	1	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>

1. The project is an intermittent source as defined in APR-1920. In accordance with APR-1920, compliance with short-term (i.e., 1-hour, 3-hour, 8-hour and 24-hour) standards is not required.

<b>Emission Rates (lbs/year)</b>						
<b>Unit ID</b>	<b>Process</b>	<b>NOx</b>	<b>SOx</b>	<b>CO</b>	<b>PM10</b>	<b>PM2.5</b>
2-0	1	310	0	48	8	8

The AERMOD model was used to determine if emissions from the project would cause or contribute to an exceedance of any state of federal air quality standard. The parameters outlined below and meteorological data for 2018 from Visalia-Church, Visalia, and Fresno-Garland [Urban AAQA] were used for the analysis:

Point Source Parameters						
Unit ID	Unit Description	Release Height (m)	Temp. (°K)	Exit Velocity (m/sec)	Stack Diameter (m)	Vertical/ Horizontal/ Capped
1-0	909 bhp DICE	2.93	897.44	74.00	0.203	Vertical

Point Source Parameters						
Unit ID	Unit Description	Release Height (m)	Temp. (°K)	Exit Velocity (m/sec)	Stack Diameter (m)	Vertical/ Horizontal/ Capped
2-0	488 bhp DICE	1.89	784.67	55.74	0.203	Vertical

## 5. Conclusion

### 5.1 RMR

The cumulative acute and chronic indices for this facility, including this project, are below 1.0; and the cumulative cancer risk for this facility, including this project, is less than 20 in a million. In addition, the cancer risk for each unit in this project is less than 1.0 in a million. **In accordance with the District's Risk Management Policy, the project is approved without Toxic Best Available Control Technology (T-BACT).**

To ensure that human health risks will not exceed District allowable levels; the permit requirements 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.

### 5.2 AAQA

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

## 6. Attachments

- A. Modeling request from the project engineer
- B. Additional information from the applicant/project engineer
- C. Facility Summary
- D. AAQA Results

# 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:

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

QNEC S-9738-1-0		
Pollutant	PE2 Total (lb/yr)	Quarterly PE2 (lb/qtr)
NO <sub>x</sub>	389	97.3
SO <sub>x</sub>	1	0.3
PM <sub>10</sub>	5	1.3
CO	60	15.0
VOC	8	2.0

QNEC S-9738-2-0		
Pollutant	PE2 Total (lb/yr)	Quarterly PE2 (lb/qtr)
NO <sub>x</sub>	310	77.5
SO <sub>x</sub>	1	0.3
PM <sub>10</sub>	8	2.0
CO	48	12.0
VOC	4	1.0