

February 21, 2023

Jessie Hudgins  
Children's Hospital of California  
9300 Valley Children's Pl  
Madera, CA 93636

**Re: Notice of Preliminary Decision - Authority to Construct**  
**Facility Number: C-2902**  
**Project Number: C-1223500**

Dear Mr. Hudgins:

Enclosed for your review and comment is the District's analysis of Children's Hospital of California's application for an Authority to Construct for a 762 horsepower Tier 2 diesel engine with selective catalytic reduction, a diesel particulate filter, and an oxidation catalyst for tier 4F compliant emissions to provide emergency power in the event of an electrical outage, at 40979 Goodwin Way, Madera.

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. Tim Bush of Permit Services at (559) 230-5913.

Sincerely,



Brian Clements  
Director of Permit Services

BC:tb

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

Facility Name: [Children's Hospital of Central California](#)      Date: [February 1, 2023](#)  
Mailing Address: [9300 Valley Children's Pl](#)      Engineer: [Tim Bush](#)  
[Madera, CA 93636](#)      Lead Engineer: [Brian Clerico](#)  
Contact Person: [Jessie Hudgins](#)  
Telephone: [559-353-5020](#)  
E-mail: [jhudgins@valleychildrens.org](mailto:jhudgins@valleychildrens.org)  
Application #: [C-2902-14-0](#)  
Project #: [C-1223500](#)  
Deemed Complete: [August 24, 2022](#)

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#### I. Proposal

[Children's Hospital of Central California](#) is proposing to install a [762](#) bhp (569 kW intermittent) Tier 4 final compliant diesel-fired emergency-standby internal combustion (IC) engine powering an electrical generator. The applicant has proposed a Tier 2 certified diesel IC engine that will be retrofitted with a selective catalytic reduction (SCR) system, oxidation catalyst, and particulate filter to enable the engine to meet Tier 4 final emission standards for NO<sub>x</sub>, CO, VOC, and PM<sub>10</sub>. A start-up source test will be required to verify compliance with the Tier 4 final emission standards.

#### II. Applicable Rules

Rule 1081      Source Sampling (12/16/93)  
Rule 2201      New and Modified Stationary Source Review Rule ([8/15/19](#))  
Rule 2410      Prevention of Significant Deterioration (6/16/11)  
Rule 2520      Federally Mandated Operating Permits (8/15/19)  
Rule 4001      New Source Performance Standards (4/14/99)  
Rule 4002      National Emission Standards for Hazardous Air Pollutants (5/20/04)  
Rule 4101      Visible Emissions (2/17/05)  
Rule 4102      Nuisance (12/17/92)  
Rule 4201      Particulate Matter Concentration (12/17/92)  
Rule 4701      Internal Combustion Engines - Phase 1 (8/21/03)  
Rule 4702      Internal Combustion Engines (8/19/21)  
Rule 4801      Sulfur Compounds (12/17/92)  
CH&SC 41700      Health Risk Assessment  
CH&SC 42301.6      School Notice  
Title 17 CCR, Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines

Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)  
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387:  
CEQA Guidelines

### III. Project Location

This equipment will be located at 40978 Goodwin Way in Madera, CA on the hospital campus. The facility address for the hospital itself is 9300 Valley Childrens Place; therefore, following condition will be placed on the permit to help locate the engine on the campus:

- This engine shall be located at [40979 Goodwin Way in Madera, CA](#). [District Rule 2201]

The District has verified that the equipment [is not](#) located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 [is not](#) applicable to this project.

### IV. Process Description

The emergency standby engine powers an electrical generator. Other than emergency standby operation, the engine may be operated up to [100](#) hours per year for maintenance and testing purposes.

### V. Equipment Listing

**C-2902-14-0:** [762 BHP \(INTERMITTENT\) PERKINS MODEL 2506C-E15TAG3 TIER 2 DIESEL-FIRED EMERGENCY STANDBY IC ENGINE WITH SELECTIVE CATALYTIC REDUCTION, A DIESEL PARTICULATE FILTER, AND AN OXIDATION CATALYST FOR TIER 4F COMPLIANT EMISSIONS POWERING AN ELECTRICAL GENERATOR](#)

### VI. Emission Control Technology Evaluation

The applicant has proposed to install a diesel-fired IC engine that will meet Tier [4F](#) emissions and that is fired on very low-sulfur diesel fuel.

The proposed engine will be source tested to show that it meets the latest Tier Certification requirements for emergency standby engines by the addition of selective catalytic reduction (for the control of NOx), an oxidation catalyst (for control of CO and VOC), and a diesel particulate filter (for the control of PM). Therefore, the engine is expected to meet and will be required to demonstrate compliance with the Tier 4F 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](#)).

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:	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

The proposed diesel IC engine will meet Tier 4 Final emission standards by the addition of add-on controls (SCR, oxidation catalyst, and diesel particulate filter).

Emission Factors			
Pollutant	Emission Factor (g/bhp-hr)	Emission Factor (g/kw-hr)	Source
NO <sub>x</sub>	0.30	0.40	Emissions Control Manufacturer
SO <sub>x</sub>	0.0051	0.0068	Mass Balance Equation Below
PM <sub>10</sub>	0.01	0.02	Emissions Control Manufacturer
CO	2.6	3.5	Emissions Control Manufacturer
VOC	0.14	0.19	Emissions Control Manufacturer

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

### C. Calculations

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

This is a new emissions unit, 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>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>	0.30	762	24	100	12.1	50
SO <sub>x</sub>	0.0051	762	24	100	0.2	1
PM <sub>10</sub>	0.01	762	24	100	0.4	2
CO	2.6	762	24	100	104.8	437
VOC	0.14	762	24	100	5.6	24

### 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.

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

<b>SSPE1 (lb/year)</b>					
	<b>NO<sub>x</sub></b>	<b>SO<sub>x</sub></b>	<b>PM<sub>10</sub></b>	<b>CO</b>	<b>VOC</b>
<b>SSPE1</b>	11,406	859	4,404	46,455	1,971

### 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.

SSPE2 (lb/year)					
Permit Unit	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
SSPE1	11,406	859	4,404	46,455	1,971
C-2902-14-0	50	1	2	437	24
<b>SSPE2</b>	<b>11,456</b>	<b>860</b>	<b>4,406</b>	<b>46,892</b>	<b>1,995</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	11,406	859	4,404	4,404	46,455	1,971
SSPE2	11,456	860	4,406	4,406	46,892	1,995
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 / New Major Source**

### **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.

### **New Major Source**

As demonstrated above, this facility is not becoming a Major Source as a result of this project, therefore, this facility is not a New Major Source pursuant to 40 CFR 51.165 a(1)(iv)(A)(3).

## **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 1081 Source Sampling**

Rule 1081 states that the District must be notified 30 days prior to any compliance source testing, the owner shall submit a source test plan for District approval 15 days prior to source sampling, and source test reports must be submitted to the District within 60 days of completion of field testing. Therefore, the following conditions will be listed on the ATC as a mechanism to ensure compliance:

- {109} Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to the source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081]
- {110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
- {Modified 3210} The following test methods shall be used: NO<sub>x</sub> (ppmv) - EPA Method 7E or ARB Method 100, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100, and VOC (ppmv) - EPA Method 18, 25A or 25B, or ARB Method 100. [District Rules 1081 and 2201]
- Source testing to measure PM<sub>10</sub> shall be conducted using EPA Method 5 (front half) (gr/dscf) or EPA Method 201A/202 (gr/dscf). Should it be determined that another set of test methods is more appropriate for use in demonstrating compliance with the minimum control efficiency requirements, such test methods shall be approved by the District prior to initial source testing. [District Rule 1081]



- Emissions source testing shall be conducted with the engine operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. An appropriately-sized resistance load bank (or equivalent) shall be used during the emissions source testing to ensure the engine is operating at load conditions representative of normal operations. [District Rules 1081 and 2201]
- For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit, the test cannot be used to demonstrate compliance with an applicable limit. NO<sub>x</sub>, CO, PM<sub>10</sub>, and VOC emission concentrations shall be converted over to mass basis (g/bhp-hr) for demonstrating compliance with the limits specified in this permit. [District Rules 1081 and 2201]

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

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

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

Pursuant to District Rule 2201, Section 4.1, BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. Unless specifically exempted by Rule 2201, BACT shall be required for the following actions\*:

- 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.

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

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

Since this engine is a new emissions unit, the daily emissions are compared to the BACT thresholds in the following table:

<b>New Emissions Unit BACT Applicability</b>				
<b>Pollutant</b>	<b>Daily Emissions for the new unit (lb/day)</b>	<b>BACT Threshold (lb/day)</b>	<b>SSPE2 (lb/yr)</b>	<b>BACT Triggered?</b>
NO <sub>x</sub>	12.1	> 2.0	n/a	Yes
SO <sub>x</sub>	0.2	> 2.0	n/a	No
PM <sub>10</sub>	0.4	> 2.0	n/a	No
CO	104.8	> 2.0 and SSPE2 ≥ 200,000 lb/yr	46,893	No
VOC	5.6	> 2.0	n/a	Yes

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

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

As discussed previously in Section I, this engine is not being relocated from one stationary source to another as a result of this project. Therefore, BACT is not triggered for the relocation of emissions units with a PE > 2 lb/day.

**c. Modification of emissions units – Adjusted Increase in Permitted Emissions (AIPE) > 2 lb/day**

As discussed previously in Section I, this engine is not being modified as a result of this project. Therefore, BACT is not triggered for the modification of emissions units with an AIPE > 2 lb/day.

**d. SB 288/Major Modification**

As discussed in Sections VII.C.7 and VII.C.8 above, this project does not constitute an SB 288 and/or Federal Major Modification for any pollutant. Therefore BACT is not triggered for any pollutant.

**2. BACT Guideline**

BACT Guideline 3.1.1, applies to the emergency diesel-fired IC engines greater than 50 horsepower powering electrical generators. [Emergency Diesel-Fired IC Engine > 50 bhp Powering an Electrical Generator] (See Appendix B)

**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>: EPA Tier 4 Final certification level or equivalent for applicable horsepower
- VOC: EPA Tier 4 Final certification level or equivalent for applicable horsepower

The facility has proposed to install a 762 bhp Tier 4 Final emission level IC engine. Therefore, BACT is satisfied for NO<sub>x</sub>, and VOC.

## 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	11,456	860	4,406	46,892	1,995
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 CO 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>	11,406	11,456	20,000 lb/year	No
SO <sub>x</sub>	859	860	54,750 lb/year	No
PM <sub>10</sub>	4,404	4,406	29,200 lb/year	No
CO	46,455	46,892	200,000 lb/year	No
VOC	1,971	1,995	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 published in a local newspaper of general circulation prior to the issuance of the ATC for this equipment.

### D. Daily Emissions Limits

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

- {4771} Emissions from this IC engine shall not exceed any of the following limits: 0.30 g-NOx/bhp-hr; 2.6 g-CO/bhp-hr; or 0.14 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- {4772} Emissions from this IC engine shall not exceed 0.01 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 may be required to establish the reliability of emission factors. Since the proposed diesel IC engine in this project is not certified to Tier 4 Final standards, initial testing will be required to verify the proposed add-on controls will achieve Tier 4 Final compliant emissions for all pollutants. Only initial source testing will be required due to the relatively low operating hours expected from an emergency IC engine. Since the Tier 4 Final emission standards are a BACT requirement and not a Rule 4702 requirement, District Rule 2201 will be cited as the basis for the initial source test condition required on the ATC:

- Source testing to measure NOx, CO, VOC, and PM10 emissions from this engine shall be conducted within 60 days of initial start-up [District Rule 2201]

Source testing requirements for this engine are discussed in Section VIII, District Rule 1081, of this evaluation. Other source testing conditions which are being required through Rule 2201 to ensure compliance with BACT will reference Rule 2201 as their basis but will be discussed below in the Rule 4702 compliance section since the form of those conditions relies on standard Rule 4702 based requirements.

## **2. Monitoring**

Although monitoring is being required for purposes of Rule 2201 compliance, the specific conditions for NOx and CO monitoring will be discussed the Rule 4702 compliance section below since the NOx and CO monitoring scheme relies on standard Rule 4702 monitoring requirements.

In addition, to ensure the PM control is operating optimally, inspections and maintenance of the diesel particulate filter (DPF) will be required according to the manufacturer's recommendations:

- The diesel particulate filter (DPF) shall be operated and maintained according to the DPF manufacturer's specifications, procedures, and recommended inspection and cleaning frequencies. [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. In addition, the following recordkeeping requirements will be included will be required

- The permittee shall maintain an engine operating log to demonstrate compliance. The engine operating log shall include, on a monthly basis, the following information: total hours of operation, type of fuel used, maintenance or modifications performed, monitoring data, compliance source test results, and any other information necessary to demonstrate compliance with the permit limits. [District Rules 1070 and 2201]
- The permittee shall maintain records of: (1) the date and time of DPF inspection, and (2) the date and time of DPF cleaning. [District Rules 1070 and 2201]

## **4. Reporting**

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

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

Section 4.14 of District Rule 2201 requires that an AAQA be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The 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 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 or equal to one. According to the Technical Services Memo for this project (Appendix D), the total facility prioritization score including this project was less than or equal to one. Therefore, no further analysis is required to determine the impact from this project and compliance with the District's Risk Management Policy is expected.

Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required	Special Permit Requirements
14-0	0.05	N/A <sup>1</sup>	0.00	7.02E-08	No	Yes
<b>Project Totals</b>	0.05	N/A <sup>1</sup>	0.00	7.02E-08		
<b>Facility Totals</b>	>1	0.64	0.35	1.96E-05		

Notes:

1. Acute and chronic hazard indices were not calculated for Unit 14 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:

- {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
- {4772} Emissions from this IC engine shall not exceed 0.01 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
- {modified 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 (excluding emissions testing), and required regulatory purposes shall not exceed 100 hours per calendar year. [District Rules 2201, 4102, and 4702, and 17 CCR 93115]

### Rule 4201 Particulate Matter Concentration

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

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

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**

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]

As stated in Section 3.15 above, operation of the emergency standby engine is limited to 100 hours or less per calendar year for non-emergency purposes. However, the Air Toxic Control Measure for Stationary Compression Ignition Engines (ATCM) limits this engine's maintenance and testing not to exceed 100 hours/year. Thus the 100 hours/year requirement of the rule is less stringent than the ATCM's operating limitations for emergency standby engines. Therefore, compliance with the applicable ATCM requirements ensures compliance with the 100 hours/year requirement of the rule.

Therefore, compliance is expected and the following condition will be included on the permit:

- {modified 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 (excluding emissions testing), and required regulatory purposes shall not exceed 100 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 5.10 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 5.10 are applicable to emergency standby engines:

Section 5.10 requires the owner to:

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

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

*5.10.4 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]

In addition, the compression-ignited IC engine in this project has been retro-fitted with a NOx control device (i.e. SCR); therefore, 5.10.5 applies:

*5.10.5 All AO spark-ignited engines and compression-ignited engines that have been retro-fitted with a NOx exhaust control, except certified spark-ignited*

*engines, engines certified per Section 9.0, and certified compression-ignited engines, shall comply with Sections 5.10.5.1 through 5.10.5.6.*

*5.10.5.1 Use a portable analyzer to take NOx and CO emission readings and oxygen concentration readings to demonstrate compliance with the emission requirements of Section 5.2.*

Section 5.10.5.1 does not apply to this engine since the emission requirements of Section 5.2 do not apply to emergency-standby IC engines.

*5.10.5.2 The operator of any other engine that has been retro-fitted with a NOx exhaust control shall use a portable analyzer to take NOx and CO emission readings and oxygen concentration readings at least once every 24 months that the engine is operated.*

*5.10.5.3 All emission readings shall be taken with the engine operating either at conditions representative of normal operations or conditions specified in the Permit-to-Operate or Permit-Exempt Equipment Registration.*

*5.10.5.4 The portable analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO.*

*5.10.5.5 All NOx and CO emissions readings shall be reported to the APCO in a manner approved by the APCO.*

*5.10.5.6 NOx and CO emission readings taken pursuant to this section shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings evenly spaced out over the 15 consecutive-minute period.*

Section 5.10.5.2 requires a minimal monitoring schedule of at least once every 24 months using a portable analyzer for Third-Party Retrofit Tier 4F Compliance Engines. However, the District will be requiring a monitoring frequency of at least once every 12 months (for Rule 2201 purposes) since periodic source testing will not be required. Also, in accordance with District Policy SSP 1810, monitoring shall be performed not less than once every month for 12 months if two consecutive deviations are observed.

- The permittee shall monitor and record the stack concentration of NO<sub>x</sub>, CO, and O<sub>2</sub> at least once every 12 months using a portable emission monitor that meets District specifications. Monitoring shall be performed not less than once every month for 12 months if 2 consecutive exceedences of the emission limit(s) are observed during monitoring. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month if on a monthly monitoring schedule, or within the last quarter if on a quarterly monitoring schedule. [District Rule 2201]
- The permittee shall demonstrate the operating horsepower at the source tested power level using any method approved by the APCO and EPA. The permittee shall document typical operating parameters, loading, and duty cycle during the initial source test and subsequent monitoring. [District Rule 2201]
- {Modified 2993} If either the NO<sub>x</sub> or CO concentrations corrected to 15% O<sub>2</sub>, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rule 2201]
- {Modified 2994} All portable analyzer emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. An appropriately-sized resistance load bank (or equivalent) shall be used during the portable analyzer monitoring to ensure the engine is operating at load conditions representative of normal operations. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rule 2201]

- The permittee shall maintain records of: (1) the date and time of NO<sub>x</sub>, CO, and O<sub>2</sub> measurements, (2) the O<sub>2</sub> concentration in percent and the measured NO<sub>x</sub> and CO concentrations corrected to 15% O<sub>2</sub>, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rule 2201]

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]

### Section 6.3 Compliance Testing

Section 6.3 applies to IC engines that are subject to the emission requirements of Section 5.2. Although emergency-standby IC engines are exempt from the emission requirements of Section 5.2, since initial compliance testing is being required for the IC engine in this project, the general procedures and test methods for conducting a source test on an IC engine contained in this section are still applicable through Rule 2201 and therefore will be included on the ATC.

Per Section 6.3.3, emissions source testing shall be conducted with the engine operating either at conditions representative of normal operations or conditions specified in the PTO. The following conditions should be included on the ATC to ensure compliance:

- Emissions source testing shall be conducted with the engine operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. An appropriately-sized resistance load bank (or equivalent) shall be used during the emissions source testing to ensure the engine is operating at load conditions representative of normal operations. [District Rules 1081 and 2201]
- For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit, the test cannot be used to demonstrate compliance with an applicable limit. NO<sub>x</sub>, CO, PM<sub>10</sub>, and VOC emission concentrations shall be converted over to mass basis (g/bhp-hr) for demonstrating compliance with the limits specified in this permit. [District Rules 1081 and 2201]

Per Section 6.4, the following conditions concerning the approved test methods will be included on the ATC:

- {modified 3210} The following test methods shall be used: NO<sub>x</sub> (ppmv) - EPA Method 7E or ARB Method 100, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100, and VOC (ppmv) - EPA Method 18, 25A or 25B, or ARB Method 100. [District Rules 1081 and 2201]
- {3793 Modified} Source testing to measure PM<sub>10</sub> shall be conducted using EPA Method 5 (front half) (gr/dscf) or EPA Method 201A/202 (gr/dscf). Should it be determined that another set of test methods is more appropriate for use in demonstrating compliance with the minimum control efficiency requirements, such test methods shall be approved by the District prior to initial source testing. [District Rule 2201]



## 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.

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

## 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 new engines (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>
<p>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.</p>	<p>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.</p>
<p>The engine may not be operated more than 50 hours per year for maintenance and testing purposes unless the PM emissions are <math>\leq</math> 0.01 g/bhp-hr, then the engine is allowed 100 hours per year. Emissions from this engine are certified at 0.01 g/bhp-hr, therefore the engine is allowed 100 hours per year.</p>	<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 0.01 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 100 hours per calendar year. [District Rules 2201, 4102, and 4702, and 17 CCR 93115]</li> </ul>
<p>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</p>	<p>The District has verified that this engine is not located within 500' of a school.</p>
<p>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,</p>	<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</li> </ul>

<p>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>	<p>consideration of the historical use of the engine and the owner or operator's compliance history. [District Rule 4702 and 17 CCR 93115]</p>
<p>An owner or operator shall maintain monthly records of the following: emergency use hours of operation; maintenance and testing hours of operation; hours of operation for emission testing; initial start-up testing hours; hours of operation for all other uses; and the type of fuel used. All records shall be retained for a minimum of 36 months.</p>	<p>The following condition will be included on the permit:</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>

In addition to the standard conditions above that apply to all compression ignited emergency-standby IC engines, Section 93115.14 (a)(1) contains the emissions testing requirements that apply to PM and which are not otherwise contained in District Rule 4702.

(1) Diesel PM emission testing shall be done in accordance with one of the following methods:

- (A) California Air Resources Board Method 5 (ARB Method 5), "Determination of Particulate Matter Emissions from Stationary Sources," as amended July 28, 1997, which is incorporated herein by reference.
  1. For purposes of this subsection, diesel PM shall be measured only by the probe catch and filter catch and shall not include PM captured in the impinger catch or solvent extract.
  2. The tests are to be carried out under steady state operation. Test cycles and loads shall be in accordance with ISO-8178 Part 4 or alternative test cycle approved by the District APCO.
  3. The District APCO may require additional engine or operational duty cycle data if an alternative test cycle is requested; or
- (B) International Organization for Standardization (ISO) 8178 Test procedures: ISO 8178-1:1996(E) ("ISO 8178 Part 1") ISO 8178-2: 1996(E) ("ISO 8178 Part 2"); and ISO 8178-4:1996(E) ("ISO 8178 Part 4"), which are incorporated herein by reference; or

- (C) Title 13, California Code of Regulations, section 2423, "Exhaust Emission Standards and Test Procedures -Off-Road Compression Ignition Engines," which is incorporated herein by reference.

The following condition will be included on the ATC to ensure compliance with the approved test method for PM:

- Source testing to measure PM10 shall be conducted using EPA Method 5 (front half) (gr/dscf) or EPA Method 201A/202 (gr/dscf). Should it be determined that another set of test methods is more appropriate for use in demonstrating compliance with the minimum control efficiency requirements, such test methods shall be approved by the District prior to initial source testing. [District Rule 1081]

### **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**

Compliance with all applicable rules and regulations is expected. Issue Authority to Construct [C-2902-14-0](#) subject to the permit conditions on the attached draft ATC 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="#">C-2902-14-0</a>	<a href="#">3020-10-D</a>	<a href="#">762</a> bhp IC engine	<a href="#">\$762</a>

**Appendixes**

- A. Draft ATC
- B. BACT Guideline and BACT Analysis
- C. Emissions Data Sheet
- D. Technical Services Memo and AAQA
- E. QNEC Calculations
- F. SSPE1 Calculations

Appendix A  
Draft ATC

*San Joaquin Valley  
Air Pollution Control District*

## AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

**PERMIT NO:** C-2902-14-0

**LEGAL OWNER OR OPERATOR:** CHILDRENS HOSPITAL OF CENTRAL CALIFORNIA  
**MAILING ADDRESS:** 9300 VALLEY CHILDREN'S PL  
ATTN: PLANT SERVICES  
MADERA, CA 93636

**LOCATION:** 9300 VALLEY CHILDREN'S PL  
MADERA, CA 93636

**EQUIPMENT DESCRIPTION:**

762 BHP (INTERMITTENT) PERKINS MODEL 2506C-E15TAG3 TIER 2 DIESEL-FIRED EMERGENCY STANDBY IC ENGINE WITH SELECTIVE CATALYTIC REDUCTION, A DIESEL PARTICULATE FILTER, AND AN OXIDATION CATALYST FOR TIER 4F COMPLIANT EMISSIONS POWERING AN ELECTRICAL GENERATOR

## CONDITIONS

1. This engine shall be located at 40979 Goodwin Way in Madera, CA. [District Rule 2201]
2. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
4. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
5. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
6. {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]
7. {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]

CONDITIONS CONTINUE ON NEXT PAGE

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

Samir Sheikh, Executive Director / APCO

Brian Clements, Director of Permit Services

C-2902-14-0 : Feb 16 2023 6:04PM -- CLERICOB : Joint Inspection NOT Required

8. Emissions from this IC engine shall not exceed any of the following limits: 0.30 g-NOx/bhp-hr; 2.6 g-CO/bhp-hr; or 0.14 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
9. Emissions from this IC engine shall not exceed 0.01 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
10. Source testing to measure NOx, CO, VOC, and PM10 emissions from this engine shall be conducted within 60 days of initial start-up. [District Rule 2201]
11. {109} Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081]
12. {110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
13. Emissions source testing shall be conducted with the engine operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. An appropriately-sized resistance load bank (or equivalent) shall be used during the emissions source testing to ensure the engine is operating at load conditions representative of normal operations. [District Rules 1081 and 2201]
14. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit, the test cannot be used to demonstrate compliance with an applicable limit. NOx, CO, PM10, and VOC emission concentrations shall be converted over to mass basis (g/bhp-hr) for demonstrating compliance with the limits specified in this permit. [District Rules 1081 and 2201]
15. The following test methods shall be used: NOx (ppmv) - EPA Method 7E or ARB Method 100, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100, and VOC (ppmv) - EPA Method 18, 25A or 25B, or ARB Method 100. [District Rules 1081 and 2201]
16. Source testing to measure PM10 shall be conducted using EPA Method 5 (front half) (gr/dscf) or EPA Method 201A/202 (gr/dscf). Should it be determined that another set of test methods is more appropriate for use in demonstrating compliance with the minimum control efficiency requirements, such test methods shall be approved by the District prior to initial source testing. [District Rule 1081]
17. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every 12 months using a portable emission monitor that meets District specifications. Monitoring shall be performed not less than once every month for 12 months if 2 consecutive exceedences of the emission limit(s) are observed during monitoring. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month if on a monthly monitoring schedule, or within the last quarter if on a quarterly monitoring schedule. [District Rule 2201]
18. The permittee shall demonstrate the operating horsepower at the source tested power level using any method approved by the APCO and EPA. The permittee shall document typical operating parameters, loading, and duty cycle during the initial source test and subsequent monitoring. [District Rule 2201]
19. If either the NOx or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rule 2201]

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CONDITIONS CONTINUE ON NEXT PAGE



20. All portable analyzer emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. An appropriately-sized resistance load bank (or equivalent) shall be used during the portable analyzer monitoring to ensure the engine is operating at load conditions representative of normal operations. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period [District Rule 2201]
21. The permittee shall maintain records of: (1) the date and time of NO<sub>x</sub>, CO, and O<sub>2</sub> measurements, (2) the O<sub>2</sub> concentration in percent and the measured NO<sub>x</sub> and CO concentrations corrected to 15% O<sub>2</sub>, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rule 2201]
22. {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]
23. The diesel particulate filter (DPF) shall be operated and maintained according to the DPF manufacturer's specifications, procedures, and recommended inspection and cleaning frequencies. [District Rule 2201]
24. The permittee shall maintain records of: (1) the date and time of DPF inspection, and (2) the date and time of DPF cleaning. [District Rules 1070 and 2201]
25. {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]
26. {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]
27. {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]
28. The permittee shall maintain an engine operating log to demonstrate compliance. The engine operating log shall include, on a monthly basis, the following information: total hours of operation, type of fuel used, maintenance or modifications performed, monitoring data, compliance source test results, and any other information necessary to demonstrate compliance with the permit limits. [District Rules 1070 and 2201]
29. {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]
30. This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 100 hours per calendar year. [District Rules 2201, 4102, and 4702, and 17 CCR 93115]
31. {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]
32. {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]

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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: 4/29/2022**  
**Emergency Diesel-Fired IC Engine > 50 bhp Powering an Electrical Generator**

Pollutant	Achieved in Practice or in the SIP	Technologically Feasible	Alternate Basic Equipment
CO	EPA Tier 4 Final certification level or equivalent for applicable horsepower range**		
NOX	EPA Tier 4 Final certification level or equivalent for applicable horsepower range**		
PM10	EPA Tier 4 Final certification level or equivalent for applicable horsepower range**		
SOX	Very low sulfur diesel fuel (15 ppmw sulfur or less)		
VOC	EPA Tier 4 Final certification level or equivalent for applicable horsepower range**		

*\*\*The following emission levels are equivalent to the EPA Tier 4 Final certification levels: 50 - < 75 bhp: 3.5 g-(NOx + VOC)/bhp-hr, 0.02 g-PM/bhp-hr, 3.7 g-CO/bhp-hr 75 - < 175 bhp: 0.30 g-NOx/bhp-hr, 0.015 g-PM/bhp-hr, 3.7 g-CO/bhp-hr, 0.14 g-VOC/bhp-hr 175 - = 750 bhp: 0.30 g-NOx/bhp-hr, 0.015 g-PM/bhp-hr, 2.6 g-CO/bhp-hr, 0.14 g-VOC/bhp-hr > 750 bhp: 0.50 g-NOx/bhp-hr, 0.02 g-PM/bhp-hr, 2.6 g-CO/bhp-hr, 0.14 g-VOC/bhp-hr*

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.

## Top Down BACT Analysis for the Emergency IC Engine

This application was deemed complete on [October 4, 2022](#). Therefore, BACT Guideline 3.1.1 (4/29/2022) 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>](#) and [VOC](#) Emissions:

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

BACT Guideline 3.1.1 identifies only the following option:

- *EPA Tier 4 Final Certification level for applicable horsepower range*

#### 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 [NO<sub>x</sub>](#) and [VOC](#) will be the use of an engine with verified EPA Tier 4 Final emission rates. The applicant is proposing such a unit. Therefore, BACT will be satisfied.

Appendix C  
Emissions Data Sheet

**Application & Performance Warranty Data****Project Information**

Site Location: California  
 Project Name: SD/MD500 - Tier 4  
 Application: Standby Power  
 Number Of Engines: 1  
 Operating Hours per Year: 200

**Engine Specifications**

Engine Manufacturer: Generac  
 Model Number: SD500  
 Rated Speed: 1800 RPM  
 Type of Fuel: Ultra-Low Sulfur Diesel (ULSD)  
 Type of Lube Oil: 1 wt% sulfated ash or less  
 Lube Oil Consumption: 0.1 % Fuel Consumption  
 Number of Exhaust Manifolds: 1

**Engine Cycle Data**

Load	Speed	Power	Exhaust Flow	Exhaust Temp.	Fuel Cons.	NO <sub>x</sub>	CO	NMNEHC	PM <sub>10</sub>	O <sub>2</sub>	H <sub>2</sub> O
%		kW	acfm (cfm)	° F	gal/hr	g/bhp-hr	g/bhp-hr	g/bhp-hr	g/bhp-hr	%	%
100	Rated	500	3,955	977	38.3	3.07	0.47	0.35	0.02	10	12.5

**Emission Data (100% Load)**

Emission	Raw Engine Emissions						Target Outlet Emissions						Calculated Reduction
	g/bhp-hr	tons/yr	ppmvd @ 15% O <sub>2</sub>	ppmvd	g/kW-hr	lb/MW-hr	g/bhp-hr	tons/yr	ppmvd @ 15% O <sub>2</sub>	ppmvd	g/kW-hr	lb/MW-hr	
NO <sub>x</sub>	3.07	0.45	270	498	4.117	9.08	0.3	0.04	26	48	0.4	0.88	90.3%
CO	0.47	0.07	68	125	0.63	1.39	2.61	0.39	377	696	3.5	7.72	
NMNEHC	0.35	0.05	88	163	0.469	1.03	0.14	0.02	36	66	0.19	0.42	59.5%
PM <sub>10</sub>	0.02	0	7	12	0.027	0.06	0.01	0	5	9	0.02	0.04	25.9%

**System Specifications****SCR/DOC/DPF System Specifications (CBL16-14-TBD, SP-LTR15-TBD-R1, ACIS-BLU, Commissioning & Startup, MS-BLU-10-14-3)**

SCR Catalyst Space Velocity: 7,492 1/hr  
 Sound Attenuation: Critical Grade  
 Reactant: Urea  
 Percent Concentration: 32.5%  
 Design Exhaust Flow Rate: 3,955 acfm (cfm)  
 Design Exhaust Temperature<sup>1</sup>: 977° F  
 Exhaust Temperature Limits: 572° F – 977° F  
 Minimum Regeneration Temperature<sup>2</sup>: 500° F  
 SCR Catalyst Volume: 11 ft<sup>3</sup>  
 System Dosing Capacity: 10 L/hr  
 System Pressure Loss: 15.0 inH<sub>2</sub>O (Clean)  
 Total Catalyst Volume: 11 ft<sup>3</sup>  
 Estimated Reactant Consumption: 1.5 gal/hr (6 L/hr) / Per Engine

7/15/22

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

# San Joaquin Valley Air Pollution Control District

## Risk Management Review and Ambient Air Quality Analysis

To: Tim Bush – Permit Services

From: Brant A Botill – Technical Services

Date: February 21, 2023

Facility Name: CHILDRENS HOSPITAL OF CENTRAL CALIFORNIA

Location: 9300 VALLEY CHILDREN’S PL, MADERA

Application #(s): C-2902-14-0

Project #: C-1223500

### 1. Summary

#### 1.1 Risk Management Review (RMR)

Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required	Special Permit Requirements
14-0	0.05	N/A <sup>1</sup>	0.00	7.02E-08	No	Yes
<b>Project Totals</b>	0.05	N/A <sup>1</sup>	0.00	7.02E-08		
<b>Facility Totals</b>	>1	0.64	0.35	1.96E-05		

Notes:

- Acute and chronic hazard indices were not calculated for Unit 14 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 Ambient Air Quality Analysis (AAQA)

Pollutant	Air Quality Standard (State/Federal)				
	1 Hour	3 Hours	8 Hours	24 Hours	Annual
<b>CO</b>	N/A <sup>2</sup>		N/A <sup>2</sup>		
<b>NO<sub>x</sub></b>	N/A <sup>2</sup>				Pass
<b>SO<sub>x</sub></b>	N/A <sup>2</sup>	N/A <sup>2</sup>		N/A <sup>2</sup>	Pass
<b>PM10</b>				N/A <sup>2</sup>	Pass <sup>4</sup>
<b>PM2.5</b>				N/A <sup>2</sup>	Pass <sup>5</sup>
<b>Ozone</b>	N/A <sup>2</sup>		N/A <sup>2</sup>		

Notes:

- Results were taken from the attached AAQA Report.
- 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.
- The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2) unless otherwise noted.
- Modeled PM10 concentrations were below the District SIL for non-fugitive sources of 1 µg/m<sup>3</sup> for the annual concentration.
- 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 # 14-0

1. The PM<sub>10</sub> emissions rate shall not exceed 0.02 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.

**T-BACT is required for this unit because of emissions of Diesel Particulate Matter which is a PM10.**

## 2. Project Description

Technical Services received a request to perform a Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA) for the following:

- Unit -14-0: 762 BHP (INTERMITTENT) PERKINS MODEL 2506C-E15TAG3 TIER 4F VERIFIED EMISSIONS DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR

## 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 units', 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 a 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 one in a million, Toxic Best Available Control Technology (TBACT) must be implemented.

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

- Particulate matter (PM10) emissions for the proposed diesel internal combustion engine was provided by the Permit Engineer. Per OEHHA guidance, all diesel exhaust PM10 is evaluated as diesel particulate matter (CAS# 9901)).

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 2013-2017 from Fresno (rural dispersion coefficient selected) 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:

Source Process Rates					
Unit ID	Process ID	Process Material	Process Units	Hourly Process Rate	Annual Process Rate
14-0	1	Diesel PM10	Lbs	0.02	2.0

Point Source Parameters						
Unit ID	Unit Description	Release Height (m)	Temp. (°K)	Exit Velocity (m/sec)	Stack Diameter (m)	Vertical/Horizontal/Capped
14-0	762 BHP DICE	1.71	823	147.35	0.13	Vertical

#### 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:

Monitoring Stations				
Pollutant	Station Name	County	City	Measurement Year
CO	Clovis-Villa	Fresno	Clovis	2018
NOx	Clovis-Villa	Fresno	Clovis	2018
PM10	Clovis-Villa	Fresno	Clovis	2018
PM2.5	Clovis-Villa	Fresno	Clovis	2018
SOx	Fresno - Garland	Fresno	Fresno	2018

Technical Services performed modeling for directly emitted criteria pollutants with the emission rates below:

Emission Rates (lbs/hour)*						
Unit ID	Process	NOx	SOx	CO	PM10	PM2.5
14-0	1	0.00	0.00	0.00	0.00	0.00

\* 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.

Emission Rates (lbs/year)						
Unit ID	Process	NOx	SOx	CO	PM10	PM2.5
14-0	1	49	1.00	438	2.00	2.00

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 2013-2017 from Fresno (rural dispersion coefficient selected) were used for the analysis:

The following parameters were used for the review:

Point Source Parameters						
Unit ID	Unit Description	Release Height (m)	Temp. (°K)	Exit Velocity (m/sec)	Stack Diameter (m)	Vertical/Horizontal/Capped
14	762 BHP DICE	1.71	823	147.35	0.13	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. However, the cancer risk for one or more units in this project is greater than 1.0 in a million. **In accordance with the District's Risk Management Policy, the project is approved with Toxic Best Available Control Technology (T-BACT).**

To ensure that human health risks will not exceed District allowable levels; the permit 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. Prioritization score w/ toxic emissions summary
- D. Facility Summary
- E. 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:

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

QNEC		
Pollutant	PE2 Total (lb/yr)	Quarterly PE2 (lb/qtr)
NO <sub>x</sub>	49	12.25
SO <sub>x</sub>	1	0.25
PM <sub>10</sub>	2	0.50
CO	438	109.50
VOC	24	6.00

# Appendix F

## SSPE1 Calculations

**C-2902-1-0: 292 Bhp Diesel-Fired Emergency Standby IC Engine**

**Assumptions:**

Non-emergency operating schedule: 40 hours/year, per current PTO  
 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/hp·hr  
 Thermal efficiency of engine: commonly ≈ 35%  
 PM<sub>10</sub> fraction of diesel exhaust: 0.96 (CARB, 1988)

**Emission Factors:**

The emission factors for the engine are listed in the table below.

<b>Diesel-fired IC Engine Emission Factors</b>		
	<b>g/hp·hr*</b>	<b>Source</b>
NO <sub>x</sub>	6.41	Current PTO C-2902-1-0
SO <sub>x</sub>	0.0051	Mass Balance Equation Below
PM <sub>10</sub>	0.475	Rule 4201 Compliance
CO	3.04	AP-42 (10/96) Table 3.3-1
VOC	1.14	AP-42 (10/96) Table 3.3-1

\*g/hp·hr is calculated using the lb/hp·hr value multiplied by 453.6 g/lb.

$$\frac{0.000015 \text{ lb} - S}{\text{lb} - \text{fuel}} \times \frac{7.1 \text{ lb} - \text{fuel}}{\text{gallon}} \times \frac{2 \text{ lb} - SO_2}{1 \text{ lb} - S} \times \frac{1 \text{ gal}}{137,000 \text{ Btu}} \times \frac{1 \text{ bhp input}}{0.35 \text{ bhp out}} \times \frac{2,542.5 \text{ Btu}}{\text{bhp} - \text{hr}} \times \frac{453.6 \text{ g}}{\text{lb}} = \frac{0.005}{1} \frac{\text{g} - SO_x}{\text{bhp} - \text{hr}}$$

**Calculations:**

<b>Annual Potential to Emit (PE) C-2902-1-0</b>						
NO <sub>x</sub>	6.41	(g/hp·hr) x	292	(hp) x	40	(hr/year) ÷ 453.6 (g/lb) = <b>165</b> (lb/year)
SO <sub>x</sub>	0.0051	(g/hp·hr) x	292	(hp) x	40	(hr/year) ÷ 453.6 (g/lb) = <b>0</b> (lb/year)
PM <sub>10</sub>	0.475	(g/hp·hr) x	292	(hp) x	40	(hr/year) ÷ 453.6 (g/lb) = <b>12</b> (lb/year)
CO	3.04	(g/hp·hr) x	292	(hp) x	40	(hr/year) ÷ 453.6 (g/lb) = <b>78</b> (lb/year)
VOC	1.14	(g/hp·hr) x	292	(hp) x	40	(hr/year) ÷ 453.6 (g/lb) = <b>29</b> (lb/year)



**C-2902-2-3, -3-3 & -4-3: Three 19.95 MMBtu/hr Natural Gas-Fired Boilers**

**Annual PE2:**

**Assumptions:**

The facility is to limit total maximum annual heat input for all three boilers to 300,000 MMBtu/year for combined primary and back-up fuel usage under this project. The emission factors for NOx and PM10 are higher when the boilers are fired on fuel oil #2. For those pollutants, the highest emissions will occur when fuel oil is used in permit unit C-2902-3 & -4 for 216 hr/year in each boiler and the remaining portion is fired on natural gas. The emission factors for SOx, CO and VOC are higher for natural gas than fuel oil #2, and the highest emissions would occur when the boilers are fired on natural gas fuel for the maximum allowed heat input limit.

**Calculations:**

Annual Post-Project Potential to Emit (PE2) Combined For Three Boilers								
Pollutant	Primary Fuel Combustion			Back-up Fuel Combustion				Total
	Emission Factors	Operation schedule	PE2	Rating	Emission Factors	Operation schedule	PE2	Annual PE2
	lb/MMBtu	MMBtu/year	lb/year	MMBtu/hr	lb/MMBtu	hr/year	lb/year	lb/year
<b>NO<sub>x</sub></b>	0.011	291,382	3,205	19.95	0.176	432	1,517	<b>4,722</b> (lb-NO <sub>x</sub> /year)
<b>SO<sub>x</sub></b>	0.00285	300,000	855	19.95	0.0016	0	0	<b>855</b> (lb-SO <sub>x</sub> /year)
<b>PM<sub>10</sub></b>	0.0136	291,382	3,963	19.95	0.014	432	121	<b>4,083</b> (lb-PM <sub>10</sub> /year)
<b>CO</b>	0.148	300,000	44,400	19.95	0.07	0	0	<b>44,400</b> (lb-CO/year)
<b>VOC</b>	0.004	300,000	1,200	19.95	0.0018	0	0	<b>1,200</b> (lb-VOC/year)

**C-2902-5-0, -6-0, -7-0 & -8-0: Four 1,818 Bhp Diesel-Fired Emergency Standby IC Engines**

**Assumptions:**

Non-emergency operating schedule: 40 hours/year, per current PTO  
 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/hp·hr  
 Thermal efficiency of engine: commonly ≈ 35%  
 PM<sub>10</sub> fraction of diesel exhaust: 0.96 (CARB, 1988)

**Emission Factors:**

The emission factors for the engine are listed in the table below.

<b>Diesel-fired IC Engine Emission Factors</b>		
	<b>g/hp·hr*</b>	<b>Source</b>
NO <sub>x</sub>	10.00	Carl Moyer Program
SO <sub>x</sub>	0.0051	Mass Balance Equation Below
PM <sub>10</sub>	0.475	Rule 4201 Compliance
CO	3.04	AP-42 (10/96) Table 3.3-1
VOC	1.14	AP-42 (10/96) Table 3.3-1

\*g/hp·hr is calculated using the lb/hp·hr value multiplied by 453.6 g/lb.

$$\frac{0.000015 \text{ lb-S}}{\text{lb-fuel}} \times \frac{7.1 \text{ lb-fuel}}{\text{gallon}} \times \frac{2 \text{ lb-SO}_2}{1 \text{ lb-S}} \times \frac{1 \text{ gal}}{137,000 \text{ Btu}} \times \frac{1 \text{ bhp input}}{0.35 \text{ bhp out}} \times \frac{2,542.5 \text{ Btu}}{\text{bhp-hr}} \times \frac{453.6 \text{ g}}{\text{lb}} = \frac{0.005}{1} \frac{\text{g-SO}_x}{\text{bhp-hr}}$$

**Calculations:**

Calculations presented in the table below are typical for one engine:

<b>Annual Potential to Emit (PE) C-2902-5-0 to -8-0</b>						
NO <sub>x</sub>	10.00	(g/hp·hr) x	1,818	(hp) x	40	(hr/year) ÷ 453.6 (g/lb) = <b>1,603</b> (lb/year)
SO <sub>x</sub>	0.0051	(g/hp·hr) x	1,818	(hp) x	40	(hr/year) ÷ 453.6 (g/lb) = <b>1</b> (lb/year)
PM <sub>10</sub>	0.475	(g/hp·hr) x	1,818	(hp) x	40	(hr/year) ÷ 453.6 (g/lb) = <b>76</b> (lb/year)
CO	3.04	(g/hp·hr) x	1,818	(hp) x	40	(hr/year) ÷ 453.6 (g/lb) = <b>487</b> (lb/year)
VOC	1.14	(g/hp·hr) x	1,818	(hp) x	40	(hr/year) ÷ 453.6 (g/lb) = <b>183</b> (lb/year)

**C-2902-9-0: 98.4 Bhp Diesel-Fired Emergency Standby IC Engine**

**Assumptions:**

- Non-emergency operating schedule: 40 hours/year, per current ATC
- 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/hp·hr
- Thermal efficiency of engine: commonly ≈ 35%
- PM<sub>10</sub> fraction of diesel exhaust: 0.96 (CARB, 1988)

**Emission Factors:**

The emission factors for the engine are listed in the table below.

Diesel-fired IC Engine Emission Factors		
	g/hp·hr*	Source
NO <sub>x</sub>	11.86	Current PTO C-2902-9-0
SO <sub>x</sub>	0.0051	Mass Balance Equation Below
PM <sub>10</sub>	0.475	Rule 4201 Compliance
CO	3.04	AP-42 (10/96) Table 3.3-1
VOC	1.14	AP-42 (10/96) Table 3.3-1

\*g/hp·hr is calculated using the lb/hp·hr value multiplied by 453.6 g/lb.

$$\frac{0.000015 \text{ lb-S}}{\text{lb-fuel}} \times \frac{7.1 \text{ lb-fuel}}{\text{gallon}} \times \frac{2 \text{ lb-SO}_2}{1 \text{ lb-S}} \times \frac{1 \text{ gal}}{137,000 \text{ Btu}} \times \frac{1 \text{ bhp input}}{0.35 \text{ bhp out}} \times \frac{2,542.5 \text{ Btu}}{\text{bhp-hr}} \times \frac{453.6 \text{ g}}{\text{lb}} = \frac{0.005}{1} \frac{\text{g-SO}_x}{\text{bhp-hr}}$$

### Calculations:

Annual Potential to Emit (PE) C-2902-9-0						
NO <sub>x</sub>	11.86	(g/hp·hr) x	98.4	(hp) x	40	(hr/year) ÷ 453.6 (g/lb) = <b>103</b> (lb/year)
SO <sub>x</sub>	0.0051	(g/hp·hr) x	98.4	(hp) x	40	(hr/year) ÷ 453.6 (g/lb) = <b>0</b> (lb/year)
PM <sub>10</sub>	0.475	(g/hp·hr) x	98.4	(hp) x	40	(hr/year) ÷ 453.6 (g/lb) = <b>4</b> (lb/year)
CO	3.04	(g/hp·hr) x	98.4	(hp) x	40	(hr/year) ÷ 453.6 (g/lb) = <b>26</b> (lb/year)
VOC	1.14	(g/hp·hr) x	98.4	(hp) x	40	(hr/year) ÷ 453.6 (g/lb) = <b>10</b> (lb/year)

**C-2902-13-0: 248 Bhp Diesel-Fired Emergency Standby IC Engine**

**Assumptions:**

Non-emergency operating schedule: 100 hours/year, per current PTO  
 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/hp·hr  
 Thermal efficiency of engine: commonly ≈ 35%  
 PM<sub>10</sub> fraction of diesel exhaust: 0.96 (CARB, 1988)

**Emission Factors:**

The emission factors for the engine are listed in the table below.

<b>Diesel-fired IC Engine Emission Factors</b>		
	<b>g/hp·hr*</b>	<b>Source</b>
NO <sub>x</sub>	0.082	ATC C-2902-13-0
SO <sub>x</sub>	0.0051	Mass Balance Equation Below
PM <sub>10</sub>	0.013	ATC C-2902-13-0
CO	0.06	ATC C-2902-13-0
VOC	0.005	ATC C-2902-13-0

\*g/hp·hr is calculated using the lb/hp·hr value multiplied by 453.6 g/lb.

$$\frac{0.000015 \text{ lb-S}}{\text{lb-fuel}} \times \frac{7.1 \text{ lb-fuel}}{\text{gallon}} \times \frac{2 \text{ lb-SO}_2}{1 \text{ lb-S}} \times \frac{1 \text{ gal}}{137,000 \text{ Btu}} \times \frac{1 \text{ bhp input}}{0.35 \text{ bhp out}} \times \frac{2,542.5 \text{ Btu}}{\text{bhp-hr}} \times \frac{453.6 \text{ g}}{\text{lb}} = \frac{0.005}{1} \frac{\text{g-SO}_x}{\text{bhp-hr}}$$

**Calculations:**

<b>Annual Potential to Emit (PE) C-2902-13-0</b>						
NO <sub>x</sub>	0.082	(g/hp·hr) x	248	(hp) x	100	(hr/year) ÷ 453.6 (g/lb) = <b>4</b> (lb/year)
SO <sub>x</sub>	0.0051	(g/hp·hr) x	248	(hp) x	100	(hr/year) ÷ 453.6 (g/lb) = <b>0</b> (lb/year)
PM <sub>10</sub>	0.013	(g/hp·hr) x	248	(hp) x	100	(hr/year) ÷ 453.6 (g/lb) = <b>1</b> (lb/year)
CO	0.06	(g/hp·hr) x	248	(hp) x	100	(hr/year) ÷ 453.6 (g/lb) = <b>3</b> (lb/year)
VOC	0.005	(g/hp·hr) x	248	(hp) x	100	(hr/year) ÷ 453.6 (g/lb) = <b>0</b> (lb/year)

<b>SSPE1 (lb/year)</b>					
<b>Permit Unit</b>	<b>NO<sub>x</sub></b>	<b>SO<sub>x</sub></b>	<b>PM<sub>10</sub></b>	<b>CO</b>	<b>VOC</b>
C-2902-1-0	165	0	12	78	29
C-2902-2-3	4,722	855	4,083	44,400	1,200
C-2902-3-3					
C-2902-4-3					
C-2902-5-0	1,603	1	76	487	183
C-2902-6-0	1,603	1	76	487	183
C-2902-7-0	1,603	1	76	487	183
C-2902-8-0	1,603	1	76	487	183
C-2902-9-0	103	0	4	26	10
C-2902-9-0	4	0	1	3	0
<b>SSPE1</b>	<b>11,406</b>	<b>859</b>	<b>4,404</b>	<b>46,455</b>	<b>1,971</b>