

**ENGINEERING EVALUATION**  
**Facility ID No. 11308**  
**Petaluma Valley Hospital**  
**400 North McDowell Blvd., Petaluma, CA 94954**  
**Application No. 719551**

**Background**

Petaluma Valley Hospital (“facility” hereafter) is applying for an Authority to Construct (ATC)/Permit to Operate (PTO) for the following equipment:

**S-10 Emergency Standby Diesel Generator**  
**Engine Make: Caterpillar, Model: C18, Model Year: 2025,**  
**EPA Family Name: RCPXL18.1NYS, 900 bhp, 5.77 MMBtu/hr**

**Abated by**

**A-10 Rypos Active Diesel Particulate Filter (DPF), Model: Rypos Active**  
**DPF/C3+™ System, CARB Certified per Executive Order DE-13-002-07**

**S-11 Emergency Standby Diesel Generator**  
**Engine Make: Caterpillar, Model: C18, Model Year: 2025,**  
**EPA Family Name: RCPXL18.1NYS, 900 bhp, 5.77 MMBtu/hr**

**Abated by**

**A-11 Rypos Active Diesel Particulate Filter (DPF), Model: Rypos Active**  
**DPF/C3+™ System, CARB Certified per Executive Order DE-13-002-07**

The facility has also requested to archive the following two sources:

**S-6 Emergency Standby Diesel Generator, Cummins Model KTA1150GA, 560**  
**BHP, 400 kW**

**S-7 Emergency Standby Diesel Generator, Detroit Disel Model 16V-92T, 540**  
**BHP, 385 kW**

On November 26, 2024, the facility submitted this application to install two identical emergency standby diesel generators (S-10 and S-11). The project involves removing two existing non-operational emergency generators (S-6 and S-7) and replacing them with the new units at the same location.

Both S-10 and S-11 are 900 bhp, Tier 2 EPA-Certified, model year 2025, diesel-fired engines. S-10 and S-11 will be able to operate unrestricted during emergency use events. The engines will be limited to a maximum of 50 hours per year for maintenance and testing. The criteria pollutants associated with the source are nitrogen oxides (NO<sub>x</sub>),

carbon monoxide (CO), precursor organic compounds (POC), sulfur dioxide (SO<sub>2</sub>), and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>). The Rypos DPF is CARB certified per Executive Order DE-13-002-07, which verifies that the DPF reduces emissions of diesel PM by greater than or equal to 85%. Therefore, an 85% abatement efficiency is applied to the PM emission factor.

S-10 and S-11 meet the Environmental Protection Agency and California Air Resources Board (EPA/CARB) Tier 2 Off-road standards. The engines will burn commercially available California low sulfur diesel fuel. The sulfur content of the diesel fuel will not exceed 0.0015% by weight.

**Emissions Calculation**

**Table 1. Engine Specification and EPA Certified Emission Factors for S-10 and S-11**

Engine Manufacturer	Caterpillar
Model	C18
Model Year	2024
Family Name	RCPXL18.1NYS
Engine Power Rating, hp	900 bhp (671 kW)
Fuel Consumption, gal/hr	42.1
Displacement, L	18.12
NO <sub>x</sub> , g/kW-hr (g/hp-hr)	5.42 (4.04)
Non-Methane Hydrocarbon (NMHC), g/kW-hr (g/hp-hr)	0.13 (0.10)
CO, g/kW-hr (g/hp-hr)	0.90 (0.67)
PM, g/kW-hr (g/hp-hr)	0.05 (0.04)

1. Emission factors converted assuming 1kW = 1.341 hp
2. S-10 and S-11 are identical emergency generators.

**Table 2. Annual and Daily Emissions from EPA/CARB Certified Data for S-10**

Pollutant	Emission Factor (g/bhp-hr)	Max Daily Emissions <sup>1</sup> (lb/day)	Annual Emissions (lb/year)	Annual Emissions <sup>2</sup> (ton/year)
NO <sub>x</sub>	4.04	192.21	400.80	0.200
POC	0.10	4.76	9.92	0.005
CO	0.67	31.88	66.47	0.033
PM <sub>10</sub> /PM <sub>2.5</sub> <sup>3,4</sup>	0.006	0.29	0.60	0.000
SO <sub>2</sub> <sup>5</sup>	0.006	0.26	0.54	0.000

Note: S-11 is an identical engine, therefore, annual and daily emissions are the same as S-10.

Basis:

- <sup>1</sup>Max daily emissions: Assume 24-hour operation:

$$4.04 \frac{g \text{ NO}_x}{bhp - hr} * 900 \text{ bhp} * \frac{24 \text{ hr}}{\text{day}} * \frac{1 \text{ lb}}{454 \text{ g}} = 192.21 \frac{\text{lb of NO}_x}{\text{day}}$$

- <sup>2</sup> Annual emissions: Reliability-related activity, 50 hours is permissible for S-10 and S-11.
- <sup>3</sup> Conservative Assumption: All PM<sub>10</sub> emissions are equal to PM<sub>2.5</sub> emissions.
- <sup>4</sup>85% abatement efficiency is applied to the PM emission factors from the Rypos DPF.
- <sup>5</sup>SO<sub>2</sub> emission factor from AP-42 Table 3.4-1

CARB Diesel Sulfur Content = 15 ppm = 0.0015%

$$SO_2 \text{ Emission Factor } \left( \frac{g}{hp-hr} \right) = 8.09E-03 \times 0.0015 \times 454 \frac{g}{lb}$$

$$= 0.006 \frac{g}{hp-hr}$$

S-10 and S-11 meet Airborne Toxic Control Measure (ATCM) Emission Standards of engine power greater than 750 bhp. Reference: Title 17, California Code of Regulations Section 93115.6, ATCM, May 19, 2011, shown below.

**Figure 1. Emission Standard for New Stationary Emergency Standby Diesel-Fueled CI Engines**

Maximum Engine Power	Model year(s)	PM	NMHC+NOx	CO
50 ≤ HP < 75 (37 ≤ kW < 56)	2007	0.15 (0.20)	5.6 (7.5) 3.5 (4.7)	3.7 (5.0)
	2008+			
75 ≤ HP < 100 (56 ≤ kW < 75)	2007	0.15 (0.20)	5.6 (7.5) 3.5 (4.7)	3.7 (5.0)
	2008+			
100 ≤ HP < 175 (75 ≤ kW < 130)	2007	0.15 (0.20)	3.0 (4.0)	3.7 (5.0)
	2008+			
175 ≤ HP < 300 (130 ≤ kW < 225)	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
	2008+			
300 ≤ HP < 600 (225 ≤ kW < 450)	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
	2008+			
600 ≤ HP < 750 (450 ≤ kW < 560)	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
	2008+			
HP > 750 (kW > 560)	2007	0.15 (0.20)	4.8 (6.4)	2.6 (3.5)
	2008+			

**Plant Cumulative Increase**

Table 3 summarizes the criteria air pollutant emissions that will result from this application.

**Table 3. Plant Cumulative Emissions Increase, Post 4/5/91**

Pollutant	Existing Emissions Post 4/5/91 (tons/yr)	S-10 Emissions (tons/yr)	S-11 Emissions (tons/yr)	Application Emissions (tons/yr)	Cumulative Emissions (tons/yr)
NOx	0.873	0.200	0.200	0.401	1.274
POC	0.106	0.005	0.005	0.010	0.116

<b>Pollutant</b>	<b>Existing Emissions Post 4/5/91 (tons/yr)</b>	<b>S-10 Emissions (tons/yr)</b>	<b>S-11 Emissions (tons/yr)</b>	<b>Application Emissions (tons/yr)</b>	<b>Cumulative Emissions (tons/yr)</b>
CO	0.982	0.033	0.033	0.066	1.048
PM <sub>10</sub> /PM <sub>2.5</sub>	0.017	0.000	0.000	0.001	0.018
SO <sub>2</sub>	0.007	0.000	0.000	0.001	0.007

1. As part of this project S-6 and S-7 were shutdown.

**Toxics Emissions for Health Risk Assessment (HRA)**

At a maximum rate of 0.595 lb/year per engine (1.19 lb/yr total), the diesel particulate emissions from the project are greater than the toxic trigger level of 0.26 lb/year. All PM<sub>10</sub> emissions are considered diesel particulate emissions. The PM emissions from this application are summarized in Table 2.

A project shall include those new or modified sources of toxic air contaminants (TACs) at a facility that have been permitted within the five-year period immediately preceding the date a complete application is received. There are no other related projects permitted in the last five years.

Since the diesel particulate emissions from the project are greater than the toxic trigger level of 0.26 lb/year, an HRA is required. This application qualifies for a streamlined HRA. The nearest receptor is located between 300-800 feet from the proposed engines locations and the facility is not located in an Overburdened Community (OBC); therefore, the maximum diesel PM emissions to qualify for HRA streamlining is 10 lb/year.

S-10 and S-11 are subject to the District’s HRA streamlining policy for stationary Diesel-fuel combustion engines used for backup power or fire pumps. The HRA streamlining Microsoft Excel Spreadsheet checklist shows that a refined HRA is not required for this permit application.

**Best Available Control Technology (BACT)**

In accordance with Regulation 2-2-301, BACT is triggered for any new or modified source with the potential to emit 10 pounds or more per highest day of POC, NPOC, NO<sub>x</sub>, CO, SO<sub>2</sub>, or PM<sub>10</sub> /PM<sub>2.5</sub>.

Per Section 2-2-202, BACT is defined as an emission limitation, control device, or control technique applied at a source that is the most stringent of:

- the most effective device or technique successfully utilized,
- the most stringent emission limitation achieved by an emission control device or technique for the type of equipment comprising such a source,
- the most effective emission control limitation for the type of equipment comprising such a source that is contained in an approved implementation plan of any state, or
- the most effective control device or technique or most stringent emission limitation that is technologically feasible, taking into consideration cost-

effectiveness, any ancillary health and environmental impacts, and energy requirements.

These requirements are generally categorized as either technologically feasible and cost-effective (termed “BACT 1”) or achieved-in-practice (termed “BACT 2”).

BACT 2 is either equal to or less stringent than BACT 1. Because achieved-in-practice is required regardless of cost and BACT 1 is more stringent than BACT 2, an evaluation for what has been achieved-in-practice is first conducted.

#### *Achieved-in-Practice*

Achieved-in-practice BACT is presented in the current BAAQMD BACT/ Best Available Control Technology for Toxics (TBACT) Workbook for IC Engine – Compression Ignition: Stationary Emergency, non-Agricultural, non-direct drive fire pump 50 BHP and < 1000 BHP Output, Document #96.1.3, Revision 8, dated 12/22/2020.

For NO<sub>x</sub> and CO, achieved-in-practice BACT has been determined to be meeting the CARB Air Toxics Control Measure (ATCM) standard for the respective pollutant at the applicable horsepower rating.

#### *Technologically Feasible and Cost-Effective*

The following control technologies and mitigation measures have been found technically feasible for abating NO<sub>x</sub> and CO emissions from internal combustion engines<sup>1</sup>:

- Engine ignition timing retard (achievable NO<sub>x</sub> reduction 20 to 30 percent), and
- Selective catalytic reduction (achievable NO<sub>x</sub> reduction of 90 percent)
- Oxidation Catalyst (achievable CO reduction of 90 percent)

Although Regulation 2-2 does not include a definition for cost-effectiveness, Section 2-2-414 requires the Air District to publish and periodically update a BACT Workbook and that BACT will be determined using the workbook as a guidance document.

Section 1 of the BACT Workbook includes a maximum cost guideline for NO<sub>x</sub> emissions of \$17,500 per ton of emissions reduced. The BACT Workbook does not specify a maximum cost for CO. Therefore, the most recent published cost-effectiveness value from the South Coast Air Quality Management District (SCAQMD), \$807 per ton of CO reduced (Q4 2023), will be used as a reference.

Using these maximum cost effectiveness values and assuming that 90 percent of the emissions in Table 2 could be abated, maximum annualized costs for NO<sub>x</sub> controls could not exceed \$3,150 to be deemed cost-effective.

$$\text{Maximum NO}_x \text{ Control Cost} = 17,500 \frac{\$}{\text{ton}} \times 0.200 \frac{\text{ton}}{\text{yr}} \times 0.90 = \$3,150$$

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<sup>1</sup> United States Environmental Protection Agency. Control Techniques Guidelines for Alternative Control Techniques Document – NO<sub>x</sub> Emissions from Stationary Reciprocating Internal Combustion Engines. EPA-453/R-93-032. July 1993. Updated September 2000.

The maximum annualized costs for CO controls could not exceed \$23.97 to be deemed cost-effective.

$$\text{Maximum CO Control Cost} = 807 \frac{\$}{\text{ton}} \times 0.033 \frac{\text{ton}}{\text{yr}} \times 0.90 = \$23.97$$

All NOx and CO controls are expected to exceed maximum annualized costs. Therefore, requiring more stringent controls than meeting achieved-in-practice requirements is deemed not cost-effective.

Consequently, S-10 and S-11 are required to comply with the current achieved-in-practice standards:

Pollutant	Emission Factor	BACT(2) Standard
NOx	4.04 g/bhp-hr	4.56 g/bhp-hr
CO	0.90 g/bhp-hr	2.6 g/bhp-hr

Note: The standard is expressed as non-methane hydrocarbons (NMHC) + NOx. NOx is estimated to be 95% of the combined standard.

**Offsets**

Offset must be provided for any new or modified source at a facility that will have the potential to emit more than 10 tons per year of NOx or POC, as specified in Regulation 2-2-302; 100 tons per year or more of PM<sub>2.5</sub>, PM<sub>10</sub> or SO<sub>2</sub>, as specified in Regulation 2-2-303.

In accordance with the Air District’s Policy for Calculating Potential to Emit (PTE) for Emergency Backup Power Generators, the PTE for S-10 and S-11 was estimated assuming 150 hours of operation per year (50 hours per year for reliability-related and testing operation + 100 hours per year for emergency operation).

**Table 4. Potential to Emit for FID 11308**

Pollutant	Existing Annual Emissions <sup>1</sup> (TPY)	Application Annual Emissions <sup>2</sup> (TPY)	Facility Annual Emissions (TPY)	Offset Requirement (TPY)	Offsets Required
NOx	0.873	1.202	2.075	>10	N
POC	0.106	0.030	0.136	>10	N
CO	0.982	0.199	1.181	-	N
PM <sub>10</sub> /PM <sub>2.5</sub>	0.017	0.002	0.019	≥100	N
SO <sub>2</sub>	0.007	0.002	0.008	≥100	N

1. Existing emissions include the following:
  - a. Registered boiler (S-1): Emissions from Application 30506, based on operation of 24 hours/day and 365 days/year.
  - b. Loss of exemption emergency engine (S-8): Emissions from Application 4448, based on Reliability-related activity of 20 hours. For the sake of the current PTE analysis, the

reliability-related emissions have been conservatively based on 50 hr/yr and emergency operation of 100 hours.

2. Annual emissions: Reliability-related activity of 50 hours and emergency operation of 100 hours for S-10 and S-11.

Since the facility's potential to emit is below the offsets trigger levels specified in Regulation 2-2, offsets are not required.

### **Statement of Compliance**

The owner/operator is expected to comply with all applicable requirements. Key requirements are listed below:

#### **Regulation 1**

The engines are subject to and expected to be in compliance with the requirements of Regulation 1-301 (Public Nuisance).

#### **Regulation 2, Rule 1**

Pursuant to Regulation 2-1-114.2.1, internal combustion engines greater than 50 hp are subject to the requirements of Regulation 2-1. According to Regulation 2-1-301, prior to the installation of the equipment, an ATC must be obtained. The facility has submitted an application and is expected to be in compliance with Regulation 2-1.

***California Environmental Quality Act (CEQA):*** This permit application is categorically exempt from CEQA because the project has no potential for causing a significant adverse environmental impact. In addition, the application is categorically exempt from CEQA under CEQA Guidelines Section 15301, Class 1: Existing Facilities (also known as "No or Negligible Expansion of Existing Use" or "Minor Alterations to Existing Facilities"). In making the determination that this application is categorically exempt: 1) the Air District reviewed the CEQA-related information from the applicant in the form of a completed Appendix H form (Regulation 2-1-426-1) indicating that there is no potential for a significant adverse environmental impact from the project.

***School Notification (Regulation 2-1-412):*** The public notification requirements of Regulation 2-1-412 apply to applications which result in any increase in TACs or hazardous air contaminant emissions at facilities within, either 1,000 feet of the boundary of a K-12 school, or located in an OBC. The project is located within 1,000 feet of a school, therefore, the project is subject to the public notification requirements of Regulation 2-1-412. A public notice was prepared and sent to the following school within 1,000 feet of the project:

#### **Loma Vista Immersion Academy Elementary**

207 Maria Dr.  
Petaluma, CA 94954

## **Regulation 2, Rule 2**

**BACT:** Pursuant to Regulation 2-2-301, BACT is required for a new source with potential to emit equal to 10.0 lbs or greater of POC, NPOC, NO<sub>x</sub>, SO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, or CO per day. The engines exceed the BACT threshold for NO<sub>x</sub> and CO. However, as discussed earlier, the engines meet the BACT requirement for NO<sub>x</sub> and CO in accordance with the Air District's BACT/TBACT Workbook.

**Offsets:** Air District Regulation 2-2-302 requires offsets for new or modified sources at a facility that has the potential to emit 10 tpy or more of POC and NO<sub>x</sub>. Air District Regulation 2-2-303 requires offsets for new or modified sources at a facility that has the potential to emit 100 tpy or more of PM<sub>2.5</sub>, PM<sub>10</sub>, and SO<sub>2</sub>. The facility will not exceed 10 tpy of POC or NO<sub>x</sub> and 100 tpy of PM<sub>2.5</sub>, PM<sub>10</sub>, or SO<sub>2</sub> and therefore is not subject to offsets.

**Prevention of Significant Deterioration (PSD):** This facility will not have the potential to emit more than 100 tons per year of any criteria pollutant, therefore this facility is not a "Major Facility" as defined in the Air District Regulation 2-2-217 and is not subject to PSD permitting requirements under Regulation 2-2-304.

## **Regulation 2, Rule 5**

The engines are expected to exceed the diesel exhaust PM trigger level of 0.26 lbs per year. Thus, the provisions of this rule apply to S-10 and S-11.

S-10 and S-11 qualified for a streamlined HRA. The assessment resulted in a maximum cancer risk of 9.9 in a million, the acute hazard index was 0.10 and the chronic hazard index was 0.10. Per Regulation 2-5-301, TBACT applies for any new or modified sources if their cancer risk exceeds 1.0 in a million. S-10 and S-11 meet the Air District's TBACT standard of 0.15 g/bhp-hr for diesel PM as it has a certified PM emission factor of 0.04 g/bhp-hr. This project is in compliance with Regulation 2-5-302 requirements for sources not located within an OBC as defined in Regulation 2-1-243.

## **Regulation 6, Rule 1**

**Ringelmann No. 2 Limitation:** Pursuant to Regulation 6-1-303 a person shall not emit, from an internal combustion engine with less than a 25-liter displacement, for a period or periods aggregating more than three minutes in any hour, a visible emission that is as dark or darker than No. 2 on the Ringelmann Chart, or of such opacity as to obscure an observer's view to an equivalent or greater degree, nor shall said emission, as perceived by an opacity sensing device in good working order, where such device is required by Air District Regulations, be equal to or greater than 40% opacity. The engines are expected to meet the requirements of Regulation 6-1-303.

**Visible Particles:** Section 305 prohibits emissions of visible particles from the operator's property causing a nuisance on another property. The facility is expected to comply with this standard.

**Total Suspended Particulate (TSP) Concentration Limits:** The TSP concentration limit of 0.15 grain per dscf established in Regulation 6-1-310.1 is not expected to be exceeded by S-10 or S-11 since the maximum PM emissions from S-10 and S-11 are expected to be 0.0009 gr/dscf as shown in calculation below.

$$0.012 \left( \frac{PM \text{ pound}}{\text{hour}} \right) \times 7,000 \frac{\text{grains}}{\text{pound}} \times \frac{1 \text{ hour}}{60 \text{ min}} \times \frac{1 \text{ min}}{1,525 \text{ dscf}} = 0.0009 \text{ gr/dscf}$$

### **Regulation 9, Rule 1**

**Fuel Burning (Liquid and Solid Fuels):** A person shall not burn any liquid fuel having a sulfur content in excess of 0.5% by weight, or solid fuel of such sulfur content as would result in the emission of a gas stream containing more than 300 ppm (dry) of sulfur dioxide. The sulfur content of diesel is expected to be 0.0015%.

### **Regulation 9, Rule 8**

This rule limits the emissions of NO<sub>x</sub> and CO from stationary internal combustion engines with an output rated by the manufacturer at more than 50 bhp.

The engines are intended to operate at a specific site for more than one year and will be attached to a foundation at the site. Therefore, the requirements of this rule apply. Pursuant to Regulation 9-8-110.5, emergency standby engines are exempt from the requirements of Regulations 9-8-301 through 305, 9-8-501 and 9-8-503.

Per Regulation 9-8-330, S-10 and S-11 will be used for unlimited hours in case of emergencies and up to 50 hours per year for reliability related activities.

In accordance with Regulation 9-8-530, the engines shall be equipped with a non-resettable totalizing meter that measures hours of operation or fuel usage. Monthly records for the following shall be kept for at least 2 years and be made available to Air District staff upon request.

- Total hours of operation;
- Emergency hours of operation; and,
- The nature of the emergency condition for each emergency.

The engines are expected to meet the aforementioned requirements.

### **State Rules**

#### **CARB Airborne Toxic Control Measures (ATCM)**

Pursuant to §93115.6(a)(3), a new engine must meet the following requirements as of January 1, 2005.

- ATCM “Table 1 Emission Standards for New Stationary Emergency Standby Diesel-Fueled CI Engines” for same model year and maximum engine power.

- After December 31, 2008, be certified to the new non-road compression-ignition engine emission standard for all pollutants for 2007 and later model year engines as specified in 40 CFR, Part 60, Subpart IIII; and,
- Not operate more than 50 hours per year for maintenance and testing purposes, except as provided in §93115.6(a)(3)(A)(2). This regulation does not limit engine operation for emergency use and for emission testing to show compliance with §93115.6(a)(3).

The engines are expected to meet the aforementioned emission requirements as seen in Figure 1 and will be limited, through permit condition, to operate unrestricted only for emergencies and a maximum of 50 hours per year for maintenance and testing purposes.

### **New Source Performance Standards (NSPS)**

#### ***Subpart IIII - Stationary Compression Ignition Internal Combustion Engines:***

According to §60.4200(a)(1)(i), the engines are subject to the requirements of 40 CFR Part 60 Subpart IIII, “Standards of Performance of Stationary Compression Ignition Internal Combustion Engines.”

Pursuant to §60.4205(b), owners or operators of 2007 model year and later stationary emergency diesel engine-generator sets with a displacement of less than 10 liters per cylinder must meet the emission standards established in 40 CFR 1039, Appendix I and smoke standards specified in 40 CFR 1039.105.

The engines are also expected to meet the fuel standards of 40 CFR 1090.305. The requirement for a non-resettable hour meter (as per §60.4209(a)) will be enforced as a permit condition.

### **National Emissions Standards for Hazardous Air Pollutants (NESHAP)**

***Subpart ZZZZ - Stationary Reciprocating Internal Combustion Engines:*** Pursuant to §63.6585, engines located at an area source are subject to the requirements of 40 CFR Part 63 Subpart ZZZZ, “National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.” However, according to §63.6590(a)(1)(iii) & §63.6590(c)(1), diesel engines that commenced construction on June 12, 2006 or later and that operate at a facility that emits or has the potential to emit any single hazardous air pollutant (HAP) at a rate of less than 10 tons per year or any combination of HAPs at a rate of less than 25 tons per year, must comply instead with 40 CFR Part 60 Subpart IIII, “Standards of Performance of Stationary Compression Ignition Internal Combustion Engines.” The engines are expected to meet the requirements of this subpart by meeting the standards of 40 CFR Part 60 Subpart IIII, “Standards of Performance of Stationary Compression Ignition Internal Combustion Engines.”

**Table 5. Comparison of NSPS, CARB ATCM and BACT Emission Standards with the Engine's Emission Rates**

Pollutant	NSPS Emission Standards	CARB ATCM Emission Standards	BACT Standards	S-10 and S-11's EPA Certified Emission Rates
	g/hp-hr	g/hp-hr	(g/hp-hr)	(g/hp-hr)
NO <sub>x</sub> + NHMC	4.8	4.8	4.8	4.04
CO	2.6	2.6	2.6	0.67
PM	0.15	0.15	0.15	0.006

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## **Permit Conditions**

### **Permit Condition #100072 for S-10 and S-11**

1. The owner or operator shall operate each emergency standby engine only for the following purposes: to mitigate emergency conditions, for emission testing to demonstrate compliance with a District, state or Federal emission limit, or for reliability-related activities (maintenance and other testing, but excluding emission testing). Operating while mitigating emergency conditions or while emission testing to show compliance with District, state or Federal emission limits is not limited.  
[Basis: Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]
2. The owner/operator shall operate each emergency standby engine only when a non-resettable totalizing meter (with a minimum display capability of 9,999 hours) that measures the hours of operation for the engine is installed, operated and properly maintained.  
[Basis: Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]
3. Records: The owner/operator shall maintain the following monthly records in a District-approved log for at least 36 months from the date of entry (60 months if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit). Log entries shall be retained on-site, either at a central location or at the engine's location, and made immediately available to the District staff upon request.
  - a. Hours of operation for reliability-related activities (maintenance and testing).
  - b. Hours of operation for emission testing to show compliance with emission limits.
  - c. Hours of operation (emergency).
  - d. I For each emergency, the nature of the emergency condition. Fuel usage for each engine(s).  
[Basis: Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]
4. At School and Near-School Operation: If the emergency standby engine is located on school grounds or within 500 feet of any school grounds, the following requirements shall apply: The owner or operator shall not operate each stationary emergency standby diesel-fueled engine for non-emergency use, including maintenance and testing, during the following periods:
  - a. Whenever there is a school sponsored activity (if the engine is located on school grounds)
  - b. Between 7:30 a.m. and 3:30 p.m. on days when school is in session.'School' or 'School Grounds' means any public or private school used for the purposes of the education of more than 12 children in kindergarten or any of grades

1 to 12, inclusive, but does not include any private school in which education is primarily conducted in a private home(s). 'School' or 'School Grounds' includes any building or structure, playground, athletic field, or other areas of school property but does not include unimproved school property.

[Basis: Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]

### **Permit Condition #100073 for S-10 and S-11**

The owner/operator shall not exceed the following limits per year per engine for reliability-related activities:

- 50 Hours of Diesel fuel (Diesel fuel)  
[Basis: Cumulative Increase; Regulation 2-5; Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]

### ***End of Conditions***

### **Recommendation**

The Air District has reviewed the material contained in the permit application for the proposed project and has made a preliminary determination that the project is expected to comply with all applicable requirements of District, state, and federal air quality-related regulations. The preliminary recommendation is to issue an Authority to Construct for the equipment listed below. However, the proposed sources will be located within 1,000 feet of a school which triggers the public notification requirements of Air District Regulation 2-1-412. After the comments are received and reviewed, the Air District will make a final determination on the permit.

I recommend that the Air District initiate a public notice and consider any comments received prior to taking final action on the following:

#### **S-10 Emergency Standby Diesel Generator**

**Engine Make: Caterpillar, Model: C18, Model Year: 2025,  
EPA Family Name: RCPXL18.1NYS, 900 bhp, 5.77 MMBtu/hr**

**Abated by**

#### **A-10 Rypos Active Diesel Particulate Filter (DPF), Model: Rypos Active DPF/C3+™ System, CARB Certified per Executive Order DE-13-002-07**

#### **S-11 Emergency Standby Diesel Generator**

**Engine Make: Caterpillar, Model: C18, Model Year: 2025,  
EPA Family Name: RCPXL18.1NYS, 900 bhp, 5.77 MMBtu/hr**

**Abated by**

#### **A-11 Rypos Active Diesel Particulate Filter (DPF), Model: Rypos Active**

**DPF/C3+™ System, CARB Certified per Executive Order DE-13-002-07**

I recommend shutting-down the following two sources:

- S-6 Emergency Standby Diesel Generator, Cummins Model KTA1150GA, 560 BHP, 400 kW**
- S-7 Emergency Standby Diesel Generator, Detroit Disel Model 16V-92T, 540 BHP, 385 kW**

Prepared By: Emily Schwartz, Air Quality Engineer I

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## Attachment 1

<b>BAY AREA AIR QUALITY MANAGEMENT DISTRICT Best Available Control Technology (BACT) Guideline</b>
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### Source Category

<b>Source:</b>	IC Engine-Compression Ignition: Stationary Emergency, non- Agricultural, non-direct drive fire pump	<b>Revision:</b>	8
		<b>Document #:</b>	96.1.3
<b>Class:</b>	> 50 BHP and < 1000 BHP Output	<b>Date:</b>	12/22/2020*

### Determination

<b>Pollutant</b>	<b>BACT</b> 1. Technologically Feasible/ Cost Effective 2. Achieved in Practice 3. TBACT	<b>TYPICAL TECHNOLOGY</b>
<b>POC (NMHC)</b>	1. n/s <sup>c</sup> 2. CARB ATCM standard <sup>a</sup> for POC at applicable horsepower rating (see attached Table 1).	1. n/s <sup>c</sup> 2. Any engine certified or verified to achieve the applicable standard. <sup>a</sup>
<b>NOx</b>	1. n/s <sup>c</sup> 2. CARB ATCM standard <sup>a</sup> for NOx at applicable horsepower rating (see attached Table 1).	1. n/s <sup>c</sup> 2. Any engine certified or verified to achieve the applicable standard. <sup>a</sup>
<b>SO<sub>2</sub></b>	1. n/s <sup>c</sup> 2. Fuel sulfur content not to exceed 0.0015% (wt) or 15 ppm (wt).	1. n/s <sup>c</sup> 2. CARB Diesel Fuel (Ultra Low Sulfur Diesel)
<b>CO</b>	1. n/s <sup>c</sup> 2. CARB ATCM standard <sup>a</sup> for CO at the applicable horsepower rating (see attached Table 1).	1. n/s <sup>c</sup> 2. Any engine certified or verified to achieve the applicable standard. <sup>a</sup>
<b>PM<sub>10</sub></b>	1. n/s <sup>c</sup> 2. 0.15 g/bhp-hr  3. 0.15 g/bhp-hr	1. n/s <sup>c</sup> 2. Any engine or technology demonstrated, certified or verified to achieve the applicable standard. 3. Any engine or technology demonstrated, certified or verified to achieve the applicable standard.
<b>NPOC</b>	1. n/s 2. n/s	1. n/s 2. n/s

\* Applies to open permit applications with a complete date on or after 1/1/2020.

**References**

- a. ATCM standard (listed below): Where NMHC + NOx is listed (with no individual standards for NOx or NMHC) as the standard, the portions may be considered 95% NOx and 5% NMHC. For the purposes of determining BACT NMHC = POC. Any engine which has been certified or demonstrated to meet the current year tier standard may be considered compliant with the certified emission standard for that pollutant.
- b. Deleted (no longer applies).
- c. Cost- effectiveness analysis must be based on lesser of 50 hr/yr or non-emergency operation as limited by District health risk screen analysis.

Table 1: BACT 2 Emission Limits based on CARB ATCM

<b>Emissions Standards for Stationary Emergency Standby Diesel-Fueled CI Engines <math>\geq 50</math> BHP g/Kw-hr (g/bhp-hr)</b>			
<b>Maximum Engine Power</b>	<b>PM</b>	<b>NMHC+NOx</b>	<b>CO</b>
37 $\leq$ KW < 56 (50 < HP < 75)	0.20 (0.15)	4.7 (3.5)	5.0 (3.7)
56 $\leq$ KW < 75 (75 $\leq$ HP < 100)	0.20 (0.15)	4.7 (3.5)	5.0 (3.7)
75 $\leq$ KW < 130 (100 < HP < 175)	0.20 (0.15)	4.0 (3.0)	5.0 (3.7)
130 $\leq$ KW < 225 (175 $\leq$ HP < 300)	0.20 (0.15)	4.0 (3.0)	3.5 (2.6)
225 $\leq$ KW < 450 (300 < HP < 600)	0.20 (0.15)	4.0 (3.0)	3.5 (2.6)
450 $\leq$ KW $\leq$ 560 (600 < HP $\leq$ 750)	0.20 (0.15)	4.0 (3.0)	3.5 (2.6)
560 < KW < 750 (750 < HP < 1000)	0.20 (0.15)	6.4 (4.8)	3.5 (2.6)

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