

## DRAFT ENGINEERING EVALUATION

Facility ID No. 18587  
UC Hastings School of the Law  
200 McAllister Street, San Francisco, CA 94102  
Application No. 31843

### Background

UC Hastings School of the Law is applying for an Authority to Construct/Permit to Operate for the following equipment:

**S-8 Emergency Standby Diesel Generator Set**  
**Make: Caterpillar, Model: C27, Model Year: 2021**  
**1214 bhp, 7.65 MMBtu/hr**  
**Permit Condition Nos. 22850, and 27784**

*Abated by*

**A-1 Selective Catalytic Reduction**  
**Make: Miratech, Model: SCRC-044-075-450**

**A-2 Diesel Particulate Filter**  
**Make: Miratech, Model: SP-LTR20-21040008-XR1**

The criteria pollutants are nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), precursor organic compounds (POC) from unburned diesel fuel, sulfur dioxide (SO<sub>2</sub>) and particulate matter (PM<sub>10</sub>). All of these pollutants are briefly discussed on the District's web site at [www.baaqmd.gov](http://www.baaqmd.gov).

S-8 meets the Environmental Protection Agency and California Air Resources Board (EPA/CARB) Tier 2 Off-road standard. The engine will burn commercially available California low sulfur diesel fuel. The sulfur content of the diesel fuel will not exceed 0.0015% by weight.

This evaluation report will discuss compliance of the proposed project with all applicable rules and regulations.

### Emissions

**Table 1. Annual and Daily Emissions from EPA/CARB Certified Data from S-8**

<b>Pollutant</b>	<b>Unabated Emission Factor (g/bhp-hr)</b>	<b>Abated Emission Factor (g/bhp-hr)</b>	<b>Max Daily Emissions (lb/day)</b>	<b>Annual Emissions (lb/yr)</b>	<b>Annual Emissions (tons/yr)</b>
NO <sub>x</sub>	3.945	0.500	32.09	66.91	0.033
POC	0.075	0.075	4.81	10.04	0.005
CO	0.969	0.970	62.25	129.80	0.065
PM <sub>10</sub> /PM <sub>2.5</sub> <sup>1</sup>	0.097	0.020	1.28	2.68	0.001
SO <sub>2</sub>	N/A <sup>2</sup>	N/A <sup>2</sup>	0.35	0.73	0.000

Basis:

- Annual emissions: Reliability-related activity 50 hours for S-8
- Max daily emissions: 24-hour operation
- Emissions from EPA Engine Family MCPXL27.0NZS for S-8
- <sup>1</sup> Conservative Assumption: All PM emissions are PM2.5
- <sup>2</sup> SO<sub>2</sub> emission factor from AP-42 Table 3.4-1, SO<sub>2</sub> (15 ppm) = 0.00809\*0.0015 lb SO<sub>2</sub>/bhp-hr

**Ammonia Slip**

The proposed engine will have an SCR installed (A-1), which will control emissions with ammonia via catalytic reactions. However, there will be a small amount of ammonia that will not react and will slip through the SCR. Below are estimated Ammonia emissions for this project.

**Table 2. Emissions from Ammonia Slip**

Source#	Ammonia Slip ppm @ 15% O2	Ammonia Slip ppm @ 0% O2	Actual Temp. (°F)	Actual Exhaust Flowrate (acfm)	Dry Standard Exhaust Flowrate (dscfm)	Hourly Emission Rate (lb/hr)	Annual Emission Rate (lb/year)
S-8	10	35.42	947.8	5943.3	1020.66	9.6E-02	4.8E+00

Basis:

- Annual emissions: Reliability-related activity 50 hours.
- It is assumed that the exhaust water content is 12.5% by weight.
- It is assumed that the exhaust is at standard pressure.
- Volumetric concentrations were corrected to 0% O<sub>2</sub> from 15% O<sub>2</sub>.
- The exhaust flowrates were corrected to 0% O<sub>2</sub> from 10% O<sub>2</sub>.

**Plant Cumulative Increase**

Table 3 summarizes the cumulative increase in criteria 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)	Application Emissions (tons/yr)	Cumulative Emissions (tons/yr)
NO <sub>x</sub>	0.328	0.033	0.362
POC	0.100	0.005	0.105
CO	0.105	0.065	0.170
PM <sub>10</sub> /PM <sub>2.5</sub>	0.013	0.001	0.014
SO <sub>2</sub>	0.000	0.000	0.000

**Health Risk Assessment (HRA)**

HRA was required. The diesel particulate emissions from the project are greater than the toxic trigger level of 0.26 lb/year. All PM10 emissions are considered diesel particulate emissions. The PM10 emissions from this application are summarized in Table 1. Two other diesel engines (S-5; Application #29693 & S-7; Application #29882) were permitted at this facility within the past five years, so their emissions were included as part of this project. 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 did not qualify for HRA streamlining because the project emissions are greater than the streamlining thresholds.

Ammonia emissions are not expected to exceed Regulation 2-5 acute and chronic toxic trigger level of 7.1 lb/hr and 7,700 lb/year. However, Ammonia emissions were included in the HRA.

The project is in compliance with project risk requirements as recommended, limiting reliability-related activity hours by permit condition. See HRA report.

**HRA Results**

This analysis estimates the incremental health risk resulting from toxic air contaminant (TAC) emissions from non-emergency operation of a standby generator diesel engine at this facility. Results from this HRA for three engines indicate that the project cancer risk is estimated at 12 in a million, the project chronic hazard index (HI) is estimated at 0.0032, and the project acute hazard index (HI) is estimated at 0.00035. However, this proposed project does not comply with the District’s Regulation 2-5-302 project risk requirements, for projects located in an Overburdened Community, as defined in Regulation 2-1-243, because the estimated project cancer risk exceeds 6.0 in a million. To reduce the project cancer risk to no more than 6.0 in a million, the permit condition for S-7 (Application #29882) should be updated to limit non-emergency operation of S-7 to no more than 7 hours per year.

Results from this HRA with the revised permit condition for S-7 indicate that the maximum project cancer risk is estimated at 5.6 in a million, and the maximum project chronic hazard index is estimated at 0.0015. The maximum acute hazard index is 0.00035. See HRA Report for more details.

**Table 4. Risk screening results**

<b>Maximally Exposed Receptor</b>	<b>Maximum Cancer Risk (in a million)</b>	<b>Maximum Chronic Hazard Index</b>
Resident	5.6	0.0015
Worker	2.0	0.0015
Student	0.20	0.000054

**Table 5. Resident Cancer Risk per Source**

S-5	S-7	S-8
0.12 chances in a million	5.5 chances in a million	0.0098 chances in a million

TBACT

In accordance with the District’s Regulation 2-5-301, S-5 and S-8 do not require TBACT because each estimated source risk does not exceed a cancer risk of 1.0 in a million and/or a chronic HI of 0.20. However, S-7 requires TBACT because the estimated source risk exceeds a cancer risk of 1.0 in a million. S-7 meets TBACT because the unabated diesel exhaust particulate matter emission rate of 0.13 g/bhp-hour is less than TBACT emissions level of 0.15 g/bhp-hr. Furthermore, S-7 will be equipped with diesel particulate filter A-7 with an abatement efficiency of 85%, resulting in an overall controlled emission rate of 0.02 g/bhp-hr. BACT and TBACT determinations for compression ignition engines with a rated capacity  $\geq$  1000 bhp are described in BAAQMD BACT/TBACT Workbook for IC Engines – Compression Ignition: Stationary Emergency, non-Agricultural, non-direct drive fire pump, Document #96.1.5, Revision 0. dated 12/22/2020 (see Attachment 1).

Project Risk Limits

Since the proposed engine, operating at 50 hours/year for reliability related testing, complies with TBACT, and the estimated project cancer risk does not exceed 6.0 in a million, and project hazard indices do not exceed 1.0, this project complies with the District’s Regulation 2-5-302 project risk requirements for permit applications deemed complete after to July 1, 2022, and for projects located within an Overburdened Community, as defined in Regulation 2-1-243.

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>.

BACT for this source is presented in the current BAAQMD BACT/TBACT Workbook for IC Engine – Compression Ignition: Stationary Emergency, non-Agricultural, non-direct drive fire pump, Document #96.1.3, Revision 8. dated 12/22/2020. For NO<sub>x</sub>, CO, POC and PM<sub>10</sub>, BACT(2) is the CARB ATCM standard for the respective pollutant at the applicable horsepower rating. For SO<sub>2</sub>, BACT(2) is using fuel with sulfur content not to exceed 0.0015%, or 15 ppm. The more restrictive BACT(1) standards are not applicable to this engine because it will be limited to operation as an emergency standby engine.

The POC and CO emission factors are EPA certified values for the engine family. The NO<sub>x</sub> emission factor is an uncertified value after installation of the SCR. Therefore, S-1 will need to verify compliance with the NO<sub>x</sub> BACT (2) standard through the performance of a source test. S-8 satisfies the current BACT(2) standards for the following pollutants which exceed 10 lb/day in Table 1:

<b>Pollutant</b>	<b>Emission Factor</b>	<b>BACT(2) Standard</b>
NO <sub>x</sub>	0.50g/bhp-hr	0.50 g/bhp-hr
CO	0.97 g/bhp-hr	2.60 g/bhp-hr

**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 NO<sub>x</sub> 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 sulfur dioxide, as specified in Regulation 2-2- 303.

**Table 6. Potential to Emit for FID 18587**

<b>Pollutant</b>	<b>Existing Annual Emissions* (TPY)</b>	<b>Application Annual Emissions* (TPY)</b>	<b>Facility Annual Emissions (TPY) *</b>	<b>Offset Requirement (TPY)</b>	<b>Offset Required</b>
NO <sub>x</sub>	1.777	0.100	1.877	>10	N
POC	1.355	0.015	1.370	>10	N
CO	0.492	0.195	0.686	-	N
PM <sub>10</sub> /PM <sub>2.5</sub> <sup>1</sup>	0.073	0.004	0.077	≥100	N
SO <sub>2</sub>	0.001	0.001	0.002	≥100	N

\*Annual emissions:

- S-1, S-2, and S-4: Reliability-related activity of 20 hours and emergency operation of 100 hours.
- S-3, S-5, and S-8: Reliability-related activity of 50 hours and emergency operation of 100 hours.
- S-7: Reliability-related activity of 7 hours and emergency operation of 100 hours.

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:

**Airborne Toxic Control Measure for Stationary Compression Ignition Engines**

ATCM, 5/19/2011, section 93115, title 17, CA Code of Regulations

**District Rules**

Regulation 6-1-303 (*Ringelmann No. 2 Limitation*)

Regulation 9-1-301 (*Limitations on Ground Level Concentrations of SO<sub>2</sub>*)

Regulation 9-8 (*NO<sub>x</sub> and CO from Stationary Internal Combustion Engines*)

Section 9-8-110.5 – Limited exemption for emergency standby engines

Section 9-8-330 – Hours of operation for emergency standby engines

Section 9-8-502 – Recordkeeping

**California Environmental Quality Act (CEQA)**

This project is ministerial under the District Regulation 2-1-311 (Permit Handbook Chapter 2.3) and is therefore not subject to CEQA review.

**New Source Performance Standards (NSPS)**

40 CFR 60, Subpart IIII (*Stationary Compression Ignition Internal Combustion Engines*)

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

40 CFR 63, Subpart ZZZZ (*Stationary Reciprocating Internal Combustion Engines (RICE)*)

**Prevention of Significant Deterioration (PSD)**

This application is not part of a PSD project as defined in Regulation 2-2.

**Public Notice Notification (Regulation 2-1-412)**

Because this equipment will be located within 1,000 feet of Tenderloin Community, San Francisco City Academy, and De Marillac Academy and is located within an Overburdened Community, as defined in Regulation 2-1-243, the project is subject to the public notification requirements of Regulation 2-1-412 due to the increase in emissions from the project.

A public notice will be sent to all parents of students of the above mentioned school(s) and all residents within 1,000 feet of the facility. There will be a 30-day public comment period.

**Permit Conditions**

**Permit Condition #22850 for S-8**

1. The owner/operator shall not exceed 50 hours per year per engine for reliability-related testing.  
[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 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]
3. 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]

4. 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. For each emergency, the nature of the emergency condition.
  - e. Fuel usage for each engine(s).

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

5. 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/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 #27784 for S-8**

1. The owner/operator shall ensure the engine is abated at all times of operation by an approved Selective Catalytic Reduction (SCR) System and Diesel Particulate Filter (DPF) equipped with a backpressure monitor or other approved Diesel

Exhaust Particulate Matter Abatement System. The engine, SCR System, and DPF with backpressure monitor or other approved system shall be installed, maintained, and operated in accordance with the manufacturer specifications and/or best modern practices.

[Basis: Cumulative Increase, Title 17 CCR Section 93115.6(a)(3), 40 CFR1039.101, BACT, TBACT]

2. The owner/operator shall take all corrective actions recommended by the manufacturer in response to backpressure monitor notifications.  
[Basis: Cumulative Increase, Title 17 CCR Section 93115.6(a)(3), 40 CFR 1039.101, BACT, TBACT]
3. The owner/operator shall ensure urea injection commences as soon as the SCR catalyst bed reaches minimum operating temperature as specified by the manufacturer.  
[Basis: Cumulative Increase, Title 17 CCR Section 93115.6(a)(3), 40 CFR 1039.101, BACT, TBACT]
4. The owner/operator shall ensure engine emissions do not exceed an ammonia (NH<sub>3</sub>) slip of 10 ppmv, dry @15% O<sub>2</sub> from the SCR system. If deemed necessary to demonstrate compliance with Regulation 2, Rule 5, the Air District may require A source test to determine compliance with this emission limit.  
[Basis: Regulation 2, Rule 5]
5. The owner/operator shall ensure engine emissions do not exceed the following limits:  
NO<sub>x</sub>: 0.50 g/bhp-hour  
PM: 0.02 g/bhp-hour  
CO: 2.60 g/bhp-hour  
[Basis: BACT and Cumulative Increase]
6. To demonstrate compliance with Part 5, the owner/operator shall conduct an initial Air District-approved source test on the engine within 60 days of startup and once every three years thereafter at the normal or expected load during emergency operation using Air District approved source test methods. The owner/operator shall document urea usage (gallon per minute) and average kW during all tests, preferable as digital records. The owner/operator shall submit the source test results to the Air District's Source Test Section no later than 60 days after source test completion.  
[Basis: BACT and Cumulative Increase]
7. The owner/operator shall comply with all applicable testing, sampling port location and safe access requirements as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall notify the Air District's Source Test Section, in writing, of the source test protocols, sampling port locations, layout, access and projected test dates at least 30 days prior to testing.



The following test methods shall be used for each pollutant:

PM (filterable)            EPA Method 5 or Air District- approved equivalent  
NOx                        EPA Method 7E or Air District- approved Equivalent  
CO                         EPA Method 10 or Air District- approved equivalent

[Basis: Regulation 2-1-403]

8. To determine compliance with the above conditions, the owner/operator shall maintain the following records in a Air District- approved log and shall make these records available to Air District staff upon request. All records shall be retained 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 Synthetic Minor Operating Permit). These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable Air District or state regulations.
  - a. Source Test Notifications
  - b. All source test reports
  - c. Engine serial number and source number for each source test
  - d. Engine load percentage
  - e. Engine, SCR, and DPF maintenance records
  - f. SCR system owner's manual or manufacturer's specifications
  - g. DPF owner's manual or manufacturer's specifications
  - h. All backpressure monitor notifications and corrective actions
  - i. SCR urea injection rate (gpm)

[Basis: BACT, Cumulative Increase, Recordkeeping]

### **Permit Condition #22807 for S-7**

1. The owner/operator shall not exceed 7 hours per year per engine for reliability-related testing.  
[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 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]
3. 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]

4. 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. For each emergency, the nature of the emergency condition.
  - e. Fuel usage for each engine(s).

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

5. 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/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.

6. "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]

### *End of Conditions*

### **Recommendation**

The 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/Permit to Operate for the equipment listed below. However, the proposed source will be located within 1,000 feet of at least one school, which triggers the public notification requirements of District Regulation 2-1-412. After the comments are received and reviewed, the District will make a final determination on the permit.

I recommend the District change the permit condition to permit condition # 22807 for the following source:

**S-7 Emergency Standby Diesel Engine-Generator Set**  
**Engine: FPT; Model F3BE9685A-E, Model Year 2019**  
**530 BHP, 27.02 gph diesel consumption**

*Abated by*

**A-7 Diesel Catalyzed Particulate Filter; Johnson Matthey CRT(+) 4-C-BITO-CS-12-RT; with CARB verified 85% particulate abatement efficiency**

I recommend that the District initiate a public notice and consider any comments received prior to taking any final action on issuance of an Authority to Construct/Permit to Operate. If the District updates the above permit condition for S-7, I recommend the District issue an Authority to Construct for the following source:

**S-8 Emergency Standby Diesel Generator Set**  
**Make: Caterpillar, Model: C27, Model Year: 2021**  
**1214 bhp, 7.65 MMBtu/hr**  
**Permit Condition Nos. 22850, and 27784**

*Abated by*

**A-1 Selective Catalytic Reduction**  
**Make: Miratech, Model: SCRC-044-075-450**

**A-2 Diesel Particulate Filter**  
**Make: Miratech, Model: SP-LTR20-21040008-XR1**

Prepared By: Liana Solis, Air Quality Technician II

## Attachment 1

<b>BAY AREA AIR QUALITY MANAGEMENT DISTRICT</b> <b>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>	0
		<b>Document #:</b>	96.1.5
<b>Class:</b>	≥ 1000 BHP Output	<b>Date:</b>	12/22/2020*

### Determination

Pollutant	<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>a</sup> 2. 0.14 g/bhp-hr <sup>b</sup>	1. n/s <sup>a</sup> 2. Any engine certified or verified to achieve the applicable standard
<b>NO<sub>x</sub></b>	1. n/s <sup>a</sup> 2. 0.5 g/bhp-hr <sup>b</sup>	1. n/s <sup>a</sup> 2. Any engine certified or verified to achieve the applicable standard
<b>SO<sub>2</sub></b>	1. n/s <sup>a</sup> 2. Fuel sulfur content not to exceed 0.0015% (wt) or 15 ppm (wt)	1. n/s <sup>a</sup> 2. CARB Diesel Fuel (Ultra Low Sulfur Diesel)
<b>CO</b>	1. n/s <sup>a</sup> 2. 2.6 g/bhp-hr <sup>b</sup>	1. n/s <sup>a</sup> 2. Any engine certified or verified to achieve the applicable standard
<b>PM<sub>10</sub></b>	1. n/s <sup>a</sup> 2. 0.02 g/bhp-hr <sup>b</sup>  3. 0.02 g/bhp-hr	1. n/s <sup>a</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**

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|--|---|
| <ul style="list-style-type: none"> <li>a.</li> <li>b.</li> <li>c.</li> </ul> | <p>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.</p> <p>Deleted (no longer applies).</p> <p>Cost- effectiveness analysis must be based on lesser of 50 hr/yr or non-emergency operation as limited by District health risk screen analysis.</p> |
|--|---|

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 < 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 < 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)

