

**ENGINEERING EVALUATION
 FACILITY ID No. 202926
 FACTORY STORE
 629 FACTORY STORES DR., NAPA, CA 94558
 APPLICATION No. 672704**

BACKGROUND

Factory Store is applying for Authority to Construct/Permit to Operate the following equipment:

- S-1 Emergency Standby Diesel Generator Set
 Make: Mitsubishi, Model: D04EG-TAA, Model Year: 2020
 85 bhp, 0.56 MMBtu/hr
 Engine Family: NMVXL03.3CBB
 Permit Condition Nos. 100072 & 100073

The following criteria pollutants: nitrogen oxides (NO_x), carbon monoxide (CO), precursor organic compounds (POC), sulfur dioxide (SO₂), and particulate matter (PM₁₀) are generated from the combustion of diesel fuel. All of these pollutants are briefly discussed on the Air District's web site at www.baaqmd.gov.

S-1 meets the Environmental Protection Agency and California Air Resources Board (EPA/CARB) Tier 3 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

The emission factors are from the annual certification data for vehicles, engines, and equipment for the proposed engine family (NMVXL03.3CBB).

| Table 1. Annual and Daily Emissions from EPA/CARB Certified Data from S-1 | | | | |
|--|-----------------------------------|-------------------------------------|---------------------------------|-----------------------------------|
| Pollutant | Emission Factor (g/bhp-hr) | Max Daily Emissions (lb/day) | Annual Emissions (lb/yr) | Annual Emissions (tons/yr) |
| NO _x | 2.57 | 11.537 | 24.035 | 0.012 |
| CO | 0.45 | 2.012 | 4.192 | 0.002 |
| POC | 0.08 | 0.369 | 0.769 | 0.000 |
| PM ₁₀ /PM _{2.5} ¹ | 0.10 | 0.470 | 0.978 | 0.000 |
| SO ₂ ² | N/A ² | 0.025 | 0.052 | 0.000 |

Basis:

- Annual emissions: Reliability-related activity 50 hours for S-1
- Max daily emissions: 24-hour operation
- Emissions from EPA Engine Family NMVXL03.3CBB for S-1
- ¹ Conservative Assumption: All PM emissions are PM_{2.5}
- ² SO₂ emission factor from AP-42 Table 3.4-1, SO₂ (15 ppm) = 0.00809 lbs/bhp-hr*0.0015 lb SO₂/bhp-hr*85 bhp * 50 hr/yr = 0.052 lbs/yr

PLANT CUMULATIVE INCREASE

Table 2 summarizes the cumulative increase in criteria pollutant emissions that will result from this application.

Table 2. 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 _x | 0.000 | 0.012 | 0.012 |
| CO | 0.000 | 0.002 | 0.002 |
| POC | 0.000 | 0.000 | 0.000 |
| PM ₁₀ /PM _{2.5} | 0.000 | 0.000 | 0.000 |
| SO ₂ | 0.000 | 0.000 | 0.000 |

HEALTH RISK ASSESSMENT (HRA)

HRA results are as follows:

Source Risk Assessment:

Cancer Risk: Less than 1.0 in a million.

Chronic HI: Less than 0.20.

Project Risk Assessment:

Cancer Risk: 0.45 in a million.

Chronic HI: 0.00022.

Since the estimated project cancer risk does not exceed 10 in a million, and project chronic HI does not exceed 1.0, this project complies with the District’s Regulation 2-5-302 project risk requirements. In accordance with the District’s Regulation 2-5-301, the new source (S-1) does not require TBACT because the estimated source risk does not exceed a cancer risk of 1.0 in a million and/or a chronic HI of 0.20. S-1 is not located in 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_x, CO, SO₂, or PM₁₀.

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_x, CO, POC and

PM₁₀, BACT (2) is the CARB ATCM standard for the respective pollutant at the applicable horsepower rating. For SO₂, BACT (2) is using fuel with sulfur content not to exceed 0.0015%, (wt.) or 15 ppm (wt.). The more restrictive BACT (1) standards are not applicable to this engine because it will be limited to operation as an emergency standby engine.

S-1 satisfies the current BACT (2) standards for the following pollutants which exceed 10 lb/day in Table 1:

| Pollutant | Emission Factor | BACT (2) Standard |
|-----------------|-----------------|-------------------|
| NO _x | 2.57 g/bhp-hr | 2.85 g/bhp-hr |

* The BACT (2) standard is from “Table 1: BACT 2 Emission Limits Based on CARB ATCM”, in BAAQMD BACT/TBACT workbook for engines between 50 hp and 1000 hp.

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_x or POC, as specified in Regulation 2-2-302; 100 tons per year or more of PM_{2.5}, PM₁₀ or sulfur dioxide, as specified in Regulation 2-2-303.

| Pollutant | Existing Annual Emissions (TPY) | Application Annual Emissions* (TPY) | Facility Annual Emissions* (TPY) | Offset Requirement (TPY) | Offset Required |
|--|---------------------------------|-------------------------------------|----------------------------------|--------------------------|-----------------|
| NO _x | 0.000 | 0.012 | 0.012 | >10 | N |
| POC | 0.000 | 0.000 | 0.000 | >10 | N |
| CO | 0.000 | 0.002 | 0.002 | - | N |
| PM ₁₀ /PM _{2.5} ¹ | 0.000 | 0.000 | 0.000 | ≥100 | N |
| SO ₂ | 0.000 | 0.000 | 0.000 | ≥100 | N |

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 SO₂*)
- Regulation 9-8 (*NO_x 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 permit application is reviewed following the specific procedures, fixed standards, and objective measurements set forth in the Permit Handbook chapter 2.3.1. Therefore, it is classified as ministerial and will accordingly be exempt from CEQA review per Regulation 2-1-311.

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 NOTIFICATION & OVERBURDENED COMMUNITIES (REGULATION 2-1-412 & 2-1-243):

Since this equipment is located within 1,000 feet of NAPA Valley Language Academy school, the project is subject to the public notification requirements of Regulation 2-1-412 due to the increase in toxic emissions from the project. S-1 is not located in the over burden community as defined in Section 2-1-243.

PERMIT CONDITIONS

Permit Condition #100072 for S-1

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 Air 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]

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-1

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

I recommend that the Air District issues an Authority to Construct/Permit to Operate for the following source:

S-1 Emergency Standby Diesel Generator Set

Make: Mitsubishi, Model: D04EG-TAA, Model Year: 2020
85 bhp, 0.56 MMBtu/hr
Engine Family: NMVXL03.3CBB
Permit Condition Nos. 100072 & 100073

DRAFT

Attachment 1

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|--|
| BAY AREA AIR QUALITY MANAGEMENT DISTRICT Best Available Control Technology (BACT) Guideline |
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Source Category

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

Determination

| Pollutant | BACT 1. Technologically Feasible/ Cost Effective 2. Achieved in Practice 3. TBACT | TYPICAL TECHNOLOGY |
|------------------------|--|---|
| POC (NMHC) | 1. n/s ^c 2. CARB ATCM standard ^a for POC at applicable horsepower rating (see attached Table 1). | 1. n/s ^c 2. Any engine certified or verified to achieve the applicable standard. ^a |
| NOx | 1. n/s ^c 2. CARB ATCM standard ^a for NOx at applicable horsepower rating (see attached Table 1). | 1. n/s ^c 2. Any engine certified or verified to achieve the applicable standard. ^a |
| SO₂ | 1. n/s ^c 2. Fuel sulfur content not to exceed 0.0015% (wt) or 15 ppm (wt). | 1. n/s ^c 2. CARB Diesel Fuel (Ultra Low Sulfur Diesel) |
| CO | 1. n/s ^c 2. CARB ATCM standard ^a for CO at the applicable horsepower rating (see attached Table 1). | 1. n/s ^c 2. Any engine certified or verified to achieve the applicable standard. ^a |
| PM₁₀ | 1. n/s ^c 2. 0.15 g/bhp-hr 3. 0.15 g/bhp-hr | 1. n/s ^c 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. |
| NPOC | 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

| Emissions Standards for Stationary Emergency Standby Diesel-Fueled CI Engines ≥ 50 BHP g/Kw-hr (g/bhp-hr) | | | |
|--|-------------|-----------------|-----------|
| Maximum Engine Power | PM | NMHC+NOx | CO |
| 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) |

