

ENGINEERING EVALUATION

Facility ID No. 12769
Military Ocean Terminal Concord (MOTCO)
410 Norman Ave, Bldg 635, Concord, CA
Application No. 709053

Background

Military Ocean Terminal Concord (MOTCO) is applying for an Authority to Construct/Permit to Operate for the following equipment:

S-109 Diesel Emergency Engine

Make: Cummins Inc., Model: QSK38-G17, Rating: 1,876 BHP, Year: 2024

abated by

A-22 Catalyzed Diesel Particulate Filter

Make: Johnson Matthey, Model: SDPF-12/10-N-CS-BIEO-20/20-RT

A-23 Selective Catalytic Reduction (SCR)

Make: Johnson Matthey, Model: S8X6-2+1-SS-EITO-20/18 SCRT

S-110 Diesel Emergency Engine

Make: Cummins Inc., Model: QSK60-G19 NR2, Rating: 3,640 BHP, Year: 2024

abated by

A-24 Catalyzed Diesel Particulate Filter

Make: Johnson Matthey, Model: SDPF-16-N-SS-BIEO-28/32-RT

A-25 Selective Catalytic Reduction (SCR)

Make: Johnson Matthey, Model: S10X8-3+1-SS-EITO-32/28 SCRT

S-111 Diesel Emergency Engine

Make: Cummins Inc., Model: QSK60-G19 NR2, Rating: 3,640 BHP, Year: 2024

abated by

A-26 Catalyzed Diesel Particulate Filter

Make: Johnson Matthey, Model: SDPF-16-N-SS-BIEO-28/32-RT

A-27 Selective Catalytic Reduction (SCR)

Make: Johnson Matthey, Model: S10X8-3+1-SS-EITO-32/28 SCRT

MOTCO is proposing to install and operate three new diesel-fired emergency generators for emergency use at Port Chicago Highway, Concord. MOTCO is a United States Army Military Surface Deployment and Distribution Command munitions and general cargo trans-shipment facility.

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

S-109, S-110, and S-111 meet the Environmental Protection Agency and California Air Resources Board (EPA/CARB) Tier 2 Off-road standard. 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.

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

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Emissions

Basis for S-109:

- Annual emissions: Reliability-related activity 50 hours for S-109
- Max daily emissions: 24-hour operation
- Unabated emission factors (NO_x, POC, CO, and PM₁₀) are from EPA Engine Family RCEXL050.AAD; Conservatively assumed to be units of g/bhp-hr
- Ammonia slip assumed to be 10 ppmv, dry at 15% oxygen
- SO₂ emission factor from AP-42 Table 3.4-1, SO₂ (15 ppm) = 0.00809*0.0015 lb SO₂/bhp-hr * 454 gr/lb = 0.006 g/bhp-hr
- ¹Conservative Assumption: All PM emissions are PM_{2.5}
- ²Abated emission factor for NO_x is based on BACT standard and will require source testing.

Annual and Daily Emissions (S-109)

Pollutant	Unabated Emission Factor (g/bhp-hr)	Abated Emission Factor (g/bhp-hr)	Abated Max Daily Emissions (lbs/day)	Abated Annual Emissions (lbs/year)	Abated Annual Emissions (tons/year)
² NO _x	5.79	0.5	49.6	103.3	0.052
POC	0.08	--	7.9	16.5	0.008
CO	1.00	--	99.2	206.6	0.103
¹ PM ₁₀	0.09	--	8.9	18.6	0.009
¹ PM _{2.5}	0.09	--	8.9	18.6	0.009
SO ₂	0.006	--	0.6	1.2	0.001
Ammonia	--	--	4.32	9.00	0.004

Basis for S-110 and S-111:

- Annual emissions: Reliability-related activity 50 hours for S-2
- Max daily emissions: 24-hour operation
- Unabated emission factors (POC, CO, and PM₁₀) are from EPA Engine Family RCEXL060.AAD; Conservatively assumed to be units of g/bhp-hr
- Unabated emission factor for NO_x is from Cummins Performance Data as they are greater than the corresponding EPA factors
- Ammonia slip assumed to be 10 ppmv, dry at 15% oxygen
- SO₂ emission factor from AP-42 Table 3.4-1, SO₂ (15 ppm) = 0.00809*0.0015 lb SO₂/bhp-hr * 454 gr/lb = 0.006 g/bhp-hr
- ¹Conservative Assumption: All PM emissions are PM_{2.5}
- ²Abated emission factor for NO_x, POC, and PM₁₀ are based on BACT standard or BACT avoidance and will require source testing.

Annual and Daily Emissions (S-110/S-111)

Pollutant	Unabated Emission Factor (g/bhp-hr)	Abated Emission Factor (g/bhp-hr)	Abated Max Daily Emissions (lbs/day)	Abated Annual Emissions (lbs/year)	Abated Annual Emissions (tons/year)
² NO _x	6.12	0.500	96.2	200.4	0.100
POC	0.27	0.140	26.9	56.1	0.054
CO	1.00	--	192.4	400.9	0.200
¹ PM ₁₀	0.14	0.051	9.9	20.6	0.010
¹ PM _{2.5}	0.14	0.051	9.9	20.6	0.010
SO ₂	0.006	--	1.1	2.2	0.001
Ammonia	--	--	7.03	14.64	0.007

Summary of Application Emissions

Pollutant	S-109 Annual Emissions (tons/year)	S-110 Annual Emissions (tons/year)	S-111 Annual Emissions (tons/year)	Total Annual Emissions (tons/year)
² NO _x	0.052	0.100	0.100	0.252
POC	0.008	0.054	0.054	0.116
CO	0.103	0.200	0.200	0.504
¹ PM ₁₀	0.009	0.010	0.010	0.030
¹ PM _{2.5}	0.009	0.010	0.010	0.030
SO ₂	0.001	0.001	0.001	0.003
Ammonia	0.004	0.007	0.007	0.019

Plant Cumulative Increase

Pollutant	Existing Emissions Post 4/5/91 (tons/year)	Application Emissions (tons/year)	Cumulative Emissions (tons/year)
NO _x	1.966	0.252	2.218
POC	0.119	0.116	0.235
CO	0.489	0.504	0.993
PM ₁₀	0.037	0.030	0.067
PM _{2.5}	0.021	0.030	0.051
SO ₂	0.044	0.003	0.047

Health Risk Assessment (HRA)

HRA was required. The diesel particulate emissions from the project are greater than the toxic trigger level of 0.26 lbs/year. All PM₁₀ emissions are considered diesel particulate emissions. The PM₁₀ emissions from this application are summarized in Table 1. There were 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 lbs./year, an HRA is required. This application does not qualify for the HRA streamlining because the closest receptor is less than 16 feet from the source.

The HRA estimates the health risk resulting from toxic air contaminant (TAC) emissions from nonemergency operation of three new standby generator diesel engines (S-109, S-110 & S-111) at this facility. Since four other diesel engines were permitted for this facility within the past five years, their emissions were included as part of this project. Since the estimated project cancer risk does not exceed 6.0 in a million and hazard indices do not exceed 1.0, this project complies 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.

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

HRA Results

Results from the HRA indicate that the project cancer risk is 1.1 in a million, the project chronic hazard index (HI) is 0.00029, and the project acute HI is 0.0024. In accordance with the District's Regulation 2-5-301, the three proposed new sources (S-109, S-110 & S-111) do not require TBACT because each estimated source risk does not exceed a cancer risk of 1.0 in a million, and/or chronic hazard index of 0.20. See HRA Report for more details.

Table 4. Risk Screening Results

Project Risk

Receptor	NAD 83 UTM Coordinates (meters)		Cancer Risk (in a million)	Chronic HI	Acute HI
	Easting (x)	Northing (y)			
Resident	585,710	4,208,802	1.1	0.00029	NA
Worker (WAF=4.2)	585,468	4,208,583	0.049	0.000038	NA
PMI (1-hour)	585,760	4,208,902	NA	NA	0.0024

Student risk values were not calculated because there are no K-12 schools within 1,000 feet of the sources.

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, NOx, CO, SO2, PM10 or PM2.5. BACT for S-109 is triggered for NOx and CO. BACT for S-110 and S-111 is triggered for NOx, POC, and CO.

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.

Achieved-in-practice BACT is presented in the current BAAQMD BACT/TBACT Workbook for IC Engine – Compression Ignition: Stationary Emergency, non-Agricultural, non-direct drive fire greater than 1000 BHP Output, Document #96.1.5, Revision 0, dated 12/22/2020. For NOx, CO, POC and PM10, 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.

S-109, S-110, and S-111 are EPA Tier 2 engines with an add-on SCR and Catalyzed DPF to meet NOx and POC standards. As such, these sources utilize the most technologically feasible control technologies to meet the EPA Tier 4 standards. Permit conditions for S-109, S-110, and S-111 will require source testing to show that S-109, S-110, and S-111 will comply with applicable achieved-in-practice standards:

Sources	Pollutant	Emission Factor	BACT(2) Standard
S-109, S-110, and S-111	NOx	0.5 g/bhp-hr	0.5 g/bhp-hr
S-110 and S-111	POC	0.14 g/bhp-hr	0.14 g/bhp-hr
S-109, S-110, and S-111	CO	1.00 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

Offsets 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_{2.5}, PM₁₀ or sulfur dioxide, as specified in Regulation 2-2-303. Detailed calculation is in Appendix A.

Table 5. Potential to Emit for FID 20792

Pollutant	Existing Annual Emissions (TPY)	Application Annual Emissions* (TPY)	Facility Annual Emissions* (TPY)	Offset Requirement (TPY)	Offset Required
NO _x	5.830	0.756	6.586	>10	N
POC	0.367	0.116	0.483	>10	N
CO	1.473	0.504	1.977	-	N
PM ₁₀	0.138	0.030	0.168	≥100	N
PM _{2.5}	0.138	0.003	0.130	≥100	N
SO ₂	0.128	0.756	6.586	≥100	N

*Annual emissions: Reliability-related activity of 50 hours and emergency operation of 100 hours (150 total hours) for S-109, S-110, and S-111.

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 of S-109, S-110, and S-111 is subject to and expected to comply with all applicable requirements 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 6-1-305 (*Visible Particles*)

Regulation 6-1-310 (*Total Suspended Particulate (TSP) Concentration Limits*)

Sections 6-1-310.1 and 6-1-310.2 limit TSP emissions depending on the exhaust gas rate (see Table 6-1-310.2 for the corresponding TSP concentration limit). Since these emission rates are less than the limit in Section 6-1-310, compliance with this section is expected.

Source	PM Emission Rate (gr/hour)	Maximum Exhaust Flow Rate (dscf/min)	6-1-310 TSP Limit (grains/dscf)	Outlet Grain Loading (grains/dscf)	Compliant?
109	2595.8	3562.4	0.1010	0.012	YES
110	2887.5	6008.4	0.0903	0.008	YES
111	2887.5	6008.4	0.0903	0.008	YES

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 project includes internal combustion diesel engines that will power emergency backup generators that may be employed to mitigate unforeseen loss of power events and prevent or reduce damage to life, health, and property at an existing facility. MOTCO is a United States Army Military Surface Deployment and Distribution Command munitions and general cargo trans-shipment facility.

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This permit application is categorically exempt from CEQA because the project has no potential for causing a significant adverse environmental impact, or the application is categorically exempt from CEQA under Section 15301 lists Class 1 projects that involve negligible or no expansion of use.

In making the determination that this application is categorically exempt: 1) the Air District reviewed the CEQA-related Information from the applicant (Regulation 2-1-426-1) indicating that there is no potential for a significant adverse environmental impact from the project; 2) a formal health risk assessment was either not required or was approved by the Air District; and 3) the Air District determined there are no unusual circumstances, or that the cumulative impacts from successive projects of the same type in the same place do not result in significant adverse environmental impacts.

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 (Regulation 2-1-412)

The public notification requirements of Regulation 2-1-412 apply to projects which result in an increase in toxic air contaminant or hazardous air contaminant emission at facilities within 1,000 feet of the boundary of a K-12 school or are located within an overburdened community (OBC) and require an HRA. There are no K-12 schools within 1,000 feet of Military Operations Terminal Concord, but the site is located within an OBC and this project required an HRA. Therefore, the OBC public notice requirements apply to the operation of S-109, S-110, and S-111.

Permit Conditions

Permit Condition #100072 for S-109, S-110, and S-111

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. 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:
- Whenever there is a school sponsored activity (if the engine is located on school grounds)
 - 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-109, S-110, and S-111

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]

Permit Condition # 27782 for S-109

Tier 2 Engines, equipped with add-on SCR and DPF; ST for NO_x/CO

- 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 CFR 1039.101, BACT, TBACT]
- 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]
- The owner/operator shall ensure urea injection commences as soon as the SCR catalyst bed reaches the 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]
- The owner/operator shall ensure engine emissions do not exceed an ammonia (NH₃) slip of 10 ppmv, dry @ 15% O₂ 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]
- The owner/operator shall ensure engine emissions do not exceed the following limit:
NO_x: 0.50 g/bhp-hour
CO: 2.60 g/bhp-hour
[Basis: BACT and Cumulative Increase]
- 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

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methods. The owner/operator shall document urea usage (gallons 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:
NO_x 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 parts, 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 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 #100543 for S-110 and S-111

Tier 2 Engines, equipped with add-on SCR and DPF; ST for NO_x/CO, POC, and PM

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 CFR 1039.101, 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 (NH₃) slip of 10 ppmv, dry @ 15% O₂ from the SCR system. If deemed necessary to demonstrate compliance with

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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:

NOx: 0.50 g/bhp-hour
POC: 0.14 g/bhp-hour
CO: 2.60 g/bhp-hour
PM: 0.051 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 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 (gallons 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
POC EPA Method 25A and EPA Method 18 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 an 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 and corrective actions
- i. SCR urea injection rate (gpm)

[Basis: BACT, Cumulative Increase, Recordkeeping]

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 Air 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 source will be located within an Overburdened Community, which triggers the public notification requirements of 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 any final action on issuance of an Authority to Construct for the following sources:

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Prepared By: Eric Grulke, Senior Air Quality Engineer

Appendix A

S#	bhp	permitted hrs/yr	emergency hours/year	total hours/year	NOx (tpy)	POC (tpy)	CO (tpy)	PM10 (tpy)	SO2 (tpy)	A#	Comments
1	230	52	100	152	5.85E-04	1.46E-05	5.85E-05	1.46E-05	1.46E-05	5822	Emissions based on 52 hr/yr x 152/52
2	99	50	100	150	0.068	0.004	0.012	0.002	3.02E-03	13646	Emissions based on 50 hr/yr x 3
3	150	50	100	150	0.066	0.003	0.028	0.002	1.35E-04	20648	Emissions based on 50 hr/yr x 3
4	33	12	100	112	0.057	0.005	0.012	0.004	3.79E-03	26291	Emissions based on AP-42 Table 3.3-1
5	55	50	100	150	0.028	0.001	0.188	0.000	1.50E-05	28288	Emissions based on 50 hr/yr x 3
95	105	100	100	200	0.059	0.012	0.059	0.000	4.62E-05	7457	Abated, based on 100 hr/yr x 2
96	2155	50	100	150	2.337	0.108	0.372	0.048	5.70E-02	11172	Emissions based on 50 hr/yr x 3
97	2155	50	100	150	2.337	0.108	0.372	0.048	5.70E-02	15085	Emissions based on 50 hr/yr x 3
98	59	50	100	150	0.045	0.002	0.010	0.001	5.36E-07	17611	Emissions based on 50 hr/yr x 3
99	96	50	100	150	0.045	0.002	0.008	0.002	8.70E-05	22786	Emissions based on 50 hr/yr x 3
103	133	50	100	150	0.054	0.003	0.026	0.003	1.20E-04	23655	Emissions based on 50 hr/yr x 3
104	86	50	100	150	0.038	0.002	0.037	0.002	6.00E-05	31203	Old S-1 from P#201436, 50 hr/yr x 3
105	198	50	100	150	0.088	0.004	0.020	0.004	1.65E-04	31481	Emissions based on 50 hr/yr x 3
106	2937	50	100	150	0.243	0.053	0.146	0.010	2.91E-03	31496	Emissions based on 50 hr/yr x 3
107	2937	50	100	150	0.243	0.053	0.146	0.010	2.91E-03	31496	Emissions based on 50 hr/yr x 3
108	279	50	100	150	0.121	0.006	0.038	0.003	2.77E-04	32143	Emissions based on 50 hr/yr x 3
TOTALS:					5.8302	0.3667	1.4730	0.1381	0.1275		

Attachment 1

**BAY AREA AIR QUALITY MANAGEMENT DISTRICT
 Best Available Control Technology (BACT) Guideline**

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 \leq 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 \leq 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 \leq HP < 600)	0.20 (0.15)	4.0 (3.0)	3.5 (2.6)
450 \leq KW \leq 560 (600 \leq 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)



**BAY AREA AIR QUALITY MANAGEMENT DISTRICT
 Best Available Control Technology (BACT) Guideline**

Source Category

Source:	IC Engine-Compression Ignition: Stationary Emergency, non- Agricultural, non-direct drive fire pump	Revision:	0
		Document #:	96.1.5
Class:	≥ 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 ^a 2. 0.14 g/bhp-hr ^b	1. n/s ^a 2. Any engine certified or verified to achieve the applicable standard
NOx	1. n/s ^a 2. 0.5 g/bhp-hr ^b	1. n/s ^a 2. Any engine certified or verified to achieve the applicable standard
SO₂	1. n/s ^a 2. Fuel sulfur content not to exceed 0.0015% (wt) or 15 ppm (wt)	1. n/s ^a 2. CARB Diesel Fuel (Ultra Low Sulfur Diesel)
CO	1. n/s ^a 2. 2.6 g/bhp-hr ^b	1. n/s ^a 2. Any engine certified or verified to achieve the applicable standard
PM₁₀	1. n/s ^a 2. 0.02 g/bhp-hr ^b 3. 0.02 g/bhp-hr	1. n/s ^a 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.