

ENGINEERING EVALUATION

San Mateo Event Center

Application: 26870

Plant: 22852

2495 South Delaware Street, San Mateo, CA 94403

BACKGROUND

San Mateo Event Center has applied to obtain an Authority to Construct (AC) for the following equipment:

- S-1 Emergency Standby Diesel Generator Set, Year 2015
Cummins, Model QSX15-G9
755 BHP, 4.12 MMBTU/hr**

- S-2 Emergency Standby Diesel Generator Set, Year 2015
Cummins, Model QSL9-G3
464 BHP, 2.69 MMBTU/hr**

- S-3 Emergency Standby Diesel Generator Set, Year 2012
Cummins, Model QSB-G3 NR3
130 BHP, 0.95 MMBTU/hr**

- S-4 Emergency Standby Diesel Generator Set, Year 2010
Cummins, Model QSL9-G2 NR3
354 BHP, 2.51 MMBTU/hr**

- S-5 Emergency Standby Diesel Generator Set, Year 2010
Cummins, Model QSL9-G2 NR3
354 BHP, 2.51 MMBTU/hr**

The Emergency Diesel Engine Generator Sets (S-1, S-2, S-3, S-4 and S-5) are equipped with the best available control technology (BACT) for minimizing the release of air borne criteria pollutants and harmful air toxins due to fuel combustion. 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). POC is also denoted as NMHC (non-methane hydrocarbon). All of these pollutants are briefly discussed on the District's web site at www.baaqmd.gov.

Source #:3 was installed 2/01/2012, Source #: 4 was installed 6/01/2010 and Source #:5 was installed 06/01/2010. Since these three existing sources were installed without an Authority to construct or a Permit to Operate, Late fees and Back fees were charged for S-3, S-4 and S-5.

All of the engines described in this application meet 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.

These engines will each be subject to attached condition no. 22850.

EMISSIONS SUMMARY

S-1, S-2, S-3, S-4 and S-5 have been certified by EPA to be cleaner burning engines. Except for SO₂, the emission factors for these engines are from the manufacturer's EPA specifications: For S-1, the EPA Certificate #: ECEXL015.AAJ-018; For S-2, the EPA Certificate #: ECEXL0540.AAB-008 For S-3, the EPA Certificate #: CCEXL0274.AAG-004; For S-4, the EPA Certificate #: ACEXL0540.AAB-010 and For S-5, the EPA Certificate #: ACEXL0540.AAB-010. The SO₂ emissions were calculated based on the maximum allowable sulfur content (0.0015 wt%) of the diesel fuel with assumption that all of the sulfur present will be converted to SO₂ during the combustion process.

Basis for S-1:

755 hp output rating
50 hr/yr operation for testing and maintenance
30.1 gallons/hr max fuel use rate
NMHC+NO_x, CO and PM₁₀ emission factors provided by the manufacturer's specification
POC is assumed to be 5% of NMHC + NO_x
NO_x is assumed to be 95% of NMHC + NO_x
SO₂ emissions are quantified based on the full conversion of 0.0015 wt% (~ 15 ppm) sulfur in the ULS diesel fuel.
The SO₂ emission factor was derived from EPA AP-42, Table 3.4-1.

Basis for S-2:

464 hp output rating
50 hr/yr operation for testing and maintenance
19.6 gallons/hr max fuel use rate
NMHC+NO_x, CO and PM₁₀ emission factors provided by the manufacturer's specification
POC is assumed to be 5% of NMHC + NO_x
NO_x is assumed to be 95% of NMHC + NO_x
SO₂ emissions are quantified based on the full conversion of 0.0015 wt% (~ 15 ppm) sulfur in the ULS diesel fuel.
The SO₂ emission factor was derived from EPA AP-42, Table 3.4-1.

Basis for S-3:

130 hp output rating
50 hr/yr operation for testing and maintenance
6.9 gallons/hr max fuel use rate
NMHC, NO_x, CO and PM₁₀ emission factors provided by the manufacturer's specification
SO₂ emissions are quantified based on the full conversion of 0.0015 wt% (~ 15 ppm) sulfur in the ULS diesel fuel.
The SO₂ emission factor was derived from EPA AP-42, Table 3.4-1.

Basis for S-4:

354 hp output rating
50 hr/yr operation for testing and maintenance
18.3 gallons/hr max fuel use rate
NMHC, NO_x, CO and PM₁₀ emission factors provided by the manufacturer's specification
SO₂ emissions are quantified based on the full conversion of 0.0015 wt% (~ 15 ppm) sulfur in the ULS diesel fuel.
The SO₂ emission factor was derived from EPA AP-42, Table 3.4-1.

Basis for S-5:

354 hp output rating
50 hr/yr operation for testing and maintenance
18.3 gallons/hr max fuel use rate
NMHC, NO_x, CO and PM₁₀ emission factors provided by the manufacturer's specification
SO₂ emissions are quantified based on the full conversion of 0.0015 wt% (~ 15 ppm) sulfur in the ULS diesel fuel.
The SO₂ emission factor was derived from EPA AP-42, Table 3.4-1.

Annual Emissions:

Annual emissions are calculated based on the number of hours per year of operation for testing and maintenance in Tables 1A through 1E and summarized in Table 1F.

Daily Emissions:

Daily emissions are calculated to establish whether a source triggers the requirement for BACT (10 lb/highest day total source emissions for any class of pollutants). 24-hr/day of operation will be assumed since no daily limits are imposed on intermittent and unexpected operations. See Tables 1A through 1E and Summary in Table 1F.

Table 1A – Estimated Emissions (S-1)

Pollutant	Emission Factors (g/hp-hr)	Annual Emissions (lb/yr)	Annual Emissions (TPY)	Max. Daily (lb/day)
NMHC+NOx	3.8792			
NOx	3.6852	306.4269	0.1532	147.0849
POC	0.1940	16.1277	0.0081	7.7413
CO	0.4476	37.2178	0.0186	17.8646
PM ₁₀	0.0821	6.8233	0.0034	3.2752
SO ₂ *	0.001515	0.3124	0.0002	0.1499
	*lb SO ₂ /MMBTU			

Table 1B – Estimated Emissions (S-2)

Pollutant	Emission Factors (g/hp-hr)	Annual Emissions (lb/yr)	Annual Emissions (TPY)	Max. Daily (lb/day)
NMHC+NOx	2.6110			
NOx	2.4805	126.7543	0.0634	60.8421
POC	0.1306	6.6713	0.0033	3.2022
CO	1.7158	87.6796	0.0438	42.0862
PM ₁₀	0.0671	3.4309	0.0017	1.6469
SO ₂ *	0.001515	0.2034	0.0001	0.0976
	*lb SO ₂ /MMBTU			

Table 1C – Estimated Emissions (S-3)

Pollutant	Emission Factors (g/hp-hr)	Annual Emissions (lb/yr)	Annual Emissions (TPY)	Max. Daily (lb/day)
NMHC+NOx	2.9895			
NOx	2.8400	40.6608	0.0203	19.5172
POC	0.0200	0.2863	0.0001	0.1374
CO	0.3700	5.2974	0.0026	2.5427
PM ₁₀	0.0400	0.5727	0.0003	0.2749
SO ₂ *	0.001515	0.0716	0.0000	0.0344
	*lb SO ₂ /MMBTU			

Table 1D – Estimated Emissions (S-4)

Pollutant	Emission Factors (g/hp-hr)	Annual Emissions (lb/yr)	Annual Emissions (TPY)	Max. Daily (lb/day)
NMHC+NOx	2.9895			
NOx	2.8400	40.6608	0.0203	19.5172
POC	0.0200	0.2863	0.0001	0.1374
CO	0.3700	5.2974	0.0026	2.5427
PM ₁₀	0.0400	0.5727	0.0003	0.2749
SO ₂ *	0.001515	0.0716	0.0000	0.0344
	*lb SO ₂ /MMBTU			

Table 1E – Estimated Emissions (S-5)

Pollutant	Emission Factors (g/hp-hr)	Annual Emissions (lb/yr)	Annual Emissions (TPY)	Max. Daily (lb/day)
NMHC+NOx	2.9895			
NOx	2.8400	40.6608	0.0203	19.5172
POC	0.0200	0.2863	0.0001	0.1374
CO	0.3700	5.2974	0.0026	2.5427
PM ₁₀	0.0400	0.5727	0.0003	0.2749
SO ₂ *	0.001515	0.0716	0.0000	0.0344
	*lb SO ₂ /MMBTU			

Table 1F – Total Estimated Emissions (S-1 thru S-5)

Pollutant	Annual Emissions (lb/yr)	Annual Emissions (TPY)	Max. Daily (lb/day)
NMHC+NOx			
NOx	667.2515	0.3336	320.2807
POC	33.2648	0.0166	15.9671
CO	263.9819	0.1320	126.7113
PM ₁₀	16.0620	0.0080	7.7098
SO ₂ *	0.9672	0.0005	0.4643

PLANT CUMULATIVE INCREASE

Table 2 summarizes the cumulative increase in criteria pollutant emissions that will result from the operation of S-1, S-2, S-3, S-4, and S-5.

Pollutant	Current Emissions (since April 5, 1991) (TPY)	Increase with this application (TPY)	Cumulative Emissions (Current + Increase) (TPY)
NOx	0.000	0.334	0.334
POC	0.000	0.017	0.017
CO	0.000	0.132	0.132
PM10	0.000	0.008	0.008
SO2	0.000	0.000	0.000

TOXIC RISK SCREENING ANALYSIS

This application required a Toxics Risk Screen because the diesel particulate emissions are greater than the toxic trigger level.

<u>Toxic Pollutant Emitted</u>	<u>Emission Rate (lb/yr)</u>	<u>Risk Screening Trigger (lb/yr)</u>
S-1 Diesel Genset PM10	6.8233	0.34
S-2 Diesel Genset PM10	3.4309	0.34
S-3 Diesel Genset PM10	0.5727	0.34
S-4 Diesel Genset PM10	2.6176	0.34
S-5 Diesel Genset PM10	2.6176	0.34
Total PM10 (Diesel Particulate)	16.0621	0.34

S-1, S-2, S-3, S-4, and S-5 meet Best Available Control Technology for toxics (TBACT) since the diesel particulate emissions are less than 0.15 g/bhp-hr for each source. For an engine that meets the TBACT requirement, it must also pass the toxic risk screening level of less than ten in a million. Estimates of residential risk assume exposure to annual average toxic air contaminant concentrations occur 24 hours per day, 350 days per year, for a 70-year lifetime. Risk estimates for offsite workers assume exposure occurs 8 hours per day, 245 days per year, for 40 years. Risk estimates for students assume a higher breathing rate, and exposure is assumed to occur 10 hours per day, 36 weeks per year, for 9 years.

Based on 50 hours per year of operation, the emergency generators passed the Health Risk Screening Analysis (HRSA) conducted on May 07, 2015 by the District's Toxic Evaluation Section. The sources poses no significant toxic risk, since the increased cancer risk to the maximally exposed receptor (resident) is 1.7 in a million with a hazard index of 0.0006. The increased cancer risk to the maximally exposed resident is 1.0 in a million with a hazard index of 0.0008. The Student Risk has been determined to be so small that it is considered de minimus. In accordance with the District's Regulation 2, Rule 5, this risk level is considered acceptable, as it has been determined that S-1, S-2, S-3, S-4, and S-5 meet the current TBACT standards.

BACT

In accordance with Regulation 2, Rule 2, Section 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 is triggered for NO_x, POC and CO since the maximum daily emissions of NO_x, POC and CO exceed 10 lb/day. Please refer to the discussion on "Daily Emissions" in page 1 of this evaluation. 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 7 dated 12/22/2010.

Source:	<i>IC Engine – Compression Ignition: Stationary Emergency, non-Agricultural, non-direct drive fire pump</i>	Revision:	7
		Document #:	96.1.3
Class:	> 50 BHP Output	Date:	12/22/2010

POLLUTANT	BACT		TYPICAL TECHNOLOGY
	1. Technologically Feasible/ Cost Effective	2. Achieved in Practice	
	3. TBACT		
POC	1. n/s ^c 2. CARB ATCM standard ^a for POC at applicable horsepower rating (see attached Table).		1. n/s ^c 2. Any engine certified or verified to achieve the applicable standard. ^a
NO_x	1. n/s ^c 2. CARB ATCM standard ^a for NO _x at applicable horsepower rating (see attached Table).		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 applicable horsepower rating (see attached Table).		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 ^c 2. n/s ^c		1. n/s ^c 2. n/s ^c

Reference:

a. ATCM standard (listed below): Where NMHC + NO_x is listed (with no individual standards for NO_x or NMHC) as the standard, the portions may be considered 95% NO_x 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.

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 < KW < 56 (50 < HP < 75)	0.20 (0.15)	4.7 (3.5)	5.0 (3.7)
56 < KW < 75 (75 < HP < 100)	0.20 (0.15)	4.7 (3.5)	5.0 (3.7)
75 < KW < 130 (100 < HP < 175)	0.20 (0.15)	4.0 (3.0)	5.0 (3.7)
130 < KW < 225 (175 < HP < 300)	0.20 (0.15)	4.0 (3.0)	3.5 (2.6)
225 < KW < 450 (300 < HP < 600)	0.20 (0.15)	4.0 (3.0)	3.5 (2.6)
450 < KW < 560 (600 < HP < 750)	0.20 (0.15)	4.0 (3.0)	3.5 (2.6)
KW > 560 (HP > 750)	0.20 (0.15)	6.4 (4.8)	3.5 (2.6)

For S-1, the NO_x, BACT(2) standard is 4.56 g/hp-hr; for POC, the BACT(2) standard is 0.15 g/hp-hr; and for CO, the BACT(2) standard is 2.6 g/hp-hr. BACT(1) have not been determined. S-1 meets the current emissions standard based on the emissions factors from EPA Certificate #: ECEXL015.AAJ-018 listed in the manufacturer's specification.

For S-2 the NO_x, BACT(2) standard is 2.85 g/hp-hr; for POC, the BACT(2) standard is 0.15 g/hp-hr; and for CO, the BACT(2) standard is 2.6 g/hp-hr. BACT(1) have not been determined. S-2 meets the current emissions standard based on the emissions factors from EPA Certificate#: ECEXL0540.AAB-008 listed in the manufacturer's specification.

For S-3, the NO_x, BACT(2) standard is 2.85 g/hp-hr; for POC, the BACT(2) standard is 0.15 g/hp-hr; and for CO, the BACT(2) standard is 3.7 g/hp-hr. BACT(1) have not been determined. S-3 meets the current emissions standard based on the emissions factors from EPA Certificate #: CCEXL0274.AAG-004 listed in the manufacturer's specification.

For S-4 and S-5, the NO_x, BACT(2) standard is 2.85 g/hp-hr; for POC, the BACT(2) standard is 0.15 g/hp-hr; and for CO, the BACT(2) standard is 2.6 g/hp-hr. BACT(1) have not been determined. S-4 meets the current emissions standard based on the emissions factors from the manufacturer's specification and EPA Certificate #: ACEXL0540.AAB-010 provided by the applicant.

OFFSETS

Offsets must be provided for any new or modified source at a facility that emits more than 10 tons/yr of POC or NO_x per Regulation 2-2-302. Table 3 summarizes the increase in criteria pollutant emissions that will result from the operation of S-1.

Table 3

Pollutant	Current plant emissions (TPY)	Increase in plant emissions associated with this application (TPY)	Cumulative emissions (Current + Increase) (TPY)	Regulation 2-2-302 and 2-2-303 Offset Triggers (TPY)
NOx	0.000	0.0484	0.0484	> 10; < 35
POC	0.000	0.0025	0.0025	> 10; < 35
CO	0.000	0.0334	0.0334	NA
PM10	0.000	0.0013	0.0013	> 1*
SO2	0.000	0.0001	0.0001	> 1*

*Applies to major facilities with a cumulative increase, minus contemporaneous emission reduction credits, in excess of 1 ton/year since April 5, 1991.

It can be seen from Table 3 above that all sources described in this application (S-1 thru S-5) do not trigger any offsets. Therefore, offsets are not warranted for any emission.

NMPS (New Source Performance Standards)

The engines are subject to 40 CFR 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines because it was manufactured after April 1, 2006, as required by Section 60.4200(a)(2)(i).

For S-1 the engine has a total displacement of 14.948 liters and has 6 cylinders, so each cylinder has a volume of less than 10 liters. The engine is a 2015 model year engine and is not a fire pump. Section 60.4205(b) requires these engines to comply with the emission standards in Section 60.4202, which refers to 40CFR89.112 and 40CFR89.113 for all pollutants. For engines greater than 750 bhp, these standards are:

NMHC+NOx: 4.8 g/hp-hr

CO: 2.60 g/hp-hr

PM: 0.15 g/hp-hr

20% opacity during acceleration mode

15% opacity during lugging mode

50% opacity during peaks in acceleration or lugging mode

According to the manufacturer's specification, with routine maintenance and normal operation, the engine described by S-1 will comply with the standards.

For S-2, the engine has a total displacement of 8.9 liters and has 6 cylinders, so each cylinder has a volume of less than 10 liters. The engine is a 2015 model year engine and is not a fire pump. Section 60.4205(b) requires these engines to comply with the emission standards in Section 60.4202, which refers to 40CFR89.112 and 40CFR89.113 for all pollutants. For engines greater than 300 bhp and less than 600 bhp, these standards are:

NMHC+NOx: 3.0 g/hp-hr

CO: 2.60 g/hp-hr

PM: 0.15 g/hp-hr

20% opacity during acceleration mode

15% opacity during lugging mode

50% opacity during peaks in acceleration or lugging mode

According to the manufacturer's specification, with routine maintenance and normal operation, the engine described by S-2 will comply with the standards.

For S-3, the engine has a total displacement of 4.460 liters and has 4 cylinders, so each cylinder has a volume of less than 10 liters. The engine is a 2012 model year engine and is not a fire pump. Section 60.4205(b) requires these engines to comply with the emission standards in Section 60.4202, which refers to 40CFR89.112 and 40CFR89.113 for all pollutants. For engines greater than 100 bhp and less than 175 bhp, these standards are:

NMHC+NOx: 3.0 g/hp-hr
CO: 3.70 g/hp-hr
PM: 0.15 g/hp-hr
20% opacity during acceleration mode
15% opacity during lugging mode
50% opacity during peaks in acceleration or lugging mode

According to the manufacturer's specification, with routine maintenance and normal operation, the engine described by S-3 will comply with the standards.

For S-4 and S-5, each engine has a total displacement of 8.9 liters and has 6 cylinders, so each cylinder has a volume of less than 10 liters. These engines are 2015 model year engines and are not a fire pumps. Section 60.4205(b) requires these engines to comply with the emission standards in Section 60.4202, which refers to 40CFR89.112 and 40CFR89.113 for all pollutants. For engines greater than 300 bhp and less than 600 bhp, these standards are:

NMHC+NOx: 3.0 g/hp-hr
CO: 2.60 g/hp-hr
PM: 0.15 g/hp-hr
20% opacity during acceleration mode
15% opacity during lugging mode
50% opacity during peaks in acceleration or lugging mode

According to the manufacturer's specification, with routine maintenance and normal operation, the engine described by S-4 and S-5 will comply with the standards.

Sections 60.4206 and 60.4211(a) require that the owner/operator operate and maintain the engines according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer, over the entire life of the engine. The owner/operator is expected to comply with this requirement.

Section 60.4207(a) requires that by October 1, 2007, the owner/operator must use fuel that complies with 40 CFR 80.510(a). This means that the fuel must have a sulfur content of 500 parts per million (ppm) maximum, a cetane index of 40 or a maximum aromatic content of 35 volume percent. The owner/operator is expected to comply with this requirement because CARB diesel is required to be used in California.

Section 60.4207(b) requires that by October 1, 2010, the owner/operator must use fuel that complies with 40 CFR 80.510(b). This means that the fuel must have a sulfur content of 15 parts per million (ppm) maximum, and the same cetane index or aromatic content as above. The owner/operator is expected to comply with this requirement because CARB diesel is required to be used in California.

Section 60.4209(a) requires a non-resettable hour meter. This requirement is already in the standard permit conditions.

The engines will comply with the requirements of Section 60.4211(c) because it has been certified in accordance with 40 CFR Part 89.

The engines will comply with the requirement in Section 60.4211(e) to each run for less than 100 hours per year for maintenance checks and readiness testing, and the prohibition of running for any reason other than emergency

operation, maintenance, and testing because they are limited by permit condition to 50 hours per year for reliability testing and otherwise may only operate for emergencies.

The owner/operator is not required to perform tests in accordance with Section 60.4212 or 60.4213.

Section 60.4214 states that owner/operators do not have to submit an initial notification to EPA for emergency engines.

Because the engines do not have a diesel particulate filter, the owner/operator is not subject to Section 60.4214(c).

The owner/operator is required to comply with certain sections of 40 CFR 60, Subpart A, General Provisions. The owner/operator is expected to comply with this requirement.

NESHAP (NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS)

This engines are subject to the emission or operating limitations in 40 CFR 63 National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines. Per NESAHP 40CFR63.6590(c)(1), a new or constructed reciprocating internal combustion engines is subject to Regulations under 40 CFR Part 60 (NSPS) and no further requirements apply for such engines under NESHAP. Therefore, S-1, S-2, S-3, S-4, and S-5 comply with NESHAP by meeting the requirements under 40CFR60 (NSPS).

CARB STATIONARY DIESEL ENGINE ATCM

The State Office of Administrative Law approved the Airborne Toxic Control Measure (ATCM) on November 8, 2004. State law requires the local Air Districts to implement and enforce the requirements of the ATCM. Effective January 1, 2005, there is a prohibition on the operation of new diesel emergency standby engines greater than 50 bhp unless the following operating requirements and emission standards are met:

“Stationary Diesel Engine ATCM” section 93115.6 (3)(A), title 17, CA Code of Regulations, Amended May 2011.

1. New stationary emergency standby diesel-fueled engines (>50 bhp) shall:
 - a. meet the applicable emission standards for all pollutants for the same model year and maximum horsepower rating as specified in the following Table Emission Standards for New Stationary Emergency Standby Diesel-Fueled CI Engines, in effect on the date of acquisition or submittal, and
 - b. after December 31, 2008, be certified to the new nonroad compression-ignition (CI) engine emission standards for all pollutants for 2007 and later model year engines as specified in 40 CFR, PART 60, Subpart III-Standards of Performance for Stationary Compression Ignition Internal Combustion Engines(2006); and
 - c. not operate more than 50 hours per year for maintenance and testing purposes.
2. The District may allow a new stationary emergency standby diesel-fueled CI engine (> 50 hp) to operate up to 100 hours per year for maintenance and testing purposes on a site-specific basis, provided the diesel PM emission rate is less than or equal to 0.01 g/bhp-hr.

Emission Standards for New Stationary Emergency Standby Diesel-Fueled CI Engine g/bhp-hr (g/kW-hr)				
Maximum Engine Power	Model Year	PM	NHMC+NO_x	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+			

The emergency standby diesel engines S-1, S-2, S-3, S-4 and S-5 are in compliance with the above ATCM requirements. Each diesel engine will operate for no more than 50 hours per year for maintenance and reliability testing. This engine is subject to the Current off-road CI engine standards for HC, NO_x, NMHC+NO_x and CO. As shown in the Table 4, Table 5, Table 6, and Table 7 the engines meet these requirements.

Table 4. ATCM Tier 3 Compliance for S-1

	Emissions from S-1 g/bhp-hr	ATCM Standard g/bhp-hr
NMHC+NO _x	3.8792	4.8000
NO _x	3.6852	N/A
NMHC (POC)	0.1940	N/A
CO	0.4476	2.6000
PM	0.0821	0.1500

Table 5. ATCM Tier 3 Compliance for S-2

	Emissions from S-2 g/bhp-hr	ATCM Standard g/bhp-hr
NMHC+NO _x	2.6110	3.0000
NO _x	2.4805	N/A
NMHC (POC)	0.1306	N/A
CO	1.7158	2.6000
PM	0.0671	0.1500

Table 6. ATCM Tier 3 Compliance for S-3

	Emissions from S-3 g/bhp-hr	ATCM Standard g/bhp-hr
NMHC+NOx	2.9895	3.0
NOx	2.8400	N/A
NMHC (POC)	0.0200	N/A
CO	0.3700	3.7
PM	0.0400	0.15

Table 7. ATCM Tier 3 Compliance for S-4 & S-5

	Emissions from each engine g/bhp-hr	ATCM Standard g/bhp-hr
NMHC+NOx	2.6110	3.0
NOx	2.4805	N/A
NMHC (POC)	0.1306	N/A
CO	1.7158	2.6
PM	0.0671	0.15

STATEMENT OF COMPLIANCE

S-1, S-2, S-3, S-4, and S-5 will be operated as emergency standby engines and therefore are not subject to the emission rate limits in Regulation 9, Rule 8 ("NOx and CO from Stationary Internal Combustion Engines"). S-1, S-2, S-3, S-4, and S-5 are exempt from the requirements of Sections 9-8-301 through 305, 501 and 503 per Reg. 9-8-110.5 (Emergency Standby Engines). S-1, S-2, S-3, S-4, and S-5 are subject to and expected to comply with 9-8-330 (Emergency Standby Engines, Hours of Operation) since non-emergency hours of operation will be limited in the permit conditions to 50 hours per year for each engine. S-1, S-2, S-3, S-4, and S-5 are also subject to and expected to comply with monitoring and record keeping requirements of Regulation 9-8-530 and the SO2 limitations of 9-1-301 (ground-level concentration) and 9-1-304 (0.5% by weight in fuel). Regulation 9-8-530 requirements are incorporated into the proposed permit conditions. Compliance with Regulation 9, Rule 1 is very likely since diesel fuel with a 0.0015% by weight sulfur is mandated for use in California. Like all combustion sources, each engine is subject to Regulation 6, Rule 1 ("Particulate Matter"). Regulation 6-1-303.1 limits opacity from internal combustion engines to Ringelmann 2. These engines are not expected to produce visible emissions or fallout in violation of this regulation and will be assumed to be in compliance with Regulation 6-1.

This application is considered to be ministerial under the District's Regulation 2-1-311 and therefore is not subject to CEQA review. The engineering review for this project requires only the application of standard permit conditions and standard emission factors in accordance with Permit Handbook Chapter 2.3.

This facility is within 1,000 feet from the nearest school and therefore is subject to the public notification requirements of Regulation 2-1-412. The Nueva School is a K-12 that is approximately 403 Feet from S-1 and approximately 680 feet from S-2.

PSD is not triggered.

PERMIT CONDITIONS

For each source; S-1, S-2, S-3, S-4 and S-5:

COND# 22850 -----

- 1. The owner/operator shall not exceed 50 hours per year per engine for reliability-related testing.
[Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (e)(2)(A)(3) or (e)(2)(B)(3)]
- 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: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (e)(2)(A)(3) or (e)(2)(B)(3)]
- 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: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection(e)(4)(G)(1)]
- 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: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection e)(4)(I), (or, Regulation 2-6-501)]

- 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: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (e)(2)(A)(1)] or (e)(2)(B)(2)]

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 for the equipment listed below. However, the proposed source will be located within 1000 feet of a school, which triggers the public notification requirements of District Regulation 2-1-412.6. After the comments are received and reviewed, the District will make a final determination on the permit.

I recommend that the District initiate a public notice and consider any comments received prior to taking any final action on waiving the Authority to Construct issuance of a Permit To Operate (PO) for the following sources:

- S-1 Emergency Standby Diesel Generator Set, Year 2015
Cummins, Model QSX15-G9
755 BHP, 4.12 MMBTU/hr**

- S-2 Emergency Standby Diesel Generator Set, Year 2015
Cummins, Model QSL9-G3
464 BHP, 2.69 MMBTU/hr**

- S-3 Emergency Standby Diesel Generator Set, Year 2012
Cummins, Model QSB-G3 NR3
130 BHP, 0.95 MMBTU/hr**

- S-4 Emergency Standby Diesel Generator Set, Year 2010
Cummins, Model QSL9-G2 NR3
354 BHP, 2.51 MMBTU/hr**

- S-5 Emergency Standby Diesel Generator Set, Year 2010
Cummins, Model QSL9-G2 NR3
354 BHP, 2.51 MMBTU/hr**

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