DRAFT
Engineering Evaluation Report
San Francisco Hall of Justice
850 Bryant Street, CA 94103
Application #20382 Plant #19587

1. BACKGROUND

This application is for a Permit to Operate a 364 Bhp diesel-fired engine used as a driver for an emergency generator. The source description is as follows.

S-1 Diesel Engine, Volvo Model TAD1641GE, 757 Bhp, EPA Engine Family 9VPXL16.1ACB, to power an Emergency Generator
S-2 Diesel Engine, Volvo Model TAD1641GE, 757 Bhp, EPA Engine Family 9VPXL16.1ACB, to power an Emergency Generator
S-3 Diesel Engine, Volvo Model TAD1641GE, 757 Bhp, EPA Engine Family 9VPXL16.1ACB, to power an Emergency Generator
S-4 Diesel Engine, Volvo Model TAD1641GE, 757 Bhp, EPA Engine Family 9VPXL16.1ACB, to power an Emergency Generator

The engine family is certified at 0.07g/bhp-hr for PM emissions by CARB. This is documented in the ARB web site link http://www.arb.ca.gov/msprog/offroad/cert/certsearch.php. Thus the engine meets TBACT requirement for PM.

2. EMISSION CALCULATIONS

Emission calculations are on another hand written sheet in the file. The summary is as follows.

A. Calculations Basis:

Hours of Operation, Annual:	20
Horsepower at Operation:	757
Fuel Usage Rate:	31.2 GPH

Table 1, Emission Factors and Emissions:
The following certified emission factors from the CARB Executive Order No. U-R-014-0112. correspond to the engine family used to calculate the emissions. The certified combined NOx+NMHC factor of 2.91g/bhp-hr was split NOx/NMHC by 95/5 in accordance with District review of past data.

FACTORS	PM10*	NOx	NMHC*	CO*	SO_2
Emission Factors (g/bhp-hr)	0.0746	3.83	0.2	0.52	**0.004
Emissions (Lbs/year)/Engine	2.49	127.83	6.68	17.37	0.13
Total Emissions for Sources S-1 to S-4, all 4 Engines (lb/yr)	9.96	511,32	26.72	69.48	0.52
Total emissions for Sources S-1 to S-4 (t/yr)	0.005	0.26	0.013	0.034	Negligible
Emission (Lb/day) Annual Avg.	0.026	1.4	Negligible	Negligible	Negligible

** SO_2 emission calculated based on 0.0015 weight % Sulfur in the fuel

B. Cumulative Increase:

This source is subject to cumulative increase driven regulations and are as follows:

FACTORS	PM10*	NOx*	NMHC*	CO*	SO_2
Cumulative increase (tons/year}	0.005	0.26	0.013	0.034	0.00034

3. Compliance Statement:

A. Carcinogenic Risk Evaluation

This engine complies with TBACT with an uncontrolled diesel particulate emission level of 0.07 g/bhp-hr obtained under ISO 8178 D2 test conditions. The facility is located in a commercial area. The risk due to uncontrolled emission is 26 in a million for the maximally exposed industrial receptor for 50 hours of operation per year for testing and maintenance purposes thus failing the risk screen. However conversations with the facility has confirmed that they are agreeable to a limiting condition of 20 hours per year for testing and maintenance which will reduce the risk to an acceptable 10 in a million. Thus the risk screen passes for 20 hours of operation for testing and maintenance.

B. Regulation 1 – General Provisions and Definitions

§1-301: Prohibits discharging emissions in quantities that cause injury, detriment, nuisance, or annoyance. The toxic evaluation addresses these issues.

C. Permits – General Requirements, Regulation 2 Rule 1

The source is located within 1000 feet of the following schools, and therefore it is subjected to the public notification requirements of 2-1-412.

Five Keys (SF Sheriffs Dept.) Charter School
70 Oak Grove Street
San Francisco, CA 94107

Bessie Carmichael/Fec School

375 Seventh St.
San Francisco, CA 94103

San Francisco County Special Education School
1098 Harrison Street
San Francisco, CA 94103

D. Permits – New Source Review, Regulation 2 Rule 2 (dated 10/7/98)

1. **BACT:** District policy for new emergency standby diesel engine generators is to require Best Available Control Technology (BACT) for NO_x, CO, SO2 and POC where emissions are greater than 10 lb/highest day and TBACT for toxic diesel PM10. A comparison of BACT against the ISO 8178, D-2 test emission factors is as follows. The proposed engines will meet CARB Tier 2 off-road standards.

POLLUTANT	BACT LEVEL (g/bhp-hr)	CARB Certified Estimate (g/bhp-hr)
NOx	6.9 (Level 2)	3.83
CO	2.75 (Level 2)	0.52
PM10	0.15 (TBACT)	0.075
NMHC	1.5 (Level 2)	0.2
SO2	Diesel less than 0.0015 wt.% S will be used	Diesel less than0.0015% wt.% S will be used

The engine complies with BACT and TBACT requirements.

2. **Offset Requirements:** §2-2-303: Since plant emission levels of NOX or POC are far below offset trigger levels (10 tpy), offset thresholds are not triggered and therefore offsets are not required for this project.

3. **Prevention of Significant Deterioration:** §2-2-304: District PSD requirements apply to emissions of SO2, NO2, CO, and PM10. Since this facility is not a major facility for any of these pollutants, the PSD requirements do not apply.

E. Regulation 3 – Fees

The company has complied with fee requirements for this permit application.

F. Particulate Matter and Visible Emissions, Regulation 6

1. Section 301 prohibits for more than 3 minutes per hour, visible emissions as dark or darker than Ringelmann 1 or equivalent opacity. S-3 is expected to comply with this requirement.

2. Section 305 prohibits emissions of visible particles from causing a nuisance on property other than the operators. S-3 is expected to comply with this standard.

3. Section 310 limits the particulate concentration in exhaust gases to 0.15 gr/dscf. At the estimated 702 cfm, on a daily emissions basis, the resulting concentration in the exhaust would be far below 0.15 grain/dscf. Hence this application complies with this requirement.

G. NSPS/NESHAPS

The proposed engines are subject to New Source Performance Standards (NSPS) 40 CFR 60, Subpart IIII because they were manufactured after April 1, 2006. They comply with the NSPS emission standards as certified by CARB Executive order U-R-014-0112 for the equivalent California off road compression ignition engine standards. The National Emission Standards for Hazardous Air Pollutants National Emission Standards for Hazardous Air Pollutants (NESHAPS) does not apply because the facility is not a major facility for Hazardous Air Pollutants.

H. CEQA

This project is considered to be ministerial under the District's CEQA Regulation 2-1-311. The engineering review for this project requires only the application of standard permit conditions and standard emissions factors and therefore is not discretionary as defined by CEQA.

J. Diesel Engine ATCM:

The project complies with the 0.15 g/bhp-hr PM standard required by the State ATCM for diesel particulate emissions operating for 50 hours or less per year for non-emergency, reliability testing purposes.

5. CONDITIONS

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850 Bryant Street, CA 94103
Application #20382 Plant #19587
Condition Number: 22850

The conditions apply to the following sources:

S-1 Diesel Engine, Volvo Model TAD1641GE, 757 Bhp, EPA Engine Family 9VPXL16.1ACB, to power an Emergency Generator
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S-3 Diesel Engine, Volvo Model TAD1641GE, 757 Bhp, EPA Engine Family 9VPXL16.1ACB, to power an Emergency Generator

S-4 Diesel Engine, Volvo Model TAD1641GE, 757 Bhp, EPA Engine

Family 9VPXL16.1ACB, to power an Emergency Generator

1 Operating for reliability-related activities is limited to 20 hours per year per engine. [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 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 hours 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, sub-section (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. 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)]

6. RECOMMENDATIONS

Issue Authorities to Construct for the following sources S-1, S-2, S-3 and S-4 subject to Condition # 22850.

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JUNE 16, 2009