

**Draft
Engineering Evaluation
Mt. Diablo Unified School District
Application # 15391
Plant # 18091**

BACKGROUND

Mt. Diablo Unified School District has applied for an Authority to Construct/Permit to Operate:

S-1 Standby Diesel Generator Set, Model QSL9-G2, Engine Manufacturer: Cummins, Rated at 364 Bhp output

The generator set will be used to provide electricity in case of an electric blackout.

EMISSIONS CALCULATIONS

The emission factors used to estimate emissions from the engine described above are from ARB's engine family testing data, executive order **U-R-002-0331**. The engine will be limited to a maximum of 50 hours for non-emergency use per year. Maximum annual output is: 50 hr/yr X 364 BHP-hr = 18200 BHP/yr for S-1.

Emission for S-1

Pollutant	Emission Factor (gr/BHP-hr)	Annual Emissions (ton/yr)
PM-10	0.12	0.0024
POC	0.15	0.0030
Nitrogen Oxides	2.76	0.0553
Carbon Monoxide	2.39	0.0479

PLANT CUMULATIVE EMISSIONS

POC=0.0030 tpy
NOx=0.0553 tpy
PM= 0.0024 tpy
CO= 0.0479 tpy

TOXICS RISK SCREENING ANALYSIS

A Toxics Risk Screening Analysis was required for diesel engine exhaust. A risk screening analysis was performed for estimated emissions from 50 hours of operation per year. The maximum cancer risk was found to be 5.9 in a million, and was acceptable under the District's risk management policy (report enclosed) for engine that meet current TBACT requirements of 0.12 g/bhp-hr for PM emissions.

STATEMENT OF COMPLIANCE

S-1 will be operated as an emergency standby engine and therefore, is not subject to the emission rate limits in Regulation 9, Rule 8 (NO_x and CO from Stationary Internal Combustion Engines). S-1 is subject to the monitoring and record keeping requirements of Regulation 9-8-530 and the SO₂ limitations of Reg. 9-1-301 (ground level concentration) and Reg. 9-1-304 (0.5% by weight in fuel). Regulation 9-8-530 requirements are incorporated into the proposed permit conditions. Compliance with Regulation 9-1 is expected since diesel fuel with a 0.05% by weight sulfur is mandated for use in California. Like all sources, S-1 is subject to Regulation 6 (Particulate and Visible Emissions). This engine is not expected to produce visible emissions or fallout in violation of this regulation and is assumed to be in compliance with Regulation 6 pending regular inspection.

This diesel engine is subject to the Stationary Diesel Engine Air Toxics Control Measure (ATCM) and is considered a new stationary emergency standby diesel engine since it will be installed after January 1, 2005 and is larger than 50 HP. The requirement of the ATCM will be included in the permit conditions.

The project is considered to be ministerial under District's CEQA 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 (MOP Chapter 2.3) and therefore is not discretionary as defined by CEQA.

Offset credits must be provided for any new or modified source of POC or NO_x emissions at facilities which emit more than 10 tons per year of these pollutants. The District may provide offsets for facilities with POC or NO_x emissions between 10 and 35 tons per year as long as the facility has no available offset credits and all existing sources of POC and/or NO_x are equipped with Best Available Retrofit Control Technology (BARCT). Total facility emissions, including this project, will be less than 10 tons per year of POC or NO_x. Therefore, offsets are not required.

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 per highest day of POC, NO_x, CO, SO₂, or PM-10. Based on the above emission calculations, the owner/operator of S-1 is subject to BACT for NO_x emissions. BACT levels do not apply for engines used exclusively for emergency use during involuntary loss of power per the BACT workbook, document 96.1.2 of the BAAQMD BACT Guidelines for IC engines. The engine will meet BACT2 limits.

Offsets

Offsets were not triggered by S-1

The source is located within 1,000 feet of Monte Gardens Elementary School, Shadelands Center, and Sunrise (Special Education) Elementary School. A school public notice will be required as per District Reg.2-1-412.

PSD, NSPS, NESHAPs do not apply to this application.

PERMIT CONDITIONS

COND# 22850 -----

1. Operating for reliability-related activities is limited to 50 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, 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 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: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (e)(2)(A)(1)] or (e)(2)(B)(2)]

RECOMMENDATIONS

It is recommended that the Authority to Construct be issued for:

**S-1 Standby Diesel Generator Set, Model QSL9-G2, Engine Manufacturer: Cummins,
Rated at 364 Bhp output**

by: Alan Chiu Date: 1/29/07
Air Quality Engineer II