

ENGINEERING EVALUATION

Verona Apartment

Application #7370 - Plant #15353

20488 Stevens Creek Blvd.
Cupertino, CA 95014

I. BACKGROUND

On behalf of Verona Apartment, Webcor Builders has applied for an Authority to Construct/Permit to Operate for the following equipment:

S-1 Emergency Diesel Generator, Cummins Model 150 DFEK, 755 HP, 5.03 MMBtu/hr.

II. EMISSION CALCULATIONS

This engine is CARB's certified at 0.08 gr/bhp-hr of PM10 as provided by the vendor (see attachment). Source S-1 met BACT and TBACT requirements. The engine, S-1, passed the toxic screening analysis at 100 hr/yr with 6.9 in a million risk. Emission factor for SOx is based on 0.05% fuel sulfur by weight:

| | <u>S-1 CARB certified</u> | <u>BACT(2)</u> |
|-------------|---------------------------|----------------|
| NOx | 6.41 gr/bhp-hr | 6.9 gr/bhp-hr |
| CO | 0.75 gr/bhp-hr | 2.75 gr/bhp-hr |
| POC | 0.075gr/bhp-hr | 1.5 gr/bhp-hr |
| PM10-diesel | 0.08 gr/bhp-hr | 0.15 gr/bhp-hr |

Emissions from S-1:

Hours of Operation = 100 hr/yr

Diesel Heat Capacity = 19,300 BTU/lb

Fuel Consumption = 36.7 gal/hr

Estimated Fuel Usage = 36.7 gal/hr X 100 hr/yr = 3,670 gal/yr.

NOx = 6.41 gr/bhp-hr (755 hp)(1 lb/454 g)(100 hr/yr) = 1066 lb/yr or 0.533 TPY

CO = 0.75gr/bhp-hr (755 hp)(1 lb/454 g)(100 hr/yr) = 125 lb/yr or 0.062 TPY

POC = 0.075 gr/bhp-hr (755 hp)(1 lb/454 g)(100 hr/yr) = 12.5 lb/yr or 0.006 TPY

PM10 = 0.08 gr/bhp-hr (755 hp)(1 lb/454 g)(100 hr/yr) = 13.3 lb/yr or 0.007 TPY

SOx = (36.7 gal/hr)(7.1 lb/gal)(0.0005S)(64 lb SO2/32 lb S)(100 hr/yr) = 26 lb/yr or 0.013 TPY

III. PLANT CUMULATIVE INCREASE AFTER 4/5/91

| | <u>Current</u> <u>Ton/yr</u> | <u>New</u> <u>Ton/yr</u> | <u>New Total</u> | |
|--------------------|---------------------------------|-----------------------------|------------------|----------------|
| | | | <u>Lbs/yr</u> | <u>Tons/yr</u> |
| POC = | 0.00 | 0.006 | 12.5 | 0.006 |
| NO _x = | 0.00 | 0.533 | 1066 | 0.533 |
| SO ₂ = | 0.00 | 0.013 | 26 | 0.013 |
| CO = | 0.00 | 0.062 | 125 | 0.062 |
| NPOC = | 0.00 | 0.00 | 0 | 0.00 |
| PM ₁₀ = | 0.00 | 0.007 | 13.3 | 0.007 |

IV. TOXIC SCREENING ANALYSIS

This application required a Toxics Risk Screening because the diesel particulate emissions are greater than the toxic trigger level. S-1 does meet TBACT.

| <u>Toxic Pollutant</u> <u>Emitted</u> | <u>Emission Rate for S-1</u> <u>(lb/yr)</u> | <u>Risk Screening</u> <u>Trigger (lb/yr)</u> |
|--|--|---|
| PM 10 (Diesel Particulate) | 13.3 | 0.6 |

For 100 hours per year, the risk to the maximally exposed residential receptor is 6.9 in a million, and the hazard index for the resident will be 0.0066 based on a particulate emission rate of 0.08 g/BHP-hr. The level of risk for students at schools within a quarter of a mile is 0.16 in a million (see attached toxic evaluation dated 5/19/03). Thus, In accordance with the risk management policy the screen passes (see 3/2/01 policy memo).

V. BEST AVAILABLE CONTROL TECHNOLOGY

S-1 from this facility triggers BACT since the emission rate of NO_x from this source is more than 10 pounds of emission per highest day per Regulation 2-2-301. Source S-1 will comply with BACT(2) because it is CARB certified at the level below the BACT(2) requirements. The use of a Selective Catalyst Unit to meet BACT(1) is not required because it is not cost effective for emergency generators on a standby basis.

VI. OFFSETS

Offsets are not required since the facility's POC, and NO_x emissions are much less than 15 ton/yr per Regulation 2-2-302.

VII. STATEMENT OF COMPLIANCE

Source S-1 is subject to and expected to be in compliance with the requirements of District Regulation 1-301 "Public Nuisance", District Regulation 6 "Particulate Matter and Visible Emissions", Regulation 9-8 "NO_x and CO from Stationary Internal Combustion Engines" and Regulation 9-1 "Sulfur Dioxide". In order to ensure compliance with the requirements of these regulations, the facility will be conditionally permitted to meet the requirements.

This project is considered to be ministerial under the 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 in accordance with Permit Handbook Chapter 2.3.

The project is within 1000 feet from the nearest school and therefore the owner/operator is subject to the public notification requirements of Reg. 2-1-412. A public notice was prepared and sent on Date----. The public notices were sent to:

All addresses within 1000 feet of the diesel generator
Parents and guardians of students at St. Joseph of Cupertino Elementary School

Over 30 days of comment period, there were ?? written comments. ??? phone-mail messages and ??? e-mail messages were received from parents of students at St. Joseph of Cupertino Elementary School.

Offsets, PSD, NSPS, and NESHAPS are not triggered.

VIII. CONDITIONS

Permit condition for S-1, Emergency Generator, 755 HP, Webcor Builders on behalf of Verona Apartments; Application # 7370; Plant # 15353.

1. The engine for emergency generator S-1 shall be fired exclusively on diesel fuel having a sulfur content no greater than 0.05% by weight. The sulfur content of the fuel oil shall be certified by the fuel oil vendor. [Basis: Cumulative Increase]

"Emergency Conditions" is defined as any of the following: [Basis: Regulation 9-8-231]

- a. Loss of regular natural gas supply
 - b. Failure of regular electric power supply
 - c. Flood mitigation
 - d. Sewage overflow mitigation
 - e. Fire
 - f. Failure of a primary motor, but only for such time as needed to repair or replace the primary motor
2. S-1 shall only be operated to mitigate emergency conditions or for reliability-related activities. Operation for reliability-related activities shall not exceed 100 hours in any calendar year at this engine. Operation while mitigating emergency conditions is unlimited. [Basis: Regulation 9-8-330, Cumulative Increase]
- “Reliability-related activities” is defined as any of the following: [Basis: Regulation 9-8-232]
- a. Operation of an emergency standby engine to test its ability to perform for an emergency use, or
 - b. Operation of an emergency standby engine during maintenance of a primary motor
3. S-1 shall be equipped with either: [Basis: Regulation 9-8-530]
 a non-resettable totalizing meter that measures the hours of operation for the engine
OR
 a non-resettable fuel usage meter; the following factors shall be used to convert fuel usage to hours of operation:
 S-1: 36.7 gal/hr
4. The following monthly records shall be maintained in a District-approved log for at least 2 years for S-1 and shall be made available for District inspection upon request: [Basis: Regulations 9-8-530, 1-441]
- a. Total hours of operation for each engine
 - b. Hours of operation under emergency conditions for each engine and a description of the nature of each emergency condition
 - c. Fuel usage for S-1

IX. RECOMMENDATION

Waive the Authority to Construct and Issue conditional Permit to Operate to Webcor Builders on behalf of Verona Apartments, for the following equipment:

S-1 Emergency Diesel Generator, Cummins Model 150 DFEK, 755 HP, 5.03 MMBtu/hr.

Thu H. Bui
Air Quality Engineer II
Permit Services Division

Date: _____

THB:disk-y\7370\7370e