

EVALUATION REPORT

Company San Jose Civic Center
Application # 7160
Plant # 15267

1. Background:

San Jose Civic Center has applied for an Authority to Construct and/or Permit to Operate the following equipment:

S-1 Standby Generator (2847.5 HP), Caterpillar, Model 3516B

2. Emission Calculations:

S-1

Emission factors are taken from manufacturers data for NO_x, CO, POC, and TSP. Emission factor for SO₂ is based on 0.05% wt. sulfur limit for fuel. Per the Air Toxics Risk Screening results, San Jose Civic Center shall be limited to operating the generator (S-1) only 100 hours per year.

PM₁₀ = TSP (Diesel Particulate) = 0.1 gr/bhp-hr

CO = 2.75 gr/bhp-hr

NO_x = 6.9 gr/bhp-hr

POC (HC) = 1.5 gr/bhp-hr

SO_x = 0.052 lb/MMBTU

Estimated Fuel Usage = 135.9 gal/hr(100 hr/yr) = 13,590 gal/yr

Heat Input = 135.9 gal/hr(7.1 lb/gal)(19,300 BTU/lb/10⁶ BTU/MMBTU) = 18.62 MMBTU/hr

PM₁₀ (Diesel Particulate)

PM₁₀ = 0.1 g/bhp-hr(2847.5 HP)(1 lb/454 g)(100 hr/yr) = 62.72 lbs/yr > 0.5 lbs/yr

PM₁₀ = 0.03 TPY

TOXICS

Because the diesel particulate emissions are greater than the toxic trigger level (0.6 lb/yr), an Air Toxics Screening was required. According to risk screening (see 4/3/03 memo), the maximum cancer risk is estimated to be less than 10 in a million, as long as the generator has a stack height of at least 18 feet above grade and operates for no more than 100 hours per year. The permit conditions for this generator (S-1) shall include these requirements. As a result, the generator (S-1) can be estimated to have a maximum cancer risk of less than 10 in a million, which is acceptable under the District's Risk Management Policy and the risk screen passes.

Carbon Monoxide (CO)

CO = 2.75 gr/bhp-hr(2847.5 HP)(1 lb/454 g)(100 hr/yr) = 1,725 lbs/yr

CO = 0.86 TPY

Nitrogen Oxide (NO_x)

$$\text{NO}_x = 6.9 \text{ gr/bhp-hr}(2847.5 \text{ HP})(1 \text{ lb}/454 \text{ g})(100 \text{ hr/yr}) = 4,328 \text{ lbs/yr}$$

NO_x = 2.16 TPY

Precursor Organic Compound (POC)

$$\text{POC} = 1.5 \text{ gr/bhp-hr}(2847.5 \text{ HP})(1 \text{ lb}/454 \text{ g})(100 \text{ hr/yr}) = 941 \text{ lbs/yr}$$

POC = 0.47TPY

Sulfur Dioxide (SO_x)

$$\text{SO}_x = 0.052 \text{ lb/MMBTU}(18.62 \text{ MMBTU/hr})(100 \text{ hr/yr}) = 97 \text{ lbs/yr}$$

SO_x = 0.05 TPY

3. Statement of Compliance:

With an annual operating limit of 100 hours per year, the emergency generator (S-1) complies with Regulation 9-8. Because the emissions of PM₁₀, NO_x, CO, POC, and SO_x for this source are estimated to exceed 10 pounds per day, the emergency generator is subject to Best Available Control Technology (BACT) review. However, the generator (S-1) does meet BACT2 emission limits for PM₁₀, NO_x, CO, and POC.

Because the emergency generator (S-1) and the existing facility emissions do not exceed 15 TPY, offsets are not triggered.

Regulation 10 - New Source Performance Standard and Regulation 11 - Hazardous Pollutants requirements are also not triggered. Because this application is ministerial (Permit Handbook Chapter 2.3), the requirements of the California Environmental Quality Act (CEQA) are not triggered.

Because this generator (S-1) is located within 1000 feet of Horace Mann Elementary School (55 N. Seventh Street, San Jose, CA, 95112), a public notice is triggered.

4. Conditions

I recommend the following conditions for S-1:

- 1. The owner/operator shall operate S-1 in compliance with the requirements of Regulation 6 ("Particulate and Visible Emissions"). [basis: Regulation 6]**
- 2a. The owner/operator shall operate S-1 for no more than 100 hours in any consecutive 12-month period for the purpose of reliability testing or in anticipation of imminent emergency conditions. Emergency conditions are failure of a regular power supply. [basis: Regulation 9-8-330.2]**
- 2b. The owner/operator may operate S-1 for an unlimited amount of time for the purpose of providing emergency standby power during emergency conditions (as defined in Part 2a). [basis: Regulation 9-8-330.1]**

- 3a. The owner/operator shall equip S-1 with a non-resettable totalizing counter, which records hours of operation for each engine. [basis: Regulation 9-8-530]
- 3b. The owner/operator shall maintain the following monthly records in a District-approved log for at least 2 years and shall be made available to the District upon request:
1) total hours of operation for S-1
2) hours of operation under emergency conditions for S-1 and a description of the nature of the emergency condition
3) fuel usage at S-1
[basis: Regulation 9-8-530]
4. The owner/operator shall maintain the stack height of the generator (S-1) to be at least 18 feet above grade (stack + building height). [basis: Toxics]
5. The owner/operator shall operate S-1 to not exceed the following emission rates when tested at 100% load:
- | | |
|---------------------------------|-------------------------------|
| a. Diesel particulate emissions | 0.1 g/BHP-hr |
| b. Nitrogen Oxides (NOx) | 490 ppmv @ 15% O ₂ |
| c. Carbon Monoxide (CO) | 319 ppmv @ 15% O ₂ |
| d. Hydrocarbons (POC) | 309 ppmv @ 15% O ₂ |
- [basis: TBACT/BACT]

5. **Authority to Construct:**

I recommend that the Authority to Construct be issued to San Jose Civic Center for the following:

S-1 Standby Generator (2847.5 HP), Caterpillar, Model 3516B

6. **Exemptions:**

None.

12/80-ER1

By M.K. Carol Lee
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