

**Engineering Evaluation  
MXB Battery, LP  
Application # 24343  
Plant # 21234**

**BACKGROUND**

MXB Battery, LP has applied for an Authority to Construct and/or a Permit to Operate the following equipment:

**S-1 Emergency Standby Diesel Generator Set, John Deere model 5030HF285G engine; 97 BHP**

The engine will be located at 717 Battery St., San Francisco. It will be used to provide emergency power in the event of a blackout. The emergency engine must be periodically tested to ensure that it will generate electricity when needed.

**EMISSIONS**

**Annual Average Emissions:**

- Basis:
- 97 bhp output rating for full-load, standby operation
  - 50 hr/yr operation for testing and maintenance
  - NO<sub>x</sub>, VOC, CO and PM<sub>10</sub> emission factors from CARB certification data (Executive Order U-R-004-0418):
    - NO<sub>x</sub>: 2.91 g/hp-hr
    - POC: 0.15 g/hp-hr
    - CO: 1.27 g/hp-hr
    - PM<sub>10</sub>: 0.16 g/hp-hr
  - SO<sub>2</sub> emission factor is from EPA AP-42, Table 3.4-1 ("Large Stationary Diesel and Dual-Fuel Engines"), which is based on full conversion of fuel sulfur to SO<sub>2</sub> and which will therefore be considered applicable to any diesel engine (sulfur content will be assumed to be the California limit of 0.05 wt% sulfur):  
SO<sub>2</sub>: 8.09E-3(0.0005) lb/hp-hr (454 g/lb) = 0.0018 g/hp-hr

**NO<sub>x</sub>: (50 hr/yr)(97 hp)(2.91 g/hp-hr)(lb/454 g) = 31.0 lb/yr = 0.016 tpy**

**POC: (50 hr/yr)(97 hp)(0.150 g/hp-hr)(lb/454 g) = 1.63 lb/yr = 0.001 tpy**

**CO: (50 hr/yr)(97 hp)(1.27 g/hp-hr)(lb/454 g) = 13.6 lb/yr = 0.007 tpy**

**PM<sub>10</sub>: (50 hr/yr)(97 hp)(0.16 g/hp-hr)(lb/454 g) = 1.67 lb/yr = 0.001 tpy**

**SO<sub>2</sub>: (50 hr/yr)(97 hp)(0.0018 g/hp-hr)(lb/454 g) = 0.02 lb/yr = 0.000 tpy**

**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 operation will be assumed.

**NO<sub>x</sub>: (24 hr/day)(97 hp)(2.91 g/hp-hr)(lb/454 g) = 14.9 lb/day**

**POC: (24 hr/day)(97 hp)(0.150 g/hp-hr)(lb/454 g) = 0.77 lb/day**

**CO: (24 hr/day)(97 hp)(1.27 g/hp-hr)(lb/454 g) = 6.51 lb/day**

**PM<sub>10</sub>:** (24 hr/day)(97 hp)(0.16 g/hp-hr)(lb/454 g) = **0.82 lb/day**

**SO<sub>2</sub>:** (24 hr/day)(97 hp)(0.0018 g/hp-hr)(lb/454 g) = **0.009 lb/day**

### **PLANT CUMULATIVE INCREASE**

Table 1 summarizes the cumulative increase in criteria pollutant emissions that will result at Plant 20632 from the operation of S-1.

<b>Pollutant</b>	<b>Current plant emissions (TPY)</b>	<b>Increase in plant emissions associated with this application (TPY)</b>	<b>Cumulative emissions (Current + Increase) (TPY)</b>
NO <sub>x</sub>	0	0.022	0.022
POC	0	0.001	0.330
CO	0	0.005	0.005
PM <sub>10</sub>	0	0.001	0.001
SO <sub>2</sub>	0	0.000	0.000

### **TOXIC 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 for S-1. The maximum cancer risk was found to be 3.5 in a million. In accordance with the District's Regulation 2, Rule 5, this risk level is considered acceptable as the engine meets current TBACT requirements.

### **PUBLIC NOTIFICATION**

The project is within 1000 feet of a public school and therefore is subject to the public notification requirements of Reg. 2-1-412. A public notice was prepared and posted on the Internet. The public notice was sent to parents and guardians of children enrolled at Fusion Academy and John Yehall Chin Elementary School and residential and business neighbors located within 1000 feet of the proposed new source of pollution.

### **OFFSETS**

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<sub>x</sub>, CO, SO<sub>2</sub>, or PM<sub>10</sub>. Based on the above emission calculations, the owner/operator of S-1 is subject to BACT for NO<sub>x</sub> emissions. BACT for this source is presented in the current BAAQMD BACT/TBACT Workbook for this source category.

The more restrictive BACT 1 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 BACT 2 limits.

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

### **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<sub>x</sub> 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 SO<sub>2</sub> 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.

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.

### **PERMIT CONDITIONS**

Conditions for S-1, Emergency Diesel Generator Set  
Application #24343, Plant #21234

#### **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**

Issue Authority to Construct to SunPower Corporation for:

**S-1      Emergency Standby Diesel Generator Set, John Deere model 5030HF285G engine;  
97 BHP**

by: \_\_\_\_\_ Date: \_\_\_\_\_

Faye Bruno  
Air Quality Engineer II