DRAFT ENGINEERING EVALUATION

830 Eddy Street, LLC
Plant 24699 | Application 30498
830 Eddy Street, San Francisco, CA

BACKGROUND

830 Eddy Street, LLC has submitted Application # 30498 for an Authority to Construct and Permit to Operate for the following equipment:

S-1 Stationary Emergency Diesel Generator Set
Make: Kohler, Model: 500REOZJ, Year: 2020
Engine: John Deere 6135HFG75, 2020
Engine Family: LJDXL13.5132
755 BHP, 4.97 MMBTU/hr

Abated by:

A-1 Diesel Particulate Filter with Oxidation Catalyst, Johnson Matthey, Model JM-CRT(+)-3-N-MS-BITO-10/10-LP

EMISSIONS

This engine meets the Environmental Protection Agency (EPA) and CARB Tier 2 off-road standard. The engine will burn commercially available California low sulfur diesel fuel. The sulfur content of the diesel fuel will not exceed 0.0015% by weight. The operation of the engine should not pose any health threat to the surrounding community or the public at-large.

Except for SO_2, the emission factors for these engines are the EPA-certified emission levels for the EPA certificate#: LJDXL13.5132-008. The SO_2 emissions were calculated based on the maximum allowable sulfur content (0.0015 wt% S) of the diesel fuel with assumption that the entire sulfur content will be converted to SO_2 during the combustion process.

Table 1. Estimated Emissions

Pollutant	Abated Emission Factor (g/bhp-hr)	Maximum Daily Rate (lbs/day)	Annual Emissions (lbs/day)	Annual Emissions (tpy)
NO_x	4.18	166.74	347.37	1.74E-01
CO	0.45	17.86	37.22	1.86E-02
POC	0.09	3.57	7.44	3.72E-03
PM_{10} & $PM_{2.5}$	0.03	1.19	2.48	1.24E-03
	lbs SO_2/MMBTU			
SO_2	0.001515	0.18	0.38	1.88E-04

Basis:
Annual emissions: reliability-related activity 50 hours for S-1
Max daily emissions: 24-hour operation

Plant Cumulative Increase

Table 2 summarizes the cumulative increase in criteria pollutant emissions that will result from the operation of S-1.

Table 2. Plant Cumulative Increase

Pollutant	Current Emissions (since April 5, 1991) (tons/year)	Increase with this application (tons/year)	Cumulative Emissions (Current + Increase) (tons/year)
NO_x	0.000	0.174	0.174
POC	0.000	0.019	0.019
CO	0.000	0.004	0.004
PM_{10} & $PM_{2.5}$	0.000	0.001	0.001
SO_2	0.000	0.000	0.000

Toxics Screening

At a maximum rate of 2.48 lbs/year, the diesel particulate emissions from the project exceed the health risk screen trigger level of 0.26 lbs/year and required a Health Risk Assessment (HRA). All diesel particulate emissions are considered PM_{10} emissions. There were no other related projects permitted at this facility in the last three years.

Table 3. Toxic Air Contaminant – Risk Screen Triggers

Toxic Pollutant Emitted	Emission Rate (lbs/year)	Risk Screening Trigger (lbs/year)
PM_{10}	2.48	0.26

This HRA estimated the incremental health risk resulting from toxic air contaminant (TAC) emissions from non-emergency operation of S-1. Results from this HRA indicate that the maximum project cancer risk is estimated at 0.56 in a million, and the maximum project chronic hazard index is estimated at 0.00017. In accordance with the District's Regulation 2, Rule 5, this source complies with the TBACT and project risk requirements.

Best Available Control Technology (BACT)

In accordance with Regulation 2-2-301, BACT is triggered for any new or modified source with the potential to emit 10 pounds or more per highest day of POC, NPOC, NO_x, CO, SO_2, PM_{10}, and $PM_{2.5}$ BACT is triggered for NOx since the maximum daily NO_x and CO emissions exceed 10 lbs/day.

BACT for this source is presented in the current BAAQMD BACT/TBACT Workbook for IC Engine – Compression Ignition: Stationary Emergency, non-Agricultural, non-direct drive fire pump, Document #96.1.3, Revision 7. dated 12/22/2010. For NO_x, CO, POC and PM10, BACT(2) is the CARB ATCM standard for the respective pollutant at the applicable horsepower rating. For SO_2, BACT(2) is using fuel with sulfur content not to exceed 0.0015%, or 15 ppm. The more restrictive BACT(1) standards are not applicable to this engine because it will be limited to operation as an emergency standby engine.

S-1 satisfies the current BACT(2) standards for the following pollutants with the potential to emit more than 10 lbs/day:

Table 4. BACT Standards

Pollutant	Emission Factor (g/bhp-hr)	BACT(2) Standard (g/bhp-hr)
NO_x	4.18	4.80
CO	0.45	2.60

Offsets
Offsets are not required since the facility permitted levels are below the offset trigger levels.

STATEMENT OF COMPLIANCE
The owner/operator is expected to comply with all applicable requirements. Key requirements are listed below:

Airborne Toxic Control Measure for Stationary Compression Ignition Engines
ATCM, 5/19/2011, section 93115, title 17, CA Code of Regulations

Particulate Matter – Regulation 6, Rule 1, Section 303
S-1 is subject to the limitations of Regulation 6-1-303 (*Particulate Matter*). Regulation 6-1-303 states that a person shall not emit for a period or periods aggregating more than three minutes in any hour, a visible emission that is as dark or darker than No. 2 on the Ringelmann Chart, or of such opacity as to obscure an observer's view to an equivalent or greater degree, nor shall said emission, as perceived by an opacity sensing device in good working order, where such device is required by District Regulations, be equal to or greater than 40% opacity. This low PM_{10} emitting engine is not expected to produce visible emissions or fallout in violation of this regulation, and it will be assumed to be in compliance with Regulation 6, Rule 1 pending a regular inspection.

Limitations on Ground Level Concentrations of Sulfur Dioxide – Regulation 9, Rule 1, Section 301
S-1 is also subject to the SO_2 limitations of Regulation 9-1-301 (*Limitations on Ground Level Concentrations of Sulfur Dioxide*), Regulation 9-1-302 (*Limitations Sulfur Dioxide Emissions*) and 9-1-304 (*Burning of Solid and Liquid Sulfur Dioxide Fuel*). From Regulation 9-1-301, the ground level concentrations of SO_2 will not exceed 0.5 ppm continuously for 3 consecutive minutes or 0.25 ppm averaged over 60 consecutive minutes, or 0.05 ppm averaged over 24 hours. Per Regulation 9-1-302, a person shall not emit from any source a gas stream containing sulfur dioxide in excess of 300 ppm (dry). And Regulation 9-1-304, states that a person shall not burn any liquid fuel having sulfur content in excess of 0.5% by weight. Compliance with Regulation 9, Rule 1 is very likely since diesel fuel with a 0.0015% by weight sulfur is mandated for use in California.

NO_x and CO from Stationary Internal Combustion Engines – Regulation 9, Rule 8, Section 110
From Regulation 9-8 (*NO_x and CO from Stationary Internal Combustion Engines*), Section 110.5 (*Emergency Standby Engines*), S-1 is exempt from the requirements of Regulations 9-8-301 (*Emission Limits on Fossil Derived Fuel Gas*), 9-8-302 (*Emission Limits on Waste Derived Fuel Gas*), 9-8-303 (*Emissions Limits – Delayed Compliance, Existing Spark-Ignited Engines, 51 to 250 bhp or Model Year 1996 or Later*), 9-8-304 (*Emission Limits – Compression-Ignited Engines*), 9-8-305 (*Emission Limits – Delayed Compliance, Existing Compression-Ignited Engines, Model Year 1996 or Later*), 9-8-501 (*Initial Demonstration of Compliance*) and 9-8-503 (*Quarterly Demonstration of Compliance*). However, it is

subject to the monitoring and record keeping procedures described in Regulation 9-8-530 (*Emergency Standby Engines, Monitoring and Recordkeeping*). The requirements of this Regulation are included in the permit conditions.

Emergency Standby Engines, Hours of Operation – Regulation 9, Rule 8, Section 330
S-1 is also subject to and expected to comply with Regulation 9-8-330 since non-emergency hours of operation will be limited in the permit conditions to 50 hours per year.

California Environmental Quality Review (CEQA) – Regulation 2, Rule 1, Section 311
This application is considered to be ministerial under the District's 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 2.3.1.

Public Notification, Schools – Regulation 2, Rule 1, Section 412
This facility is located within 1,000 feet of three (3) nearby schools and therefore is subject to the public notification requirements of Regulation 2-1-412.

New Source Performance Standards (NSPS)
40 CFR 60, Subpart IIII (*Stationary Compression Ignition Internal Combustion Engines*)

National Emissions Standards for Hazardous Air Pollutants (NESHAP)
40 CFR 63, Subpart ZZZZ (*Stationary Reciprocating Internal Combustion Engines (RICE)*)

Prevention of Significant Deterioration (PSD)
This application is not part of a PSD project as defined in Regulation 2-2.

PERMIT CONDITIONS
Condition # 22850 ----------

1. The owner/operator shall not exceed 50 hours per year per engine for reliability-related testing. [Basis: Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]

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: Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]

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: Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]

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: Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]

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, athletic field, or other areas of school property but does not include unimproved school property.
[Basis: Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]

RECOMMENDATION

I recommend that the District issue an Authority to Construct to 830 Eddy Street, LLC for the following:

S-1 Stationary Emergency Diesel Generator Set
Make: Kohler, Model: 500REOZJ, Year: 2020
Engine: John Deere 6135HFG75, 2020
Engine Family: LJDXL13.5132
755 BHP, 4.97 MMBTU/hr

Abated by:

A-1 Diesel Particulate Filter with Oxidation Catalyst, Johnson Matthey, Model JM-CRT(+)-3-N-MS-BITO-10/10-LP

signed electronically

Christopher Ablaza
Air Quality Engineer
Engineering Division

Date