

Engineering Evaluation Report

Pacific Bell Corporation, P#13496

479 45th Street, Oakland

Application #5969

Background

Pacific Bell has applied for a Permit to Operate a recently installed Emergency Diesel Generator, S-2. This generator will be used exclusively for standby power during emergencies.

S-2, Emergency Diesel Generator, Caterpillar Model 3512B, 1250 kW, 1810 hp

Discretionary use (maintenance and testing) of an emergency generator is limited to no more than 100 hours/yr by regulation. Actual emergency use will be unlimited and is not included in the risk screening basis.

Emission Calculations

Maximum daily emissions from the generator for operation 24 hours/day and emissions for operation at full load for 100 hrs/yr are quantified below:

PM10: (0.08 g/hp-hr)(lb/453.6g)(1810 hp)(100 hrs/yr)	=	31.9 lbs/yr
VOC: (0.17 g/hp-hr)(lb/453.6g)(1810 hp)(100 hrs/yr)	=	67.8 lbs/yr
NOx: (5.67 g/hp-hr)(lb/453.6g)(1810 hp)(100 hrs/yr)	=	2262.5 lbs/yr
CO: (0.36 g/hp-hr)(lb/453.6g)(1810 hp)(100 hrs/yr)	=	143.7 lbs/yr
SO2: (89.2 gal/hr)(6.11 lbs/gal)(0.0005)(64.07/32.06)(100 hrs/yr)	=	54.5 lbs/yr

The applicant submitted an emission factor of 0.6 g/bhp-hr for PM10, based upon a reduction in emissions of 25% for use of California diesel. This information is being reviewed by the Toxics Section, but has not yet been approved. Therefore, the non-discounted emission factor will be used for this evaluation.

Pollutant	Annual Emissions, lb/yr	Annual Emissions, tpy	Max Daily Emissions, lb/day
PM10	31.9	0.02	7.7
VOC	67.8	0.03	16.3
NOx	2262.5	1.13	543.0
CO	143.7	0.07	34.5
SO2	54.5	0.03	13.1

Cumulative Increase

The emissions from operation of S-2 for 100 hrs/year count toward the facility's cumulative increase. The facility has no cumulative increase, so the emissions from the generator will be the cumulative increase.

Compliance Determination

Regulation 9, Rule 8, "NOx and CO from Stationary Internal Combustion Engines"

The generator in this application is fired with liquid fuel and is subject to Regulation 9, Rule 8 ("NOx and CO from Stationary Internal Combustion Engines"), Sections 330 and 530. These requirements will be included in the permit conditions. The source is also subject to the SO2 limitations of 9-1-301 (ground-level concentration) and 9-1-304 (0.5% by weight in fuel). Compliance with both of these requirements is expected since diesel fuel with a 0.05% by weight sulfur is mandated for use in

California. Like all sources, the generator is subject to Regulation 6 ("Particulate and Visible Emissions"). The new generator is not expected to produce visible emissions or fallout in violation of this regulation.

Public Notice Requirements

The public notification requirements of Regulation 2-1-412 apply to modifications at facilities within 1000 feet of a K-12 school. The applicant has reported one school within that radius of this facility, Carter High School, so the public notice requirement applies. The District's database also shows a second school, Park Day at 370 43rd Street, as 0.23 miles (1214 feet) from this site, which will be included in the public notice.

Toxic Risk Assessment

S-2 is subject to the District Risk Management Policy, as discussed above, and triggers a toxic risk screen due to diesel particulate emissions. Based upon discretionary operation of 100 hours/year, the increased cancer risk to the maximally exposed resident is 2.96 in a million and 1.95 in a million for the maximally exposed industrial receptor. For students who attend nearby Carter Middle School, the increased maximum risk is 0.3 chances in a million. This level of risk is acceptable under the District's Risk Management Policy since the generator meets the current T-BACT requirements and the risk is less than 10 in a million.

PSD, NSPS, NESHAPS

PSD, NSPS and NESHAPS do not apply to this source.

CEQA

This application is considered to be ministerial 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.

BACT, Emission Offsets

The generator triggers BACT with potential emissions of VOC, NO_x, CO, and SO₂ greater than 10 lbs per day. BACT for IC engines greater than 175 hp is given in Section 96.1.2 (dated 3-8-01) of the Districts BACT/TBACT Guidelines. There is no BACT1 standard for CO, and the source meets the BACT2 CO standard. S-2 does not meet the BACT1 standards for VOC and NO_x; however, considering that this engine will be operated sporadically for emergency power, add on control to meet BACT1 will not be cost effective. The generator does meet the BACT2 VOC and NO_x limits. The fuel sulfur content will be limited to the BACT2 standard through permit condition. This source complies with BACT.

Pollutant	BACT1/TBACT	S-1 Emissions	BACT2
VOC	0.30 g/bhp-hr	0.17 g/bhp-hr	1.5 g/bhp-hr
NO _x	1.5 g/bhp-hr	5.67 g/bhp-hr	6.9 g/bhp-hr
CO	N/S	0.36 g/bhp-hr	2.75 g/bhp-hr
SO ₂	N/D		fuel oil < 0.05% S

Since the cumulative increase for this facility is less than 15 tpy of POC and NO_x and the facility is not major, emission offset requirements are not triggered.

Permit Conditions #20091

Pacific Bell Corporation, Plant #13496

Application #5969

Permit Conditions for

S-2 Emergency Diesel Generator, Caterpillar Model 3512B, 1250 kW, 1810 hp

1. The Standby Emergency Diesel Generator, S-2, 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: BACT, Cumulative Increase]
2. Hours of Operation: The Standby Emergency Diesel Generator, S-2, 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. Operation while mitigating emergency conditions is unlimited.
(Basis: Regulation 9-8-330, Regulation 9-8-331)
3. "Emergency Conditions" is defined as any of the following:
 - 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.(Basis: Regulation 9-8-231)
4. "Reliability-related activities" is defined as any of the following:
 - 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.(Basis: Regulation 9-8-232)
5. The Standby Emergency Diesel Generator, S-2, shall be equipped with either:
 - a. a non-resettable totalizing meter that measures and records the hours of operation for the generator.
 - b. a non-resettable fuel usage meter (24.5 gallons of fuel are equivalent to 1 hour of reliability-related operation).(Basis: Regulation 9-8-530)
6. Records: The following monthly records shall be maintained in a District-approved log for at least 2 years and shall be made available for District inspection upon request:
 - a. Total hours of operation or fuel usage; and
 - b. Hours of operation under emergency conditions and a description of the nature of each emergency condition.(Basis: Regulation 9-8-530, Regulation 1-441)

Recommendations

I recommend issuing a conditional Permit to Operate for the following source:

S-2, Emergency Diesel Generator, Caterpillar Model 3512B, 1250 kW, 1810 hp

Tamiko Endow
Air Quality Engineer

Date