

Engineering Evaluation Report

Pacific Bell Corporation, P#13471
525 Kelly Avenue, Half Moon Bay
Application #5991

Background

Pacific Bell has applied for a Permit to Operate a recently installed Emergency Diesel Generator, S-3. This generator will be used exclusively for standby power during emergencies.

S-3, Emergency Diesel Generator, Caterpillar Model 3512C, 700 kW, 1043 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: (0.12 g/hp-hr)(lb/453.6g)(1043 hp)(100 hrs/yr)	=	27.6 lbs/yr
VOC: (1.0 g/hp-hr)(lb/453.6g)(1043 hp)(100 hrs/yr)	=	230.0 lbs/yr
NOx: (6.9 g/hp-hr)(lb/453.6g)(1043 hp)(100 hrs/yr)	=	1586.6 lbs/yr
CO: (2.75 g/hp-hr)(lb/453.6g)(1043 hp)(100 hrs/yr)	=	632.3 lbs/yr
SO2: (49.7 gal/hr)(6.11 lbs/gal)(0.0005)(64.07/32.06)(100 hrs/yr)	=	30.3 lbs/yr

The applicant wishes to use a diesel PM10 emission factor reduced by 25% due to 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	27.6	0.01	6.6
VOC	230.0	0.12	55.2
NOx	1586.6	0.79	380.8
CO	632.3	0.32	151.8
SO2	30.3	0.02	7.3

Cumulative Increase

The emissions from operation of S-3 for 100 hrs/year count toward the facility's 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 three schools within that radius of this facility - Pilarcitos High School, Hatch Elementary, and Cunha Intermediate, so the public notice requirement applies. The District's database also shows a fourth school, Kings Mountain Primary at located at 498 Kelly Avenue, as 0.05 miles (264 feet) from this site. All four schools will be included in the public notice.

Toxic Risk Assessment

S-3 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 maximum cancer risk was estimated to be 6 in a million for maximally exposed residents, 3.9 in a million for the maximally exposed industrial and commercial receptors. 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, NOx, and CO 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-3 does not meet the BACT1 standards for VOC and NOx; 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 NOx limits. This source complies with BACT.

Pollutant	BACT1/TBACT	S-1 Emissions	BACT2
VOC	0.30 g/bhp-hr	1.0 g/bhp-hr	1.5 g/bhp-hr
NOx	1.5 g/bhp-hr	6.9 g/hp-hr	6.9 g/bhp-hr
CO	N/S	2.75 g/bhp-hr	2.75 g/bhp-hr

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

Permit Conditions #20086

Pacific Bell Corporation, Plant #13471
Application #5991
Permit Conditions for
S-3 Emergency Diesel Generator, Caterpillar Model 3512C, 700 kW, 1043 hp

1. The Standby Emergency Diesel Generator, S-3, 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-3, 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-3, 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-3, Emergency Diesel Generator, Caterpillar Model 3512C, 700 kW, 1043 hp

Tamiko Endow
Air Quality Engineer

Date