Engineering Evaluation Report
Application # 27913

PG&E Company, Plant #14167
Plant address: 2180 Harrison St., San Francisco, CA 94120

BACKGROUND

The Pacific Gas and Electric Company (PG&E) is requesting an Authority to Construct and Permit to Operate for a new back-up generator engine (S-2) that will replace the existing back-up generator engine (S-1).

The proposed new engine is:

S-2 Diesel Engine Emergency Standby, Caterpillar C15 ATAAC, Engine Family FCPXL15.2NYS, 619 HP, MY 2015, 4.44 MMBTU/hr

It will be located at 2180 Harrison St., San Francisco, CA 94120 and will replace the following engine which operated for 9.4 hours during the previous 36 months, or for an average of 3.13 hours/year:

S-1 Standby Diesel engine, 600 hp, Cummins, 306 cu in, Electrical generation only, 1989 Model.

EMISSION CALCULATIONS

The proposed emergency standby, diesel-fired IC engine (S-2) is an EPA-certified Tier 3 model year 2015 engine (EPA Certificate GCPXL15.2NYS-002) with an output rating between 600 bhp and 750 bhp. The criteria pollutant emissions from the engine are calculated based on EPA-certified emission factors (EFs) for all pollutants, except for sulfur dioxide (SO_2). SO_2 emissions are based on the maximum sulfur content allowed in California diesel fuel (0.0015% by weight) and the assumption that all of the sulfur is converted to SO_2.

Basis:
- 619 hp output rating
- 50 hr/yr operation for testing and maintenance
- 31.7 gallons/hr max fuel use rate
- HC, NOx, CO and PM emission factors provided by EPA Certificate GCPXL15.2NYS-002.
- SO_2 emissions are quantified based on the full conversion of 0.0015 wt% (~ 15 ppm) sulfur in the ULS diesel fuel.

Emissions are determined by the following calculations:

$$NOx\ \left(\frac{lb}{hr}\right) = 3.23\left(\frac{g}{Kw-hr}\right)\left(\frac{0.7457kw}{bhp}\right)(619\ bhp)\left(\frac{1lb}{453.6\ g}\right) = 3.2888\left(\frac{lb}{hr}\right)$$

$$PM10\ \left(\frac{lb}{hr}\right) = 0.17\left(\frac{g}{Kw-hr}\right)\left(\frac{0.7457kw}{bhp}\right)(619\ bhp)\left(\frac{1lb}{453.6\ g}\right) = 0.1774\left(\frac{lb}{hr}\right)$$

$$CO\ \left(\frac{lb}{hr}\right) = 2.82\left(\frac{g}{Kw-hr}\right)\left(\frac{0.7457kw}{bhp}\right)(619\ bhp)\left(\frac{1lb}{453.6\ g}\right) = 2.8658\left(\frac{lb}{hr}\right)$$

$$HC\ \left(\frac{lb}{hr}\right) = 0.08\left(\frac{g}{Kw-hr}\right)\left(\frac{0.7457kw}{bhp}\right)(619\ bhp)\left(\frac{1lb}{453.6\ g}\right) = 0.0819\left(\frac{lb}{hr}\right)$$

$$SO_2\ \left(\frac{lb}{hr}\right)$$
$$= \left(31.7\frac{gal}{hr}\right)\left(\frac{7.1\ lb}{gal}\right)\left(\frac{15\ parts}{1000000\ parts}\right)\left(\frac{lb-mole\ S}{32.06\ lb}\right)\left(\frac{lb-mole\ SO2}{lb-mole\ S}\right)\left(\frac{64.06\ lb}{lb-mole\ SO2}\right)$$
$$= 0.0067\left(\frac{lb}{hr}\right)$$

$$SO_2\ \left(\frac{g}{bhp-hr}\right) = \frac{0.0067\left(\frac{lb}{hr}\right)\left(\frac{453.6\ g}{lb}\right)}{619\ bhp} = 0.0049\left(\frac{g}{bhp-hr}\right)$$

PM Emissions and Visible Emissions

Typical diesel engine exhaust gases contain 15% excess oxygen under normal operating conditions. Given the CARB diesel's heating value of 140,000 BTU/gal and S-2's maximum fuel use rate of 31.7 gal/hr, the heat input of S-2 is 4.438 MM BTU/hr. With a dry gas combustion factor of 9,190 dscf/MM BTU (40 CFR, Part 60, Appendix A, Table 19-1), and 7000 grains per pound, the PM grain loading becomes:

$$PM10\ \left(\frac{grains}{dscf}\right) = \frac{0.1774\frac{lb}{hr}\ \frac{7000\ grains}{lb}}{\frac{4.438\ MMBTU}{hr}\ \frac{9190\ dscf}{MMBTU}} = 0.0304\ (\frac{grains}{dscf})|_{0\%\ O2}$$

$$PM_{10}\ emisisons\ (\frac{grains}{dscf})|_{15\%\ O2} = \ 0.0304\frac{grains}{dscf}|_{0\%\ O2}\ \frac{(20.9\%-15\%)}{20.9\%-0\%} = 0.0086\frac{grains}{dscf}$$

The emission rates above are multiplied by the maximum allowable discretionary usage of 50 hours per year, as allowed under District Regulation 9, Rule 8, to calculate annual emissions. Worst case daily emissions have been based on continuous operation 24 hours per day. Maximum daily emission and Maximum Annual Emission are determined by the following calculations:

$$Emission\ (\frac{lb}{day}) = EF(\frac{g}{bhp-hr})(619\ bhp)(\frac{24\ hr}{day})(\frac{1lb}{453.6\ g})$$

$$Emission\ (\frac{Ton}{year}) = EF(\frac{g}{bhp-hr})(619\ bhp)(\frac{50\ hr}{year})(\frac{1lb}{453.6\ g})(\frac{1\ Ton}{2000\ lb})$$

Emission rates for this engine (while burning CARB diesel oil) and equivalent outlet emission concentrations for S-2 are presented in Table 1. Maximum daily and maximum annual emissions from S-2 are presented in Table 2.

Table 1. EPA Certified Emission Rates from S-2 (while burning CARB diesel oil)

	g/kw-hr	g/bhp-hr	g/hr	lbs/hr	ppmv @ 15% O_2	grains/dscf @ 0% O_2[(b)]
HC (POC)	0.080	0.0600	37.14	0.0819	13.6	
NOx	3.232	2.4100	1491.79	3.2888	190.8	
CO	2.816	2.1000	1299.90	2.8658	273	
PM10	0.174	0.1300	80.47	0.1774		0.0304
SO_2 [(a)]	0.007	0.0049	3.06	0.0067	0.3	

(a) Sulfur dioxide emissions were determined based of the maximum sulfur content for CARB certified diesel fuel (0.0015% S, by weight) and the maximum fuel usage rate for this engine (31.7 gallons/hour).
(b) Dry gas combustion factor assumed 9,190 dscf/MMBTU. S-2 heat input 4.438 MMBTU/hr, 7000 grains in 1 lb.

Table 2. Maximum Daily and Maximum Annual Emissions from S-2

	g/bhp-hr	hours/day	Emissions pounds/day	hours/year	Emissions pounds/year	Emissions tons/year
HC (POC)	0.0600	24	1.97	50	4.1	0.0020
NOx	2.4100	24	78.93	50	164.4	0.0822
CO	2.1000	24	68.78	50	143.3	0.0716
PM10	0.1300	24	4.26	50	8.9	0.0044
SO2	0.0049	24	0.16	50	0.3	0.0002

COMPLIANCE DETERMINATION

Regulation 1: General Provisions and Definitions

The facility is subject to Regulation 1, Section 301, which prohibits discharge of air contaminants resulting in public nuisance. The proposed emergency diesel engine is a small to medium sized certified engine which will be used for limited hours, for testing and maintenance, other than during an actual emergency. The proposed diesel engine has very low particulate emissions and is not expected to be a source of public nuisance.

Regulation 2, Rule 1: Permits – General Requirements

California Environmental Quality Act (CEQA): District Regulation 2, Rule 1, Section 310 specifies that all proposed new and modified sources subject to District permit requirements must be reviewed in accordance with CEQA requirements, except for ministerial projects or projects exempt from CEQA under Section 2-1-312. 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, Combustion Equipment – Internal Combustion Engines, Stationary Diesel Engines. Therefore, this application is considered to be ministerial and is exempt from CEQA review.

Public Notification: The public notification requirements of Regulation 2-1-412 apply to applications which result in any increase in toxic air contaminant or hazardous air contaminant emissions at facilities within 1,000 feet of the boundary of a K-12 school. The applicant has reported that there are two K-12 schools within a 1000 feet radius of this facility. Based on the District's database, the St. Charles School is 0.16 mile (845 ft) from the facility, the John O'Connell High School is 0.17 mile (898 ft) from the facility. Therefore, the public notice requirements in Regulation 2-1-412 will apply.

Regulation 2, Rule 2: Permits – New Source Review
Best Available Control Technology (BACT): Per Regulation 2, Rule 2, Section 301 BACT is required for new or modified sources with potential emissions of 10.0 pounds per day or more of POC, NPOC, NO_X, PM_{10}, or SO_2. The maximum daily NOx and CO emissions from S-2 exceed 10.0 pounds per highest day, therefore BACT is triggered for these pollutants.

The BACT/TBACT standard for stationary emergency compression-ignition internal combustion engines > 50 hp is detailed in Document #96.1.3, dated 12/22/2010. There is no standard for BACT1, therefore BACT2 applies and is defined as the CARB ATCM standard at the applicable horsepower rating. The standards for BACT1 (technologically feasible/cost effective) and BACT2 (achieved in practice) for NOx and CO emissions from emergency standby engines are summarized in Table 3.

Table 3. BACT for Emergency Standby Compression Ignition Engines > 50 hp (Document # 96.1.3)

Pollutant	BACT1 / TBACT	Typical Technology	BACT2	Typical Technology	S-2 Certified Emissions
NO_x	Not Specified	Not Specified	CARB ATCM standard for applicable horsepower: **3.0 g/bhp-hr NMHC+NOx or 2.85 g/bhp-hr NOx alone**	Any engine certified or verified to meet the standard	**2.41 g/bhp-hr for NOx alone**
CO	Not Specified	Not Specified	CARB ATCM standard for applicable horsepower: **2.60 g/bhp-hr**	Any engine certified or verified to meet the standard	**2.10 g/bhp-hr**

NO_x BACT:
As shown in Table 3, there are no specified BACT1 standards for NOx emissions from emergency compression ignition engines. Due to the low operating time limits for emergency engines and the short duration of each operation event, add-on NOx controls are generally not cost-effective for small or medium sized standby engines such as S-2. Therefore, S-2 will be allowed to comply with BACT by meeting the BACT2 standards in Table 3. The proposed engine is EPA certified to have a NOx emission rate of 3.23 g/kw-hr, or 2.41 g/bhp-hr, which complies with both the NOx only limit of 2.85 g/bhp-hr and the Tier 3 NMHC+NOx standard of 3.0 g/bhp-hr.

CO BACT:
As shown in Table 3, there are no specified BACT1 standards for CO emissions from emergency compression ignition engines. Due to the low operating time limits for emergency engines, add-on CO controls are generally not cost-effective for small or medium sized standby engines such as S-2. Therefore, S-2 will be allowed to comply with BACT by meeting the BACT2 standards in Table 3. The proposed engine is EPA certified to have a CO emission rate of 2.82 g/kw-hr, or 2.1 g/bhp-hr, which complies with the Tier 3 CO standard of 2.6 g/bhp-hr.

Contemporaneous On-Site Emission Reduction Credits: The applicant is proposing to shut down the existing engine S-1. On-Site emission reductions due to this source shutdown are summarized in Table 4,

based on the last 3-year annual average operating time of 4.33 hours/year and emission factors from AP-42.

Table 4. Emission Reductions from Shut Down of S-1: 600 bhp, 1989 engine

	Source	lbs/bhp-hr	g/hr	lbs/hr	lbs/yr	tons/yr
POC	AP-42	0.0025	684.23	1.5085	6.5	0.0033
NOx	AP-42	0.0310	8436.82	18.6000	80.6	0.0403
CO	AP-42	0.0067	1818.00	4.0080	17.4	0.0087
PM10	AP-42	0.0022	598.74	1.3200	5.7	0.0029
SO2	CARB diesel	0.00002	4.21	0.0067	0.0	0.0000

The cumulative emission increases for this site and this application are summarized in Table 5.

Table 5. Cumulative Emission Increase Inventory

	Current Balance tons/year	Application Increases tons/year	On-Site Reductions tons/year	Offset Ratio	New Balance tons/year
POC	0	0.0020	0.0033	N/A	0.000
NOx	0	0.0822	0.0403	N/A	0.042
CO	0	0.0716	0.0087	N/A	0.063
PM_{10}	0	0.0044	0.0029	N/A	0.002
SO_2	0	0.0002	0.0000	N/A	0.000

Emission Offsets: The offset requirements for precursor organic compounds (POC) and nitrogen oxides (NOx) are found in Regulation 2, Rule 2, Section 302. Under Section 2-2-302, POC and NOx emission offsets are required for new or modified sources at a facility which emits or will be permitted to emit 10 tons per year or more on a pollutant specific basis. If the facility emits or will be permitted to emit less than 35 tons of POC or NOx per year, the emission offsets may be provided by the District's Small Facility Banking Account. If the facility will be permitted to emit more than 35 tons/year of POC or NOx, the site is responsible for providing the required offsets at a ratio of 1.15 to 1.0.

After shut down of S-1, the proposed standby diesel engine, S-2, will be the only permitted source for this site. Since POC and NOx emissions from this site are each less than 10 tons/year, offsets are not required.

Regulation 2, Rule 5: Permits – New Source Review of Toxic Air Contaminants

Health Risk Assessment: The District's regulation concerning toxic air contaminant emissions is codified in Regulation 2, Rule 5, New Source Review of Toxic Air Contaminants (TAC). The TAC emissions from new and modified sources are subject to risk assessment review, if the emissions of any individual TAC exceed either the acute or chronic emission thresholds defined in Table 2-5-1.

The diesel PM emitted from the proposed engine is a toxic air contaminant. From Table 2-5-1, diesel PM does not have an acute trigger level, but it does have a chronic trigger level of 0.34 pounds/year. The worst-case diesel PM emissions from S-2 were calculated based on the certified emissions for this engine, maximum capacity of 619 hp, and the allowed discretionary operation of 50 hours per year. The proposed engine S-2 will emit 8.9 pounds/year of diesel PM (Table 2), which exceeds the chronic trigger level. Therefore, this project triggers a health risk screening analysis.

Pursuant to the District's HRSA Streamlining Policy Checklist for Stationary Emergency Standby and Fire Pump Diesel Engines, this application does not qualify for the District's May 6, 2015 HRSA Streamlining Policy for Stationary Diesel-Fired IC Engines Used for Backup Power or Fire Pumps. A refined HRSA is required for this application.

S-2 triggers TBACT per Regulation 2-5-301, because the source risk for S-2 exceeds 1 in a million cancer risk. S-2 meets Best Available Control Technology for toxics (TBACT) since the diesel particulate emissions are less than 0.15 g/bhp-hr. For an engine that meets the TBACT requirement, it must also pass the toxic risk screening level of less than ten in a million. Estimates of residential risk assume exposure to annual average toxic air contaminant concentrations occur 24 hours per day, 350 days per year, for a 70-year lifetime. Risk estimates for offsite workers assume exposure occurs 8 hours per day, 245 days per year, for 40 years. Risk estimates for students assume a higher breathing rate, and exposure is assumed to occur 10 hours per day, 36 weeks per year, for 9 years for K-8 school students and 4 years for High School students.

Per the attached 6/22/2016 memo from Davis Zhu, results from the health risk screening analysis indicate that the project cancer risk to the maximally exposed residential receptor is 6.5 in a million and the chronic hazard index is 0.0023. The project cancer risk to the maximally exposed worker receptor is 3.2 in a million and the chronic hazard index is 0.0023. The maximum cancer risk for students at the John O'Connell High School is 0.5 in a million and the chronic hazard index is 0.00084. The maximum cancer risk for students at the nearby St Charles School is 1.1 in a million and the chronic hazard index is 0.00087. These project health risks comply with the Regulation 2-5-302 project risk limits.

Regulation 2, Rule 6: Major Facility Review
The requirements of federal operating permit program have been codified in District Regulation 2, Rule 6. This rule requires that major and designated facilities apply for and obtain a Title V federal operating permit. Since this facility will emit less than 100 tons/year each of NOx, CO, POC, PM_{10}, and SO_2, less 10 tons/year of any single Hazardous Air Pollutant (HAP), and less than 25 tons/year of all HAPs combined, it is not considered to be a major facility of regulated air pollutants. This facility is also not a designated facility pursuant to any federal NSPS or NESHAP requirements. Therefore, Regulation 2, Rule 6 does not apply to this site.

Regulation 3: Fees
The facility has paid the District permit application fees, including the first year of Permit to Operate fees, billed under Invoice 3UD20.

Regulation 6, Rule 1: Particulate Matter – General Requirements
Like all combustion sources, this emergency standby diesel engine is subject to Regulation 6, Rule 1. Since the engine displacement is less than 1500 cubic inches (24.58 Liters), Section 6-1-303 applies instead of 6-1-301. Section 6-1-303 limits visible emissions to not exceed Ringelmann 2.0 for periods aggregating more than 3 minutes in any hour or equivalent opacity. Section 6-1-305 prohibits public nuisance caused by fallout of visible particulate emissions. Properly operating diesel engines are not expected to produce visible emissions or fallout in violation of these sections.

Section 6-1-310 limits particulate emissions to 0.15 grains/dscf of exhaust gas volume. As shown in the Emission Calculations section (Table 2), the certified particulate emission rate from this engine is 0.127 grams per bhp-hour, which results in an outlet grain loading of 0.0304 grains per dscf at 0% O_2, and 0.009 grains per dscf at 15% O_2. This emission rate is around 6% of the limit in Section 6-1-310, so compliance with this section is assured through use of the certified engine.

Regulation 8, Rule 1: Organic Compounds – General Provisions
All internal combustion engines are exempt from Regulation 8 per Section 8-1-110.2, therefore none of the rules in Regulation 8 apply to this engine.

Regulation 9, Rule 1: Inorganic Gaseous Pollutants – Sulfur Dioxide
This emergency standby diesel engine is subject to Regulation 9, Rule 1. The engine burns diesel fuel and is subject to Section 9-1-304, which prohibits burning of fuel containing more than 0.5% sulfur by weight. The facility is expected to comply with this requirement since only CARB-certified diesel fuel is allowed for use in California with a maximum sulfur content of 0.0015% by weight.

Regulation 9-1-302 limits the SO_2 concentration in any exhaust stack to 300 ppmv at the as found oxygen concentration. This engine is expected to emit less than 1 ppmv of SO_2 due to combustion of low sulfur CARB diesel oil (Table 2).

Regulation 9, Rule 8: Inorganic Gaseous Pollutants – Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines
Regulation 9, Rule 8 applies to stationary internal combustion engines with a rated output greater than 50 bhp. S-2 has a rated capacity of 619 bhp and is subject to this rule. However, Section 9-8-110.5 exempts emergency standby engines from Section 301 through 305, 501, and 503 of this rule. Since S-2 will be used as an emergency standby engine, the limitation to 50 hours of reliability-related operation in any calendar year will apply, as specified by Section 9-8-330. Operation during emergencies is not limited. In addition, the monitoring and recordkeeping requirements in Section 9-8-619 apply and will be included in the permit conditions for this source.

CA Code of Regulations, Title 17, Section 93115, Airborne Toxic Control Measure for Diesel Particulate Matter from Stationary Engines Rated at 50 Horsepower and Greater
The proposed emergency diesel engine S-2 is subject to the California Air Resources Board Air Toxic Control Measure (ATCM) for stationary diesel engines since it is a diesel-fueled engine with a rating greater than 50 brake horsepower. It is considered a new stationary compression ignition engine, since it was installed after January 1, 2005 and is considered an emergency engine because it meets the definition of emergency standby use.

Section 93115.5 requires use of CARB diesel fuel or one of the other approved alternative diesel fuels. The Applicant is expected to comply with this requirement.

Section 93115.6(a)(3)(A) specifies the PM, NMHC+NOx, and CO emission limits based on the power rating of the engine, requires the engine to be certified to meet the new nonroad compression-ignition standards in 40 CFR Part 60, Subpart IIII, and limits use to not more than 50 hours per year for maintenance and testing. S-2 is an EPA-certified tier 3 engine, meeting the emission standards as shown in Table 6 below:

Table 6. CARB Stationary Engine ATCM Limits

	Model Year	PM, g/hp-hr	NMHC+NOx, g/hp-hr	CO, g/hp-hr
Standard for Engines 600 ≤ HP ≤ 750	2009+	0.15	3.0	2.6
S-2 Certified Emissions	2015	0.13	2.47	2.1

Section 93115.6(a)(3)(A)(1)(c) limits operating time for maintenance and testing purposes to 50 hours/year. The engine is EPA certified and is expected to comply with all applicable operating time limitations.

Section 93115.10, Recordkeeping, Reporting, and Monitoring Requirements: Section 93115.10(a) requires the owner/operator to provide information on any new stationary compression ignition engine greater with capacity greater than 50 hp to the District, prior to installation of the new engine. This application was submitted to provide the required data.

Section 93115.10(c) requires the owner/operator to provide emission data to the District to demonstrate compliance with the applicable emission limits under this rule. The Applicant has provided emission data demonstrating compliance with all applicable limits.

Section 93115.10(e) requires installation of a non-resettable hour meter with a minimum display capability of 9,999 hours upon engine installation. Installation and operation of this meter will be required by permit condition.

Section 93115.13, Compliance Demonstration: Section 93115.13(a)(1) states that off-road engine certification test data for the stationary diesel engine is acceptable for demonstrating compliance with this rule. S-2 has been shown to comply with all applicable limits through the engine certification. Therefore, no additional testing is necessary.

40 CFR Part 60, Standards of Performance for New Stationary Sources

Subpart IIII, Stationary Compression Ignition Internal Combustion Engines: Subpart IIII contains standards for stationary compression ignition internal combustion engines. This regulation applies to manufacturers, owners, and operators of stationary internal combustion engines, meeting certain size and model year requirements. Section 60.4205 applies to 2007 model year and later emergency stationary compression-ignition engines with displacement of less than 30 liters per cylinder, which are not fire pump engines. S-2 is a stationary compression-ignition model year 2015 engine with displacement of 2.53 liters per cylinder (15.2 L/6-Cylinder) and is subject to this regulation.

Emission standards: Section 60.4205 specifies emission standards for emergency engines. Section 60.4205(b) requires model year 2007 and later engines to comply with the emission standards for new nonroad compression-ignition engines in Section 60.4202 for the same model year and maximum power rating. Section 60.4202(a)(2) requires model year 2007 and later emergency engines with maximum power of 50 hp or greater to meet the emission standards for new nonroad compression-ignition engines in 40 CFR 89.112 and 113 for all pollutants. 40 CFR Part 89.112(a) identifies the applicable limits for S-2, which are summarized in Table 7. Section 60.4206 requires compliance with these emission standards over the entire life of the engine. S-2 is certified to meet these emission standards.

Table 7. 40 CFR Part 60, Subpart IIII Emission Standards (450-560 kW engines, Tier 3, Model Year 2008+)

	PM (g/kW-hr)	NMHC+NOx (g/kW-hr)	CO (g/kW-hr)
Emission Standard	0.20	4.0	3.5
S-2 Certified Emissions	0.17	3.3	2.8

Section 89.113 contains smoke emission standards. Section 89.113(a) limits exhaust opacity to no more than 20% during acceleration, 15% during lugging, and 50% during peaks in either mode. Section 89.113(b) requires opacity levels to be measured as specified in 40 CFR Part 86, Subpart I. Demonstration of compliance with these opacity standards was required for engine certification

Operating Restrictions: Section 60.4207 requires use of diesel fuel that meets the requirements of 40 CFR Part 80.510(b). Part 80.510(b) limits the sulfur content of diesel fuel to 15 ppmw and cetane index to 40 or maximum aromatic content to 35%, by volume. As CA diesel fuel is limited to 15 ppmw sulfur and 10% by volume aromatic content, compliance with these federal fuel restrictions is expected.

Section 60.4211(f) limits operation in non-emergency situations to 50 hours per year and allows unlimited use for emergency operation. Operation in excess of 50 hours per year for the purposes otherwise specified in Section 60.4211(f) is not allowed by District Regulation 9, Rule 8. The Applicant is expected to comply with these fuel and operational restrictions, which are included in the permit conditions.

Monitoring, Recordkeeping, Reporting: Section 60.4209 requires installation of a non-resettable hour meter prior to startup of the engine. Permit conditions will require installation and operation of this monitor.

Compliance Requirements: Section 60.4211(a) requires operation of the engine according to the manufacturer's instructions and Parts 89, 94, and/or 1068 if applicable. Part 89 applies to non-road engines subject to Part 61, Subpart IIII, but contains only general provisions and does not specify additional engine operating restrictions. Part 94 applies to marine engines and Part 1068 applies to manufacturers of nonroad engines, therefore neither applies. Operation in compliance with the manufacturer's instructions will be included in the permit conditions for this source.

Section 60.4211(c) requires 2007 model year and later engines to be certified to comply with the emission standards in 60.4205(b) and installed and configured per the manufacturer's specifications. The EPA-certified emissions have been summarized in Table 7 above and comply with the emission standards of this rule.

40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants for Source Categories/Maximum Achievable Control Technology (MACT) Standards:

Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants – for Stationary Reciprocating Internal Combustion Engines

40 CFR Part 63, Subpart ZZZZ applies to stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. This facility is not a major source of HAP emissions, and is therefore an area source of HAP emissions. As S-2 will be installed after June 12, 2006, the source is considered a new source under this subpart. Section 63.6590(c) specifies that an affected source that is a new or reconstructed, compression ignition, stationary RICE located at an area source must meet the requirements of this subpart by meeting the requirements of 40 CFR Part 60, Subpart IIII. No other requirements apply under this subpart. Therefore, S-2 complies with this Subpart ZZZZ by complying with Subpart IIII, which was addressed above.

PERMIT CONDITIONS

The proposed engine will be subject to the standard template Condition # 22850, which is listed below.

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

The preliminary recommendation is to issue an Authority to Construct for the following equipment subject to Condition # 22850. However, the proposed source will be located within 1000 feet of a school, which triggers the public notification requirements of District Regulation 2-1-412. After the comments are received and reviewed, the District will make a final determination on the permit.

I recommend that the District initiate a public notice and consider any comments received prior to taking any final action on issuance of an Authority to Construct for the following equipment:

S-2 Diesel Engine Emergency Standby, Caterpillar C15 ATAAC, Engine Family FCPXL15.2NYS, 619 HP, MY 2015, 4.44 MMBTU/hr

I recommend that the District archive S-1, upon receipt of a decommission notice for S-1 from the site owner/operator, or within 90 days of start-up of S-2, whichever occurs first.

_____ _____

Davis Zhu
Air Quality Engineer

Date