ENGINEERING EVALUATION
AUTHORITY TO CONSTRUCT APPLICATION

Company:	Robert Louis Stevenson School	
Mailing Address:	3152 Forest Lake Road Pebble Beach, CA 93953	
Contact Person:	Chris Madill Facilities Director Cell: (209) 992-0358 cmadill@stevensonschool.org	Liz Creecy Facilities Administrative Coordinator 831-625-8209 lcreecy@stevensonschool.org
Project Location:	24800 Dolores St Carmel, CA 93923	
Authority to Construct:	APP-26-00003	
Coordinates:	Latitudes: 36.5628 N Longitudes: 121.9234 W	
SIC No.: **NAICS No**: **SCC No**:	8211 (Elementary and Secondary Schools) 611110 (Elementary and Secondary Schools) 20100102 (Fuel Combustion, Electric Generation, and Oil)	
Engineer:	Grace Garbacz	
Evaluation Date:	May 27, 2026	

I. PROPOSAL DESCRIPTION

EMERGENCY INTERNAL COMBUSTION ENGINE-GENERATOR SET:

Robert Louis Stevenson School has submitted a permit application to operate an existing emergency engine-generator set located at 24800 Dolores Street in Carmel. The Tier-3 Caterpillar diesel emergency internal combustion engine model C4.4, rated 95.7 BHP @ 1800 RPM was installed in 2019 and will provide electric generation in the event of a power outage to the school.

The emergency diesel engine is located within the boundary of a K-12 grade school.

II. APPLICABLE RULES

Rule 200: Permits Required
Rule 201: Sources Not Requiring Permits
Rule 207: Review of New and Modified Stationary Sources
Rule 218: Title V Operating Permits
Rule 221: Federal Prevention of Significant Deterioration
Rule 222: Federal Minor New Source Review
Rule 300: MBARD Fees

Rule 400: Visible Emissions
Rule 402: Nuisance
Rule 403: Particulate Matter
Rule 404: Sulfur Compounds & Nitrogen Oxides
Rule 412: Sulfur Content of Fuels
Rule 413: Removal of Sulfur Compounds
Rule 436: Title V: General Prohibitory Rule
Rule 1000: Toxic Air Contaminants
Rule 1010: Air Toxic Control Measure for Stationary Compression Ignition Engines
AB 2588 Air Toxic "Hot Spots" Information and Assessment Act
40 CFR Part 63, Subpart ZZZZ, NESHAP, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines
40 CFR Part 60, Subpart IIII, NSPS, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
CA Health & Safety Code, Section 42301.6 – Public Notice

III. PROCESS DESCRIPTION

Emergency Internal Combustion Engine-Generator Set:

Caterpillar Generator Set, Model D060-4LC, With A Rating of 50 KW, Unit Powered By A 2019 Model Year Perkins Tier 3 Diesel Engine, Model C4.4, Serial #E5G05165 Rated At 95.7 BHP @ 1800 RPM, EPA Family Name KPKXL04.4NP1, Equipped With Turbocharger and Aftercooler.

IV. DESIGN VIEW AND EMISSIONS CALCULATIONS

Table 1. Diesel Engine Emission Factors.

Pollutant Species	Emission Factor (g/kW-hr)	Emission Factor (g/hp-hr)
NO_x[1]	4.17	3.11
VOC[1]	0.26	0.19
CO[1]	1.40	1.04
PM[1]	0.17	0.13
SO_x[2]	NA	0.0050

Notes:
1. Diesel Engine Emission Factors except SO_x were gathered from EPA Nonroad Compression-Ignition Engines Data Sheet, EPA family name KPKXL04.4NP1.
2. The SO_x emission factor was calculated assuming that certified diesel fuel was used and that all sulfur in the fuel is combusted into SO_x as SO_2. Based upon an ultra-low sulfur diesel concentration of 15 ppm the SO_x emission factor is as follows:

*1.5E-5 lb/lb-diesel * 7.05 lb-diesel/gal-diesel * 64 lb-SO_2/lb-mol * lb-mol S/32 lb-S = 2.12E-4 lb-SO_2/gal-diesel*

*SO_x Emission Factor (g/hp-hr) = 2.12E-4 lb-SO_2/gal-diesel * Engine Fuel Consumption Rate (gal/hr) * 1/Engine Hp * 454 g/lb*

*= 2.12E-4 lb-SO_2/gal-diesel * 5 (gal/hr) * 1/95.7 Hp * 454 = 0.0050*

Table 2. Emergency Diesel Engine Specifications.

EPA Family Name	KPKXL04.4NP1
Maximum Fuel Consumption (gph)[1]	5.00
Engine Horsepower (hp)[2]	95.7
Exhaust Flowrate (cfm)[1]	511
Exhaust Temperature (˚F)[1]	972
Exhaust Stack Height (ft)[2]	10 ft
Exhaust Stack Diameter (ft)[2]	0.208 ft

Notes:
1. The exhaust flowrate and temperature, and fuel consumption referenced the Caterpillar specifications sheet for model C4.4.
2. The engine horsepower, exhaust diameter, and exhaust height were provided by the applicant.

Table 3. Emergency Diesel Engine Potential To Emit (PTE) Emission Calculations

Pollutant	Operating Schedule (hr/day)	Power Rating (hp)	Emission Factor (g/hp-hr)	PTE Emissions (lb/day)	Daily Fuel Usage (gal/day)	Emission Factor (lb/gal)	PTE Emissions (tons/yr)[1]
NO_x	24	95.7	3.11	15.73	120	0.1311	0.164
VOC	24	95.7	0.19	0.96	120	0.0080	0.010
CO	24	95.7	1.04	5.26	120	0.0438	0.055
PM	24	95.7	0.130	0.66	120	0.0055	0.007
PM_{10}[2]	24	95.7	0.125	0.63	120	0.0053	0.007
$PM_{2.5}$[2]	24	95.7	0.122	0.62	120	0.0052	0.006
SO_x	24	95.7	0.0050	0.03	120	0.0003	0.0003
Total Emissions of NOx + VOC + CO + PM + SO_x							0.236

Notes:
1. According to U.S. EPA Memo dated on 9/6/2005, 500 hours per year of max operation was used to calculate the potential annual emissions.
2. PM_{10} and $PM_{2.5}$ values are calculated from CEIDARS PM speciation profile. PM_{10} is 96% and $PM_{2.5}$ is 93.7% of PM.

V. RULE COMPLIANCE

The following MBARD rules apply to the operation as specified:

MBARD Rule 200 – Permits Required

The purpose of this Rule is to identify when MBARD permits are issued. The provisions of this Rule shall apply to any person who builds, erects, alters, or replaces any article, machine, equipment, or other contrivance which may cause the issuance of air contaminants or the use of which may eliminate, reduce, or control the issuance of air contaminants.

Pursuant to Section 3.1, no person shall build, erect, alter, or replace any article, machine, equipment or other contrivance which may cause the issuance of air contaminants or the use of which may eliminate or reduce or control the issuance of air contaminants unless the facility owner or operator has obtained a

separate written Authority to Construct for each permit unit from the Air Pollution Control Officer. An Authority to Construct shall remain in effect until the Permit to Operate the equipment for which the application was filed is granted or denied or the application is cancelled.

Exceptions to MBARD Rule 200 are identified in MBARD Rule 201.

MBARD Rule 201 – Sources Not Requiring a Permit

MBARD Rule 201, Section 4.14 exempts engines with a power rating of less than 50 BHP from obtaining permits. The diesel engine proposed in this application is rated at 95.7 BHP. Therefore, this unit is subject to permitting requirements.

MBARD Rule 207 – Review of New or Modified Sources (as adopted on 4/20/2011)

This Rule provides for the review of new and modified stationary air pollution sources to meet requirements for the review of new and modified stationary sources (NSR) and for the Prevention of Significant Deterioration (PSD), under the provisions of the federal Clean Air Act; and requirements for NSR under the provisions of the California Clean Air Act. The intent of this Rule is to ensure that the most stringent requirements of these programs shall be applied.

This Rule shall apply to all new stationary sources and all modifications to existing stationary sources which, after construction or modification, emit or have the potential to emit any affected pollutants. Thus, the proposed project is subject to the requirements of Rule 207.

Federal Best Available Control Technology (BACT) Analysis

Pursuant to Section 4.1.1, an applicant shall apply Best Available Control Technology (BACT) to a new stationary source or modification of an existing source, which has the potential to emit greater than or equal to any one of the affected pollutant levels listed in Table 4.1.1 or a modification of an existing stationary source which has the potential to result in a new emissions increase, as defined in Section 2.37, occurring after October 20, 2010 for $PM_{2.5}$ or after August 19, 1983 for PM_{10} or after July 15, 1976 for any other affected pollutant.

Table 4 shows the emissions from the proposed project, the facility-wide new emissions and the Federal BACT thresholds of Table 4.1.1.

Table 4. Federal New Emission Increase – BACT Determination

Permit No. Equipment description (Year)	NO_x (lb/day)	VOC (lb/day)	CO (lb/day)	SO_x (lb/day)	PM (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
APP-26-00003 Emg. Diesel Engine (2019)	15.73	0.96	5.26	0.03	0.66	0.63	0.62
Total	15.73	0.96	5.26	0.03	0.66	0.63	0.62
Federal Threshold	150	150	550	150	150	82	54.79

Table 4 demonstrates that the facility does not exceed Federal BACT thresholds for any of the criteria pollutants.

Note: The existing Tier-3 engine meets current MBARD BACT standards for emergency engines. As outlined in MBARD's Clarification of Permit Requirements for Non-Agricultural Diesel Engines, January 24, 2023, Table 1, summarized below in Table 5.

Table 5. BACT Guidelines For Stationary Emergency Engines At Non-Major Sources

Engine Rating/Size	PM	NO_x + NMHC	CO
50 ≤ HP < 100	0.15 g/bhp-hr, or 0.20 g/kW-hr	3.50 g/bhp-hr, or 4.70 g/kW-hr	3.70 g/bhp-hr, or 5.00 g/kW-hr
APP-26-00003 Emg. Engine 95.7 HP	0.13 g/bhp-hr, or 0.17 g/kW-hr	3.30 g/bhp-hr, or 4.43 g/kW-hr	1.04 g/bhp-hr, or 1.40 g/kW-hr

California BACT Analysis

Pursuant to Section 5.2, BACT shall be required for any new or modified permit unit with a potential to emit 25 pounds per day or more of VOCs or NO_x.

Table 6. California BACT determination.

Pollutant	BACT threshold (lb/day)	Project emissions (lb/day)	Compliance
NO_x	25	15.73	Does Not Trigger BACT
VOC	25	0.96	Does Not Trigger BACT

Table 6 demonstrates that the facility does not exceed the California BACT thresholds for any of the criteria pollutants.

Note: The existing Tier-3 engine meets current MBARD BACT standards for emergency engines, as referenced in the Federal BACT discussion above.

Federal & California Stationary Source Offsets Analysis

Pursuant to Rule 207 Section 1.3.3, emergency internal combustion engine emissions are not subject to offset thresholds, and the emissions are not included in the facility's net emission increase or accumulation.

Visibility, Soils and Vegetation Analysis

In addition, Section 1.3.4 of MBARD Rule 207 states the following "the requirements to conduct Visibility, Soils and Vegetation Analysis, provide offsets, and conduct an Air Quality Increment Analysis of this Rule shall not apply to any Stationary Source that has emissions less than 10 tons/year of each individual criteria pollutant." As demonstrated in Table 3, the facility wide emissions do not exceed 10 tons/year for any criteria pollutant.

MBARD Rule 207 – Review of New of Modified Sources (as adopted on 2/15/2017)

Note that the MBARD has not received approval for the 2/15/2017 version of Rule 207 and the MBARD is implementing Rule 207 as adopted on 4/20/2011. For informational purposes only, the Rule applicability of Rule 207 as adopted on 2/15/2017 is as follows:

The purpose of this Rule is to provide for the review of new and modified stationary air pollution sources to meet the New Source Review requirements under the provisions of the California Clean Air Act. This Rule provides mechanisms by which Authorities to Construct may be granted to such sources without interfering with the attainment or maintenance of California ambient air quality standards. Each project subject to New Source Review shall undergo a review under the federal requirements contained within Rule 220 and Rule 221, and a parallel review under the requirements of this Rule and the most stringent applicable provisions shall apply.

Rule 207 applies to all new stationary sources and all modifications to existing stationary sources, which after construction or modification, emit or have the potential to emit any affected pollutants. This project is subject to the requirements of this Rule.

Best Available Control Technology (BACT) Requirements

Pursuant to Section 4.1.1, BACT shall be required for any new or modified permit unit with a potential to emit 25 pounds per day or more of VOCs or NO_x.

Pursuant to Section 4.1.2, BACT shall be required for a new or modified stationary source which has the potential to emit greater than or equal to any one of the affected pollutant levels listed in Table 4.1.1.

Table 7. Facility-Wide BACT Determination

Permit No. Equipment description	NO_x (lb/day)	VOC (lb/day)	CO (lb/day)	SO_x (lb/day)	PM (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
APP-26-00003 Emg. Diesel Engine	15.73	0.96	5.26	0.03	0.66	0.63	0.62
Total	15.73	0.96	5.26	0.03	0.66	0.63	0.62
BACT Threshold	150	150	550	150	150	82	54.79

Table 7 shows that the facility-wide emissions do not exceed the BACT thresholds of Section 4.1.2 for any of the criteria pollutants.

Note: The Tier-3 engine meets current MBARD BACT standards for emergency engines. As outlined in MBARD's Clarification of Permit Requirements for Non-Agricultural Diesel Engines, January 24, 2023, Table 1, summarized above in Table 5.

Table 8. Permit Unit BACT Determination

Pollutant	BACT threshold (lb/day)	Project emissions (lb/day)	Compliance
NO_x	25	15.73	Does Not Trigger BACT
VOC	25	0.96	Does Not Trigger BACT

As shown in Table 8, the project does not exceed the BACT thresholds of Section 4.1.1 for any of the criteria pollutants.

Note: The Tier-3 engine meets current MBARD BACT standards for emergency engines, as referenced in BACT thresholds of Section 4.1.2 discussion above.

Stationary Source Offsets

Pursuant to Rule 207 Section 1.3.3, emergency internal combustion engine emissions are not subject to offset thresholds, and the emissions are not included in the facility's net emission increase or accumulation.

Visibility, Soils and Vegetation Analysis

In addition, Section 1.3.4 of MBARD Rule 207 states the following "the requirements to conduct Visibility, Soils and Vegetation Analysis, provide offsets, and conduct an Air Quality Increment Analysis of this Rule shall not apply to any Stationary Source that has emissions less than 10 tons/year of each individual criteria pollutant". As demonstrated in Table 3, the facility-wide emissions do not exceed 10 tons/year for any criteria pollutant.

Rule 207 Parallel Stringency Review

After reviewing the two different versions of Rule 207, the project complies with all requirements of the Rule as adopted on 4/20/2011 and amended on 2/15/2017.

MBARD Rule 218 – Title V: Federal Operating Permits

Title V is not applicable to the unit since this rule only applies to a stationary source which has the potential to emit (PTE) air contaminants equal to or in excess of the threshold for a major source of regulated air pollutants (100 tons/yr) or a major source of hazardous air pollutants (25 tons/yr combination HAPS or 10 tons/yr single HAP).

Table 3 shows the PTE for this facility does not trigger these thresholds.

MBARD Rule 221 – Federal Prevention of Significant Deterioration

The proposed project does not meet the definition of a new major stationary source, or a major modification to an existing stationary source. Since the Prevention of Significant Deterioration (PSD) program only applies to new major stationary sources, or major modification to stationary sources, this project is not subject to Rule 221.

MBARD Rule 222 – Minor New Source Review

Compliance with the New Source Review (NSR) provisions of the California Clean Air Act, as defined in MBARD Rule 207, ensures compliance with MBARD Rule 222, Federal Minor NSR.

MBARD Rule 300 – Fees

According to the MBARD Fee Determination Protocol, affirmed by the Board in 2022, fees for an emergency diesel fueled internal combustion engine will be assessed in the fee code category of 202. Table 9 shows the PTE emissions for the diesel fueled internal combustion engine and fee category.

Table 9. PTE For Emergency Diesel Fuel Internal Combustion Engine

Pollutant	Annual Emissions (tpy)
NO_x	0.164
VOC	0.010
CO	0.055
SO_x	0.0003
PM	0.007
Total PTE Emissions	0.236
Fee Category	202

MBARD Rule 400 – Visible Emissions:

The purpose of this Rule is to provide limits for the visible emissions from sources within MBARD. The provisions of this Rule shall apply to all sources of air pollutant emissions in the MBARD.

According to MBARD Rule 400 Section 3.1, no air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark or darker than Ringelmann 1, or equivalent 20% opacity.

MBARD Rule 402 – Nuisance:

The purpose of this Rule is to provide an explicit prohibition against sources creating public nuisances while operating within the MBARD. The provisions of this Rule shall apply to all sources of air pollutant emissions within the Air MBARD.

According to MBARD Rule 402, Part 3, no person shall discharge from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or which endanger the comfort, repose, health, or safety of any such persons or the public; or which cause, or have a natural tendency to cause, injury or damage to business or property. This requirement will be included as a permit condition.

MBARD Rule 403 – Particulate Matter:

The purpose of this Rule is to provide particulate matter emission limits for sources operating within the district. The provisions of this Rule shall apply to any source discharging particulate matter while operating within the Air District. Per Section 1.3.1, stationary internal combustion engines are exempt from the requirements of this Rule.

MBARD Rule 404 – Sulfur Compounds & Nitrogen Oxides

The purpose of this Rule is to provide limits for the emissions of sulfur compounds, nitrogen oxides, and nitrogen dioxide from sources within the district. The provisions of this Rule shall apply to sources of sulfur compounds, nitrogen oxides, and nitrogen dioxide subject to District Rule 200 *Permits Required*.

Section 3.1 prohibits any single emission unit from exceeding the following concentration or amount at the point of discharge to the atmosphere:

- Sulfur compounds, calculated as sulfur dioxide, 0.2% by volume (2,000 ppmv), and

  Compliance with the 0.2% by volume (2,000 ppmv) limit for SO_2 for the engine is assured based on the SO_2 emissions of 0.00125 lb/hr. See calculation below:

$$SO_2(ppm) = \frac{lbSO_2}{hr} \div \left(\frac{DSCFM, ft^3}{hr} x \frac{MV_{SO2}, lb}{lbmole} x \frac{lbmole}{385 ft^3}\right) x10^6$$

$$SO_2(ppm) = \frac{0.00125\ lb}{hr} \div \left(\frac{30660\ ft^3}{hr} x \frac{64\ lb}{lbmole} x \frac{lbmole}{385 ft^3}\right) x10^6 = 0.245\ ppm$$

- Nitrogen oxides, calculated as nitrogen dioxide (NO_2), 140 pounds per hour.

  As shown in Table 3 the hourly NO_x emission rate for the engine is 0.65 lb/hr, which is well below the 140 lb/hr limit

(15.73 lb/day) ÷ (24 hr/day) = 0.65 lb/hr

MBARD Rule 412 – Sulfur Content of Fuels

According to MBARD Rule 412 Part 3, no liquid fuel shall be burned unless the sulfur content is less than 0.5 percent by weight. Pursuant to MBARD Rule 1010, the diesel-fueled engine must only use CARB diesel fuel. The sulfur content in CARB diesel fuel is limited to 15 ppm (0.0015% by weight) and will ensure compliance with the sulfur content of this Section. For more information, please visit: https://www.transportpolicy.net/standard/us-fuels-diesel-and-gasoline/

The sulfur content of the CARB diesel fuel will meet the requirements of this rule.

MBARD Rule 413 – Removal of Sulfur Compounds

According to MBARD Rule 413 Part 3, the provisions of MBARD Rule 412 shall not apply where the sulfur compounds are removed pre or post combustion, or where a mixture of fuels is used, so that the resulting emission of sulfur compounds to the atmosphere is no greater than that which would be emitted by using a liquid or solid fuel complying with MBARD Rule 412. Since the fuel is expected to meet the provisions of MBARD Rule 412, the fuel will also meet the provisions of MBARD Rule 413.

MBARD Rule 436 – Title V: General Prohibitory Rule

The purpose of this Rule is to provide federally enforceable potential to emit limitations limiting emissions below the thresholds requiring federal Title V operating permits under Rule 218.

Table 10. Facility PTE emissions (tons per year)

Application No.	NO_x (ton/yr)	VOC (ton/yr)	CO (ton/yr)	SO_x (ton/yr)	PM (ton/yr)	PM_{10} (ton/yr)	$PM_{2.5}$ (ton/yr)
APP-26-00003 Emg. Diesel Engine	0.164	0.010	0.055	0.0003	0.007	0.007	0.006
Total	0.164	0.010	0.055	0.0003	0.007	0.007	0.006

The General Applicability of this Rule shall apply to any stationary source which would, if it did not comply with the limitations set forth in this rule, have the potential to emit air contaminants equal to or in excess of the threshold for a major source of regulated air pollutants or a major source of hazardous air pollutants (HAPs) and which meets one of the following conditions:

Title V is not applicable because this rule only applies to a stationary source which has the potential to emit air contaminants equal to or in excess of:

- 100 tons/year of criteria pollutants, or
- 25 tons/year of combined hazardous air pollutants combination, or
- 10 tons/year for any single HAP.

Table 10 shows that the annual potential emissions are below the applicability thresholds.

Pursuant to Rule 436 Section 1.2 and 3.1 the facility is exempt from Title V permitting process because it is expected that the actual emissions will not exceed, in every 12-month period the following:

- 50 tons per year for regulated (criteria) pollutants
- 5 tons single Hazardous Air Pollutant (HAP) per year
- 12.5 tons per year of any combination of HAPs per year, or
- 50% of any lesser threshold for a single HAP as the EPA may establish.

Table 10 shows that the annual potential emissions are below the applicability thresholds.

Pursuant to Section 1.3.2.1, a facility is allowed an exemption from Title V Record keeping requirements of Part 4 if actual emissions do not have the potential to exceed in every 12-month period the following limits:

- 5 tons per year for a regulated (criteria) pollutant
- 2 tons single Hazardous Air Pollutant (HAP) per year
- 5 tons per year of any combination of HAPs per year, or
- 20% of any lesser threshold for a single HAP as the EPA may establish.

Table 10 shows the annual potential emissions are below the applicability thresholds. The facility is entitled to the exemption from recordkeeping requirements of Rule 436 Part 4.

A facility is entitled to the exemption from Reporting Requirements of Rule 436 Part 5, pursuant to Section 5.2., if actual emissions, based on annual renewal information sheets, will not exceed in every 12-month period the following quantities:

- 25 tons per year including a regulated air pollutant for which the MBARD has a federal area designation of attainment, unclassified transitional, or moderate nonattainment
- 15 tons per year for regulated (criteria) pollutants for which the MBARD has federal area designation of serious nonattainment.
- 6.25 tons per year for regulated (criteria) pollutants for which the MBARD has federal area designation

of severe nonattainment.
- 2.5 tons per year of a single HAP
- 6.25 tons per year of any combination of HAPs
- 25% of any lesser threshold for a single HAP as the U.S. EPA may establish.

As shown in Table 10, the facility is exempt from the reporting requirements of Rule 436 Part 5.

Rule 1000 – Toxic Air Contaminants:

This Rule applies to any new or modified stationary sources for which an Authority to Construct or a Permit to Operate is required pursuant to MBARD Regulation II - Permits, and which has the potential to emit into the atmosphere any TAC. Whenever a potential TAC may be subject to more than one MBARD Rule, or to more than one requirement in this rule, the requirement resulting in the least hazard to the public, as determined by the Air Pollution Control Officer, shall apply.

MBARD Rule 1000 Part 3 requires new or modified sources of toxic air contaminants (TAC) and carcinogenic toxic air contaminants (CATC) to meet the following:

- 3.1.1 The acute hazard index for any target organ or organ system due to TAC emissions from the new or modified permit unit shall not exceed 1.0 at any receptor location;
- 3.1.2 The chronic hazard index for any target organ or organ system due to TAC emissions from the new or modified permit unit shall not exceed 1.0 at any receptor location;
- 3.1.3 The cancer risk due to TAC emissions from the new or modified permit unit shall not exceed 10 in one million at any receptor location.

Combustion of diesel fuel results in the emissions of toxic air contaminants (TAC). However, pursuant to Section 1.3 of this Rule, the provisions of this Rule shall not apply to any Source Category that has an existing State Air Toxics Control Measure (ATCM). Since the proposed diesel-powered engine generator set is subject to the ATCM for Stationary Compression Ignition Engines, the project is exempt from Rule 1000.

AB 2588 Air Toxic "Hot Spots" Information and Assessment Act

Since diesel PM is considered a toxic air contaminant (TAC), a prioritization assessment was conducted for informational purposes for the diesel engine, using 50 hours for maintenance and testing and a receptor distance of 150 meters.

As shown in Table 11, the emergency diesel engine prioritization scores for the acute, chronic effects are less than 1 and cancer score greater than 1. Therefore, for AB2588 purposes, the engine will be categorized as Intermediate.

Table 11. Prioritization Scores (PS)

Risk Type	PS	Corresponding Threshold	Risk Category
Acute[1]	0.0	≤ 1	Low
Chronic	0.83	≤ 1	Low
Cancer	3.17	1<PS<10	Intermediate

[1] Diesel PM does not have an acute REL.

Rule 1010 – Air Toxic Control Measure for Stationary Compression Ignition Engines:

The purpose of this rule is to reduce diesel particulate matter (PM) from stationary diesel-fueled compression ignition (CI) engines and consistent with California Health and Safety Code Section 39666(d) is a replacement rule for 17 California Code of Regulations Section 93115, Airborne Toxic Control Measure For Stationary Compression Ignition Engines.

Except as provided in Section 1.3, this Rule applies to any person who sells a stationary CI engine, offers a stationary CI engine for sale, leases a stationary CI engine, or purchases a stationary CI engine for use in the MBARD, unless such engine is: a portable CI engine, a CI engine used to provide motive power, an auxiliary CI engine used on a marine vessel, or an agricultural wind machine. The Rule applies to any person who owns or operates a stationary CI engine in the MBARD with a rated brake horsepower greater than 50 (>50 bhp).

Diesel Fuel Requirement (§3.1)

Pursuant to Section 3.1, no owner or operator of any stationary diesel-fueled CI engine shall add to the engine or any fuel tank directly attached to the engine any fuel unless the fuel is one of the following:

- CARB Diesel Fuel; or
- An alternative diesel fuel that is:
  - biodiesel;
  - a biodiesel blend that does not meet the definition of CARB Diesel Fuel;
  - a Fischer-Tropsch fuel; or
  - an emulsion of water in diesel fuel; or
- Any alternative diesel fuel that is not identified in Subsection 3.1.2 above and meets the requirements of the Verification Procedure; or
- An alternative fuel; or
- CARB Diesel Fuel used with fuel additives that meet the requirements of the Verification Procedure; or
- Any combination of the above fuels.

At-School Operating Requirements --- Emergency Standby Diesel Fueled Engine (>50 bhp)

Pursuant to Section 3.2.1.1, no owner or operator shall operate a new emergency standby diesel fueled CI engines for non-emergency use (including maintenance and testing) with emissions of greater than 0.01 g/bhp-hr of diesel PM during the following periods:

a. Whenever there is a school sponsored activity; and
b. Between the hours of 7:30 AM and 3:30 PM on days when school is in session, if the engine is located within 500 feet of school grounds.

The Tier 3 diesel engine is subject to these requirements, and the permit will include these operating limitations at the Robert Louis Stevenson (Carmel Campus).

Emergency Standby Diesel-Fueled CI Engines (>50 HP) – Diesel PM Standard

Pursuant to Section 3.2.1.3.1, the emissions from the new stationary emergency standby diesel-fueled engine shall be less than or equal to 0.15 g/bhp-hr; or meet the diesel PM standard, as specified in the federal Standards of Performance for Stationary Compression Ignition Internal Combustion Engines with the same maximum rated power (40 CFR Part 60, Subpart IIII), in effect on the date of acquisition or submittal, as defined in Section 2.15 whichever is more stringent. The proposed engine is a Tier 3 unit and meets the requirements of this Section.

Emergency Standby Diesel-Fueled CI Engines (>50 HP) – Maintenance & Testing: Hours of Operation

Pursuant to Section 3.2.1.3.1.1.3, the new engines shall not operate more than 50 hours per year for maintenance and testing purposes. This subsection does not limit operation for emergency use and for emission testing to show compliance with Subsection 3.2.1.3. A permit condition will be added to meet this requirement.

Record-keeping Requirements

MBARD Rule 1010 Section 4.1.5 requires a non-resettable hour meter to be installed with a minimum display capacity of 9,999 hours. Furthermore, MBARD Rule 1010 Section 4.1.7 requires the monthly reporting of the following:

- Emergency use hours of operation;
- Maintenance and testing hours of operation;
- Hours of operation for emission testing to show compliance with Section 3.2.1
- Initial start-up testing hours; and,
- Fuel used.

Lastly, pursuant to MBARD Rule 1010 Section 4.1.7.1 and 4.1.7.2, the owner or operator of the diesel engine must retain operating records for a minimum of 36 months and maintain on-site records for the prior 24 months. Records from the prior 25 to 36 months must be made available to MBARD staff within 5 working days from the date of request.

40 CFR Part 63, Subpart ZZZZ, NESHAP, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. An area source of HAP is defined as a plant site that emits or has the potential to emit any single HAP at a rate of less than 10 tons per year or any combination of HAPs at a rate of less than 25 tons per year. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations.

Pursuant to Section §63.6590(a)(2)(iii), an affected source includes new stationary RICEs located at an area source of HAP emissions. This unit is considered a new stationary RICE at an area source of HAP since construction commenced after June 12, 2006.

As an affected source, pursuant to §63.6590(c) & §63.6590(c)(1), any new or reconstructed stationary Rice located at an area source must meet the requirements of this part by meeting the requirements of 40 CFR Part 60 Subpart IIII, NSPS for compression ignition engines and no further requirements apply for such engines under this part. Therefore, the facility will comply with NESHAP ZZZZ by complying with NSPS IIII, as outlined in the next section below.

40 CFR Part 60, Subpart IIII, NSPS, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

Per Section §60.4200 (a)(2), Subpart IIII applies to owners and operators of stationary CI ICE that commenced construction after July 11, 2005, and manufactured after April 1, 2006, and are not fire pumps. Per Section §60.4205(b), owners and operators of 2007 model year and later emergency stationary CI ICE with a displacement of less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards for new nonroad CI engines in 60.4202. For emergency engines greater than or equal 37 kW, Section §60.4202 (a) (2) refers to 40 CFR Appendix I to Part 1039(c) for Tier 3 emissions standards. In accordance with Section §60.4202, the emission standards must meet those established in 40 CFR Appendix I to Part 1039(c) for all pollutants. The proposed 60 kW Tier 3 diesel engine meets the requirements of 40 CFR Part 60, Subpart IIII. Table 12 shows a summary of Table 3 of Appendix I to Part 1039(c) standards and the proposed engine emissions from manufacturer specifications.

Table 12. Standards for Engines Rated 37 ≤ kW ≤ 75 for Tier 3, 40 CFR Appendix-I-to-Part-1039(c)

Pollutant	Emission Standards (g/kW-hr)	APP-26-00003 Emissions (g/kW-hr)	Compliance
NMHC + NO_x	4.70	4.43	Yes
CO	5.00	1.40	Yes
PM	0.40	0.17	Yes

As shown in Table 12, the emergency diesel engine meets the emissions requirement of this section.

Compliance Requirements §60.4206, §60.4211(a), (c), (g)

Pursuant to Section §60.4206, owners/operators of stationary CI ICE must operate and maintain stationary CI ICE that achieve the emission standards as required in §60.4204 and 60.4205 over the entire life of the engine.

Section §60.4211(a) requires operating and maintaining the stationary CI internal combustion engine and control device according to the manufacturer's emission-related written instructions and only changing those emission-related settings that the manufacturer permits; and to meet the requirements of 40 CFR part 1068, as applied to the engine subject to the evaluation.

Section §60.4211(c) requires the engine to be installed and configured according to the manufacturer's emission-related specifications. **The owner has agreed to install, configure and operate the unit in compliance with §60.4211(a) and (c).**

Compliance requirements will be included as a permit condition.

Pursuant to Section §60.4211(g), if the owner or operator does not install, configure, operate, and maintain the engine and control device according to the manufacturer's emission related written instructions, or changes emission-related settings in a way that is not permitted by the manufacturer, the legal owner or operator must demonstrate compliance according to the provisions of §60.4211(g)(1).

NOTE: Such an action described above would constitute a permit modification per the requirements of MBARD Rule 207 - Sections 1.2 & 2.33.1, Rule 1000 - Sections 1.2 & 2.9 and would require a demonstration of compliance with Rule 1010 - Section 3.3. **Hence, the requirements and allowances of Section §60.4211(g) will not be incorporated into the permit at this time.**

For informational purposes only, should the facility submit an application for a permit modification to reevaluate the project for the change in method of operation, revisions to the potential to emit, and compliance with Rules 1000 & 1010, and MBARD is able to make the appropriate findings, an ATC could be issued with the following requirements of §60.4211(g)(1) for the respective sized engine listed below:

For engines less than 100 HP

- Must keep a maintenance plan and records of conducted maintenance.
- Maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions.
- Conduct an initial performance test to demonstrate compliance with the applicable emission standard within 1 year of such action.

Should §60.4211(g) need to be taken into consideration at a future date, the initial performance would be required within 180 days (6 months), to align with MBARD's Source Testing Protocol.

Compliance requirements will be included as a permit condition.

Fuel Requirements

Per Section §60.4207, beginning October 1, 2010, owners and operators of stationary CI ICE subject to subpart IIII, with a displacement of less than 30 liters per cylinder that use diesel fuel, must use diesel fuel that meets the requirements of 40 CFR 1090.305 except as specified in Section §1090.3009 (a). Requirements: the maximum sulfur content of 15 ppm and must meet one of the following standards a minimum cetane index of 40 or maximum aromatic content of 35% by volume.

The use of diesel that meets California Air Resources Board (CARB) specification, or the alternative diesel fuel specifications as defined in MBARD Rule 1010 will comply with the fuel requirements of this section.

Recordkeeping Requirements

Per Table 5 to subpart IIII, starting model year 2012, an engine rated greater or equal than 56 KW and less than 175 KW must comply with the requirements of Section § 60.4214(b) as follows: If the emergency engine does not meet the standards applicable to non-emergency engines in the applicable model year, the owner or operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner must record the time of operation of the

engine and the reason the engine was in operation during that time.

Recordkeeping requirements will be included as a permit condition.

Health & Safety Code (H&SC) Section 42301.6 – Public Notification Requirements:

Pursuant to Section §42301.6(a), prior to approving an application for a permit to construct or modify a source that emits hazardous air emissions, and that source is located within 1,000 feet from the outer boundary of a school site, the air pollution control officer shall prepare a public notice in which the proposed project or modification for which the application for a permit is made is fully described.

The notice may be prepared whether or not the material is or would be subject to subdivision (a) of Section 25536 if the air pollution control officer determines and the administering agency concurs that hazardous air emissions of the material may result from an air release, as defined by Section 44303. The notice may be combined with any other notice on the project or permit that is required by law.

MBARD protocol, adopted by the board on 11/14/01, specifies the risk thresholds for public notification. If the carcinogenic risk is greater than 1 in a million, or non-carcinogenic risk is at or above the applicable reference exposure levels, the district will conduct public notice.

This engine is located within the boundary of the Carmel campus of Robert Louis Stevenson School and therefore, the project will be evaluated to determine if it is subject to the public notification requirements.

A health risk assessment (HRA) was performed to determine if the facility exceeds REL thresholds and if the equipment is subject to the public notice requirements of H&SC Section 42301.63. The analysis was conducted in accordance with the Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (OEHHA Guidelines). The HRA analysis utilizes the Hot Spots Analysis Reporting Program (HARP2) based on air dispersion modeling (AERMOD) output from U.S. EPA's AERMOD software. The results obtained from HARP2 provide the necessary information to identify the maximum exposed individual resident (MEIR) for both non-cancer and carcinogenic health impacts.

A discrete receptors grid 1000 meters wide and 1000 meters long was created in AERMOD, centered around the source location. Receptors were set every 25 meters. Potential receptors were excluded within the facility boundary. The facility boundary is referenced from the County of Monterey's Parcel Report Web App. The parcel data can be referenced here: https://maps.co.monterey.ca.us/wab/parcelreportwebapp/.

The terrain parameters were set Elevated. Terrain data was uploaded from WebGIS 7.5-Min, and the map type is USGS DEM/CDED. In addition, AERMET data from Monterey, CA, was applied. Table 13 summarizes AERMOD input parameters, including source data, and the elevation of Monterey's meteorological station.

Table 13. Engine rated 95.7 HP modelling parameters.

Source ID[1]	1
Source type[2]	Point
UTM X Coordinate	596382.00
UTM Y Coordinate	4046967.00

Base Elevation (ft)[3]	353 ft
Release Height (ft)	10
Emission Rate (g/s)[4]	1 g/s
Gas Exit Temperature (ºF)	972
Gas Exit Flow Rate (cfm)	511
Stack Inside Diameter (ft)	0.2
Met. Station (Monterey) elevation[5] (m)	50.3

Notes:
1 Source ID 1 is used because AERMOD results will be loaded into CARB's HARP tool.
2 Since the engine is equipped with a vertical exhaust, a point source was selected.
3 Base elevation was uploaded automatically when running AERMAP on AERMOD.
4 Emission rate set to 1 g/sec because AERMOD results will be loaded into CARB's HARP tool.
5 Met elevation from CARB's HARP AERMOD Meteorological Files web page: HARP AERMOD Meteorological Files | California Air Resources Board.

The closest buildings were included in the model to account for building downwash, a phenomenon where wind flowing over and around buildings create turbulent, low-pressure wake zones on the downwind side, drawing elevated exhaust plumes down to ground level.

Figure 1, obtained from AERMOD, shows the engine location, nearby buildings, receptors distribution grid, the facility boundary, and 1-Year concentration contours.

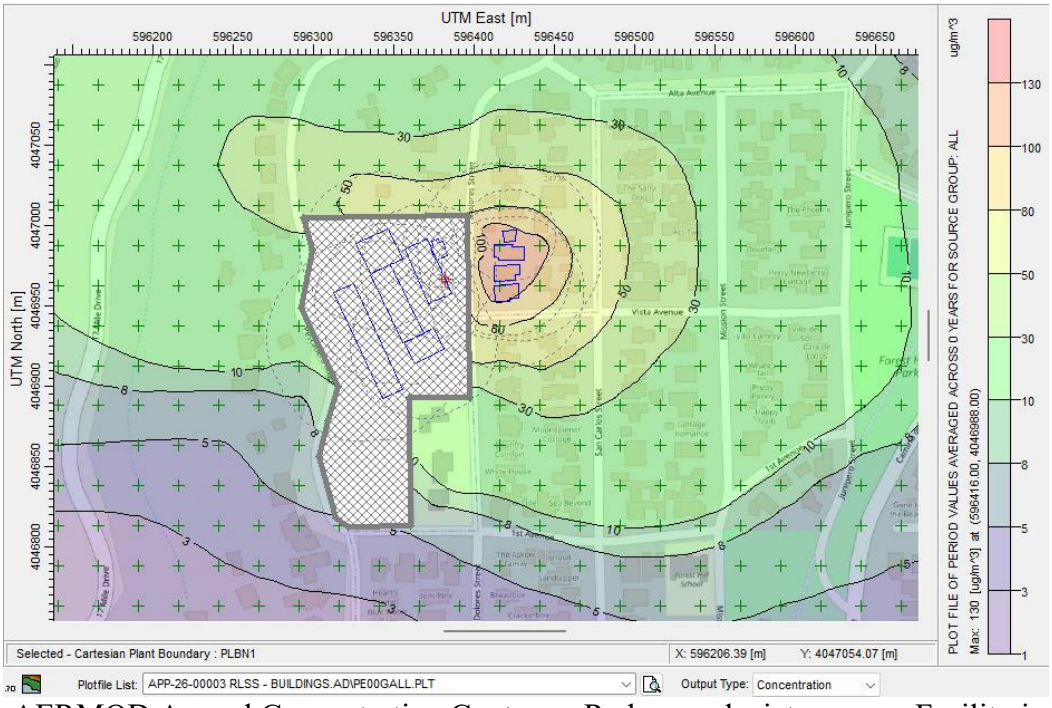

Figure 1. AERMOD Annual Concentration Contours. Red cross depicts source. Facility is shown in white. Buildings are shown in blue.

The maximum period and hourly concentrations are summarized in Table 14. Note that the concentration values assume a mass flow rate of one gram Diesel PM per second from the source and will be adjusted later in the analysis performed by CARB's HARP tool.

Table 14. AERMOD Results - Maximum Annual And Hourly Concentration

Maximum 1-hr Concentration	1868 $\mu g/m^3$
Maximum Annual Concentration	130 $\mu g/m^3$

Notes:
1. On a basis of 1 g/s of Diesel PM emitted from source.

The AERMOD max 1-hr concentration and annual concentration plot files were loaded into CARB's HARP tool to determine health impacts on nearby exposed residents and students. The hourly emission rate is 0.08 pounds Diesel PM per hour. Based on 50 hours of annual usage, the annual emissions are 2.37 pounds of Diesel PM per year

The following options were selected when running the HARP2 risk assessment:

- Analysis type: cancer, chronic, and acute.
- Receptor type: individual resident
- Exposure duration: 30 years
- Intake rate percentile: OEHHA derived method
- Pathways to evaluate: mandatory minimum pathways

Table 15 lists the HRA Hazard Index (HI) for non-cancer and cancer risk values at the maximum value and the corresponding receptor index.

Table 15. Health Risk Assessment Result – Maximum Risk

Risk Type	Receptor ID	x-coordinate	y-coordinate	Value	Public Notice Trigger Threshold	Trigger H&SC Public Notice [1]
Acute Max HI	936	596416	4046988	0.00e+00	> 1	No
Chronic Max HI	936	596416	4046988	5.12E-04	>1	No
Cancer Risk	936	596416	4046988	2.22 in a million	> 1 in a million	Yes

Note:
1. Reference: MBARD Protocol, Public Notification Requirements - H&SC 42301.6

As previously stated, per MBARD's Public Notification Requirements of the Health & Safety Code 42301.6, adopted by the Board On 11-14-01, MBARD will not implement the Public Notification Requirements of H&SC 42301.6 for any project if:

- Carcinogenic Risk is less than 1 in a million.
- Non-Carcinogenic risks are less than the applicable Reference Exposure Levels.

As shown in Table 15, the cancer risk is 2.22 in a million and exceeds the public notice trigger thresholds. Therefore, MBARD will notify residents within 1000 feet of 24800 Dolores in Carmel, CA and parents/guardians of children attending Robert Louis Stevenson School (Carmel Campus). The public notification files are saved on the permit file. Note: The acute and chronic risks do not exceed the public notice trigger level.

VI. CONCLUSIONS

The equipment has the capability to continue to comply with all applicable MBARD rules and regulations.

VII. RECOMMENDATIONS

Upon completion of HSC public notice, issue Authority to Construct with the following additional conditions:

1. No later than twenty-four (24) hours prior to start-up of the equipment, Robert Louis Stevenson School shall notify MBARD and arrange for an inspection of the equipment during normal operations to verify compliance with MBARD rules and regulations. [Basis: MBARD Rule 207]

2. Annual engine diesel fuel usage of the engine, emergency use hours of operation, and maintenance and testing hours of operation, shall be reported to the MBARD, upon request. [Basis: MBARD Rule 207]

3. Except for maintenance and testing purposes, this equipment shall only be operated when the local utility powerline service fails. [Basis: MBARD Rule 1010]

4. The equipment shall be operated for less than 50 hours per year for maintenance and testing purposes. [Basis: MBARD Rule 1010]

5. Robert Louis Stevenson School shall maintain a log, summarized monthly, to record the following:

   a. Date of operation;
   b. Start and end engine hour meter readings;
   c. Emergency use hours of operation;
   d. Maintenance and testing hours of operation; and,
   e. Fuel usage, (gallons/month). If no fuel records are available, reported fuel usage can be based on a maximum fuel usage rate of 5.0 gallons per hour for this engine.

   Records shall be retained for at least three years and made readily available to MBARD staff upon request. [Basis: MBARD Rules 207 and 1010 & 40 CFR 60, Subpart IIII § 60.4214(b)]

6. Robert Louis Stevenson School is prohibited from operating the engine for non-emergency use, including maintenance and testing, during the following periods: [Basis: MBARD Rule 1010]

   f. Whenever there is a Robert Louis Stevenson School (Carmel Campus) sponsored activity; and
   g. Between the hours of 7:30 AM and 3:30 PM on days when Robert Louis Stevenson School (Carmel Campus) is in session.

7. The engine shall be equipped with a non-resettable meter which registers the total hours operated and shall be maintained in good working condition. [Basis: MBARD Rule 1010 & 40 CFR 60, Subpart IIII § 60.4209(a)]

8. The engine must be installed and configured according to the manufacturer's emission-related written

instructions. [Basis: 40 CFR 60, Subpart IIII, §60.4211(c)]

9. The engine shall be operated and maintained in accordance with manufacturer's emission-related written instructions. Maintenance records shall be retained with other required engine operational data as specified in Condition 5. [Basis: MBARD Rules 207 and 1010 & 40 CFR 60, Subpart IIII §60.4211(a)]

10. Operation of the engine that is not in accordance with the manufacturer's emission-related written instructions, or that changes the manufacturer's emission-related settings, constitutes a modification of the permit, and requires prior MBARD approval. [Basis: MBARD Rule 207 & 40 CFR 60, Subpart IIII §60.4211(g)]

11. The diesel fuel consumed shall meet California Air Resources Board (CARB) specifications, or the alternative diesel fuel specifications as defined in MBARD Rule 1010. [Basis: MBARD Rule 1010]

12. The exhaust stack discharge shall be vertically configured and equipped without a stationary cap. [Basis: Rule 402]

13. This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, an interruptible power contract, or base interruptible program. [Basis: MBARD Rule 1010]

14. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark or darker than Ringelmann 1, or equivalent 20 percent opacity. [Basis: MBARD Rule 400]

15. No emissions shall constitute a public nuisance. [Basis: MBARD Rule 402]