

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT E&C DIVISION APPLICATION PROCESSING AND CALCULATIONS	TOTAL PAGES:	PAGE NO.:
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PERMIT TO CONSTRUCT/OPERATE

APPLICANT:

East Los Angeles College
1301 Avenida Cesar Chavez
Monterey Park, CA 91754
Facility ID# 13854
Facility Type: Title V Major Source

EQUIPMENT LOCATION:

1301 Avenida Cesar Chavez
Monterey Park, CA 91754

APPLICATION NO 553288

INTERNAL COMBUSTION ENGINE, LOCATED NEAR BUILDING E-1, CUMMINS, MODEL NO. QSX30-G5, DIESEL-FUELED, TWELVE CYLINDERS, FOUR CYCLE, TURBOCHARGED AND AFTERCOOLED, RATED AT 1490 BHP, WITH A DIESEL PARTICULATE FILTER, JOHNSON MATTHEY, MODEL **CRT (+) 9-H-BITO-CS-20-LP** AND CRTDM DIAGNOSTIC MODULE AND DATA LOGGING AND ALARM SYSTEM, MODEL CRT, DRIVING AN EMERGENCY ELECTRICAL GENERATOR.

APPLICATION NO 558749

SIGNIFICANT TITLE V REVISION

PERMIT CONDITIONS

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]
2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]
3. THIS ENGINE SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF RULE 431.2 AND RULE 1470.
[RULE 1470, RULE 431.2]
4. THIS ENGINE SHALL NOT BE OPERATED MORE THAN 200 HOURS IN ANY ONE YEAR, WHICH INCLUDES NO MORE THAN 50 HOURS IN ANY ONE YEAR FOR MAINTENANCE AND TESTING.
[RULE 1110.2, RULE 1303 (a), RULE 1470, 40 CFR 60.4211 (f)]

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5. THIS ENGINE SHALL NOT BE OPERATED MORE THAN 4.2 HOURS IN ANY ONE CALENDAR MONTH FOR MAINTENANCE AND TESTING.
[RULE 1304]

6. OPERATING BEYOND THE 50 HOURS PER YEAR ALLOTTED FOR MAINTENANCE AND TESTING PURPOSES SHALL BE ALLOWED ONLY IN THE EVENT OF A LOSS OF GRID POWER OR UP TO 30 MINUTES PRIOR TO A ROTATING OUTAGE, PROVIDED THAT THE UTILITY DISTRIBUTION COMPANY HAS ORDERED ROTATING OUTAGES IN THE CONTROL AREA WHERE THE ENGINE IS LOCATED OR HAS INDICATED THAT IT EXPECTS TO ISSUE SUCH AN ORDER AT A CERTAIN TIME, AND THE ENGINE IS LOCATED IN A UTILITY SERVICE BLOCK THAT IS SUBJECT TO THE ROTATING OUTAGE. ENGINE OPERATION SHALL BE TERMINATED IMMEDIATELY AFTER THE UTILITY DISTRIBUTION COMPANY ADVISES THAT A ROTATING OUTAGE IS NO LONGER IMMINENT OR IN EFFECT.
[RULE 1470]

7. AN OPERATIONAL NON-RESETTABLE ELAPSED TIME METER SHALL BE INSTALLED AND MAINTAINED TO INDICATE THE ENGINE ELAPSED OPERATING TIME.
[RULE 1110.2, RULE 1303 (b) (2), RULE 1470, 40 CFR 60.4209 (a)]

8. THIS ENGINE SHALL NOT BE USED AS PART OF A DEMAND RESPONSE PROGRAM USING INTERRUPTIBLE SERVICE CONTRACT IN WHICH A FACILITY RECEIVES A PAYMENT OR REDUCED RATES IN RETURN FOR REDUCING ITS ELECTRIC LOAD ON THE GRID WHEN REQUESTED BY THE UTILITY OR THE GRID OPERATOR.
[RULE 1470]

9. AN ENGINE OPERATING LOG SHALL BE KEPT AND MAINTAINED, DOCUMENTING THE TOTAL TIME THE ENGINE IS OPERATED EACH MONTH AND SPECIFIC REASON FOR OPERATION AS:
 - a. EMERGENCY USE.
 - b. MAINTENANCE AND TESTING.
 - c. OTHER (DESCRIBE THE REASON FOR OPERATING).
 - d. IN ADDITION, EACH TIME THE ENGINE IS MANUALLY STARTED, THE LOG SHALL INCLUDE THE DATE OF OPERATION, THE SPECIFIC REASON FOR OPERATION, AND THE TOTALIZING HOUR METER READING (IN HOURS AND TENTHS OF HOURS) AT THE BEGINNING AND END OF OPERATION.
[RULE 1303 (b) (2), RULE 1470, 40 CFR 60.4214 (b)]

10. ON OR BEFORE JANUARY 15TH OF EACH YEAR, THE OPERATOR SHALL RECORD IN THE ENGINE OPERATING LOG THE FOLLOWING:

THE TOTAL HOURS OF OPERATION FOR THE PREVIOUS CALENDAR YEAR, AND

THE TOTAL HOURS OF ENGINE OPERATION FOR MAINTENANCE AND TESTING FOR THE PREVIOUS CALENDAR YEAR.

THE ENGINE OPERATING LOG SHALL BE RETAINED ON SITE FOR A MINIMUM OF FIVE CALENDAR YEARS AND SHALL BE MADE AVAILABLE TO THE EXECUTIVE OFFICER OR REPRESENTATIVE UPON REQUEST.
[RULE 1303 (b) (2)]

11. THIS ENGINE SHALL NOT BE OPERATED UNLESS ITS EXHAUST IS VENTED TO THE DIESEL PARTICULATE FILTER WHICH SHALL BE IN FULL OPERATION AND IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 1303(a)]

12. THE OPERATOR SHALL NOT OPERATE THE DIESEL PARTICULATE FILTER SYSTEM WITHOUT AN CTRdm MODULE. THE MODULE CONSISTS OF OPERATIONAL DATA LOGGING OF EXHAUST TEMPERATURE, BACKPRESSURE AND ALARM SYSTEM.
[RULE 1303 (a), RULE 1470]

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13. THE MAXIMUM BACK PRESSURE OF THE ENGINE SHALL NOT EXCEED 27 INCHES W.C.
[RULE 1303 (a)]
14. THE OPERATOR SHALL INSTALL AND MAINTAIN A PRESSURE GAUGE (DISPLAY READING SHALL BE READILY AVAILABLE) TO ACCURATELY INDICATE THE BACK PRESSURE OF THE ENGINE (ELECTRONIC DISPLAY IS ACCEPTABLE). THE DISPLAY OF THE PRESSURE GAUGE SHALL BE IN INCHES OF WATER COLUMN (W.C.) OR INCHES MERCURY (IN. HG).
[RULE 1303 (a), RULE 1470, 40 CFR 60.4209 (b)]
15. THE DIESEL ENGINE SHALL OPERATE AT AN ENGINE DUTY CYCLE REQUIRED TO ACHIEVE 465 DEGREE FAHRENHEIT OR ABOVE IN THE EXHAUST GAS STREAM FOR 40% OF THE DUTY CYCLE.
[RULE 1303 (a)]
16. THIS ENGINE SHALL NOT BE OPERATED IN IDLE MODE FOR MORE THAN 720 CONSECUTIVE MINUTES.
[RULE 1303 (a)]
17. THE TEMPERATURE OF THE ENGINE EXHAUST GAS AT THE INLET TO THE DIESEL PARTICULATE FILTER SYSTEM SHALL BE GREATER THAN OR EQUAL TO 464 DEGREES FAHRENHEIT EXCEPT DURING START-UP.
[RULE 1303 (a)]
18. THE OPERATOR SHALL REGENERATE THE DIESEL PARTICULATE FILTER WHENEVER WARNING SIGNAL IS RECEIVED FROM THE ALARM SYSTEM. IN ORDER TO ACHIEVE FILTER REGENERATION, THE OPERATOR SHALL RUN THE ENGINE UNTIL THE EXHAUST TEMPERATURE EXCEEDS 464 DEGREES FAHRENHEIT AND THE BACKPRESSURE MONITORING SYSTEM INDICATES A NORMAL BACKPRESSURE READING.
19. REGENERATION OF THE CATALYST SHALL BE PERFORMED AFTER 24 COLD START-UPS WITH 30-MINUTE IDLE SESSIONS.
[RULE 1470]
20. AFTER EVERY SIX MONTHS NORMAL ENGINE OPERATION, THE OPERATOR SHALL INSPECT THE INTEGRITY OF THE FILTER AND DETERMINE IF THE FILTER NEEDS TO BE CLEANED.
[RULE 1470]
21. SULFUR CONTENT OF DIESEL FUEL SUPPLIED TO THE ENGINE SHALL NOT EXCEED 15 PPM BY WEIGHT.
[RULE 1303 (a), RULE 431.2, 40 CFR 60.4207 (b)]
22. REMOVAL OF THE DIESEL PARTICULATE FILTER'S FILTER MEDIA FOR CLEANING MAY ONLY OCCUR UNDER THE FOLLOWING CONDITIONS:
 - A. THE INTERNAL COMBUSTION ENGINE SHALL NOT BE OPERATED FOR MAINTENANCE AND TESTING OR ANY OTHER NON-EMERGENCY USE WHILE THE DIESEL PARTICULATE FILTER MEDIA IS REMOVED; AND
 - B. THE DIESEL PARTICULATE FILTER'S FILTER MEDIA SHALL BE RETURNED AND RE-INSTALLED WITHIN 10 WORKING DAYS FROM THE DATE OF REMOVAL; AND
 - C. THE OWNER OR OPERATOR SHALL MAINTAIN RECORDS INDICATING THE DATE(S) THE DIESEL PARTICULATE FILTER'S FILTER MEDIA WAS REMOVED FOR CLEANING AND THE DATE(S) THE FILTER MEDIA WAS RE-INSTALLED. RECORDS SHALL BE RETAINED FOR A MINIMUM PERIOD OF FIVE YEARS.
[RULE 1470]
23. THE OPERATOR SHALL KEEP RECORDS OF ANY CORRECTIVE ACTION TAKEN AFTER THE BACKPRESSURE MONITOR HAS NOTIFIED THE OPERATOR THAT THE BACKPRESSURE LIMIT OF THE

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ENGINE IS APPROACHED
[40 CFR 60.4214 (c)]

24. THE OPERATOR SHALL COMPLY WITH THE EMISSION STANDARDS SPECIFIED IN 40 CFR 60.4205(b) BY PURCHASING AN ENGINE CERTIFIED TO THE EMISSION STANDARDS IN 40 CFR 60.4205(b), AS APPLICABLE, FOR THE SAME MODEL YEAR AND MAXIMUM ENGINE POWER. THE ENGINE MUST BE INSTALLED AND CONFIGURED ACCORDING TO THE MANUFACTURER'S EMISSION RELATED SPECIFICATIONS.
[40 CFR 60.4211(c)]

25. THE OPERATOR SHALL OPERATE AND MAINTAIN THE STATIONARY ENGINE AND CONTROL DEVICE ACCORDING TO THE MANUFACTURER'S WRITTEN EMISSION-RELATED INSTRUCTIONS (OR PROCEDURES DEVELOPED BY THE OPERATOR THAT ARE APPROVED BY THE ENGINE MANUFACTURER), CHANGE ONLY THOSE EMISSION-RELATED SETTINGS THAT ARE PERMITTED BY THE MANUFACTURER, AND MEET THE REQUIREMENTS OF 40 CFR 89, 94 AND/OR 1068, AS THEY APPLY.
[40 CFR 60.4211(a)]

26. THE EQUIPMENT SHALL COMPLY WITH THE CARB EXECUTIVE ORDER DE-08-009-06

27. FILTER CLEANING IS REQUIRED AFTER 150 HALF-HOUR COLD STARTS WITH ASSOICATED REGENERATIONS OR 1000 HOURS OF EMERGENCY USE. THE CRTdM, WHICH MONITORS ENGINE EXHAUST BACK PRESSURE AND TEMPERATURE WILL DETERMINE THE ACTUAL CLEANING INTERVAL AND PROVIDE AN ALERT WHEN FILTER CLEANING IS REQUIRED.

Emissions And Requirements:

28. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:
 - PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS
 - PM: 0.15 G/BHP-HR, RULE 1470
 - NOx+VOC: 4.8 G/BHP-HR, RULE 1303 (a), 40 CFR 60.4205 (b)
 - CO: 2.6 G/BHP-HR, RULE 1303 (a), 40 CFR 60.4205 (b)
 - PM 0.012 G/BHP-HR, RULE 1303 (a), 40 CFR 60.4205 (b)

BACKGROUND:

East Los Angeles College (ID 13854) has an international, multicultural student body that complements the 14 communities comprising its primary service area. The college offers both academic transfer courses which prepare students for admission to four-year colleges and universities and occupational programs which prepare students for careers in two years or less. The facility is a Title V facility, but not RECLAIM. The above application was filed as new construction. The engine will be used as diesel fueled emergency stand-by ICE driving an emergency electrical generator for building no. E-1. The proposed engine is certified by the District, ref a/n 455122 and will be equipped Diesel Particulate Filter (DPF) and oxidization catalyst. The applicant proposes to install a Johnson Matthey CARB certified (Executive Order DE-08-009-06) CRT Diesel Particulate Filter (DPF) on the engine. The SCAQMD issued a permit to similar engine and DPF filter, reference a/n 522206.

In the Facility Permit ID# 13854, additions are requested to Section D by the addition of one emergency diesel fueled ICE. Attached is a draft of Section D in the Facility Permit affected by this addition. This

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Title V modification is considered as a "Significant Permit Revision" to the Title V permit per Rule 3000 (b)(31)(D).

The proposed engine to be located within 130 meters (ref email dated 2/5/2014) of Robert Hill Lane Elementary School and is subject to Rule 212 public notice requirements.

The College in the process of expanding its facility and submitted the following applications.

Application no.	Description
553288	P/C-P/O for Cummins emergency ICE, rated at 1490 bhp
558749	Significant Title V permit revision

Note the Title V application was submitted in December of 2013, the applicant had various fee old issues that needed to be resolved prior to the submittal.

A/N	Equipment	Processing Fee	XPP Fee
553288	Emergency IC Engine	\$2,218.39	\$1,109.20
558749	Significant Title V permit revision	\$914.44	
Total Processing Fee			\$4,242.01

COMPLIANCE HISTORY

There has been no compliance actions with this facility for the past two years (01/04/2012-01/05/2014).

NC or NOV	Action	Disposition
None	n/a	n/a

Permitting since the Title V permit was renewed since 10/2011, ref a/n 494059

Item	A/n	30 day ave-lb/dy				
		NOx	ROG	CO	SOx	PM10
title v revision	528674	+0	+0.03	+0	+0	+0
title v revision	535864	+0.24	+0.02	+0.105	+0	+0.08
title v revision	558749	+1.93	+0.09	+0.23	+0	+0
Change in emissions	0	+2.17	+0.14	+0.33	+0	+0.08

EMISSIONS CALCULATIONS

Emergency Electrical Generator, A/N 553288, 1490 HP (one engine)

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The assumptions made regarding emergency electrical generator engine operation are listed below:

- Engine will use ultra-low sulfur (15 parts per million by weight) diesel fuel;
- Engine have Tier 2 Certification, copy in file
- Engine emissions are based on 4.2 hours per month testing, not to exceed 50 hours per year, and will be limited to an annual maximum of 200 hr/yr emergency use. Note the 200 hr/yr limit is inclusive of the allotted 50 hr/yr for maintenance and testing
- DPF model number CRT(+)-9-H-BITO-CS-20-LP, see email dated 1/13/2014
- The maximum back-pressure is 27 inches water column, see email dated 1/10/2014

Emission estimates are based on emission factors for EPA Tier 2 certified engines (ref certified permit under application no. 455112, copy of emissions in file). Emission estimates for SOx are based on estimated fuel use of 75 gallons per hour and fuel sulfur content of 15 ppm by weight. Emergency electrical generator engine emissions for a single engine are shown in the calculation sheets at the end of the engineering evaluation and summarized in Tables

Determine emissions from NOx, CO, ROG, SOx and PM

$$R1(LB / HR) = \frac{hp \times gr / bhp - hr}{454 gr / lb}$$

Note, PM10 = 0.96 PM (ref PM10 combustion values for various operations, ref District factors)

Note, PM R2 emissions less than 0.012 g/bhp-hr, per Johnson Matthey

Note, for SOx emissions use 0.0049 g/bhp-hr

A/N 553288 – Emergency IC Engine Mass Emission Rates

Pollutant	EF Value	EF Unit	BHP	lb/hr	lb/day	30DA	Lb/year
NOx	4.4	gm/bhp-hr	1490	14.44	7.63	1.93	722
ROG	0.22	gm/bhp-hr	1490	0.72	0.72	0.096	36.10
CO	0.52	gm/bhp-hr	1490	1.71	1.71	0.23	85
SOx	0.0049	gm/bhp-hr	1490	0.0161	0.0161	0.0021	0.8031
PM10	0.012	gm/bhp-hr	1490	0.03781	0.03781	0.0050	1.89

GHG Emissions

GHG Pollutant	Emissions	Emissions	Emissions
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	(lb/hr)	(lb/day)	(lb/year)
CO2	1,682.0	1,682.0	336,400
CH4	0.03	0.03	6
N2O	0.023	0.023	4.6

RULES EVALUATION:

RULE 212-STANDARDS FOR APPROVING PERMITS AND ISSUING PUBLIC NOTICES

Rule 212 requires that a person shall not build, erect, install, alter, or replace any equipment, the use of which may cause the issuance of air contaminants or the use of which may eliminate, reduce, or control the issuance of air contaminants without first obtaining written authorization for such construction from the Executive Officer. Rule 212(c) states that a project requires written notification if there is an emission increase for ANY criteria pollutant in excess of the daily maximums specified in Rule 212(g), if the equipment is located within 1,000 feet of the outer boundary of a school, or if the MICR is equal to or greater than one in a million (1×10^6) during a lifetime (70 years) for facilities with more than one permitted unit, source under Regulation XX, or equipment under Regulation XXX, unless the applicant demonstrates to the satisfaction of the Executive Officer that the total facility-wide maximum individual cancer risk is below ten in a million (10×10^6) using the risk assessment procedures and toxic air contaminants specified under Rule 1402; or, ten in a million (10×10^6) during a lifetime (70 years) for facilities with a single permitted unit, source under Regulation XX, or equipment under Regulation XXX.

FACILITY / EQUIPMENT AND SCHOOL LOCATIONS

The closest kindergarten to grade 12 school is located within 1,000 feet as stated by the applicant and as determined by Greatschools (<http://www.greatschools.org>). The following table summarizes the name, location and proximity of nearby schools. A public notice will be required per section (c)(1) because the proposed equipment is within 1000 feet of a school. Robert Lane Elementary School is part of LAUSD and Mr. Bill Piazza name and phone number (instructions per email dated 8/6/2013, copy in file) will be listed in the cover letter addressing the public notice to be mailed to the applicant.

K-12 Schools Near Facility

Name of School	Address	Distance in meters
Robert Lane Elementary School	1500 Cesar Chavez Ave., Monterey Park	130
Brightwood Elementary School	1701 Brightwood Street, Monterey Park	>457

Distance from school ref, email dated 2/5/2014

MAXIMUM INDIVIDUAL CANCER RISK (MICR)

Section (c)(3)(A)(i)-Public notice is required for any new or modified equipment under Regulation XXX with emissions in emissions of Rule 1401 toxic contaminants for which a person may be exposed to a maximum individual cancer risk greater than, or equal to one in one million during a lifetime (70 years) for facilities with more than one permitted unit, unless the applicant demonstrates to the satisfaction of the Executive officer that the total facility-wide maximum individual cancer risk is below 10 in a million using the Risk assessment procedures and toxic air contaminants specified in Rule 1402.

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The Rule 1401 risk assessment below was performed on the total Rule 1401 emissions from the engineer, As indicated in the Rule 1401 risk assessment below the MICR will not exceed one in one million for the permit unit.

Section (c)(3)(A)(i)

Pollutant	MICR	Threshold	Public Notice required
Engine	5.17E-08	1.0e-06	No

Section (c)(2) DAILY EMISSIONS

As shown in table below, the daily emissions from this project does not exceed the daily thresholds of Rule 212(g); therefore, the project does not triggers a public notice for section (c)(2). Rule Implementation Guidance, Rule 212, dated 12/19/2006 section 2 (b)(1) allows the use of the 30 –day average to determine emissions thresholds. There will be permit conditions for each equipment limiting the monthly emissions.

Pollutant	Proposed engine Project (A/N 553288)	R212 (g) Daily Thresh old	Public Notice triggered ?
NOx	1.93	40	No
SOx	0.0021	60	No
PM10	0.0050	30	No
CO	0.23	220	No
VOC	0.096	30	No

Rule 401 - Visible Emissions

This rule limits visible emissions to an opacity of less than 20 percent (Ringelmann No.1), as published by the United States Bureau of Mines. The applicant will use equipment configured with BACT (including DPF). Therefore, during normal operation, no visible emissions are expected. Compliance with this rule is expected.

Rule 402 - Nuisance

A person must not discharge from any source whatsoever such quantities of air contaminants or other material 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. Due to the application of BACT on each emission source and the distance from the emission sources to any potential receptors, the equipment is expected to comply with this rule

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Rule 404 – Particulate Matter Concentration
 Grain loading from the engine expected to comply.

Rule 407 – Liquid and gaseous air contaminants
 This rule limits CO emissions to 2,000 ppmvd and SO₂ emissions to 500 ppmvd, averaged over 15 minutes. Per section (b)(2) the emergency engines are not subject to this Rule.

Rule 431.2 – Sulfur Content of Liquid Fuels
 Any fuel oil combusted in the emergency engines must comply with the rule limit of 15 ppm sulfur. The emergency engines are required to use a low sulfur oil in the units which complies with the sulfur limits of this rule.

Rule 1110.2 - Emissions from Gaseous and Liquid-Fueled Internal Combustion Engines
 The purpose of Rule 1110.2 is to reduce NO_x, VOC, and CO from internal combustion engines. The diesel emergency engine proposed for this Project are low-usage engines which will each operate less than 200 hours per year and which will be used for firefighting and emergency electrical generation purposes only, and are therefore exempt from the requirements of this rule per section (i)(2). Elapsed operating time meters will be installed and maintained on each engine to substantiate compliance.

Reg 13 NEW SOURCE REVIEW (NSR) ANALYSIS
 This regulation sets forth pre-construction review requirements for new, modified, or relocated facilities to ensure that the operation of such facilities does not interfere with progress in attainment of the National Ambient Air Quality Standards (NAAQS), and that future economic growth within the District is not unnecessarily restricted. The specific air quality goal of this regulation is to achieve no net increases from new or modified permitted sources of nonattainment air contaminants or their precursors. In addition to nonattainment air contaminants, this regulation also limits emission increases of ammonia and ozone depleting compounds from new, modified or relocated facilities by requiring the use of BACT on each permit unit.

Rule 1303 (b)(1) BACT

The Executive Officer shall deny the Permit to Construct for any new source which results in an emission increase of any non-attainment air contaminant, any ozone depleting compound, or ammonia unless the applicant can demonstrate that BACT is employed for the new source. The College is an existing source with a potential for an increase in emissions and therefore, BACT is required. Below is an analysis of the BACT requirements for the major components for the project. (Note for attainment contaminants, CO and NO_x BACT is addressed under Regulation XX and XVII section). The College is a Title V Facility and is subject to LEAR for PM. The applicant proposes to install a DPF.

Emergency ICE, 1490 bhp (bhp > 750)

Pollutant	Minor Source (Tier 2)	Proposed BACT (Tier 2)	Comply (Yes/No)
PM10	0.15 gm/bhp-hr	DPF, 0.01gm/bhp-hr (LAER)	Yes
SO _x	Fuel with sulfur content less than or equal to 15 ppm by weight	Fuel with sulfur content less than or equal to 15 ppm by weight	Yes

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The R1 PM10 emissions is 0.08 g/bhp-hr, the applicant proposes to install a DPF and the R2 emissions will be below 0.012 g/bhp-hr

Based on the above table, the equipment will comply with the current LAER requirements.

Rule 1303 (b)(1) Modeling

The applicant must substantiate with modeling that the new facility or modification will not cause a violation, or make significantly worse an existing violation according to Appendix A of Rule 1303, or other analysis approved by the Executive Officer or designee, of any state or national ambient air quality standards at any receptor location in the District

The engine is exempt from modeling for being emergency equipment, per 1304 (a)(4)

Rule 1303 (b)(2) -Offsets

The engine is exempt from offsets for being emergency equipment, per 1304 (a)(4). The college is Essential Public Service (EPS) per Rule 1302 (m)(6) and use the Rule 1309.1(a)(3) exemption for offsets purposes.

RULE 1313(g)– Emission Limitation Permit Conditions

Every permit shall have the following conditions:

- (1) Identified BACT conditions;
- (2) Monthly maximum emissions from the permitted source.
 - Permit conditions limiting maximum hours per month for testing, maximum annual hours of operation and require time meters to be installed.
 - NO_x+VOC, PM and CO g/bhp-hr limits will be listed in the Permit conditions

RULE 1325 – FEDERAL PM2.5 NEW SOURCE REVIEW PROGRAM

This rule applies to any new major polluting facility, major modifications to a major polluting facility, and any modification to an existing facility that would constitute a major polluting facility in and of itself; located in areas federally designated pursuant to Title 40 of the Code of Federal Regulations (40 CFR) 81.305 as non-attainment for PM2.5. The facility is not a major PM_{2.5} source.

Rule 1401 – New Source Review of Toxic Air Contaminants

This rule specifies limits for maximum individual cancer risk (MICR), acute hazard index (HIA), chronic hazard index (HIC) and cancer burden (CB) from new permit units, relocations, or modifications to existing permits which emit toxic air contaminants. These requirements are summarized in table below as follows:

Rule 1401 Requirements

Parameters and Specifications	Rule 1401 Requirements
MICR, without T-BACT	≤ 1EE-6

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MICR, with T-BACT	≤ 1EE-5
Acute Hazard Index	≤ 1.0
Chronic Hazard Index	≤ 1.0
Cancer Burden	≤ 0.5

Engines exempt per section (g)(1)(F), does not apply for stand-by generators exempt per Reg 1304. The MICR was conducted for Rule 212 and the MICR was below one in one million, see attachment A for details.

RULE 1401.1 – REQUIREMENTS FOR NEW AND RELOCATED FACILITIES NEAR SCHOOLS

The purpose of this rule is to provide additional health protection to children at schools or schools under construction from new or relocated facilities emitting toxic air contaminants. This rule applies to new and relocated, but not to existing facilities. Applications for Permit to Construct/Operate from such new or relocated facilities shall be evaluated under this rule using the list of toxic air contaminants in the version of Rule 1401 that is in effect at the time the application is deemed complete. The existing facility is located within 1000 feet of any school; therefore, certain requirements of this rule may be are not applicable

RULE 1470 – REQUIREMENTS FOR STATIONARY DIESEL-FUELED INTERNAL COMBUSTION AND OTHER COMPRESSION IGNITION ENGINES

PAR 1470 was amended by the SCAQMD’s Governing Board on May 4, 2012.

1470 (b)(47)-New CI engine installed after 2005.

1470 (b)(57)-School sensitive receptor. The engine will be located within 800 feet of a school, but will be located beyond 100 meters of the outer boundaries of a school

1470 (b)(60)-The college is not located at a Sensitive Receptor. The college has no dormitories.

1470 (c)(1)-Requires ultra low sulfur be used in this equipment 1/2006, but Rule 431.2 requires the use of this fuel at this time.

1470 (c)(2)(C)(i)-Limit the testing to no more than 50 hours per year.

1470 (c)(2)(C)(iii)- PM emissions less than 0.15 g/bhp-hr, see emissions data sheet (SCAQMD data base ref a/n 455112, copy in file).

1470 (c)(2)(C)(iv)(I)- Table 1, the engine is not located at a sensitive receptor as defined by section (b)(57) and (b)(60). The engine is located beyond 100 meters of a school and there are no dormitories located at the college, thus does not apply

Application filing date	HP	PM limits	Proposed PM	Compliance
		G/bhp-hr	G/bhp-hr	
n/a	n/a	n/a	n/a	Yes

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1470 (c)(2)(C)(vii) (Table 2)

Item	HP	NO _x +VOC	CO
		G/bhp-hr	G/bhp-hr
a/n		4.8	2.6
a/n 553288	1490	0.22+4.4= 4.627	0.52
Compliance		Yes	Yes

1470 (c)(2)(F)- Filter cleaning of DPF. Add permit condition for DPF cleaning per email dated 5/8/2012, copy in file

1470 (d)(7)(A)-Require time meter to be installed

1470 (d)(7)(B)-Require backpressure monitor to installed (pm control), not required by this Rule, but with CARB E/O and LAER-BACT permit condition.

1470 (d)(6) and (d)(7)- Require record keeping conditions. Records are retained for 36 months (Title V requires records be kept for five years)

RULE 1472- Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engine

The applicant does not operate three or more emergency-ice (excluding fire pumps) within 150 meters of each other, see email dated 9/5/2012, copy in file, thus the Rule does not apply

REGULATION XVII-Prevention of Significant Deterioration

On July 25, 2007 SCAQMD and EPA have signed a new Partial PSD Delegation Agreement intended to delegate the authority and responsibility to SCAQMD for issuance of initial PSD permits and for PSD permit modifications where the applicant does not seek to use the emissions calculation methodologies promulgated in 40 CFR 52.21 (NSR Reform) but not set forth in SCAQMD Regulation XVII. The Partial Delegation agreement also does not delegate authority and responsibility to SCAQMD to issue new or modified PSD permits based on Plant-wide Applicability Limits (PALS) provisions of 40 CFR 52.21. Therefore, consistent with the Partial Delegation Agreement, for all new and modified PSD permits, SCAQMD will only use Regulation XVII as the bases for the PSD analysis. The South Coast AB, where the project is to be located, is in attainment for NO_x, SO₂, CO and PM₁₀ emissions. Therefore PSD applies to these pollutants. For the proposed project a significant emission increase is 40 tpy or more of NO_x or SO₂ or 100 tons per year or more of CO. The emissions from the proposed project will not exceed these thresholds. Therefore a PSD analysis is not required.

Rule 1703(a)(2) requires each permit unit be constructed using BACT for each attainment air contaminant for which there is a net emission increase. The BACT requirements for CO and NO_x as well as the applicant's BACT proposals are listed below: As shown below, the equipment will comply with PSD BACT requirements.

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Emergency ICE, 1490 bhp (bhp > 750)

Pollutant	Minor Source BACT (Tier 2)	Proposed (Tier 2)	Comply (Yes/No)
CO	2.6 gm/bhp-hr	0.52 gm/bhp-hr	Yes
NOx+VOC	4.8 gm/bhp-hr	0.22+4.4 = 4.62 gm/bhp-hr	Yes

Rule 1714 – PSD for Greenhouse Gases

This rule sets forth preconstruction review requirements for greenhouse gases (GHG). The provisions of this rule apply only to GHGs as defined by EPA to mean the air pollutant as an aggregate group of six GHGs: carbon dioxide (CO2), nitrous oxide (N2O), methane (CH4), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6). All other attainment air contaminants, as defined in Rule 1702 subdivision (a), shall be regulated for the purpose of Prevention of Significant Deterioration (PSD) requirements pursuant to Regulation XVII, excluding Rule 1714. The provisions of this rule shall apply to any source and the owner or operator of any source subject to any GHG requirements under 40 Code of Federal Regulations Part 52.21 as incorporated into this rule. The rule specifies what portions of 40 CFR, Part 52.21 do not apply to GHG emissions, which are identified in Rule 1714(c)(1) as exclusions.

The GHG pollutants of CO2, N2O and CH4 are products of combustion. The use of HFCs, PFCs, and SF6 are associated with equipment that are used for the operation of the facility, such as: HFCs used as heat transfer medium in air condition control equipment, PFCs used as an agent in fire suppression equipment, and SF6 as gas used to insulate transformers as well as in circuit breakers. The facility is expected to follow appropriate procedures to minimize any release of GHGs during installation, operation, and maintenance activities. The purchase of equipment that meet applicable standards and the practice of proper maintenance will ensure compliance for the non-combustion GHG products.

A PSD permit is required, prior to actual construction, of a new major stationary source or major modification to an existing major source as defined in 40 CFR 52.21(b)(1) and (b)(2), respectively. The rule incorporates the EPA rule by reference, so determination of PSD applicability for GHG is done using the EPA’s document PSD and Title V Permitting Guidance for Greenhouse Gases, March 2010. The GHG emissions calculated in the tables below, using the heat input data and emission factor, respectively, were used for the project GHG PSD applicability determination.

The facility is considered a minor source to PSD and does not emit criteria emission over the threshold 150/250 ton per year. The CO2e is calculated based on maximum operations, see attached calculation.

GHG Emissions

GHG Pollutant	Emissions (lb/hr)	Emissions (lb/day)	Emissions (lb/year)
CO2	1,682.0	1,682.0	336,400
CH4	0.03	0.03	6
N2O	0.023	0.023	4.6

(see attachment for calculations)

Regulation XXX

This facility (id 13854) is included in Phase Two of the Title V universe. Therefore proposed equipment is expected to comply with the following sections:

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Rule 3000 (b)(31)(i) does apply based on the following

Per Rule 3000 (b)(31)(I) the engines are subject to NSPS and NESHAP requirements

Rule 3006

The proposed project is expected to comply with all applicable District Rules and Regulations. Since the proposed project is considered as a “Significant permit revision” and will be subject to the public participation requirements under Rule 3006 (a)(1)(B). A proposed permit incorporating this permit revision will be submitted to EPA for a 45-day review pursuant to Rule 3003(j). If EPA does not raise any objections within the review period, a revised Title V permit will be issued to this facility.

Rule 3003

Section (j)(1)(A) The EPA Administrator will timely receive the Significant revision upon completion of District evaluation.

Section (j)(1)(C) The EPA Administrator will timely receive the draft of the Significant revision upon completion of District evaluation.

Section (j)(1)(D) The EPA Administrator will timely receive the final Title V permit upon issuance by the District

Section (j)(4)(A) The applicant will be timely notified of any refusal to accept all recommendations for the draft permit

CALIFORNIA AIRBORNE TOXIC CONTROL MEASURE FOR STATIONARY COMPRESSION IGNITION ENGINES.

The ATCM was amended October 2010 and the requirements for Tier 4i and Tier 4 was removed and section 93115.6 (a)(3)(A)(1)(a) Table 1. Table 1 keeps the current Tier 2 and Tier 3 emissions standards for the applicable HP engine group. CARB in November 2010 distributed a regulatory advisory that provided guidance on compliance with the ATCM during the transition period from the current ATCM to the amended ATCM. The ATCM became effective on May 19, 2011 when the California Office of Administrative Law (OAL) approved the CARB rulemaking for the amendments to ATCM. The SCAQMD amended Rule 1470 in May of 2012 to align with the amended ATCM for all pollutants except diesel particulate matter (PM), which is a toxic and cancer causing air contaminant

40 CFR Part 60 Subpart III--NSPS for Stationary Compression Ignition Internal Combustion Engines

§60.4200(a)—The provision of this subpart are applicable to manufacturers, owners, and operators of stationary compression ignition (CI) engines as specified in paragraphs (a)(1) through (a)(4) of this section. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.

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§60.4200(a)(2)(i) specifies this subpart is applicable to owners and operators of stationary CI ICE that commence construction after July 11, 2005 where the stationary CI ICE is manufactured after April 1, 2006 and are not fire pump engines. Therefore, this subpart is applicable to the engines under evaluation.

The EPA comment letter, dated 5/23/12, regarding the proposed permit for A/N 529701 for an emergency ICE for US Govt., Veterans Admin Medical Center (ID 5679) indicated permit conditions should include at a minimum the requirements of the following sections.

- A. **§60.4202(b)(2)** provides that for engines with a maximum engine power greater than or equal to 3000 HP and less than 10 liters per cylinder, the certification emission standards for new nonroad CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants beginning in model year 2011.

40 CFR 89.112—Exhaust emission from nonroad engines shall not exceed the applicable exhaust standards in Table 1 of this provision. For an engine rated at 1500 kW for model year 2007 and later, Tier 2 is applicable (6.4 g/kW-hr NMHC + NO_x, 3.5 g/kW-hr CO, 0.2 g/kW-hr PM) . The engine comply with these limits, which are the same as the District BACT standards.

Permit condition: the emissions limits are listed in the Emissions & Requirements section of Section H per device

§60.4202(f)(1)—Stationary CI internal combustion engine manufacturers must certify their 2013 model year and later emergency stationary CI ICE with a maximum engine power less than or equal to 3,700 HP and a displacement of greater than 10 liters per cylinder and less than 30 liters per cylinders. Does not apply the displacement per cylinder is less than 10 liters.

§60.4205(b)—See §60.4202

- B. **§60.4207(b)**—Beginning October 1, 2010, owners and operators of stationary CI ICE subject to this subpart with a displacement of less than 30 liters per cylinder that use diesel fuel must purchase diesel fuel that meets the requirements of 40 CFR 80.510(b) for nonroad diesel fuel.

40 CFR 80.510(b)—Except as other specifically provided in this subpart, all NR and LM diesel fuel is subject to the following per-gallon standards:

- (1) Sulfur content.
 - (i) 15 ppm maximum for NR [nonroad] diesel fuel
 - (ii) 500 ppm maximum for LM [locomotive or marine] diesel fuel

Permit condition: add condition limits diesel fuel sulfur content to 15 ppm, which is the same as BACT.

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C. §60.4209(a)— An owner or operator of an emergency stationary CI ICE that does not meet the standards applicable to non-emergency engines must install a non-resettable hour meter prior to start-up of the engine.

Permit condition: add condition requires a non-resettable hour meter.

D. §60.4209(b)—An owner or operator of a stationary CI ICE equipped with a diesel particulate filter to comply with the emission standards in §60.4204, the diesel particulate filter must be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached.

Permit condition: applicable.

E. §60.4211(a)—An owner or operator who must comply with the emission standards specified in this subpart must do all of the following, except as permitted under paragraph (g) of this section:

- (1) Operate and maintain the stationary CI internal combustion engine and control device according to manufacturer’s emission-related written instructions;
- (2) Change only those emission-related settings that are permitted by the manufacturer; and
- (3) Meet the requirements of 40 CFR parts 89, 94 and/or 1068, as they apply.

Permit condition: Pursuant to EPA guidance, add condition to implement the above requirements regarding the engine.

F. §60.4211(c)—An owner or operator of a 2007 model year and later stationary CI ICE and must comply with the emission standards specified in §60.4204(b) [non-emergency engine] or §60.4205(b) [emergency engine], or an owner or operator of a CI fire pump engine that is manufactured during or after the model year that applies to the fire pump engine power rating in table 3 to this subpart and must comply with the emission standard specified in §60.4205(c), must comply by purchasing an engine certified to the emission standards in §60.4204(b), or §60.4205(b) or (c), as applicable, for the same model year and maximum (or in the case of fire pumps, NFPA nameplate) engine power. The engine must be installed and configured according to the manufacturer’s emission-related specifications, except as permitted in paragraph (g) of this section.

Permit condition: Pursuant to EPA guidance, condition no. add condition to implement the above requirements regarding the engine. As discussed above, the engine is in compliance with the emissions standards specified in 40 CFR 60.4205(b).

G. §60.4211(f)—Emergency stationary ICE may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. There is no time limit on the use of emergency stationary ICE in emergency situations....

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Permit condition: Federal standards allow 100 hours per year for testing and maintenance and no time limit for emergency use. District requirements are more stringent and allow 50 hours for testing and maintenance, and 200 hours total including the 50 hours for testing and maintenance. The SCAQMD requirements are more restrictive

H. §60.4214(b)—If the stationary CI ICE is an emergency stationary ICE, the owner or operator is not required to submit an initial notification. Starting with the model years in table 5 to this subpart, if the emergency engine does not meet the standards applicable to on-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.

Permit condition: add Condition sets forth the recordkeeping requirements.

I §60.4214(c)—If the stationary CI ICE is equipped with a diesel particulate filter, the owner or operator must keep records of any corrective action taken after the backpressure monitor has notified the owner or operator that the high backpressure limit of the engine is approached.

Permit condition: add permit condition

NESHAP

40 CFR Part 63 Subpart ZZZZ--NESHAPS for Stationary Reciprocating Internal Combustion Engines

§63.6580 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.

§63.6585(b) A “major source” is a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons or more per year or any combination of HAP at a rate of 25 tons or more per year.

§63.6585(c) An “area source” is a source that is not a major source. The proposed Solar Power Plant is an area source for HAPs.

§63.6590(a) This subpart applies to each affected source. An “affected source” is any existing, new, or reconstructed stationary RICE located at a major or area source of HAP emissions, excluding stationary RICE being tested at a stationary RICE test cell/stand.

§63.6590(a)(2)(iii) A stationary RICE located at an area source of HAP emissions is new if construction of the stationary RICE is commenced on or after June 12, 2006. Therefore, the engine under evaluation is new.

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§63.6590 (c) provides an affected source that meets any of the criteria in paragraphs (c)(1) through (c)(7) of this section must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart IIII for compression ignition engines or 40 CFR part 60 subpart JJJJ for spark ignition engines. No further requirements apply for such engines under this part.

- (1) A new or reconstructed stationary RICE located at an area source.

Conclusion: Since the emergency engine is a new compression-ignition RICE located at an area source (NESHAP purposes), it is required to meet 40 CFR Part 60 Subpart IIII—Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. (See discussion on Subpart IIII, above.), thus compliance with this met, see NSPS section

RECOMMENDATIONS

FOR THIS APPLICATION THE FOLLOWING DISPOSITION IS RECOMMENDED:

Issue PC/PO

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APPENDIX A

MAXIMUM INDIVIDUAL CANCER RISK

Methods per "Risk Assessment Procedures for Rule 1401 and 212" revised version 7.0, dated July 1, 2005.

Calculate contaminant R2 emissions (lb/hr) and ton/yr

Find the correct met zone for this location

Find the distance from equipment to the nearest residence and commercial receptor

Look up the unit risk factor for each contaminant

- ⇒ *Use unit Risk factor for diesel ice soot for MICR determination.*
- ⇒ *Note evaluate the engines at 1 hour per day, 50 weeks per year (testing)*
- ⇒ *Nearest residence is 125 meters, ref applicant*
- ⇒ *Stack diameter is 10 inches, vendor data, ref file*
- ⇒ *Stack ht = 20 feet, assumed, similar engine, ref file*
- ⇒ *Stack ACFM is 7540, vendor, ref file*
- ⇒ *Sack temp is 890 F, vendor, ref file*
- ⇒ *R2 PM emissions = 0.012 g/bhp-hr, per Cummins, see emissions data sheet in file*
- ⇒ *Control eff = 85% per Cummins/CARB executive order no. DE-05-002-03, copy in file*
- ⇒ *PM emissions*

$$R1(\text{lb/hr}) = HP * g / \text{hp} - \text{hr}.$$

Where HP is the max engine HP.

Where g/bhp-hr is the PM emissions, provided by engine manufacture, copy of specs in file

- ⇒ Determine R2 from the outlet of the DPF filter

$$R2(\text{lb/hr}) = R1 * 0.15$$

APPENDIX B

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Johnson Matthey Clean Air control system, Level 3 certified (E/O DE-05-002-03)
Continuously regenerating technology (CRT) particulate filter
Multi filter design
CTRdm diagnostic module, the module monitors the exhaust temp. and back pressure and has alarms if the preset backpressure is exceeded
With data logging system(monitors temperature and pressure drop.

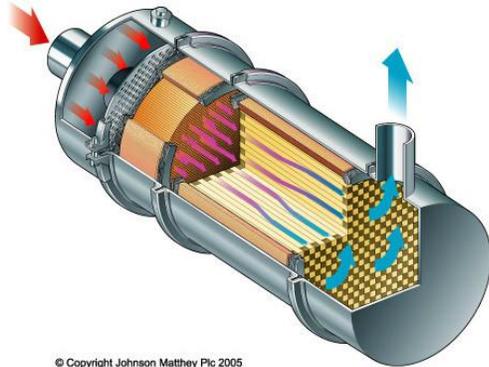
Reduces PM, HC and CO by 85%, 70% and 85% respectfully (for this evaluation only use the reductions in PM emissions

- Verified by CARB for emergency backup power, prime power and pumping
- Multiple-filter design enables the CRT to be used on all engine sizes
- Modular design for ease of installation, routing service and easy maintenance
- Self cleaning for convenience and ease of use
- No supplemental heat or fuel required.
- For optimal performance, operates with ultra low 15 ppmv Sulfur diesel (required by AQMD rule 431.2)
- Each unit is equipped with the CTRdm diagnostic module, with data logging, alarm capability and computer interface.
- Housed in stainless steel for strength and durability
- PM collection/filtration begins when the engine starts and continues for the entire run time

The proposed control system is verified as Level 3 Plus emissions control device and gone through extensive certification and testing program. CARB executive order no. DE-05-002-03 has operating condition in Table 1 of the executive order

- R1 PM emissions from the engine must be less than 0.1 g/bhp-hr
- Maximum consecutive minutes at idle is 240 minutes.
- Number of 30 minute idle sessions before regeneration is required is 24
- The engine must have a duty cycle with an ave. temperature profile greater than 300 degree C for 40% of the operating cycle.
- Number of hours before cleaning/replacement of filter is 5000
- PM verification level plus is at least 85% reduction
- The CRT control includes catalyzed passive diesel particulate and a CRTdm diagnostic module with data logging (monitor temp and pressure) and alarm system
- No changes are permitted to the control device without notifying ARB and must be approved by ARB

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The CRT® particulate filter is a patented emission control technology that contains a Platinum (Pt) catalyst and a particulate filter. It is modularly engineered as a totally passive emission control system, which does not require the use of supplemental heat. The CRT® particulate filter requires ultra low (<50 ppm) sulfur fuel and functions on the basis that soot will oxidize in the presence of NO₂ at a lower temperature than with oxygen. Johnson Matthey's CRT technology is very compatible with the typical exhaust temperature from diesel engines. The device is made up of two chambers (refer to picture below) where the oxidation catalyst is separate from the soot collection/combustion process. The first chamber contains a substrate coated with a proprietary, highly active Pt oxidation catalyst which is designed to oxidize a portion of the NO in the exhaust to NO₂. This is the key to the oxidation of soot collected by the CRT® filter. This is the heart of the Johnson Matthey patent. The catalyst also converts CO, HC and hazardous air pollutants into CO₂ and H₂O. In the second chamber, the exhaust flows through a particulate filter, where gaseous components pass through but soot is trapped on the walls of the filter, where it is destroyed by the NO₂ produced by the catalyst in the first chamber. The CRT® filter is capable of converting >85% PM and >90% CO and HC, including toxics. NO_x reductions, while not guaranteed, are typically in the 5-10% range. The basic requirements for the CRT® particulate filter are ultra low sulfur fuel, an exhaust temperature of at least 250°C for 40% of the duty cycle and a NO_x/PM ratio of at least 20, with a preference for a higher ratio. Johnson Matthey's CRT® particulate filter is the most widely used filter for controlling PM from heavy-duty diesel engines, with more than 120,000 in use worldwide and more than a billion miles of service in transit buses, school buses, fuel delivery trucks, on-road heavy duty trucks, trams, and garbage trucks.

Engine data entry

Engine hp	1490	hp
use default fuel usage	yes	
actual fuel rate	75	gal/hr
fuel rate	75.00	gal/hr
use default E.F.	no	yes/no
use PM default E.F.	no	
Use 15 ppm sulfur	yes	yes/no
SOx-15 ppm sulfur	no	lb/mgal
PM10	0.96	
Nox (actual data)	4.4	g/bhp-hr
ROG (actual data)	0.22	g/bhp-hr
CO (actual data)	0.52	g/bhp-hr
PM (actual data)	0.012	g/bhp-hr
hr/dy	1	hr
dy/wk	1	dy
dy/mon	4	dy
wk/yr	50	wk

Emissions Calculations

	R1-lb/hr	R1-lb/dy	R2-30 dy av	R2-lb/yr
NOx	14.44	14.44	1.93	722
ROG	0.72	0.72	0.096	36.10
CO	1.71	1.71	0.23	85
SOx	0.0161	0.0161	0.0021	0.8031
PM	0.03938	0.04	0.0053	1.97
PM10	0.03781	0.04	0.0050	1.89

lbNOx/hr

$$\begin{aligned}
 &= [\text{E.F., g/bhp-hr}] [\text{Rating, hp}] \\
 &= [4.4 \text{ g/bhp-hr}] [1490 \text{ hp}] [1 \text{ lb}/454 \text{ g}] \\
 &= [14.44 \text{ lb/hr}]
 \end{aligned}$$

GHG NSR CALCULATOR



A/N:

FAC. ID.:

EQUIPMENT TYPE: MMBTU/HR

Max Heat Input:

Fuel Type:

Engine HP:

General Combustion

GHG Emissions:

CO ₂	0.0	lb/hr
CH ₄	0.00	lb/hr
N ₂ O	0.00	lb/hr

Natural Gas Engine

GHG Emissions:

CO ₂	0.0	lb/hr
CH ₄	0.00	lb/hr
N ₂ O	0.00	lb/hr

Diesel Engine

GHG Emissions:

CO ₂	1,682.0	lb/hr
CH ₄	0.03	lb/hr
N ₂ O	0.023	lb/hr

Fuel Type	GHG	GHG Emission Factors				
		GENERAL COMBUSTION		INTERNAL COMBUSTION ENGINE		
		kg/MMBtu	lb/MMBtu	kg/MMBtu	lb/MMBtu	lb/HP-hr*
Natural Gas	CO ₂	53.02	116.89	53.02	116.89	0.818215
	CH ₄	0.0009	0.0020	0.0059	0.0130	0.000091
	N ₂ O	0.0001	0.0002	0.001	0.0022	0.000015
LPG	CO ₂	62.98	138.85			
	CH ₄	0.001	0.0022			
	N ₂ O	0.0001	0.0002			
Diesel	CO ₂	73.1	161.16	73.15	161.27	1.12886543
	CH ₄	0.003	0.0066	0.0014	0.0031	0.000022
	N ₂ O	0.0006	0.0013	0.001	0.0022	0.000015
Landfill Gas	CO ₂	52.03	114.71			
	CH ₄	0.0009	0.0020			
	N ₂ O	0.0001	0.0002			

* Average brake specific consumption of 7,000 Btu/hp-hr to convert from lb/MMBtu to lb/hp-hr
 (Source: Table 3.3-1 Emission Factors for Uncontrolled Gasoline & Diesel Industrial Engines, EPA)

TIER 3 SCREENING RISK ASSESSMENT REPORT

A/N:

549290

 Fac:

--

Application deemed complete date:

05/15/13

2. Tier 2 Data

MET Factor	1.00
4 hr	0.89
6 or 7 hrs	0.73

Dispersion Factors tables

2	For Chronic X/Q
6	For Acute X/Q

Dilution Factors (ug/m3)/(tons/yr)

Receptor	X/Q	X/Qmax
Residential	0.16471133	9.017945326
Commercial	0.16471133	9.017945326

Adjustment and Intake Factors

	AFann	DBR	EVF
Residential	1	302	0.96
Worker	4.2	149	0.38

A/N: 54929C

Application deemed complete date: 05/15/13

TIER 3 RESULTS

5a. MICR

MICR = CP (mg/(kg-day))⁻¹ * Q (ton/yr) * (X/Q) * AFann * MET * DBR * EVF * 1E-6* MP

Compound	Residential	Commercial
Diesel PM from diesel-fueled internal combustion engine	5.17E-08	4.24E-08
Total	5.17E-08	4.24E-08
	PASS	PASS

No Cancer Burden, MICR<1.0E-6

5b. Cancer Burden	NO
X/Q for one-in-a-million:	
Distance (meter)	#VALUE!
Area (km ²):	#VALUE!
Population:	#VALUE!
Cancer Burden:	#VALUE!

6. Hazard Index

HIA = [Q(lb/hr) * (X/Q)max] * AF / Acute REL

HIC = [Q(ton/yr) * (X/Q) * MET * MP] / Chronic REL

Target Organs	Acute	Chronic	Acute Pass/Fail	Chronic Pass/Fail
Alimentary system (liver) - AL			Pass	Pass
Bones and teeth - BN			Pass	Pass
Cardiovascular system - CV			Pass	Pass
Developmental - DEV			Pass	Pass
Endocrine system - END			Pass	Pass
Eye			Pass	Pass
Hematopoietic system - HEM			Pass	Pass
Immune system - IMM			Pass	Pass
Kidney - KID			Pass	Pass
Nervous system - NS			Pass	Pass
Reproductive system - REP			Pass	Pass
Respiratory system - RES		3.24E-05	Pass	Pass
Skin			Pass	Pass

A/N: 549290

Application deemed complete date:

05/15/13

6a. Hazard Index Acute

$$HIA = [Q(\text{lb/hr}) * (X/Q)_{\text{max}}] * AF / \text{Acute REL}$$

Compound	HIA - Residential									
	AL	CV	DEV	EYE	HEM	IMM	NS	REP	RESP	SKIN
Diesel PM from diesel-fueled internal combustion engine										
Total										

Compound	HIA - Commercial									
	AL	CV	DEV	EYE	HEM	IMM	NS	REP	RESP	SKIN
Diesel PM from diesel-fueled internal combustion engine										
Total										

6b. Hazard Index Chronic

$$HIC = [Q(\text{ton/yr}) * (X/Q) * MET * MP] / \text{Chronic REL}$$

Compound	HIC - Residential												
	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID	NS	REP	RESP	SKIN
Diesel PM from diesel-fueled internal combustion engine												3.24E-05	
Total												3.24E-05	

6b. Hazard Index Chronic (cont.)

A/N: 549290

Application deemed complete date:

05/15/13

Compound	HIC - Commercial											RESP	SKIN	
	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID	NS	REP			
Diesel PM from diesel-fueled internal combustion engine													3.24E-05	
Total													3.24E-05	

Table A

Modeling emissions rate	0.126000	gr/sec
Modeling emissions rate	1.00	lb/hr
Modeling emissions rate	4.38	tons/yr
Max hr/dy	1	hr/day
Day per week	1	dy/wk
Week per year	50	wk/yr
MODELING RESULTS -MAX ONE HOUR		
Distance residence	125.00	meter
Max. 1-hour Conc. Residence	9.010000	ug/m3
Annualized Conc. Residence	0.720800	ug/m3
Distance Commerical	125.00	meter
Max. 1-hour Conc. Commerical	9.010000	ug/m3
Annualized Conc. Commerical	0.720800	ug/m3

Annualized X/Q

X/Q Residential	0.16471133	(ug/m ³)/(tons/yr)
X/Q Commercial	0.16471133	(ug/m ³)/(tons/yr)

Max. X/Q

X/Q Residential	9.017945326	(ug/m ³)/(lbs/hr)
X/Q Commercial	9.017945326	(ug/m ³)/(lbs/hr)

Table B (These values are needed to calculate cancer burden)

Distance	Interpolation						X/Q for one-in-a-million		
	Residential			Industrial			near	actual	far
	near	actual	far	near	actual	far			
Stack Height (ft):	20			Row: 1					
X/Q - 1 hr conc ug/m3	100.00	125.00	2000.00	100.00	125.00	2000.00	100.00	4937.82	2000.00
X/Q Annualized (ug/m ³)/(tons/yr)	0.17	0.16	0.10	0.17	0.16	0.10	0.17		0.10

CONVERSION CALCULATOR FOR SCREEN MODELING INPUT (British to Metric Units)

SCREEN INPUT DATA - BRITISH UNITS

Actual exhausted rate	7540.00	acfm
Temperature	890.00	degree F
Stack diameter	10.00	in
Stack height	20.00	ft
Modeling emissions rate	1.00	lb/hr

SCREEN INPUT DATA - METRIC UNITS

Temperature	749.667	degrees K
Stack diameter	0.254	meter
Stack area	0.051	square meter
Stack height	6.096	meter
Stack velocity	70.264	m/s
Modeling emissions rate	0.12611	gr/s

Microsoft Word 2003 interface showing a terminal window with a pollution model simulation. The terminal window title is "C:\Users\ROLVA~1\DOCUMENTS\CLARY\SCREEN1\Screen1.txt".

```

1000. 4.913 6 1.0 1.0 1000.0 52.76 93.92 52.32 10
ITERATING TO FIND MAXIMUM CONCENTRATION
MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 25. M.
53. 11.98 3 10.0 10.0 3200.0 15.09 11.82 10.87 10
USE DISCRETE DISTANCES? ENTER Y OR N:
Y
TO CEASE, ENTER A DISTANCE OF ZERO (0).
*****
*** SCREEN DISCRETE DISTANCES ***
*****
*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***
DIST CONC U10H USTK MIX HT PLUME SIGMA SIGMA
(M) (UG/M**3) STAB (M/S) (M/S) (M) HT (M) Y (M) Z (M) DWASH
-----
ENTER DISTANCE (M) (0 TO EXIT):
125
125 9.01006 4 5.0 5.0 1600.0 24.08 19.99 17.72 10
ENTER DISTANCE (M) (0 TO EXIT):

```

The background shows the Microsoft Word 2003 interface with the following elements:

- Menu Bar:** Home, Insert, Page Layout, References, Mailings, Review, View.
- Font Settings:** Calibri (Body), size 11.
- Paragraph Settings:** No Spacing, Heading 1, Heading 2, Title, Subtitle.
- Page Information:** Page: 2 of 2, Words: 0.
- Taskbar:** Shows Start button and several open applications including Windows Explorer and Microsoft Office Word.
- System Tray:** Shows the time as 5:41 AM.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT			
Certified ICE-EMERGENCY GENERATORS (Updated January 17, 2013)			
DIESEL FUEL EXCEPT AS SPECIFIED			
Cummins	QST30-G5	1490 BHP	1000 KW
			455112

12/31/2013	EPA-TIER 2	0.22	4.4		0.52	0.08