South Coast
Air Quality Management District
AQMD
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

April 18, 2013

Mr. Gerardo Rios
Chief – Permits Office
U. S. EPA, Region IX
75 Hawthorne Street, Air 3
San Francisco, CA 94105

Dear Mr. Rios:

The Los Angeles World Airport, ID 800335, has proposed to revise their Title V permit by installing one emergency electrical generator. This is an aviation service facility (NAICS 48819) located at 275 Center Way, Los Angeles, CA 90045. This proposed permit revision under Application No. 548253 is considered as a "significant permit revision" to their Title V permit. Attached for your review are the permit evaluation and draft permit for the proposed permit revision. With your receipt of the proposed Title V permit revision today, we will note that the EPA 45-day review period will begin on April 18, 2013.

If you have any questions or need additional information regarding the proposed permit revision, please call Thai Tran at (909) 396-2562.

Very truly yours,

Mohsen Nazemi, PE
Deputy Executive Officer
Engineering and Compliance

MN:AYL:DR:TT
548253 EPA Letter

Attachments

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 18	PAGE 1
ENGINEERING DIVISION	APPL. NO. 548254	DATE 04/17/2013
APPLICATION PROCESSING AND CALCULATIONS	PROCESSED BY T TRAN	CHECKED BY

PERMIT TO CONSTRUCT/OPERATE

COMPANY NAME AND ADDRESS

LOS ANGELES CITY, DEPT. OF AIRPORTS aka Los Angeles World Airport (LAWA)
7301 WORLD WAY WEST, 3rd FLOOR
LOS ANGELES, CA 90045
SCAQMD ID #800335

Contact: Lisa Dugas (424) 646-6485

EQUIPMENT LOCATION

TERMINAL 5, LOS ANGELES INTERNATIONAL AIRPORT
LOS ANGELES, CA 90045

EQUIPMENT DESCRIPTION

Section D of the Facility Permit, ID# 800335, Facility Description and Equipment Conditions

Equipment	ID No.	Connected To	Source Type/ Monitoring Unit	Emissions	Conditions
PROCESS 1: POWER GENERATION					
INTERNAL COMBUSTION ENGINE, AT TERMINAL 5, EMERGENCY POWER, DIESEL FUEL, CUMMINS, MODEL QSX15-G9, TURBOCHARGED, 755 BHP A/N: 548254	D235	C237	NOx: PROCESS UNIT	**CO:** 0.52 GRAM/BHP-HR DIESEL (4) **[RULE 1303(a)(1)-BACT, 5-10-1996;** *RULE 1303(a)(1)-BACT, 12-6-2002*; RULE 1470, 5-4-2012; **40CFR 63 Subpart IIII, 12-22-2006];** **NOX:** 172 LBS/1000 GAL DIESEL (1) **[RULE 2005, 6-3-2011];** **NOX + ROG:** 3.9 GRAM/BHP-HR DIESEL (4) **[RULE 1303(a)(1)-BACT, 5-10-1996;** *RULE 1303(a)(1)-BACT, 12-6-2002*; RULE 1470, 5-4-2012; **RULE 2005, 6-3-2011; 40CFR 60SubpartIIII , 6-28-2011];** **PM:** 0.023 GRAM/BHP-HR DIESEL (4) **[RULE 1303(a)(1)-BACT, 5-10-1996;** *RULE 1303(a)(1)-BACT, 12-6-2002;* RULE 1470, 5-4-2012; **40CFR 60SubpartIIII , 6-28-2011]; PM:(9) Rule 404, 2-7-1986;**	C1.4, C1.11, D12.1, E57.3, E448.2, E448.3, H23.6, I297.2, K67.16
DIESEL PM FILTER, JOHNSON MATTHEY, MODEL CRT(+)3-N, 0.68 FT^3 CATALYST CAPACITY	C237	D235, C236			E448.1, E448.2, E448.3

Equipment	ID No.	Connected To	Source Type/ Monitoring Unit	Emissions	Conditions
PROCESS 1: POWER GENERATION					
SELECIVE CATALYTIC REDUCTION, JOHNSON MATTHEY, MODEL 503360-1, WITH 300 LBS OF VANADIUM CATALYST, CERAMIC HONEYCOMB TYPE, A/N: 549179	C236	C237		NH3: 5 PPMV(4) [**RULE 1303(a)(1)-BACT, 5-10-1996;**	C8.3

BACKGROUND

LAWA is an aviation service facility. On March 13, 2013, LAWA submitted A/N 548254 for a permit to construct/operate an emergency internal combustion engine (ICE) and A/N 548253 to revise its facility permit. The ICE will provide power to a new emergency electrical generator for Terminal 5 at Los Angeles International Airport in Los Angeles.

In the application package, the applicant proposed to vent a Tier 3 engine to a diesel particulate filter (DPF) and a selective catalytic reduction (SCR) system complying to Tier 4 emission standards. When was asked why the facility proposes an interim Tier 4 engine emission standards, i.e., 0.3 gram/BHp-Hr NMHC, 2.6 gram/BHp-Hr NOx, 2.6 gram/BHp-Hr CO and 0.07 gram/BHp-Hr PM for this engine rating > 750 BHp and $\leq$ 1207 BHp when CARB postponed these emission standards and requires Tier 3 emission standards instead, Ms Lisa Dugas, the facility contact replied that facility knew about the more lenient requirements but decided to go forward with an engine package that meet interim Tier 4. Pursuant to Rule 301, the applicant subsequently submitted application 549179 for the SCR on March 29, 2013.

The applicant proposes a Cummins, EPA Tier 3 diesel engine, rated at 755 BHp, with a diesel particulate filter (DPF) and a SCR system.

LAWA is a Title V and NOx RECLAIM facility so the proposed revision will be subjected to the requirements of Regulations 20 and 30 along with State and federal applicable codes and regulations.

PROCESS DESCRIPTION

Pollutants in the exhaust gas from the engine are passed through a DPF where 80% of CO, 20% NOx, 70% of VOC and 85% of PM are destroyed by the catalyst in this device. The applicant will use an ARB certified DPF made by Johnson Matthey. This is a passive regenerating device which normally burns off contaminants trapped in it once it is operated at higher than 460^0F for about an hour. Because this device is installed on an emergency generator which is operated mostly for about half an hour at no load, regeneration of the catalyst cannot be achieved. For this reason, the operator is required to exercise the regeneration after each 24 cold starts for the catalyst by running the engine at the manufacturer's recommended load and duration. Also, the operator is required to thoroughly clean the DPF after every 1000 hours of emergency/standby uses or 150 half-hour cold starts with associated regenerations by removing and bake the catalyst with an external heat source in a furnace or kiln for several hours to remove residues.

The exhaust from the DPF is further treated with a SCR where NOx is reduced by over 90%. This is done by introducing urea containing compound (Diesel Exhaust Fluid by Valvoline in this case) into the exhaust stream and let NOx and urea react catalytically to form nitrogen dioxide and water along with minute concentration of ammonia, i.e., 5 ppmv guaranteed by the manufacturer. To assure the most control efficiency and minimal emission of NH_3, the SCR is equipped urea/air injector, automatic urea injection control with feedback unit, analysis controlled injection system, urea dosing unit, gas mixer, chemical cell analysis system and automatic urea/NOx molar ratio controller.

CRITERIA POLLUTANTS EMISSIONS

Emissions from the IC engines are calculated based on the manufacturer guaranteed level.

Engine Manufacturer	Cummins
Engine Model Number	QSX15-G9
Engine Specifications	Turbocharged and aftercooled
Engine brake horsepower (BHP)	755
Fuel:	#2 CARB Diesel
Fuel Usage (Gallons/hour):	34.4
Annual Operation Limit (hours):	200
Annual Maintenance Limit (hours):	50
Stack Flow	3625 ACFM
Stack Temperature	900.0 °F

The following emission factors are proposed by the applicant and warranted by the manufacturer.

NOx+NMHC (grams/bhp-hr)	4.8[1]	
	3.9[2]	
	0.3[3]	(54 ppmv @ 15% O_2)
VOC (grams/bhp-hr)	0.1[1]	
	0.03[2]	
CO (grams/bhp-hr)	2.6[1]	
	0.52[2]	
PM (grams/bhp-hr)	0.15[1]	before the diesel particulate filter
	0.02[2]	after the diesel particulate filter
SOx(grams/bhp-hr)	0.005[4]	
NH_3 slip (ppmv @ 15% O_2)	5[3]	

The hourly emissions are:

NOx (lbs/hr):	0.3*755 /454 =	0.50
CO (lbs/hr):	0.52*755 /454 =	0.86
VOC (lbs/hr):	0.1*755 /454 =	0.17
PM (lbs/hr):	0.02*755 /454 =	0.03
SOx (lbs/hr):	0.005*755 /454 =	0.01
NH_3(lbs/hr):*	=	0.001

* $NH_{3\ (lb/hr)}$ = (ppmvd/$1E^{06}$) x (scfm) x (O_2 correction) x (MW/MV) , where the O_2 is 15%

= 5 ppmv x [3625 * (492/1360)]scfm x [(20.9)/(20.9-15)] x 17 lb/mole x * mole/379 ft^3

[1] Engine emissions provided by manufacturer

[2] 85% PM, 70% HC, 80% CO and 20% NOx controlled for CARB certified DPF, noted:
NOx+NMHC emissions is 20% controlled as uncontrolled emissions consist mostly NOx

[3] Emissions after SCR, guaranteed by SCR manufacturer

[4] Equivalent emission factor for fuel oil with sulfur content 15 ppm by weight

Emission increases are then calculated by assuming 50 hours of annual maintenance, or 4.2 hours per month.

Emissions of the Emergency Engine

	NOx	CO	VOC	PM	SOx
Hourly (lbs/hour)	0.5	0.86	0.17	0.03	0.00
Monthly Total (lbs)	2.15	3.61	0.71	0.13	0.01
Emission Increase (lbs/day, 30-day Avg.)	0.07	0.12	0.02	0.01	0.00

TOXIC AIR CONTAMINANTS EMISSIONS

The diesel fueled emergency engine will emit hazardous air pollutants. The HAP emissions are calculated based on the following parameters:

Annual hours of operation:	50
Fuel usage:	34.4 gallons/hour
Annual fuel usage:	1.720 Mgal

The hazardous air pollutants and the emission factors are listed in the next table.

HAP Emissions from the Emergency Engine

	E.F.*	Emission		
Toxic Pollutants	lb/Mgal	lb/hr	lb/yr	ton/yr
BENZENE	1.86E-01	6.41E-03	3.21E-01	1.60E-04
FORMALDEHYDE	1.73E+00	5.94E-02	2.97E-00	1.48E-03
PAH'S	3.62E-02	1.25E-03	6.25E-02	3.11E-05
NAPHTHALENE	1.97E-02	6.78E-04	3.39E-02	1.69E-05
ACETALDEHYDE	7.83E-01	2.69E-02	1.35E-00	6.74E-04
ACROLEIN	3.39E-02	1.17E-03	5.85E-02	2.92E-05
1,3-BUTADIENE	2.17E-01	7.48E-03	3.74E-01	1.87E-04
CHLOROBENZENE	2.00E-04	6.88E-06	3.44-04	1.72E-07
TOLUENE	1.05E-01	3.63E-03	1.81E-01	9.06E-05
XYLENES	4.24E-02	1.46E-03	7.30E-02	3.65E-05
ARSENIC	1.60E-03	5.50E-05	2.75E-03	1.38E-06
CADMIUM	1.50E-03	5.16E-05	2.58E-03	1.29E-06
HEXAVALENT CHROMIUM	1.00E-04	3.44E-06	1.72E-04	8.60E-08
COPPER	4.10E-03	1.41E-04	7.05E-03	3.53E-06
LEAD	8.30E-03	2.86E-04	1.43E-02	7.14E-06
MANGANESE	3.10E-03	1.07E-04	5.35E-03	2.67E-06
MERCURY	2.00E-03	6.88E-05	3.44-03	1.72E-06
NICKEL	3.90E-03	1.34E-04	6.70E-03	3.35E-06
SELENIUM	2.20E-03	7.57E-05	3.79E-03	1.89E-06
ZINC	2.24E-02	7.71E-04	3.85E-02	1.93E-05

Note: diesel particulates have been classified as a hazardous air pollutant. The emission rate is assumed to the same as the PM, which is 0.03 lbs/hr.

RULE EVALUATIONS

Title 40 Part 60, Subpart IIII – NSPS for IC Engines

Emergency compression ignition engines of model year 2007 or later with a displacement of < 30 liters per cylinder must to comply with the emission standards required by §60.4202 of this subpart. The engine has a total displacement of 15 liters/6 cylinders = 2.5 liters/cylinder, and has a horsepower rating of 755 HP. Engines greater than 750 HP and manufactured after 2011 shall meet the performance standard of 40 CFR 89.112 and 89.113. According to 40 CFR 89.112 this engine will have to comply with the Tier 2 emissions limits, i.e., 4.8 grams/bhp-hr NOx+NMHC, 2.6 grams/bhp-hr CO and 0.15 grams.bhp-hr PM. This engine meets more stringent Tier 3 performance standards. This engine also meets the opacity requirements specified in 89.113. Therefore, compliance is anticipated.

Title 40 Part 63, Subpart ZZZZ – NESHAP for IC Engines

The facility is not a NESHAP major source because the facility does not have potential to emit any single hazardous air pollutant (HAP) at a rate of 10 tons (9.07 megagrams) or more per year or any combination of HAP at a rate of 25 tons (22.68 megagrams) or more per year. This facility, therefore, is not subject to this subpart.

California Environmental Quality Act (CEQA)

Based on the form 400 CEQA submitted by the applicant, this installation does not triggers CEQA review.

Rule 212 – Standards for Approving Permits and Issuing Public Notice

The facility is not located within 1,000 feet of any K-12 school. It is not subject to the requirements of Rule 212(c)(1). Based on the Rule 1401 calculations the maximum individual cancer risk (MICR) from the emergency engines is 0.5 in one million. It is less than one in a million. It is not subject to the public notification requirements of Rule 212(c)(3).

The engine's emissions are less than the limits specified in Rule 212(g). It is not subject to the requirements of Rule 212(g).

Rule 401 – Visible Emissions

Compliance with this rule is expected for the emergency engine.

Rule 402 – Nuisance

Compliance with this rule is expected for the emergency engine.

Rule 404 – Particulate Matter - Concentration

This rule limits the PM concentration in the discharged gas, such as the exhaust of the emergency engines. The PM concentration limits are listed in Table 404(a). The emergency engine exhaust flow is 3,625 acfm, at 900 °F. This exhaust flow is equivalent to 1,222 scfm. At this flow rate the PM limit of Table 404(a) is 0.173 grain/scf.

The emergency engine will be equipped with a diesel particulate filter. The controlled PM emission rate is 0.025 g/bhp-hr. The expected PM concentration is:

0.02 g/bhp-hr * 755 bhp * 15.4 grain/g / 1222 scfm */ 60 min/hr = 0.0036 grain/scf

The concentration is far less than the 0.173 grain/scf limit. Compliance is expected.

Rule 431.2 – Sulfur Content of Liquid Fuels

Diesel fuel supplied to this equipment must contain 15 ppm or less sulfur by weight. The facility will only use CARB certified diesel. The facility permit has a facility condition F14.2 that enforces this rule. Compliance is expected.

Rule 1110.2 – Emissions from Gaseous- and Liquid-fueled Engines

This rule does not apply to emergency power generator.

Regulation XIII – New Source Review for Non-Attainment Pollutants

This rule applies to the emergency engine for the CO, PM, VOC and SOx emissions. NSR includes requirements of BACT, modeling, and offset. Because LAWA is a major source the major source BACT/LAER requirements apply.

1. Best Available Control Technology (BACT)

BACT is defined in AQMD Rule 1301 as follows:

BACT means the most stringent emission limitation or control technique which:

- has been achieved in practice for such category or class of source; or
- is contained in any State Implementation Plan (SIP) approved by the US EPA for such category or class of source. A specific limitation or control technique shall not apply if the owner or operator of the proposed source demonstrates to the satisfaction of the Executive Officer that such limitations or control technique is not presently achievable; or

- is any other emission limitation or control technique, found by the Executive Officer or designee to be technologically feasible for such class or category of sources or for a specific source, and cost effective as compared to measures as listed in the Air Quality Management Plan (AQMP) or rules adopted by the District Governing Board.

This definition of BACT is consistent with the federal LAER definition with the exception of the cost effectiveness clause.

For the emergency engines, the BACT are determined by following the above BACT definitions:

CO:	Comply with the Tier 3 limit for a diesel engine greater than 750 bhp
NOx+VOC:	Comply with the Tier 3 limit for a diesel engine greater than 750 bhp
PM10:	Use of CARB certified diesel, and use of a diesel particulate filter because of LAER
SOx:	Use of CARB certified diesel

LAWA is proposing a Tier 3 EPA certified engine, equipped with a Johnson Matthey diesel particulate filter - certified by CARB Executive Order DE-08-009-05, and that the engine will be operated on CARB certified diesel. The certification specifies the performance criteria that the engine must follow. A permit condition is added to enforce the DPF certification conditions.

In addition, LAWA is proposing to further control NOx emissions with a SCR to 0.3 gram/bhp-hr (54 ppmv @ 15% O_2). If this system is installed and operated, DPF in conjunction with a SCR will become new LAER for engines with rating greater than 750 BHp installed at a major source facility.

Compliance with current BACT/LAER is expected.

2. Modeling and Offset

The emergency engines are exempted from the requirements of modeling and offset.

Rule 1325 – Federal PM2.5 New Source Review

This rule address specifically $PM_{2.5}$ emissions. This rule applies to major polluting facilities and major modifications to a major polluting facility. The major polluting facility definition is $PM_{2.5}$ emissions greater than 100 tons per year, either potential to emit or past actual emissions. LAWA facility is not a major polluting facility based on the potential to emit so it is not subject to the requirements of this rule.

Rule 1401 – New Source Review of Toxic Air Contaminants

Although emergency IC engines are exempted from the requirement of this rule, a tier 3 screening analysis was conducted to determine whether this project will be subject to the Rule 212 (C)(3) public notice requirements. The MICR was found to be 0.5 in a million for a resident receptor.

Rule 1470 – Requirements for Stationary Diesel Engines

This rule specifies emissions limits, hours of operation, and requirement of diesel particulate filter to new or modified diesel engines. The rule was amended on May 4, 2012 to update the requirements. It requires the engine (installed after January 1, 2013) to meet the diesel PM standard for off-road engines of the same rated power, i.e., , 4.8 grams/bhp-hr NOx+NMHC, 2.6 grams/bhp-hr CO and 0.15 grams/bhp-hr PM. As mentioned above, the engine meets these emission limits alone by itself. The applicant also proposes to vent the exhaust through a SCR system. This engine meets the requirements of this rule.

Please note that although not required by this rule, due to LAER requirements on a major emission facility, the engine is required a diesel particulate filter. As the result, it is equipped with a Johnson Matthey diesel particulate filter. The filter is certified by CARB Executive Order DE-08-009-05, further reduces 85% PM, 70% HC, 80% CO and 20% NOx. The certification specifies the performance criteria that the engine must follow. A permit condition is added to enforce the DPF certification conditions.

Rule 1472 – Requirements for Multiple Stationary Emergency Diesel Engines

According to LAWA, in the email dated April 12, 2013, along with this proposed engine (D235), LAWA has 3 other engines under devices D4, D19 and D88 which are potentially subject to the requirements of this rule because they are stationary, emergency, compressed ignited and non-fire pump driver engines. But these engines do not form a "group" of engines as defined by this rule because D19 is 217 meters away to the east, D88 is 226 meters away to the west, and that only D4 is within 150 meter of D235. The facility is exempt from the requirements of this rule pursuant to section (d)(1)(C).

Regulation XVII – Prevention of Significant Deterioration (PSD)

This rule does not apply to this installation because this facility is not a major source as defined by this regulation, and that the installation of the engine is not a major modifications.

Regulation XX – RECLAIM

This rule applies to NOx emissions because LAWA participates in the NOx RECLAIM program. Also, this is a TV facility so it is subject to LAER federal BACT.

- Requirement of LAER/BACT

The LAER/BACT requirement for a diesel emergency engine is consistent with Rule 1470 requirement. For an engine greater than 750 bhp, the requirement is to comply with Tier 3 emission standards. The emergency engine satisfies the Tier 3 emissions standards. In this proposal, the applicant will install a SCR which further reduces NOx so once this set-up is installed and in operation, it will establish new NOx LAER.

For the purpose of determination RECLAIM NOx emission limit, rather than controlled emission after SCR, i.e., 0.3 gram/bhp-hr, controlled emission after DPF, i.e., 0.39 gram/bhp-hr, will be used. This is because the emission will not be source tested (no justification for emergency engine) to confirm if the SCR can reduce NOx to that level. Controlled emission after DPF converted into lb/10^3 gal can be done as follows:

0.39 gram/bhp-hr x bhp-hr/0.05 gal x lb/454 gram = 172 lb/10^3 gal

- Modeling

Emergency engine is exempted from modeling requirements

- Offset

Offset are provided in the form of RECLAIM trading credits (RTC). The annual RTC requirements are based on 50 hours operation per year.

RTC = 0.50 * 50 = 25 lbs

Rule 2012 – Monitoring, Reporting, and Recordkeeping for NOx

The engine is RECLAIM process unit and will be equipped with a non-resettable elapsed time meter to accurately indicate the operating time. The operator/applicant is required to keep operating records of the engine as stated in permit condition(s).

Regulation XXX – Title V Permit

The proposed installation and operation of the engine is a significant revision as defined in Rule 3000(b)(31). A draft permit revision will be prepared for this project (under application number 548253). In accordance with Title V requirements, a copy of the draft permit revision and the

engineering evaluation will be provided to the EPA for review. Meanwhile, a public notification will be conducted pursuant to Rule 3006. The final permit to operate will be issued at the conclusion of the EPA 45-day review period as specified in Rule 3005(c)(2)(B)(ii) after all valid and applicable public comments have been considered and incorporated.

CONDITIONS

C1.4 The operator shall limit the operating time to no more than 200 hour(s) in any one year.

[Rule 1110.2-Exemptions, Rule 1303-BACT Requirements, Rule 1304 Modeling & Offset Exemptions, Rule 1470, Rule 2005, Rule 2012, 40 CFR 60, subpart IIII]

[Devices subject to this condition: D235]

C1.11 The operator shall limit the maintenance and testing to no more than 50 hour(s) in any one year.

[Rule 1303-BACT Requirements, Rule 1304 Modeling & Offset Exemptions, Rule 1470, Rule 2005, Rule 2012, 40 CFR 60, subpart IIII]

[Devices subject to this condition: D235]

C8.3 The operator shall use this equipment in such a manner that the temperature being monitored, as indicated below, is not less 550 degrees Fahrenheit:

And that the temperature of the SCR bed shall not exceed 1070 degrees Fahrenheit

The urea injection system shall be operated whenever the inlet temperature of the SCR bed is above 550 degrees Fahrenheit

To comply with this condition, the operator shall install and maintain a gauge to accurately indicate the temperature of SCR bed in degrees Fahrenheit.

[Rule 2005 BACT Requirements, Rule 3004(a)(4) Periodic Monitoring]

[Devices subject to this condition: C236]

D12.1 The operator shall install and maintain a non-resettable totalizing time meter to accurately indicate the elapsed operating time of the engine.

[Rule 1110.2-Exemptions, Rule 1304 Modeling & Offset Exemptions, Rule 1470, Rule 2005, Rule 2012, Rule 3004(a)(4)-Periodic Monitoring, 40 CFR 60, subpart IIII]

[Devices subject to this condition: D235]

E57.3 The operator shall vent this equipment to a diesel particulate filter which is fully functional and is certified by California Air Resources Board as level 3 whenever it is in operation.

[Rule 1303 BACT Requirements, Rule 1470, Rule 2005, 40 CFR 60, subpart IIII]

[Devices subject to this condition: D235]

E448.1 The operator shall comply with the following requirements:

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 5 years.

[Rule 3004(a)(4)-Periodic Monitoring, 40 CFR 60, subpart IIII]

[Device subject to this condition: C237]

E448.2 The operator shall comply with the following requirements:

The engine shall comply with the emission standards specified in 40 CFR 60.4204(b) and 4205(b). The operator must comply by purchasing an engine certified to the emission standards in 40 CFR 60.4204(b), or 4205(b) or (c), as applicable, for the model year and maximum engine power. The engine must be installed and configured according to the manufacturer's specifications.

The engine and the control device shall be operated and maintained in accordance with the manufacturer's written emission-related instructions or procedures developed by the operator that are approved by the engine manufacturer. Changes to those emission-related settings that are set by the manufacturer are not allowed.

[40 CFR 60, subpart IIII]

[Devices subject to this condition: D235, C237]

E448.3 The operator shall comply with the following requirements:

The engine and the Johnson Matthey diesel particulate filter shall be operated in accordance with CARB Executive Order DE-08-009-05 or later version.

Filter regeneration in accordance to recommendations of filter manufacturer is required every 24 cold starts.

Filter cleaning in accordance to recommendations of filter manufacturer is required every 150 half-hour cold starts with associated regenerations or 1000 hours of emergency/standby operation, whichever occurs first.

Records of filter regeneration and filter cleaning shall be kept to demonstrate compliance to this condition.

[Rule 1470, Rule 1303-BACT, Rule 2005-BACT, Rule 3004(a)(4)-Periodic Monitoring, 40 CFR 60, subpart IIII]

[Devices subject to this condition: D235, C237]

H23.6 This equipment is subject to the requirements of Rules 431.2 and 1470.

[Rule 431.2, Rule 1470]

[Device subject to this condition: D235]

I297.2 This equipment shall not be operated unless the facility holds 25 pounds of NOx RTCs in its allocation account to offset the annual emissions increase for the first year of operation. RTCs held to satisfy this condition may be transferred only after one year from the initial start of operation. If the hold amount is partially satisfied by holding RTCs that expire midway through the hold period, those RTCs may be transferred upon their respective expiration dates. This hold amount is in addition to any other amount of RTCs required to be held under other condition(s) stated in this permit.

[Rule 2005 – Offsets]

[Devices subject to this condition: D235]

K67.16 The operator shall keep a log of engine operations documenting the total time the engine is operated each month and the specific reason for operation as.

A. Emergency Use
B. Maintenance and Testing
C. Other (be specific)

In addition, for each time the engine is manually started, the log shall include the date of engine operation, the specific reason for operation, and the totalizing hour meter reading (in hours and tenths of hours) at the beginning and the end of the operation.

On or before January 15th of each year the operator shall record in the engine operating log:

A. The total hours of engine operation for the previous calendar year,
B. The total hours of engine operation for maintenance and testing for the previous calendar year

Records shall be kept and maintained on file for a minimum of five years and made available to district personnel upon request.

[Rule 1470, Rule 3004(a)(4)-Periodic Monitoring, 40 CFR 60.4214(b)]

[Devices subject to this condition: D235]

RULE 1401 ANALYSIS

Data-entry

Equipment	engine	boiler/engine
If engine list hp rating	755	hp
Fuel rate	34.4	gal/hr
Hr/dy	1	hr/dy
dy/wk	1.00	dy/wk
wk/yr	50.00	wk/yr
deemed complete date	3/29/2013	
Distance-tier 2	50	meters
X/Q	23.07	
MET	0.67	
LEA	0.66	
(X/Q)Max	2000	
Adjust for 70 yr-tier 3	no	yes/no
Adjust for 70 yr-tier 2	no	yes/no

MODELING INFORMATION

Calculate acfm	NO	yes/no
Conversion factor-ice	6.2	ft3/hp
Conversion factor-boiler	1375.185	ft3/gal
Actual exhaust rate	3625	ft/min
exhaust rate used in model	3625.00	ft3/min
Temp.	900.00	degree F
Stack diameter	5.00	in
Stack height	7.00	ft
emissions rate	1.00	lb/hr

Rel Adjustment factor (ave time) worst case

4 hr	0.98
6 or 7 hr	0.91

Note, can change value if nessassary

MODELING IMPUT DATA

Temp	755.222	degrees k
Stack dia	0.127	meter
Stack area	0.013	square meter
Stack height	2.134	meter
Stack velocity	135.123	m/s
emissions rate	0.126	gr/s

MODELING RESULTS -MAX ONE HOUR

max concentation	57.74	ug/l
max distance	24.00	meter

Tier 2 Modeling

Toxic Pollutants	E.F.* lb/Mgal	Emission lb/hr	lb/hr-data entry	ton/yr (Q)	U-(ug/m3)-1	RELC	RELA	MICR-mp	Chronic	Tier 2 MICR	HIA	HIC	%MICR
BENZENE	1.86E-01	6.41E-03	6408.7200	1.60E-04	2.90E-05	0.00E+00	1.30E+03	1	1	4.74E-08	8.9722E-03		0.90
FORMALDEHYDE	1.73E+00	5.94E-02	59377.8400	1.48E-03	6.00E-06	0.00E+00	9.40E+01	1	1	9.09E-08	1.2634E+00		1.73
PAH'S	3.62E-02	1.25E-03	1245.2800	3.11E-05	1.10E-03	0.00E+00	0.00E+00	12.7		4.44E-06			84.66
NAPHTHALENE	1.97E-02	6.78E-04	677.6800	1.69E-05	0.00E+00	0.00E+00	0.00E+00	1	1	0.00E+00			0.00
ACETALDEHYDE	7.83E-01	2.69E-02	26945.5200	6.74E-04	2.70E-06	9.00E+00	0.00E+00	1	1	1.86E-08		0.001156928	0.35
ACROLEIN	3.39E-02	1.17E-03	1166.1600	2.92E-05	0.00E+00	0.00E+00	1.90E-01	1	1	0.00E+00	1.2275E+01		0.00
1,3-BUTADIENE	2.17E-01	7.48E-03	7478.5600	1.87E-04	1.70E-04	0.00E+00	0.00E+00	1		3.24E-07			6.19
CHLOROBENZENE	2.00E-04	6.88E-06	6.8800	1.72E-07	0.00E+00	0.00E+00	0.00E+00			0.00E+00			0.00
TOLUENE	1.05E-01	3.63E-03	3625.7600	9.06E-05	0.00E+00	0.00E+00	3.70E+04	1	1	0.00E+00	1.9599E-04		0.00
XYLENES	4.24E-02	1.46E-03	1458.5600	3.65E-05	0.00E+00	0.00E+00	2.20E+04	1	1	0.00E+00	1.3260E-04		0.00
ARSENIC	1.60E-03	5.50E-05	55.0400	1.38E-06	3.30E-03	0.00E+00	1.90E-01	2.7		1.25E-07	5.6778E-01		2.39
CADMIUM	1.50E-03	5.16E-05	51.6000	1.29E-06	4.20E-03	0.00E+00	0.00E+00	1		5.53E-08			1.05
HEXAVALENT CHROMIUM	1.00E-04	3.44E-06	3.4400	8.60E-08	1.50E-01	0.00E+00	0.00E+00	1.01		1.33E-07			2.54
COPPER	4.10E-03	1.41E-04	141.0400	3.53E-06	0.00E+00	0.00E+00	1.00E+02	1		0.00E+00	2.8208E-03		0.00
LEAD	8.30E-03	2.86E-04	285.5200	7.14E-06	1.20E-05	0.00E+00	0.00E+00	1		8.74E-10			0.02
MANGANESE	3.10E-03	1.07E-04	106.6400	2.67E-06	0.00E+00	0.00E+00	0.00E+00	1		0.00E+00			0.00
MERCURY	2.00E-03	6.88E-05	68.8000	1.72E-06	0.00E+00	0.00E+00	1.80E+00	1		0.00E+00	7.6444E-02		0.00
NICKEL	3.90E-03	1.34E-04	134.1600	3.35E-06	2.60E-04	0.00E+00	6.00E+00	1	1	8.90E-09	4.4720E-02		0.17
SELENIUM	2.20E-03	7.57E-05	75.6800	1.89E-06	0.00E+00	0.00E+00	0.00E+00	1	1	0.00E+00			0.00
ZINC	2.24E-02	7.71E-04	770.5600	1.93E-05	0.00E+00	0.00E+00	0.00E+00	1	1	0.00E+00			0.00
													0.00
Total										5.24E-06	14.2398	0.001156928	100.00
										> 1 IN A MILLION			

Ventural APCD emissions factors, dated 8/24/95, AB2588 table 2

boiler cfm calcuation = 196.455 ft3/lb (ref ap-42 table D-6, pg 947) * 7 lb/gal = 1375 ft3/gal

Note, lb/hr data entry value is in terms of 10 to the minus six (easy toxic nsr entry)

MICR = Q x U x MET x MP x LEA

HIC = (Qyr x (X/Q) x MET x MP)/Chronic REL

HIA = (Qhr x (X/Q)hr)/Acute REL

Tier 3			Adjusted con (ug/m3)		Tier 3		
Toxic Pollutants	Max-lb/hr	annual lb/hr	max hr	annual	MICR	HIC	HIA
BENZENE	6.41E-03	0.00003658	3.70E-01	2.11E-03	6.13E-09		2.5903E-04
FORMALDEHYDE	5.94E-02	0.000338915	3.43E+00	1.96E-02	9.39E-09		2.6373E-03
PAH'S	1.25E-03	7.10776E-06	7.19E-02	4.10E-04	4.59E-07		
NAPHTHALENE	6.78E-04	3.86804E-06	3.91E-02	2.23E-04	0.00E+00		
ACETALDEHYDE	2.69E-02	0.000153799	1.56E+00	8.88E-03	1.92E-09	9.86704E-05	
ACROLEIN	1.17E-03	6.65616E-06	6.73E-02	3.84E-04	0.00E+00		5.1795E-05
1,3-BUTADIENE	7.48E-03	4.26858E-05	4.32E-01	2.46E-03	3.35E-08		
CHLOROBENZENE	6.88E-06	3.92694E-08	3.97E-04	2.27E-06	0.00E+00		
TOLUENE	3.63E-03	2.0695E-05	2.09E-01	1.19E-03	0.00E+00		1.6104E-04
XYLENES	1.46E-03	8.32511E-06	8.42E-02	4.81E-04	0.00E+00		6.4783E-05
ARSENIC	5.50E-05	3.14155E-07	3.18E-03	1.81E-05	1.29E-08		2.3957E-06
CADMIUM	5.16E-05	2.94521E-07	2.98E-03	1.70E-05	5.71E-09		
HEXAVALENT CHROMIUM	3.44E-06	1.96347E-08	1.99E-04	1.13E-06	1.37E-08		
COPPER	1.41E-04	8.05023E-07	8.14E-03	4.65E-05	0.00E+00		6.2643E-06
LEAD	2.86E-04	1.62968E-06	1.65E-02	9.41E-05	9.03E-11		
MANGANESE	1.07E-04	6.08676E-07	6.16E-03	3.51E-05	0.00E+00		
MERCURY	6.88E-05	3.92694E-07	3.97E-03	2.27E-05	0.00E+00		3.0558E-06
NICKEL	1.34E-04	7.65753E-07	7.75E-03	4.42E-05	9.20E-10		5.9588E-06
SELENIUM	7.57E-05	4.31963E-07	4.37E-03	2.49E-05	0.00E+00		
ZINC	7.71E-04	4.39817E-06	4.45E-02	2.54E-04	0.00E+00		
	0.00E+00		0.00E+00				
	0.00E+00		0.00E+00				
Total	0.00E+00		0.00E+00		5.43E-07	9.86704E-05	0.003191609

Max time = 50.00 hr

Annual lb/hr = ton/yr * 1yr/365 day * 1 dy/24 hr * 2000 lb/ton

Adjusted con = actual. Con * (annual ave lb/hr/ 1 lb/hr)

Adjusted Max 1 hr concentration (HIA) = actual concentration * max lb/hr

MICR tier 3 = ajusted con. * 0.10 * Unit risk factor * 1/70 yr

HIC tier 3 = adjusted concentraion * 0.1 / Chronic REL

HIA tier 3 = adjusted Max one hour concentration / Acute REL

max con 57.74

max hr 50.00

fuel usage to keep Tier 3 MICR < one in one million

distance m	ug/l	time hr	fuel gallons
25	7.85	270.00	9288.00
43	17.31	123.00	4231.20
75			0.00
100	11.8	198.00	6811.20
150			0.00
200	6.87	306.00	10526.40
300	5.16	414.00	14241.60
400	6.61	324.00	11145.60
500	7.05	288.00	9907.20
600	6.9	306.00	10526.40
700	6.5	324.00	11145.60
800	6.01	360.00	12384.00
900	5.52	396.00	13622.40
1000	5.06	432.00	14860.80
1500	3.39	648.00	22291.20
2000	2.46	864.00	29721.60

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

548254 LAWA

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.126000
STACK HEIGHT (M)	=	2.1340
STK INSIDE DIAM (M)	=	.1270
STK EXIT VELOCITY (M/S)	=	135.0530
STK GAS EXIT TEMP (K)	=	755.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	URBAN
BUILDING HEIGHT (M)	=	.0000
MIN HORIZ BLDG DIM (M)	=	.0000
MAX HORIZ BLDG DIM (M)	=	.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
VOLUME FLOW RATE = 3625.0000 (ACFM)

BUOY. FLUX = 3.268 M**4/S**3; MOM. FLUX = 28.541 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	.0000	1	1.0	1.0	320.0	54.21	2.60	2.59	NO
100.	24.82	4	4.0	4.0	1280.0	15.15	16.11	14.27	NO
200.	13.63	4	2.0	2.0	640.0	28.17	31.68	28.20	NO
300.	12.32	6	1.0	1.0	10000.0	38.73	32.89	22.51	NO
400.	12.77	6	1.0	1.0	10000.0	38.73	42.17	27.37	NO
500.	11.75	6	1.0	1.0	10000.0	38.73	51.29	31.99	NO
600.	10.39	6	1.0	1.0	10000.0	38.73	60.19	36.36	NO
700.	9.103	6	1.0	1.0	10000.0	38.73	68.86	40.49	NO
800.	7.987	6	1.0	1.0	10000.0	38.73	77.30	44.40	NO
900.	7.048	6	1.0	1.0	10000.0	38.73	85.53	48.12	NO
1000.	6.265	6	1.0	1.0	10000.0	38.73	93.55	51.67	NO
MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:									
24.	57.74	4	20.0	20.0	6400.0	4.74	4.02	3.53	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

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*** SUMMARY OF SCREEN MODEL RESULTS ***
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CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)

SIMPLE TERRAIN 57.74 24. 0.

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** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
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