



South Coast Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

July 26, 2012

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

Subject: Los Angeles Department of Water and Power Haynes Generating Station (ID 800074) – Title V Permit Revision

Dear Mr. Rios:

The Los Angeles Department of Water and Power (LADWP) operates the Haynes Generating Station located in Long Beach, CA. It has proposed to revise its Title V permit under Application No. 530955 by the following actions.

Application #	Device #	Section #	Proposed Actions
530957	D195	D	New standby generator
530958	D196	D	New standby generator
530981	D201	D	New oil water separator

This proposed permit revision is a “minor permit revision” to the Title V permit. With your receipt of the proposed sections today we will note that the EPA 45-day review period begins on July 26, 2012.

If you have any questions or need additional information regarding the proposed permit revision, please call Li Chen at (909) 396-2426.

Very truly yours,

Brian L. Yeh
Senior Manager
Mechanical, Chemical, and Public Services

cc: Dipak Patel, LADWP
BLY:AYL:JTY:LC
Attachments

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING DIVISION</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 1
	APPL. NO. 530957,58,81	DATE 06/14/2012
	PROCESSED BY LI CHEN	CHECKED BY

PERMIT TO OPERATE

COMPANY NAME AND ADDRESS

LA DWP Haynes Generation Station
 6801 2nd Street
 Long Beach, CA 90803
 SCAQMD ID #800074

Contact: Dat Quach (213) 367-4697

EQUIPMENT LOCATION

LA DWP Haynes Generation Station
 6801 2nd Street
 Long Beach, CA 90803

EQUIPMENT DESCRIPTION

Section D of the Facility Permit, ID# 800074, Facility Description and Equipment Conditions

Equipment	ID No.	Connected To	Source Type/ Monitoring Unit	Emissions	Conditions
PROCESS 1: POWER GENERATION					
IC ENGINE, EMERGENCY #1, CATERPILLAR, DIESEL, MODEL 3516C DITA, 3,622 HP, LEAN BURN, TURBOCHARGED, WITH A JOHNSON MATTHEY CRT PARTICULATE FILTER, WITH: A/N: 530957 DIESEL STORAGE TANK, 2800 GALLONS, SHARED WITH D196	D195		NOx: Process Unit	NOx: 3.7 G/BHP-HR (4) [RULE 2005, RULE 1703]; NOx: 469 LB/1000 GAL (1) [RULE 2012]; CO: 0.67 G/BHP-HR (4) [RULE 1703, 40 CFR 60.4205(b)]; VOC: 0.25 G/BHP-HR (4) [RULE 1303] PM10: 0.007 G/BHP-HR (4) [RULE 1303]	B61.1, C1.6, D12.12, D12.13, E116.2, E193.6, E193.10, E448.1, E448.2, E448.3, I297.2, K67.7

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING DIVISION</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 2
	APPL. NO. 530957,58,81	DATE 06/14/2012
	PROCESSED BY LI CHEN	CHECKED BY

Equipment	ID No.	Connected To	Source Type/ Monitoring Unit	Emissions	Conditions
GENERATOR: 2.5 MW					
IC ENGINE, EMERGENCY #2, CATERPILLAR, DIESEL, MODEL 3516C DITA, 3,622 HP, LEAN BURN, TURBOCHARGED, WITH A JOHNSON MATTHEY CRT PARTICULATE FILTER, WITH: A/N: 530958 DIESEL STORAGE TANK, 2800 GALLONS, SHARED WITH D195 GENERATOR: 2.5 MW	D196		NOx: Process Unit	NOx: 3.7 G/BHP-HR (4) [RULE 2005, RULE 1703]; NOx: 469 LB/1000 GAL (1) [RULE 2012]; CO: 0.67 G/BHP-HR (4) [RULE 1703]; VOC: 0.25 G/BHP-HR (4) [RULE 1303] PM10: 0.007 G/BHP-HR (4) [RULE 1303]	B61.1, C1.6, D12.12, D12.13, E116.2, E193.6, E193.10, E448.1, E448.2, E448.3, I297.3, K67.7
OIL/WATER SEPARATOR, PSI, MODEL: PSC-1000, VOL: 1000 GAL, FLOW RATE: 100 GPM, 4'0" DIA X 15'8" LENGTH WITH: A/N: 530981	D201				E193.6

BACKGROUND

The Los Angeles Department of Water and Power (LADWP) owns and operates the Haynes Generation Station (HGS). In 2010 the HGS applied for and received permits to construct a simple cycle generation system (SCGS) that includes six GE LMS100 simple cycle gas turbine generators. LADWP originally applied to install two standby diesel generators for the SCGS but rescinded the permit applications on December 23, 2010. LADWP indicated that it would apply for the two engines later.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING DIVISION</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 3
	APPL. NO. 530957,58,81	DATE 06/14/2012
	PROCESSED BY LI CHEN	CHECKED BY

LADWP now submits applications to install two standby generators and one oil water separator. The equipment will be a part of the SCGS that is currently under construction.

The following is a list of the applications submitted by LADWP.

Applications	Equipment	Fee
530955	Title V/RECLAIM minor permit revision	\$1,747.19
530957	Standby Diesel Generator #1	\$2,123.92
530958	Standby Diesel Generator #2	\$1,061.96
530981	Waste Oil Water Separator	\$3,359.43
Expedited Permit Processing Fee		\$3,272.66
Total Fee		\$11,565.16

The applications were submitted to the District on November 30, 2011. They were deemed complete on January 17, 2012. LADWP is a federal Title V facility. It participates in the RECLAIM NOx program.

CRITERIA POLLUTANTS EMISSIONS

- Standby Generators

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

Engine Manufacturer	Caterpillar
Engine Model Number	3516C DITA
Engine Specifications	Water cooled, turbocharged and aftercooled
Engine brake horsepower (BHP)	3,622
Engine Power Output (KW)	2,500
Fuel:	#2 CARB Diesel
Fuel Usage (Gallons/hour):	173.3
Annual Operation Limit (hours):	200
Annual Maintenance Limit (hours):	50
Stack Flow	19,048.7 ACFM
Stack Temperature	921.9 °F

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

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING DIVISION</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 4
	APPL. NO. 530957,58,81	DATE 06/14/2012
	PROCESSED BY LI CHEN	CHECKED BY

NOx (grams/bhp-hr)	3.7	
CO (grams/bhp-hr)	0.67	
VOC (grams/bhp-hr)	0.25	
PM (grams/bhp-hr)	0.07	before the particulate filter
	0.007	after the diesel particulate filter

SOx emission factor is extrapolated by assuming the CARB diesel contains less than 15 ppm sulfur as H₂S. One pound of H₂S would convert to 64/34 pounds of SO₂ or SOx.

SOx (lb/lb diesel):	$15 \times 10^{-6} * 64/34 = 28.2 * 10^{-6}$
SOx (lb/Mgal):	$28.2 * 10^{-6} * 1000 * 7.5 = 0.21$

The hourly emissions are:

NOx (lbs/hr):	$3.7 * 3,622 / 453.6 = 29.54$
CO (lbs/hr):	$0.67 * 3,622 / 453.6 = 5.35$
VOC (lbs/hr):	$0.25 * 3,622 / 453.6 = 2.0$
PM (lbs/hr):	$0.007 * 3,622 / 453.6 = 0.056$
SOx (lbs/hr):	$0.21 * 173.3 / 1,000 = 0.037$

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

Emissions of the Standby Generators

	NOx	CO	VOC	PM	SOx
Hourly (lbs/hour)	29.54	5.35	2.0	0.056	0.037
Monthly Total (lbs)	123.1	22.3	8.32	0.23	0.16
Emission Increase (lbs/day, 30-day Avg.)	4.10	0.74	0.28	0.01	0.01

- Oil water separator

The oil water separator specifications are:

Type:	Horizontally placed cylindrical above ground
Count:	1
Tank diameter:	4 ft
Tank length:	15 ft 5 inches
Volume:	1,000 gallons

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING DIVISION</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 5
	APPL. NO. 530957,58,81	DATE 06/14/2012
	PROCESSED BY LI CHEN	CHECKED BY

Annual turnovers: 52
 Vacuum setting: no vent valve
 Pressure setting: no vent valve

Working loss and breathing loss are expected from the oil water separators. The emissions are considered as VOC, and are calculated using EPA's Tank program, version 4.0.9d. The detailed calculation spreadsheets are included in the application folder. The results are summarized below:

Annual Breathing Loss: 0 lbs
 Annual Working Loss: 2.63 lbs
 Total Loss: 2.63 lbs/year

The monthly average is 0.22 lbs/month. The 30-day average emissions are 0.007 lbs/day.

TOXIC AIR CONTAMINANTS EMISSIONS

The two diesel fueled standby generators will emit hazardous air pollutants. The HAP emissions are calculated based on the following parameters:

Annual hours of operation: 50 each engine
 Fuel usage: 173.3 gallons/hour
 Annual fuel usage: 8.665 Mgal

The hazardous air pollutants and the emission factors are listed in the next table. The emission factors are adopted from Ventura County APCD AB2588 Combustion Emission Factors.

HAP Emissions from the Standby Generators

Hazardous Air Pollutant	Aix Toxic Case Number	Emission Factor (lb/Mgal)	Annual Emissions (lb/year)	Annual Emissions (tons/year)
Benzene	71432	0.1863	1.61E+00	8.07E-04
Formaldehyde	50000	1.7261	1.50E+01	7.48E-03
PAHs (including naphthalene)	107028	0.0559	4.84E-01	2.42E-04
Naphthalene	91203	0.0197	1.71E-01	8.54E-05
Acetaldehyde	75070	0.7833	6.79E+00	3.39E-03
Acrolein	1070208	0.0339	2.94E-01	1.47E-04

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING DIVISION</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 6
	APPL. NO. 530957,58,81	DATE 06/14/2012
	PROCESSED BY LI CHEN	CHECKED BY

1,3-Butadiene	106990	0.2174	1.88E+00	9.42E-04
Chlorobenzene	108907	0.0002	1.73E-03	8.67E-07
Propylene	115071	0.4670	4.05E+00	2.02E-03
Hexane	110543	0.0269	2.33E-01	1.17E-04
Toluene	108883	0.1054	9.13E-01	4.57E-04
Xylenes	1330207	0.0424	3.67E-01	1.84E-04
Ethyl Benzene	100414	0.0109	9.44E-02	4.72E-05
Hydrogen Chloride	7647010	0.1863	1.61E+00	8.07E-04
Arsenic	7440382	0.0016	1.39E-02	6.93E-06
Cadmium	7440439	0.0015	1.30E-02	6.50E-06
Total Chromium	7440473	0.0006	5.20E-03	2.60E-06
Hexavalent Chromium	18540299	0.0001	8.67E-04	4.33E-07
Copper	7440508	0.0041	3.55E-02	1.78E-05
Lead	7439921	0.0083	7.19E-02	3.60E-05
Manganese	7439965	0.0031	2.69E-02	1.34E-05
Mercury	7439976	0.0020	1.73E-02	8.67E-06
Nickel	7440020	0.0039	3.38E-02	1.69E-05
Selenium	7782492	0.0022	1.91E-02	9.53E-06
Zinc	7440666	0.0224	1.94E-01	9.70E-05
Diesel Particulates	N/A	0.056	2.80E+00	1.40E-03
Total			3.67E+01	1.83E-02

Note diesel particulates has been classified as a hazardous air pollutant. The emission rate is assumed to the same as the PM, which is 0.007 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 of §60.4202. The engine has a total displacement of 69 liters/16 cylinders = 4.3 liters/cylinder, and has a horsepower rating of 3,622 HP. Engines greater than 3,000 HP and manufactured after 2011 shall meet the performance standard of 40 CFR 89.112. According to 40 CFR 89.112 this engine will need to comply with the Tier 2 emissions limits. This engine meets the Tier 2 performance standards. Therefore, compliance is anticipated.

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

The facility is a NESHAP major source because the facility total formaldehyde emissions exceed 10 tons per year. Both engines proposed for construction are new compression ignition (CI) reciprocating internal combustion engines (RICE) located at a major source. For emergency use,

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING DIVISION</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 7
	APPL. NO. 530957,58,81	DATE 06/14/2012
	PROCESSED BY LI CHEN	CHECKED BY

new and reconstructed stationary engine greater than 500 HP and located at Major Source of HAP the requirements are:

Compliance date: upon startup
Emission limitations: no requirements
Operating limitations: no requirements
Fuel Requirements: no requirements
Performance Tests: no requirements
Monitoring, Installation, Collection, Operation and Maintenance Requirements: no requirements
Initial Compliance: no requirements

Initial compliance and continued compliance are expected. In addition, the engine will comply with 40 CFR 60 Subpart III.

California Environmental Quality Act (CEQA)

An EIR (state clearinghouse number 2005061111) was prepared in May 2010 for the Haynes repower project that included the two standby generators. The lead agency was LADWP.

As a part of the CEQA certification conditions the two emergency IC engines shall not be tested at the same time, or during the gas turbine commissioning period. This condition will be added to the diesel engines.

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 standby generators is 0.1 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 standby generators and the oil water separator.

Rule 402 – Nuisance

Compliance with this rule is expected for the standby generators and the oil water separator.

Rule 404 – Particulate Matter - Concentration

This rule does not apply to the oil water separator.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING DIVISION</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 8
	APPL. NO. 530957,58,81	DATE 06/14/2012
	PROCESSED BY LI CHEN	CHECKED BY

This rule applies to the standby generators. This rule limits the PM concentration in the discharged gas, such as the exhaust of the standby generators. The PM concentration limits are listed in Table 404(a). The standby generator exhaust flow is 19,048.7 acfm, at 921.9 °F. This exhaust flow is equivalent to 7,167.9 scfm. At this flow rate the PM10 limit of Table 404(a) is 0.083 grain/scf.

The standby generator will be equipped with a diesel particulate filter. The controlled PM emission rate is 0.007 g/bhp-hr. The expected PM concentration is:

$$0.007 \text{ g/bhp-hr} * 3,622 \text{ bhp} * 15.4 \text{ grain/g} / 7,167.9 \text{ scfm} * / 60 \text{ min/hr} = 0.0009 \text{ grain/scf}$$

The concentration is far less than the 0.083 grain/scf limit. Compliance is expected.

Rule 407 – Liquid and Gaseous Air Contaminants

This rule limits CO concentration to less than 2,000 ppm and SO2 to less than 500 ppm.

This rule does not apply to stationary IC engines. The oil water separator is expected to comply with this rule.

Rule 409 – Combustion Contaminants

The oil water separator is not subject to this rule. The standby generators are IC engines that are exempted from this rule.

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 prohibits the facility to purchase fuel oil with sulfur content greater than 15 ppmv. A condition B61.1 will be added that require the facility to use only diesel with less than 15 ppm sulfur content. Compliance is expected.

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

This rule does not apply to emergency power generators.

Regulation XIII – New Source Review for Non-Attainment Pollutants

This rule applies to the standby generators and the oil water separator for the PM, VOC and SOx emissions. NSR includes requirements of BACT, modeling, and offset. Because LADWP Haynes is a major source the major source BACT/LAER requirements apply.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING DIVISION</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 9
	APPL. NO. 530957,58,81	DATE 06/14/2012
	PROCESSED BY LI CHEN	CHECKED BY

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 standby generators the BACT are determined by following the above BACT definitions:

- VOC: Comply with the Tier 2 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

The oil water separator has 0.007 lb/day VOC emissions. BACT does not apply.

2. Modeling and Offset

The standby generators are exempted from the requirements of modeling and offset. The oil water separator has only VOC emissions. VOC emissions are exempted from the modeling requirements. Offset is not required because the emissions are less than 0.5 lbs a day.

Rule 1325 – Federal PM2.5 New Source Review

This rule address specifically PM2.5 emissions. This rule applies to major polluting facilities and major modifications to a major polluting facility. The major polluting facility definition is PM2.5 emissions greater than 100 tons per year, either potential to emit or past actual emissions. The LADWP Haynes facility is a major polluting facility based on the potential to emit.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING DIVISION</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 10
	APPL. NO. 530957,58,81	DATE 06/14/2012
	PROCESSED BY LI CHEN	CHECKED BY

However, the facility has accepted a federally enforceable condition E193.10 that limit to actual emissions to less than 100 tons per year. The permit condition requires the facility to determine PM2.5 emissions from each source on the annual basis.

LADWP will continue to comply with the 100 ton/year limit after the addition of the two standby generators and the oil water separator. Condition E193.10 will be modified to include the two emissions from the two generators. The PM2.5 emission factors are:

$$E = 0.056 \text{ lb/hr} / 173.3 \text{ Gal/hr} = 0.32 \text{ lb/Mgal}$$

The facility will be required to include the emissions from the two generators in the facility total PM2.5 calculations.

Rule 1401 – New Source Review of Toxic Air Contaminants

Although emergency IC engines are exempted from the requirement of this rule a tier 2 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 0.1 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. The amendment updated the emissions requirements.

Based on the horsepower rating of 2,000 kW the engines are required to comply with Tier 2 emission standards. The engine's emissions rates and the Tier 2 standards are compared in the next table.

	NMHC + NOx (g/bhp-hr)	CO (g/bhp-hr)	PM (g/bhp-hr)
The subject engines	3.95 (3.7+0.25)	0.67	0.07 before the DPF, 0.007 after the DPF
Tier 2 standards	4.8	2.6	0.15

Based on the PM emission rate the engine is allowed 50 hours per year operation for maintenance and testing.

The engines are equipped with a Johnson Matthey CRT+ diesel particulate filter. The filter is certified by CARB Executive Order DE-08-009-04. The certification specifies the performance criteria that the engine must follow. A permit condition is added to enforce the DPF certification conditions.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING DIVISION</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 11
	APPL. NO. 530957,58,81	DATE 06/14/2012
	PROCESSED BY LI CHEN	CHECKED BY

Rule 1472 – Requirements for Multiple Stationary Standby Diesel Engines

This rule applies to facilities with three or more diesel standby generators. The facility has one existing engine (D53). With the addition of the two engines the facility will have three engines. Thus, this rule applies.

The rule provides an exemption if the facility can demonstrate that there are no engine groups which are defined as three or more engines located within 150 meters of one another. The two new engines will be located about 750 meters from the existing engine D53. Therefore, they do not form an engine group.

The facility will need to submit the Initial Notification Of Exemptions to AQMD after the two engines are installed.

Regulation XVII – Prevention of Significant Deterioration (PSD)

This rule applies to new major sources and major modifications of existing major sources for the attainment pollutants, CO, SO₂, and NO₂. The major modifications are those of significant emission increases, which are 40 tons per year for Sox or NOx and 100 tons per year for CO. The proposed installation of the two standby generators and the oil water separator in itself will not be a major modification. However, the Haynes repower project needs to demonstrate PSD compliance with the two standby generators.

The PSD requirements are:

- Use of BACT
- Modeling to determine impacts of the project on national and state ambient air quality standards, and increases over the baseline concentrations
- Modeling analysis of ambient air quality in the impact area
- Analysis of project impacts on visibility, soil, and vegetation

The PSD analysis of the Haynes repower project was conducted in 2009. The PSD analysis included the six combustion turbines, the SCR and CO catalysts, the two standby generators, the diesel storage tank and three oil water separators. The PSD analysis was reviewed and approved by the SCAQMD, the EPA, and by the federal land manager of the impacted Class I areas, with the EPA exception to the two standby generators. The EPA requested that the two standby generators be included in the impact analysis to the NAAQS 1-hour standard. Since the PSD analysis did not do so the facility decided to withdraw the two permit applications. The Haynes repower project received the permit in December 2010.

Since then EPA provided clarification regarding modeling of NO₂ emissions from intermittent emission units such as emergency generators for compliance determination for the 1-hour NO₂ NAAQS. The guidance document published in March 2011 recommends that compliance

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING DIVISION</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 12
	APPL. NO. 530957,58,81	DATE 06/14/2012
	PROCESSED BY LI CHEN	CHECKED BY

demonstrations for the 1-hour NO₂ NAAQS be based on scenarios that can logically be assumed to be relatively continuous or which occur frequently enough to contribute significantly to the annual distribution of daily maximum 1-hour concentrations. Since the two standby generators are to operate for no more than 50 hours per year for testing and maintenance the emissions can be excluded from compliance demonstration with the 1-hour NO₂ NAAQS. However, compliance with the annual NO₂ California AAQS still applies.

The facility revised the modeling analysis to include the two standby generators. The analysis was submitted to AQMD for approval. The analysis was deemed acceptable by AQMD for PSD compliance determinations. With the two standby generators the highest ground level annual NO₂ concentration project impact is 0.38 µg/m³. When added to the worst case background concentration the peak annual NO₂ concentration is 40.3 µg/m³, which is less than California annual NO₂ standard of 57 µg/m³. Because the concentration 0.38 µg/m³ is less than 1.0 µg/m³ significant threshold a full impact analysis is not required.

Rule 1714 – Prevention of Significant Deterioration (PSD) for Greenhouse Gases

This rule applies to the greenhouse gas (GHG) that include CO₂, N₂O, CH₄, HFCs, PFCs, and SF₆. It applies to new major sources and major modifications of existing major sources of GHG emissions. This rule is triggered if the net GHG emissions increases are greater than 75,000 tons.

It is calculated that GHG emissions from the two generators are 195 tons per year. It is much lower than the 75,000 tons per year limit. Therefore, this rule does not apply.

Regulation XX – RECLAIM

This rule applies to NO_x emissions because LADWP Haynes participates in the NO_x RECLAIM program.

- Requirement of BACT

The BACT requirement for a diesel standby generator is consistent with Rule 1470 requirement. For an engine greater than 750 bhp the requirement is to comply with Tier 2 emission standards. The two standby engines satisfy the Tier 2 emissions standards.

- Modeling

Emergency generators are exempted from modeling requirements

- Offset

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING DIVISION</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 13
	APPL. NO. 530957,58,81	DATE 06/14/2012
	PROCESSED BY LI CHEN	CHECKED BY

Offset are provided in the form of RECLAIM trading credits (RTC). The annual RTC requirements are based on 50 hours operation per year. The default allocation for a diesel engine for LADWP is 469 lb/Mgal.

$$\text{RTC} = 469 \text{ lb/Mgal} * 173.3 \text{ gallon/hr} / 1,000 \text{ gallon/Mgal} * 50 \text{ hr} = 4,064 \text{ lbs}$$

Rule 2012 – Monitoring, Reporting, and Recordkeeping for NOx

The two standby generators are RECLAIM process units. The original allocation calculations in 1994 for internal combustion engines were based on 469 pounds per 1,000 gallons. Therefore the facility will be reporting NOx emissions based on 469 lb/Mgal factor. The facility has the option to conduct a source test and establish a different reporting factor. The engines will be equipped with a non-resettable elapsed time meter to accurately indicate the operating time, and transmit to AQMD the emissions on the monthly basis.

Regulation XXX – Title V Permit

The proposed installation and operation of two standby generators and one oil water separator is a minor revision. A draft permit revision will be prepared for this project (under application number 530955). 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. 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).

CONDITIONS

Facility Condition:

F14.2 The operator shall not purchase fuel oil containing sulfur compounds in excess of 15 ppm by weight as supplied by the supplier.

This condition shall become effective on or after June 1, 2004.

[RULE 431.2, 9-15-2000]

Device Conditions:

B61.1 The operator shall only use fuel oil containing the following specified compounds:

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING DIVISION</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 14
	APPL. NO. 530957,58,81	DATE 06/14/2012
	PROCESSED BY LI CHEN	CHECKED BY

Compound	Is	PPM by weight
Total sulfur compounds calculated as H ₂ S	Less than	15

[Rule 1303-BACT, Rule 2005, Rule 431.2]

[Devices subject to this condition: D195, D196]

- C1.6 The operator shall limit the operating time to no more than 200 hour(s) in any one year. The operation includes no more than 50 hours per year and 1 hour per week for maintenance and testing as required in rule 1470(c)(2).

The operation of the engine beyond the 50 hours per year allotted for engine maintenance and testing 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 electrical grid operator or electric utility 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 1303-Exemptions, Rule 1470, 40 CFR 60.4211(f)]

[Devices subject to this condition: D195, D196]

- D12.12 The operator shall install and maintain a non-resettable totalizing time meter to accurately indicate the elapsed operating time of the engine.

[Rule 1303-Exemptions, Rule 1470]

[Devices subject to this condition: D195, D196, 40 CFR 60.4209(a)]

- D12.13 The operator shall install and maintain a non-resettable elapsed fuel meter to accurately indicate the engine fuel consumption.

[Rule 2012]

[Devices subject to this condition: D195, D196]

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING DIVISION</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 15
	APPL. NO. 530957,58,81	DATE 06/14/2012
	PROCESSED BY LI CHEN	CHECKED BY

E116.2 This engine shall not be used as part of an interruptible service contract in which a facility receives a payment or reduced rates in return for reducing electric load on the grid when requested by the utility or the grid operator.

[Rule 1470, Rule 1303-Exemptions]

[Devices subject to this condition: D195, D196]

E193.6 The operator shall upon completion of construction, operate and maintain this equipment according to the following specifications:

In accordance with all air quality mitigation measures stipulated in the Draft Environmental Impact Report (EIR), State Clearing House #2005061111.

[CEQA]

[Device subject to this condition: D195, D196, D201]

E193.10 The operator shall not commence operation of any of the new Units 11-16 until the AQMD certifies that one of the following conditions has been satisfied:

The facility has provided 292 lbs/day of federally enforceable PM_{2.5} emission reduction credits unless a different amount associated with the Repower Project modification at this facility as determined to be required according to the federal New Source Review (NSR) requirements (40CFR Part 51 Subpart Z Appendix S), as approved by both AQMD and EPA.

The operator shall comply with a federally enforceable limit of 100 tons per year of PM_{2.5} emissions.

For purposes of demonstrating compliance with the 100 ton per year limit the operator shall determine the PM_{2.5} emissions for each of the major sources at the facility by calculating a 12-month rolling average using the following formula:

$$PM_{2.5} = (FF_1 * EF_1 + FF_2 * EF_2 + FF_9 * EF_9 + FF_{10} * EF_{10} + FF_{11} * EF_{11} + FF_{12} * EF_{12} + FF_{13} * EF_{13} + FF_{14} * EF_{14} + FF_{15} * EF_{15} + FF_{16} * EF_{16} + \underline{FF_{D1} * EF_{D1} + FF_{D2} * EF_{D2}}) / 2000$$

Where:

PM_{2.5} = PM_{2.5} emissions in tons per year

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING DIVISION</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 16
	APPL. NO. 530957,58,81	DATE 06/14/2012
	PROCESSED BY LI CHEN	CHECKED BY

FF₁= fuel flow for Unit 1 in MMscf
 FF₂= fuel flow for Unit 2 in MMscf
 FF₉= fuel flow for Unit 9 in MMscf
 FF₁₀= fuel flow for Unit 10 in MMscf
 FF₁₁ to FF₁₆= fuel flow for Units 11 to 16 in MMscf
FF_{D1} to FF_{D2} = diesel usage for two black start generator in Mgal

EF₁= emission factor for Unit 1 = 7.14 lb/MMscf
 EF₂= emission factor for Unit 2 = 6.61 lb/MMscf
 EF₉= emission factor for Unit 9 = 1.238 lb/MMscf
 EF₁₀= emission factor for Unit 10 = 0.968 lb/MMscf
 EF₁₁ to EF₁₆= emission factor for Units 11 to 16 = 6.423 lb/MMscf
EF_{D1} to EF_{D2} = emission factor for two black start generator = 0.32 lb/Mgal

Any changes to these emission factors must be approved in advance by the District in writing and be based on unit specific source tests performed using a District approved testing protocol.

[40 CFR, Part 51, Appendix S, September 26, 2008]

[Devices subject to these conditions: D1, D4, D125, D134, D159, D162, D168, D174, D180, D186, D195, D196]

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

The engine and the Johnson Matthey CRT+ diesel particulate filter shall be operated in accordance with CARB Executive Order DE-08-009-04.

The engine shall operate at the load level required to achieve 240 °C for a minimum of 40% of the engine's operating time and a NOx/PM ratio of 15 @ ≥ 300 °C and 20 @ ≥ 300 °C. The NOx/PM ratio shall be at least 8 with a preference for 20 or higher.

The engine shall not operate below passive regeneration temperature for more than 720 consecutive minutes. Regeneration is required after 24 consecutive cold starts and 30-minute idle sessions.

Filter cleaning is required after 150 half-hour cold starts with associated regeneration or 1,000 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.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING DIVISION</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 17
	APPL. NO. 530957,58,81	DATE 06/14/2012
	PROCESSED BY LI CHEN	CHECKED BY

The operator shall keep records of any corrective action taken after the CRTdm has notified the operator that a high pressure limit is reached.

[Rule 1470, Rule 1303-BACT]

[Devices subject to this condition: D195, D196]

E448.2 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 36 months.

[Rule 1470, Rule 1303-BACT]

[Devices subject to this condition: D195, D196]

E448.3 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 60.4211(a), 40 CFR 60.4211(c)]

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING DIVISION</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 18
	APPL. NO. 530957,58,81	DATE 06/14/2012
	PROCESSED BY LI CHEN	CHECKED BY

[Devices subject to this condition: D195, D196]

- I297.2 This equipment shall not be operated unless the facility holds 4,064 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: D195]

- I297.3 This equipment shall not be operated unless the facility holds 4,064 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: D196]

- K67.7 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:

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING DIVISION</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 19
	APPL. NO. 530957,58,81	DATE 06/14/2012
	PROCESSED BY LI CHEN	CHECKED BY

- 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, 40 CFR 60.4214(b)]

[Devices subject to this condition: D195, D196]