

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING DIVISION</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 7	PAGE 1
	APPL. NO. 451776	DATE 5/15/08
	PROCESSED BY LI CHEN	CHECKED BY

PERMIT TO OPERATE

COMPANY NAME AND ADDRESS

Los Angeles Department of Water and Power
111 North Hope Street, Room 1050
Los Angeles, CA 90012

Contact: Bruce Moore (213) 367-3772

EQUIPMENT LOCATION

LA City, DWP Haynes Generation Station
6801 2nd Street
Long Beach, CA 92803
SCAQMD ID #800074

EQUIPMENT DESCRIPTION

Section D of the Facility Permit, ID# 800074, Permit to Operate

Equipment	ID No.	Connected To	Source Type/ Monitoring Unit	Emissions	Conditions
PROCESS 4: EMERGENCY POWER					
INTERNAL COMBUSTION ENGINE, EMERGENCY POWER, DIESEL FUEL, ALCO, MODEL 251, 16 CYLINDERS, WITH AFTERCOOLER, TURBOCHARGER, 2500 HP WITH: A/N: 410740, <u>451776</u> GENERATOR, 2000 KW	D53		NOX: PROCESS UNIT**	NOX: 469 LBS/1000 GAL DIESEL (1) [RULE 2012] PM: (9) [RULE 404]	<u>B59.3,</u> <u>C1.3,</u> <u>C177.1,</u> <u>D12.5,</u> <u>E116.1,</u> <u>K67.5</u>

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING DIVISION</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 7	PAGE 2
	APPL. NO. 451776	DATE 5/15/08
	PROCESSED BY LI CHEN	CHECKED BY

BACKGROUND

The Los Angeles Department of Water and Power (LADWP) operates the Haynes Generation Station (HnGS) located in Long Beach, California. The facility has several gas turbine generators and boiler generators that produce electricity to the municipal electricity grid. The facility maintains a diesel fueled emergency generator to provide backup power in case of power failure and emergencies. The diesel IC engine, D53, have been in operation since 1960s. The current permit number is F72316.

In accordance with AQMD Rule 1470 LADWP submitted this application to comply with the rule requirements. Rule 1470 applies to diesel fueled internal combustion engines such as this emergency generator. Rule 1470 requires use of low sulfur diesel, restricts operating hours and conditions, and establishes conditions for maintenance and reporting. Facilities with such diesel engines are required to submit compliance plans to demonstrate compliance with Rule 1470. LADWP has submitted the compliance plan, and the plan has been approved.

This application is to add conditions in accordance with Rule 1470, including a condition that allows the facility to conduct annual maintenance and testing for up to 50 hours.

The application was received on December 16, 2005, and deemed completed on January 10, 2006. The following table shows the application numbers.

Table 1 Application Numbers

Applications	Purpose
451776	Add a condition per Rule 1470 (change of conditions)
451777	Title V Facility Permit Modification

LADWP Haynes is a Title V facility and participates in the NO_x RECLAIM program.

PROCESS DESCRIPTION

The emergency IC engine is a diesel-fueled 16-cylinder Alco, Model 251. It is turbocharged and is equipped with an aftercooler. It is rated 2,500 braking horsepower and is connected to a 2,000 KW generator. It is a NO_x Process Unit.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING DIVISION</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 7	PAGE 3
	APPL. NO. 451776	DATE 5/15/08
	PROCESSED BY LI CHEN	CHECKED BY

EMISSIONS

Emissions were determined in A/N410740 using manufacturer provided emission limits, and assuming 199 hours of annual operation. The proposed 50 hours of annual maintenance will not add to the 199 hours of allowed regular operation. Therefore, it does not affect the hourly emissions and maximum daily emissions. The emissions are determined in the next table. Annual emissions are based on 199 hours of operation.

Pollutants	Hourly Emissions (lb/hr)	Max Daily Emissions (lb/day)	Annual Emissions (lbs)
CO	14.0	336	2,786
NOx	63.0	1512	12,537
PM10	4.5	108	896
VOC	5.0	120	995
SOx	4.2	101	836

This PM10 emission rate is equivalent to:

$$4.5 * 454 / 2500 = 0.82 \text{ gram/bhp-hr}$$

However, LADWP conducted a source test in 2005 in accordance with District approved test protocols. After the source test the results were submitted to the District for review. The District has reviewed the source test results, and deemed the source tests conditional acceptable. A copy of the review #06290 is included in the application folder. During the source test PM10 emissions rate was found to be 0.56 lbs/hr, or 0.134 gram/bhp-hr.

RULES EVALUATION

Rule 212 – Standards for Approving Permits

There is no school within 1,000 feet of the facility boundary, and there is no emission increase. Public notice is not required.

Rule 401 – Visible Emissions

Visible emissions are not expected under normal operating conditions of the turbines.

Rule 402 – Nuisance

Nuisance problems are not expected under normal operating conditions of the turbines.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING DIVISION</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 7	PAGE 4
	APPL. NO. 451776	DATE 5/15/08
	PROCESSED BY LI CHEN	CHECKED BY

RULE 431.2 – Sulfur Content of Liquid Fuels

The rule requires that sulfur content in diesel shall be less than 15 ppm. Compliance is expected.

RULE 1110.2 – Emissions from IC Engines

The rule does not apply to emergency equipment that operates less than 200 hours per year.

Rule 1300 – New Source Review for Non-RECLAIM Pollutants

NSR is not triggered since emergency equipment is exempted from modeling and offset. This application does not alter the equipment, and does not increase emissions hourly and daily emissions. BACT is not triggered.

RULE 1401 – Toxic Air Contaminants

Emergency equipment is exempted from the requirements of this rule.

RULE 1470 – Requirements for Stationary Diesel-Fueled Internal Combustion Engines

According to Rule 1470 (c)(3)(C)(ii)(I) an emergency IC engine that emits diesel particulates at a rate less than or equal to 0.15 g/bhp-hr is allowed up to 50 hours of annual operation for maintenance and testing purposes. LADWP contracted Horizon Air Measurement Services, Inc to conduct source tests. A source test was conducted on March 24, 2005 to measure NOx, PM, CO and VOC concentrations. The source test protocol was submitted to AQMD for approval on January 27, 2005. The District approved the protocol on February 1, 2005. The source test was then conducted in accordance with the source test protocol. The source test results were reviewed by the District on July 26, 2006. The District conditionally approved the source test results in memo 06290.

The source test results show PM emission rate of 0.134 g/bhp-hr, which was measured using CARB Method 5, consistent with Rule 1470(g) specifications. Thus, the equipment is allowed 50 hours of annual operation for maintenance and testing purposes.

The facility is currently in compliance with this rule. It has a District approved Rule 1470 compliance plan in place. Continued compliance is expected.

Rule 2005 – NSR for RECLAIM Pollutants

Modeling is exempted for emergency equipment. BACT is not triggered since there is no emission increase. The 50 hours per year for maintenance and testing will not increase the annual RTC requirement.

Rule 2012 – Monitoring Recording and Record Keeping for RECLAIM

The Haynes facility is currently in compliance with all monitoring, record-keeping, and reporting requirements of Reclaim for the existing facility. The IC engine is a process unit. It is required to report NOx emissions using the 469 lbs/1000 Gallons emission factor.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING DIVISION</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 7	PAGE 5
	APPL. NO. 451776	DATE 5/15/08
	PROCESSED BY LI CHEN	CHECKED BY

Regulation XXX – Title V

The DWP Haynes facility is currently subject to the Title V requirements. The addition of the IC engine condition is considered a minor Permit Revision according to the definition provided in Rule 3000(b)(12). As required, EPA is afforded the opportunity to review and comment on the project within a 45 day review period.

RECOMMENDATION

The equipment is expected to comply with all the federal, state, and local regulations. It is recommended that a permit to operate be issued with the following conditions.

CONDITIONS

B59.3 The operator shall only use the following material(s) in this device:

Diesel which meets the specifications of Rule 431.2

[Rule 431.2]

[Devices subject to this condition: D53]

C1.3 The operator shall limit the operating time to no more than 199 hour(s) in any one year.

The 199 hours per year shall include no more than 50 hours in any one year for maintenance and testing purposes.

The operation of the engine beyond the 50 hr/yr 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 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 1110.2, Rule 1303(b)(2)-Offset, Rule 1303(a)(4)-Modeling, Rule 1470]

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING DIVISION</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 7	PAGE 6
	APPL. NO. 451776	DATE 5/15/08
	PROCESSED BY LI CHEN	CHECKED BY

[Devices subject to this condition: D53]

C177.1 The operator shall set and maintain the fuel injection timing of the engine at 4 degrees retarded relative to standard timing.

[RULE 2009, 5-11-2001]

[Devices subject to this condition : D53]

D12.5 The operator shall install and maintain a(n) non-resettable elapsed time meter to accurately indicate the elapsed operating time of the engine.

[RULE 1110.2, 11-14-1997; RULE 2012, 5-11-2001; RULE 2012, 12-5-2003]

[Devices subject to this condition : D53]

E116.1 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 to do so by the utility or the grid operator.

[RULE 1470]

[Devices subject to this condition : D53]

K67.5 The operator shall keep records, in a manner approved by the district, for the following parameter(s) or item(s):

Date of operation, the elapsed time, in hours, and the reason for operation. Records shall be kept and maintained on file for a minimum of two years and made available to district personnel upon request.

An engine operating log listing on a monthly basis the emergency use hours of operation, maintenance and testing hours of operation, and any other hours of use with a description of the reason for operation. Additionally, each time the engine is started manually, the log shall include the date of operation and the timer reading in hours at the beginning and end of operation.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING DIVISION</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 7	PAGE 7
	APPL. NO. 451776	DATE 5/15/08
	PROCESSED BY LI CHEN	CHECKED BY

The log shall be kept for a minimum of three calendar years prior to the current year and be made available to District personnel upon request. The total hours of operation for the previous calendar year shall be recorded sometime during the first 15 days of January of each year.

[RULE 1110.2; RULE 1470, 6-1-2007]

[Devices subject to this condition: D53]