



**South Coast
Air Quality Management District**

Engineering Division
Application Processing & Calculations

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APPL NO. 503709	DATE 12/31/2009
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**PERMIT TO CONSTRUCT/OPERATE
EVALUATION**

APPLICANT:

RRI Energy, Inc
7251 Amigo St, Suite 120
Las Vegas, NV 89119

EQUIPMENT LOCATION:

8996 Etiwanda Ave
Rancho Cucamonga, CA 91739

EQUIPMENT DESCRIPTION:

Section D of the Facility Permit, ID# 115315

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions and Requirements	Conditions
PROCESS 2: INTERNAL COMBUSTION					
INTERNAL COMBUSTION ENGINE, EMERGENCY FIRE, GASOLINE, HERCULES, MODEL HXE, 4 CYCLE, 6 CYLINDER, NATURALLY ASPIRATED, 227 HP A/N: 409114	D4		NOX: PROCESS UNIT	NOX: 5 GR/BHP-HR GASOLINE (5) [RULE 2009]; NOX 102 LBS/1000 GAL GASOLINE (1) [RULE 2012]; PM: (9) [RULE 404]	D12.1
INTERNAL COMBUSTION ENGINE, DIESEL, CUMMINS, EMERGENCY FIRE, MODEL CFP9E-F60, TURBOCHARGED, AFTERCOOLED, 359 HP A/N: 503709	D95		NOX: PROCESS UNIT	NOX: 2.39 GR/BHP-HR (4) [RULE 2005 – BACT]; CO: 1.42 GR/BHP-HR (4) [RULE 1303-BACT]; VOC: 0.12 GR/BHP-HR (4) [RULE 1303 – BACT]; PM: 0.12 GR/BHP-HR (4) [RULE 1303 – BACT]	D12.2, C1.1, K67.4

Facility Description

The RRI facility is located in the City of Rancho Cucamonga approximately one mile east of Interstate 15 (I-15) and 1.5 miles north of I-10. The site is primarily industrial and is bordered by



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Etiwanda Avenue to the east, an existing SCE switchyard and vacant SCE land to the south, SCE-owned land to the west and a parcel to the southwest owned by IEUA containing 2 water tanks, and Burlington Northern Santa Fe Railroad tracks to the north. Surrounding properties are a mix of light industrial and commercial.

BACKGROUND:

This application was filed on 11/13/09 as a Class I. The applicant proposes to install one emergency fire pump engine at the site to replace 2 existing temporary engines. Engine D4 on the permit will be removed at this time. The following applications were filed:

A/N	Equipment	BCat	Fee
503709	IC Engine	044901	2,051.52
503707	Title V Minor Revision	555009	1,687.63
	Expedited Processing		1,025.76
	Total		4,764.91

PROCESS DESCRIPTION:

The purpose of the engine is to provide power to a firewater pump in case of emergency. Following are the engine specifications:

Engine Manufacturer	Cummins
Model Number	CFP9E-F60
Maximum Rating	359 hp
Maximum Fuel Consumption	16.9 gallons per hour
Maximum Exhaust Flow	2,090 cfm
Exhaust Temperature	991 °F
Configuration	4 cycle, turbocharged/aftercooled

EMISSIONS:

Emissions are based on manufacturer emission data in g/bhph, except SO_x, with is based on the AQMD Form B-2 factor of 7.1 lbs/1000 gallons fuel use.

Pollutant	Emissions	
	gm/bhp-hr	lbs/hr
NO _x	2.39	1.89
CO	1.42	1.12
ROG	0.12	0.09
PM10	0.12	0.09
SO _x	N/A	0.12



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Following is a summary of emissions:

Pollutant	Maximum Emissions		30 Day Average Emissions	Annual Emissions
	lbs/hr	lbs/day	lbs/day	lbs/yr
NOx	1.89	45.4	0.27	378
CO	1.12	26.9	0.16	224
ROG	0.09	2.28	0.014	18
PM10	0.09	2.28	0.014	18
SOx	0.12	2.89	0.017	24

Notes:

Maximum daily emissions are based on 24 hrs/day operation
 30 day average emissions are based on 1 hr/day, 1 day/week, 4.33 weeks/month.
 Annual emissions based on 200 hrs/yr

Calculations for NOx, CO, ROG, and PM10 are based on the following formula:

$$\text{Lbs/hr} = \frac{\text{hp} \times \text{gr/bhp-hr}}{454 \text{ gr/lb}}$$

Where gr/bhp-hr is supplied by the engine manufacturer

Calculation for SOx is based on the following formula:

$$\text{Lbs/hr} = \text{lbs/gal} \times \text{gal/hr}$$

Where lbs/gal is the AQMD Form B-3 factor of 7.1 lbs/1000 gal

EVALUATION:

Rule 219 – Standards for Approving Permits

The engine is not located within 1000 feet of a school, (the closest school is Sacred Heart Parish School located approximately 1.2 miles north of the site). The emissions from the engine are below the threshold of this rule, and a Rule 1401 analysis shows that the cancer risk is below 1 in a million at a receptor distance of 200 meters and operation of 1 hour/week. Therefore, no public notice is required.

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Rule 401 – Visible Emissions

Visible emissions are not expected from the engine during normal operation.

Rule 402 – Nuisance

Nuisance problems are not expected during normal operation.

Rule 431.2 – Sulfur Content of Liquid Fuels

This rule specifies that the diesel fuel used in the engine must meet a sulfur limit of 15 ppm. Compliance is expected.

Rule 1110.2 – Stationary IC Engines

The engine is exempt from this rule by paragraph (i)(2).

REGULATION XIII – New Source Review

Emissions of CO, VOC, PM10, and SOx are exempt from modeling and offsets by Rule 1304(a)(4) – Emergency Equipment, provided the equipment does not operate more than 200 hrs/yr, and is only operated to provide nonutility emergency electrical power (not applicable in this case). The engine is required to meet BACT. The required emergency diesel engine BACT is compared to the provided BACT in the table below:

Pollutant	Required BACT	Engine Emissions
	gr/bhph	gr/bhph
CO	2.6	1.42
PM10	0.15	0.12
NOx+NMHC	3.0	2.51

BACT is based on EPA non-road diesel engine standards (Tier 3).

Rule 1401 – Carcinogenic Air Contaminants

The equipment is exempt from this rule by paragraph (g)(F).

Rule 1470 – Air Toxic Control Measure

This rule, adopted on April 2, 2004, applies to existing and new diesel engines, both emergency and non-emergency, portable and stationary. Requirements include specifying that new engines must meet the Off Road Compression-Ignition Standards (Title 13, CCR section 2423) for NOx, ROG, and CO emissions, limiting the PM emissions for all new and existing engines, and restricting the use of emergency engines, especially those near schools.

The rule requires the following for the proposed new engine:

1. CARB diesel only

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2. Emissions of PM < 0.15 gr/bhp
3. Operation limited to no more than 50 hours/yr for maintenance and testing
4. Meet the applicable EPA off-road engine standards
5. Install a non-resettable operating time meter
6. Maintain an engine operating hours log book

The engine will be conditioned accordingly, and compliance is expected.

Rule 2005 – NSR for RECLAIM

Emergency nonutility generators which operate less than 200 hrs/yr are exempt from modeling by Rule 2005(k)(5). The new engine is however, subject to the RTC and BACT provisions of this rule. Following is a discussion of each requirement.

RTC's

RTC's for the expected annual operation of the engine must be provided prior to start-up of the equipment. Based on the permit limit of 200 hrs/yr, actual NOx emissions will be about 378 lbs. RTCs must be held prior to each compliance year. RRI Energy currently has sufficient RTC's to cover the operation of the engine.

BACT

BACT for the engine has been provided as outlined in the table above.

Rule 2012 – Monitoring Recording and Record Keeping for RECLAIM

The engine will be classified as a process unit for RECLAIM purposes. As such, emissions from the engine will be based on the hours of operation as recorded by the engine-hour meter, the maximum fuel use, and the gr/bhp-hr factor on the permit. Emission will be reported on a quarterly basis in accordance with the rule.

Regulation XXX – Title V

The RRI Energy facility is currently subject to the Title V requirements. The addition of the new diesel engine is considered a De-Minimis Significant Permit Revision as defined in Rule 3000. As a de minimis significant revision, EPA is afforded the opportunity to review and comment on the project within a 45 day review period.

RECOMMENDATION:

The engine meets all applicable rules and regulations. Following conclusion of the 45-day EPA review periods, issue a Permit to Construct and include the engine in Section D of the facility permit. The following conditions shall apply:

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CONDITIONS:

D12.2

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

[Rule 1110.2, Rule 2012, Rule 1303-Modeling and Offset Exemption, Rule 1470]

C1.1

The operator shall limit the operating time to no more than 200 hours in any one year.

The 200 hours per year shall include no more than 50 hours in any one year for maintenance and testing purposes.

[RULE 1110.2, 11-14-1997; RULE 1304(a)-Modeling and Offset Exemption, 6-14-1996; RULE 1470, 6-1-2007, Rule 1470]

I296.2

This equipment shall not be operated unless the operator demonstrates to the Executive Officer that the facility holds sufficient RTCs to offset the prorated annual emissions increase for the first compliance year of operation. In addition, this equipment shall not be operated unless the operator demonstrates to the Executive Officer that, at the commencement of each compliance year after the first compliance year of operation, the facility holds sufficient RTCs in an amount equal to the annual emissions increase.

To comply with this condition, the operator shall hold, prior to the 1st compliance year, and at the beginning of each subsequent compliance year, a minimum of 378 lbs/yr NO_x RTC.

[Rule 2005, 5-6-2005]

K67.4

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

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.

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, 11-14-1997; RULE 1304(a)-Modeling and Offset Exemption, 6-14-1996, RULE 1470, 6-1-2007, Rule 1470]