

**PERMIT APPLICATION REVIEW
 TEMPORARY COVERED SOURCE PERMIT No. 0476-01-CT
 Renewal Application No. 0476-03**

Company: E. M. Rivera & Sons, Inc.

Mailing Address: 73-4354 Mamalahoa Highway, #204
 Kailua-Kona, Hawaii 96740

Facility: 170 TPH Portable Crushing Plant with 362 HP Diesel Engine Generator

Location: Various Temporary Sites, State of Hawaii

SIC Code: 1442 (Construction Sand and Gravel)

Responsible Official: Mr. Hiram Rivera
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Equipment: The 170 TPH portable crushing plant with 362 HP diesel engine generator encompasses the following equipment and associated appurtenances.

Facility Equipment					
Equipment	Capacity	Manufacturer	Model No.	Serial No.	Manufacture Date
Crusher	170 TPH	Gator Machinery Company	2436	GTJC 6290-002	1998
Vibrating Grizzly Feeder	38" x 16"	Gator Machinery Company	-	-	1998
Various Conveyors	-	-	-	-	1998
Water Spray System	-	-	-	-	
Diesel Engine Generator	362 HP / 270 kW	Caterpillar	3306	64Z29316	8/1999

BACKGROUND

E. M. Rivera & Sons, Inc. has submitted an application to renew its temporary covered source permit. There are no proposed changes for this renewal in the design or operation of the facility.

The 170 TPH jaw crushing plant is powered by a 362 HP diesel engine generator fired on fuel oil No. 2 with less than 0.5% sulfur by weight. The total operating hours for the crushing plant and diesel engine will be limited to 2,080 hours in any rolling 12-month period. Fugitive emissions from the crushing plant will be controlled by water sprays. Fugitive emissions due to the stockpiles, yard area, and unpaved roads will be controlled by a water truck.

Process

Material such as broken stone, rock, and cement are dropped into the vibrating grizzly feeder and passed to the jaw crusher. The crushed material drops onto a conveyor belt and passed to the radial conveyor where it is transferred to the stockpile.

APPLICABLE REQUIREMENTS

Hawaii Administrative Rules (HAR)

Title 11 Chapter 59, Ambient Air Quality Standards

Title 11 Chapter 60.1, Air Pollution Control

Subchapter 1, General Requirements

Subchapter 2, General Prohibitions

11-60.1-31, Applicability

11-60.1-32, Visible Emissions

11-60.1-33, Fugitive Dust

11-60.1-38, Sulfur Oxides from Fuel Combustion

Subchapter 5, Covered Sources

Subchapter 6, Fees for Covered Sources, Noncovered Sources, and Agricultural Burning

11-60.1-111, Definitions

11-60.1-112, General Fee Provisions for Covered sources

11-60.1-113, Application Fees for Covered sources

11-60.1-114, Annual Fees for Covered sources

11-60.1-115, Basis of Annual Fees for Covered Sources

Subchapter 8, Standards of Performance for Stationary Sources

11-60.1-161, New Source Performance Standards

Subchapter 9, Hazardous Air Pollutant Sources

Subchapter 10, Field Citations

Standard of Performance for New Stationary Sources (NSPS), 40 CFR Part 60

1. Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants is applicable to the 170 TPH crushing plant because the maximum capacity of the crusher is greater than 150 tons/hour and it was manufactured after August 31, 1983.
2. Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines is not applicable to the diesel engine generator because the engine was constructed before July 11, 2005.

National Emission Standards for Hazardous Air Pollutants (NESHAPS), 40 CFR Part 61

This source is not subject to NESHAPS as no hazardous air pollutants are emitted at significant levels and there are no NESHAPS requirements in 40 CFR Part 61.

National Emission Standards for Hazardous Air Pollutants for Source Categories (Maximum Achievable Control Technology (MACT)), 40 CFR Part 63

Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE) is not applicable to the diesel engine generator because the engine is classified as an existing source (constructed before June 12, 2006). An existing compression ignition (CI) stationary RICE does not have to meet the requirements of this subpart and of subpart A of this part.

Prevention of Significant Deterioration (PSD)

This source is not subject to PSD requirements because it is not a major stationary source as defined in 40 CFR 52.21 and HAR Title 11, Chapter 60.1, Subchapter 7.

Compliance Assurance Monitoring (CAM), 40 CFR 64

This source is not subject to CAM since the facility is not a major source. The purpose of CAM is to provide a reasonable assurance that compliance is being achieved with large emissions units that rely on air pollution control device equipment to meet an emissions limit or standard. Pursuant to 40 Code of Federal Regulations, Part 64, for CAM to be applicable, the emissions unit must: (1) be located at a major source; (2) be subject to an emissions limit or standard; (3) use a control device to achieve compliance; (4) have potential pre-control emissions that are 100% of the major source level; and (5) not otherwise be exempt from CAM.

Consolidated Emissions Reporting Rule (CERR)

This source is not subject to CERR since 40 CFR Part 51, Subpart A - Emissions Inventory Reporting Requirements, determines CERR based on facility wide emissions of each air pollutant at the CERR triggering levels. The emissions do not exceed respective CERR threshold levels. As such, emissions data will not be required to be inputted into the National Emissions Inventory (NEI) database.

DOH Annual Emissions Reporting

The Clean Air Branch requests annual emissions reporting from those facilities that have facility wide emissions exceeding the DOH reporting level(s) and for all covered sources. Internal annual emissions reporting will be required because this is a covered source.

Best Available Control Technology (BACT)

This source is not subject to BACT analysis because this is an existing source with no proposed modifications. BACT analysis is required for new sources or significant modifications to sources that have the potential to emit or increase emissions above significant levels considering any limitations as defined in HAR, Section 11-60.1-1.

Synthetic Minor Source

A synthetic minor source is a facility that is potentially major as defined in HAR 11-60.1-1, but is made non-major through federally enforceable permit conditions. This facility is not a synthetic minor source because potential emissions do not exceed major source thresholds when the facility is operated at its maximum capacity continuously for 8,760 hours per year.

INSIGNIFICANT ACTIVITIES / EXEMPTIONS

Storage Tanks

The following storage tanks are less than 40,000 gallons and are considered insignificant in accordance with HAR 11-60.1-82(f)(1):

1. One 250 gallon diesel fuel storage tank.

Water Pump 3 hp Diesel Engine

The water pump's 3 hp diesel engine for the water spray system is an insignificant activity in accordance with HAR 11-60.1-82(f)(2) as the heat input capacity is less than one million Btu per hour. Based on the conversion factor from AP-42 (10/96) Table 3.3-1, note a:

$$3 \text{ hp} \times 7,000 \text{ Btu/hp-hr} = 0.021 \text{ MMBtu/hr}$$

ALTERNATIVE OPERATING SCENERIOS

Diesel Engine Generator

The permittee may replace the diesel engine generator with a temporary replacement unit of similar size with equal or lesser emissions if any repair reasonably warrants the removal of the diesel engine generator from its site (i.e., equipment failure, engine overhaul, or any major equipment problems requiring maintenance for efficient operation).

AIR POLLUTION CONTROLS

Fugitive Emissions

The crushing plant is equipped with a water spray system with nozzles located at the following material transfer points:

1. Loading at the jaw crusher;
2. Transfer from built-in conveyor to radial conveyor; and
3. Transfer from radial conveyor to stockpile.

A water truck will be used to control fugitive emissions for the stockpiles, yard area, and unpaved roads.

PROJECT EMISSIONS

Emission calculations are attached to this review. The following are the emissions due to the crushing plant and diesel engine generator.

170 TPH Crushing Plant

Emission rates were based on the maximum capacity of the crushing plant to process 170 TPH of material. The hours of operation will be limited to 2,080 hours/year. The crushing plant is equipped with water spray bars to control PM emissions. The controlled emissions factors from AP-42 Section 11.19.2 (08/04) - Crushed Stone Processing and Pulverized Mineral Processing were used to calculate emissions.

170 TPH Crushing Plant		
Pollutant	Emissions (TPY) [2,080 hr/yr]	Emissions (TPY) [8,760 hr/yr]
PM	0.317	1.334
PM-10	0.131	0.551
PM-2.5	0.028	0.117

362 hp Diesel Engine Generator

The diesel engine generator is fired on fuel oil No. 2 with less than 0.5% sulfur by weight, with a maximum fuel consumption of 17.9 gallons/hour. Emissions were based on emission factors from AP-42 Section 3.3 (10/96) - Gasoline and Diesel Industrial Engines. The mass balance method was used to determine SO₂ emissions.

362 hp Diesel Engine Generator			
Pollutant	Emissions (lb/hr)	Emissions (TPY) [2,080 hr/yr]	Emissions (TPY) [8,760 hr/yr]
CO	2.381	2.476	10.427
NO _x	11.051	11.494	48.405
SO ₂	1.269	1.320	5.560
PM	0.777	0.808	3.403
PM-10	0.777	0.808	3.403
PM-2.5	0.777	0.808	3.403
VOC/TOC	0.902	0.938	3.951
HAPs	0.0095	0.0099	0.0416

Storage Piles

Emissions were based on the maximum capacity of the crushing plant to process 170 TPH of material. A 70% control efficiency was assumed for fugitive dust control. Emissions were based on emission factors from AP-42 Section 13.2.4 (11/06) - Aggregate Handling and Storage Piles.

Storage Piles		
Pollutant	Emissions (TPY) [2,080 hr/yr]	Emissions (TPY) [8,760 hr/yr]
PM	1.504	6.335
PM-10	0.711	2.996
PM-2.5	0.108	0.454

Truck Travelling on Unpaved Road

Emissions were based on the maximum capacity of the crushing plant to process 170 TPH of material. A 70% control efficiency was assumed for fugitive dust control. Emissions were based on emission factors from AP-42 Section 13.2.2 (11/06) - Unpaved Roads.

Truck Travelling on Unpaved Road		
Pollutant	Emissions (TPY) [2,080 hr/yr]	Emissions (TPY) [8,760 hr/yr]
PM	2.664	11.221
PM-10	0.651	2.744
PM-2.5	0.065	0.274

Total Emissions

Total facility emissions are summarized in the table below.

Total Facility Emissions and Trigger Levels (TPY)					
Pollutant	Emissions [Limited hr/yr]	Emissions [8,760 hr/yr]	BACT Significant Level	CERR Triggering Level (Type A sources / Type B sources)	DOH Level
CO	2.48	10.43	100	2,500 / 1000	250
NO _x	11.49	48.41	40	2,500 / 100	25
SO ₂	1.32	5.56	40	2,500 / 100	25
PM	5.29	22.29	25	-	25
PM-10	2.30	9.69	15	250 / 100	25
PM-2.5	1.01	4.25	-	250 / 100	-
VOC	0.94	3.95	40	250 / 100	25
HAPs	0.01	0.04	-	-	5

AIR QUALITY ASSESSMENT

An ambient air quality assessment (AAQA) is generally required for new sources or modified sources with emission increases. An ambient air quality assessment is not required for this permit renewal because there are no changes or modifications proposed.

SIGNIFICANT PERMIT CONDITIONS

There are no new significant permit conditions.

CONCLUSION

Actual emissions should be lower than estimated because the crushing plant will not be operating at its maximum capacity for 2,080 hours per year. Recommend issuance of the temporary covered source permit subject to the 30-day public comment period and 45-day Environmental Protection Agency review period.

Mark Saewong
August 20, 2009