

**PERMIT APPLICATION REVIEW
TEMPORARY COVERED SOURCE PERMIT NO. 0543-01-CT
Application for Renewal No. 0543-03
Application for Minor Modification No. 0543-04**

Company: MEI Corporation

Mailing Address: P.O. Box 389
Hauula, Hawaii 96717

Facility: Crushing and Screening Plants

Location: Various Temporary Sites, State of Hawaii

Initial Location: Kolekole Quarry, Schofield Barracks, Oahu

SIC Code: 1429 (Crushed and Broken Stone, Not Elsewhere Classified)

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Equipment:

1. 400 TPH IROCK portable crushing plant, model no. RTS-25, serial no. RTS-25100301 (manufactured on 10/29/2003), with:
 - a. 52" x 17' vibrating grizzly feeder;
 - b. Various conveyors;
 - c. Water spray system; and
 - d. 525 bhp Caterpillar diesel engine, model no. C-15, serial no. BEM02568;

2. 300 TPH Hartl Chrustek portable screening plant, model no. S02, serial no. 43-402 (manufactured in 2002), with:
 - a. Various conveyors;
 - b. Water spray system; and
 - c. 86 hp Perkins diesel engine (exempt), model no. 2160/2400, serial no. RE38154*U421820P.

BACKGROUND

The initial permit was issued to Land Breeze, Inc., to operate a portable crushing plant and portable screening plant. The crushing plant was sold in 2008 to Alliance Contracting, LLC, and the screening plant was sold to Close Construction, Inc. The crushing plant was then sold to MEI Corporation in 2010. The application for permit renewal was submitted by Land Breeze. MEI Corporation submitted an application for minor modification to replace the original 600 TPH screening plant with a 300 TPH screening plant.

The proposed 300 TPH screening plant is powered by its 86 hp diesel engine, which is considered an insignificant activity. Soil and rock are dropped on a vibrating screen for segregation into two sizes, which are conveyed to separate stockpiles. Pre wetting of material and water sprays will be used as necessary for controlling fugitive dust emissions. There will be no hourly limits for the screen.

The crusher is powered by the 525 bhp Cat C-15 diesel engine. The total operating hours of the crusher will be limited to 3,500 hours in any rolling twelve-month (12-month) period.

Process

Raw material is dropped into the vibrating grizzly by a loader and passed to the impact crusher. The crushed material drops onto a moving conveyor belt and is transported to the screen where it is size segregated and the oversize material is conveyed back to the crusher. The product material is conveyed to two stockpiles. The crusher and screen may also operate at two separate job sites.

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 Subpart OOO – Standards of Performance for Nonmetallic Mineral Processing Plants is applicable to the crushing plant (manufactured on 10/29/2003) and screening plant (manufactured in 2002) because the maximum capacity of the facility is greater than 150 tons/hour, and the plants were manufactured after August 31, 1983.

Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines is not applicable to the 525 bhp diesel engine because the engine is considered a nonroad engine as defined in 40 CFR §1068.30. Subpart IIII applies to stationary internal combustion engines that are not mobile/nonroad engines.

National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61
This source is not subject to NESHAP as there are no standards in 40 CFR Part 61 applicable to this facility.

National Emission Standards for Hazardous Air Pollutants for Source Categories (NESHAP) (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 525 bhp diesel engine because the engine is considered a nonroad engine as defined in 40 CFR §1068.30. Subpart ZZZZ applies to stationary internal combustion engines that are not mobile/nonroad engines.

Prevention of Significant Deterioration (PSD), 40 CFR Part 52, §52.21
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 because 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), 40 CFR Part 51, Subpart A
CERR is not applicable because emissions from the facility do not exceed CERR triggering levels.

DOH In-house Annual Emissions Reporting
The Clean Air Branch requests annual emissions reporting from those facilities that have facility wide emissions exceeding in-house reporting levels and for all covered sources. Annual emissions reporting will be required because this facility is a covered source.

Best Available Control Technology (BACT)
This source is not subject to BACT analysis because there is no net increase in potential emissions due to the modification. The proposed 300 TPH screening plant is smaller in capacity than the 600 TPH screening plant. BACT analysis is required for new sources or modifications to sources that have the potential to emit or increase emissions above significant levels considering any limitations as defined in HAR, §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 without limitations for 8,760 hours/year.

INSIGNIFICANT ACTIVITIES / EXEMPTIONS

Diesel Engine

The 86 hp Perkins diesel engine powering the 300 TPH screen is considered an insignificant activity in accordance with HAR §11-60.1-82(f)(2) because the heat input capacity is less than one MMBtu/hr. Based on the conversion factor from AP-42 (10/96) Table 3.3-1, note a:

$$86 \text{ hp} \times 7,000 \text{ Btu/hp-hr} = \underline{0.60 \text{ MMBtu/hr}}$$

ALTERNATIVE OPERATING SCENARIOS

Diesel Engine

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

AIR POLLUTION CONTROLS

The crushing and screening plants are equipped with water spray systems to control fugitive dust. Water trucks/water sprays will be used as necessary to minimize fugitive dust from plant operations, material transfer points, stockpiles, and plant roads.

PROJECT EMISSIONS

Operating hours for the crushing plant will be limited to 3,500 hours in any rolling twelve-month (12-month) period. There will be no operating hour limits for the screening plant.

400 TPH Crushing Plant

The maximum capacity of the crusher was used to calculate emissions. Water sprays will be used to control PM emissions. Emissions were based on emission factors from AP-42 Section 11.19.2 (8/04) - Crushed Stone Processing and Pulverized Mineral Processing.

Storage pile emissions were based on emission factors from AP-42 Section 13.2.4 (11/06) - Aggregate Handling and Storage Piles. Vehicle travel on unpaved roads emissions were based on emission factors from AP-42 Section 13.2.2 (11/06) - Unpaved Roads. A 70% control efficiency was assumed for water suppression to control fugitive dust for unpaved roads.

400 TPH Crushing Plant						
Pollutant	Crushing Plant Emissions (TPY)		Storage Piles Emissions (TPY)		Unpaved Roads Emissions (TPY)	
	3,500 hr/yr	8,760 hr/yr	3,500 hr/yr	8,760 hr/yr	3,500 hr/yr	8,760 hr/yr
PM	1.29	3.24	4.99	12.49	14.87	37.21
PM-10	0.56	1.39	2.36	5.91	3.63	9.10
PM-2.5	0.12	0.30	0.36	0.89	0.36	0.91

525 bhp Caterpillar Diesel Engine

The 525 hp diesel engine is fired on fuel oil no. 2 with a maximum sulfur content not to exceed 0.5% by weight. CO, NO_x, PM, and TOC emissions were based on manufacturer's "not to exceed" data. The mass balance method was used to determine SO₂ emissions. HAP emissions were based on emission factors from AP-42 Section 3.3 (10/96) - Gasoline and Diesel Industrial Engines.

525 bhp Caterpillar Diesel Engine			
Pollutant	Emissions (lb/hr)	Emissions (TPY) [3,500 hr/yr]	Emissions (TPY) [8,760 hr/yr]
CO	0.71	1.24	3.11
NO _x	7.20	12.60	31.54
SO ₂	1.82	3.19	7.98
PM	0.08	0.14	0.35
PM-10	0.08	0.14	0.35
PM-2.5	0.08	0.14	0.35
TOC	0.09	0.16	0.39
HAPs	0.014	0.024	0.060

300 TPH Screening Plant

The maximum capacity of the screen was used to calculate emissions. Water sprays will be used to control PM emissions. Emissions were based on emission factors from AP-42 Section 11.19.2 (8/04) - Crushed Stone Processing and Pulverized Mineral Processing.

Storage pile emissions were based on emission factors from AP-42 Section 13.2.4 (11/06) - Aggregate Handling and Storage Piles. Vehicle travel on unpaved roads emissions were based on emission factors from AP-42 Section 13.2.2 (11/06) - Unpaved Roads. A 70% control efficiency was assumed for water suppression to control fugitive dust for unpaved roads.

300 TPH Screening Plant			
Pollutant	Screening Plant Emissions (TPY)	Storage Piles Emissions (TPY)	Unpaved Roads Emissions (TPY)
	8,760 hr/yr	8,760 hr/yr	8,760 hr/yr
PM	3.37	9.37	27.91
PM-10	1.19	4.43	6.82
PM-2.5	0.13	0.67	0.68

Total Emissions

Total facility emissions are summarized in the table below.

Total Facility Emissions and Trigger Levels (TPY)					
Pollutant	Emissions (Limited)	Emissions (No Limits 8,760 hr/yr)	BACT Significant Level	CERR Triggering Level (Type A sources / Type B sources)	DOH Level
CO	1.2	3.1	100	2,500 / 1000	250
NO _x	12.6	31.5	40	2,500 / 100	25
SO ₂	3.2	8.0	40	2,500 / 100	25
PM	61.9	93.9	25	-	25
PM-10	19.1	29.2	15	250 / 100	25
PM-2.5	2.5	3.9	-	250 / 100	-
VOC	0.2	0.4	40	250 / 100	25
HAPs	0.02	0.06	-	-	5

AIR QUALITY ASSESSMENT

An ambient air quality impact analysis (AAQIA) is not required for the proposed screening plant because emissions are fugitive in nature. The Department of Health air modeling guidance generally does not require an ambient air quality impact analysis for fugitive emissions. An ambient air quality impact analysis was not performed for the screen's diesel engine because the engine is considered an insignificant activity based on its size.

SIGNIFICANT PERMIT CONDITIONS

1. The total operating hours of the 400 TPH crushing plant, as represented by the total operating hours of the 525 bhp diesel engine, shall not exceed 3,500 hours in any rolling twelve-month (12-month) period.
2. The 525 bhp diesel engine shall be fired only on fuel oil no. 2 with a maximum sulfur content not to exceed 0.5% by weight.
3. The permittee shall not cause to be discharged into the atmosphere from the crusher, fugitive emissions which exhibit greater than fifteen (15) percent opacity.
4. The permittee shall not cause to be discharged into the atmosphere from any transfer point on the belt conveyors, screening operation, or from any other affected facility, fugitive emissions which exhibit greater than ten (10) percent opacity.

CONCLUSION

MEI Corporation is renewing its permit and also proposing to operate a 300 TPH screening plant in addition to its existing crushing plant. Water sprays will be used to control fugitive emissions. Potential emissions were based on the maximum rated capacities of the equipment.

PROPOSED

Previous air quality assessment of the diesel engine demonstrated compliance with State and National ambient air quality standards. Recommend issuance of the covered source permit subject to the incorporation of the significant permit conditions, 30-day public comment period, and 45-day Environmental Protection Agency review period.

Mark Saewong
March 9, 2011