

**PERMIT APPLICATION REVIEW  
TEMPORARY COVERED SOURCE PERMIT (CSP) NO. 0535-01-CT  
Permit Renewal Application No. 0535-02**

**Applicant:** G. Ibara Heavy Equipment Rentals

**Facility:** 323 TPH jaw crushing plant

**Location:** Various Temporary Sites, State of Hawaii

**Mailing Address:** 227 Kawaipuna Place  
Wailuku, Hawaii 96793

**Equipment:** The 323 TPH Construction Equipment Company jaw crushing plant, serial no. 8864, consists of the following equipment and associated appurtenances:

- a. 323 TPH jaw crusher (30" x 42" jaw size);
- b. Hopper;
- c. Vibrating grizzly feeder (46" x 16');
- d. Main discharge conveyor;
- e. Water spray system; and
- f. 240 kW Caterpillar diesel engine generator, model no. D343, serial no. 62B4566.

**Responsible**

**Official:** Mr. Gregory Ibara  
**Title:** Owner  
**Company:** G. Ibara Heavy Equipment Rentals  
**Address:** 227 Kawaipuna Place  
Wailuku, Hawaii 96793  
**Cell:** (808) 870-0950  
**Phone:** (808) 848-1621

**Contact:** Mr. Jim Morrow  
**Title:** Consultant  
**Company:** J.W. Morrow  
**Address:** 1481 South King Street  
Suite 548  
Honolulu, Hawaii 96814  
**Phone:** (808) 942-9096

**1. Background**

1.1 G. Ibara Heavy Equipment Rentals has submitted a permit renewal application to operate a 323 ton per hour jaw crushing plant with 240 kW diesel engine generator. The existing permit is for a temporary source with conditions that limit plant operation to 2,080 hours per year. The applicant initially requested a stationary source permit. The applicant; however, has decided that a temporary covered source permit is required for the permit renewal because the initial location to operate is undecided. As indicated by Mr. Gregory Ibara, the plant is at a site on Maui where it's not operating. According to the applicant, the jaw crushing plant is equipped with a water spray system to control fugitive dust. A water truck is required for dust control at each work site. The standard industrial classification code (SICC) for this facility is 1429 (Crushed and Broken Stone, Not Elsewhere Classified).

**2. Applicable Requirements**

2.1 Hawaii Administrative Rules (HAR)  
Chapter 59, Ambient Air Quality Standards  
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

11-60.1-38, Sulfur Oxides From Fuel Combustion

Subchapter 4 - Noncovered Sources

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

11-60.1-111, Definitions

11-60.1-117, General Fee Provisions for Noncovered Sources

11-60.1-118, Application Fees for Noncovered Sources

11-60.1-119, Annual Fees for Noncovered Sources

Subchapter 10 – Field Citations

- 2.2 40 Code of Federal Regulations (CFR) Part 60 – New Source Performance Standards (NSPS), Subpart OOO, Standards of Performance for Non-Metallic Mineral Processing Plants is applicable to the crushing plant because equipment was manufactured after 1983 (manufacturing date was indicated to be 1988) and the jaw crusher capacity is greater than 150 TPH.
- 2.3 The facility is not a major source for hazardous air pollutants (HAPs) and is not subject to National Emissions Standards for Hazardous Air Pollutants (NESHAPS) or Maximum Achievable Control Technology (MACT) requirements under 40 CFR, Parts 61 and 63.
- 2.4 The purpose of Compliance Assurance Monitoring (CAM) is to provide reasonable assurance that compliance is being achieved with large emission units that rely on air pollution control device equipment to meet an emissions limit or standard. Pursuant to 40 CFR, 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 greater than the major source level; and (5) not otherwise be exempt from CAM. CAM is not applicable because this facility is not a major source.
- 2.5 Prevention of Significant Deterioration (PSD) review applies to new major stationary sources and major modifications to these types of sources. The facility is not a major source for any single air pollutant. As such, PSD review is not required.
- 2.6 Annual emissions reporting will be required because the plant is subject to covered source permitting requirements.
- 2.7 The consolidated emissions reporting rule (CERR) is not applicable because emissions from the facility do not exceed reporting levels pursuant to 40 CFR 51, Subpart A.
- 2.8 A Best Available Control Technology (BACT) analysis is not required because there are no modifications proposed for this facility that increase emissions.
- 2.9 Operation limits and controls for the plant do not restrict air pollutants below major source thresholds. Therefore, this facility is not classified as a synthetic minor source.

### **3. Insignificant Activities**

- 3.1 There were no insignificant activities reported by the applicant.

**4. Alternate Operating Scenarios**

4.1 An alternate operating scenario will be incorporated into the permit to allow the applicant to replace the diesel engine generator with another unit of the same or smaller size if equipment malfunction or overhaul is required.

**5. Air Pollution Controls**

5.1 According to the application, water sprays will be maintained at the jaw and each transfer point to control fugitive dust.

5.2 The application indicates that material will be sprayed with water prior to loading material into the vibrating grizzly feeder.

5.3 A water spray truck is required by the existing permit for controlling dust at each work site.

**6. Project Emissions**

6.1 The NO<sub>x</sub>, CO, PM, PM<sub>10</sub>, PM<sub>2.5</sub>, VOC, and HAP emissions were estimated using emission factors from AP-42, Section 3.3 (10/96), Gasoline and Diesel Industrial Engines. A mass balance calculation was used to determine SO<sub>2</sub> emissions based on the maximum allowable fuel sulfur content of 0.5% by weight and the rated 19 gallon per hour fuel consumption at the 240 kW rating. It was assumed that 96% of the total particulate was PM<sub>10</sub> and 90% of the total particulate was PM<sub>2.5</sub> based on AP-42, Appendix B.2, Table B.2-2. A 2,080 hour per year limit was applied to estimate emissions. Emissions are shown in Enclosure (1) and summarized below.

<b>240 kW DIESEL ENGINE GENERATOR</b>				
Pollutant	Engine Emissions		Engine Emissions (TPY)	
	lb/hr	g/s	2,080 hours	8,760 hours
SO <sub>2</sub>	1.34	0.169	1.4	5.9
NO <sub>x</sub>	11.38	1.437	11.8	49.8
CO	2.45	0.309	2.5	10.7
VOC	-----	-----	1.0	4.1
PM	-----	-----	0.9	3.6
PM <sub>10</sub>	0.80	0.101	0.8	3.5
PM <sub>2.5</sub>	0.74	0.094	0.8	3.3
HAPs	-----	-----	0.017	0.075

6.2 Particulate emissions from the jaw crushing plant were based on emission factors from AP-42, Section 11.19.2 (8/04), Crushed Stone Processing and Pulverized Mineral. The controlled emission factors were used for crushing and conveyor transfer points. It was assumed that 51% PM was PM<sub>10</sub> and 15% PM was PM<sub>2.5</sub> based on information from AP-42, Appendix B.2.2. Uncontrolled emission factors were used for truck loading and unloading and a 70% control efficiency for water sprays was applied because controlled emissions factors were not listed in AP-42 for these operations. The rated equipment capacity and 2,080 hr/yr operation was assumed to determine maximum potential emissions. Crushing plant emissions are shown in Enclosure (2) and summarized below.

**PROPOSED**

<b>CRUSHING PLANT</b>		
Pollutant	Emissions (TPY)	Total Plant Emissions (TPY)
		2,080 hr/yr with water sprays
PM	0.5	2.1
PM <sub>10</sub>	0.2	0.8
PM <sub>2.5</sub>	0.06	0.3

6.3 Stockpile emissions were determined with emission factors from AP-42, Section 13.2.4 (11/06), Aggregate Handling and Storage Piles. Emissions were based on the jaw crushing plant's capacity and 2,080 hr/yr operation. Emissions were also based on a 15 mile per hour wind speed, K value for PM of 0.74, K value for PM<sub>10</sub> of 0.35, K value for PM<sub>2.5</sub> of 0.053, and a mean 2.525% material moisture content. A 70% control efficiency was applied to account for use of a water truck to control fugitive dust. Emissions are shown in Enclosure (3) and summarized in the table below.

<b>STORAGE PILES</b>			
Pollutant	Emission Factor (lb/ton)	Emission Rate (TPY)	
		2,080 hr/yr with water truck	8,760 hr/yr with water truck
PM	0.014	1.4	5.9
PM <sub>10</sub>	3.4 x 10 <sup>-3</sup>	0.3	1.3
PM <sub>2.5</sub>	5.1 x 10 <sup>-4</sup>	0.05	0.2

6.4 Emissions from vehicle travel were calculated using an emission factor equation for vehicles traveling on unpaved surfaces at industrial sites from AP-42, Section 13.2.2 (11/06) Unpaved Roads. Emission rates were based on the following assumptions:

- a. A distance of 3,181 vehicle miles traveled per year based the maximum plant capacity, 2,080 hr/yr operation, an average truck capacity of 24 tons, and a 0.057 mile (300 feet) one way travel distance for the trucks;
- b. A k value for PM, PM<sub>10</sub>, and PM<sub>2.5</sub> of 4.9, 1.5, and 0.15, respectively based on data for industrial roads;
- c. An a value for PM, PM<sub>10</sub>, and PM<sub>2.5</sub> of 0.7, 0.9, and 0.9, respectively based on data for industrial roads;
- d. A b value for PM, PM<sub>10</sub>, and PM<sub>2.5</sub> of 0.45 based on data for industrial roads;
- e. An s (silt content of road) of 10%
- f. A W (mean vehicle weight) of 27 tons;
- g. A p (# of days with at least 0.01" of rain/year) value of 33 based on data from Lahaina;
- h. A 70% control efficiency was applied to account for use of a water truck;
- i. Vehicle travel emissions are listed as follows:

<b>VEHICLE TRAVEL</b>			
Pollutant	Emission Factor (lb/VMT)	Emissions (TPY)	
		2,080 hr/yr with water truck	8,760 hr/yr with water truck
PM	3.17	5.0	21.2
PM <sub>10</sub>	0.93	1.5	6.3
PM <sub>2.5</sub>	0.093	0.1	0.6

6.5 Total yearly emissions from operating the crushing plant are listed below as follows:

<b>TOTAL EMISSIONS</b>		
Pollutant	Potential Emissions (TPY) (2,080 hr/yr with water sprays and water truck)	Potential Emissions (TPY) (8,760 hr/yr with water sprays and water truck)
SO <sub>2</sub>	1.4	5.9
NO <sub>x</sub>	11.8	49.8
CO	2.5	10.9
VOC	1.0	4.1
PM	7.8	32.8
PM <sub>10</sub>	2.8	11.9
PM <sub>2.5</sub>	1.0	4.4
Total HAPS	0.017	0.075

**7. Air Quality Assessment**

7.1 An ambient air quality impact analysis (AAQIA) is not required because no changes are proposed for the permit renewal that increase emissions.

**8. Significant Permit Conditions**

8.1 Incorporate applicable requirements from 40 CFR Part 60, Subpart OOO for the jaw crushing plant.

Reason for 8.1: Incorporate the federal standards pursuant to Paragraph 2.2.

8.2 The operating hours of the jaw crushing plant with diesel engine shall not exceed 2,080 hours in any rolling twelve (12) month period.

Reason for 8.2: The applicant has proposed a maximum 2,080 hours per year operation for the plant. This is an existing permit condition.

8.3 Specify a minimum stack height of 22 feet for the diesel engine generator.

Reason for 8.3: The air modeling assessment in the previous permit application review predicted compliance with the ambient air quality standards assuming a minimum diesel engine generator stack height of 22 feet.

**9. Conclusion and Recommendation:**

9.1 Actual emissions from this facility should be lower than estimated. Maximum potential emissions were based on worst-case conditions assuming maximum rated capacity of the plant. Actual crushing capacity will vary depending on product size and the type of material, but will likely be much lower than the maximum rated capacity. Calculations were also based on 2,080 hours per year operation. The permit requires the use of a water spray system for compliance with fugitive dust regulations. The permit also requires the use of a water truck to control fugitive dust at sites where the jaw crushing plant is located. Recommend issuance of the temporary covered source permit subject to the significant permit conditions, the 30 day public comment period, and 45 day review by the Environmental Protection Agency.

**PROPOSED**