

**PERMIT APPLICATION REVIEW
COVERED SOURCE PERMIT (NSP) NO. 0386-02-C
Permit Application for Modification No. 0386-07**

Applicant: Hawaiian Cement

Facility: 800 TPH crushing and screening plant

Location: Intersection of Honoapiilani Highway and Kuihelani Highway
Waikapu Quarry, Wailuku, Maui

Mailing Address: 99-130 Halawa Valley Street
Aiea, Hawaii 96701

Equipment: The 800 TPH crushing and screening plant consists of the following equipment:

- a. 800 TPH Cedarapids primary jaw crusher (30" x 42"), serial no. 47420;
- b. 395 TPH Symons secondary cone crusher (4-1/4' diameter), serial no. BPH18566;
- c. 400 TPH Impact Service Corporation tertiary crusher, model no. 77 VSI, serial no. 77-175 (41" table diameter);
- d. Eljay triple deck screen (5'x16'), serial no. 48203;
- e. JCI screen (7' x 20'), serial no. SO71965;
- f. Cedarapids vibrating grizzly feeder (42" x 17'), serial no. 47421;
- g. Various conveyors;
- h. Various enclosures; and
- i. Water spray system.

Responsible

Official: Mr. John H. DeLong
Title: President
Company: Hawaiian Cement
Phone: (808) 532-3400

Contact: Mr. Dane Wurlitzer
Title: Plant Manager
Company: Hawaiian Cement
Phone: (808) 532-3407

Consultant: Mr. Jim Morrow
Title: Env. Management Consultant
Address: 1481 South King Street, Suite 548
Honolulu, Hawaii 96814
Phone: (808) 942-9096

1. Background

1.1 Hawaiian Cement has submitted an application for permit modification to replace a 6' x16' Eljay screen with a 7' x 20' JCI screen for its plant at Waikapu Quarry. Operation of the plant is limited to 2,080 hr/yr as represented by the operating hours of the primary jaw crusher. Aggregate processed by the primary crusher is limited to 540,800 tons per year based on the jaw crusher's hours of operation and the maximum rated capacity of the jaw at the various jaw discharge openings. The crushing and screening plant is equipped with a water spray system to control fugitive dust. A water truck provides additional dust control at the facility. The standard industrial classification code (SICC) for this facility is 1429

(Crushed and Broken Stone, Not Elsewhere Classified).

- 1.2 Pursuant to a December 15, 2005 letter from Hawaiian Cement, the Minyu jaw crusher and Hewitt-Robbins 5' x 12' screen will be removed from the permit. It was indicated by Hawaiian Cement that the Minyu jaw crusher was not included with the assets purchased in 2004 and the Hewitt-Robbins screen was being stored until it could be sold.

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 Standards of Performance for Non-Metallic Mineral Processing Plants is applicable to the fixed crushing and screening plant because the jaw crusher capacity is greater than 25 TPH and the plant was constructed after August 31, 1983. The plant is considered fixed because equipment is attached to concrete slabs and connected to electrical wiring that is run underground to various equipment.
- 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.

- 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. See table below.

CERR APPLICABILITY			
Pollutant	Facility Emissions (2,080 hr/yr with water sprays and water truck)	CERR Triggering Levels (TPY)	
		1 year cycle (type A sources)	3 year cycle (type B sources)
PM ₁₀	3.4	≥ 250	≥ 100

- 2.8 A best available control technology (BACT) analysis is not required because there are no changes in emissions for the modification to change an Eljay screen with a JCI screen.
- 2.9 Operational limits and controls for the plant restrict air pollutants below major source thresholds. Therefore, this facility is a synthetic minor source.

3. Insignificant Activities

- 3.1 No insignificant activities were reported.

4. Alternate Operating Scenarios

- 4.1 The alternate operating scenario for replacing the Minyu jaw crusher with the Cedarapids jaw crusher was removed from the permit because the Minyu crusher was not obtained by Hawaiian Cement during when transferring plant ownership.

5. Air Pollution Controls

- 5.1 A water spray system will be used to control dust for crushing and screening plant that is equipped with a non-resetting water flow meter. Water spray bars are located at the primary jaw crusher and end of conveyors that discharge aggregate into stockpiles.
- 5.2 A water spray truck will be used by the applicant for additional dust control.
- 5.3 Enclosures are installed for the facility to control dust at the following locations:
- a. Discharge end of 5' x 16' triple deck screen for conveyor transfer to stockpile;
 - b. Discharge end of 5' x 16' triple deck screen for conveyor transfer to tertiary crusher;
 - c. Discharge end of primary crusher for conveyor transfer to scalping screen;
 - d. Conveyor discharge to scalping screen; and
 - e. Discharge end of tertiary crusher for conveyor transfer to 7' x 20' screen.

6. Project Emissions

- 6.1 Particulate emissions from the crushing and screening 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 PM₁₀ and 15% PM was PM_{2.5} based on

PROPOSED

information from AP-42, Appendix B.2.2. Uncontrolled emission factors were used for truck loading and unloading operations and a 70% control efficiency for water sprays was applied to determine emissions. An operating time of 2,080 hr/yr was assumed. A 540,800 ton per year throughput was used to determine maximum potential emissions. Emissions are shown in Enclosure (1) and summarized below.

CRUSHING AND SCREENING PLANT		
Pollutant	Emissions (TPY)	Total Plant Emissions (TPY)
	2,080 hr/yr (540,800 TPY) with water sprays	8,760 hr/yr with water sprays ^{a,b}
PM	2.9	37.6
PM ₁₀	1.2	15.6
PM _{2.5}	0.2	2.6

a: Factored by 800/260 to account for an 800 ton per hour rated plant capacity. Emissions were based on 260 ton per hour capacity.

b: Factored by 8,760/2,080 for continuous operation.

6.2 Particulate emissions from stockpiles were based on emission factors from AP-42, Section 13.2.4 (11/06), Aggregate Handling and Storage Piles. Emissions were based on the average jaw crushing capacity that is limited to 260 ton per hour and 2,080 hr/yr operation (540,800 ton per year throughput). Emissions were also based on a 10.9 mile per hour wind speed, K value for PM₁₀ of 0.35, K value for PM of 0.74, K value for PM_{2.5} of 0.053, and a mean 0.7% material moisture content. A 70% control efficiency was applied to account for use of a water truck and water sprays to control fugitive dust. Emissions are shown in Enclosure (2) and summarized in the table below.

STORAGE PILES			
Pollutant	Emission Factor (lb/ton)	Emission Rate (TPY)	
		2,080 hr/yr (540,800 TPY) with water spray and water truck	8,760 hr/yr with water spray and water truck ^{a,b}
PM	0.028	2.3	29.8
PM ₁₀	0.013	1.1	14.3
PM _{2.5}	2.03 x 10 ⁻³	0.2	2.6

a: Factored by 800/260 to account for an 800 ton per hour rated plant capacity. Emissions were based on 260 ton per hour capacity.

b: Factored by 8,760/2,080 for continuous operation.

6.3 Emissions from vehicle travel on unpaved roads were based on the emission factor equation for vehicles traveling on unpaved surfaces at industrial sites. The equation was obtained from AP-42, Section 13.2.2 (11/06) Unpaved Roads. Equation (1a) emission factor was extrapolated to annual average uncontrolled conditions using Equation (2). Emission rates were based on the following assumptions:

- a. A distance of 5,909 vehicle miles traveled per year based on information from permit review number 0386-05;
- b. A k value for PM, PM₁₀, and PM_{2.5} of 4.9, 1.5, and 0.15, respectively based on data for industrial roads;
- c. An a value for PM, PM₁₀, and PM_{2.5} of 0.7, 0.9, and 0.9, respectively based on data for industrial roads;
- d. A b value for PM, PM₁₀, and PM_{2.5} of 0.45 based on data for industrial roads;

PROPOSED

- e. An s (silt content of road) value of 3.9% based on information from AP-42, Section 13.2.2 – Unpaved Roads Related Information
www.epa.gov/ttn/chief/ap42/ch13/related/c13s02-2.html;
- f. A W (mean vehicle weight) value of 39 tons based on information from permit application review no 0386-05;
- g. A p (# of days with 0.01” of rain/year) value of 97 based on available data between years 1954 and 2001 from the KAHULUI WSO AP 398 station recording climate parameters;
- h. A 70% control efficiency was applied to account for use of a water truck;
- i. Vehicle travel emissions are listed as follows:

VEHICLE TRAVEL			
Pollutant	Emission Factor (lb/VMT)	Emissions (TPY)	
		2,080 hr/yr (540,800 TPY) with water truck	8,760 hr/yr with water truck ^{a,b}
PM	5.190	4.6	59.6
PM ₁₀	1.270	1.1	14.2
PM _{2.5}	0.127	0.1	1.3

a: Factored by 800/260 to account for an 800 ton per hour rated plant capacity. Emissions were based on 260 ton per hour capacity.

b: Factored by 8,760/2,080 for continuous operation.

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

TOTAL EMISSIONS		
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)
PM	9.8	127.0
PM ₁₀	3.4	44.1
PM _{2.5}	0.5	6.5

7. Air Quality Assessment

7.1 An ambient air quality impact analysis (AAQIA) is not required for this facility because there are no fuel burning sources such as diesel engine generators that are subject to permitting. Power is provided to the plant by the electric utility.

8. Significant Permit Conditions

8.1 Change the equipment list for permitted equipment to replace the 6’ x 16’ Eljay screen with a 7’ x 20’ JCI screen.

Reason for 8.1: Incorporate change pursuant to permit application for minor modification.

8.2 Remove the Minyu jaw crusher from the permit.

Reason for 8.2: Remove this piece of equipment from the permit based on information provided by the applicant that the Minyu jaw crusher was not obtained when transferring ownership.

9. Conclusion and Recommendation:

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 at the jaw crusher's closed stroke opening. 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 for the various jaw crusher settings. 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 for additional control of fugitive dust. Recommend issuance of the covered source permit subject to the significant permit conditions and 45 day review by the Environmental Protection Agency.

April 7, 2008
Mike Madsen