

**PERMIT APPLICATION REVIEW
COVERED/TEMPORARY COVERED SOURCE PERMIT No. 0332-01-C/CT
Application for Minor Modification No. 0332-07**

Company: O. Thronas Inc. dba Kauai Aggregates

Mailing Address: P.O. Box 269
Lawai, Hawaii 96765

Facility: 700 TPH Stone Quarrying and Processing Plant

Location: 1. Halewili Road, Eleele, Kauai
(UTM: Zone 4, 2,422,250m N and 440,500m E, NAD-83)
2. Various Temporary Sites, State of Hawaii (Various Equipment)

SIC Code: 1442 (Construction Sand and Gravel)

Responsible Official: Ms. Ku'u lei Thronas
President
(808) 332-6677

Contact: CFM Environmental LLC
95-109 Waikalani Drive
Mililani, Hawaii 96789

Equipment:

1. This permit encompasses the following equipment and associated appurtenances:

Stone Quarrying and Processing Plant with:

- a. 320 TPH Hewitt-Robins hopper, model no. unknown, serial no. FEG 04339-04;
- b. 320 TPH Austin Westin jaw crusher, model no. 3240, serial no. 10170
(manufactured in 1979);
- c. 2-deck El-Jay screen, model no. FS 5162-24, serial no. 1051 (manufactured in 1972);
- d. 3-deck El-Jay screen, 6'x20', model no. SSG620332, serial no. 3410490
(manufactured in 1990);
- e. 485 TPH Nordberg cone crusher, model no. HP300, serial no. 186
(manufactured in 1993);
- f. 3-deck Hewitt-Robins screen, 6'x20', serial no. C 70578301 (manufactured in 1989);
- g. 300 TPH Canica impact crusher, model no. 100 VSI, serial no. 100102-89,
(manufactured in 1989);
- h. Various conveyors;
- i. Water sprays;
- j. Water trucks; and
- k. 1,576 hp Caterpillar diesel engine generator, model no. 3512 DI TA JWAC, serial
no. 24Z01240;

Standby Equipment:

- l. 700 TPH Nordberg jaw crusher, model no. LT110, serial no. 72940, with 425 hp Caterpillar diesel engine, model no. C-12 DITA, serial no. BDL04410;
- m. 500 TPH Nordberg cone crusher, model no. 1560, serial no. 304-300034; and
- n. 440 TPH JCI screen, model no. 620332, serial no. 96HO1F32.

BACKGROUND

Kauai Aggregates has submitted an application for minor modification to replace the 200 TPH El-Jay cone crusher and 3-deck Hewitt Robins screen (serial no. GT 7183). The existing cone crusher will be replaced with the proposed 485 TPH Nordberg cone crusher. The existing screen will be replaced with the proposed 3-deck El-Jay screen. The cone crusher and screen are being retired due to age. Also, the existing Pioneer rolls crusher has been retired and will be removed from the permit.

After installment of the proposed 485 TPH Nordberg cone crusher, the 500 TPH Nordberg cone crusher will return to stand-by status.

This application is considered a minor modification since it meets the definition of minor modification of HAR, §11-60.1-81. The proposed crusher and screen are replacing existing secondary crusher and screening equipment. The throughput of plant remains the same, and there is no net increase in potential emissions. No other changes have been proposed in the design or operation of the facility

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 crushers, screens, and conveyors (reconstruction was assumed), excluding the 320 TPH Austin Westin jaw crusher and 2-deck El-Jay screen (serial no. 1051), because the maximum capacity of the facility is greater than 25 tons/hour (fixed plants) or 150 tons/hour (portable plants), and the plants were manufactured after August 31, 1983. The 320 TPH Austin Westin jaw crusher and 2-deck El-Jay screen (serial no. 1051) were manufactured before August 31, 1983.

Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines is not applicable to the 1,576 hp diesel engine generator and 425 hp diesel engine. The 1,576 hp diesel engine generator (manufactured in the 1980's) was manufactured before April 1, 2006. The 425 hp diesel engine is considered a nonroad engine as defined in 40 CFR §1068.30. Subpart IIII applies to stationary internal combustion engines that are not 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 1,576 hp diesel engine generator and 425 hp diesel engine because the engines are considered nonroad engines as defined in 40 CFR §1068.30. Subpart ZZZZ applies to stationary internal combustion engines that are not nonroad engines. The 1,576 hp diesel engine generator is on a trailer that will be moved within the quarry and will not remain at a location or single site for more than 12 consecutive months.

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 485 TPH Nordberg cone crusher and 3-deck El-Jay screen are replacing existing secondary crusher and screening equipment. 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 a synthetic minor source because potential emissions for NO_x and PM exceed major source thresholds when the facility is operated without limitations for 8,760 hours/year.

INSIGNIFICANT ACTIVITIES / EXEMPTIONS

Storage Tanks

The following storage tank is less than 40,000 gallons and is considered an insignificant activity in accordance with HAR §11-60.1-82(f)(1):

1. 7,500 gallon fuel oil no. 2 storage tank.

ALTERNATIVE OPERATING SCENARIOS

Standby Equipment

The standby equipment shall not be operated simultaneously with the associated equipment permitted to be replaced.

1. The permittee may replace the 320 TPH jaw crusher with the standby 700 TPH jaw crusher with 425 hp diesel engine.
2. The permittee may replace the 200 TPH cone crusher with the standby 500 TPH cone crusher.
3. The permittee may replace any screen with the standby 440 TPH screen.

Diesel Engine and Diesel Engine Generator

The permittee may replace the diesel engine and 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 or 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

The stone quarrying and processing plant is equipped with water spay 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

The operating hours of the stone quarrying and processing plant, diesel engine, and diesel engine generator will be limited to 3,000 hours in any rolling 12-month period.

Stone Quarrying and Processing Plant

The maximum capacity of the 700 TPH primary jaw crusher was used to calculate emissions. It was assumed all secondary crushers and screens processed 700 TPH of material, although their maximum capacities are less than 700 TPH. 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.

Stone Quarrying and Processing Plant						
Pollutant	Stone Quarrying Plant Emissions (TPY)		Storage Piles Emissions (TPY)		Unpaved Roads Emissions (TPY)	
	3,000 hr/yr	8,760 hr/yr	3,000 hr/yr	8,760 hr/yr	3,000 hr/yr	8,760 hr/yr
PM	14.18	41.41	8.93	26.08	14.24	41.57
PM-10	5.22	15.23	4.23	12.34	3.48	10.16
PM-2.5	0.81	2.36	0.64	1.87	0.35	1.02

1,576 hp Caterpillar Diesel Engine Generator

The diesel engine generator is fired on fuel oil no. 2 with a maximum sulfur content of 0.5% by weight. Emissions were based on emission factors from AP-42 Section 3.4 (10/96) - Large Stationary Diesel and All Stationary Dual-fuel Engines.

1,576 hp Caterpillar Diesel Engine Generator			
Pollutant	Emissions (lb/hr)	Emissions (TPY) [3,000 hr/yr]	Emissions (TPY) [8,760 hr/yr]
CO	9.45	14.17	41.38
NO _x	35.57	53.36	155.80
SO ₂	5.61	8.42	24.59
PM	1.11	1.67	4.87
PM-10	1.07	1.60	4.67
PM-2.5	1.00	1.50	4.38
TOC	1.00	1.50	4.38
HAPs	0.017	0.025	0.073

425 hp Caterpillar Diesel Engine

The diesel engine is fired on fuel oil no. 2 with a maximum sulfur content of 0.5% by weight. CO, NO_x, PM, and TOC emissions were based on manufacturer's 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.

PROPOSED

425 hp Caterpillar Diesel Engine			
Pollutant	Emissions (lb/hr)	Emissions (TPY) [3,000 hr/yr]	Emissions (TPY) [8,760 hr/yr]
CO	1.21	1.82	5.30
NO _x	5.01	7.52	21.94
SO ₂	1.45	2.18	6.37
PM	0.11	0.17	0.48
PM-10	0.11	0.17	0.48
PM-2.5	0.11	0.17	0.48
TOC	0.14	0.21	0.61
HAPs	0.011	0.016	0.047

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	16.0	46.7	100	2,500 / 1000	250
NO _x	60.9	177.7	40	2,500 / 100	25
SO ₂	10.6	31.0	40	2,500 / 100	25
PM	39.2	114.4	25	-	25
PM-10	14.7	42.9	15	250 / 100	25
PM-2.5	3.5	10.1	-	250 / 100	-
VOC	1.7	5.0	40	250 / 100	25
HAPs	0.04	0.12	-	-	5

AIR QUALITY ASSESSMENT

An ambient air quality impact analysis (AAQIA) is not required for the proposed crusher and screen 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.

SIGNIFICANT PERMIT CONDITIONS

1. The total operating hours of the stone quarrying and processing plant, as represented by the total operating hours of the 1,576 hp diesel engine generator, shall not exceed 3,000 hours in any rolling twelve-month (12-month) period.
2. The total operating hours of the 700 TPH crusher, as represented by the total operating hours of the 425 hp diesel engine, shall not exceed 3,000 hours in any rolling twelve-month (12-month) period.

PROPOSED

3. The diesel engine and diesel engine generator shall be fired only on fuel oil no. 2 with a maximum sulfur content not to exceed 0.5% by weight.
4. The standby equipment shall not be operated simultaneously with the associated equipment permitted to be replaced.
5. The permittee shall not cause to be discharged into the atmosphere from the crushers, excluding the 320 TPH Austin Westin jaw crusher, fugitive emissions which exhibit greater than fifteen (15) percent opacity.
6. 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, excluding the 320 TPH Austin Westin jaw crusher and 2-deck El-Jay screen (serial no. 1051), fugitive emissions which exhibit greater than ten (10) percent opacity.

CONCLUSION

Kauai Aggregates submitted an application for minor modification to replace a crusher and a screen due to age. Water sprays will be used to control fugitive emissions. Potential emissions were based on the maximum rated capacities of the equipment. The throughput of plant remains the same, and there is no net increase in potential emissions.

Previous air quality assessment of the diesel engine and diesel engine generator 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 and 45-day Environmental Protection Agency review period.

Mark Saewong
April 14, 2011