

**PERMIT APPLICATION REVIEW  
COVERED SOURCE PERMIT No. 0332-01-C  
Renewal Application No. 0332-04**

**Applicant:** Kauai Aggregates (aka O. Thronas Inc.)  
P.O. Box 269  
Lawai, HI 96765

**Facility:** 320 TPH Stone Processing Plant with 1576 HP Diesel Engine

**Location:** Halewili Road, Eleele, Kauai 96705  
UTM Coordinates: 2,422,250 meters N, 440,500 meters E (NAD 83)

**SIC Code:** 1442 (Construction Sand and Gravel)

**Equipment:**

The 320 TPH Stone Processing Plant encompasses the following equipment and associated appurtenances:

1. 320 tph Hewitt-Robins hopper (model no. unknown, serial no. FEG 04339-04)
2. 320 tph Austin Westin jaw crusher (model no. 3240, serial no. 10170, manuf. date 1979)
3. 2-deck El-Jay screen (model no. FS 5162-24, serial no. 1051, manuf. date 1972)
4. 3-deck Hewitt-Robins screen (6'x16', serial no. GT 7183, manuf. date 1957)
5. 200 tph El-Jay cone crusher (model no. 54, serial no. 476, manuf. date 1972)
6. 3-deck Hewitt-Robins screen (6'x20', serial no. C 70578301, manuf. date 1989)
7. 300 tph Canica impact crusher (model no. 100 VSI, serial no. 100102-89, manuf. date 1989)
8. Pioneer rolls crusher (model no. 4022, serial no. 42 VAE 96, manuf. date 1951, production rate is unknown)
9. Nineteen (19) conveyors
10. 1,576 HP Caterpillar DEG (model no. 3512 DI TA JWAC, serial no. 24Z01240, max. 79.4 gal/hr fuel oil no. 2, manuf. 1980's)
11. Water sprays
12. Water trucks

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**BACKGROUND**

Kauai Aggregates (aka O. Thronas Inc.), has submitted an application to renew their covered source permit for an existing 320 TPH stone processing plant. There are no changes proposed to the equipment or operation of the facility from the permit renewal application dated September 15, 2008.

The general description (SICC 1442) is to process stone material via front-end loaders, conveyors, crushers, and screens. The amount of crushing and handling depends on the type of material desired. For example, the fine aggregate will require more crushing and handling (and therefore create more fugitive emissions) than larger aggregate. Fugitive emissions are suppressed by using water sprays and enclosures at the aggregate transfer points and water trucks throughout the quarry. The typical hours of operations are 8 hours/day, 5 days/week, and 52 weeks/year. This facility is a covered source because it is subject to federal standards (NSPS Subpart OOO).

**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 10, Field Citations

This source is **subject to NSPS** (New Source Performance Standards).

40 CFR 60 Subpart OOO – Standards of Performance for Nonmetallic Mineral Processing Plants applies since the initial crusher produces over 25 tons/hour (for a fixed crusher) of aggregate and certain equipment were manufactured after August 31, 1983. Specifically the following equipment are subject to NSPS Subpart OOO:

1. 300 TPH Canica impact crusher (model no. 100 VSI, serial no. 100102-89, manuf. Date 1989);
2. 3-deck Hewitt-Robins screen (6'x20', serial no C 70578301, manuf. Date 1989); and
3. All conveyors (because reconstruction was assumed)

## PROPOSED

This source is **not subject to NESHAPS** (National Emission Standards for Hazardous Air Pollutants for Source Categories) as no hazardous air pollutants are emitted at significant levels ( $\geq 10$  TPY HAP or  $\geq 25$  TPY for total HAPs) and this source is not a listed under 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants) or 40 CFR 63 applicable to this facility.

This source is **not subject to MACT** (Maximum Achievable Control Technology) since the source is not a major source of hazardous air pollutants (HAPS) emissions ( $>10$  TPY single hap or  $>25$  TPY for total haps).

This source is **not subject to PSD** (Prevention of Significant Deterioration) 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; (criteria air pollutant  $> 100$  or  $250$  TPY as applicable).

This source is **not subject to CAM** (compliance assurance monitoring) since the permitted equipment is not classified as a major source (criteria pollutant  $> 100$  TPY); have pre-control device potential emissions exceeding applicable major source thresholds; fitted with an “active” air pollution control device; and is not part of a facility with total emissions exceeding major source threshold.

This source is **not subject to CERR** (Consolidated Emissions Reporting Requirements) 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.

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. Based on current emissions, internal annual emissions reporting is required since NO<sub>x</sub> and PM facility wide emissions are each greater than 25 tpy and it is a covered source.

This source is **not subject to BACT** (Best Available Control Technology) analysis because this is an existing source with no increase in emissions. BACT analysis is required for new sources and significant modifications to sources that have the potential to emit or increase emissions above significant levels.

A synthetic minor source is a facility that is potentially major (as defined in HAR 11-60.1-1), but is made nonmajor through federally enforceable permit conditions. This facility is a synthetic minor source because potential emissions do exceed the major source threshold when the facility is operated at its maximum capacity continuously for 8,760 hours per year.

### **INSIGNIFICANT ACTIVITIES (CSP) / EXEMPTIONS (NSP)**

Proposed insignificant activities:

#### **Diesel Fuel Oil no. 2 Storage Tank**

Fuel oil no. 2 is stored in one 10,000 gallon tank. It is considered insignificant since its capacity is less than 40,000 gallons and is not subject to Section 111 or 112 of the CAA in accordance with HAR 11-60.1-82.(f)(1).

**ALTERNATIVE OPERATING SCENERIOS**

Per previous review, applicant has requested to include the use of a temporary DEG and stone processing equipment in the event of equipment failure or overhaul.

**AIR POLLUTION CONTROLS**

Fugitive Dust Controls

Wet suppression, enclosures, etc., are used to control fugitive dust at material transfer points, and at the stockpile bunkers. The plant area used by trucks and front-end loaders is controlled by a water truck to reduce fugitive dust emissions.

**PROJECT EMISSIONS**

There are no changes proposed to the equipments or operations of the facility. However, some of the AP-42 emission factors have been updated since the previous review. Calculations are attached in the enclosures. Below are the emissions due to the various equipments and operations.

320 TPH Crushed Stone Processing

Emission rates were based on the maximum capacity of the crushed stone processing plant to process 320 TPH of crushed stone and a limiting operating time of 3,000 hour/year. The plant consists of a primary jaw crusher, secondary cone crusher, tertiary impact and roll crushers, screeners, and 22 conveyor transfer points. 70% control efficiency was assumed for water suppression. Emissions are summarized below.

<b>320 TPH Crushed Stone Processing (PM)</b>			
Equipment	Emission Rate (lb/hr)	Emission Rate (TPY) [3,000 hr/yr]	Emission Rate (TPY) [8,760 hr/yr]
Primary Crushing	1.728	2.592	7.569
Secondary Crushing	1.728	2.592	7.569
Tertiary Crushing	1.728	2.592	7.569
Screening	8.000	12.000	35.040
Conveyor Transfer Points (22)	21.120	31.680	92.506
Truck Unloading	0.067	0.101	0.294
Total PM (uncontrolled)	34.371	51.557	150.546
<b>Total PM (controlled)</b>	<b>10.311</b>	<b>15.467</b>	<b>45.164</b>

<b>320 TPH Crushed Stone Processing (PM-10)</b>			
Equipment	Emission Rate (lb/hr)	Emission Rate (TPY) [3,000 hr/yr]	Emission Rate (TPY) [8,760 hr/yr]
Primary Crushing	0.768	1.152	3.364
Secondary Crushing	0.768	1.152	3.364
Tertiary Crushing	0.768	1.152	3.364
Screening	2.784	4.176	12.194
Conveyor Transfer Points (22)	7.744	11.616	33.919
Truck Unloading	0.032	0.048	0.140
Total PM-10 (uncontrolled)	12.864	19.296	56.344
<b>Total PM-10 (controlled)</b>	<b>3.859</b>	<b>5.789</b>	<b>16.903</b>

1,576 HP Diesel Engine Generator (DEG)

Emission rates were based on the maximum capacity of the crushed stone processing plant to process 320 TPH of crushed stone and a limiting operating time of 3,000 hour/year. There are no changes to the DEG emissions compared to the previous review.

<b>1,576 HP Diesel Engine Generator</b>			
Pollutant	Emission Rate (lb/hr)	Emission Rate (TPY) [3,000 hr/yr]	Emission Rate (TPY) [8,760 hr/yr]
PM	1.09	1.63	4.76
PM-10	1.09	1.63	4.76
CO	9.25	13.87	40.50
NOx	34.82	52.23	152.51
SO2	5.64	8.46	24.70
TOC	0.98	1.47	4.29
HAPs	0.05	0.07	0.20

Truck Travelling on Unpaved Road

Emissions due to trucks traveling on unpaved roads based on 320 TPH crushed stone processing are summarized below. The average weight of the vehicles is assumed by the applicant to be 26.5 tons, with 11,429 miles/year travelled. 70% control efficiency was assumed for water suppression.

<b>Truck Travelling on Unpaved Road</b>			
Pollutant	Emission Rate (lb/hr)	Emission Rate (TPY) [3,000 hr/yr]	Emission Rate (TPY) [8,760 hr/yr]
PM	7.451	11.176	32.634
PM-10	2.199	3.299	9.632

Storage Piles

Emissions due to storage piles based on 320 TPH crushed stone processing are summarized below. 70% control efficiency was assumed for water suppression.

<b>Storage Piles</b>			
Pollutant	Emission Rate (lb/hr)	Emission Rate (TPY) [3,000 hr/yr]	Emission Rate (TPY) [8,760 hr/yr]
PM	2.722	4.084	11.924
PM-10	1.288	1.931	5.640

# PROPOSED

## TOTAL EMISSIONS

Total facility emissions are summarized in the table below.

<b>Total Facility Emissions and Trigger Levels (TPY)</b>					
Pollutant	Proposed Emissions after control (OPR LIMITED)	Proposed Emissions based on 8,760 hr/yr (ANNUAL – NO LIMIT)	Significant BACT Level	CERR Level	DOH Level
PM	32.358	94.486	25	-	25
PM-10	12.651	36.940	15	100	25
CO	13.869	40.498	100	1000	250
NOx	52.213	152.463	40	100	25
SOx	8.240	24.061	40	100	25
TOC/VOC	1.469	4.288	40	100	25
HAPs	0.024	0.071	-	5	5
PM-2.5			-	100	-

## **AIR QUALITY ASSESSMENT**

An ambient air quality assessment is not required for this permit renewal because there are no changes/modifications proposed with the renewal application. The modeling analysis last performed on the facility (review no. 0332-03) is provided in the following table for your information, using updated background concentrations.

Air Pollutant	Averaging Time	Impact ( $\mu\text{g}/\text{m}^3$ )	Background ( $\mu\text{g}/\text{m}^3$ )	Total Impact ( $\mu\text{g}/\text{m}^3$ )	SAAQS ( $\mu\text{g}/\text{m}^3$ )	NAAQS ( $\mu\text{g}/\text{m}^3$ )	Compared to SAAQS
NO <sub>2</sub>	Annual	31.577	9	41	70	100	58%
SO <sub>2</sub>	3-hr	89.575	12	102	1300	1300	8%
	24-hr	39.811	8	48	365	365	13%
	Annual	6.817	5	12	80	80	15%
PM-10	24-hr	7.684	34	42	150	150	28%
	Annual	1.316	11	12	50	50	25%
CO	1-hr	163.282	1596	1759	10000	40000	18%
	8-hr	114.297	1183	1297	5000	10000	26%

Note:

1. The background concentrations were taken from Hawaii Air Quality Data 2006 at Lihue, Kauai for PM-10 and Kapolei, Oahu for all other pollutants.

## **SIGNIFICANT PERMIT CONDITIONS**

There are no new significant permit conditions for this renewal.

**CONCLUSION**

Based on the information submitted by Kauai Aggregates, it is the determination of the Department of Health (DOH) that the proposed project will be in compliance with the Hawaii Administrative Rules (HAR), Chapter 11-60.1 and State and Federal ambient air quality standards. Recommend issuance of the covered source permit subject to the 30-day public comment period, and 45-day Environmental Protection Agency review period.

Mark Saewong  
October 12, 2008