

**PERMIT APPLICATION REVIEW
COVERED/TEMPORARY COVERED SOURCE PERMIT No. 0045-01-C/CT
Application for Renewal No. 0045-28
Application for Minor Modification No. 0045-30**

Company: Grace Pacific Corporation

Mailing Address: P.O. Box 78
Honolulu, Hawaii 96810

Facility: Makakilo Quarry

Location: 1. 91-920 Farrington Highway
Kapolei, Hawaii 96707
2. Various Temporary Sites, State of Hawaii (Rip-Rap Plant)

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

Responsible Official: Mr. Robert Creps
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Equipment:

- a. 400 TPH Non-Portable Plant (Non-Portable Plant)
 - i. Hydraulic track feeder;
 - ii. Vibrating grizzly 6' x 8';
 - iii. 400 TPH jaw crusher, Kue Ken model no. 150S, serial no. 150S6477;
 - iv. 400 TPH double deck screen, Nordberg model no. unknown;
 - v. 400 TPH cone crusher, Symons/Nordberg model no. 7;
 - vi. 400 TPH 3-deck screen, Nordberg model no. unknown;
 - vii. 400 TPH VSI crusher (crusher #4), Canica model no. 125;
 - viii. 400 TPH VSI crusher (crusher #5), Canica model no. 100S;
 - ix. 400 TPH VSI crusher (crusher #6), Canica model no. 95;
 - x. 200 TPH crusher, Canica model no. 85;
 - xi. Four (4) - 100 TPH 2-deck screens Nordberg 6' x 20' - 2 deck;
 - xii. Four (4) - 250 TPH 3-deck screens Telsmith 6' x 20';
 - xiii. Assorted conveyor belts; and
 - xiv. Watersprays.

- b. 600 TPH Recycled Aggregate Plant (RAP Plant)
 - i. AMI 5020VGF grizzly feeder, serial no. 2152-03, manufactured 2002;
 - ii. 600 TPH Cedarapids JPR 3054 jaw crusher, serial no. 51636, manufactured 2002;
 - iii. 565 TPH Terex/Cedarapids ElJay Rollercone crusher, model no. MVP 550, serial no. to be determined;
 - iv. Cedarapids TSH 6203-32 screen, serial no 51455, manufactured 2002;
 - v. Thunderbird 6162 re-screening station, serial no. 2153-03;
 - vi. AMI Thunderbird II, model no. 8282-C6-D04682 re-screening station, serial no. 2437-06;
 - vii. Thunderbird II, model no. 3613BFH-D4153 grizzly bin feeder, serial no. 2438-06;
 - viii. Assorted conveyor belts and stackers;
 - iv. Watersprays; and
 - x. 1,000 kW Cummins QST30-G5 diesel engine generator.

- c. 600 TPH Screening Plant
 - i. The Read Corporation, model RD 90A screening plant (serial no. 648388) with integrated Lister Petter, model TR3, 24.8 hp diesel engine; and
 - ii. Assorted conveyor belts;

- d. 576 TPH Rip-Rap Plant
 - i. 576 TPH Lippmann rip-rap plant, model no. 6224;
 - ii. 62" x 24" vibrating grizzly feeder; and
 - iii. 203 hp Volvo Penta diesel engine, model no. TAD720GE, serial no. 5310187672;

BACKGROUND

Grace Pacific Corporation has submitted applications for permit renewal and minor modification for its covered/temporary covered source permit for Makakilo Quarry. Grace Pacific is proposing to replace the existing 400 TPH Cedarapids impact crusher of the 600 TPH recycled aggregate plant with a new 565 TPH Terex/Cedarapids crusher and one additional conveyor. There are no other proposed changes to existing equipment in the design or operation of the facility.

The 400 TPH Non-Portable Plant processes basalt rock. The 600 TPH Recycled Aggregate Plant with 1,000 kW diesel engine generator processes basalt rock, reclaimed asphalt pavement, and concrete. The 600 TPH Screening Plant is support equipment used infrequently to sort raw or processed material. The portable 576 TPH Rip-Rap Plant with 203 hp diesel engine is used to screen raw aggregate to reduce the amount of aggregate sent to the 600 TPH Recycled Aggregate Plant. The rip-rap plant is permitted as a temporary equipment. Pursuant to Hawaii Administrative Rules, Section 11.60.1-81, temporary covered sources only apply to nonmajor sources. The rip-rap plant is not a major source of emissions.

The total production of the 400 TPH Non-Portable Plant will be limited to 2,000,000 tons of material in any rolling 12-month period. The total operating hours of the 600 TPH Recycled Aggregate Plant will be limited to 6,000 hours in any rolling 12-month period. The total operating hours of the 600 TPH Screening Plant will be limited to 2,080 hours in any rolling

twelve-month (12-month) period. The total operating hours of the 6576 TPH Rip-Rap Plant will be limited to 4,380 hours in any rolling twelve-month (12-month) period.

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 following plants because the maximum capacity of the facility is greater than 25 tons/hour (fixed plants) or 150 tons/hour (portable plants), and commenced construction, reconstruction, or modification after August 31, 1983:

1. Canica model nos. 125, 100S, and 95 crushers of the 400 TPH Non-Portable Plant.
2. 600 TPH Recycled Aggregate Plant.
3. 600 TPH Screening Plant.
4. 576 TPH Rip-Rap Plant.

The remainder of the 400 TPH Non-Portable Plant is exempt from Subpart OOO requirements because the facilities were in operation prior to August 31, 1983. The proposed 565 TPH crusher and conveyors C58 and C65 of the 600 TPH Recycled Aggregate Plant are constructed after April 22, 2008. Equipment that commence construction, modification, or reconstruction on or after April 22, 2008, have more stringent fugitive emission opacity limits.

Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines is not applicable to the 1,000 kW diesel engine generator (manufactured in 2002) and 203 hp diesel engine. The 1,000 kW diesel engine generator was manufactured before April 1, 2006. The 203 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 applicable to the 1,000 kW diesel engine generator because the engine is an existing stationary RICE located at an area source of HAP emissions. For stationary RICE located at an area source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006

Subpart ZZZZ is not applicable to the 203 hp 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.

Although the facility is considered a “major source” as defined in HAR §11-60.1-1, it is not considered a “major stationary source” as defined in HAR §11-60.1-131. Fugitive emissions are not included in determining if this source is a major stationary source because this source does not belong to any of the 26 source categories listed under HAR §11-60.1-131, or any other stationary source category which, as of August 7, 1980, is being regulated pursuant to Section 111 or 112 of the Clean Air Act. 40 CFR 60 Subpart OOO was not in effect as of August 7, 1980.

Compliance Assurance Monitoring (CAM), 40 CFR 64

This source is not subject to CAM because the facility does not use a control device to achieve compliance with any emission limitation or standard. 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 potential emissions due to the modification (565 TPH roller cone crusher and conveyor) are below significant levels. BACT analysis is

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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.

| BACT | | |
|-----------------|---------------------------|--------------------------|
| Pollutant | Potential Emissions (TPY) | Significant Levels (TPY) |
| CO | 0 | 100 |
| NO _x | 0 | 40 |
| SO ₂ | 0 | 40 |
| PM | 2.1 | 25 |
| PM-10 | 0.1 | 15 |
| VOC | 0 | 40 |

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 this facility is classified as a major source.

Greenhouse Gas Tailoring Rule

Title V or PSD permitting for greenhouse gas (GHG) emissions is not applicable to this facility because the potential to emit of CO₂ equivalent (CO₂e) emissions is less than 100,000 tons per year. Under the Tailoring Rule, in no event are sources with the potential to emit less than 100,000 tons per year CO₂e subject to PSD or Title V permitting for GHG emissions before 2016. Total GHG emissions on a CO₂e basis using the global warming potential (GWP) of each GHG are determined in the table below.

| GHG | GWP | GHG Mass-Based Emissions (TPY) | CO ₂ e Based Emissions (TPY) |
|-----------------------------------|-----|--------------------------------|---|
| Carbon Dioxide (CO ₂) | 1 | 4823 | 4823 |
| Methane (CH ₄) | 21 | 0 | 0 |
| Nitrous Oxide (N ₂ O) | 310 | 0 | 0 |
| Total Emissions | | | 4823 |

INSIGNIFICANT ACTIVITIES / EXEMPTIONS

595 hp Diesel Engine Generator

The 595 hp diesel engine generator servicing a water pump during blasting activities was exempt from permitting requirements in a July 11, 2002 letter. The exemption assumed the diesel engine generator is operated as follows:

1. Fired on fuel oil no. 2 with a sulfur content not to exceed 0.5% by weight.
2. Used only to power the water pump, which provides dust control during blasting.
3. Activated prior to blasting and shut down immediately after blasting.
4. Used approximately 30 hours per year.

24.8 hp Diesel Engine

The 24.8 hp diesel engine servicing the 600 TPH screening plant is rated at 0.262 MMBtu/hour. It 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.

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. 6,000 gallon fuel oil no. 2 storage tank.

ALTERNATIVE OPERATING SCENARIOS

Diesel Engine and Diesel Engine Generator

The permittee may replace each diesel engine or 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 plants are equipped with water spray systems to control fugitive dust. A water truck will be used as necessary to minimize fugitive dust from plant operations, material transfer points, stockpiles, and plant roads.

PROJECT EMISSIONS

600 TPH Recycled Aggregate Plant

Emissions were based on the plant configuration as proposed in the application. Water sprays will be used to control PM emissions. Operating hours of the 600 TPH recycled aggregate plant will be limited to 6,000 hours in any rolling 12-month period, as represented by the 1,000 kW diesel engine generator. 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. A 70% control efficiency was assumed for water suppression to control fugitive dust for the storage piles.

| 600 TPH Recycled Aggregate Plant | | | | |
|---|-------------------------------|-------------|-------------------------------|-------------|
| Pollutant | 600 TPH Plant Emissions (TPY) | | Storage Piles Emissions (TPY) | |
| | 6,000 hr/yr | 8,760 hr/yr | 6,000 hr/yr | 8,760 hr/yr |
| PM | 10.82 | 15.80 | 15.82 | 23.10 |
| PM-10 | 1.45 | 2.12 | 7.48 | 10.93 |
| PM-2.5 | 0.38 | 0.56 | 1.13 | 1.65 |

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Existing Plants

Emissions from the existing plants are summarized in the table below, referenced from review no. 0045-29.

| Existing Plants (TPY) | | | | | | |
|-----------------------|-------------------------------------|------------------------------------|--|---------------------------------------|--|--------|
| Pollutant | 576 TPH Rip-Rap Plant [4,380 hr/yr] | 203 hp Diesel Engine [4,380 hr/yr] | 1,000 kW Diesel Engine Generator [6,000 hr/yr] | 600 TPH Screening Plant [2,080 hr/yr] | 400 TPH Non-Portable Plant [2,000,000 TPY] | Total |
| CO | - | 2.52 | 4.91 | - | - | 7.43 |
| NO _x | - | 4.75 | 48.21 | - | - | 52.96 |
| SO ₂ | - | 1.49 | 13.43 | - | - | 14.92 |
| PM | 16.29 | 0.14 | 0.71 | 58.91 | 57.33 | 133.38 |
| PM-10 | 7.03 | 0.14 | 0.69 | 14.72 | 21.63 | 44.21 |
| PM-2.5 | 1.02 | 0.14 | 0.64 | 4.34 | 6.38 | 12.52 |
| VOC | - | 1.02 | 1.16 | - | - | 2.18 |
| HAPs | - | 0.011 | 0.040 | - | - | 0.051 |

Total Emissions

Total facility emissions are summarized in the table below.

| Total Facility Emissions and Trigger Levels (TPY) | | | | |
|---|---------------------|------------------------|---|-----------|
| Pollutant | Emissions (Limited) | BACT Significant Level | CERR Triggering Level (Type A sources / Type B sources) | DOH Level |
| CO | 7.43 | 100 | 2,500 / 1000 | 250 |
| NO _x | 52.96 | 40 | 2,500 / 100 | 25 |
| SO ₂ | 14.92 | 40 | 2,500 / 100 | 25 |
| PM | 160.02 | 25 | - | 25 |
| PM-10 | 53.14 | 15 | 250 / 100 | 25 |
| PM-2.5 | 14.03 | - | 250 / 100 | - |
| VOC | 2.18 | 40 | 250 / 100 | 25 |
| HAPs | 0.051 | - | - | 5 |

AIR QUALITY ASSESSMENT

An ambient air quality impact analysis (AAQIA) is not required for the proposed 565 TPH Terex/Cedarapids crusher 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 production of the 400 TPH Non-Portable Plant shall not exceed 2,000,000 tons in any rolling twelve-month (12-month) period.
2. The total operating hours of the 600 TPH Recycled Aggregate Plant with 1,000 kW diesel engine generator, as represented by the total operating hours of the 1,000 kW diesel engine generator, shall not exceed 6,000 hours in any rolling twelve-month (12-month) period.
3. The total operating hours of the 600 TPH Screening Plant shall not exceed 2,080 hours in any rolling twelve-month (12-month) period.
4. The total operating hours of the 576 TPH Rip-Rap Plant with 203 hp diesel engine, as represented by the total operating hours of the 203 hp diesel engine, shall not exceed 4,380 hours in any rolling twelve-month (12-month) period.
5. The 1,000 kW diesel engine generator and 203 hp diesel engine shall be fired only on fuel oil no. 2 with a maximum sulfur content not to exceed 0.5% by weight.
6. The permittee shall not cause to be discharged into the atmosphere from the following equipment, fugitive emissions which exhibit greater than fifteen (15) percent opacity from any crusher and ten (10) percent opacity from any transfer point on the belt conveyors, screening operation, or from any other affected facility:
 - a. Canica model nos. 125, 100S, and 95 crushers of the 400 TPH Non-Portable Plant;
 - b. 600 TPH Recycled Aggregate Plant, excluding the 576 TPH Terex/Cedarapids crusher and connected conveyors C58 and C65.
 - c. 600 TPH Screening Plant; and
 - d. 576 TPH Rip-Rap Plant.
7. The permittee shall not cause to be discharged into the atmosphere from the following equipment, fugitive emissions which exhibit greater than twelve (12) percent opacity from any crusher and seven (7) percent opacity from any transfer point on the belt conveyors or from any other affected facility:
 - a. 576 TPH Terex/Cedarapids crusher of the 600 TPH Recycled Aggregate Plant; and
 - b. Conveyors C58 and C65 connected to the 576 TPH Terex/Cedarapids crusher.
8. The 1,000 kW diesel engine generator is subject to 40 CFR Part 63, Subpart ZZZZ. The permittee shall comply with the applicable emission limitations and operating limitations no later than May 3, 2013. The applicable requirements will be incorporated into the permit upon its next planned modification.

CONCLUSION

Grace Pacific Corporation is renewing its permit and is proposing to replace the existing 400 TPH Cedarapids impact crusher with the proposed 565 TPH Terex/Cedarapids crusher. No other changes are proposed. Water sprays and water trucks will be used to control fugitive emissions. Recommend issuance of the covered source permit subject to the incorporation of

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the significant permit conditions, 30-day public comment period, and 45-day Environmental Protection Agency review period.

Mark Saewong
August 1, 2011