

TEMPORARY COVERED SOURCE PERMIT REVIEW - NO. 0242-01-CT

Application No. 0242-09

Significant Modification - Increasing the Allowable Number of Sites, Increasing the Amount of Equipment Allowed at Each Site, and Adding Equipment to the Inventory

Applicant: Goodfellow Brothers, Inc.

Facility: 780 TPH Stone Processing Plant with 1 MW or 1.36 MW Diesel Engine Generator and 1,100 TPH Mobile Stone Processing Plant with Integral Diesel Engines

Equipment Location: Various locations throughout the state

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Background:

Goodfellow Brothers, Inc. (GBI) owns and operates a variety of crushers, screens, and conveyors for stone processing activities. The equipment is used to crush basalt and other materials for construction purposes. Materials are batch-dropped into a primary crusher, forwarded via conveyors to either a stockpile or to a secondary and possibly a tertiary crusher. The stockpiles either remain throughout the duration of the project or are moved by a front-end loader.

The equipment is deployed to various locations and may be erected in several different configurations depending on the project requirements. The current permit covers most of GBI's equipment inventory of crushers, screen trailers, and diesel engine generators. The permitted inventory of equipment also includes crushers with integrated diesel engines. To allow operational flexibility, the permit lists the maximum quantity and type of equipment allowed at a site, which allows GBI may use any or all of the equipment listed. The following are the allowable plant configurations:

- a. Non-Mobile Stone Processing Plant
 - i. One (1) primary crusher
 - ii. One (1) secondary crusher;
 - iii. One (1) tertiary crusher;
 - iv. One (1) 1,000 kW diesel engine generator (LP-84, LP-121, LP-130);

- v. Three (3) screens - limited to one (1) mobile screen (K-145, K-147, or K-155);
 - vi. Four (4) storage piles; and
 - vii. Various conveyors
- b. Mobile Stone Processing Plant
- i. One (1) Nordberg Mobile Jaw Crusher (K-148, K-149, K-150, K-151, or K-164);
 - ii. One (1) Mobile Cone Crusher (K-152 or K-166);
 - iii. One (1) mobile screen (K-145, K-147, or K-155);
 - iii. Two (2) storage piles; and
 - iv. Various conveyors.
- c. 661 TPH Mobile Screen K-167
- The 661 TPH mobile screen shall operate only with the following equipment at temporary stone processing plant location:
- i. One (1) 400 TPH Nordberg Mobile Jaw Crusher (K-148, K-149, K-150, or K-164);
 - ii. One (1) 396 TPH Terex-Pegson Mobile Cone Crusher (K-166);
 - iii. Two (2) storage piles; and
 - iv. Various conveyors.

Due to the size and manufacture date of the crushers, the crushers and screens are subject to 40 CFR Part 60, Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants.

Proposed Project:

GBI is proposing to increase the number of jobsites allowed to operate concurrently from 10 to 25, increase the amount of equipment allowed to operate at each jobsite, and increase the amount of equipment in their inventory. The increase in the number of allowable jobsites increases the potential emissions from the equipment covered by this permit. However, each jobsite is considered a facility because by definition, a facility needs a location. This modification is significant change because the potential emission increase at each jobsite is greater than 25 percent of the significant amount.

GBI is proposing to increase the quantity and type of equipment allowed at each site. The following are the proposed plant configurations:

Non-Mobile/Mobile Stone Processing Plant

- i. One (1) 780 TPH primary jaw crusher equipment nos. K-76, K-129, K-185;
- ii. One (1) 500 TPH secondary cone crusher equipment nos. K-26, K-130, K-181, K-187;
- iii. One (1) 700 TPH tertiary cone crusher equipment nos. K-153, K-182;
- iv. One (1) 450 TPH or smaller, mobile tertiary cone crusher equipment nos. K-152, K-166, K-184;
- v. One (1) 661 TPH or smaller, mobile screen equipment nos. K-145, K-147, K-155, K-167, K-176, K-178;
- vi. Three (3) 440 TPH or smaller, screens equipment nos. K-23, K-27, K-143, K-165, K-182 (integral with crusher), K-187 (integral with crusher);
- vii. One (1) 1.36 MW or smaller, diesel engine generator equipment nos. LP-84, LP-121, LP-130, LP-140;
- viii. Six (6) stockpiles; and
- ix. Various conveyors and stackers.

Mobile Stone Processing Plant

- i. One (1) 700 TPH mobile primary jaw crusher equipment no. K-151;
- ii. One (1) 400 TPH mobile secondary jaw crusher equipment nos. K-148, K-149, K-150, K-164, K-183;
- iii. Two (2) 450 TPH or smaller, mobile secondary cone crushers equipment nos. K-152, K-166, K-184, K-204;
- iv. Two (2) 661 TPH or smaller, mobile screens equipment nos. K-145, K-147, K-155, K-167, K-176, K-178;
- v. Six (6) stockpiles; and
- vi. Various conveyors and stackers.

The plants will need operating hour limitations to remain a non-major source and to comply with the ambient air standards. GBI proposing to operate the non-mobile plant for a maximum of 1,600 hours per site and the mobile plant for a maximum of 1,800 hours per site.

GBI is also proposing to add the following equipment to their inventory:

1. 780 TPH Jaw Crusher, Nordberg model C140, serial no. 34997: equipment no. K-185;
2. 500 TPH Cone Crusher, Omnicone model 1560, serial no. 1560-108, with 440 TPH Screen, JCI model 6202-32LP. serial no. 5072007: equipment no. K-187;

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3. 700 TPH Cone Crusher, Raptor, model no. XL400, serial no. XL400-0019, with 440 TPH Screen, JCI model 6202-32LP, serial no. 5072014: equipment no. K-182;
4. 400 TPH Mobile Jaw Crusher, Nordberg model no. LT105, serial no. 73599, with Caterpillar diesel engine model no. C-9 DITA, serial no. NOMBD02002, with a minimum stack height of 16.8 feet: equipment no. K-183
5. 450 TPH Mobile Cone Crusher, Nordberg model no. LT300HP, serial no. 73549, with Caterpillar diesel engine model no. C-15 DITA, serial no. JRE02480, with a minimum stack height of 16.8 feet: equipment no. K-184;
6. 450 TPH Mobile Cone Crusher, Nordberg model no. LT300HP, serial no. 74093, with Caterpillar diesel engine model no. C-15 DITA, serial no. JRE05064, with a minimum stack height of 16.8 feet: equipment no. K-204;
7. 661 TPH Mobile Screen, Powerscreen model no. Chieftain 2100, serial no. 12402701, with 100 hp Deutz diesel engine model no. BF4M2012, serial no. 10167853: equipment no. K-176;
8. 661 TPH Mobile Screen, Powerscreen model no. Chieftain 2100, serial no. 12402611, with 100 hp Deutz diesel engine model no. BF4M2012, serial no. 10167853: equipment no. K-178;
9. Radial Stacker, Powerscreen model no. M95, serial no. 7436022 with 85 hp Cummings diesel engine model no. B3.3, serial no. 68027604: equipment no. K-156;
10. Radial Stacker, Powerscreen model no. M95, serial no. 7436039 with 78 hp Deutz diesel engine model no. BF 4L 2011, serial no. 01030480: equipment no. K-168;
11. Radial Stacker, Powerscreen model no. M95, serial no. 7436090 with 78 hp Deutz diesel engine model no. BF 4L 2011, serial no. 01030485: equipment no. K-169;
12. Radial Stacker, Powerscreen model no. M95, serial no. 7436079 with 78 hp Deutz diesel engine model no. BF 4L 2011, serial no. 01037492: equipment no. K-170;

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13. Radial Stacker, Powerscreen model no. M95, serial no. 7436130 with 85 hp Cummings diesel engine model no. B3.3, serial no. 68057534: equipment no. K-175;
14. Radial Stacker, Powerscreen model no. M95, serial no. 7436135 with 78 hp Deutz diesel engine model no. BF 4L 2011, serial no. 01031629: equipment no. K-179; and
15. 1.36 MW Diesel Engine Generator, Caterpillar model XQ1500, serial no. BNR00315, with Caterpillar diesel engine model no 3512, serial no. 1GZ02594, with a stack height of 15.9 feet: equipment no. LP-140.

The 780 TPH Nordberg jaw crusher (K-185), 500 TPH Omnicone cone crusher (K-187), and the 700 TPH Raptor cone crusher (K-182) are non-mobile crushers. These units will be powered by a diesel engine generator. 440 TPH JCI screens are mounted with the Omnicone and Raptor cone crushers and the crusher/screen combination are considered as one unit.

The Powerscreen radial stackers have small diesel engines to operate the stackers. These units are not track mounted and thus, are not self-propelled. The diesel engines are insignificant activities. The 1.36 MW diesel engine generator (KLP-140) is trailer mounted and is not considered a non-road engine.

The remainder of the new equipment being added to the inventory are track mounted and self-propelled. The diesel engines are considered non-road, and thus are not subject to subpart IIII.

Equipment Description:

The following is a list of the equipment covered under this temporary covered source permit. The equipment listed in bold are being added under this modification.

- a. 780 TPH Jaw Crusher, Nordberg model C140B, serial no. 34395: equipment no. K-76;
- b. 780 TPH Jaw Crusher, Nordberg model C140B, serial no. C1403124: equipment no. K-129;
- c. **780 TPH Jaw Crusher, Nordberg model C140, serial no. 34997: equipment no. K-185;**
- d. 700 TPH Cone Crusher, Nordberg model no. HP400, serial no. 123622: equipment no. K-153;
- e. **700 TPH Cone Crusher, Raptor, model no. XL400 serial no. XL400-0019, with 440 TPH Screen, JCI model 6202-32LP, serial no. 5072014: equipment no. K-182;**

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- f. 500 TPH Cone Crusher, Omnicone model 1560, serial no. 1560-253: equipment no. K-26;
- g. 500 TPH Cone Crusher, Omnicone model 1560, serial no. 304-300034: equipment no. K-130;
- h. 500 TPH Cone Crusher, Omnicone model 1560, serial no. 1560-176-SA, with 440 TPH Screen, JCI model 6202-32LP, serial no. 5072007: equipment no. K-187;**
- i. 440 TPH Screen Trailer, JCI model FSG5162-26, serial no. 97H01F32: equipment no. K-27;
- j. 440 TPH Screen Trailer, JCI model 620332, serial no. 96H01F32: equipment no. K-143;
- k. 400 TPH Screen Trailer, JCI model 6203-32LP, serial no. P060378: equipment no. K-165
- l. 264 TPH Screen, Cedar Rapids, 4'x12'x2, serial no. 1426: equipment no. K-23;
- m. 1 MW Diesel Engine Generator, Gen Set model 3512, serial no. 24Z8717, with a minimum stack height of 17 feet: equipment no. LP-130;
- n. 1 MW Diesel Engine Generator, Gen Set model 3512, serial no. 24Z01234, with a minimum stack height of 17 feet: equipment no. LP-84;
- o. 1 MW Diesel Engine Generator, Gen Set model 3512, serial no. 24Z08458, with a minimum stack height of 17 feet: equipment no. LP-121;
- p. 1.36 MW Diesel Engine Generator, Caterpillar model XQ1500, serial no. BNR00315, with Caterpillar diesel engine, model no 3512, serial no. 1GZ02594, manufactured on April 29, 2005, with a stack height of 15.9 feet: equipment no. LP-140**
- q. 700 TPH Mobile Jaw Crusher, Nordberg model no. LT110, serial no. 72940, with Caterpillar diesel engine model no. C-12 DITA, serial no. BDL04410, with a minimum stack height of 15.9 feet: equipment no. K-151;
- r. 400 TPH Mobile Jaw Crusher, Nordberg model no. LT105, serial no. 72742, with Caterpillar diesel engine model no. C-9 DITA, serial no. CLS07165, with a minimum stack height of 11.9 feet: equipment no. K-148;
- s. 400 TPH Mobile Jaw Crusher, Nordberg model no. LT105, serial no. 72816, with Caterpillar diesel engine model no. C-9 DITA, serial no. CLJ07851, with a minimum stack height of 9.9 feet: equipment no. K-149;
- t. 400 TPH Mobile Jaw Crusher, Nordberg model no. LT105, serial no. 72839, with Caterpillar diesel engine model no. C-9 DITA, serial no. CLJ07329, with a minimum stack height of 10.9 feet: equipment no. K-150;
- u. 400 TPH Mobile Jaw Crusher, Nordberg model no. LT105, serial no. 73316, with Caterpillar

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- diesel engine model no. C-9 DITA, serial no. CLJ07329, with a minimum stack height of 10.9 feet: equipment no. K-164;
- v. **400 TPH Mobile Jaw Crusher, Nordberg model no. LT105, serial no. 73599, with Caterpillar diesel engine model no. C-9 DITA, serial no. NOMBD02002, with a minimum stack height of 16.8 feet: equipment no. K-183;**
 - w. 450 TPH Mobile Cone Crusher, Nordberg model no. LT300HP, serial no. 72814, with Caterpillar diesel engine model no. C-15 DITA, serial no. BEM04965, with a minimum stack height of 16.8 feet: equipment no. K-152;
 - x. **450 TPH Mobile Cone Crusher, Nordberg model no. LT300HP, serial no. 73549, with Caterpillar diesel engine model no. C-15 DITA, serial no. JRE02480, with a minimum stack height of 16.8 feet: equipment no. K-184;**
 - y. **450 TPH Mobile Cone Crusher, Nordberg model no. LT300HP, serial no. 74093, with Caterpillar diesel engine model no. C-15 DITA, serial no. JRE05064, with a minimum stack height of 16.8 feet: equipment no. K-204;**
 - z. 386 TPH Mobile Cone Crusher, Terex-Pegson model no. 1300 Maxtrak, serial no. 130126CF, with Caterpillar diesel engine model no. C-12 DITA, serial no. BDL03217, with a minimum stack height of 15.9 feet: equipment no. K-166;
 - aa. 661 TPH Mobile Screen, Powerscreen model no. Chieftain 2100, serial no. 12401468, with 100 hp Deutz diesel engine model no. BF4M2012, serial no. 10167853: equipment no. K-167;
 - bb. **661 TPH Mobile Screen, Powerscreen model no. Chieftain 2100, serial no. 12402701, with 100 hp Deutz diesel engine model no. BF4M2012, serial no. 10275425: equipment no. K-176;**
 - cc. **661 TPH Mobile Screen, Powerscreen model no. Chieftain 2100, serial no. 12402611, with 100 hp Deutz diesel engine model no. BF4M2012, serial no. 10268684: equipment no. K-178;**
 - dd. 420 TPH Mobile Screen, Finlay Hydrascreens model no. 683 Super Trak, serial no. FTP510277 with 96 hp Deutz diesel engine: equipment no. K-145;
 - ee. 420 TPH Mobile Screen, Finlay Hydrascreens model no. 683 Super Trak, serial no. FTP541638 with 96 hp Deutz diesel engine: equipment no. K-147;
 - ff. 420 TPH Mobile Screen, Finlay Hydrascreens model no. 683 Super Trak, serial no. FTP551003 with 96 hp Deutz diesel engine: equipment no. K-155;
 - gg. **Radial Stacker, Powerscreen model no. M95, serial no. 7436022 with 85 hp Cummings diesel engine model no. B3.3, serial no. 68027604: equipment no. K-156;**

- hh. Radial Stacker, Powerscreen model no. M95, serial no. 7436039 with 78 hp Deutz diesel engine model no. BF 4L 2011, serial no. 01030480: equipment no. K-168;
- ii. Radial Stacker, Powerscreen model no. M95, serial no. 7436090 with 78 hp Deutz diesel engine model no. BF 4L 2011, serial no. 01030485: equipment no. K-169;
- jj. Radial Stacker, Powerscreen model no. M95, serial no. 7436079 with 78 hp Deutz diesel engine model no. BF 4L 2011, serial no. 01037492: equipment no. K-170;
- kk. Radial Stacker, Powerscreen model no. M95, serial no. 7436130 with 85 hp Cummings diesel engine model no. B3.3, serial no. 68057534: equipment no. K-175;
- ll. Radial Stacker, Powerscreen model no. M95, serial no. 7436135 with 78 hp Deutz diesel engine model no. BF 4L 2011, serial no. 01031629: equipment no. K-179;
- mm. Various conveyors; and
- nn. Various water sprays.

Air Pollution Controls:

Water sprays are located at the crushers, screens, conveyors, and stockpiles to control fugitive dust from the crushing operations. Manual watering, including the use of water trucks, will control fugitive dust from the stockpiles and unpaved roads.

Applicable Requirements:

Hawaii Administrative Rules (HAR):

Chapter 11-59, Ambient Air Quality Standards

Chapter 11-60.1 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

11-60.1-37 Process Industries

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

NSPS:

40 CFR, Part 60, Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants - states that fixed stone processing plants with capacities greater than 25 TPH and portable stone processing plants with capacities greater than 150 TPH, that commence construction, reconstruction, or modification after August 31, 1983 are subject to the requirements of the subpart. As such, all of the crushers are subject to Subpart OOO.

Synthetic minor:

A synthetic minor is a facility that without limiting conditions, physical or operational, emits above the major triggering levels as defined by HAR 11-60.1-1 for either criteria pollutant(s) or hazardous air pollutant(s). Without operational limits, the diesel engines would be a major source for NO_x. Thus, GBI is a synthetic minor.

Non-Applicable Requirements:

BACT:

A Best Available Control Technology (BACT) analysis is required for each new or modified emissions unit located within a stationary source that has a net emissions increase equal to or greater than the significant levels defined in HAR §11-60.1-1. By definition, an emissions unit is part of a stationary source. A stationary source is a structure, facility, or installation located on one or more contiguous or adjacent properties that are under common ownership or control. Since a stationary source must have a location, each temporary location is a stationary source.

The table below lists the larger emission units for each plant. As shown, the emissions from these units are below the BACT trigger and thus, BACT does not apply.

Table 1.
Emissions Rates, BACT

Pollutant	1.36MW DEG 1,600 hrs (TPY)	1 MW DEG 1,600 hrs (TPY)	525 hp DE 1,800 hrs (TPY)	425 hp DE 1,800 hrs (TPY)	BACT Trigger (TPY)
PM ₁₀	0.3	0.5	0.1	0.1	15
SO _x	5.4	4.6	0.9	0.7	40
NO _x	27.2	29.2	6.5	4.5	40
VOC ¹	1.0	0.8	0.1	0.1	40
CO	2.2	7.8	0.6	1.1	100

CAM:

The purpose of Compliance Assurance Monitoring (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. Since the facility is not a major source, CAM does not apply.

CERR (Consolidated Emission Reporting Rule):

40 CFR part 51, Subpart A – Emission Inventory Reporting Requirements, determines the annual emissions reporting frequency based on the actual emissions of each pollutant from any individual emission point within the facility that emits at or above the triggering levels. Since the trigger levels are at or above the major source levels and by definition, a temporary source cannot be a major source, the facility is not subject to annual emission reporting under CERR.

The Department does however, require facilities to report their annual emissions if the facility-wide emissions exceed the Department's trigger levels. The Department uses the data for in-house recordkeeping purposes. The temporary stone processing plants exceed the Department's trigger levels and are required to submit annual emissions. The proposed modification does not affect this applicability. Table 2 below summarizes the Department's trigger levels and illustrates the facility's applicability.

Table 2.
Comparison of Emissions to CAB Trigger Levels

Pollutant	780 TPH Non-Mobile Plant 1,600 hrs (TPY)	1,100 TPH Mobile Plant 1,800 hrs (TPY)	CAB Trigger (TPY)
PM ₁₀	31	17	25
SO _x	7	5.8	25
NO _x	52	36.6	25
VOC ¹	3	1.0	25
CO	7	9.7	250

1 - total organic compounds (TOC) as volatile organic compounds (VOC)

NSPS:

40 CFR Part 60, Standards of Performance for New Stationary Sources, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. The diesel engines on the new equipment being added to GBI's inventory are not subject to Subpart IIII for the following reasons. The diesel engines on the mobile crushers are considered nonroad engines because the diesel engines propel the crusher as well as provide power to operate the crushers. The 78 hp and 85 hp diesel engines used to power the stackers are insignificant activities. The manufacture date of the diesel engine on the 1.36 MW DEG, April 5, 2005, is prior to the July 11, 2005 trigger date and thus, the diesel engine is not subject to subpart IIII.

NESHAP/MACT:

Stone processing is not a NESHAP source.

40 CFR 63, Subpart ZZZZ National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines is not applicable to the diesel engines because the facility is not a major source of HAPs.

PSD:

PSD does not apply since this facility is not a major source.

Insignificant Activities/Exemptions:

The diesel engines on the radial stackers and the 661 TPH screen are insignificant activities because the heat inputs are less than 1 MMBtu/hr. HAR§11-60.1-82(f)(2)

Alternate Operating Scenarios:

No new alternate operating scenarios were proposed. Currently, GBI is allowed to use a temporary replacement for their diesel engine generators should one of them unexpectedly go out-of-service.

Project Emissions:

Emissions from the non-mobile and mobile plants were estimated using AP-42 and manufacture emission factors. PM₁₀ emissions from the crushing operations were estimated using AP-42 section 11.19.2, revised 8/04. SO₂ emissions from the diesel engines on the crushers were estimated using AP-42 section 3.3, revised 10/96. SO₂ and TOC emissions from the DEGs were estimated using AP-42 section 3.4, revised 10/96. All other criteria pollutants were estimated using the manufacturer's "not to exceed" emission rates. The table below lists the maximum emissions from non-mobile and mobile crushing plants.

Table 3

Emissions for the Non-mobile and Mobile Plants with the Maximum Allowed Equipment

Pollutant	780 TPH Non-Mobile Plant 1,600 hrs (TPY)	1,100 TPH Mobile Plant 1,800 hrs (TPY)
PM ₁₀	31	17
SO _x	7	5.8
NO _x	52	36.6
VOC ¹	3	1.0
CO	7	9.7

1 - total organic compounds (TOC) as volatile organic compounds (VOC)

Air Quality Assessment:

An ambient air quality assessment is required for this modification because of the new operating scenarios with multiple diesel engines operating at the same site. The diesel engines on the mobile screens and radial stackers are insignificant activities and were not included in the ambient air quality analysis model.

The applicant performed an Ambient Air Quality Impact Analysis (AAQIA) using the U.S. USEPA recommended air quality model ISCST3 with screening meteorological data. Receptor arrays with 30 meter spacing were generated from USGS DEM data for each site. The following assumptions were used in the analysis;

1. Simple and complex terrain;
2. Rural dispersion;
3. SCREEN3 default met data;
4. Scaling factors of 0.9, 0.7, 0.4, and 0.2 for the 3-hour, 8-hour, 24-hour, and annual concentrations, respectively.

Table 4 below lists the emission rates and stack parameters used in the analysis.

Table 4
Emission Rates and Stack Parameters

Unit	Emission Rates (g/s)				Stack Parameters			
	NO _x	SO ₂	PM10	CO	Hgt (m)	Dia (m)	Vel. (m)	Temp (°K)
1 MW DEG	4.61	0.73	0.08	1.22	4.46	0.20	128	749
1.36 MW DEG	4.28	0.85	0.04	0.34	4.88	2.6	8	375
300 hp DE	0.50	0.08	0.01	0.08	5.18	0.10	108	696
425 HP DE	0.63	0.10	0.01	0.15	5.18	0.15	66	763
525 hp DE	0.91	0.13	0.01	0.09	5.18	0.15	66	763

Three operating scenarios were modeled - 1) one 1 MW DEG and one 525 hp DE; 2) one 1.36 MW DEG and one 525 hp DE; and 3) one 300 hp DE, one 425 DE, and two 525 DE. Since GBI is requesting to operate the crushers on any island, the highest background concentrations throughout the state were used in the analysis. Background air quality data used in the analysis was obtained from the Department's 2006 Annual Summary of the Hawaii Air Quality Data.

Table 5 below lists the monitoring stations and background concentrations used.

Table 5
Background Values

Pollutant	Averaging Period	Background ($\mu\text{g}/\text{m}^3$)	Monitoring Station
NO _x	Annual	9	Kapolei
SO ₂	3-hour	451	Hilo
	24-hour	161	Hilo
	Annual	11	Kona
PM10	24-hour	87	Pearl City
	Annual	22	Kihei
CO	1-hour	2,736	University
	8-hour	1,967	University

The tables below summarize the potential impacts when background concentrations are included.

Table 6
Predicted Impacts from 1 MW DEG and 525 hp DE

Pollutant	Averaging Period	Concentration ($\mu\text{g}/\text{m}^3$)			
		ISCST3 Model	Background	Total	% of SAAQS
NO _x ¹	Annual	53	9	62	89%
SO ₂	3-hour	286	451	737	57%
	24-hour	127	161	288	79%
	Annual	12	11	23	29%
PM10	24-hour	13	87	100	67%
	Annual	1	22	23	46%
CO	1-hour	486	2,736	32	32%
	8-hour	340	1,967	46	46%

¹NO_x concentrations were calculated using the ozone limiting method

Table 7
 Predicted Impacts from 1.36 MW DEG and 525 hp DE

Pollutant	Averaging Period	Concentration ($\mu\text{g}/\text{m}^3$)			
		ISCST3 Model	Background	Total	% of SAAQS
NO _x ¹	Annual	51	9	60	86%
SO ₂	3-hour	341	451	792	61%
	24-hour	152	161	313	86%
	Annual	14	11	25	31%
PM10	24-hour	7	87	94	63%
	Annual	1	22	23	46%
CO	1-hour	152	2,736	2,888	29%
	8-hour	107	1,967	2,074	41%

¹NO_x concentrations were calculated using the Tier 2 screening analysis

Table 8
 Predicted Impacts from 300 hp DE, 425 hp DE, and two 525 hp DEs

Pollutant	Averaging Period	Concentration ($\mu\text{g}/\text{m}^3$)			
		ISCST3 Model	Background	Total	% of SAAQS
NO _x ¹	Annual	56	9	65	93%
SO ₂	3-hour	412	451	863	66%
	24-hour	183	161	344	94%
	Annual	19	11	30	38%
PM10	24-hour	9	87	96	64%
	Annual	1	22	23	46%
CO	1-hour	208	2,736	2,944	29%
	8-hour	146	1,967	2,113	42%

¹NO_x concentrations were calculated using the ozone limiting method

As shown in the tables above, it is predicted that the operation of the non-mobile and mobile crushing plants will not exceed the state or national ambient air quality standards (SAAQS/NAAQS).

Conclusion and Recommendation:

GBI is proposing to increase the number of sites it may operate concurrently, increase the quantity of equipment that may operate at one site, and increase their inventory of equipment covered under this permit. The emission estimates and modeling of the proposed crushing plant configurations predicted that the facility will remain a non-major source and will operate within

PROPOSED

the limits of the ambient air quality standards. To ensure compliance, the operating hours will be monitored by the use of a non-resetting hour meter on the diesel engines. Air pollution controls at the facility consist of water sprays at various locations.

Issuance of a Temporary Covered Source Permit is recommended based on the information provided by the applicant and the conservative nature of the calculations.