

TEMPORARY COVERED SOURCE PERMIT REVIEW - NO. 0242-01-CT
Significant Modification - Adding 3 Mobile Screens and 1 Mobile Crusher
Application No. 0242-07

Applicant: Goodfellow Brothers, Inc.

Facility: 780 TPH Stone Processing Plant with 1,000 kW Diesel Engine Generator
and 700 TPH Mobile Stone Processing Plant with Integral Diesel Engines

Equipment Location: Various locations throughout the state

Responsible Official: J. Stephen Goodfellow

Title: President
808.879.5205

Contact: James Morrow

Consultant
942.9096

Applicant's Mailing Address: P.O. Box 220
Kihei 96753-0220

SICC: 1429

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 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 allows the following plant configurations:

Non-Mobile Crushers

- a. One (1) primary crusher;
- b. One (1) secondary crusher;

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- c. One (1) tertiary crusher;
- d. One (1) 1,000 kW diesel engine generator;
- e. Three (3) screens;
- f. Four (4) storage piles; and
- g. Various conveyors.

Mobile Crushers

- a. One (1) Nordberg Mobile Jaw Crusher (K-148, K-149, K-150, or K-151);
- b. One (1) Nordberg Mobile Cone Crusher (K-152);
- c. One (1) storage pile; and
- d. Various conveyors.

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

Proposed Project:

GBI is proposing to add three mobile screens and one 400 TPH mobile jaw crusher to the inventory of equipment covered by this permit. The three mobile screens are powered by a 96 hp diesel engine and are currently permitted under noncovered source permit no. 0584-01-NT. Once the modification is complete, NSP No. 0584-01-NT will be closed. The three Finlay Hydrascreen mobile screens are identical in size, make, and model. The screens are track-mounted and use the integral 96 hp diesel engine to power the drive train and screen.

The new 400 TPH mobile crusher is Nordberg mobile jaw crusher and is identical to a few of the mobile crushers currently in GBI's inventory. The mobile crusher is track-mounted and uses a 300 hp integral diesel engine to power the drive train and the jaw crusher.

GBI is proposing to add the mobile screens to the list of equipment allowed at each stone processing plant location. Potential emissions at the mobile stone processing plant locations will increase because these sites currently are not allowed to have

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screens. Also, each mobile stone processing plant location is currently allowed one storage pile. If a screen is used at a mobile plant location, there will be more than one storage pile. Potential emissions at the non-mobile stone processing plant locations remain unchanged, as these sites are allowed to operate up to three screens at a time. The integral 96 hp diesel engine for each screen is deemed an insignificant activity because the heat input is less than 1 MMBtu/hr. The addition of the 400 TPH mobile jaw crusher does not change the potential emissions of the mobile stone processing plant sites because each site is limited to one mobile jaw crusher.

Once this modification is complete, each temporary location is allowed to have any or all of the following equipment (changes in bold):

- 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) Nordberg Mobile Cone Crusher (K-152);
 - iii. **One (1) mobile screen (K-145, K-147, or K-155)**;
 - iii. **Two (2)** storage piles; and
 - iv. Various conveyors.

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. C1403124: equipment no. K-129;

- b. 780 TPH Jaw Crusher, Nordberg model C140B, serial no. 34395: equipment no. K-76;

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- c. 700 TPH Cone Crusher, Nordberg model no. HP400, serial no. 123450: equipment no. K-153;
- d. 500 TPH Cone Crusher, Omnicone model 1560, serial no. 1560-253: equipment no. K-26;
- e. 500 TPH Cone Crusher, Omnicone model 1560, serial no. 304-300034: equipment no. K-130;
- f. 440 TPH Screen Trailer, JCI model FSG5162-26, serial no. 97H01F32: equipment no. K-27;
- g. 440 TPH Screen Trailer, JCI model 620332, serial no. 96H01F32: equipment no. K-143;
- h. 264 TPH Screen, Cedar Rapids, 4'x12'x2, serial no. 1426: equipment no. K-23;
- i. 1 MW Diesel Engine Generator, Gen Set model 3512, serial no. 24Z8717, with a minimum stack height of 17 feet: equipment no. LP-130;
- j. 1 MW Diesel Engine Generator, Gen Set model 3512, serial no. 24Z01234, with a minimum stack height of 17 feet: equipment no. LP-84;
- k. 1 MW Diesel Engine Generator, Gen Set model 3512, serial no. 24Z08458, with a minimum stack height of 17 feet: equipment no. LP-121;
- l. 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;
- m. 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;
- n. 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;
- o. 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;

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- p. **400 TPH Mobile Jaw Crusher, Nordberg model no. LT105, serial no. 73316, with Caterpillar Diesel Engine model no. C-9 DITA, serial no. CLJ07329, with a minimum stack height of 10.9 feet: equipment no. K-164;**
- q. 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;
- r. **420 TPH Mobile Screen, Finlay Hydrascreens model no. 683 Super Trak, serial no. FTP510277 with 96 hp Deutz diesel engine: equipment no. K-145;**
- s. **420 TPH Mobile Screen, Finlay Hydrascreens model no. 683 Super Trak, serial no. FTP541638 with 96 hp Deutz diesel engine: equipment no. K-147;**
- t. **420 TPH Mobile Screen, Finlay Hydrascreens model no. 683 Super Trak, serial no. FTP551003 with 96 hp Deutz diesel engine: equipment no. K-155;**
- u. Various conveyors; and
- v. 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

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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 stone crushing plants with capacities greater than 25 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 addition of a mobile screen to the mobile stone processing plant will be the only emission increase for this modification. There won't be any emission increases at the non-mobile plants because those plants are already permitted to have up to three screens on site at any given time. The additional storage pile will not cause an increase

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in emissions because the emission rate of the storage pile is dependent upon the process rate of the crusher. Since the process rate of the crusher is not increasing, the emission rate for storage piles also does not increase. The addition of the 400 TPH mobile jaw crusher to the inventory will not cause an increase in emissions because each mobile plant is limited to one 700 TPH or one 400 TPH jaw crusher. Since only one mobile jaw crusher can operate at a temporary location, the number of mobile jaw crushers in GBI's inventory does not influence the emissions at each temporary location.

The addition of a mobile screen to the mobile stone processing plant will increase the potential emissions of the plant by 0.8 tons per year of PM₁₀. Since this is below the BACT trigger level of 15 tons per year for PM₁₀, BACT is not applicable.

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.

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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 1 below summarizes the Department's trigger levels and illustrates the facility's applicability.

Table 1 Comparison of Emissions to CAB Trigger Levels

pollutant	780 TPH plant 2,000 hrs (TPY)	CAB trigger (TPY)
PM ₁₀	17	25
SO _x	5.8	25
NO _x	36.6	25
VOC ¹	1.0	25
CO	9.7	250

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

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 small diesel engine used on each screen will be an insignificant activity because of the heat input is less than 1 MMBtu/hr. HAR§11-60.1-82(f)(2)

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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:

An emissions increase will only occur at the mobile crushing sites because these sites were not allowed to have a screen on site. Potential emissions at the non-mobile sites will remain the same because those sites were allowed to operate up to three screens. Of all the potential combinations of equipment at a mobile site, the combination with the highest emissions will be operating the 700 TPH jaw crusher (K-151), the 450 TPH mobile cone crusher (K-152), and one of the 420 TPH mobile screens (K-145, 147, or 155). Table 2 below summarizes the emissions from this equipment combination. Emissions of NO_x, TOC, CO, and PM₁₀ were estimated by using the performance data from Caterpillar. Emissions of SO₂ and aldehydes were estimated using AP-42 section 3.3, revised 10/96. HAP emissions were also estimated using AP-42 section 3.3. Emissions from the crushing, screening, and unpaved road were estimated using AP-42 sections 11.19.2, revised 8/04, and 13.2.2, revised 12/03. Detailed emission calculations can be found in the appendix.

Table 2
Facility-wide Emissions for the Mobile Plant with the Maximum Allowed Equipment

Pollutant	700 TPH Primary Crusher, K-151 (TPY)	450 TPH Cone Crusher, K-152 (TPY)	420 TPH Screen, K-145, 147, or 155 (TPY)	Unpaved Roads 15,000 VMT (TPY)	Facility-wide 2,000 hrs (TPY)
SO ₂	0.8	1.0	--	--	1.8
NO _x	5.0	7.2	--	--	12.2
CO	1.2	0.7	--	--	1.9
VOC ¹	0.1	0.1	--	--	0.2
PM ₁₀	8.1	5.1	0.5	7.5	21.2

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

Air Quality Assessment:

An ambient air quality assessment is not required for this modification because the emissions increase is not from a point source. The 96 hp diesel engines on the mobile screens are considered insignificant activities and thus, do not need to be included in the modeling of an ambient air quality analysis. The temporary stone processing plants were modeled and an ambient air quality analysis was performed in a previous application. That ambient air quality analysis did not show any predicted exceedences of the state and national ambient air quality standards.

Other Issues:

The Department is allowing GBI to list multiple jobsites on a single Change of Location request. This would save GBI time and money when they need to have their stone processing equipment operate at multiple jobsites. Each Change of Location request for multiple jobsites is equipment specific and the same equipment must be used for each of the listed jobsites. Currently, the Department is allowing the multiple listings provided that operations at all the listed jobsites are completed within six months.

The Department is also allowing GBI to return to a previously approved jobsite provided the move and operations at the previously approved site is completed within six months. Further, the current condition of the jobsite must be the same as described in the initial change of location request, i.e. having same terrain and no new surrounding structures or other sources.

New conditions will be incorporated into the permit to formally allow GBI to submit multiple location requests and to move equipment back to previously approved locations. The new permit conditions will increase the time frame for the requests and relocations to 12 months, in lieu of six months, since the permit regulates the operating hours at each location on a 12-month basis.

The following conditions will be incorporated in the Change of Location Request Requirements section of the permit.

6. The permittee may request for multiple operating sites for each temporary stone processing plant provided the following conditions are met:

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- a. The operation of the temporary stone processing plant at the listed sites shall be completed within one year from the date of the Department's approval letter for the Change of Location Request.
 - b. The permittee shall complete and submit the attached form ***Change of Location Notification*** within 24 hours of each temporary stone processing plant relocation.
7. The permittee may return to a previously approved site at anytime within a one year period from the date of the Change of Location Request provided the following conditions are met:
- a. The operation of the temporary stone processing plant shall be completed within one year from the date of the Department's approval letter for the Change of Location Request.
 - b. The conditions of the site (i.e. terrain, structures, and other air pollution sources) have not changed since the Change of Location Request was submitted.
 - c. The permittee complete and submit the attached ***Change of Location Notification*** within 24 hours of each temporary stone processing plant relocation.

Conclusion and Recommendation:

GBI is proposing to increase their inventory of equipment covered under this permit by adding three mobile screens and one mobile jaw crusher. With the addition of the mobile screens and mobile crusher, the emission estimates and modeling predict that the facility will remain a non-major source and will operate within 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.

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

Appendix
Emissions Calculations