

PROPOSED

TEMPORARY COVERED SOURCE PERMIT REVIEW - NO. 0627-01-CT

Application for Modification No. 0627-03

Significant Modification – Addition of one 500 TPH Mobile Powerscreen Screen and one Mobile MGL Conveyor

Applicant: PB Sullivan Construction, Inc.

Facility: 507 TPH Komatsu Mobile Jaw Crusher, 386 TPH Terex Pegson Mobile Cone Crusher, and two (2) 500 TPH Powerscreen Mobile Screens and Mobile MGL Conveyor

Initial Location: 1367 South Kihei Road, Kihei, Maui

Responsible Official: Peter Sullivan
Title: President
808.870.2215

Contact: Scott Sevadjian
ARCADIS
522.0321

Applicant's Mailing Address: 2662 Wai Wai Place, No. 201
Kihei, Maui, Hawaii 96753

SICC: 1429

Background:

PB Sullivan (PBS) owns and operates an existing rock processing plant consisting of a **507 TPH Mobil Jaw Crusher, 386 TPH Mobile Cone Crusher with a 500 TPH Mobile three-deck Screen** at various locations throughout Maui. The crusher is used to process stone and waste concrete. The jaw crusher has the ability to remove rebar embedded in the waste concrete. Raw materials and waste are dropped into a hopper which feeds the primary crusher via conveyor. Additional conveyors carry the processed material to storage piles.

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:

PBS is proposing to add a **500 TPH two-deck Mobil Screen and MGL Feed Conveyor** to the mobile stone processing plant. These added pieces of equipment may operate together with the 507 TPH jaw crusher and 386 TPH cone crusher or may operate alone at different jobsites. 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 a significant change because the potential emission increase at each jobsite is greater than 2 tons , HAR § 11-60.1-81.

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The stone processing equipment currently is under operating hour limitations in order to comply with the ambient air standards. PBS proposes to operate the mobile stone processing plant for a maximum of 2,000 hours per site per rolling twelve-month (12-month) period.

The proposed 500 TPH Powerscreen two-deck mobile screen is powered by a 100 hp Caterpillar diesel engine. The screen is track mounted and self-propelled. Its diesel engine is an insignificant activity because the heat input is less than 1M Btu. The screen is subject to NSPS Subpart OOO when it operates with either or both of the crushers.

The proposed MGL conveyor is powered by an 85 hp Cummins diesel engine. The conveyor is to be towed and a diesel engine drives the conveyor. This diesel engine is an insignificant activity because the heat input is less than 1M Btu. The conveyor is subject to NSPS Subpart OOO when it operates with either or both of the crushers.

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. 507 TPH Mobile Jaw Crusher, Komatsu model no. BR550JG-1, serial no. 1088 with a 306 hp diesel engine, Komatsu model no. SAA6D125, serial no. 211670;
- b. 386 TPH Mobile Cone Crusher, Terex Pegson, model no. Maxtrax 1300, serial no. 130173EA with 440 HP Caterpillar Diesel Engine, model no. CAT-13, serial no. LGK03104;
- c. 500 TPH Mobile 3-deck Screen, Powerscreen model no. Chieftain 2100, serial no. PID00124J75D05040 with 100 hp Deutz Diesel Engine, model no. BF4M2012, serial no. 1038293;
- d. **500 TPH Mobile 2-deck Screen, Powerscreen model no. Warrior 1800 (serial number to be provided upon arrival) with 100 hp Caterpillar diesel engine, model no. C4.4ATAAC (serial number to be provided upon arrival);**
- e. **Stacking Conveyor, MGL Engineering, Inc., model 7436, serial no. 746229 with an 85 hp Cummins diesel engine, model no. B3.3-85, serial no. 68065542;**
- f. Various waterspray systems.

Air Pollution Controls:

Water sprays are located at the crushers, screen, 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. Both of the existing crushers are greater than 150 TPH and were built after August 31, 1983. As such, the crushers are subject to Subpart OOO.

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 shows the net emissions from the proposed modification does not trigger BACT.

Table 1 - Emissions Rates, BACT

Pollutant	Existing Plant Emissions (TPY)	Proposed (net) Emissions (TPY)	Total Emissions (TPY)	BACT Trigger (TPY)
PM	28.0	15.8	43.8	25
PM ₁₀	21.0	5	26	15
SO _x	2.1	0	2.1	40
NO _x	22.8	0	22.8	40
VOC ¹	1.5	0	1.5	40
CO	6.2	0	6.2	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

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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.

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 PBS's inventory are not subject to Subpart IIII for the following reasons. The 100 hp and 85 hp diesel engines used to power the 500 TPH mobile 2-deck screen and mobile conveyor are both considered nonroad engines as defined in 40 CFR §1068.30. Subpart IIII applies to stationary internal combustion engines that are not mobile/nonroad engines.

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 stationary source as defined in 40 CFR §52.21 and HAR Title 11, Chapter 60.1, Subchapter 7.

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). This facility is not a synthetic minor source because potential emissions do not exceed major source thresholds when the facility is operated at its maximum capacity continuously for 8,760 hours per year.

Insignificant Activities/Exemptions:

The 100 hp Caterpillar diesel engine on the 500 TPH mobile 2-deck screen and the 85 hp Cummins diesel engine on the mobile conveyor are both insignificant activities because the heat input is less than 1 MMBtu/hr. HAR§11-60.1-82(f)(2)

Alternate Operating Scenarios:

No new alternate operating scenarios were proposed.

Project Emissions:

Emissions from the mobile stone processing plant were estimated using AP-42 and manufacturer emission factors. PM₁₀ emissions from the crushing operations were estimated using AP-42 section 11.19.2, revised 8/04. AP-42 section 3.3, revised 10/96, was used to estimate the emissions from the proposed diesel engines. The table below lists the maximum emissions from the mobile stone processing plant with the addition of the proposed modification.

Table 2 - Emissions for the Mobile Stone Processing Plant

Pollutant	Existing Facility ² Emissions 2,000 hrs (TPY)	Modification ^{3,4} Emissions 2,000 (TPY)	Total Emissions 2,000 hrs (TPY)
PM ₁₀	21.0	5	26
SO _x	2.1		2.1
NO _x	22.8		22.8
VOC ¹	1.5		1.5
CO	6.2		6.2

- 1 - Total Organic Compounds (TOC) as volatile organic compounds (VOC)
- 2- Existing facility consists of 507 TPH Mobile Jaw Crusher, 386 TPH Mobile Cone Crusher and 500 TPH Mobile 3-deck screen
- 3- Modification equipment consists of 500 TPH Mobile 2-deck screen and Mobile Conveyor. Emissions include storage piles and vehicular travel on unpaved roads.
- 4- Modification equipment diesel engines are insignificant activities and not included in the calculations.

Air Quality Assessment:

An ambient air quality assessment is not required for this modification because the proposed new Mobile Screen and Mobile Conveyor emissions are fugitive in nature. The diesel engines on the new Mobile Screen and Mobile Conveyor are insignificant activities. The existing diesel engine and its' emissions are considered part of the background.

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The applicant provided an Ambient Air Quality Impact Analysis (AAQIA) using the U.S. EPA, ISCST3 model for the past 2008 modification for the addition of the 386 TPH Mobile Cone

Crusher and 500 TPH Mobile 3-deck Screen. Annual concentrations were adjusted for operating 2,000 hours per year.

Table 3 - Predicted Impacts from the Caterpillar C-13 Diesel Engine

Pollutant	Averaging Period	Concentration ($\mu\text{g}/\text{m}^3$)			
		ISCST3 Model	Background	Total	% of SAAQS
NO _x	Annual	42	9	51	73%
SO ₂	3-hour	254	451	705	54%
	24-hour	113	161	274	75%
	Annual	13	11	24	30%
PM10	24-hour	23	72	95	64%
	Annual	3	22	25	49%
CO	1-hour	754	2,850	3,595	36%
	8-hour	522	1,967	2,489	50%

As shown in Table 3 above, it is predicted that the existing rock processing operation with the 2008 modification will not exceed the state or national ambient air quality standards (SAAQS/NAAQS) based on facility operating hour limits of 2000 hours per year.

Conclusion and Recommendation:

PBS is proposing to increase their inventory of equipment covered under this permit with the addition of a mobile screen and mobile conveyor. The emission estimates and modeling of the stone processing facility operating with the new equipment predicted that the facility will remain a non-major source and will operate within the limits of the ambient air quality standards provided operations are limited to 2000 hours per year. To ensure compliance, the operating hours must be monitored by the use of a non-resetting hour meter on the diesel engines. Air pollution controls at the facility consist of installing, operating, and maintaining waterspray systems and water trucks.

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

Appendices

TOTAL FACILITY EMISSIONS CALCULATIONS

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