PROPOSED

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

Application for Modification No. 0627-02

Significant Modification - Adding one 386 TPH Mobile Cone Crusher and one 500 TPH Mobile Screen

Applicant: PB Sullivan Construction, Inc.
Facility: 507 TPH Komatsu Mobile Jaw Crusher, 386 TPH Terex Pegson Mobile Cone Crusher, and 500 TPH Powerscreen Mobile Screen

Initially Located at: 1367 South Kihei Road, Kihei, Maui

Responsible Official: Peter Sullivan
Title: President
808.870.2215

Contact: Adam Smith
Consultant
522.0369

Applicant's Mailing Address: P.O. Box 734
Kihei 96753

SICC: 1429

Background:

PB Sullivan (PBS) owns and operates a 507 TPH mobile jaw crusher 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 one 386 TPH Terex Pegson mobile cone crusher and one 500 TPH Powerscreen three-deck mobile screen to the mobile stone processing plant. These added pieces of equipment may operate together with the 507 TPH jaw 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 significant change because the potential emission increase at each jobsite is greater than 25 percent of the significant amount.

The stone processing equipment will need operating hour limitations to comply with the ambient air standards. PBS proposing to operate the mobile stone processing plant for a maximum of 2,000 hours per site per rolling 12-month period.

The 386 TPH Terex Pegson cone crusher will be powered by either a Caterpillar C-12 or C-13 diesel engine. Since this crusher is track mounted and self-propelled, the diesel engine is considered non-road and is not subject to NSPS Subpart IIII. The cone crusher is subject to NSPS Subpart OOO.

The 500 TPH Powerscreen three-deck mobile screen powered by a 100 hp Deutz diesel engine. The screen is track mounted and self-propelled. This 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.

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 number to be provided upon arrival) with Caterpillar Diesel Engine, (horsepower rating, model number, and serial number to be provided upon arrival)**;

c. **500 TPH Mobile Screen, Powerscreen model no. Chieftain 2100 (serial number to be provided upon arrival) with 100 hp Deutz Diesel Engine, model no. BF4M2012 (serial number to be provided upon arrival)**;

d. various conveyors; and

e. 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 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	Proposed Emissions (TPY)	Past Emissions (TPY)	Net Emissions (TPY)	BACT Trigger (TPY)
TSP	28.0	25.2	2.8	25
PM_{10}	21.0	19.2	1.8	15
SO_x	2.1	1.2	0.9	40
NO_x	22.8	17.6	5.2	40
VOC[1]	1.5	1.4	0.1	40
CO	6.2	3.8	2.4	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.

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 diesel engine on the mobile crusher is considered a nonroad engine because the diesel engine propels the crusher as well as provides power to operate the crusher. Nonroad diesel engines are not subject the provisions of Subpart IIII. The 100 hp diesel engine used to power the 500 TPH mobile screen is an insignificant activity.

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.

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 facility would be a nonmajor source and thus is not a synthetic minor.

Insignificant Activities/Exemptions:

The 100 hp Duetz diesel engine on the 500 TPH mobile screen is an insignificant activity 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 manufacture emission factors. PM_{10} 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 existing 306 hp Komatsu diesel engine. For the new Caterpillar engine, SO_2 emissions were estimated using AP-42 section 3.3, revised 10/96, and all other criteria pollutants were estimated using the manufacturer's "not to exceed" emission rates. Since PBS does not know which Caterpillar diesel engine will be used on the new crusher, the highest emission rates were used to estimate the potential emissions. The table below lists the maximum emissions from mobile stone processing plant.

Table 2 - Emissions for the Mobile Stone Processing Plant

Pollutant	Potential Emissions 2,000 hrs (TPY)
PM_{10}	21.0
SO_x	2.1
NO_x	22.8
VOC[1]	1.5
CO	6.2

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 diesel engine on the new 386 TPH mobile crusher. The diesel engine on the 500 TPH mobile screen is an insignificant activity and was not included in the ambient air quality analysis model. The 306 hp Komatsu diesel engine is an existing diesel engine and its' emissions are considered part of the background. As such, the Komatsu diesel engine was not included in the model.

The applicant performed an Ambient Air Quality Impact Analysis (AAQIA) using the U.S. EPA SCREEN3 model. The following assumptions were used in the analysis;

1. Flat 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; and
5. 90 meters to the fence line.

Table 3 below lists the emission rates and stack parameters used in the analysis.

Table 3 - Emission Rates and Stack Parameters

	Emission Rates (g/s)				Stack Parameters			
Unit	NOx	SO_2	PM10	CO	Hgt (m)	Dia (m)	Vel. (m)	Temp (°K)
Caterpillar C-12	0.66	0.10	0.10	0.09	3.8	0.13	68.7	618
Caterpillar C-13	0.38	0.12	0.02	0.31	3.8	0.13	97.7	769

Since it is not known which Caterpillar diesel engine PBS will be used on the new 386 TPH mobile crusher, both diesel engines were modeled and evaluated for ambient air quality impacts. Background air quality data used in the analysis was obtained from the Department's 2006 Annual Summary of the Hawaii Air Quality Data. Table 4 below lists the monitoring stations and background concentrations used.

Table 4 - Background Values

Pollutant	Averaging Period	Background ($\mu g/m^3$)	Monitoring Station
NO_x	Annual	9	Kapolei
SO_2	3-hour	451	Hilo
	24-hour	161	Hilo
	Annual	11	Kona
PM10	24-hour	72	Kihei
	Annual	22	Kihei
CO	1-hour	2,850	Honolulu
	8-hour	1,967	University

The tables below summarize the potential impacts when background concentrations are included. Annual concentrations were adjusted for operating 2,000 hours per year.

Table 5 - Predicted Impacts from the Caterpillar C-12 Diesel Engine

		Concentration ($\mu g/m^3$)			
Pollutant	Averaging Period	SCREEN3 Model	Background	Total	% of SAAQS
NO_x	Annual	28	9	37	53%
SO_2	3-hour	80	451	531	41%
	24-hour	36	161	197	54%
	Annual	4	11	15	19%
PM10	24-hour	38	72	110	73%
	Annual	4	22	26	53%
CO	1-hour	88	2,850	2,938	29%
	8-hour	62	1,967	2,029	41%

Table 6 - Predicted Impacts from the Caterpillar C-13 Diesel Engine

		Concentration ($\mu g/m^3$)			
Pollutant	Averaging Period	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 the tables above, it is predicted that the operation of the new 386 TPH mobile crusher will not exceed the state or national ambient air quality standards (SAAQS/NAAQS).

Conclusion and Recommendation:

PBS is proposing to increase their inventory of equipment covered under this permit. 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. 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 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.