

PROPOSED

Reviewed by: CBS
December 29, 2006

Temporary Covered Source Permit (CSP) No. 0635-02-CT Review Initial Application No. 0635-02

Applicant: Metzler Contracting Company

Equipment Description:

1. 460 tph Extec C-12 mobile crusher (serial no. 9713);

The crusher includes:

2. 366 HP Deutz diesel engine (model no. BF6M1015C, serial no. 9-160-319 9713, 18.1 gal/hr fuel rate);
3. jaw crusher;
4. screen;
5. two (2) conveyors; and
6. water sprays

Air Pollution Controls:

The water sprays are proposed to control fugitive dust near the equipment and work site. The efficiency factor for water suppression is generally 70%. However, emission factors that included controls were used if provided by EPA AP-42.

Initial Equipment Location:

UTM Coordinates: Zone 5, 187,743m E; 2,191,918m N (NAD-83)
Kaupulehu, Hawaii

Mailing Address:

P.O. Box 617
Kapa'au, Hawaii 96755

Responsible Official / Point of Contact:

Mark F. Phipps
Equipment Manager
Ph: (808) 325-0326

Consultant:

Dr. Jim Morrow
1481 South King Street, Suite 548
Honolulu, HI 96814
Ph: 942-9096

PROPOSED

Proposed Project:

This is an initial CSP application for the same equipments that were permitted under NSP No. 0635-01-NT. The only change is to remove the weld that restricted the closed side setting of the jaw crusher to 3". Therefore, the equipment's capacity will be greater than 150 tph and thus be subject to NSPS Subpart OOO. All other operations will remain the same, including the 3,000 hr/yr limitation. The mobile crusher will operate at various locations. Although the application stated that the facility will process soil and rock, it was assumed that only large material would be crushed. Therefore, the emission factor for screening soil (fine screening in AP-42 was not used). The Standard Industrial Classification Code (SICC) for this facility is 1429 - Crushed and Broken Stone, Not Elsewhere Classified.

This permit review is based on the application dated October 12, 2006. The check for the application fee of \$1,000.00 for an initial non-air toxic temporary covered source permit will be processed and the receipt will be enclosed with the issued permit.

Applicable Requirements:

Hawaii Administrative Rules (HAR) Title 11 Chapter 59

Hawaii Administrative Rules (HAR) Title 11 Chapter 60.1

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, Sections 111 -115

Subchapter 8 - Standards of Performance for Stationary Sources

11-60.1-161 New Source Performance Standards

Subchapter 10 - Field Citations

40 CFR Part 60 - New Source Performance Standard (NSPS) Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants since the manufacture date of the equipment is after August 1983 and the portable plant has a maximum capacity of greater than 150 tph.

Non-Applicable Requirements:

40 CFR Part 60 - New Source Performance Standard (NSPS) Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines since the diesel engine is considered a 'non-road' engine as defined in 40 CFR 1068.30.

40 CFR Part 61 - National Emission Standard for Hazardous Air Pollutants (NESHAPS) because there is no standard for diesel engines or stone processing equipment.

PROPOSED

40 CFR Part 63 - Maximum Achievable Control Technology (MACT) since the facility is not a major source of hazardous air pollutants (HAPS) emissions (10 tpy of individual or 25 tpy of a combination of HAPs) and there is no standard for diesel engines or stone processing equipment.

Prevention of Significant Deterioration (PSD) since this is not a major stationary source.

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 CFR, 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 precontrol emissions that are greater than the major source level [>100 tpy]; and (5) not otherwise be exempt from CAM. CAM is not applicable to the plant since item 1 does not apply.

Consolidated Emissions Reporting Rule (CERR) is not applicable because emissions from the facility are less than reporting levels pursuant to 40 CFR 51, Subpart A (see **Table 1**).

Table 1 - CERR

Pollutant	Facility Emissions (tpy)	CERR Triggering Levels (tpy)		Internal Reporting Threshold (tpy)
		1-yr Reporting Cycle (Type A Sources)	3-yr Reporting Cycle (Type B Sources)	
VOC	0.12	≥ 250	≥ 100	≥ 25
PM	6.03	n/a	n/a	≥ 25
PM ₁₀ /PM _{2.5}	2.80	≥ 250	≥ 100	≥ 25
NO _x	4.72	$\geq 2,500$	≥ 100	≥ 25
SO _x	1.9	$\geq 2,500$	≥ 100	≥ 25
CO	1.33	$\geq 2,500$	$\geq 1,000$	≥ 250
HAPs (total)	0.015	n/a	n/a	≥ 5

Also, the internal reporting requirement is to sum the individual emissions sources and if the sum of an individual pollutant exceeds the threshold limits, then annual emissions reporting is required. However, since this is a covered source, internal reporting does apply.

A Best Available Control Technology (BACT) analysis is required for new sources or modifications to existing sources that would result in a net significant emissions increase as defined in HAR, Section 11-60.1-1. This is an existing source with no significant increase in emissions. Therefore, a BACT analysis is not required (see **Table 2**). In any event, this stone processing facility uses water sprays to control fugitive dust. Water sprays are considered BACT for other sources that have similar activities.

Synthetic Minor requirements because this facility would not be a major source (>100 tpy) if the facility operated continuously (8,760 hr/yr) at maximum capacity (see **Table 3**).

Insignificant Activities/Exemptions:

None proposed.

Alternative Operating Scenarios:

None proposed.

Project Emissions:

The project emissions were calculated by the consultant and checked by the Department of Health (DOH) using the manufacturer’s data for the criteria pollutants for the diesel engine (point source) and current AP-42 emission factors for diesel engine HAPs (point source); and stone processing and handling/storage piles (fugitive sources). Emissions from unpaved roads were not calculated since the processed material will be used on site (not imported or exported). The DOH’s policy is to not include fugitive emissions from unpaved roads if the trucks are owned by another business. In **Table 2**, the maximum potential annual emissions for the facility, as permitted, were calculated using the proposed limitation with controls (3,000 hrs/yr). The maximum production rate of the mobile crusher was provided by the manufacturer’s data. In **Table 3**, the uncontrolled emissions were calculated for information only.

For detailed emission factors, hourly emission rates, and calculations see Appendix A of the application.

Table 2 – Potential Facility Emissions

	Diesel Engine (tpy)	Mobile Crusher (tpy)	Handling / Storage Piles (tpy)	Total (tpy)	Sig Level (tpy)
SO₂	1.90			1.9	≥40
NO_x	4.72			4.72	≥40
CO	1.33			1.33	≥100
PM	0.12	1.12	4.91	6.15	≥25
PM₁₀/PM_{2.5}	0.12	0.47	2.33	2.92	≥15
VOC	0.12			0.12	≥40
HAPs	0.015			0.015	n/a

Note:

1. All emissions were based on maximum production rate at 3,000 hr/yr of operation.
2. The criteria pollutants for the diesel engine were based on manufacturer’s data. All other pollutants were based on the latest AP-42 emission factors.
3. All fugitive emissions include controlled emission factors (if available in AP-42) for water sprays except for handling/storage piles.

PROPOSED

Table 3 - Uncontrolled Facility Emissions

	Diesel Engine (tpy)	Mobile Crusher (tpy)	Handling / Storage Piles (tpy)	Total (tpy)	Sig Level (tpy)
SO₂	5.55			5.55	≥40
NO_x	13.78			13.78	≥40
CO	3.88			3.88	≥100
PM	0.35	29.08	14.39	43.82	≥25
PM₁₀/PM_{2.5}	0.35	11.5	6.80	18.65	≥15
VOC	0.35			0.35	≥40
HAPs	0.044			0.044	n/a

Note:

1. All emissions were based on maximum production rate at 8,760 hr/yr of operation.
2. The criteria pollutants for the diesel engine were based on manufacturer's data. All other pollutants were based on the latest AP-42 emission factors.
3. All fugitive emissions include uncontrolled emission factors in AP-42.

Ambient Air Quality Analysis:

A new ambient air quality analysis (AAQA) is not required since there is no proposed change to the diesel engine or hours of operations. Therefore, the previous AAQA still apply. The predicted worst case AAQA is shown in **Table 4**.

**Table 4
Predicted Ambient Air Quality Impacts**

AIR POLLUTANT	AVERAGING TIME	IMPACT ($\mu\text{g}/\text{m}^3$)	BACKGROUND ¹ ($\mu\text{g}/\text{m}^3$)	TOTAL IMPACT ($\mu\text{g}/\text{m}^3$)	AIR STANDARD ($\mu\text{g}/\text{m}^3$)	PERCENT STANDARD	IMPACT LOCATION (x,y,z) ²
SO ₂	3-Hour	380.0	55	435	1300	33%	187750; 2191880; 158
	24-Hour	169.0	21	190	365	52%	187750; 2191880; 158
	Annual ³	28.8	8	36.8	80	46%	187750; 2191880; 158
NO ₂	Annual ^{3,4}	53.7	9	62.7	70	90%	187750; 2191880; 158
CO	1-Hour	296.0	2394	2690	10000	27%	187750; 2191880; 158
	8-Hour	207.0	983	1190	5000	24%	187750; 2191880; 158
PM ₁₀	24-Hour	10.6	29	39.6	150	26%	187750; 2191880; 158
	Annual ³	1.9	13	14.9	50	30%	187750; 2191880; 158
Pb	Calendar Quarter	0	--	0	1.5	0%	--
H ₂ S	1-Hour	0	--	0	35	0%	--

Note:

1. The background concentrations are taken from the 2004 Hawaii Air Quality Data, Hilo for PM10, Kona for SO₂, and Kapolei monitoring station for all others.
2. The impact locations are at the UTM coordinates and elevation in meters, respectively.
3. The Annual concentrations are based on operating 3,000 hrs/yr.
4. Using EPA Tier 2 factor, 0.75 NO_x is assumed to convert to NO₂.

Sample calculation:

$$358 \mu\text{g}/\text{m}^3 \text{ NO}_x \times 0.2 \times 0.75 = \underline{53.7 \mu\text{g}/\text{m}^3}$$

Averaging factors are: 0.9, 0.7, 0.4, and 0.2 for 3hr, 8hr, 24hr, and annual averaging periods respectively.

Other Issues:

None.

Significant Permit Conditions:

1. Standard DE conditions;
2. Standard stone processing conditions;
3. 3,000 hr limit for the facility in any 12-month period (to meet SAAQS);
4. Remove the condition to weld the jaw to 3" closed side setting;
5. Change the production capacity from 140 tph to 460 tph;
6. Add NSPS OOO requirements; and
7. Change from a noncovered source permit to a covered source permit.

Conclusion and Recommendation:

In conclusion, it is the Department of Health's preliminary determination that the facility will comply with all State and Federal laws, rules, regulations, and standards with regards to air pollution. This determination is based on the application submitted by Metzler Contracting Company. Therefore, an initial temporary covered source permit for Metzler Contracting Company is recommended subject to the following:

1. The above special conditions;
2. 30-day public review period; and
3. 45-day EPA review period.