

PROPOSED

TEMPORARY COVERED SOURCE PERMIT RENEWAL REVIEW (0446-02) APPLICATION NO. 0446-03

APPLICANT: Tajiri Lumber, Ltd.
LOCATION: Various Temporary Sites, State of Hawaii

RESPONSIBLE OFFICIAL: Mr. Keith Y. Tajiri
President
1002 Puuwai Street
Honolulu, HI 96819
(808) 841-2896

**PLANT SITE MANAGER/
OTHER CONTACT:** same as "Responsible Official"

SIC CODE: 1442 (Construction Sand and Gravel)

BACKGROUND:

The permit renewal application was submitted August 9, 2006. The permit expiration date was November 13, 2007 and thus the submittal of the renewal application met the requirements in Attachment I, Standard Condition No. 26. The permittee submitted another renewal application with a check for the filing fee on March 2, 2007. The second renewal application was not necessary, and the \$1,000.00 check was returned since the permittee overpaid the filing fee. The permittee resubmitted the filing of \$500.00 on August 29, 2007. There were no proposed modifications to the equipment or operational changes.

EQUIPMENT:

One (1) 270 TPH Extec Pit-Bull Primary Jaw Crusher (Serial No. 5661) with integrated conveyors and watersprays
163 hp Deutz Diesel Engine, Model No. BF6M1013E, Serial No. 336624

AIR POLLUTION CONTROL EQUIPMENT:

Watersprays

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
 11-60.1-38 Sulfur Oxides from Fuel Combustion
 Subchapter 5, Covered Sources
 Subchapter 6, Fees for Covered Sources, Noncovered Sources, &
 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

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Subchapter 8, Standards of Performance for Stationary Sources
11-60.1-161 New Source Performance Standards
Subchapter 10, Field Citations

PREVENTION OF SIGNFICANT DETERIORATION (PSD), 40 CFR 52.21:

PSD review is not applicable since the facility is not a major stationary source.

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAPS), 40 CFR Part 61:

No hazardous air pollutants are emitted at significant levels (≥ 10 TPY single HAP or ≥ 25 TPY for total HAPs) and not a listed source under 40 CFR 61. Therefore, NESHAPS does not apply.

MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY (MACT), 40 CFR Part 63:

There are no MACT requirements for rock crushing plants.

NEW SOURCE PERFORMANCE STANDARDS (NSPS), 40 CFR Part 60:

NSPS 40 CFR Part 60 Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants applies for portable crushers with a maximum design capacity greater than 150 TPH and construction (fabrication, erection, or installation of an affected facility) date after August 31, 1983. The crusher has a capacity of 270 TPH and built after August 1983.

CONSOLIDATED EMISSIONS REPORTING REQUIREMENTS (CERR), 40 CFR Part 51, Subpart A:

40 CFR Part 51, Subpart A – Emissions Inventory Reporting Requirements, determines CERR based on facility-wide emissions of each air pollutant at the CERR triggering level(s). The emissions do not exceed the respective CERR threshold level. As such, emissions data will not be required to be inputted into the National Emissions Inventory (NEI) database.

The Clean Air Branch requests annual emissions reporting from those facilities that have facility-wide emissions exceeding the DOH reporting levels. Although there are no exceedances of the DOH reporting level, annual emissions reporting still is required because the crusher is a covered source.

Table 1 – CERR/In-house Triggering Levels

Pollutant	Facility Emissions (TPY)	Annual Cycle, Type A Sources (TPY)	3-yr. Cycle, Type B Sources (TPY)	DOH Reporting Level
SO _x	2.49	2,500	100	25
VOC	0.47	250	100	25
NO _x	9.92	2,500	100	25
CO	0.94	2,500	1,000	250
Pb	--	n/a	5	5
TSP	4.71	n/a	n/a	25
PM ₁₀	2.25	250	100	25
PM _{2.5}	0.48	250	100	n/a
Ammonia	--	250	100	n/a

MAJOR SOURCE/SYNTHETIC MINOR SOURCE APPLICABILITY:

A synthetic minor is a facility that is potentially major as defined in HAR 11-60.1-1 (e.g., >= 100 TPY), but is made non-major through operational restrictions by enforceable permit conditions. Potential emissions from the rock crusher operating 8,760 hr/yr are less than major source level. Thus, synthetic minor classification is not applicable.

COMPLIANCE ASSURANCE MONITORING (40 CFR Part 64):

Applicability of the Compliance Assurance Monitoring (CAM) rule is determined on a pollutant specific basis for each affected emission unit. Each determination is based upon a series of evaluation criteria. In order for a source to be subject to CAM, each source must:

1. Be located at a major source per Title V of the Clean Air Act Amendments of 1990;
2. Be subject to federally enforceable applicable requirements;
3. Have pre-control device potential emissions that exceed applicable major source thresholds;
4. Be fitted with an "active" air pollution control device; and
5. Not be subject to certain regulations that specifically exempt it from CAM

Compliance Assurance Monitoring (CAM) does not apply to this facility since it is not a major source.

BEST AVAILABLE CONTROL TECHNOLOGY (BACT) REQUIREMENTS:

BACT analysis is required for new sources and significant modifications to sources that have the potential to emit or increase emissions above significant levels, as defined in 11-60.1-1, considering any limitations, enforceable by the Director, on the source to emit a pollutant. Currently, there are no BACT requirements. For this renewal, no modifications were proposed that increase emissions greater than the significant level(s) and therefore BACT still is not applicable.

INSIGNIFICANT ACTIVITIES/EXEMPTIONS:

Insignificant activities are based on size, emission level, or production rate. There were no insignificant activities proposed in the initial application. None is proposed for this renewal.

ALTERNATE OPERATING SCENARIOS:

No current operating scenarios listed in permit. None is proposed for this renewal.

PROJECT EMISSIONS:

For crushing, screening and conveyor transfers, AP-42 controlled emission factors (EFs) are used wherever available instead of uncontrolled EFs with 70% controlled efficiency for watersprays as applied in the previous review. A 70% control efficiency is applied to belt loading and aggregate storage piles. Emission factors for the diesel engines remain unchanged from the initial review. PM_{2.5} was evaluated also for this renewal.

Per Keith Tajiri 2/27/08: The crushing plant consists only of one primary jaw crusher; there is one main belt for crushed material and a side belt for discharge of dirt. The crusher processes recycled concrete and no rock aggregate. No screens are used with the crushing plant.

Table 2 – 270 TPH Crushing Plant

Activity	Emission Factors, lb/ton			Annual Emissions, TPY		
	PM _{2.5}	PM ₁₀	TSP	PM _{2.5}	PM ₁₀	TSP
Belt Loading	^b 2.94 E-05	0.0001	^c 1.96 E-04	^d 1.04 E-02	3.55 E-02	6.95 E-02
Primary	0.0001	0.00054	0.0012	1.18 E-01	6.39 E-01	1.42
Conveyor Transfer Points (1)	1.3 E-05	4.6 E-05	0.00014	1.54 E-02	5.44 E-02	1.66 E-01
Storage Piles	^e 0.0006	^e 0.0039	^e 0.0082	0.21	1.38	2.91
Total				0.35	2.11	4.57

^a AP-42, Table 11.19.2-2 (8/04)

^b AP-42, Appendix B.2, Table B.2.2, Category 3, PM_{2.5} = 0.15TSP

^c AP-42, Appendix B.2, Table B.2.2, Category 3, TSP = PM₁₀ / 0.51

^d (270 ton/hr)(2.94 E-05 lb/ton)(8,760 hr/yr)(ton/2,000 lb)(1 – 70%) = 1.04 E-02 TPY

^e see “Aggregate Storage Piles” calculation

Aggregate Storage Piles

AP-42 Section 13.2.4.3 (11/06), Equation 1

E, lb/ton = k (0.0032) x [(U/5)^{1.3} / (M/2)^{1.4}] emission factor

U = 11.4 mph wind speed (AP-42, Table 7.1-9, Honolulu)

M_{agg} = 1.77% (AP-42, Table 11.12-2, footnote b)

Aggregate storage piles = (270 ton/hr)(8,760 hr/yr) = 2,365,200 TPY

PM₁₀: E = (0.35) (0.0032) x [(11.4/5)^{1.3} / (1.77/2)^{1.4}] = 0.0039 lb/ton

(2,365,200 ton/yr) x (0.0039 lb/ton) x (ton/2,000 lb) x (1-70%) = 1.38 TPY

PM_{2.5}: k = 0.053, E = 0.0006 lb/ton

(2,365,200 ton/yr) x (0.0006 lb/ton) x (ton/2,000 lb) x (1-70%) = 0.21

TSP: k = 0.74, E = 0.0082 lb/ton

(2,365,200 ton/yr) x (0.0082 lb/ton) x (ton/2,000 lb) x (1-70%) = 2.91

Table 3 – 163 hp Deutz Diesel Engine

Pollutant	Emission Factor, g/hp-hr	Annual Emissions, TPY
NO _x	6.3	^b 9.92
CO	0.6	0.94
SO _x	0.5% sulfur by weight	2.49
TSP	0.09	0.14
PM ₁₀ = 96% TSP	0.086	0.135
PM _{2.5} = 90% TSP	0.081	0.128
VOC	0.3	0.47

^a Manufacturer’s Specs; Appendix B.2, Table B.2-2 for PM₁₀ and PM_{2.5}

^b (163 hp)(6.3 g/hp-hr)(2.205 E-03 lb/g)(8,760 hr/yr)(ton/2,000 lb) = 9.92 TPY

^c (8.0 gal/hr)(7.1 lb/gal)(0.5%) = 0.28 lb S/hr

MW SO₂ / MW S = 64.06 / 32.06 implies (64.06 / 32.06) (0.28) = 0.57 lb SO₂ /hr

(0.57 lb SO₂ /hr) (8,760 hr/yr) (ton/2,000 lb) = 2.49 TPY

AIR QUALITY ASSESSMENT:

The Department of Health generally exempts an applicant from performing an ambient air quality impact analysis for (1) existing sources with no proposed modifications, (2) exempt activities, (3) fugitive emission sources (e.g., storage tanks, storage piles, pipe leaks, etc.), and (4) intermittent operating non-combustion sources. The facility is not proposing any modifications to the currently permitted equipment. Therefore, an air quality analysis was not performed for this renewal.

The emission rate for SO₂ used in the modeling is based on manufacturer's specs (0.0077 g/s). The emission rate calculated using mass balance with 0.5% sulfur weight is higher (0.0718 g/s) by a factor of 9.32 (e.g., 0.0718 / 0.0077). The adjusted SO₂ emission rate still shows compliance. The results using mass balance is shown in parenthesis.

The results of the modeling from the last review dated 8/9/02 are shown below:

Table 7 - Modeling Results For 163 hp Deutz Diesel Engine

Pollutant	Averaging Period	Conc. (ug/m ³)	^a Background (ug/m ³)	Total (ug/m ³)	SAAQS (ug/m ³)	Percent of SAAQS, (%)
SO ₂	3-hr	13.3 (124.0)	8.0	21.3 (132.0)	1,300	1.6 (10.2)
	24-hr	5.9 (55.0)	4.0	9.9 (59.0)	365	2.7 (16.2)
	Annual	3.0 (28.0)	4.0	7.0 (32.0)	80	8.7 (40.4)
NO _x	Annual	60.4	8.0	68.4	70	97.7
PM ₁₀	24-hr	3.0	121.0	124.0	150	82.6
	Annual	1.5	23.0	24.5	50	49.0
CO	1-hr	49.8	1,340.0	1,389.8	10,000	13.9
	8-hr	34.9	977.0	1,011.9	5,000	20.2

^a Worst case results at monitoring stations throughout the state (2001)

OTHER ISSUES:

1. The renewal permit includes updated language, revised language for clarity, and specific conditions not in the initial permit that are specific to rock crushing facilities. The major revisions (refer to renewal permit numbering) are:

Special Condition C.3.b (added) - fugitive emissions not crossing property boundary

Special Condition C.4 (revised) - opacity limits organized for the specific equipment

Special Condition C.5 (added) - inspection of watersprays, and investigation and correction of problem before resuming operation

Special Condition D.3 (added) - installation of watersprays and routine monitoring of waterspray equipment

Special Condition D.5.b (added) - monthly and annual visible emissions observation for the diesel engine

In addition, the fuel certification monitoring form was revised to include fuel consumption to address annual emissions requirements for covered sources.

SIGNIFICANT PERMIT CONDITIONS:

None for this renewal

CONCLUSION AND RECOMMENDATION:

There are no proposed modification(s) to the facility. The Department of Health therefore recommends issuance of the permit renewal pending 45-day EPA review and 30-day public comment periods.

Carl Ibaan
February 28, 2008