

PROPOSED

Permit Application Review Initial Temporary Covered Source Permit (CSP) No. 0569-01-CT Application No. 0569-01

Permit No.: 0569-01-CT

Application No.: 0569-01

Applicant: Willocks Construction Corporation

Facility: 340 TPH Mobile Crushing Plant

SIC Code: 1629 (heavy construction not elsewhere classified)

Location: Various sites, State of Hawaii

Initial Location: Kukuinui subdivision on Holoholo Street
in the existing Kona Palisades subdivision
Kona, Hawaii 96740

Responsible Official: Hugh H. Willocks, President
Ph: (808) 982-9099
16-209 Melekahiwa Place
Keaau, HI 96749

Contact Person: Kehu Flores, Office and Safety Clerk
Ph: (808) 982-9099
wclkf@interpac.net

Larry Hernandez Sr., Equipment Superintendent
(808) 936-5184
wclwh@interpac.net

Mailing Address: 16-209 Melekahiwa Place
Keaau, HI 96749

I. Background

Willocks Construction Corporation (Willocks Construction) proposes to operate a 340 TPH mobile crushing plant on tracks to process excavated material. The initial site for the crusher will be the Kukuinui subdivision on Holoholo Street located in the existing Kona Palisades subdivision. This area is located to the east of the Keahole Airport in Kona, on the island of Hawaii. The project is located on a steep hill near the mountains, and the nearest resident is approximately 100 feet from the job site.

PROPOSED

The crushed material, consisting mainly of lava rock, will be stockpiled, stored on site, and eventually used as structural backfill in residential and commercial construction projects. A 310 HP engine, integral to the unit, will power the crusher and screen. Diesel oil with a maximum sulfur content of 0.5% by weight will be used to fuel the engine.

An initial application for a temporary noncovered source permit was received by the Department of Health (DOH) on July 29, 2004, along with a check for \$200. The application was deemed incomplete and the check was returned at the request of the applicant who later submitted a \$150 check for the appropriate processing fee. Submittals are listed in the following table.

Table 1: Submittals		
Submittal Date	Receipt Date	Description
7/26/04	7/29/04	Initial temporary NSP application and \$200 application fee.
8/3/04	8/3/04	Additional information provided via email.
8/6/04	8/6/04	Additional information provided via email.
8/10/04	8/13/04	Check for the \$150 processing fee.
8/19/04	8/19/04	Manufacturer's engine information provided via email.
8/25/04	8/25/04	Revised manufacturer's engine information provided via email.

II. Equipment Description

Table 2: Equipment						
Description	Power	Manufacturer	Model No.	Serial No.	Maximum Capacity	Manuf. Date
Crusher	Engine	Extec	C12	6908	340 TPH	2001
Engine	Fuel oil, S <= 0.5% max	Caterpillar	3306BDITA	64Z31751	310 HP, 1850 RPM	2001

III. Air Pollution Controls

No control devices. Sulfur dioxide emissions are controlled using fuel containing no more than 0.5% sulfur by weight. Water sprays at the jaw crusher and end of the main conveyor and a water truck will be used to control fugitive dust at the facility.

IV. Applicable Requirements

1. Hawaii Administrative Rules (HAR), Title 11

Chapter 59, Ambient Air Quality Standards

Chapter 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, 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

Subchapter 8 - Standards of Performance for Stationary Sources

11-60.1-161 New Source Performance Standards

Subchapter 10 - Field Citations

2. PSD Requirements

PSD requirements do not apply because the facility is not considered a major stationary source and is not proposing any modifications to trigger a major modification as defined in 40 CFR 52.21 and HAR Title 11, Chapter 60.1, Subchapter 7.

3. NSPS Requirements

40 Code of Federal Regulations, Part 60, Standards of Performance for New Stationary Sources (NSPS)

Subpart A - General Provisions

Subpart OOO - Standards of Performance for Non-metallic mineral Processing Plants

Subpart OOO applies to portable crushed stone plants with capacities greater than 150 TPH which commence construction, reconstruction, or modification after August 31, 1983. The 340 TPH mobile crushing plant is subject to Subpart OOO because it meets the size and date criteria.

4. NESHAP Requirements

These requirements do not apply because no standard covering the facility's operation or equipment has been promulgated under 40 CFR 61.

5. MACT Requirements

These requirements do not apply because the facility is not a major source of hazardous air pollutants and the facility does not belong to a source category or subcategory for which a standard has been promulgated under 40 CFR 63.

PROPOSED

6. BACT Requirements

A BACT review is required for new or modified sources which will result in a “significant” net emissions increase as defined in HAR §11-60.1-1. Since emissions are below the significant level, a BACT review is not required.

Table 3: Emissions and Triggering Levels				
Pollutant	Facility Emissions (tpy)	Significant Level (tpy)	CER Type B Level (tpy)	DOH Level (tpy)
CO	25.45	100	1000	250
NOx	20.54	40	100	25
PM	19.59	25	-	25
PM-10	7.79	15	100	25
PM-2.5	2.87	-	100	25
SO2	4.97	40	100	25
VOC	2.90	40	100	25
Pb	-	0.6	5	5
HAPs	0.06	-	-	5

7. CAM Requirements (40 CFR 64)

The purpose of Compliance Assurance Monitoring (CAM) is to provide reasonable assurance that compliance is being achieved with large emission units that rely on air pollution control devices to meet an emissions limit or standard. CAM applies if the emissions unit:

1. is located at a major source;
2. is subject to an emissions limit or standard;
3. uses a control device to achieve compliance;
4. has potential pre-control emissions that are 100% of the major source level; AND
5. is not otherwise exempt from CAM.

Since the facility is not a major source, CAM does not apply.

8. CER/DOH Requirements

Consolidated Emissions Reporting (CER) requirements apply if facility emissions equal or exceed levels specified in 40 CFR 51, Subpart A, Appendix A, shown in the previous table. CER requirements do not apply because facility emissions do not equal or exceed the CER threshold levels. However the DOH requests annual emissions reporting for all covered sources.

9. Synthetic Minor & Major Source applicability

A synthetic minor is a facility that is potentially major (as defined in HAR §11-60.1-1) but is made non-major through federally enforceable permit conditions. This facility is not a synthetic minor based on potential emissions that are less than major source levels when the facility is operated at its maximum capacity continuously for 8,760 hr/yr.

PROPOSED

V. Insignificant Activities

None.

VI. Alternative Operating Scenarios

If the 310 HP diesel engine, is inoperable, an engine of the same or smaller size will be used as a temporary replacement until the original engine is again operable.

VII. Project Emissions

Facility emissions consist of point source criteria pollutants from the diesel engine stack. Calculated emissions were based on the manufacturer's data and AP-42, Section 3.3 (10/96).

Fugitive PM emissions from crushing, travel on unpaved roads, and aggregate handling were based on AP-42, Sections 11.19.2 (8/04) , 13.2.2 (12/03), and 13.2.4 (1/95), respectively, and account for use of water sprays to control fugitive emissions.

Calculations are contained in the enclosure and results are shown in the following table:

Table 4: Facility-Wide Emissions (tpy)					
Pollutant	Diesel Engine	Crushing & Screening	Aggregate Handling	Unpaved Roads	Total
CO	25.45				25.45
NO _x	20.54				20.54
PM	1.21	5.12	3.46	9.80	19.59
PM-10	1.19	2.06	1.64	2.90	7.79
PM-2.5	1.19	0.77	0.51	0.40	2.87
SO ₂	4.97				4.97
VOC	2.90				2.90
Pb					
HAPs	0.06				0.06

VIII. Air Quality Assessment

An Ambient Air Quality Impact Assessment was performed on the diesel engine point source. A Screen3 modeling analysis was performed based on the following assumptions:

- Rural area.
- Simple and complex terrain data with maximum slope of 10%.
- Default meteorology.
- Ambient temperature of 298 K (76 F).
- 1 g/sec of pollutant.
- Critical building for potential downwash is the crusher structure (38'L x 7'W x 11'H).
- Stack parameters and emission rates are as follows:

Table 5: Stack Parameters				
Height	Diameter	Velocity	Flow Rate	Exh. Temp
13 ft	5" = 0.417 ft	229 ft/sec	1878.7 cfm	974 F

Table 6: Stack Emission Rates (g/sec)			
CO	NOx	PM-10	SO2
0.732	0.591	0.034	0.143

- Final NO2 concentration based on the Tier 3 Ozone Limiting Method (OLM) which assumes 10% thermal conversion of NOx to NO2. Since the remaining 90% of NOx exceeds the ozone annual concentration of 38, $NO_2 = 0.1n + 46/48 \cdot 38$, where n is the predicted NOx concentration.
- Background concentration levels: Data from HELCO Keahole which is located near to the initial location of the facility.

PROPOSED

Table 7: Ambient Air Quality Assessment Results

Pol.	Avg.	Max 1-hr	Emis-	Time	Pred.	NO2	Bkgrd.	Total	SAAQs	NAAQs	%
	Time	Conc.	sions	Fac.	Conc.	OLM	Conc.	Impact			SAAQs /
		(ug/m3)	(g/sec)		(ug/m3)	Adjustment	(ug/m3)	(ug/m3)			NAAQs
CO	1 hr	1691	0.732	1	1237.8		969.0	2207	10000	40000	22
CO	8 hr	1691	0.732	0.7	866.5		736.0	1603	5000	10000	32
NO2	annual	1691	0.591	0.2	199.9	56.4	2.0	58	70	100	83
PM-10	24 hr	1691	0.034	0.4	23.0		27.0	50	150	150	33
PM-10	annual	1691	0.034	0.2	11.5		12.0	24	50	50	48
SO2	3 hr	1691	0.143	0.9	217.6		87.0	305	1300	-	23
SO2	24 hr	1691	0.143	0.4	96.7		34.0	131	365	365	36
SO2	annual	1691	0.143	0.2	48.4		4.0	52	80	80	65

Note: The maximum one-hour concentration was predicted to occur 40 m away from the source.

PROPOSED

IX. Significant Permit Conditions

1. The 340 TPH mobile crushing plant is subject to requirements of NSPS Subparts A and OOO.

Purpose: This federal standard applies to portable crushed stone plants with capacities greater than 150 TPH which commence construction, reconstruction, or modification after August 31, 1983.

2. The minimum engine stack height shall be 13 feet.

Purpose: The ambient air quality assessment is based on this stack height proposed by the applicant.

3. The engine shall only be fired on fuel oil no. 2 with a maximum sulfur content of 0.5% by weight.

Purpose: Per HAR §11-60.1-38(a), no person shall burn any fuel containing an excess of 2% by weight, except for fuel used in ocean-going vessels. Emission calculations and the air quality assessment are based on use fuel oil no. 2.

4. Reasonable efforts shall be taken to control fugitive emissions from the stone processing plant. This includes the use of water sprays at all crushers, transfer points, loading operations, unpaved roads, and aggregate stockpiles. It also includes maintenance of water sprays in good operating condition.

Purpose: Control PM and PM-10 emissions.

X. Conclusion

Willocks Construction Corp. proposes to operate a 340 TPH mobile crushing plant to process excavated material to be used as backfill. Emissions may be somewhat less than indicated in this review for the following reasons:

Emission calculations are based on the assumption of continuous operation. Actual facility operation will not occur continuously.

Issuance of a temporary Covered Source Permit is recommended based on the review of the information provided by the applicant and subject to the significant permit conditions.

April Matsumura
October 27, 2004