

PROPOSED

Permit Application Review
Application for Minor Modification No. 0029-05
Temporary Covered Source Permit (CSP) No. 0029-03-CT

Application No.: 0029-05

Applicant: Hawaiian Dredging Construction Company

Facility: 660 TPH Portable Crushing and Screening Plant

SIC Code: 1442 (construction sand and gravel)

Location: Various sites, State of Hawaii

Initial Location: Kahuku Sugar Mill
56-565 Kamehameha Highway
Kahuku, HI (Oahu)

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I. Background

Hawaiian Dredging Construction Company (HDCC) has submitted an application for a minor modification for its 660 TPH portable crushing and screening plant. The 12/22/04 application was received by the Department of Health (DOH) on 12/23/04, along with a \$100 check for the processing fee. HDCC proposes to add a 300 HP diesel engine generator (DEG) to power its facility when the 810 HP DEG is unavailable for use. The 810 HP DEG is permitted under both CSP 0029-03-CT and CSP 0467-01-CT.

In its 1/5/05 letter, HDCC proposes the following operational limits which will decrease potential emissions:

- Reduce the existing fuel usage limit for the 810 HP DEG from 82,992 to 27,930 gal/hr (an equivalent of 700 hr/yr based on its maximum fuel feed rate of 39.9 gal/hr).
- Limit fuel usage for the 300 HP DEG to 8,090 gal/yr (an equivalent of 500 hr/yr based on its maximum fuel feed rate of 16.18 gal/hr).
- Limit fuel for the 300 HP DEG to Diesel No. 2 with sulfur content not to exceed 0.5% by weight.
- The 810 HP and 300 HP DEGs shall not be operated simultaneously.

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II. Equipment Description

Table 1 provides information on the 300 HP DEG. Table 2 provides equipment information on the rest of the permitted equipment.

Table 1: 300 HP DEG	
Description	300HP DEG
Manufacturer	Caterpillar
Model no.	1306-E87TA300
Serial no.	EFA00186
Max HP	300
Max Feed (gph)	16.18
Trailer housing dimensions (L,W,H)	19'-2" x 6'-11" x 9'H
Stack height	12'
Diameter	5"
Flow rate (cfm)	1603
Velocity (fps)	196
Exit Temp. (F)	952
CO (g/sec)	0.265
NO2 (g/sec)	1.232
PM10 (g/sec)	0.087
SO2 (g/sec)	0.144
Note: Information on the 300 HP DEG provided in 1/4/05 fax and 1/7/05 emails.	

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Table 2: Description of Existing Equipment						
Unit	Manufacturer	Model No.	Serial No.	Maximum Capacity	Manuf. Date	Notes
Primary jaw crusher	Cedarapids	3042	43480	660 TPH	1992	Model and serial nos. verified on 11/5/04.
Cone crusher	Cedarapids Eljay	RC54	2310792	380 TPH	2000	Also permitted under CSP 0467. Updated equipment info per 11/22/04 fax from K. Lee.
Vibrating grizzly feeder	Cedarapids	4217VGF	43479	42" x 17'	1992	Updated equipment info per 11/22/04 fax from K. Lee.
3-deck Screen	Cedarapids	5163-26	34C1492	5' x 17'	1992	Also permitted under CSP 0467. Updated equipment info per 12/13/04 email from K. Lee.
DEG	Caterpillar	3412DI	81Z09827	39.9 gph	1992	Also permitted under CSP 0467. No change to equipment identification no.
<p>Note: The DEG is mounted inside a trailer which can be towed. Fuel is stored in a 600 gallon tank mounted inside the trailer. (Ref: Permit application review dated 6/30/99, page 2, paragraph 1.3.</p>						

III. Air Pollution Controls

Although there are no control devices, sulfur dioxide emissions are controlled using fuel containing no more than 0.5% sulfur by weight.

A water spray system is operated and maintained to control fugitive dust emissions. Water spray bars are operated at the following locations:

- Feeder to primary crusher;
- Exit of primary jaw crusher;
- Transfer to triple deck screen; and
- Exit of secondary cone crusher.

In addition, a water spray truck is used on facility grounds to control fugitive dust emissions from unpaved roads and stockpiles.

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

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

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.

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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. Since this facility meets the size and date criteria, it is subject to Subpart OOO.

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.

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 proposed modifications will not result in a significant net emissions increase, a BACT review is not required.

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 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 following table. CER requirements do not apply because facility emissions do not equal or exceed the CER threshold levels. However annual emissions reporting is required for all covered sources.

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Table 3: Emissions and Triggering Levels			
Pollutant	Facility Emissions (TPY)	Significant Level (TPY)	CER Type B Level (TPY)
CO	2.16	100	1000
NOx	8.56	40	100
PM	11.45	25	-
PM-10	4.33	15	100
PM-2.5	2.48	-	100
SO2	1.25	40	100
VOC	0.36	40	100
Pb	-	0.6	5
HAPs	0.01	-	-

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 a synthetic minor of NOx based on potential emissions that are greater than major source levels when the facility is operated at its maximum capacity continuously for 8,760 hr/yr.

V. Insignificant Activities

Table 4: Insignificant Activities	
Description	HAR Reference
1 - 600 gallon tank holding diesel fuel for the DEG	11-60.1-82(f)(1) Any storage tank, reservoir, or other container of capacity equal to or less than 40,000 gallons storing volatile organic compounds, except those storage tanks, reservoirs, or other containers subject to any standard or other requirement pursuant to Sections 111 and 112 of the Act.

VI. Alternative Operating Scenarios

If the 810 HP or 300 HP DEG is inoperable, a DEG of the same or smaller size will be used as a temporary replacement until the original DEG is repaired and again operable.

VII. Project Emissions

Potential emissions from the facility will be less than initially proposed in the HDCC renewal application for the following reasons:

- The proposed reduction in allowable gallons of fuel for the 810 HP DEG will reduce its potential emissions.
- Proposed fuel limits for the 810 and 300 HP DEGs which power the facility will reduce facility operating hours, resulting in lower emissions from crushing operations, travel on unpaved roads and aggregate handling.

Calculations are contained in the appendix and results are shown in the following table.

Pollutant	810 HP DEG	300 HP DEG	Crushing Operations	Unpaved Roads	Aggregate Handling	Total
CO	1.63	0.53				2.16
NOx	6.12	2.44				8.56
PM	0.19	0.19	5.18	4.3	1.59	11.45
PM-10	0.11	0.17	2.00	1.3	0.75	4.33
PM-2.5	0.09	0.17	1.78	0.2	0.24	2.48
SO2	0.97	0.28				1.25
TOC	0.17	0.19				0.36
Pb	-	-				-
HAPs	0.008	0.004				0.01

VIII. Air Quality Assessment

An Ambient Air Quality Impact Assessment (AAQIA) is generally performed for new or modified sources. An AAQIA was performed on the 300 HP DEG, based on the following assumptions:

- Screen3 model.
- Rural area.
- Flat terrain.
- Default meteorology.
- Ambient temperature of 298 K (76 F).
- 1 g/sec of pollutant.
- Critical building for potential downwash is the DEG trailer housing with dimensions as shown in Table 1.
- Stack parameters and emission rates as shown in Table 1.
- Background concentration levels as shown in Table 3.

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Results indicate that predicted ambient concentrations will meet NAAQS and SAAQS for both scenarios.

Table 6: Ambient Air Quality Assessment Results														
Pol.	Avg.	Max 1-hr	Emis-	Time	Pred.	Annual	Adjusted	Bkgrd.	Bkgrd.	Data	Total	SAAQS	NAAQS	%
	Time	Conc.	sions	Fac.	Conc.	Limit	Conc.	Conc.	Conc.	Year	Impact			SAAQS/ NAAQS
		(ug/m3)	(g/sec)		(ug/m3)	(500 hr/yr)	(ug/m3)	(ug/m3)	Site		(ug/m3)			
CO	1 hr	1021	0.265	1	270.6		270.6	2166.0	Kapolei	2003	2437	10000	40000	24
CO	8 hr	1021	0.265	0.7	189.4		189.4	841.0	Kapolei	2003	1030	5000	10000	21
NO2	annual	1021	1.232	0.2	251.6	14.4	14.4	8.0	West Beach	2003	22	70	100	31
PM-10	24 hr	1021	0.087	0.4	35.5		35.5	33.0	West Beach	2003	69	150	150	46
PM-10	annual	1021	0.087	0.2	17.8	1.0	1.0	16.0	West Beach	2003	17	50	50	34
SO2	3 hr	1021	0.144	0.9	132.3		132.3	16.0	West Beach	2003	148	1300	-	11
SO2	24 hr	1021	0.144	0.4	58.8		58.8	4.0	West Beach	2003	63	365	365	17
SO2	annual	1021	0.144	0.2	29.4	1.7	1.7	0.2	West Beach	2003	2	80	80	3
Notes:														
1. The maximum concentration was predicted to occur 27 meters from the source.														
2. The annual concentration is adjusted by the equivalent operational limit of $500/8760 = 0.057$ under the "Annual Limit" column.														
3. In the absence of background concentration data for the specific site, background concentration was estimated using data from a monitoring site determined most similar to the actual site in terms of population, location, and terrain.														

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IX. Significant Permit Conditions

1. The 660 TPH portable crushing and screening 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 two DEGs (810 HP and 300 HP) shall not be operated simultaneously.

Purpose: Emission calculations are based on this provision proposed by the applicant.

3. The two DEGs (810 HP and 300 HP) shall only be fired on diesel 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 are based on the use of diesel no. 2 with a maximum sulfur content of 0.5% by weight.

4. Fuel usage for the 810 HP DEG shall be limited to 27,930 gallons per rolling 12-month period.

Purpose: Emission calculations are based on this limit proposed by the applicant.

5. Fuel usage for the 300 HP DEG shall be limited to 8,090 gallons per rolling 12-month period.

Purpose: Emission calculations are based on this limit proposed by the applicant.

6. The minimum stack height of the 300 HP DEG shall be 12 feet.

Purpose: The ambient air quality assessment is based on this stack height.

7. 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

HDCC proposes to continue operation of its 660 TPH portable crushing and screening plant and to add a 300 HP DEG to power the facility when the 810 HP DEG is not available. The new proposed fuel use limits decrease potential facility emissions.

Issuance of an amended CSP to incorporate this minor modification is recommended based on the review of the information provided by the applicant and subject to the significant permit conditions.

April Matsumura
January 27, 2004