

PROPOSED

**PERMIT APPLICATION REVIEW
COVERED SOURCE PERMIT NO. 0653-02-C
Application for Minor Modification No. 0653-04**

Company: Waste Management of Hawaii, Inc.

Mailing Address: P.O. Box 384419
Waikoloa, Hawaii 96738

Facility: West Hawaii Sanitary Landfill
Crushing and Screening Plants

Location: 71-1111 Queen Kaahumanu Highway
Waikoloa, Hawaii 96738

SIC Code: 1429 (Crushed and Broken Stone, Not Elsewhere Classified)

Responsible Official: Mr. Joseph R. Whelan
General Manager
92-460 Farrington Highway
Kapolei, Hawaii 96707
(808) 668-2985

Contact: Mr. Mike Kaha
Site Manager
71-1111 Queen Kaahumanu Highway
Waikoloa, Hawaii 96738
(808) 886-0940

Equipment:

1. 440 TPH Metso jaw crushing plant, model no. LT105, serial 72816, with:
 - a. 300 hp Caterpillar diesel engine, model no. C9, serial no. CLJ07851;
 - b. Various conveyors; and
 - c. Water spray system.

2. 275 TPH Extec screening plant, model no. 1999 Extec CE98, serial no. 5474, with:
 - a. 111 hp Deutz diesel engine (exempt); and
 - b. Various conveyors.

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BACKGROUND

Waste Management of Hawaii has submitted an application for minor modification to operate a 440 TPH crushing plant with 300 hp diesel engine. The existing permitted crushing plant is a 340 TPH Extec crushing plant with up to 425 hp Caterpillar diesel engine, model no. C9. Waste Management purchased the proposed crushing plant instead of the existing permitted crushing plant. This minor modification updates the existing crushing plant with the proposed crushing plant. The proposed crushing plant was previously permitted under covered source permit no. 0660-01-CT. There are no other proposed changes to existing equipment in the design or operation of the facility.

The proposed modification meets the criteria for minor modification as defined in HAR §11-60.1-81. There is an increase in PM emissions of 0.4 TPY, below the minor modification threshold level of 2 TPY. There are no increases in emissions for any other pollutant. There are also no changes to existing monitoring, reporting, or recordkeeping requirements.

The crusher and screen will be used to process rock, dirt, soil or other similar material to be used for cover as needed throughout the landfill. The material is loaded into a hopper, crushed/screened, and conveyed to temporary storage piles. The material is then loaded onto trucks from the storage piles to provide cover at various locations throughout the facility.

APPLICABLE REQUIREMENTS

Hawaii Administrative Rules (HAR)

Title 11 Chapter 59, Ambient Air Quality Standards

Title 11 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 9, Hazardous Air Pollutant Sources

Subchapter 10, Field Citations

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Standard of Performance for New Stationary Sources (NSPS), 40 CFR Part 60

Subpart OOO – Standards of Performance for Nonmetallic Mineral Processing Plants is applicable to the crushing plant (constructed before 2007) and screening plant (constructed in 2007) because the maximum capacity of the facility is greater than 150 tons/hour, and the plants were manufactured after August 31, 1983.

Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines is not applicable to the 300 hp diesel engine because the engine is considered a nonroad engine as defined in 40 CFR §1068.30. Subpart IIII applies to stationary internal combustion engines that are not nonroad engines.

National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61

This source is not subject to NESHAPs because there are no standards in 40 CFR Part 61 applicable to this facility.

NESHAPs for Source Categories (Maximum Achievable Control Technology (MACT)), 40 CFR Part 63

Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE) is not applicable to the 300 hp diesel engine because the engine is considered a nonroad engine as defined in 40 CFR §1068.30. Subpart ZZZZ applies to stationary internal combustion engines that are not nonroad engines.

Prevention of Significant Deterioration (PSD), 40 CFR Part 52, §52.21

This source is not subject to PSD requirements because it is not a major stationary source as defined in 40 CFR §52.21 and HAR Title 11, Chapter 60.1, Subchapter 7.

Compliance Assurance Monitoring (CAM), 40 CFR 64

This source is not subject to CAM because the facility is not a major source. The purpose of 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.

Air Emissions Reporting Requirements (AERR), 40 CFR Part 51, Subpart A

AERR is not applicable because potential emissions from the facility do not exceed AERR thresholds.

DOH In-house Annual Emissions Reporting

The Clean Air Branch requests annual emissions reporting from those facilities that have facility wide emissions exceeding in-house reporting levels and for all covered sources. Annual emissions reporting will be required because this facility is a covered source.

Best Available Control Technology (BACT)

This source is not subject to BACT analysis because potential emissions (excluding emissions from unpaved roads) are below significant levels. BACT analysis is required for new covered sources or significant modifications to covered sources that have the potential to emit or increase emissions above significant levels considering any limitations as defined in HAR, §11-60.1-1.

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Synthetic Minor Source

A synthetic minor source 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 source because potential emissions do not exceed major source thresholds when the facility is operated without limitations for 8,760 hours/year.

Greenhouse Gas Tailoring Rule

Title V permitting for greenhouse gas (GHG) emissions is not applicable because the potential to emit of CO₂ equivalent (CO₂e) emissions are less than 100,000 tons per year. Total GHG emissions on a CO₂e basis using the global warming potential (GWP) of the GHG are shown in the table below.

GHG	GWP	GHG Mass-Based Emissions (TPY)	CO ₂ e Based Emissions (TPY)
Carbon Dioxide (CO ₂)	1	689	689
Methane (CH ₄)	21	0	0
Nitrous Oxide (N ₂ O)	310	0	0
Total Emissions:			689

INSIGNIFICANT ACTIVITIES / EXEMPTIONS

Diesel Engine

The 111 hp Deutz diesel engine powering the 275 TPH screen is considered an insignificant activity in accordance with HAR §11-60.1-82(f)(2) because the heat input capacity is less than one MMBtu/hr. Based on the conversion factor from AP-42 (10/96) Table 3.3-1, note a:

$$111 \text{ hp} \times 7,000 \text{ Btu/hp-hr} = \underline{0.78 \text{ MMBtu/hr}}$$

ALTERNATIVE OPERATING SCENARIOS

Diesel Engine

The permittee may replace the diesel engine with a temporary replacement unit of similar size with equal or lesser emissions if any repair reasonably warrants the removal of the diesel engine from its site (i.e., equipment failure, engine overhaul, or any major equipment problems requiring maintenance for efficient operation).

AIR POLLUTION CONTROLS

Water sprays will be used as necessary to minimize fugitive emissions from crushing and screening operations, material transfer points, stockpiles, and plant roads. The crusher is equipped with a water spray system. Water trucks will be used to control fugitive dust associated with the on-site movement of trucks involved in material transfer.

PROJECT EMISSIONS

The operating hours of the crushing and screening plants will be limited to 4,000 hours in any rolling twelve-month (12-month) period.

440 TPH Crushing Plant

The maximum capacity of the crusher was used to calculate emissions. Water sprays will be used to control PM emissions. Emissions were based on emission factors from AP-42 Section 11.19.2 (8/04) – Crushed Stone Processing and Pulverized Mineral Processing.

440 TPH Crushing Plant		
Pollutant	Emissions (TPY) [4,000 hr/yr]	Emissions (TPY) [8,760 hr/yr]
PM	1.6	3.6
PM-10	0.7	1.5
PM-2.5	0.2	0.3

300 hp Caterpillar Diesel Engine

The 300 hp diesel engine is fired on fuel oil no. 2 with a maximum sulfur content of 0.5% by weight. Emissions were based on manufacturer’s data. The mass balance method was used to determine SO₂ emissions. HAP emissions were based on emission factors from AP-42 Section 3.3 (10/96) – Gasoline and Diesel Industrial Engines.

300 hp Caterpillar Diesel Engine			
Pollutant	Emissions (lb/hr)	Emissions (TPY) [4,000 hr/yr]	Emissions (TPY) [8,760 hr/yr]
CO	0.63	1.26	2.76
NO _x	3.95	7.90	17.30
SO ₂	1.06	2.13	4.66
PM	0.06	0.12	0.26
PM-10	0.06	0.12	0.26
PM-2.5	0.06	0.12	0.26
VOC	0.15	0.30	0.66
HAPs	0.008	0.016	0.036

275 TPH Screening Plant

The maximum capacity of the screen was used to calculate emissions. Emissions were based on emission factors from AP-42 Section 11.19.2 (8/04) – Crushed Stone Processing and Pulverized Mineral Processing.

275 TPH Screening Plant		
Pollutant	Emissions (TPY) [4,000 hr/yr]	Emissions (TPY) [8,760 hr/yr]
PM	18.8	41.2
PM-10	6.7	14.6
PM-2.5	2.8	6.2

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Storage Piles

The maximum capacities of the crusher and screen were used to calculate emissions. Emissions were based on emission factors from AP-42 Section 13.2.4 (11/06) – Aggregate Handling and Storage Piles.

Storage Piles		
Pollutant	Emissions (TPY) [4,000 hr/yr]	Emissions (TPY) [8,760 hr/yr]
PM	0.8	1.7
PM-10	0.4	0.8
PM-2.5	0.1	0.1

Vehicle Travel on Unpaved Roads

The maximum capacities of the crusher and screen were used to calculate emissions. A 70% control efficiency was assumed for water suppression to control fugitive dust. Emissions were based on emission factors from AP-42 Section 13.2.2 (11/06) – Unpaved Roads.

Vehicle Travel on Unpaved Roads		
Pollutant	Emissions (TPY) [4,000 hr/yr]	Emissions (TPY) [8,760 hr/yr]
PM	10.9	23.8
PM-10	2.7	5.8
PM-2.5	0.3	0.6

Total Emissions

Total facility emissions are summarized in the table below.

Total Facility Emissions and Trigger Levels (TPY)					
Pollutant	Emissions (With Limits)	Emissions (No Limits)	BACT Significant Levels	AERR Thresholds	DOH Levels
CO	1.3	2.8	100	1000	250
NO _x	7.9	17.3	40	100	25
SO ₂	2.1	4.7	40	100	25
PM	21.3 (32.2*)	46.7 (70.5*)	25	-	25
PM-10	7.8 (10.5*)	17.2 (23.0*)	15	100	25
PM-2.5	3.2 (3.4*)	6.9 (7.5*)	-	100	-
VOC	0.3	0.7	40	100	25
HAPs	0.02	0.04	-	-	5

* Including emissions from vehicle travel on unpaved roads.

AIR QUALITY ASSESSMENT

An ambient air quality impact analysis (AAQIA) is generally required for new or modified sources to demonstrate compliance with State and National ambient air quality standards. An ambient air quality impact analysis is not required for the proposed 300 hp diesel engine because the diesel engine has the same specifications as the existing diesel engine and there are no increases in emissions.

SIGNIFICANT PERMIT CONDITIONS

1. Operating Hour Limits

- a. The total operating hours of the 440 TPH crushing plant, as represented by the total operating hours of the 300 hp diesel engine, shall not exceed 4,000 hours in any rolling twelve-month (12-month) period.
- b. The total operating hours of the 275 TPH screening plant, as represented by the total operating hours of its exempt diesel engine, shall not exceed 4,000 hours in any rolling twelve-month (12-month) period.

Reason: Operating limit proposed by the applicant to limit emissions.

2. Fuel Limits

The 300 hp diesel engine shall be fired only on fuel oil no. 2 with a maximum sulfur content not to exceed 0.5% by weight.

Reason: Fuel type proposed by the applicant.

3. Incorporate provisions of 40 CFR 60, Subpart OOO.

Reason: The crushing and screening plants are subject to 40 CFR 60, Subpart OOO.

CONCLUSION

Waste Management of Hawaii has submitted an application for minor modification to operate a 440 TPH Metso crushing plant, which replaces the existing 340 TPH Extec crushing plant. There are no other proposed changes in this minor modification. Water sprays will be used to control fugitive emissions. Potential emissions were based on the maximum rated capacities of the equipment. Recommend issuance of the covered source permit subject to the incorporation of the significant permit conditions and 45-day Environmental Protection Agency review period.

Mark Saewong
September 27, 2013