

# DRAFT

## PERMIT APPLICATION REVIEW TEMPORARY COVERED SOURCE PERMIT NO. 0830-01-CT Initial Permit Application No. 0830-01

**Company:** Maui Asphalt X-IV, LLC

**Mailing Address:** 72 Ting's Drive  
Wailuku, Maui, Hawaii 96793

**Facility:** 250 TPH Portable Drum Mix Asphalt Plant

**Location:** Various Temporary Sites, State of Hawaii

**Initial Location:** Puunene Quarry, Puunene, Maui (for storage purpose only)  
UTM: 765,979 Meters East, 2,304,078 Meters North, Zone 4 (NAD 83)

**SIC Code:** 2951 (Asphalt Paving Mixtures and Blocks)

**Responsible Official:** Ms. Dyvette Fong  
Member  
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**Consultant:** J. W. Morrow  
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### Equipment:

Facility Equipment				
Equipment	Manufacturer	Model No.	Serial No.	Manf. Date
250 TPH Drum Mixer with 75.0 MMBtu/hr Burner	ALmix	88 Uniflow	1123-DM-1-2015 4	2015
Drum Mixer Baghouse	ALmix	62,000 CFN	1123-BH-1-2015 5	2015
2.2 MMBtu/hr HOH (Insignificant)	ALmix	HC-200		2015
1,214 hp CAT Genset (Nonroad)	Caterpillar	C27	MJE01963	06/10
5 Compartment Cold Feed Bin	ALmix	18 ton each	1123-AB-1-2015 2	2015
(3) 200 ton Silos	ALmix		1123-SS-1-2015 9-11	2015
(3) 35,000 gallon Asphalt Tanks (Insignificant)	ALmix		1123-AT-1-2015 12-14	2015
Scalping Screen	Deister	3'x6' Single Deck	-	2015
RAP Recycling System	Almix		1123-RB-1-2015 6	2015
RAP Scalping Screen	ALmix	4'x8' Single Deck	-	2015
Weigh Conveyor	Virgin Agg		1123-IC-1-2015 3	2015
Drag Conveyor	Almix		1123-DC-1-2015 8	2015
Various Other Conveyors				
Control House	Almix		1123-CH-1-2015 7	2015

**BACKGROUND**

Maui Asphalt X-IV, LLC has submitted an application to operate a 250 TPH portable drum mix asphalt plant. The plant is currently in storage at the Puunene Quarry, but the intended use is outside of the quarry upon issuance of the permit.

The permittee requested the operating limit of 3,000 hours per year that will be maintained on a rolling twelve-month (12-month) basis.

Process

Raw materials include aggregate and liquid asphalt. Aggregate types are proportioned by calibrated belt feeders onto a common collecting belt which transports the combined material into the drum. Hot liquid asphalt is added to the aggregate in the drum.

The drum mixer is of the counter flow design where the gas stream moves in the opposite direction to the aggregate. The burner is located at the discharged end of the drum mixer and the heated gases are pulled through a knock-out box at the material inlet of the drum, before entering the baghouse. The captured aggregate dust is returned to the drum via pneumatic conveyor. The final product is conveyed via a drag conveyor to the holding silo for truck load-out.

**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

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

Subpart I - Standards of Performance for Hot Mix Asphalt Facilities is applicable to the 250 TPH hot mix asphalt facility because the facility commenced construction or modification after June 11, 1973.

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40 CFR Part 60 – NSPS, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines does not apply to the portable diesel engine generator because the unit will be operated as a nonroad engines. Nonroad engines are exempt from 40 CFR Part 60, Subpart IIII.

National Emission Standards for Hazardous Air Pollutants (NESHAPS), 40 CFR Part 61  
This source is not subject to NESHAPS as no hazardous air pollutants are emitted at significant levels and there are no NESHAPS requirements in 40 CFR Part 61.

40 CFR Part 63 – NESHAPS, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines is not applicable to the diesel engine generator because the unit will be operated as a nonroad engines. Nonroad engines are exempt from 40 CFR Part 63, Subpart ZZZZ. There are no other MACT requirements for this source.

### Prevention of Significant Deterioration (PSD)

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 since 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 emissions from the facility do not exceed AERR thresholds. See table, Total Facility Emissions and Trigger Levels (TPY), for results.

### DOH Annual Emissions Reporting

The Clean Air Branch requests annual emissions reporting from those facilities that have facility wide emissions exceeding the DOH reporting level(s) and for all covered sources. Internal annual emissions reporting will be required because this is a covered source.

### Best Available Control Technology (BACT)

This source is subject to BACT analysis because potential NO<sub>x</sub> emissions are above significant levels. BACT analysis is required for new sources or modifications to sources that have the potential to emit or increase emissions above significant levels considering any limitations as defined in HAR, §11-60.1-1.

NO<sub>x</sub> control for the Diesel engine generator is achieved by turbocharging, aftercooling, and a design which assures compliance with EPA Tier 2 emission standards. NO<sub>x</sub> control for the drum mixer/dryer is achieved by proper maintenance and operation of the burners within their design specifications.

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 a synthetic minor source because potential emissions do exceed major source thresholds (100 TPY) when the facility is operated at its maximum capacity continuously for 8,760 hours per year. The facility is limited to operating a maximum of 3,000 hours per rolling twelve-month (12-month) period.

**INSIGNIFICANT ACTIVITIES / EXEMPTIONS**

Hot Oil Heater

The 2.2 MMBtu/hour (15.7 gal/hr) hot oil heater, is considered an insignificant activity for its primary fuel, ULSD, in accordance with HAR §11-60.1-82(f)(7) because the emissions are less than established limits.

<b>Hot Oil Heater</b>		
<b>Pollutant</b>	<b>Emissions (lb/hr)</b>	<b>Emissions (TPY) [8,760 hr/yr]</b>
CO	0.08	0.34
NO <sub>x</sub>	0.31	1.38
SO <sub>2</sub>	0.00	0.01
PM	0.03	0.14
PM-10	0.02	0.07
PM-2.5	0.01	0.06
VOC	0.01	0.04
HAPs	0.00	0.01

Data based on the hot oil heater being fired on fuel oil No. 2 with a maximum sulfur content of 0.0015% by weight. The maximum fuel consumption is 15.7 gallons/hour. Emissions were based on emission factors from AP-42 Section 1.3 (9/98), Errata (4/00) - Fuel Oil Combustion

Storage Tanks

The following storage tanks are considered insignificant activities in accordance with HAR, §11-60.1-82(f)(1) because the capacities are less than 40,000 gallons each.

1. Three (3) 35,000 gallon asphalt tanks;
2. One (1) 2,500 gallon diesel fuel tank; and
3. Five (5) 2,000 gallon LPG storage tanks.

**ALTERNATIVE OPERATING SCENERIOS**

As an alternate operating scenario, the applicant will be allowed to replace the diesel engine generator with another diesel engine generator of similar or smaller size if replacement is required for the diesel engine generator. The alternative engine will be allowed as a replacement for period not to exceed twelve (12) consecutive months.

**AIR POLLUTION CONTROLS**

Baghouse

The drum mixer/dryer is equipped with a baghouse to control PM emissions.

Fuel Oil

ULSD (ultra low sulfur diesel, 15 ppm) is used for all equipment (primary fuel).

LPG, alternate fuel, can be used for the dryer/mixer drum and hot oil heater (secondary fuel)

**PROJECT EMISSIONS**

1,214 HP Diesel Engine (Nonroad)

Emissions were based on Tier 2 emissions standards (engine date June 2, 2010). The diesel engine will be fired on ULSD with a maximum sulfur content of 0.0015% by weight (15 ppm). Emission Standards > 750 HP and Manufactures emission factors.

<b>1,214 HP Diesel Engine</b>			
Pollutant	Emissions (lb/hr)	Emissions (TPY) [3,000 hr/yr]	Emissions (TPY) [8,760 hr/yr]
CO	0.61	0.92	2.67
NO <sub>x</sub>	13.74	20.61	60.18
SO <sub>2</sub>	0.01	0.02	0.05
PM	0.06	0.09	0.26
PM-10	0.06	0.09	0.26
PM-2.5	0.06	0.09	0.26
VOC	0.71	1.07	3.12
HAPs	0.01	0.02	0.06

Manufactures Data: CO, NO<sub>x</sub>, and PM.

250 TPH Drum Mixer

Emissions were based on the maximum capacity of the drum mixer, which is equipped with a baghouse to control PM emissions. The drum mixer will be fired on ULSD with a maximum sulfur content of 0.0015% by weight (15 ppm). Emission factors were taken from AP-42 Section 11.1 (3/04) - Hot Mix Asphalt Plants.

<b>250 TPH Drum Mixer (Fuel Oil)</b>			
Pollutant	Emissions (lb/hr)	Emissions (TPY) [3,000 hr/yr]	Emissions (TPY) [8,760 hr/yr]
CO	32.50	48.75	142.35
NO <sub>x</sub>	13.75	20.63	60.23
SO <sub>2</sub>	0.12	0.18	0.51
PM	8.25	12.38	36.14
PM-10	5.75	8.63	25.19
PM-2.5	5.75	8.63	25.19
VOC	8.00	12.00	35.04
HAPs	2.20	3.30	9.64

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<b>250 TPH Drum Mixer (LPG)</b>			
Pollutant	Emissions (lb/hr)	Emissions (TPY) [3,000 hr/yr]	Emissions (TPY) [8,760 hr/yr]
CO	6.23	9.35	27.29
NO <sub>x</sub>	10.8	16.20	47.30
SO <sub>2</sub>	1.25	1.87	5.46
PM	8.25	12.38	36.14
PM-10	5.75	8.63	25.19
PM-2.5	3.71	5.57	16.26
VOC	8.00	12.00	35.04
HAPs	0.03	0.04	0.12

## HMA Silo Filling and Truck Load-Out Operations

Emissions for HMA silo filling and truck load-out operations were based on emission factors from AP-42 Section 11.1 (3/04) - Hot Mix Asphalt Plants.

<b>HMA Silo Filling Operation</b>		
Pollutant	Emissions (TPY) [3,000 hr/yr]	Emissions (TPY) [8,760 hr/yr]
CO	0.44	1.29
PM	0.32	0.92
PM-10	0.22	0.64
PM-2.5	0.22	0.64
VOC	4.57	13.34
HAPs	0.07	0.21

<b>HMA Truck Load-Out Operation</b>		
Pollutant	Emissions (TPY) [3,000 hr/yr]	Emissions (TPY) [8,760 hr/yr]
CO	0.51	1.48
PM	0.33	0.94
PM-10	0.20	0.57
PM-2.5	0.20	0.57
VOC	1.47	4.28
HAPs	0.03	0.10

## Storage Piles

Emissions were based on AP-42 Section 8.19.1 (4th ed.) - Sand and Gravel Processing.

<b>Storage Piles</b>	
Pollutant	Emissions (TPY)
PM	0.04
PM-10	0.02
PM-2.5	0.00

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## Aggregate Processing

Emissions from screens and conveyor transfer points were based on the maximum capacity of the drum mixer. Emissions were based on emission factors from AP-42 Section 11.19.2 (08/04) - Crushed Stone Processing and Pulverized Mineral Processing.

<b>Aggregate Processing</b>		
Pollutant	Emissions (TPY) [3,000 hr/yr]	Emissions (TPY) [8,760 hr/yr]
PM	1.87	5.47
PM-10	0.63	1.84
PM-2.5	0.06	0.17

## Asphalt Plant

Total asphalt plant emissions are summarized in the table below.

<b>Total Asphalt Plant Emissions(TPY)</b>							
Pollutant	250 TPH <sup>a</sup> Drum/Mix Emission 3,000 hr/yr	Silo Filling Emission 3,000 hr/yr	Load-Out Emission 3,000 hr/yr	Storage Piles 8,760 hr/yr	Aggregate Processing 3,000 hr/yr	Total <sup>c</sup> Limited hr/yr	Total 8,760 hr/yr
CO	48.75	0.44	0.51	0	0	49.70	145.5
NO <sub>x</sub>	20.63	0	0	0	0	20.63	61.61
SO <sub>2</sub>	1.87	0	0	0	0	1.87	5.47
PM	12.38	0.32	0.33	0.04	1.87	14.94	43.76
PM-10	8.63	0.22	0.20	0.02	0.63	9.70	28.39
PM-2.5	8.63	0.22	0.20	0.00	0.06	9.11	26.66
VOC	12.00	4.57	1.47	0	0	18.04	52.87
HAPs	3.30	0.07	0.03	.0	0	3.4	9.96

<sup>a</sup>Highest value between diesel and LPG.

<sup>b</sup>Not included in the determination of major source or major stationary source.

<sup>c</sup>Hot oil heater not included

## Total Emissions

Total facility emissions are summarized in the table below.

Pollutant	Asphalt Plant <sup>b</sup> Emission Total	DEGs <sup>a</sup> Emission Total	Facility Emission Total	BACT Significant Levels	AERR Thresholds	DOH Levels
CO	49.70	0.92	50.62	100	1000	250
NO <sub>x</sub>	20.63	20.61	41.24	40	100	25
SO <sub>2</sub>	1.87	0.02	1.89	40	100	25
PM	14.94	0.09	15.03	25	-	25
PM-10	9.70	0.09	9.79	15	100	25
PM-2.5	9.11	0.09	9.20	10	100	-
VOC	18.04	1.07	19.11	40	100	25
HAPs	3.4	0.02	3.42	.	0.5 (Actual Lead)	5

<sup>a</sup>DEG is nonroad.

<sup>b</sup>Insignificant activities not included.

<sup>c</sup>Lead is insignificant in the diesel and LPG fuel being used.

Based on 3,000 hr/yr operation.

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## Green House Gas Emissions

Title V or PSD permitting for greenhouse gas (GHG) emissions is not applicable to this facility because the potential to emit of CO<sub>2</sub> equivalent (CO<sub>2</sub>e) emissions is less than 100,000 tons per year. Total GHG emissions on a CO<sub>2</sub>e basis using the global warming potential (GWP) of each GHG are determined in the table below.

Green House Gas Emissions			
GHG	GWP	GHG Mass-Based Emissions (TPY)	CO <sub>2</sub> e Based Emissions (TPY)
Carbon Dioxide (CO <sub>2</sub> )	1	14308.96	14308.96
Methane (CH <sub>4</sub> )	25	4.58	114.5
Nitrous Oxide (N <sub>2</sub> O)	298	1.14	339.72
Total Emissions:			14763.18

Based on 3,000 hours per year for the diesel engine generator and drum mixer.

## AIR QUALITY ASSESSMENT

1. 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. On a case-by-case basis the Department of Health may not require an AAQIA for temporary sources provided the following:
  - a. The anticipated length of stay at any one location is less than one (1) year;
  - b. The temporary source is not a major source or part of a major source; and
  - c. The location of the temporary source is generally in a remote area where nuisance impacts are not expected.
2. An AAQIA will not be required since the facility meets the above conditions. The Department of Health may at any time perform or require the applicant to perform an AAQIA for this facility.

## SIGNIFICANT PERMIT CONDITIONS

1. The 250 TPH Portable Drum Mix Asphalt Plant is subject to the provisions of 40 CFR Part 60, Subpart A and Subpart I.
2. Drum Mixer/Dryer
  - a. The drum mixer/dryer shall be fired only on the following fuels:
    - i. Fuel oil no. 2 (ULSD) with a maximum sulfur content not to exceed fifteen (15) ppm by weight; and
    - ii. LPG.
  - b. The total operating hours of the drum mixer shall not exceed 3,000 hours in any rolling twelve-month (12-month) period.
  - c. The permittee shall not discharge or cause the discharge into the atmosphere from the baghouse servicing the drum mixer/dryer, particulate matter in excess of ninety (90) mg/dscm (0.04 gr/dscf).

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## 3. Diesel Engine Generator

- a. The diesel engine generator shall be fired only fuel oil no. 2 (ULSD) with a maximum sulfur content not to exceed fifteen (15) ppm by weight; and
- b. The total operating hours of the diesel engine generator shall not exceed 3,000 hours in any rolling twelve-month (12-month) period.

Reason: SOx control

## 4. Baghouse

The baghouse pressure differential shall be maintained within the range of two (2) to six (6) inches of water.

Reason: Reduce particle matter

## 5. The drum asphalt plant may be stored, but not operated, at the Puunene Quarry.

Reason: May cause site to become major.

## CONCLUSION

Actual emissions should be less than those estimated. Emission calculations were based on the maximum capacities of the equipment at 3,000 hours per rolling twelve month (12-month) period.

Based on the information submitted by Maui Asphalt X-IV, LLC it is the determination of the Department that the proposed initial permit will be in compliance with the Hawaii Administrative Rules, Chapter 11-60.1. Recommend issuance of the temporary covered source permit subject to the incorporation of the significant permit conditions, thirty-day (30-day) public comment period, and forty-five-day (45-day) Environmental Protection Agency review period.

Joseph Baumgartner  
December, 2015