

PROPOSED

PERMIT APPLICATION REVIEW TEMPORARY COVERED SOURCE PERMIT NO. 0714-01-CT Application for Minor Modification No. 0714-01

Company: Grace Pacific Corporation

Mailing Address: P.O. Box 78
Honolulu, Hawaii 96810

Facility: 334 TPH Asphalt Plant

Location: Various Temporary Sites, State of Hawaii

Initial Location: Coral Pit, Barbers Point Harbor, Kapolei, Oahu
UTM: Zone 4, 592,424 m E, 2,357,874 m N (NAD 83)

SIC Code: 2951 (Asphalt Paving Mixtures and Blocks)

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PROPOSED

Equipment:

The 334 TPH Asphalt Plant encompasses the following equipment and associated appurtenances:

Facility Equipment					
Equipment	Capacity	Manufacturer	Model No.	Serial No.	Manufacture Date
Drum Mixer	334 TPH	Astec Inc.	PDDC-835C	92-152	
Primary DEG	900 kW (prime)	Cummins	1000DQFAD	D070022706	4/18/2007
Back-up DEG	725 kW (prime)	Caterpillar	3412	2WJ01364	1996
Baghouse	58,255 CFM	Astec Inc.	RBH-58:DB	92-152437	12/1992
RAP Scalping Screen	4' x 8', single deck	Diester	VK481	363M474	
Aggregate Scalping Screen	4' x 12'1", single deck	Diester	USM-1412	579262	11/1992
Fiberbed Mist Collector	12,000 CFM	Astec Inc.	BSC-16-FBF	06-041	2006
Hot Oil Heater (Insignificant)	1.5 MMBtu/hr	Heatec	HC-120	109260088	
After-hours DEG (Insignificant)	72 kW (prime)	Cummins	DSFAE	To Be Determined	2008

BACKGROUND

Grace Pacific Corporation has submitted an application for minor modification. Grace Pacific is proposing to change the operating limitations of the 900 kW and 725 kW diesel engine generators from hours per year to equivalent in gallons per year of fuel oil no. 2.

The proposed modification meets the criteria for minor modification as defined in HAR §11-60.1-81. There are no increases in emissions due to the proposed change from hours per year to gallons per year. There are also no significant changes to existing monitoring, reporting, or recordkeeping requirements. No other changes are proposed.

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

PROPOSED

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 334 TPH hot mix asphalt facility because the facility commenced construction or modification after June 11, 1973.

Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines is applicable to the 900 kW diesel engine generator (manufactured on April 18, 2007) because the engine commenced construction after July 11, 2005, and was manufactured after April 1, 2006. For purposes of Subpart IIII, the date that construction commences is the date the engine is ordered. Manufacturer's specifications indicate the diesel engine generator is EPA Tier 2 certified.

Subpart IIII is not applicable to the backup 725 kW diesel engine generator because it was manufactured before April 1, 2006.

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 applicable to the 900 kW diesel engine generator because the engine is a new stationary RICE. A stationary RICE located at an area source of HAP emissions is new if you commenced construction of the stationary rice on or after June 12, 2006. A new stationary RICE located at an area source must meet the requirements of this part by meeting the requirements of 40 CFR Part 60, Subpart IIII. No further requirements apply for such engines under this part.

Subpart ZZZZ is applicable to the 725 kW diesel engine generator because the engine is an existing stationary RICE. For stationary RICE located at an area source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006. The permittee must comply with the applicable emission limitations and operating limitations no later than May 3, 2013.

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.

PROPOSED

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.

Consolidated Emissions Reporting Rule (CERR), 40 CFR Part 51, Subpart A

CERR is not applicable because emissions from the facility do not exceed CERR 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 there is no net increase in potential emissions due to the modification. 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.

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 CO, NO_x, SO₂, and PM emissions 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	11093.5	11093.5
Methane (CH ₄)	21	3.32	69.8
Nitrous Oxide (N ₂ O)	310	0	0
Total Emissions:			11163

INSIGNIFICANT ACTIVITIES / EXEMPTIONS

72 kW Diesel Engine Generator

The facility will operate a 72 kW (119 bhp) Cummins Model QSB5-G3-NR3 diesel engine generator during off-hours when the plant is not in operation. The generator 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 (6.3 gal/hr x 0.14 MMBtu/gal = 0.88 MMBtu/hr).

PROPOSED

Storage Tanks

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

Hot Oil Heater

The 1.5 MMBtu/hour hot oil heater is considered an insignificant activity because emissions are below the levels as specified in HAR §11-60.1-82(f)(7).

Hot Oil Heater	
Pollutant	Emissions (TPY) [8,760 hr/yr]
CO	0.24
NO _x	1.03
SO ₂	0.33
PM	0.09
PM-10	0.05
PM-2.5	0.04
VOC	0.03
HAPs	0.003

1. Emissions were based on fuel oil no. 2 with 0.05% sulfur content, and emission factors from AP-42 Section 1.3 (5/10) - Fuel Oil Combustion.
2. NO_x emissions from biodiesel was increased by 10% over fuel oil no. 2 based on EPA's report, *A Comprehensive Analysis of Biodiesel Impacts on Exhaust Emissions*, October 2002.

ALTERNATIVE OPERATING SCENARIOS

Diesel Engines

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

AIR POLLUTION CONTROLS

Knock Out Box and Baghouse

Control of particulate matter from the exhaust gases of the drum mixer is initially provided by a knock-out box (settling chamber), comprised of an enlarged area of duct-work at the end of the drum mixer that slows the velocity of the gas stream to allow the larger heavier particles to settle within the drum mixer. The baghouse filters the remaining fine particles.

Fiberbed Mist Collector System

The fiberbed mist collector system is used to control and minimize "blue smoke" emissions from load-out and silo-filling operations. Blue smoke is a visible aerosol emission that consists predominantly of organic and inorganic PM, VOC, and CO. A 95% control efficiency was assumed for PM emissions and no control of HAPs was assumed per review no. 0045-22.

PROPOSED

Water Suppression

Water spray is used as necessary to minimize fugitive emissions from the material stockpiles, truck unloading, conveyor transfer points, and trucks traveling on paved roads. Water suppression is assumed to be 70% efficient.

PROJECT EMISSIONS

Total Emissions

There are no changes in emissions for this permit modification. Total facility emissions are summarized in the table below, referenced from review no. 0045-25/26.

Total Facility Emissions and Trigger Levels (TPY)					
Pollutant	Emissions (With Limits)	Emissions (No Limits)	BACT Significant Level	CERR Threshold	DOH Level
CO	38.9	219.5	100	1000	250
NO _x	39.5	245.4	40	100	25
SO ₂	34.2	185.6	40	100	25
PM	27.6	150.8	25	-	25
PM-10	10.5	57.9	15	100	25
PM-2.5	2.9	16.2	-	100	-
VOC	13.5	74.4	40	100	25
HAPs	2.5	13.4	-	-	5

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 this permit modification because there are no changes in emissions of the diesel engine generators.

SIGNIFICANT PERMIT CONDITIONS

1. Drum Mixer

- a. The total hot mix asphalt production for the drum mix asphalt plant shall not exceed 540,000 tons in any rolling twelve-month (12-month) period.

Reason: Limit CO and SO₂ emissions below BACT and major source thresholds.

- b. The drum mixer shall be fired only on the following fuels:
 - i. Fuel oil no. 2 with a maximum sulfur content not to exceed 0.5% by weight;
 - ii. Unitek diesel with a maximum sulfur content not to exceed 0.5% by weight;
 - iii. Biodiesel;
 - iv. Cooking Oil;
 - v. Synthetic natural gas;

PROPOSED

- vi. Liquefied petroleum gas; or
- vii. Any combination thereof.

Reason: Fuel types proposed by the applicant.

2. Diesel Engine Generators

- a. The 900 kW and 725 kW diesel engine generators shall not be operated simultaneously.

Reason: The previous ambient air quality assessment was based on this assumption.

- b. The total combined fuel consumption of the 900 kW and 725 kW diesel engine generators shall not exceed 189,050 gallons in any rolling twelve-month (12-month) period;
- c. The total fuel consumption of the 725 kW diesel engine generator shall not exceed 29,300 gallons in any rolling twelve-month (12-month) period.

Reason: Limit NO_x emissions below BACT and major source thresholds.

- d. The diesel engine generators shall be fired only on the following fuels:

- i. Fuel oil no. 2 or biodiesel with the following specifications:
 - (1) Maximum sulfur content not to exceed 0.0015% by weight; and
 - (2) Minimum cetane index of forty (40) or maximum aromatic content of thirty-five (35) volume percent.
- ii. Synthetic natural gas;
- iii. Liquefied petroleum gas; or
- iv. Any combination thereof.

Reason: Fuel types proposed by the applicant. 40 CFR 60, Subpart IIII and 40 CFR 60, Subpart ZZZZ, fuel requirements for the diesel engine generators.

- e. The exhaust stacks of the diesel engine generators shall be at a minimum height of 13 feet-5 inches above ground elevation.

Reason: The previous ambient air quality assessment was based on this stack height.

3. Incorporate 40 CFR 60, Subpart I, provisions for the drum mix asphalt plant:

The permittee shall not discharge or cause the discharge into the atmosphere from the baghouse servicing the drum mixer, particulate matter in excess of 90 mg/dscm (0.04 gr/dscf).

Reason: The drum mix asphalt plant is subject to Subpart I.

4. Incorporate 40 CFR 63, Subpart ZZZZ, provisions for the 725 kW diesel engine generator such as:

PROPOSED

- a. Limit carbon monoxide emissions to 23 ppm or reduce by 70% or more.
- b. Install a continuous parameter monitoring system to monitor catalyst inlet temperature.
- c. Monitor and maintain the catalyst inlet temperature and pressure drop across the catalyst.
- d. Equip the engine with an open or closed crankcase system.
- e. Perform an initial and subsequent performance tests.

Reason: The 725 kW diesel engine generator is subject to 40 CFR 63, Subpart ZZZZ.

CONCLUSION

Grace Pacific Corporation has submitted an application for minor modification to change the operating limitations of the 900 kW and 725 kW diesel engine generators from hours per year to equivalent in gallons per year of fuel oil no. 2. There are no other proposed changes in this permit modification. Recommend issuance of the covered source permit subject to the incorporation of the significant permit conditions and forty five-day (45-day) Environmental Protection Agency review period.

Mark Saewong
May 1, 2013