

PROPOSED

TEMPORARY COVERED SOURCE PERMIT - 0045-02-CT

Application for Modification No. 0045-18

Applicant: Grace Pacific Corporation

Facility: Makakilo Asphalt Plant

Located at: 91-920 Farrington Hwy
Kapolei, Hawaii

Responsible Official: Robert A. Creps
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SICC: 2951

Proposed Modification:

Grace Pacific Corporation (GPC) is proposing to add synthetic gas to the list of approved fuels to burn in the 334 TPH drum-mixer dryer. Currently the drum-mixer burns fuel oil no. 2 and spec used oil. No other changes are being proposed.

The application and the proposed modification satisfy the requirements for a minor modification as defined in HAR §11-60.1-81 and §11-60.1-103.

Background:

GPC currently operates a 334 ton per hour (TPH) hot-mix asphalt facility at their Makakilo Quarry in Kapolei, Oahu. The facility consists of a 334 TPH drum-mix asphalt concrete batch plant, one 544 kW diesel engine generator, aggregate processing, and a RAP crushing and screening system. The facility is

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currently permitted under Covered Source Permit (CSP) No. 0045-02-CT issued on November 9, 2004.

Equipment for this Modification:

334 TPH drum-mixer/dryer, Astec Industries, model PDDC-835C, serial no. 92-152

The facility has other permitted equipment, but only the drum-mixer is affected by this modification.

Air Pollution Controls:

There are no proposed changes to the existing air pollution controls.

Applicable Requirements for the Modification:

Hawaii Administrative Rules (HAR):

Chapter 11-59, Ambient Air Quality Standards

Chapter 11-60.1 Air Pollution Control

 Subchapter 1, General Requirements

 Subchapter 2, General Prohibitions

 11-60.1-31 Applicability

 11-60.1-32 Visible Emissions

 11-60.1-38 Sulfur Oxides from Fuel Combustion

 Subchapter 5, Covered Sources

 11-60.1-81 Definitions

 11-60.1-103 Applications for Minor Modifications

 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

NSPS (Standards of Performance for New Stationary Sources):

The combustion turbines are subject to 40 CFR 60 Standards of Performance for New Stationary Sources, Subparts

 A - General Provisions

 I - Standards of Performance for Hot Mix asphalt Facilities

Non-Applicable Requirements for the Modification:

BACT (Best Available Control Technology):

A BACT analysis is required for new or modified sources if the net increase in pollutant emissions exceeds significant levels as defined in HAR §11-60.1-1. This application is for a minor modification and there are no increases in emissions or emissions of pollutants not previously emitted. Therefore, a BACT analysis is not required.

CAM (Compliance Assurance Monitoring):

The purpose of Compliance Assurance Monitoring (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. CAM is not applicable because the facility is not a major source.

CERR (Consolidated Emission Reporting Rule):

40 CFR part 51, Subpart A – Emission Inventory Reporting Requirements, determines applicability based on the emissions of each pollutant from any individual emission point within the facility that emits at or above the triggering levels. The facility was not subject to CERR prior to the proposed modification. Since the modification does not increase emissions, the facility will remain exempt from CERR.

MACT (Maximum Achievable Control Technology):

MACT is not applicable because the facility is not a major source of HAPs.

NESHAP (National Emission Standards for Hazardous Air Pollutants):

NESHAP is not applicable because the facility is not a major source of HAPs. Furthermore, MACT standards have not been established for the source category.

NSR (New Source Review):

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NSR is not applicable since the facility is located in an attainment area and PSD applicability has been reviewed.

PSD (Prevention of Significant Deterioration):

Prevention of Significant Deterioration is not applicable because the proposed alternate fuel will lower the emissions of the drum-mixer and the facility.

Synthetic minor:

A synthetic minor is a facility that without limiting conditions, physical or operational, emits above the major source triggering levels as defined by HAR 11-60.1-1 for either criteria pollutant(s) or hazardous air pollutant(s). The facility is a synthetic minor, however this modification does not affect the determination.

Insignificant Activities/Exemptions:

No new insignificant activities were listed in this application.

Project Emissions:

Emission estimates from firing synthetic or liquefied petroleum gas were not performed by the applicant. Instead, the AP-42 factors were compared to demonstrate that the emissions from burning synthetic or liquefied petroleum gas will be lower than fuel oil no. 2. Since emission limits, operational limits, and modeling are not being revised or reevaluated, this method to demonstrate compliance with the existing permit conditions is valid. As shown below, the emissions from firing natural gas are equal to or less than fuel oil no. 2. The table below are the AP-42 emission factors for drum-mix hot asphalt plants firing natural gas and fuel oil no. 2, section 11.1, revised 3/04.

Pollutant	AP-42 (lb/ton)		
	fuel oil no. 2	natural gas	synthetic gas
NO _x	0.055	0.026	0.029
CO	0.13	0.13	
SO ₂	0.0110	0.0034	
VOC	0.032	0.032	

Emission factors for burning natural gas and synthetic gas are very similar except for NO_x. NO_x

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emissions from firing synthetic gas are approximately 10 percent higher than the NO_x emissions from firing natural gas. Increasing the natural gas AP-42 emission factor for NO_x by 10 percent, 0.029 lb/ton, still results in an emission rate that is lower than fuel oil no. 2, 0.055 lb/ton.

The AP-42 emission factor for PM₁₀ is based on the air pollution controls and not on the fuel burned. As such, the PM₁₀ emissions remains unchanged.

Air Quality Assessment:

Grace Pacific performed an ambient air quality assessment in a previous application. The assessment demonstrated that the facility will be in compliance with state and federal ambient air quality standards.

For this modification, an ambient air quality assessment is not required because the emissions from firing synthetic or liquid petroleum gas are lower than fuel oil no. 2. Further, the stack parameters remain the same and the flow characteristics should not vary significantly from the values used in the original assessment. As such, the original ambient air quality assessment remains valid.

New/Revised Permit Conditions:

Under the current operating permit, the facility is limited to firing fuel oil no. 2 and a blend of spec used oil. With this modification, the permittee will also be allowed to burn synthetic or liquefied petroleum gases. The following condition will be revised.

Attachment II, C.2.

Current

2. Fuel Specifications

- a. The diesel engine generator and drum-mixer shall be fired only on fuel oil no. 2 with a maximum sulfur content not to exceed 0.5% by weight.
- b. The drum-mixer may also be fired on a blend of fuel oil no. 2 with a maximum sulfur content not to exceed 0.5% by weight and specification used oil subject to the requirements in Special Condition C.3.
- c. The fuel blend shall consist of, at most, 25 percent of specification used oil.

Revised

2. Fuel Specifications

a. Diesel Engine Generator

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

b. Drum-Mixer

The drum-mixer may be fired on:

- i. Fuel oil no. 2 with a maximum sulfur content not to exceed 0.5% by weight.
- ii. A blend of fuel oil no. 2 with a maximum sulfur content not to exceed 0.5% by weight and specification used oil subject to the requirements in Special Condition C.3. The fuel blend shall consist of, at most, 25 percent of specification used oil.
- iii. Synthetic or liquid petroleum gas.

The current operating permit has operational limitations on the operating hours of the drum-mixer and requires a non-resetting hour-meter to be installed and maintained on the drum-mixer. Since the operating hours are being monitored at the drum-mixer, there is no need to monitor the fuel consumption of the synthetic gas. As such, the current monitoring and reporting requirements are sufficient to monitor the operations at the facility.

Conclusion and Recommendation:

Firing the drum-mixer on synthetic or liquefied petroleum gas in lieu of fuel oil no. 2 and spec used oil will decrease actual emissions from the facility. Since the facility has been operating in compliance with the current operating permit and the monitoring and reporting requirements remain the same, the facility should still remain in compliance with this modification.

A permit amendment to include synthetic or liquefied petroleum gas as an alternate fuel for the drum-mixer is recommended.