

**PERMIT APPLICATION REVIEW
TEMPORARY COVERED SOURCE PERMIT No. 0714-01-CT (Formerly 0045-02-CT)
Significant Modification Application No. 0045-25
Renewal Application No. 0045-26**

Company: Grace Pacific Corporation

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

Facility: 334 TPH Asphalt Plant

Location: Coral Pit, Barbers Point Harbor, Kapolei, Oahu
UTM Coordinates: 592,424 Meters East, 2,357,874 meters North (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 applications for a significant modification and renewal for its temporary covered source permit. The modification is considered significant because it will involve significant changes to existing monitoring, reporting, and recordkeeping requirements in the permit pursuant to HAR, Section 11-60.1-81.

Grace Pacific Corporation had previously submitted a change of location request, approved by the Department of Health on November 14, 2008, to relocate their facility from 91-920 Farrington Highway, Kapolei, Oahu to a coral pit in the vicinity of Barbers Point Harbor, Kapolei, Oahu. The estimated duration at the new location is four years.

The permit number has been changed from 0045-02-CT to 0714-01-CT to correctly identify this facility as a separate facility and operation from that of permit number 0045-01-C.

Significant Modification

The following modifications and additions are proposed for the significant modification:

1. Delete the following permit conditions:
 - a. Operating limit of 20 hours/day for the drum mixer and diesel engine generators;
 - b. 2,700 hours/12 month operating limit on the generators;
 - c. De-rating requirement on the back-up 725 kW generator; and
 - d. Minimum stack height of 13' 9" for the 900 kW and 725 kW generators.

2. Add the following permit conditions:
 - a. 3,000 hours/12 month total combined limit for the 900 kW and 725 kW generators;
 - b. 500 hours/12 month operating limit for the 725 kW generator;
 - c. A maximum sulfur content not to exceed 0.05% by weight for the generators; and
 - d. Minimum stack height of 13 feet-5 inches for the 900 kW and 725 kW generators.
3. For the hot oil heater, the applicant has proposed to allow burning of fuel oil no. 2 with a maximum sulfur content not to exceed 0.05% by weight, and biodiesel, in addition to propane/synthetic natural gas. The hot oil heater will remain an insignificant activity in accordance with HAR 11-60.1-82(f)(7).
4. A proposed 72 kW diesel engine generator will be used during off-hours when the facility is not in operation. The 72 kW diesel engine generator is considered an insignificant activity in accordance with HAR 11-60.1-82.(f)(2).

Renewal and Minor Modification

The renewal application involves minor modifications to the existing permit. The minor modifications include:

1. Correct the serial number of the 725 kW generator from 2WJ00863 to 2WJ01364;
2. Remove the reclaimed asphalt pavement (RAP) crusher from the permit. The 275 TPH RAP scalping screen will remain in use;
3. Remove specification used oil for the drum mixer; and
4. Replace the four asphalt storage silos with three 100 ton capacity silos.

There are no other modifications proposed for this facility.

Process

The asphalt plant produces hot mix asphalt (HMA) from virgin aggregate, RAP, and liquid asphalt cement. Virgin aggregate is transferred from storage piles to cold feed storage bins by front-end loaders. From the storage bins, the aggregate falls onto conveyors, which transport the aggregate to a vibrating scalping screen and then to the drum mixer. Front-end loaders also transfer RAP from storage piles to a RAP feed bin. The RAP is transported to the drum mixer by conveyors. Liquid asphalt is added to the aggregate and RAP in the drum mixer. The final product is transported from the drum mixer to the storage silos by another conveyor.

The drum mixer will be permitted to be fired on the following fuels:

1. Fuel oil no. 2 with a maximum sulfur content not to exceed 0.5% by weight;
2. Unitek diesel with a maximum sulfur content not to exceed 0.5% by weight;
3. Biodiesel;
4. Grease trap oil (similar to cooking oil); and
5. Synthetic natural gas or liquid petroleum gas.

The diesel engines will be permitted to be fired on the following fuels:

1. Fuel oil no. 2 with a maximum sulfur content not to exceed 0.05% by weight;

PROPOSED

2. For the 900 kW DEG, beginning October 1, 2010, fuel oil no. 2 with a maximum sulfur content not to exceed 0.0015% by weight;
3. Biodiesel; and
4. Synthetic natural gas or liquid petroleum gas.

The hot oil heater shall be fired only on the following fuels:

1. Fuel oil no. 2 with a maximum sulfur content not to exceed 0.05% by weight;
2. Biodiesel; and
3. Synthetic natural gas or liquid petroleum gas.

The table below summarizes the permit history.

Permit History			
App. No.	Application Type	Description	Permit Issued
0045-02	Initial Permit	Permit existing asphalt plant	05/03/00
0045-07	Minor Modification	Remove hot oil heater fired on fuel oil	03/05/02
0045-08	Minor Modification	Add RAP crushing and screening system	05/10/02
0045-12	Minor Modification	Allow combustion of spec used oil in drum mixer	01/26/04
0045-14	Renewal	Add section on insignificant activities	11/09/04
0045-18	Minor Modification	Allow combustion of SNG in the drum mixer	07/21/05
0045-19	Minor Modification	Allow combustion of SNG in the DEG	11/02/05
0045-20	Minor Modification	Allow combustion of Unitek diesel in the drum mixer	11/21/05
0045-22	Minor Modification	Add fiber bed mist collector to control blue smoke	08/07/06
0045-23	Minor Modification	Allow combustion of biodiesel in drum mixer and DEG and grease trap oil (similar to cooking oil) in drum mixer	05/09/07
0045-24	Minor Modification	Replace main DEG with a new 900 kW unit	05/18/07
0045-25	Sig. Modification	Current review	
0045-26	Renewal	Current review	

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

11-60.1-37, Process Industries

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

1. Subpart I - Standards of Performance for Hot Mix Asphalt Facilities is applicable to the 334 TPH HMA facility because the facility was constructed or modified after June 11, 1973.
2. Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines is applicable to the 900 kW DEG because it was manufactured after April 1, 2006. The 900 kW DEG was manufactured on April 18, 2007.

40 CFR §60.4204(b) states that owners of 2007 model year units must comply with emission standards in §60.4201, Emission Standards for Manufacturers. §60.4201(a) states that engine manufacturers must certify the engine to the certification emission standards in 40 CFR §89.112, §89.113, and §1039, as applicable. §89.112, Table 1, provide Tier 2 emission standards for engines greater than 560 kW. As shown in the following table, manufacturer’s data indicates that the diesel engine generator is in compliance with emission standards of §89.112.

NSPS, Subpart IIII Emission Standards		
Pollutant	40 CFR §89.112 Table 1, Tier 2 g/kW-hr (g/hp-hr)	Manufacturer’s Data (g/hp-hr)
CO	3.5 (2.61)	0.58
NMHC + NOX	6.4 (4.77)	4.08
PM	0.20 (0.15)	0.11

3. The backup 725 kW DEG is not subject to Subpart IIII because it was manufactured before April 1, 2006.

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.

National Emission Standards for Hazardous Air Pollutants 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 DEG because it is classified as a new source (constructed 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 not applicable to the 720 kW DEG because it is classified as an existing source (constructed before June 12, 2006). An existing compression ignition (CI) stationary RICE does not have to meet the requirements of this subpart and of subpart A of this part.

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.

Consolidated Emissions Reporting Rule (CERR)

This source is not subject to CERR since 40 CFR Part 51, Subpart A - Emissions Inventory Reporting Requirements, determines CERR based on facility wide emissions of each air pollutant at the CERR triggering levels. The emissions do not exceed respective CERR threshold levels. As such, emissions data will not be required to be inputted into the National Emissions Inventory (NEI) database.

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 not subject to BACT analysis because the potential to emit emissions due to the modifications are below the significant levels as shown in the table below. BACT analysis is required for new sources or significant modifications to sources that have the potential to emit or increase emissions above significant levels considering any limitations as defined in HAR, Section 11-60.1-1.

BACT		
Pollutant	Potential Emissions: 900 kW & 725 kW DEGS (TPY)	Significant Levels (TPY)
NO _x	21.180	40
CO	3.150	100
SO ₂	0.668	40
PM	0.576	25
PM-10	0.553	15
VOC	0.461	40

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 based on potential emissions that exceed major source thresholds when the facility is operated at its maximum capacity continuously for 8,760 hours per year.

INSIGNIFICANT ACTIVITIES / EXEMPTIONS

Proposed insignificant activities:

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 full prime fuel consumption is 6.3 gallons/hour based on manufacturer’s data. Assuming a fuel oil no. 2 heating value of 0.14 MMBtu/gal, the heat input rate equates to 6.3 gal/hr x 0.14 MMBtu/gal = 0.88 MMBtu/hr. It is considered insignificant in accordance with HAR 11-60.1-82.(f)(2) as the heat input rate is less than 1 MMBtu/hr.

Storage Tanks

The following storage tanks are less than 40,000 gallons and are considered insignificant in accordance with HAR 11-60.1-82.(f)(1):

1. One 2,000 gallon and two 10,000 gallon fuel oil storage tanks;
2. Two 30,000 gallon liquid asphalt cement tanks; and
3. Four 8,000 gallon compressed gas tanks.

Existing insignificant activities:

Hot Oil Heater

The 1.5 MMBtu/hour hot oil heater is considered an insignificant activity in accordance with HAR 11-60.1-82.(f)(7) because emissions are below the required levels of 5.0 tons/year for CO and 2.0 tons/year for NO_x, SO₂, PM, and VOC.

Hot Oil Heater		
Pollutant	Emissions (lb/hr)	Emissions (TPY) [8,760 hr/yr]
CO	0.054	0.235
NO _x	0.236	1.032
SO ₂	0.076	0.333
PM	0.021	0.094
PM-10	0.012	0.051
PM-2.5	0.009	0.039
VOC	0.006	0.026
HAPs	0.001	0.003

notes:

1. Emissions were based on fuel oil no. 2 with 0.05% sulfur by weight.
2. NO_x emissions was increase by 10% over fuel oil no. 2 due to biodiesel based on the EPA report, *A Comprehensive Analysis of Biodiesel Impacts on Exhaust Emissions, October 2002*.

ALTERNATIVE OPERATING SCENERIOS

Diesel Engines

The permittee may replace the 900 kW and 725 kW diesel engine generators 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.

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

Calculations are attached to this review.

334 TPH Drum Mixer through Baghouse

Emissions were based on the maximum capacity of the drum mixer to process 334 TPH of hot mix asphalt with a limited annual production of 540,000 tons/year. NO_x, CO, PM-2.5, VOC, and HAPs emission calculations were based on fuel oil no. 2 emission factors from AP-42 Section 11.1 (03/04) - Hot Mix Asphalt Plants. The SO₂ emission factor was based on AP-42 Section 1.3 (04/00) - Fuel Oil Combustion. PM emissions were obtained from the 2006 stack test report. Unitek diesel emissions are comparable to fuel oil no. 2 based on results from review no. 0045-20. Cooking oil is assumed to generate more NO_x than fuel oil no. 2 by 23% based on data provided by the applicant. The sulfur content of biodiesel is essential zero. The table below summarizes the worst case emissions from the permitted fuels.

334 TPH Drum Mixer through Baghouse			
Pollutant	Emissions (lb/hr)	Emissions (TPY) [540,000 TPY]	Emissions (TPY) [8,760 hr/yr]
CO	43.420	35.100	153.738
NO _x	22.595	18.266	80.003
SO ₂	41.500	33.548	146.938
PM	5.311	4.293	18.803
PM-10	5.311	4.293	18.803
PM-2.5	0.969	0.783	3.430
VOC	10.688	8.640	37.843
HAPs	2.940	2.377	12.879

PROPOSED

900 kW and 725 kW Diesel Engine Generators

The primary 900 kW DEG and backup 725 kW DEG have a total combined hour limit of 3,000 hours/year. The backup 725 kW DEG has a 500 hours/year limit. The maximum total emissions occur when the 900 kW DEG operates at 2,500 hours/year and the 725 kW DEG operates at 500 hours/year. Emissions were based on fuel oil no. 2 emission factors from AP-42 Section 3.4 (10/96) - Gasoline and Diesel Industrial Engines and manufacturer's data. NO_x emissions was increased by 10% over fuel oil no. 2 due to biodiesel based on the EPA report, *A Comprehensive Analysis of Biodiesel Impacts on Exhaust Emissions, October 2002*. The 900 kW DEG assumed an hour limit of 2,500 hours/year and a maximum fuel consumption of 63.9 gallons/hour based on manufacturer's data. The 725 kW DEG assumed an hour limit of 500 hours/year and a maximum fuel consumption of 58.6 gallons/hour based on manufacturer's data.

900 kW Diesel Engine Generator			
Pollutant	Emissions (lb/hr)	Emissions (TPY) [2,500 hr/yr]	Emissions (TPY) [8,760 hr/yr]
CO	1.690	2.113	7.404
NO _x	12.824	16.030	56.168
SO ₂	0.452	0.565	1.979
PM	0.321	0.401	1.404
PM-10	0.308	0.385	1.348
PM-2.5	0.289	0.361	1.264
VOC/TOC	0.233	0.291	1.021
HAPs	0.0133	0.0167	0.0585

725 kW Diesel Engine Generator			
Pollutant	Emissions (lb/hr)	Emissions (TPY) [500 hr/yr]	Emissions (TPY) [8,760 hr/yr]
CO	4.150	1.038	18.177
NO _x	20.603	5.151	90.241
SO ₂	0.414	0.104	1.815
PM	0.700	0.175	3.066
PM-10	0.672	0.168	2.943
PM-2.5	0.630	0.158	2.759
VOC/TOC	0.680	0.170	2.978
HAPs	0.0122	0.0031	0.0536

HMA Silo Filling and Truck Load-Out Operations

Emissions for the HMA silo filling and HMA truck load-out operations were based on emission factors from AP-42 Section 11.1 (03/04) - Hot Mix Asphalt Plants. A 95% control efficiency was assumed for PM, PM-10, and PM-2.5 emissions based on review no. 0045-22 for the fiberbed mist collector system.

PROPOSED

HMA Silo Filling Operation			
Pollutant	Emissions (lb/hr)	Emissions (TPY) [540,000 TPY]	Emissions (TPY) [8,760 hr/yr]
CO	0.394	0.319	1.726
PM	0.010	0.008	0.043
PM-10	0.010	0.008	0.043
PM-2.5	0.010	0.008	0.043
VOC	4.070	3.290	17.828
HAP	0.063	0.051	0.274

HMA Truck Load-Out Operation			
Pollutant	Emissions (lb/hr)	Emissions (TPY) [540,000 TPY]	Emissions (TPY) [8,760 hr/yr]
CO	0.451	0.364	1.974
PM	0.009	0.007	0.038
PM-10	0.009	0.007	0.038
PM-2.5	0.009	0.007	0.038
VOC	1.306	1.056	5.719
HAP	0.029	0.023	0.127

Fugitive Emissions

Emissions due to aggregate processing, storage piles, and truck travelling on paved roads are summarized in the tables below. Aggregate processing emissions includes the RAP and aggregate scalping screens. A 70% control efficiency was assumed for water suppression.

Aggregate Processing		
Pollutant	Emissions (TPY) [540,000 TPY]	Emissions (TPY) [8,760 hr/yr]
PM	6.240	33.807
PM-10	2.213	11.988
PM-2.5	0.936	5.071

Storage Piles		
Pollutant	Emissions (TPY) [540,000 TPY]	Emissions (TPY) [8,760 hr/yr]
PM	0.577	3.128
PM-10	0.273	1.479
PM-2.5	0.041	0.224

Truck Travelling on Paved Road		
Pollutant	Emissions (TPY) [540,000 TPY]	Emissions (TPY) [8,760 hr/yr]
PM	15.887	86.077
PM-10	3.100	16.794
PM-2.5	0.465	2.518

PROPOSED

Total Emissions

Total facility emissions are summarized in the table below.

Total Facility Emissions and Trigger Levels (TPY)					
Pollutant	Emissions [Limited hr/yr]	Emissions [8,760 hr/yr]	BACT Significant Level	CERR Triggering Level (Type A sources / Type B sources)	DOH Level
CO	38.93	183.02	100	2,500 / 1000	250
NO _x	39.45	226.41	40	2,500 / 100	25
SO ₂	34.22	150.73	40	2,500 / 100	25
PM	27.59	146.37	25	-	25
PM-10	10.45	53.44	15	250 / 100	25
PM-2.5	2.87	15.35	-	250 / 100	-
VOC/TOC	13.45	65.39	40	250 / 100	25
HAPs	2.47	13.39	-	-	5

AIR QUALITY ASSESSMENT

An ambient air quality assessment (AAQA) was conducted for the drum mixer, 900 kW and 725 kW diesel engine generators, and hot oil heater to demonstrate compliance with State and National ambient air quality standards. The hot oil heater is considered an insignificant source, but was also included in this assessment. Lakes Environmental AERMOD View, Version 6.0.0, was used for the AERMOD modeling analysis.

The USGS 7.5 minute digital elevation model (DEM) with 10 meter spacing from the Ewa, Oahu quadrangle was used to model the elevated terrain heights. Receptor grid spacing was set at 30 meters.

Meteorological data were taken from:

1. 1992/1993 Honolulu International Airport surface station.
2. 1992/1993 Lihue Airport upper air station.

The EPA BPIP-PRIME program was used to calculate building downwash effects from nearby structures.

The emission rates and stack parameters used in this analysis are shown in the table below. The top values represent the maximum short term emission rates and the bottom values represent the annual emission rates. The annual emission rates assume the drum mixer producing 540,000 tons of asphalt concrete with a production rate of 334 TPH, 900 kW DEG operating at 2500 hours/year, 725 kW DEG operating at 500 hours/year, and no operating limits for the hot oil heater. The emission rates for the 900 kW diesel engine represents half of the total emissions because it has dual stacks.

PROPOSED

Source	Emission Rates (g/s)					Stack Parameters			
	CO	NO ₂	PM-10	PM-2.5	SO ₂	Height (m)	Temp (°K)	Flow Rate (m ³ /s)	Diameter (m)
Drum Mixer	5.4708 -	- 0.5254	0.6691 0.1235	0.1220 0.0225	5.2288 0.9650	11.81	414	22.1	1.40
900 kW #1	0.1065 -	- 0.2306	0.0194 0.0056	0.0182 0.0052	0.0285 0.0082	4.09	740	1.64	0.203
900 kW #2	0.1065 -	- 0.2306	0.0194 0.0056	0.0182 0.0052	0.0285 0.0082	4.09	740	1.64	0.203
725 kW	0.5229 -	- 0.1482	0.0847 0.0048	0.0794 0.0045	0.0522 0.0030	4.09	791	3.21	0.254
HOH	0.0067 -	- 0.1482	0.0015 0.0048	0.0011 0.0045	0.0096 0.0030	4.34	450	0.30	0.36

The short term impacts for the 900 kW and 725 kW diesel engines were modeled separately because they are not permitted to operate simultaneously. The predicted short term concentrations were taken from the maximum concentrations between these two scenarios. Based on these assumptions, the predicted ambient air quality impacts from the drum mixer, 900 kW and 725 kW diesel engine generators, and hot oil heater should comply with State and National ambient air quality standards as shown in the following table.

Predicted Ambient Air Quality Impacts							
Air Pollutant	Averaging Time	Impact (µg/m ³)	Background (µg/m ³)	Total Impact (µg/m ³)	SAAQS (µg/m ³)	NAAQS (µg/m ³)	Compared to SAAQS
CO	1-hr	535.7	4332	4867.7	10000	40000	48.7%
	8-hr	372.3	863	1235.3	5000	10000	24.7%
NO ₂	Annual	24.5	9	33.5	70	100	47.9%
PM-10	24-hr	26.5	57	83.5	150	150	55.6%
	Annual	0.9	17	17.9	50	50	35.8%
PM-2.5	24-hr	20.1	8	28.1	-	35	80.3%
	Annual	0.7	3.5	4.2	-	15	27.7%
SO ₂	3-hr	344.3	27	371.3	1300	1300	28.6%
	24-hr	147.2	9	156.2	365	365	42.8%
	Annual	4.1	4	8.1	80	80	10.1%

notes:

1. Background concentrations were taken from Hawaii Air Quality Data 2007 from Kapolei, Oahu.

SIGNIFICANT PERMIT CONDITIONS

New significant permit conditions consist of the following:

1. Remove the operating limit of 20 hours/day for the drum mixer;
2. Remove the de-rating requirement on the 725 kW Cat 3412 DEG;
3. Remove the operating limit of 20 hours/day for the 900 kW and 725 kW DEGs;
4. Modify the combined operating hours for the 900 kW and 725 kW diesel DEGs from 2,700 hours to 3,000 hours per any rolling 12-month period;
5. Add an operating limit of 500 hours per any rolling 12-month period for the 725 kW DEG;

PROPOSED

6. Decrease the minimum stack height of the 900 kW and 725 kW DEGs from 13 feet-9 inches to 13 feet-5 inches;
7. Modify the maximum sulfur content of fuel oil no. 2 for the 900 kW and 725 kW DEGs from 0.5% to 0.05% by weight;
8. Beginning October 1, 2010, the 900 kW diesel engine generator shall be fired only on fuel oil no. 2 with:
 1. A maximum sulfur content of 0.0015% by weight; and
 2. A cetane or aromatic content as follows:
 - a. Minimum cetane index of 40; or
 - b. Maximum aromatic content of 35 volume percent;
9. Remove the RAP crusher; and
10. Remove specification used oil conditions for the drum mixer.

CONCLUSION

Actual emissions should be less than those estimated. Emission calculations were based on the worst case emission rates of the various fuels and assuming the facility is operating at its maximum capacity. The ambient air quality assessment demonstrates compliance with State and National Ambient Air Quality Standards.

Based on the information submitted by Grace Pacific Corporation, it is the determination of the Department of Health that the proposed project will be in compliance with the Hawaii Administrative Rules, Chapter 11-60.1 and State and Federal ambient air quality standards. Recommend issuance of the covered source permit subject to the incorporation of the significant permit condition, 30-day public comment period, and 45-day Environmental Protection Agency review period.

Mark Saewong
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