

PROPOSED

Review of Significant Modification Application 0040-08
Temporary Covered Source Permit No. 0040-01-CT

Permit No.: 0040-01-CT

Application File No.: 0040-08

Applicant: Grace Pacific Corporation

Facility: 186 TPH Asphalt Plant

SIC Code: 2951 (asphalt paving mixtures & blocks)

Location: Puunene, Maui

UTM Coordinates: 768,581 E - 2,309,057 N (NAD 83)
(Revised hot oil heater stack coordinates per Addendum1, 9/8/03, page 9).

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I. Background

Grace Pacific Corporation (Grace Pacific) has an existing permitted asphalt facility located in Camp 10, Puunene, Maui. The facility has requested removal of the existing hot oil heater operational limit of 5,000 hr/yr and has proposed increasing the heater's stack height from 5.49 to 8.5 meters (18 to 28 feet) to maintain compliance with air quality standards.

Permit Application

An application for a significant modification to CSP No. 0040-01-CT, along with a check for the \$500.00 application fee, was received by the Department of Health (Department) on 6/3/03. Additional information concerning the air quality assessment was requested on 6/20/03, and Addendum 1 was provided by the applicant and received by the Department on 9/9/03.

Permit History

Permit History		
Issue Date	File No.	Description
9/8/89	854	Authority to Construct No. A-854-764
11/27/90	854	Permit to Operate (PTO) No. P-854-1224
12/16/96	0040-01	Initial permit for 186 TPH drum mixer, 600 kW DEG, & baghouse.
1/30/98	0040-02	Permit amendment to replace 600 kW DEG with an 800 kW DEG.
2/11/99	0040-03	Permit amendment to add RAP recycling kit, replace heater with a 1.25 MMBTUH heater.
5/7/01	0040-04	Permit amendment to increase heater stack height from 10 to 18 ft, increase heater operational limit from 2,076 to 5,000 hours per 12-mo period, and increase daily heater operation from 16 to 24 hr/day.
11/26/01	0040-06	Minor mod to replace the 65-ton surge bin with two 200-ton storage silos, and replace conveyor with hot elevator to transport asphalt concrete from mixer to silo.
3/19/02	0040-05	Permit renewal. Increased RAP use from 35,000 to 100,000 tpy.
12/6/02	0040-07	Permit amendment to replace RAP lump breaker with RAP crusher and add hopper with feeder and conveyor.

II. Equipment Description

No changes to equipment list. Refer to current permit CSP No. 0040-01-CT dated December 6, 2002.

III. Air Pollution Controls

No changes to pollution control devices. A baghouse is used for the asphalt drum mixer and fuel oil no. 2 is used in the drum mixer, hot oil heater and diesel engine generator to minimize sulfur dioxide emissions.

IV. Applicable Requirements

1. Hawaii Administrative Rules (HAR), Title 11
 - Chapter 59, Ambient Air Quality Standards
 - 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

PROPOSED

- 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 10 - Field Citations

2. PSD Requirements

PSD requirements do not apply because the facility is not considered a major stationary source and is not proposing any modifications to trigger a major modification as defined in 40 CFR 52.21 and HAR Title 11, Chapter 60.1, Subchapter 7.

3. NSPS Requirements

The following subparts of 40 CFR 60 - Standards of Performance for New Stationary Sources apply to the facility because construction or modification commenced after June 11, 1973:

Subpart A - General Provisions

Subpart I - Standards of Performance for Hot Mix Asphalt Facilities

4. NESHAP Requirements

These requirements do not apply because no standard covering the facility's operation or equipment has been promulgated under 40 CFR 61.

5. MACT Requirements

These requirements do not apply because the facility is not a major source of hazardous air pollutants and the facility does not belong to a source category or subcategory for which a standard has been promulgated under 40 CFR 63.

6. BACT Requirements

A BACT review is required for new or modified sources which will result in a "significant" net emissions increase as defined in HAR §11-60.1-1. No significant net emissions increase results when the hot oil heater's increased potential emissions are compared with its 2-year average of actual emissions. Therefore a BACT review is not required.

Pollutant	Emissions (tpy)			
	Potential 8760 hr/yr	Actual 2-Yr Avg.	Net Increase	Significant Level
CO	0.19	0.09	0.10	100
NOx	0.78	0.37	0.41	40
PM	0.08	0.04	0.04	25
PM10	0.04	0.02	0.02	15
SO2	2.77	1.30	1.47	40
TOC	0.02	0.01	0.01	40

PROPOSED

7. CAM Requirements (40 CFR 64)

The purpose of Compliance Assurance Monitoring (CAM) is to provide reasonable assurance that compliance is being achieved with large emission units that rely on air pollution controls to meet an emissions limit or standard. CAM applies if the emissions unit:

1. is located at a major source;
2. is subject to an emissions limit or standard;
3. uses a control device to achieve compliance;
4. has potential pre-control emissions that are 100% of the major source level; AND
5. is not otherwise exempt from CAM.

Since the facility is not a major source, CAM does not apply.

8. CDS Requirements (40 CFR 51, Subpart Q)

Compliance Data System is an inventory system for covered sources subject to annual inspections. CDS requirements apply to this facility because it is a covered source.

9. CER/DOH Requirements

Consolidated Emissions Reporting (CER) requirements apply if emissions from the facility equal or exceed levels specified in 40 CFR 51, Subpart A, Appendix A shown in the following table. CER requirements do not apply because the facility does not have emissions above the CER threshold levels.

The Department requests emissions reporting if the total combined facility's emissions of a particular pollutant exceed DOH levels. These reports are used internally within the Department and are not inputted into the CER database. Emissions reporting is requested because the facility-wide emissions of NO_x, PM, and PM-10, exceed DOH levels.

Pollutant	Facility Emissions (tpy)			
	8,760 hr/yr	limited hr/yr	CERR - Type B Level	DOH Level
CO	136.01	32.38	1000	250
NO _x	150.43	36.25	100	25
PM	264.76	62.98	N/A	25
PM10	108.93	25.92	100	25
SO ₂	66.57	17.89	100	25
TOC	52.15	12.38	100	25
HAPs	8.81	2.08		

10. Synthetic Minor & Major Source applicability

A synthetic minor 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. The facility **is a synthetic minor** for CO, NO₂, PM and PM10 because without operational limits, emissions would equal or exceed 100 tpy. This facility is a **non-major source** because potential emissions, considering controls and operational limits, are below major source levels.

V. Insignificant Activities / Exemptions

No changes. See page 6 of renewal application review dated November 26, 2001.

VI. Alternative Operating Scenarios

If removal of the permitted DEG is necessary for its repair, the applicant requests that the temporary replacement of the 725 kW DEG with another unit, the same size or smaller, be allowed.

VII. Project Emissions

The tables below show calculated potential emissions for the hot oil heater point source without any operational limit and total facility emissions reflecting the increase in potential heater emissions.

Pollutant	Hot Oil Heater Emissions						
	AP-42 Table	AP-42 Date	Emission Factors	EF Units	Emissions		
					(lb/hr)	(g/sec)	(tpy)
CO	1.3-1	9/98	5	lb/10e3 gal	4.45E-02	5.61E-03	1.95E-01
NOx	1.3-1	9/98	20	lb/10e3 gal	1.78E-01	2.24E-02	7.80E-01
PM	1.3-7	9/98	2	lb/10e3 gal	1.78E-02	2.24E-03	7.80E-02
PM10	1.3-7	9/98	1.08	lb/10e3 gal	9.61E-03	1.21E-03	4.21E-02
SO2	1.3-1	9/98	71	lb/10e3 gal	6.32E-01	7.96E-02	2.77E+00
TOC	1.3-3	9/98	0.556	lb/10e3 gal	4.95E-03	6.23E-04	2.17E-02
Formaldehyde	11.1-13	12/00	2.70E-02	lb/gal	2.40E-01	N/A	1.05E+00
Acenaphthene	11.1-13	12/00	5.30E-07	lb/gal	4.72E-06	N/A	2.07E-05
Acenaphthylene	11.1-13	12/00	2.00E-07	lb/gal	1.78E-06	N/A	7.80E-06
Antracene	11.1-13	12/00	1.80E-07	lb/gal	1.60E-06	N/A	7.02E-06
Benzo(b)floranthene	11.1-13	12/00	1.00E-07	lb/gal	8.90E-07	N/A	3.90E-06
Fluoranthene	11.1-13	12/00	4.40E-08	lb/gal	3.86E-07	N/A	1.72E-06
Fluorene	11.1-13	12/00	3.20E-08	lb/gal	2.85E-07	N/A	1.25E-06
Naphthalene	11.1-13	12/00	1.70E-05	lb/gal	1.51E-04	N/A	6.63E-04
Phenanthrene	11.1-13	12/00	4.90E-06	lb/gal	4.36E-05	N/A	1.91E-04
Pyrene	11.1-13	12/00	3.20E-08	lb/gal	2.85E-07	N/A	1.25E-06
Dioxins	11.1-13	12/00	2.00E-10	lb/gal	1.78E-09	N/A	7.80E-09
Furans	11.1-13	12/00	3.10E-11	lb/gal	2.76E-10	N/A	1.21E-09
Total HAPs							1.05
Notes:							
1. Maximum fuel feed rate = 8.9 gph per manufacturer's data.							
2. Permit condition limits sulfur content to 0.5% by weight. Emission factor = (S)x142 = 0.5x142 = 71 lb/10 ³ gal.							

Facility Emissions (tpy)									
Pollutant	DEG		Drum Mixer		Oil Heater	Fugitive Emissions		Total Facility (tpy)	
	8,760 hr/yr	2,076 hr/yr	8,760 hr/yr	2,076 hr/yr	8,760 hr/yr	8,760 hr/yr	2,076 hr/yr	8,760 hr/yr	limited hr/yr
CO	27.85	6.60	105.91	25.10	0.19	2.06	0.49	136.01	32.38
NOx	104.84	24.85	44.81	10.62	0.78			150.43	36.25
PM	2.28	0.54	50.93	12.07	0.08	211.47	50.29	264.76	62.98
PM10	1.88	0.44	50.93	12.07	0.04	56.08	13.37	108.93	25.92
SO2	16.55	3.92	47.25	11.20	2.77			66.57	17.89
TOC	2.95	0.70	35.85	8.50	0.02	13.33	3.16	52.15	12.38
HAPs								8.81	2.08

Note:
DEG, drum mixer, and fugitive emissions are based on CSP renewal application review 0040-05, 11/26/01, page 17.

VIII. Air Quality Assessment

An Ambient Air Quality Impact Assessment is generally done for new or modified sources. A Screen3 analysis was performed for the hot oil heater modification using the following assumptions:

- Rural area.
- Simple and complex terrain and receptor spacing based on data provided in applicant's Addendum 1, page 11.
- Default meteorology.
- Ambient temperature of 298 K (76 F).
- 1 gm/sec of pollutant.
- Critical building for potential downwash is a 2-silo structure of height 21 m, length 8.6 m, and width 4.3 m.
- Hot oil heater stack parameters provided by applicant:
 Height = 8.5 m (27.9 ft) Diameter = 0.3 m (11.38 inches) Velocity = 4.15 m/sec
 Flow Rate = 0.29 m³/sec Temp = 588.6 K
- Regulatory default cavity.
- NO₂ Ambient Ratio Method, Tier 1 which assumes 100% conversion of NO_x to NO₂.
- EPA scaling factors of 0.9, 0.7, 0.4, and state scaling factor 0.2 for the 3-hr, 8-hr, 24-hr, and annual concentrations, respectively.

Results shown in the following table indicate that predicted ambient concentration levels will meet federal and state air quality standards.

Ambient Air Quality Assessment Results - Hot Oil Heater											
Pollutant	Averaging Time	Max 1-hr Conc. (ug/m3)	Potential Emissions (g/sec)	Time Scaling Factor	Predicted Conc. (ug/m3)	Background Conc. (ug/m3)	Background Concentration Location	Total Impact (ug/m3)	SAAQs	NAAQS	%SAAQs Standard
CO	1 hr	4283	5.61E-03	1	24.03	1026	West Beach	1050	10000	40000	11
CO	8 hr	4283	5.61E-03	0.7	16.82	456	West Beach	473	5000	10000	9
NO2	annual	4283	2.24E-02	0.2	19.19	6	West Beach	25	70	100	36
PM10	24 hr	4283	1.21E-03	0.4	2.07	93	Kihei	95	150	150	63
PM10	annual	4283	1.21E-03	0.2	1.04	23	Kihei	24	50	50	48
SO2	3 hr	4283	7.96E-02	0.9	306.83	12	West Beach	319	1300	-	25
SO2	24 hr	4283	7.96E-02	0.4	136.37	5	West Beach	141	365	365	39
SO2	annual	4283	7.96E-02	0.2	68.19	0.13	West Beach	68	80	80	85

Notes:

1. The maximum 1-hour concentration shown above occurs 29 meters from the source.
2. Background concentration levels from *Hawaii Air Quality Data* indicate the highest concentration recorded during 2001.
3. The Kihei PM-10 background concentration level was used because Kihei is nearest to Puunene.
4. West Beach concentrations were used for pollutants not monitored at Kihei because West Beach is a non-urban area, similar to Camp 10.

IX. Significant Permit Conditions

The hot oil heater stack height will be increased from 5.5 to 8.5 meters to remove the hot oil heater operational limit and maintain compliance with air quality standards.

X. Conclusion

Grace Pacific requests removal of the 5,000 hour per year hot oil heater operational limit and proposes to increase the heater stack by approximately 10 feet. The resulting net emissions increase is less than 2 tpy for all criteria pollutants and well below significant levels. Actual heater emissions should be less than those calculated because although heater operation will increase, operation will not be continuous, as assumed in the calculations.

Issuance of an amended Temporary Covered Source Permit is recommended based on the review of information provided by the applicant and subject to significant permit conditions, public comments, and EPA review.

April Matsumura
October 3, 2003