PROPOSED

CSP 0677–01

INITIAL COVERED SOURCE AIR PERMIT (CSP) ENGINEERING REVIEW
APPLICATION NO. **0677-01**
PERMIT NO. **0677-01-C**

REVIEWER	PR
DATE	03.18.2008
FACILITY NAME	Grace Pacific Corporation – 300 TPH Hot Mix Asphalt Drum Plant
LOCATION	68-1187 Waikoloa Road Waikoloa, Kona, HI 96766
UTM COORDINATES	1. N 2,203,172 E 203,746: Baghouse 2. N 2,203,198 E 203,707: 1,065 HP DEG 3. N 2,203,188 E 203,694: Hot Oil Heater
R. OFFICIAL	Mr. Christopher Steele Environmental Compliance Manager 1.808.674.8383
CONTACT PERSON	Mr. Paul Crivello Plant Manager 1.808.674.8383
MAILING ADDRESS	Grace Pacific Corporation P.O. Box 78 Honolulu, HI 96810
KEY EQUIPMENT (3)	1. Hot Mix Asphalt Plant with Baghouse 300 TPH Capacity 2. HP Cummins Diesel Engine Generator 1065 BHP Model no. QST30-G5 3. ASTEC Hot Oil Heater (Diesel-Fired) Model no. HC-120

MOTIVATION

Applicant submitted an application for an initial Covered Source Permit.
The permit application filing fee for a covered source of $1000.00 was processed by MM.

Grace Pacific will begin a new Hot Mix Asphalt (HMA) Facility at the Waikoloa Quary location and bring in temporary covered source equipment diesel engine generator and two 150 ton silos under its issued 0258-01-CT permit.

PROCESS BACKGROUND

Virgin aggregate (94 percent) and liquid asphalt cement (6 percent) are the two ingredients used to produce the asphalt. Virgin aggregate is transferred to the cold feed storage bins by front-end loader. The aggregate travels by conveyors to a vibrating scalping screen and then to the drum-mixer. Liquid asphalt is added to the aggregate in the drum-mixer, and the finished product is discharged from the drum-mixer to an elevator, and then discharged into storage silos for truck loading.
To operate the electrical motors and lighting a diesel engine generator is located on site.

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 Fees 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

This source is subject to NSPS (New Source Performance Standards).
Subpart I, Standards of Performance for Hot Mix Asphalt Facilities is applicable to the new 300 TPH hot mix asphalt facility because the plant is being constructed after June 11, 1973.
Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines is not applicable to the diesel engine generators because the units were manufactured prior to April 1, 2006.

This source is not subject to PSD (Prevention of Significant Deterioration) 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; (criteria air pollutant > 100 or 250 TPY as applicable).

This source is not subject to NESHAPS (National Emission Standards for Hazardous Air Pollutants for Source Categories) as there are no applicable standards listed in 40 CFR 61.

This source is not subject to CAM (compliance assurance monitoring) since the permitted equipment is not classified as a major source (criteria pollutant > 100 TPY) or not part of a facility with total emissions exceeding major source threshold.

This source is not subject to MACT since the source is not a major source of hazardous air pollutants (>10 TPY single hap or >25 TPY for total haps) and there are no standards applicable to this facility under 40 CFR 63.

This source is not subject to CERR (Consolidated Emissions Reporting Requirements) since 40 CFR Part 51, Subpart A determines CER based on facility wide emissions of each air pollutant at the CEER triggering levels as shown:

CERR APPLICABILITY			
Pollutant	Facility Emissions (TPY)	CERR Triggering Levels (TPY)	
		1 year cycle (type A sources)	3 year cycle (type B sources)
PM_{10}	4.34	≥ 250	≥ 100
SO_2	1.73	≥ 2,500	≥ 100
NO_X	18.98	≥ 2,500	≥ 100
VOC	8.40	≥ 250	≥ 100
CO	22.17	≥ 2,500	≥ 1,000

This source is not subject to BACT analysis because emissions from the facility are below significant emissions levels.

BACT APPLICABILITY		
Pollutant	Facility Emissions (TPY)	Significant Levels (TPY)
PM_{10}	4.34	15
SO_2	1.73	40
NO_X	18.98	40
VOC	8.40	40
CO	22.17	100
PM	6.26	25

INSIGNIFICANT ACTIVITIES / EXEMPTIONS

Proposed Insignificant emission units include the hot oil heater, the asphalt tanks, fuel tanks, the conveyors, screens, aggregate stockpiles, and the HMA silos.

ALTERNATIVE OPERATING SCENERIOS

Replacement diesel engine generator as a temporary replacement unit should the primary DEG fail.

FACILITY EMISSIONS CALCULATIONS & SPECIFICS

Emissions of NOx, CO, PM, PM10, PM25, and HAPs from the drum mixer dryer were based on data from AP-42, Section 11.1(3/04), Hot Mix Asphalt Plants. Emission factors for the firing of fuel oil No.2 and processes using a baghouse were applied to estimate emissions. A hot mix asphalt production limit of 315,360 tons per year was assumed for the emissions estimates. It was assumed that the maximum capacity of the drum mixer dryer was 300 tons per hour. Emissions are summarized below.

Drum Mixer Dryer

Production Rate	**300**	TPH
Fuel: F.O. no. 2	547	gal/hr
Max. heat input:	75	MMBtu/hr
Permit Limit:	315,360	ton/yr

AP 42, Chap 11.1, Hot Mix Asphalt Plants (3/04)

Pollutant	Emission Factor * (lb/Ton)	Emission (lb/hr)	Emission (TPY)		Emiss rate
			No Permit Limit (8,760 hr/yr)	Permit Limit (315,360 ton/yr)	g/s
NOx	0.055	16.50	72.3	8.7	2.083
CO	0.13	39.00	170.8	20.5	4.924
SO_2	0.007	2.10	9.2	1.1	0.265
PM-2.5	0.0029	0.87	3.8	0.5	0.110
PM-10	0.023	6.90	30.2	3.6	0.871
PM	0.033	9.90	43.4	5.2	1.250
VOC	0.032	9.60	42.0	5.0	
Total PAH and Non PAH HAPs	0.0087	2.61	11.4	1.4	
Arsenic	5.60E-07	1.68E-04	7.36E-04	8.8E-05	
Cadmium	4.10E-07	1.23E-04	5.39E-04	6.5E-05	
Chromium	5.50E-06	1.65E-03	7.23E-03	8.7E-04	
Cobalt	2.60E-08	7.80E-06	3.42E-05	4.1E-06	
Hexavalent Chromium	3.10E-06	9.30E-04	4.07E-03	4.9E-04	
Lead	1.50E-05	4.50E-03	1.97E-02	2.4E-03	
Manganese	7.70E-06	2.31E-03	1.01E-02	1.2E-03	
Mercury	2.60E-06	7.80E-04	3.42E-03	4.1E-04	
Nickel	6.30E-05	1.89E-02	8.28E-02	9.9E-03	
Phosphorous	2.80E-05	8.40E-03	3.68E-02	4.4E-03	
Selenium	3.50E-07	1.05E-04	4.60E-04	5.5E-05	
Total HAPs			11.6	1.4	

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Emissions of NOx, CO, PM, PM10, and PM25 from diesel engine generator operation were based on emissions data from manufacturer specifications. The HAP emissions were based on AP-42, Section 3.4 (10/96). A fuel limit of 106,329 gallons per year was assumed for the calculations.

Diesel Engine Generator, Model QST3-G5

Use of AP-42 (10/96) Tables 3.4-1, 3.4-2 and 3.4.-3; Diesel Engines > 600 HP

Power Rating	725	kW
	1,065	hp
Heating value for diesel =	19,300	Btu/lb
Fuel consumpt =	51	gal /hour
Max heat input =	**7.0**	MMBtu/hr
Operational Limit	106,329	gal/yr

Pollutant	Emission Factor (g/hp-hr)	Emission (lb/hr)	Emission (TPY)		Emiss. Rate
			No Permit Limit (8,760 hr/yr)	Permit Limits (106,329 gal/yr)	g/s
NO_X	3.93	9.208	40.3	9.6	1.163
CO	0.45	3.145	13.8	1.1	0.133
SO_2	mass balance	0.361	1.6	0.4	0.046
PM-2.5	0.0828	0.579	2.5	0.2	0.024
PM-10	0.0852	0.595	2.6	0.2	0.025
PM	0.12	0.839	3.7	0.3	0.036
VOC	0.09	0.629	2.8	0.8	

Pollutant	Emission Factor (lb/MMBtu)	Emission (lb/hr)	Emission (TPY)	
			No Permit Limit (8,760 hr/yr)	Pemit Limits (106,329 gal/yr)
Benzene	7.76E-04	5.42E-03	0.024	0.006
Toluene	2.81E-04	1.96E-03	0.009	0.002
Xylenes	1.93E-04	1.35E-03	0.006	0.001
Formaldehyde	7.89E-05	5.51E-04	0.002	0.001
Acetaldehyde	2.52E-05	1.76E-04	0.001	0.0002
Acrolein	7.88E-06	5.51E-05	0.000	0.0001
Naphthalene	1.30E-04	9.09E-04	0.004	0.001
Total HAPs			**0.046**	**0.011**

Emissions from the hot oil heater were estimated using emission factors from AP-42, Section 11.1(3/04), Hot Mix Asphalt Plants. A 16.2 gal/hr fuel oil No. 2 consumption was assumed. A maximum yearly fuel consumption of 71,031 gal/yr was used to determine emissions.

Hot Oil Heater

Fuel Consumption:	**16.2**	gal/hr
Max. Heat Input	2.2	MMBTU/hr
Permit Limit:	71,031	gal/yr

Pollutant	Emission Factor * (lb/1000 gal)	Emission			Emiss rate
		(lb/hr)	(TPY) (8,760 hr/yr)	(TPY) (71,031 gal/yr)	g/s *
NOx	20	0.324	1.4	0.7	0.041
CO	5	0.081	0.4	0.2	0.010
SO_2	7.1	0.115	0.5	0.3	0.014
PM-2.5 **	0.83	0.013	0.1	0.03	0.002
PM-10 **	1.08	0.017	0.1	0.04	0.002
PM **	2	0.032	0.1	0.1	0.004
TOC	0.556	0.009	0.04	0.02	0.001

* AP-42, Chapter 1.3 Fuel Oil Combustion (9/98)

** Table 1.3-7, AP-42

Pollutant	Emission Factor * (lb/1000 gal)	Emission		
		(lb/hr)	(TPY) (8,760 hr/yr)	(TPY) (71,031 gal/yr)
HAPs				
Polycyclic organic matter	0.0033	5.35E-05	2.34E-04	1.17E-04
Formaldehyde (HCOH)	0.061	9.88E-04	4.33E-03	2.17E-03
		Subtotal	4.56E-03	2.28E-03

	Emission Factor *		Emission		
Metals	(lb/E12 BTU)	(lb/MMBTU)	(lb/hr)	(TPY) (8,760 hr/yr)	(TPY)** (71,031 gal/yr)
Arsenic	4	4E-06	8.80E-06	3.85E-05	1.95E-05
Beryllium	3	3E-06	6.60E-06	2.89E-05	1.46E-05
Cadmium	3	3E-06	6.60E-06	2.89E-05	1.46E-05
Chromium	3	3E-06	6.60E-06	2.89E-05	1.46E-05
Lead	9	9E-06	1.98E-05	8.67E-05	4.38E-05
Mercury	3	3E-06	6.60E-06	2.89E-05	1.46E-05
Manganese	6	6E-06	1.32E-05	5.78E-05	2.92E-05
Nickel	3	3E-06	6.60E-06	2.89E-05	1.46E-05
Selenium	15	1.5E-05	3.30E-05	1.45E-04	7.30E-05
			Metal HAPs	5.03E-03	0.00E+00
			TOTAL HAPs	**9.60E-03**	**2.38E-04**

* Tables 1.3-8 (HAPs), and 1.3-10 (Metals)

** Emission = (lb/MMBtu)(19,300 Btu/lb)(7.1 lb/gal)(71,031 gal/yr)(ton/2,000 lb)

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Particulate emissions were estimated for the scalping screen for screening #3 fine gravel, chips, and sand that will be used for the hot mix asphalt. AP-42, Section 11.19.2(8/04) emission factors (controlled) were used to estimate emissions.

Screening

	Plant Rate:	296,438	TPY
	Op. Limit	N/A	hr/yr
	Aggregate	94%	
AP-42, 11.19.2 (8/04),	Material rate	282	TPH
Crushed Stone Processing		300	TPH assumed by applicant

Calculation: Emissions (TPY) = Ton/yr x EF(lb/Ton) x Ton/2,000 lb

Total PM Emissions

Process	Aggregate Material Rate (TPY)	Emission Factor (lb/Ton)	Emissions 8,760 hr/yr (TPY)	Emissions 271,735 ton/yr (TPY)
Truck Unload to stor. bins	296,438	3.14E-05	0.012	0.001
Screening #3 Fine Gravel	59,288	0.0022	0.543	0.065
Screening Chips	74,110	0.0022	0.679	0.082
Screening Sand (#4)	163,041	0.0036	2.446	0.293
Conveyor Transfer pts. X 4	296,438	0.00056	0.692	0.076
		Total PM	**4.372**	**0.517**

PM-10 Emissions

Process	Material Rate (TPY)	Emission Factor (lb/Ton)[a]	Emissions 8,760 hr/yr (TPY)	Emissions 271,735 ton/yr (TPY)
Truck Unload to stor. bins	296,438	1.60E-05	0.006	0.001
Screening #3 fine gravel	59,288	0.00074	0.183	0.022
Screening Chips	74,110	0.00074	0.229	0.027
Screening Sand (#4)	163,041	0.0022	1.495	0.179
Conveyor Transfer pts. X 4	296,438	1.84E-04	0.227	0.025
		PM10	**2.139**	**0.254**

PM 2.5 Emissions

Process	Material Rate (TPY)	Emission Factor (lb/Ton) [b]	Emissions 8,760 hr/yr (TPY)	Emissions 271,735 ton/yr (TPY)
Truck Unload to stor. bins	296,438	2.94E-05	0.011	0.001
Screening #3 Fine Gravel	59,288	0.00054	0.133	0.016
Screening Chips	74,110	0.00005	0.015	0.002
Screening Sand (#4)	163,041	0.00054	0.367	0.044
Conveyor Transfer pts. X 4	296,438	5.20E-05	0.064	0.007
		PM25	**0.591**	**0.070**

[a] PM-10 = 51% of PM (AP 42, Appendix B-2, pg B2-13. 9/90)

[b] PM-2.5 = 15% of PM (AP 42, Appendix B-2, pg B2-13. 9/90)

Emissions from silo filling were predicted using AP-42, Section 11.1(3/04), Hot Mix Asphalt Plants. A 289,080 ton per year hot mix asphalt production limit was used to determine emissions. Default values were used for the emission factor equations that included a hot mix asphalt temperature of 325 degrees F and an asphalt volatility factor of –0.5. Emissions are summarized in the table below.

Silo Filling Operations and Asphalt Storage Tank Emissions

ASTEC NG-2-30BA 300 ton storage system with two 150 ton silos and 300 TPH bucket elevator

Operational Limit	315,360 ton/yr	
Production Rate	300 TPH	
Annual Production	315,360 TPY	
T, temperature	325 deg F	Default value
V, Volatility	-0.5	Default value
Exponent	-0.7265	Calculated value

Operational Limit	315,360 ton/yr	
Production Rate	300 TPH	
Annual Production	315,360 TPY	
T, temperature	325 deg F	Default value
V, Volatility	-0.5	Default value
Exponent	-0.7265	Calculated value

AP-42, 11.1 (3/04), Hot Mix Asphalt Plants, Table 11.1-14

Pollutant	EF (lb/ton)	Emissions	Emissions (TPY)	
		(lb/hr)	(8,760 hr/yr)	(289,080 ton/yr)
CO	1.18E-03	3.54E-01	1.55	0.19
PM-10	5.86E-04	1.76E-01	0.77	0.09
PM/ PM-2.5 [a]	5.86E-04	1.76E-01	0.77	0.09
VOC	1.22E-02	3.66E+00	16.02	1.92
Org PM	2.54E-04	7.62E-02	0.33	0.04

Pollutant	Percent	Base EF	EF
Total PAH HAP	11.4% X	2.54E-04	2.89E-05
Total VOC HAP	1.3 % X	1.22E-02	1.58E-04

AP-42, 11.1 (3/04), Hot Mix Asphalt Plants, Table 11.1-15 and 16.

Pollutant	EF (lb/ton)	Emissions	Emissions (TPY)	
		(lb/hr)	(8,760 hr/yr)	(289,080 ton/yr)
Total PAH HAP	2.89E-05	8.68E-03	3.80E-02	4.56E-03
Total VOC HAP	1.58E-04	4.75E-02	2.08E-01	2.50E-02
		Total HAPs	**2.46E-01**	**2.96E-02**

Emissions from hot mix asphalt load-out were predicted using AP-42, Section 11.1 (3/04), Hot Mix Asphalt Plants. A 289,080 TPY hot mix asphalt production limit was used to determine emissions. Default values were used for the emission factor equations that included a hot mix asphalt temperature of 325 degrees F and an asphalt volatility factor of –0.5. Emissions are summarized in the table below.

Hot Mix Asphalt Load-out Emissions

Operational Limit	315,360	ton/yr
Production Rate	300	TPH
Annual Production	315,360	ton/yr
T, temperature	325 deg F	Default value
V, Volatility	-0.5	Default value
Exponent	-0.7265	calculated value

AP-42, 11.1 (3/04), Hot Mix Asphalt Plants, Table 11.1-14

Pollutant	EF (lb/ton)	Emissions	Emissions (TPY)	
		(lb/hr)	(8,760 hr/yr)	(289,080 ton/yr)
CO	1.35E-03	0.405	1.8	0.2
PM-10	5.22E-04	0.157	0.7	0.1
PM/ PM-2.5 [a]	5.22E-04	0.157	0.7	0.1
TOC	4.16E-03	1.248	5.5	0.7
Org PM	3.41E-04	0.102	0.4	0.05

Pollutant	Percent	Base EF	EF
Total PAH HAP	5.93% X	3.41E-04	2.02E-05
Other semi-volat.	1.18% X	3.41E-04	4.02E-06
Total VOC HAP	1.5% X	4.16E-03	6.24E-05

AP-42, 11.1 (3/04), Hot Mix Asphalt Plants, Table 11.1-15 and 16.

Pollutant	EF (lb/ton)	Emissions	Emissions (TPY)	
		(lb/hr)	(8,760 hr/yr)	(289,080 ton/yr)
Total PAH HAP	2.02E-05	6.07E-03	0.027	0.003
Other semi-volat.	4.02E-06	1.21E-03	0.005	0.001
Total VOC HAP	6.24E-05	1.87E-02	0.082	0.010
		Total HAPs	**0.114**	**0.014**

Particulate emissions from stockpile disturbances were predicted using emission factors from AP-42, Section 13.2.4 (11/06), Aggregate Handling and Storage Piles. A 296,438 ton per year aggregate throughput (94% of asphalt production limit) was assumed for the emissions.

Stock Pile Emissions

AP-42, Section 13.2.4 (1/95), Aggregate Handling and Storage Piles

Production Rate	315,360	tons/year	
% aggregate in mix	94%	296,438	TPY

$$EF = \frac{k(0.0032)\,(U/5)^{1.3}}{(M/2)^{1.4}}$$

EF =emission factor (lb/ton) Equation (1)

k = particle size multiplier = 0.053 for PM-2.5
= 0.35 for PM-10
= 0.74 for PM

U =mean wind speed =7.3 mph (hilo, hi fastest)

M = compost moisture content= 7.5% (Table 11.12-2, note b.)

$$\text{PM-2.5 EF} = \frac{0.053 \times 0.0032 \times (7.2/5)^{1.3}}{(7.5/2)^{1.4}} = 4.28\text{E-05 lb/ton}$$

$$\text{PM-10 EF} = \frac{0.35 \times 0.0032 \times (7.2/5)^{1.3}}{(7.5/2)^{1.4}} = 2.83\text{E-04 lb/ton}$$

$$\text{PM EF} = \frac{0.74 \times 0.0032 \times (7.2/5)^{1.3}}{(7.5/2)^{1.4}} = 5.98\text{E-04 lb/ton}$$

Emission = (EF) X (Production, T/hr) X (Operating hr/yr) X (Ton/2000 lb) X (1 -.70)

Water Spray Control Efficiency = 70%

Emissions From Aggregate Stockpile

		Emissions (TPY)	
Pollutant	**EF (lb/T)**	**8,760 hr/yr**	**296,438 ton/yr**
PM-2.5	4.28E-05	166.80	0.01
PM-10	2.83E-04	0.00	0.04
PM	5.98E-04	2.03	0.08

TOTAL EMISSIONS

Total facility emissions are summarized in the table below.

Pollutant	Facility-Wide Emissions
NOx	18.98
CO	22.17
SO2	1.73
PM-10	4.34
PM	6.26
VOC	8.40
HAPs	1.46

AIR QUALITY ASSESSMENT

source	stack	NO2 (g/s)	SO2 (g/s)	CO (g/s)	PM10 (g/s)	Height (ft)	Temp K(F)	Dia (ft)	Flow Rate (ft3/min)
Drum mixer dryer (baghouse)	1	0.0705[a,c]	0.341 [b] 0.0409[c]	4.969	0.871[b] 0.1045[c]	30	450(350)	3.8	46,878
Hot oil heater	2	0.00575[a,c]	0.014 [b] 0.007 [c]	0.010	0.002[b] 0.001[c]	9	478(400)	1	5,489
Diesel engine	3	0.2768[a,c]	0.046 [b] 0.0109 [c]	0.133	0.025[b] 0.006[c]	16	702(803)	0.8	6,022
Silo loading HMA	6			0.045	0.0222[b] 0.00266[c]	50.5	436(325)	5.91	8,195
HMA truck load-out	7			0.011	0.00953[b] 0.00114[c]	14.5	419(295)	2.26	484

a. NOx emission was reduced 75% on information from AP-42, Section 1.3, Table 1.3-1 that indicates 75% of NOx is NO; therefore, maximum NO2 is 25% of the NOx emission.
b. short term emission rate
c. Annual emission rate
d. maximum short-term emission rate reduced by 15/24 to account for daily operation limit.

The table below shows impacts from the plant operating at full capacity and with the proposed annual fuel and production limits. Results from the AAQIA indicate compliance with the ambient air quality standards.

PREDICTED AMBIENT AIR QUALITY IMPACTS						
AIR POLLUTANT	AVERAGING TIME	IMPACT (ug/m^3)	BACKGROUND (ug/m^3)	TOTAL IMPACT (ug/m^3)	AMBIENT AIR STANDARD	PERCENT STANDARD
SO_2	3 –Hour 24 – Hour Annual	111.11 49 2	119 31 11	562 247 13	1,300 365 80	43% 68% 16%
NO_2	Annual	33	9	42	70	60%
CO	1 – Hour 8 – Hour	1,745 1,222	2,850 1,967	4,595 3,189	10,000 5,000	46% 64%
PM_{10}	24 – Hour Annual	67 6	72 11	139 17	150 50	93% 34%

The table below lists the parameters to determine impacts from fugitive dust emissions represented as area sources.

SOURCE	**Emission Identification**	**Max PM Emission Rate**	**Release Height (ft)**
Truck dump/front end load operation, conveyor transfer, and cold mix screening	MATHANDL	2.27E-05[b] 6.02E-06[c]	13
Wind erosion of sand pile	MATWNDER	2.36E-04[b] 5.90E-05[c]	15

Air Quality Assessment

An ambient air quality impact analysis (AAQIA) was performed. Sources of emissions evaluated included the drum mixer dryer, hot oil heater, diesel engine generators, hot mix asphalt loading into storage silo, and hot mix asphalt load-out to trucks. Fugitive dust emissions from aggregate handling and wind erosion of stockpiles were also evaluated which is conservative because fugitive dust emissions are not typically evaluated in the air modeling assessment. The Lakes Environmental ISC-AERMOD (V.5.8.1) was used to verify the applicant's modeling impacts. Assumptions for the model are listed below.

a. Elevated terrain was used for the AERMOD model. A USGS digital elevation map (DEM-NAD 83) file from the PuuHinai.DEM topographic quadrangle was used for executing AERMAP in the model (model automatically converts to NAD83 using the datum option).

b. Rural dispersion parameters were used for the model.

c. Structures at the facility (e.g., tanks and buildings) were imported into the model. The EPA building profile input program prime (BPIPPRIME) was used to evaluate the effects of downwash from structures at the facility.

d. Receptors used by the applicant were imported into the ISC-PRIME model. A 6,000 meter x 6,500 meter coarse receptor grid with 250 meter grid spacing was used to determine impacts around the facility. A finer 2700 meter x 2200 meter receptor grid with 100 meter grid spacing was placed around the facility within the course receptor grid. Receptors were placed along the property fence line. A fence line was incorporated by connecting fence line receptors. Receptor grids of less than 25 meter spacing were placed over area of maximum impact identified by the applicant to determine the highest impact.

e. Applied EPA scaling factors of 0.9, 0.7, and 0.4 for the 3-hour, 8-hour, and 24-hour concentrations, respectively.

f. Used state scaling factor of 0.2 for the annual concentrations.

FACILITY IDENTIFICATION

A major source as defined in Section 11-60.1-1 of HAR Title 11, has the potential to emit any HAP of 10 TPY or more, or 25 TPY or more of any combination of HAPs, or 100 TPY or more of any air pollutant. Calculated emissions(s) do exceed these limits and thus, this facility is classified as a minor source. The facility is not subject to PSD review, and NESHAPS. The facility is subject to NSPS and considered a covered source.

A synthetic minor source is a facility that is potentially major (as defined in HAR 11-60.1-1), but is made nonmajor through federally enforceable permit conditions. This facility is a synthetic minor of CO, NOx, and PM10 based on potential emissions that exceed the major source threshold level when the facility is operated at its maximum capacity continuously for 8,760 hy/yr.

CONCLUSION

Based on the information submitted by Grace Pacific Corporation, it is the determination of the Department of Health (DOH) that the proposed project will be in compliance with the Hawaii Administrative Rules (HAR), Chapter 11-60.1 and State and Federal ambient air quality standards. Issuance of a Covered Source Permit to Grace Pacific Corporation is recommended subject to the incorporation of the significant permit conditions, 30-day public comment period, and 45-day review by EPA.