PROPOSED
Reviewed by: MR
June 3, 2004

Renewal of Temporary Covered Source Permit (NSP) No. 0045-02-CT
Application Review

File #: 0045-14

Applicant: Grace Pacific Corporation

Facility Title: 334 TPH (Makakilo) Hot Mix Asphalt Facility

Location : 91-920 Farrington Highway
Kapolei, Oahu

UTM Coordinates provided by applicant: 596953 m E, 2361208 m N
SICC: 2951

Responsible Official: Robert A. Creps
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Equipment Description:

The current covered source permit encompasses the following equipment and associated appurtenances:

1. Table 1a - 725 kW diesel engine generator, de-rated to 75% of full load

Size (Max. Cap.)	Manufacturer	Model	Serial No.	Fuel
544 kW (725 kW, de-rated to 75% of full load)	Caterpillar	3412	2WJ01364	No. 2 diesel 39.8 gph max

2. Table 1b - Drum-Mixer, Astec Six Pack Asphalt Plant with knockout box and baghouse

Unit	Size (Max. Cap.)	Manufacturer	Model	Serial No.	Fuel
Double barrel Drum-Mixer w/counterflow dryer	334 TPH	Astec	PDDC-835C	92-152	No. 2 diesel/spec used oil, 1.5 to 2.0 gal/ton asphalt
Baghouse w/ 960 virgin Nomex bags	58,255 acfm max design flowrate	Astec Manf. Date: 12/92	RBH-58:DB	92-152 437	N/A

4 asphalt silos, 100 tons capacity each.

3. Table 1c - 275 TPH recycle crushing and screening system for Reclaimed Asphalt Product (RAP), Model RRB-814/30C Relocatable Recycle System with Telsmith Horizontal Shaft Impactor consisting of the following

Unit	Size (Max. Cap.)	Manufacturer	Model	Serial No.
Crusher	96 TPH Max. feed size of 9"	Telsmith	HSI-3036 Hammermill Crusher	232M337
Screen	275 TPH* 4' x 8' single deck, opening size 2"	Telsmith	VK481	363M474
Recycle Bin	26 tons heaped based on material weight of 100 lb/cu. ft.	-	-	-
Conveyors	-	-	-	-

*Based on Manufacturer provided information. Utilizing Cedarapids Pocket Reference Book, 14th Edition, Basic Capacity (TPH/ft^2) formula:
For 2" screen opening (largest size screen opening), the Basic capacity =7.50 TPH/ft^2 of screen.
Thus, 7.5 TPH/ft^2 x 4 ft x 8 ft = 240 TPH
Conservatively used manufacturer provided maximum screen capacity of 275 TPH.

4. Table 1d - Aggregate Processing with scalping screen and various conveyor belts.

Unit	Size (Max. Cap.)	Manufacturer	Model	Serial No.
Screen	4' x 12' 1", single deck	Diester Manf. Date: 11/92	USM-1412	579262

In addition, a propane/synthetic natural gas fired Hot Oil Heater, previously permitted (when fired on fuel oil) was determined exempt with the March 5, 2002 permit amendment.

Table 1e - Hot Oil Heater

Unit	Size (Max. Heat Input)	Manufacturer	Model	Serial No.
Hot Oil Heater	1.5 MMBtu/hr (2.1 MMBtu/hr with physical modification to increase gas train size)	Heatec	HC-120 Asphalt Heater, C2-GO-15 (burner) TA30PE (30,000 gallon heater tank)	109260088 92171 (30,000 gallon heater tank)

Proposed Project:

Grace Pacific Corporation is proposing to continue operation of the hot drum-mix asphalt facility located at Grace Pacific's Makakilo Quarry in Kapolei, Oahu. The facility consists of a 334 ton per hour Drum-Mix Asphalt Concrete Batch Plant, Diesel Engine Generator, aggregate processing, and a RAP crushing and screening system. The facility is currently permitted under Covered Source Permit (CSP) No. 0045-02-CT issued on May 3, 2000, and amended on March 5, 2002, May 10, 2002 (replacement of RAP lumpbreaker with RAP crusher and screener), and January 26, 2004 (allows use of specification used oil).

Process:

Virgin aggregate (84.5%), recycled asphalt paving (RAP) (9.5%), and liquid asphalt cement (6%) are the three ingredients used to produce the asphalt. Virgin aggregate is received via loader from the adjacent Grace Pacific quarry, is stored in stockpiles at the asphalt plant, and

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. The scalping screen and all conveyors transporting aggregate are covered to minimize fugitive dust emissions. RAP is transferred from stockpiles into a recycle bin via front end loader and travels to the crushing and screening system and then to the drum-mixer via conveyor. The crusher, screen, and conveyor belts of the Recycle (RAP crushing and screening) System are all covered. Liquid asphalt is added to the RAP and aggregate in the drum-mixer and the finished product is discharged from the drum-mixer onto a conveyor. From this conveyor, the finished product is transferred to storage bins for truck loading.

The existing permit currently allows both 100% fuel oil no. 2 and a blend of fuel oil no. 2 and specification used oil with a maximum sulfur content not to exceed 0.5% by weight to be used in the existing drum-mixer. Specification used oil has not been used at the facility, as of yet. As per the current permit, the blended fuel oil is to consist of, at most, 25% specification used oil. The blended fuel is agitated during blending, and before and during burning to assure a well-mixed blend. A tank is to be dedicated to store specification used oil at the facility. Another existing tank (with agitator) is to be used for the blending. Another existing tank continues to store the fuel oil no. 2 for the drum mixer (the remaining fourth tank stores fuel oil no. 2 for the diesel engine generator). The following constituents/properties of the specification used oil are not allowed to exceed the specified limits listed below:

Constituent/Property	Allowable Limit
Arsenic	5 ppm maximum
Cadmium	2 ppm maximum
Chromium	10 ppm maximum
Lead	100 ppm maximum
Total Halogen	1,000 ppm maximum
Sulfur	0.5% maximum by weight
Flash Point	100°F minimum
Polychlorinated Biphenyls (PCB)	< 2 ppm

Records are required to be kept including the date and result of any testing for the specification used oil, dates of blending, amount of each fuel blended, and total amount of fuel blended. For each time fuel is blended, Grace Pacific Corporation is to perform stick readings of the fuel blend tank to monitor the amount of each fuel blended and combusted by the drum mixer/dryer. A flow meter is also used to quantify the amount of fuel burned in the drum mixer/dryer. Dipstick readings of the blend tank (after each fuel is added) will also ensure that the 25% specification used oil limit in the blend is not exceeded.

The applicant is proposing to maintain the current maximum limit of 20,000 gallons of specification used oil allowed to be fired in the drum-mixer. These 20,000 gallons of specification used oil replace 20,000 gallons of fuel oil no. 2 and there is no associated increase in the production, hours of operation, or total fuel consumption with the use of used oil. The

specification used oil allowed only consists of specification used oil from Unitek Solvent Services and sources within Grace Pacific Corporation. The amount of specification used oil was based on the amount of Grace Pacific generated used oil sent to Unitek for processing/testing and then repurchased. The applicant intends to eventually test its own generated used oil, but does not have this in place at this time. Should the applicant desire to burn specification used oil from any other sources, the applicant shall provide written notification and receive approval from the Department prior to burning of this fuel.

Many city and county, state, and federal repavement specifications require that the roads be cold planed (milled) prior to repaving and that the resulting large quantities of recyclable material (RAP) be used in the production of new asphalt in percentages up to 40%. RAP is obtained primarily from cold planing existing asphalt roads, and from road construction by utility companies involving existing roads. Material obtained from milling normally does not require crushing. Material from road construction may come in chunks that require crushing and processing. In order to assure production of new asphalt containing RAP at the required specifications, the RAP is screened and possibly crushed prior to introduction into the mixing drum.

The current permit includes an asphalt production limit of 540,000 tons per year for the facility. At a maximum rate of 40% RAP, the RAP crushing system is limited to 216,000 tons per year. The applicant is proposing to maintain the 540,000 ton per year production limit and the 216,000 ton per year RAP limit. The RAP crushing system is equipped with a nonresetting tonnage meter connected to a weigh bridge scale located on the conveyor belt leading to the drum mixer. This meter is used to record the tons of RAP added to the final mix of asphalt and utilized in monitoring of the proposed RAP limit. Per discussion with Chris Steele of Grace Pacific on 2/27/02, the weigh bridge scale is also connected to a daily totalizer located at the scale and to the computer system in the control room where a running total of RAP used (in tons) can be obtained. Per discussion with Fred Peyer of EMET on 3/4/02, the computer is set to provide daily totals of RAP usage and resets to 0 each day. Monthly operational summaries include the total amount of RAP used on a monthly and 12-month rolling basis.

The applicant also proposes to maintain the drum-mixer hour limit of 20 hours/day and the diesel engine generator limits of: only fuel oil no. 2 with a maximum sulfur content of 0.5% by weight to be burned in the engine, a maximum fuel use of 107,460 gallons/rolling 12-month period, and 20 hours/day of operation.

Nonresetting hour meters are installed, operated, and maintained on the drum-mixer and the diesel engine generator to track hours of operation for these units. Daily records are kept on the amount of asphalt produced at the site and dipstick readings are performed daily to track the amount of fuel consumed by the diesel engine generator.

The hot oil heater supplies heat to warm up the asphalt and keep the asphalt inside the storage tanks in a liquid state during production runs. The heater warms up a special oil contained inside a closed circuit which radiates this heat inside the asphalt storage tanks.

For operational purposes and efficiency, it is also necessary to keep the temperature elevated during times when the plant is not actually producing asphalt concrete mix. An electrical in-line heater located inside the closed hot oil system serves the purpose of keeping the oil hot during the times the hot oil heater is not operating, primarily during off-production hours of the plant, i.e. during the night and on weekends. The electrical in-line heater allows Grace Pacific Corporation to reduce the operating hours of the hot oil heater, thereby lowering potential emissions. See the technical review covering this change located in the file folder for further details.

In summary, all current operational limitations will remain unchanged.

There are no changes proposed for this source.

The application fee for a covered source permit renewal of $500.00 was processed.

Air Pollution Controls:

The existing drum-mixer utilizes a knockout box and a baghouse to control emissions. The knock-out box is used to remove the large fine particles from the exhaust gases and to reduce the loading on the secondary collector (the baghouse), which is used to capture the very fine particles. The baghouse consists of 15 compartments with 960 virgin Nomex bags and is cleaned through pulse jet cleaning with one module cleaned every four hours. The dust falls into the hopper at the bottom of the baghouse. Oversized screws in the hopper transfer the collected dust back to the drum-mixer.

Enclosures are utilized on the scalping screen and conveyors, and the Recycle System crusher, screen, and conveyors to control fugitive dust. A water truck is utilized to minimize fugitive dust from stockpiles and the road area. The entire AC plant is paved and swept at a minimum of once a week.

Air pollution control is also achieved through the current use of fuel oil no. 2 with a maximum sulfur content not to exceed 0.5% in the drum-mixer and generator and the use of a blend of fuel oil no. 2 and specification used oil with a maximum sulfur content not to exceed 0.5% in the drum-mixer.

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
  - 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
  - Subchapter 8, Standards of Performance for Stationary Sources
    - 11-60.1-161(11) Subpart I, Standards of Performance for Hot Mix Asphalt Facilities
  - Subchapter 10 - Field Citations

This existing source is subject to **NSPS**. It falls under:
- 40 CFR Part 60, Subpart A (General Provisions)
- 40 CFR Part 60, Subpart I (Standards of Performance for Hot Mix Asphalt Facilities) because construction or modification was commenced after June 11, 1973.

It does not fall under:

- Subpart OOO (Standards of Performance for Nonmetallic Mineral Processing Plants). Portable sand and gravel plants and crushed stone plants with capacities of 150 tons/hour or less are not subject to the provisions of this subpart. The mobile crusher maximum capacity is 96 tons/hr.

This source is not subject to **PSD** requirements because it is not a major stationary source.

This source is not subject to **NESHAPS** as there are no standards in 40 CFR Part 61 applicable to hot mix asphalt facilities and it is not a major source of HAPs.

This source is not subject to **MACT** as the facility is not a major or area source of HAPS, covered under 40 CFR Part 63.

40 CFR Part 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 control device equipment to meet an emissions limit or standard. 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 precontrol emissions that are greater than the major source level; and (5) not otherwise be exempt from CAM. The facility remains exempt from all Compliance Assurance Monitoring (CAM) provisions because this source is not a major source.

Synthetic minor applicability: A "synthetic minor" is a facility that, without limiting conditions (physical or operational), emits above the "major" triggering levels (as defined by HAR 11-60.1-1) for either criteria pollutant(s) or hazardous air pollutant(s). This facility remains a synthetic minor being that it will emit above the "major" triggering levels without controls or limitations (SO_2 = 149.39, NOx = 158.29, CO = 214.94, PM = 153.88).

A **Best Available Control Technology (BACT)** analysis is required for new sources or modifications to existing sources that would result in a net significant emission increase as defined in HAR, Section 11.60.1-1. This is an existing source with no modifications and no increase in emissions. Therefore, a BACT analysis was not performed at this time.

CER and CDS applicability:

40 CFR Part 51, Subpart A - Emission Inventory Reporting Requirements, determines CER based on facility wide emissions of each air pollutant at the CER triggering levels as shown in the table below.

Pollutant	CER Triggering Levels (tpy)	In-house Total Facility Triggering Levels (tpy)
NO_x	≥100	≥25
SO_x	≥100	≥25
CO	≥1000	≥250
PM_{10}	≥100	≥25 (for PM also)
VOC	≥100	≥25
Pb	≥ 5	≥5

CER trigger levels shown for Type B sources only, as they are lower than Type A levels.

This facility does not have any emissions at the CER triggering levels. Therefore, CER requirements are not applicable.

Although CER for the facility is not triggered, the Clean Air Branch requests annual emissions reporting from those facilities that have facility-wide emissions of a single air pollutant exceeding in-house triggering levels. Annual emissions from these facilities are used within the Department and are not inputted into the National Emissions Inventory database. Total combined facility emissions exceed the in-house triggering level for NOx (38.41 > 25 tons/yr), SO_2 (28.70 > 25 tons/yr), CO (42.04 > 25 tons/yr), and PM (27.29 > 25 tons/yr), therefore, annual emissions reporting is required for in-house recordkeeping purposes. Per File No. 0045-02, this facility is already subject to this reporting requirement.

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.

Insignificant Activities/Exemptions:

There are no new insignificant activities/exemptions proposed for the facility. Existing insignificant activities at the facility consist of the following:

1) 1.5 MMBtu/hr Hot Oil Heater, Heatec HC-120 (previously permitted was determined exempt with the March 5, 2002 permit amendment because the unit emits less than the levels provided in HAR, Section 11-60.1-82(f)(7)).
2) A specification used oil tank (<10,000 gallons)
3) Two above ground fuel oil no. 2 storage tanks (4,000 and 3,000 gallon capacities) and one 10,000 gallon fuel oil tank.
4) Two 30,000 gallon above ground liquid asphalt cement storage tanks (AR-6000).
5) A 6,000 gallon cold mix tank.

These storage tanks are exempt from the air permit requirements per HAR, Section 11-60.1-82(f)(1). The tanks have a capacity of less than 40,000 gallons and are not subject to any standard or other requirement pursuant to Section 111 or 112 of the CAA.

The tanks are not subject to NESHAPS as there are no standards in 40 CFR Part 61 applicable to these fuel tanks.

These tanks are not subject to NSPS as there are no applicable regulations in 40 CFR Part 60 pertaining to these fuel tanks. They do not fall under Subpart K, Subpart Ka, or Subpart Kb being that each tank capacity is less than 40,000 gallons, the fuel and cold mix tank capacities do not exceed the minimum capacity ($40m^3$) for NSPS Subpart Kb, and the asphalt cement has a vapor pressure less than 0.5 psi.

Alternative Operating Scenarios:

No new alternate operating scenarios are proposed. The current covered source permit alternative operating scenarios allows the operation of a similar or equivalent generator should the existing generator need replacement.

Project Emissions:

The emissions calculations provided for the drum-mixer on Form S-1 were checked using the most current AP-42 Hot Mix Asphalt Plant factors (3/04), and Fuel Oil (9/98) and Waste Oil (10/96) Combustion factors for SO_2.

The asphalt plant AP-42 emission factors were not used for determining SO_2 emissions, as the factors did not incorporate a fuel sulfur content in the calculation. As the sulfur content of the fuels tested to determine these AP-42 emission factors may not be reflective of the proposed and current fuels used at the facility, it was decided that SO_2 emissions based on fuel usage and the fuel combustion emission factors (for the appropriate fuels) presented in AP-42, Chapter 1, would result in a more representative determination of SO_2 emissions from either of the facility's fuels. Use of this method is specified per note c of Table 11.1-7 of the Hot Mix Asphalt Plant section of the AP-42 and considers the sulfur content of the fuels in determining the SO_2 emissions.

PM and PM_{10} emissions were conservatively based on AP-42 emission factors versus source test results.

Waste oil emission factors were used in determining emissions from the specification used oil. Emission factors developed utilizing tests with fabric filter control were also noted in Enclosures (1a) and (1b).

The data below summarize the Department of Health's emission calculations, performed in Enclosures (1a) and (1b). Worst case emissions from the drum-mixer were calculated assuming the burning of both 100% fuel oil no. 2 and a blend of fuel oil no. 2 and specification used oil with the production limit of 540,000 tons/yr. The worst case (larger) emissions of the two scenarios were used to calculate totals for the facility.

The drum-mixer emissions were based on a 334 TPH maximum production rate. Detailed calculated emissions from the drum-mixer firing the blended fuel are shown in Enclosure (1b) (shows 100% specification used oil). Detailed calculated emissions from the drum-mixer firing 100% fuel oil no. 2 are shown in Enclosure (1a).

All emissions calculations used the most current AP-42 emission factors. The emissions calculations provided for the diesel engine generator on Form S-1 were checked using AP-42 Diesel Engines > 600 HP factors (10/96) and are shown in Enclosure (2). The emission calculations for the aggregate processing were checked using AP-42 Crushed Stone Processing factors (1/95) and are shown in Enclosures (3a) and (3b) for the RAP processing plant and Enclosures (4a) and (4b) for the aggregate processing plant. Enclosure (5) shows the emissions for Aggregate Handling and Storage Piles and Enclosure (6) shows the emissions for Paved Roads using AP-42 factors (1/95) and (12/03), respectively. Enclosure (7) shows the emissions for AC Load-Out and Silo Filling, and Storage Operations, AP-42 (3/04). Emissions for the hot oil heater burning LPG and synthetic natural gas are shown in Enclosures (8a, b, and c), (10/96, 3/04, 2,/98, and 7/98).

Table 2 provides an emissions summary for the facility. Table 3 provides an emissions summary of HAPs and other trace elements/speciated organic compounds for the facility. Please refer to the attached spreadsheets for details.

TABLE 2: FACILITY EMISSIONS SUMMARY
MAXIMUM EMISSIONS COMPARED TO CER, In House & CDS Levels

Pollu-tant	Drum Mixer (540,000 ton/yr) (TPY)	RAP Crush-ing & Screen-ing System (216,000 ton/yr) (TPY)	Material Convey-ing (540,000 ton/yr) (TPY)	DEG (107,460 gal/yr) (TPY)	Agg Hand./ Storage Piles, & Paved Roads (540,000 ton/yr) (TPY)	Load-Out (540,000 ton/yr) (TPY)	Silo Filling (540,000 ton/yr) (TPY)	Total (TPY)	CER Lev-els TPY	In House / CDS Levels TPY	Insig-nificant Activi-ties (Hot Oil Heater) (8,760 hrs/yr) TPY	TOTAL Emissions Including Insignifi-cant Activities TPY
SO_2	24.92	0.00	0.00	3.78				**28.70**	100	25/ 100	0.15	28.85
NOx	14.85	0.00	0.00	23.56				**38.41**	100	25/ 100	1.41	39.82
CO	35.10	0.00	0.00	6.26		0.36	0.32	**42.04**	1000	25/ 1000	0.76	42.80
PM	8.91	1.75	3.50	0.736	12.09	0.14	0.16	**27.29**	-	25/ 100	0.07	27.36
PM_{10}	6.21	0.84	1.67	0.422	3.00	0.14	0.16	12.44	100	25/ 100	0.04	12.48
VOC	8.64	0.00	0.00	0.662		1.06	3.29	13.65	100	25/ 100	0.05	13.70
Lead	4.05e-03	0.00	0.00	0.00				4.05e-03	5	5/5	4.51e-06	4.05e-03

The hot oil heater values shown above are reflective of the worst case from either LPG or SNG firing.

The material conveying emissions are conservative, as the emissions for material conveying shown above considers emissions prior to the March 25, 2002 RAP amendment (that is, considers entire 540,000 tons/yr). Being that the asphalt production limit (540,000 tons/yr) remained in effect with the RAP amendment, an increase in RAP usage would result in a corresponding decrease of virgin aggregate usage, and thus, there would be a decrease in emissions from material conveying (i.e., screening and conveying of aggregate) shown above.

PM/PM10 emissions based on AP-42 emission factors. PM/PM10 source tests have shown much lower emissions.

Some of the AP-42 emission factors were updated since the last time emissions were calculated (as shown in previous reviews in the file folder). Fugitive emissions from load-out and silo filling not previously included in the AP-42 were calculated in this review and included. Also, fugitive emissions from paved roads were evaluated and included above. Although the AP-42 section 11.1, for calculating emissions from hot mix asphalt plants was updated (3/04) since the last review, there were no significant changes to any of the drum mix emission factors used in this evaluation.

SO_2 emissions were calculated based on Note c of AP-42, Table 11.1-7 which states that emissions of SO_2 can also be estimated based on fuel usage and the fuel combustion emission factors for the appropriate fuels. The SO_2 calculations were based on this being that the Hot Mix Asphalt Section of the AP-42 (as presented in Table 11.1-7) does not provide a parameter for varying sulfur contents in fuels, but rather averaged SO_2 emission factors derived from multiple tests and fuel types. Using fuel combustion emission factors from the AP-42 allows the incorporation of the appropriate sulfur contents of the current and proposed fuels.

TABLE 3: EMISSIONS SUMMARY FOR HAZARDOUS AIR POLLUTANTS (HAPS)

POLLUTANT	Drum-Mixer Emissions (540,000 tons/yr) (TPY)	Generator Emissions (107,460 gal/yr) (TPY)	Load-Out and Yard (540,000 tons/yr) (TPY)	Silo Filling & Asphalt Storage Tank (540,000 tons/yr) (TPY)	Hot Oil Heater Emissions (8,760 hr/yr) (TPY)	TOTALS (TPY)
2-Methylnaphthalene*	4.59e-02	--	2.19e-03	3.61e-03	2.16e-07	5.17e-02
Acenaphthene*	3.78e-04	3.44e-05	2.39e-04	3.22e-04	5.33e-08	9.73e-04
Acenaphthylene*	5.94e-03	6.79e-05	2.58e-05	9.60e-06	2.01e-08	6.04e-03
Acetaldehyde*	8.67e-03	1.86e-04	--	--	--	8.86e-03
Acrolein*	1.73e-04	5.80e-05	--	--	--	2.31e-04
Anthracene*	8.37e-04	9.05e-06	6.44e-05	8.91e-05	2.16e-08	1.00e-03
Benzene*	1.05e-01	5.71e-03	5.84e-04	1.05e-03	1.89e-05	1.13e-01
Benzo(a)anthracene*	5.67e-05	4.58e-06	1.75e-05	3.84e-05	1.62e-08	1.17e-04
Benzo(a)pyrene*	2.65e-06	1.89e-06	2.12e-06	0.00e+00	1.08e-08	6.67e-06
Benzo(b)fluoranthene*	2.70e-05	8.17e-06	7.00e-06	0.00e+00	1.62e-08	4.22e-05
Benzo(e)pyrene*	2.97e-05	--	7.18e-06	6.51e-06	--	4.34e-05
Benzo(g,h,i)perylene*	1.08e-05	4.09e-06	1.75e-06	0.00e+00	1.08e-08	1.67e-05
Benzo(k)fluoranthene*	1.11e-05	1.61e-06	2.02e-06	0.00e+00	1.62e-08	1.47e-05
Chrysene*	4.86e-05	1.13e-05	9.48e-05	1.44e-04	1.62e-08	2.99e-04

Ethylbenzene*	6.48e-02	--	3.14e-03	1.25e-03	--	6.92e-02
Fluoranthene*	1.65e-04	2.97e-05	4.60e-05	1.03e-04	2.71e-08	3.43e-04
Fluorene*	2.97e-03	9.42e-05	7.09e-04	6.92e-04	2.52e-08	4.47e-03
Formaldehyde *	8.37e-01	5.81e-04	9.88e-04	2.27e-02	6.76e-04	8.62e-01
Hexane* and n-Hexane*	2.48e-01	--	1.68e-03	3.29e-03	1.62e-02	2.70e-01
Indeno(1,2,3-cd)pyrene*	1.89e-06	3.05e-06	4.33e-07	0.00e+00	1.62e-08	5.39e-06
Isooctane (2,2,4-trimethylpentane)*	1.08e-02	--	2.02e-05	1.02e-05	--	1.08e-02
Methyl chloroform*	1.30e-02	--	--	--	--	1.30e-02
Methyl ethyl ketone*	1.33e-04	--	--	--	--	1.33e-04
Naphthalene*	1.76e-01	9.57e-04	1.15e-03	1.25e-03	5.50e-06	1.79e-01
Perylene*	2.38e-06	--	2.02e-05	2.06e-05	--	4.32e-05
Phenanthrene*	6.21e-03	3.00e-04	7.46e-04	1.23e-03	4.93e-07	8.49e-03
Propionaldehyde*	8.67e-04	--	--	--	--	8.67e-04
Propylene*	--	2.05e-02	--	--	--	2.05e-02
Pyrene*	8.10e-04	2.73e-05	1.38e-04	3.02e-04	4.51e-08	1.28e-03
Quinone*	1.07e-03	--	--	--	--	1.07e-03
Toluene*	7.83e-01	2.07e-03	2.36e-03	2.04e-03	3.07e-05	7.90e-01
Xylene*	5.40e-02	1.42e-03	--	--	--	5.54e-02
m-/p-Xylene*	--	--	4.60e-03	6.58e-03	--	1.12e-02
o-Xylene*	--	--	8.98e-04	1.88e-03	--	2.78e-03
Antimony*	4.68e-05	--	--	--	--	4.68e-05
Arsenic*	1.51e-04	--	--	--	1.80e-06	1.53e-04
Beryllium*	0.00e+00	--	--	--	1.08e-07	1.08e-07
Cadmium*	1.11e-04	--	--	--	9.92e-06	1.21e-04
Chromium*	1.48e-03	--	--	--	1.26e-05	1.49e-03
Cobalt*	7.02e-06	--	--	--	7.57e-07	7.78e-06
Hexavalent chromium*	1.22e-04	--	--	--	--	1.22e-04
Lead*	4.05e-03	--	--	--	4.51e-06	4.05e-03
Manganese*	2.08e-03	--	--	--	3.43e-06	2.08e-03

Mercury*	7.02e-04	--	--	--	2.34e-06	7.04e-04
Nickel*	1.70e-02	--	--	--	1.89e-05	1.70e-02
Phosphorus*	7.56e-03	--	--	--	--	7.56e-03
Selenium*	9.45e-05	--	--	--	2.16e-07	9.47e-05
PCDD/PCDF*	3.24e-08	--	--	--	2.31e-11	3.24e-08
3-Methylchloranthrene*	--	--	--	--	1.62e-08	1.62e-08
7,12-Dimethyl-benz(a)anthracene*	--	--	--	--	1.44e-07	1.44e-07
Dibenzo(a,h)anthracene*	--	2.55e-06	3.41e-07	0.00e+00	1.08e-08	2.90e-06
Dichlorobenzene*	--	--	--	--	1.08e-05	1.08e-05
HCL*	1.40e-03	--	--	--	--	1.40e-03
Phenol*	--	--	1.09e-03	0.00e+00	--	1.09e-03
Bromomethane*	--	--	1.08e-04	1.61e-04	--	2.69e-04
2-Butanone*	--	--	5.50e-04	1.28e-03	--	1.83e-03
Carbon Disulfide*	--	--	1.46e-04	5.27e-04	--	6.73e-04
Chloroethane*	--	--	2.36e-06	1.32e-04	--	1.34e-04
Chloromethane*	--	--	1.68e-04	7.57e-04	--	9.25e-04
Cumene*	--	--	1.24e-03	0.00e+00	--	1.24e-03
Methylene Chloride*	--	--	0.00e+00	8.89e-06	--	8.89e-06
MTBE*	--	--	0.00e+00	0.00e+00	--	0.00e+00
Styrene*	--	--	8.20e-05	1.78e-04	--	2.60e-04
Tetrachloroethene*	--	--	8.65e-05	0.00e+00	--	8.65e-05
1,1,1-Trichloroethane*	--	--	0.00e+00	0.00e+00	--	0.00e+00
Trichloroethene*	--	--	0.00e+00	0.00e+00	--	0.00e+00
Trichlorofluoromethane*	--	--	1.46e-05	0.00e+00	--	1.46e-05
Phenol*	--	--	1.09e-03	0.00e+00	--	1.09e-03
TOTAL HAPS	2.40	3.21e-02	2.34e-02**	5.06e-02**	1.70e-02	2.52

-- = no emission factors identified.
* = hazardous air pollutants listed in the Clean Air Act
** Conservatively used the sum of the total PAH HAPs, Phenol, and total Volatile Organic HAPs versus summing every individual HAP, as using the total PAH HAPs and total Volatile Organic HAPs emission factors resulted in slightly higher total emissions.

Acetaldehyde, Acrolein, Methyl Ethyl Ketone, Propionaldehyde, Quinone, and HCL emissions specified in the AP-42 for waste oil only. Therefore, emissions for these pollutants based on the proposed 20,000 gal/yr limit for specification used oil. Emissions for other HAPs shown above consider 540,000 tons/yr limit and are the same for fuel oil no. 2 and specification used oil.

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 do not meet these limits and thus, this facility is not classified as a major source.

Air Quality Assessment:

The ambient air quality standards seek to protect public health and welfare and to prevent the significant deterioration of air quality. For new facilities and facilities proposing modifications, an ambient air quality assessment is required to analyze the maximum potential pollutant concentrations generated by a source and its effect on the ambient air.

This facility is an existing source and is not proposing any modifications. Therefore, an air quality assessment was not performed at this time. Previous ambient air quality analyses showed compliance with state and federal ambient air quality standards.

Significant Permit Conditions:

- The generator is limited to 107,460 gallons of fuel in any rolling 12-month period.
- The asphalt plant will produce no more than 540,000 tons of asphalt in any rolling 12-month period.
- The drum-mixer shall not operate more than 20 hours/day.
- The diesel engine generator shall not operate more than 20 hours/day.
- The drum-mixer and generator shall burn only fuel oil #2 with a sulfur content not to exceed 0.5%.
- The total amount of RAP used shall not exceed 216,000 tons in any rolling 12-month period.
- The drum-mixer may also burn up to 20,000 gallons of a blend of fuel oil no. 2 and specification used oil in lieu of diesel fuel no. 2.
- The blended fuel oil will consist of, at most, 25% specification used oil.
- The sulfur content of the blended fuel oil shall not exceed 0.5% by weight.
- The following constituents/properties of the specification used oil shall not exceed the specified limits listed below:

Constituent/Property	Allowable Limit
Arsenic	5 ppm maximum
Cadmium	2 ppm maximum
Chromium	10 ppm maximum
Lead	100 ppm maximum
Total Halogen	1,000 ppm maximum
Sulfur	0.5% maximum by weight
Flash Point	100°F minimum
Polychlorinated Biphenyls (PCB)	< 2 ppm

Conclusion and Recommendation:

Actual emissions from the drum-mixer should be lower than estimated based on the following reasons:

1) The drum-mixer dryer may burn 100% fuel oil no. 2 and blends of fuel oil no. 2 and specification used oil with no more than 25% specification used oil. Calculations were based on the worst case scenario using the maximum possible pollutant emissions from either fuel. This was done to predict the worst case emissions with the worst case fuel used.

2) The analysis was done assuming a maximum of 25% specification used oil blended with 75% fuel oil no. 2. In reality, when burned, the specification fuel oil in the blend would most likely be much lower than 25% due to the limited availability of specification used oil and due to the fact that the use of too much used oil in the blend would likely create problems with the burner.

3) Emission calculations were based on a production of 540,000 tons of asphaltic concrete per year. However, per file 0045-02, annual emission reports submitted by the facility indicate that the facility produces much less asphalt per year.

Based on the information submitted by Grace Pacific Corporation, it is the preliminary determination of the Hawaii Department of Health (DOH), that the proposed project will be in compliance with the Hawaii Administrative Rules (HAR), Chapter 11-60.1 and not cause or contribute to a violation of any State or National ambient air quality standard. Therefore, the Hawaii DOH intends to renew Temporary Covered Source Permit 0040-02-CT, subject to the significant permit conditions, public comment, and EPA review.

This renewal, when issued, will supersede in its entirety, CSP No. 0045-02-CT as issued on May 3, 2000, and amended on March 5, 2002, May 10, 2002, and January 26, 2004, and allow the continued operations of the asphalt plant at this facility.