PROPOSED

COVERED SOURCE APPLICATION REVIEW
Renewal and Modification
Application Number: 0464-04

Applicant: Jas. W. Glover, Ltd.
Facility: 300 TPH Asphalt Concrete Plant
Located At: Various temporary sites, State of Hawaii

Initial Location: Kaumualii Hwy at Halfway Bridge, TMK 4 3-4-01:03
Puhi, Kauai
UTM-Coordinates: North 24-28-440, East 04-53-599

Responsible Official: Mr. John Romanowski
Title: Vice President

Address: P.O. Box 579
Honolulu, Hawaii 96809

Phone: (808) 591-8977/554-5200 (dir)

Agent: Mr. Jim Morrow
Environmental Mgt. Consultant
1481 S. King St., Suite 548
Honolulu, HI 96814

1. Equipment Description:
The Portable Asphalt Concrete Plant consists of the following:

Existing Equipment

Equipment Description	Model	Serial No.	Mfg. Year	Max. Design Capacity	Power Source	Fuel
CMI Cold Feed Bins (4)	PAB 432	206	NV	32 tons each; Total 128 tons	--	--
CMI Mix Storage Silo	SE 195	NV	NV	95 tons	--	--
Aggregate Scalping Screen	NV	22966	1999	300 TPH	DEG	F.O. no. 2
CMI Counter Flow Drum Mixer	PTD-300	130	1999	300 TPH	Internal burner	F.O. no. 2 450 gal/hr
CEI Enterprises Hot Oil Heater	CEI 2000	C99-132	1999	2.82 MMBTU/Hr heater; 235 gpm hot oil circulation	Fire box	F.O. no. 2 20 gal/hr
CMI Baghouse	RA3-18PTD	210	1999	53,500 acfm	DEG	F.O. no. 2
Miscellaneous Conveyors	---	---	---	---	DEG	F.O. no. 2

NV = not available
*** Waiting for Applicant to provide information.

Proposed Equipment

Equipment Description	Model	Serial No.	Mfg. Year	Max. Design Capacity	Fuel
Caterpillar DEG *	3412	38S09660	Early 1980s	455 kW	F.O. no. 2 35.6 gal/hr
Caterpillar DEG **	D398	066B01057	1964	650 kW	F.O. no. 2 47.9 gal/hr
Cummins DEG **	QST30-G2	L030542477	2004	810 kW	F.O. no. 2 53 gal/hr

* Currently permitted by NSP No. 0464-02-NT, which will be closed upon issuance of this renewal.

** Proposed to be used as temporary replacements for the primary Caterpillar 3412 DEG whenever the primary unit is inoperative due to repair or maintenance.

Equipment to be Removed from CSP No. 0464-01-CT

Equipment Description	Model	Serial No.	Mfg. Year	Max. Design Capacity	Fuel
Caterpillar DEG	D398	066B810	Late 1960s	650 kW	F.O. no. 2 47.9 gal/hr
Insignificant DEG	NV	NV	NV	68 kW	F.O. no. 2 5.34gal/hr

Fuel: All diesel engine generators will be fired by diesel fuel oil no. 2, with sulfur content < 0.5% by weight.

Standard Industrial Classification Code (SICC) is 2951, for Asphalt Paving Mixtures and Blocks.

2. Air Pollution Controls:

2.1 The CMI Baghouse to control particulate from the mixer exhaust gas has an efficiency of 99.88% per AP-42 Section 11.1 (3/04), Hot Mix Asphalt Plants, since the uncontrolled emission factor is 28 lb/ton and fabric filter emission factor is 0.033 lb/ton (0.033/28 = 0.0012, and 1-0.0012 = .9988). Per manufacturer's brochure, results of source performance tests for particulate were less than 0.02 grains per dry standard cubic ft. (gr/dscf).

2.2 The baghouse is monitored by (3) pressure transducers: 1) suction drum end "burner" measuring range of 0-1 in. H2O, 2) baghouse high pressure "dirty side", and 3) low pressure "between baghouse & duct" (2 & 3 measuring range of 0-10 in. H2O, with optimum operating range of 5-7 in. H2O).

2.3 Fugitive emissions from the facility's roads and storage piles and bins are controlled with a water truck, at 70% efficiency

3. Background

3.1 This is a permit renewal application for the continued operation of the applicant's 300 TPH asphalt concrete plant which was initially authorized by CSP no. 0464-01-CT on July 28, 2000. The permit will expire on July 1, 2005.

3.2 The asphalt concrete plant consists of existing equipment that was authorized by the initial CSP (see table in Section 1). However, the applicant proposes to replace the existing 650 kW diesel engine generator (DEG) (Caterpillar D398, SN 66B810) with a Caterpillar 3412 DEG, SN 38S09660, 455 kW capacity. This diesel engine generator is currently authorized by NSP No. 0464-02-NT, which will be closed upon renewal of the CSP. The applicant proposes to use either the Caterpillar 650 kW DEG or the Cummins 810 kW DEG as temporary replacement DEG whenever the primary DEG is being repaired or maintained.

3.4 The applicant clarified on March 10 and 30, 2005 that:

- The operational limit for the asphalt plant is proposed to be 2,500 hr/yr, except for the hot oil heater at 6,000 hr/yr. The applicant provided netting calculations to support the proposed hour limits. The existing hour limits for the asphalt plant and hot oil heater are 2,080 hr/yr and 6,570 hr/yr, respectively.

- There is not recycled asphalt pavement (RAP) handling and crushing equipment at the facility, and none is expected to be added in the near future.

- A change-of-location for the plant to move to Waimea, Hawaii was authorized by DOH on February 3, 2004 for a period of 5 years. However, the plant was not moved there, and it is currently operating at Puhi, Kauai.

- A 68 kW DEG initially authorized as an insignificant activity as a supplemental power source for the hot oil heater pump is no longer being used. Commercial electric power is used to run the pump.

- The asphalt plant is for the most part a stationary facility; therefore, they requested that the "temporary" designation be removed.

4. <u>Project Description</u>: Asphalt Concrete Plant (Counter Flow Drum Mix Hot Mix Asphalt Plant) (300 TPH)

4.1 Coarse and fine virgin aggregates are withdrawn from the **cold feed bins** in predetermined proportions to produce the aggregate gradation required, then are transported on the gathering conveyor to the **aggregate scalping screen**. The virgin aggregate comprises approximately 95% of the system process inputs. The scalping screen removes oversize material and foreign objects which may have found their way into the stockpiles. The virgin aggregates are continuously weighed while transported by belt conveyor to the **counter flow drum mixer**. Automatic adjustment is made to virgin aggregate feeders to maintain the required feed rate set by the plant operator.

4.2 Asphalt cement (AC) constitutes 5% of process inputs. AC is stored in two 30,000 gal. storage tanks where the AC is heated and maintained at approximately 300 F by closed loop coils filled with heat transfer oil. The heating oil is heated by the **hot oil heater** and pumped at up to 235 gpm through the coils in the AC storage tank. Heat transfer oil returning to the heater first enters the heat exchanger. From the heat exchanger, it enters the jacketed firebox. The CEI jacketed firebox utilizes a spiraled oil flow control ring to force the heat transfer oil around the firebox, thereby increasing heat transfer efficiency and eliminating hot spots. From the firebox, the heat transfer oil returns to the AC storage tank. Delivery of AC into the counter flow

drum mixer is controlled by the AC metering unit which is monitored by the plant control system.

4.3 Virgin aggregate enters the drum mixer through the exhaust gas breaching. It is heated and dried by heat released from the controlled combustion of fuel in the extended body burner. This burner is fueled by diesel fuel oil no. 2. By the time the virgin aggregate has progressed through the drying/heating section to the combustion zone, it is dry and will be superheated. Bypassing the combustion envelope, the hot virgin aggregate passes through the mixing zone of the drum mixer where the AC, pumped by the metering unit, and the aggregate fines, recovered in the **baghouse** and delivered by the dust return system, are mixed with the aggregate blend. The mixing zone location beyond the combustion zone reduces asphalt droplet carryout. All VOC's released must pass through the combustion zone where they are partially consumed.

4.4 The dust return system conveys heavy dust fines back to the drum mixer. Light fines may be directly returned or wasted. Light fines may then be metered back into the blend as pavement specifications dictate.

4.5 Hot mix asphalt is discharged into the elevating drag conveyor which transports it into the **asphalt concrete mix storage silo** to await truck loadout requirements.

4.6 The other discharge from the counter flow drum mixer is the exhaust gas which is drawn into the baghouse by the induced draft fan (negative pressure). The filter bags in the baghouse are made with NOMEX fabric which allows gases to pass through while collecting particulates larger than a few microns. A unique Roto-Aire system features a rotating valve located on the top of the baghouse, which sequentially directs a brief positive pressure differential through separate chambers in the house. The pressure differential gently expands the bags, causing the dust caked on the bags to break free and drop into the hoper below where it is augered from the baghouse and returned to the process through the dust return system. After passing through the filter fabric, the exhaust gases are drawn into the induced draft fan and then are discharged to the atmosphere through the exhaust stack.

4.7 Although there is commercial power available at the site, the asphalt concrete plant is proposed to be powered by the 455 kW Caterpillar **diesel engine generator**. The hot oil heater pump is also powered by the 455 kW DEG when the plant is in operation. When the plant is not in operation, the hot oil heater pump is run by commercial electric power.

4.8 Operational Hour Limits: The applicant provided his netting calculations of emissions from proposed hours of operation versus his most recent two-year actual emissions, and proposed the following hour limits of operation:

- 2,500 hr/yr limit on the hours of operation for the AC Plant and 455 kW DEG, monitored by non-resetting hour meter on the DEG.

- 6,000 hr/yr limit on the hot oil heater, monitored by non-resetting hour meter on the hot oil heater.

5. Applicable Requirements:

5.1 Hawaii Administrative Rules (HAR)

Chapter 11-59, Ambient Air Quality Standards
Chapter 11-60.1, Subchapter 1, General Requirements
Chapter 11-60.1, 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

Chapter 11-60.1, Subchapter 5, Covered Sources
Chapter 11-60.1, 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

Chapter 11-60.1, Subchapter 8, Standards of Performance for Stationary Sources
- 11-60.1-161, New Source Performance Standards

Chapter 11-60.1, Subchapter 10, Field Citations

5.2 Annual Emissions Reporting:

Consolidated Emissions Reporting Rule **(CERR)** and Compliance Data System **(CDS)** Applicability: 40 CFR Part 51, Subpart A - Emission Inventory Reporting Requirements, determines CERR based on facility wide emissions of each air pollutant at the CERR triggering levels shown in the table in Section 5.8. This facility does not have any emissions at the CERR triggering levels. Therefore, CERR requirements are not applicable.

Although CERR 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 AIRS database. There are no pollutants from this facility with emission levels exceeding the in-house triggering threshold. However, annual emissions reporting is required because this facility is a covered source. (See tabulation of emissions in Section 5.8)

5.3 Compliance Data System (CDS)

CDS is an inventory system for covered sources subject to annual inspections. This source is subject to CDS because this facility is a covered source.

5.4 New Source Performance Standards (NSPS)

40 Code of Federal Regulations (CFR) Part 60 - Standards of Performance for New Stationary Sources
Subpart A - General Provisions
Subpart I - Standards of Performance for Hot Mix Asphalt Facilities

The asphalt concrete plant is subject to NSPS Subpart I, since the manufacture date of the asphalt plant is 1999 (NSPS trigger date of Subpart I is 1973).

5.5 PSD Applicability

Prevention of Significant Deterioration (PSD) review applies to new major stationary sources and major modifications to these types of sources. This source is not a major stationary source, therefore a PSD review is not required.

5.6 MACT Requirements (40 CFR Part 63)

MACT is not applicable because the facility is not a major source of hazardous air pollutants, nor does the facility belong to a source category for which a standard has been promulgated under 40 CFR Part 63.

5.7 NESHAP Requirements (40 CFR Part 61)

The facility is not subject to any standard under 40 CFR Part 61.

5.8 BACT Requirements

BACT applies to new facilities or modifications to existing facilities which exceed significant emission levels. The projected pollutant emissions from the drum mixer, hot oil heater, and fugitive emissions from aggregate handling and storage piles (but excluding fugitive emissions from vehicle traffic on unpaved roads) do not meet the “significant” threshold level for any pollutant; therefore, a BACT analysis is not applicable to the asphalt concrete plant. However, particulate matter emissions from the drum mixer are controlled by the roto-aire baghouse which is considered BACT. The other PM and PM10 emissions are largely fugitive in nature and controlled by water sprays (water truck) at the storage bins, conveyor transfer points, the storage piles and facility grounds. These practices are considered to be BACT practices for controlling fugitive emissions.

Maximum Emissions Compared to Significant Levels,
CER, and "In-house" Thresholds (All Values in TPY)

Pollutant	Facility-Wide Emissions [a]	Actual Emissions (2 yr avg--2002 & 03)	Net Increase	Significant Levels	CERR Triggering Levels		"In-house" Reporting Levels
					1-Year Cycle (Type A Sources)	3-year Cycle (Type B Sources)	
NOx	41.32	1.90	39.42	40	≥ 250	≥ 100	≥ 25
CO	54.25	1.91	52.34	100	> 2500	> 1000	> 250
SO_2	11.70	1.34	10.36	40	≥ 2500	≥ 100	≥ 25
PM-10 [b]	12.05	0.42	11.63	15	≥ 250	≥ 100	≥ 25
PM [b]	20.27	0.45	19.82	25	--	--	≥ 25
VOC	12.87	0.43	12.44	40	≥ 250	≥ 100	≥ 25
HAPs	3.35	--	--	--	--	--	≥ 5

[a] Based on facility operating 2,500 hr/yr, except for the oil heater, which operates 6,000 hr/yr.

[b] Does not include PM emissions from vehicle travel on unpaved roads.

5.9 CAM Requirements

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. Pursuant to 40 Code of Federal Regulations (CFR), 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 precontrol emissions that are greater than the major source level; and (5) not otherwise be exempt from CAM. Although the facility uses a baghouse to meet the federal particulate emissions standard for hot mix asphalt plants, the facility is not subject to CAM because emissions are not greater than major source levels.

6. Insignificant Activities: The following are insignificant activities pursuant to HAR 11-60.1-82(f)(1):

- One (1) 340 gallon diesel fuel oil no. 2 storage tank;
- One (1) 8,000 gallon diesel fuel oil no. 2 storage tank; and
- Two (2) 30,000 gallon/ea. asphalt storage tanks, model CT30P, SN's 363 & 364.

7. Alternative Operating Scenarios:

The applicant requested that an alternate operating scenario to allow the permitted diesel engine generator to be temporarily replaced with one of the DEGs listed below if warranted in the event of breakdowns or maintenance of the primary diesel engine.

- Caterpillar D398, SN 066B01057, 650 kW capacity.
- Cummins QST30-G2, SN L030542477, 810 kW capacity.

The applicant also requested that the alternate operating scenario allow them to temporarily replace the primary DEG with other DEGs that have the same or less emissions than that of the Cummins DEG, as worst case.

PROPOSED

8. Project Emissions:

8.1 Caterpillar 3412 DEG (point source) Emissions from the Caterpillar 3412 DEG are based on the following and are shown in enclosure (1) and summarized in the table below:

- Fuel consumption rate of 35.6 gal/hr.
- Diesel fuel has a heating value of 137,000 BTU/gal and contains 0.5% Sulfur.
- Emission factors from AP-42 (10/96), Tables 3.4-1, 2, and 3, Diesel Engines greater than 600 HP.
- SO2 emission calculated by mass balance method.
- DEG hour limit of 2,500 hr/yr, and unlimited 8,760 hr/yr.

Pollutant	Emission (lb/hr)	Emission (TPY)	
		w/ No Permit Limit (8,760 hr/yr)	Permit Limits (2,500 hr/yr)
NO_X	15.607	68.359	19.509
CO	4.146	18.158	5.182
SO_2	2.509	10.989	3.136
PM-2.5 [a]	0.234	1.023	0.292
PM-10	0.279	1.224	0.349
PM	0.340	1.489	0.425
TOC	0.439	1.923	0.549
Total HAPs	'--	**9.32E-02**	**2.66E-02**

[a] PM-2.5 = 90% of PM (AP 42, Appendix B-2, pg B.2-11, 9/90)

Emissions from the 2 back-up DEGs were not calculated as part of facility emissions although they have a slightly higher power rating than the primary DEG. This is because they are temporary replacement DEGs and will be operating only infrequently and for relatively short periods when the primary DEG is being repaired or maintained. Monitoring and recording of the replacement DEGs operating hours will be required to insure compliance with the permit condition for annual hour limits.

8.2 Drum mixer (point source)
Emissions from the CMI Counter Flow Drum Mixer are based on the following and are shown in Enclosure (2) and summarized in the table below:

- Process rate of 300 TPH
- Emissions based on limited 2,500 hr/yr and unlimited 8,760 hr/yr.
- Emission factors from AP-42, Chapter 11, Hot Mix Asphalt Plants (3/04), Tables 11.1-3, 11.1-7, 11.1-8, 11.1-10 and 11.1-12.
- Fuel oil no. 2 fired for the drum dryer.

Pollutant	Emission Factor * (lb/Ton)	Emission (lb/hr)	Emission (TPY)	
			w/ No Permit Limit (8,760 hr/yr)	Permit Limits (2,500 hr/yr)
NOx	0.055	16.50	72.27	20.63
CO	0.13	39.00	170.82	48.75
SO_2	0.011	3.30	14.45	4.13
PM-2.5 **	0.015	4.46	19.51	5.57
PM-10	0.023	6.90	30.22	8.63
PM	0.033	9.90	43.36	12.38
TOC	0.032	9.60	42.05	12.00
Total Non-PAH HAPs			10.2991	2.9393
PAH HAPs			1.1563	0.3300
Subtotal HAPs			11.4555	3.2693
Non HAP organics			31.5360	9.0000
Total Metal HAPs			0.2538	0.0724
TOTAL HAPs			**11.7093**	**3.3156**

* Tables 11.1-3 (PM), 11.1-7 (CO, Nox, SO2), 11.1-8 (TOC)

** PM-2.5 = 45% of PM (AP 42, Appendix B-2, pg B.2-12, 9/90)

8.3 Hot Oil Heater (point source) Emissions from the CEI 2000 Hot Oil Heater are based on the following and are shown in enclosure (3) and summarized in the table below:

- Emission factors taken from CEI 2000 (Power Flame Burner) specification sheet for NOx, SO2 (assumes sulfur content of 0.5% by weight), CO, PM, & TOC.
- Assumes heat input of 2.82 MMBtu/hr and fuel consumption rate of 20 gal/hr.
- HAPs emission factors from the combustion of fuel oil no. 2 from AP-42, Section 1.3, Fuel Oil Combustion, 9/98, Tables 1.3-9 (HAPs) and 1.3-10 (metals).
- Emissions based on limited 6,000 hr/yr and unlimited 8,760 hr/yr.

Pollutant	Emission (lb/hr)	Emission (TPY)	
		No Limit (8,760 hr/yr)	Permit Limits (6,000 hr/yr)
NOx *	0.395	1.729	1.184
CO *	0.104	0.457	0.313
SO_2 *	1.481	6.485	4.442
PM-2.5 **	0.018	0.078	0.053
PM-10 **	0.031	0.137	0.094
PM *	0.039	0.173	0.118
TOC *	0.107	0.469	0.321
TOTAL HAPs		4.30E-03	2.94E-03

* from Mfg's specs

** PM-2.5 = 45% of PM; and PM-10 = 79% PM (AP 42, Appendix B-2, pg B.2-12, 9/90)

8.3 Scalping Screening

Emissions from the Scalping Screen are based on the following and are shown in Enclosure (4) and summarized in the table below:

- Process rate of 300 TPH
- Emissions based on limited 2,500 hr/yr and unlimited 8,760 hr/yr.
- Emission factors from AP-42, Chapter 11, Crushed Stone Processing (8/04), Table 11.19.2-2.
- Control efficiency 70% (water sprays).

Pollutant	Emissions (TPY)*	
	8,760 hr/yr	2,500 hr/yr
PM-2.5	2.190	0.625
PM-10	5.170	1.476
PM	14.599	4.166

* Includes truck unloading to storage bins, four conveyor transfer points, and screening operation.

8.4 Aggregate Handling and Storage Piles

Emissions are based on the following and are shown in Enclosure (5) and summarized in the table below:

- Process rate of 300 TPH
- Emissions based on limited 2,500 hr/yr and unlimited 8,760 hr/yr.
- Emission factors from AP-42, Chapter 13.2.4, Aggregate Handling and Storage Piles (1/95).
- Control efficiency at 70% (water sprays)

	Emissions (TPY)	
Pollutant	**8,760 hr/yr**	**2,500 hr/yr**
PM-2.5	1.66	0.47
PM-10	5.28	1.51
PM	11.17	3.19

8.5 Vehicle Traffic on Unpaved roads

Emissions are based on the following and are shown in Enclosure (6) and summarized in the table below:

- Process rate of 300 TPH
- Emissions based on limited 2,500 hr/yr and unlimited 8,760 hr/yr.
- Emission factors from AP-42, Chapter 13.2, Unpaved Roads (12/03).
- Control efficiency 70% for water sprays on roadways.
- Assumes average 21 ton/truck load; mean vehicle weight = 39 tons
- 0.5 mi/round trip
- Surface material silt content = 10% (plant road for stone quar. & processing)
- 200 days with > 0.01 inch precipitation (Kauai Station WRCC data)

Pollutant	EF (lb/VMT)	No Limits, 8,760 hr/yr		Permit Limit, 2,500 hr/yr	
		VMT	Emission (TPY)	VMT	Emission (TPY)
PM-10	1.497	125,143	28.10	35,714	8.02
PM	5.068	125,143	95.14	35,714	27.15
PM-2.5	0.230	125,143	4.31	35,714	1.23

8.7 Facility-wide Emissions. Emissions from the facility for both limited 2,500 hr/yr and unlimited 8,760 hr/yr operations are summarized in the tables below:

FACILITY-WIDE EMISSIONS (TPY)-- Operating 8,760 Hr/yr							
Pollutant	Drum Mixer	Oil Heater	DEG Cat 3412	Scalping Screen	Vehicle Travel	Stock-piles	Total Emission
NOx	72.27	1.73	68.36	--	--	--	142.36
CO	170.82	0.46	18.16	--	--	--	189.43
SO_2	14.45	6.48	10.99	--	--	--	31.93
PM-2.5	19.51	0.08	1.02	2.19	4.31	1.66	28.77
PM-10	30.22	0.14	1.22	5.17	28.10	5.28	70.13
PM	43.36	0.17	1.49	14.60	95.14	11.17	165.93
VOC	42.05	0.47	1.92	--	--	--	44.44
HAPs	11.71	0.004	0.093	--	--	--	11.81

FACILITY-WIDE EMISSIONS (TPY) -- Operating with Hourly Limits							
Pollutant	Drum Mixer (2,500 hr/yr)	Oil Heater (6,000 hr/yr)	DEG (2,500 hr/yr)	Scalping Screen (2,500 hr/yr)	Vehicle Travel	Stock-piles	Total Emission
NOx	20.63	1.18	19.51	--	--	--	41.32
CO	48.75	0.31	5.18	--	--	--	54.25
SO_2	4.13	4.44	3.14	--	--	--	11.70
PM-2.5	5.57	0.05	0.29	0.62	1.23	0.47	8.24
PM-10	8.63	0.09	0.35	1.48	8.02	1.51	20.07
PM	12.38	0.12	0.42	4.17	27.15	3.19	47.42
VOC	12.00	0.32	0.55	--	--	--	12.87
HAPs	3.34	0.003	0.027	--	--	--	3.37

9. Major Source/Synthetic Minor Source Applicability:

9.1 A synthetic minor source is a facility that is potentially major (as defined in HAR Section 11-60.1-1), but is considered non-major through federally enforceable permit conditions. This facility is a synthetic minor based on potential emissions from the facility when operating 8,760 hours/year. Without physical or operational limits, this facility would exceed major triggering levels for NOx, CO and PM. (See table above)

9.2 A major source, as defined in HAR Section 11-60.1-1, has the potential to emit any hazardous air pollutant at 10 tons per year (TPY) or more, or 25 TPY or more of any combination of HAPS, or 100 TPY or more of any air pollutant. Calculated potential emissions from the facility (including all fugitive emissions) when operating under hour limits, do not meet these thresholds. Therefore, this facility is not classified as a major source. In addition, this facility is not subject to PSD review, NSPS, or NESHAPS.

10. Air Quality Assessment:

10.1 An ambient air quality impact analysis (AAQIA) using the EPA SCREEN3 model was conducted for the renewal of this CSP. Emission units modeled included the AC Plant's drum mixer dryer, hot oil heater, and the primary 455 kW Caterpillar 3412 diesel engine generator. In addition, the model was also run for short-term operation of the Cummins DEG (the larger of the 2 back-up DEGs) which would temporarily replace the primary DEG. The assumptions used in the SCREEN3 model included the following:

a. Simple/Complex terrain impacts
b. Rural dispersion parameters
c. Building wake effects
d. Default meteorology
    i. EPA scaling factors for short term concentrations
    ii. State of Hawaii scaling factors for long term concentrations

10.2 Receptors were located in areas considered ambient air. Jas. Glover operates the asphalt plant on a large parcel where public access is prohibited by fences, gates and terrain features. The previous permit application review had determined that the fenceline of the property is 230 meters away from the emission units, which was considered the closest distance to ambient air (public accessibility) in the AAQIA.

10.3 A Good Engineering Practice (GEP) stack height analysis was performed using the dimensions of all nearby structures and buildings. The asphalt silo had the greatest good engineering stack height requirement; therefore, downwash effects from silo were considered in the modeling for the DEG, drum mixer, and hot oil heater. (See tabulation, below)

GOOD ENGINEERING PRACTICE STACK HEIGHT (All dimensions in meters)						
Structure	**Hgt**	**Length**	**Width**	**PW**	**L**	**Hg ***
Asphalt silo	7.31	5.25	3.65	6.39	6.39	16.895
CAT 3412 DEG	2.04	3.83	1.78	4.22	2.04	5.1
CMI Drum Mixer	4.42	20.73	3.4	21.01	4.42	11.05
CEI Oil Heater	2.39	3.73	1.47	4.01	2.39	5.975

** Hg (GEP stack height) = Height + 1.5 L, where
L is smaller of PW or structure hgt.

10.4 The tables below presents the stack parameters, emission rates for SO_2, NO_x, CO and PM-10 used in the model, and the maximum concentrations as determined by the air quality impact analysis. Lead (for only the DEGs) and hydrogen sulfide (for all sources) emission factors were not available in AP-42 and therefore, these pollutants were not evaluated in the air

modeling.

SOURCE STACK PARAMETERS FOR AIR MODELING					
Equipment	Stack No.	SOURCE STACK PARAMETERS			
		Hgt (m)	Temp (K)	Vel. (m/s)	Diam. (m)
CAT 3412 DEG *	1	7.01	850	56.8	0.203
CAT 398 DEG **	1a	4.30	739	50.52	0.25
Cummins QST **	1b	5.49	761	55.7	0.254
CMI Drum Mixer	2	12.65	422	15.94	1.42
CEI Hot Oil Heater	3	5.49	450	6.97	0.27

* Primary DEG

** Back-up DEGs to be used only during maintenance and repair to the primary Cat 3412 DEG

Max concentrations at 1 g/s determined by SCREEN 3 Model (simple/complex terrain):

Equipment	Emission Rates (g/s)				Distance (m) **	**Max conc.** (ug/m^3 /g/s)	
	SO_2	NOx	CO	PM-10		**1-hr *** **	**24-hr**
CAT 3412 DEG	0.316	1.970	0.522	0.035	230	213.2	53.3
CMI Drum Mixer	0.416	2.080	4.910	0.870	230	93.4	23.3
CEI Hot Oil Heater	0.187	0.050	0.013	0.004	230	147.5	36.9
Cummins QST DEG *	0.470	2.930	0.778	0.052	230	214.2	53.6

* Larger of the 2 back-up DEGs. Used only temporarily when Primary CAT DEG is down for repair or maintenance.

** Max. concentrations occurred at the fence line of property, 230 m away.

*** 24-hr concentration / 0.25

10.5 The predicted concentrations assume that annual operations will be restricted to 2,500 hours per year for the AC plant drum mixer dryer and 455 kW DEG, while the hot oil heater will be restricted to 6,000 hours of operation. Based on these assumptions, the emissions impact from the AC plant will comply with State and Federal ambient air quality standards as shown in the table below.

PREDICTED AMBIENT AIR QUALITY IMPACTS, Powered by the CAT 3412 DEG									
AIR POLLUTANT	AVG. TIME	SCALING FACTOR	IMPACT [b] (ug/m^3)			BCKGRD (ug/m3) a	TOTAL IMPACT (ug/m^3)	AIR STD (ug/m^3)	% OF STD
			CAT 3412 DEG	Drum Mixer	Hot Oil Heater				
SO2	3-Hour	0.9	60.63	34.95	24.82	26	146	1,300	11%
	24-Hour	N/A	16.84	9.71	6.90	9	42	365	12%
	Annual [c]	0.2	3.85	2.22	3.78	1	11	80	14%
NOx	Annual [c]	0.2	23.97	11.08	1.01	9	45	70	64%
CO	1-Hour	1	111.29	458.40	1.92	2,166	2738	10,000	27%
	8-Hour	0.7	77.90	320.88	1.34	841	1241	5,000	25%
PM-10	24-Hour	N/A	1.87	20.31	0.15	31	53	150	36%
	Annual [c]	0.2	0.43	4.64	0.08	16	21	50	42%

[a] Bckgrd data from: PM-10 from Lihue; CO, SO2, & NOx from Kapolei. Hawaii Annual Summary Data, 2003

[b] IMPACT = (Emiss. Rate) X (Scaling factor) X (Max. Conc. -ug/m3).

[c] Annual Impact = (Emiss. Rate) X (Scaling factor) X (Max conc).X (**Hr limit** /8760). Hour limits are:
DEG & Drum mixer - 2,500 hr/yr; Oil heater - 6,000 hr/yr

10.6 The applicant has requested the temporary use of one of two back-up DEGs in an alternate operating scenario. This scenario would be implemented whenever the primary DEG required maintenance or repair work. The larger of the back-up DEGs (Cummins QST30-G2, 810 kW) was modeled for conservatism. The predicted short-term emissions impact from the AC plant will comply with State and Federal ambient air quality standards as shown in the table below.

PREDICTED AMBIENT AIR QUALITY IMPACTS, Temporarily Powered by the Cummins DEG *									
AIR POLLUTANT	AVG. TIME	SCALING FACTOR	IMPACT [b] (ug/m^3)			BCKGRD (ug/m3) a	TOTAL IMPACT (ug/m^3)	AIR STD (ug/m^3)	% OF STD
			Cummins DEG	Drum Mixer	Hot Oil Heater				
SO2	3-Hour	0.9	90.61	34.95	24.82	26	176	1,300	14%
	24-Hour	N/A	25.17	9.71	6.90	9	51	365	14%
	Annual [c]	0.2	N/A	--	--	--	--	--	--
NOx	Annual [c]	0.2	N/A	--	--	--	--	--	--
CO	1-Hour	1	166.65	458.40	1.92	2,166	2793	10,000	28%
	8-Hour	0.7	116.65	320.88	1.34	841	1280	5,000	26%
PM-10	24-Hour	N/A	2.78	20.31	0.15	31	54	150	36%
	Annual [c]	0.2	N/A	--	--	--	--	--	--

* Used only temporarily when Primary CAT DEG is down for repair or maint.

[a] Bckgrd data from: PM-10 from Lihue; CO, SO2, & NOx from Kapolei. Hawaii Annual Summary Data, 2003

[b] IMPACT = (Emiss. Rate) X (Scaling factor) X (Max. Conc. -ug/m3).

[c] N/A; the Cummins DEG would operate only temporarily when the primary DEG is being repaired or maintained.

10.7 If there are no annual hour limits imposed on the asphalt plant, the AAQIA resulted in the following predicted impacts. It reveals that NOx emissions would exceed the Ambient Air Quality Standards.

PREDICTED AMBIENT AIR QUALITY IMPACTS, Powered by the CAT 3412 DEG (w/ no annual hour limits)									
AIR POLLUTANT	AVG. TIME	SCALING FACTOR	IMPACT [b] (ug/m3)			BCKGRD (ug/m3) [a]	TOTAL IMPACT (ug/m3)	AIR STD (ug/m3)	% OF STD
			CAT 3412 DEG	Drum Mixer	Hot Oil Heater				
SO2	Annual [c]	0.2	13.47	4.85	5.52	1	25	80	31%
NOx	Annual [c]	0.2	84	24.25	1.48	9	119	70	170%
PM-10	Annual [c]	0.2	1.49	10.14	0.12	16	28	50	56%

a Bckgrd data from: PM-10 from Lihue; CO, SO2, & NOx from Kapolei. Hawaii Annual Summary Data, 2003

b IMPACT = (Emiss. Rate) X (Scaling factor) X (Max. Conc. -ug/m3).

c No annual hourly limits

11. Significant Permit Conditions:

The asphalt concrete plant is subject conditions of NSPS, 40 CFR Part 60 Subpart I. Applicant will meet federal and state regulations by utilizing a baghouse in the asphalt plant. The following conditions shall apply:

11.1 Condition:
Per applicant's proposal, the 455 kW Caterpillar 3412 DEG which runs the asphalt concrete plant shall be limited to 2,500 hours per rolling twelve month period.
Purpose:
To meet State and Federal AAQS for NOx.

11.2 Condition:
Per applicant's proposal, the asphalt concrete plant drum mixer shall be limited to 2,500 hours per rolling twelve month period, and the hot oil heater shall be limited to 6,000 hours per rolling twelve month period.
Purpose:
To stay below major source levels of emissions for NOx, CO and PM, so that CAM is not triggered.

Conclusion and Recommendations:

Jas. W. Glover is proposing to continue operations of their 300 TPH asphalt concrete plant which will include a new 455 kW DEG, and existing oil fired mixer/dryer (with baghouse) and hot oil heater, at their Halfway Bridge site off Kaumualii Highway.

Based on the information supplied by the applicant, it is the preliminary determination of the Hawaii Department of Health (DOH) that the proposed project will not cause or contribute to a violation of any State or National ambient air quality standard. Renewal of the Temporary Covered Source Permit No. 0464-01-CT is recommended based on the review of the information provided by the applicant and subject to significant permit conditions, public comments, and EPA review.

WK, 5/7/05