May 12, 2004

PROPOSED

TEMPORARY COVERED SOURCE PERMIT APPLICATION REVIEW
(Significant Modification)
Permit Application Number: 0543-02 CSP No. 0543-01-CT
400 TPH MOBILE CRUSHING PLANT W/ 525 BHP DIESEL ENGINE

Applicant: Land Breeze, Inc.
Init. Located: Hickam Air Force Base, Honolulu, Oahu
UTM: Zone 4, 607.521 m E, 2,359,512 m N (NAD-83)

Responsible Official/Title: Ms. Shelaine Liana, President
Address: 91-008 Hanua Street, Kapolei, Hawaii 96707, ph. (808) 682-0801

Consultant: J.W. Morrow, Mr. Jim Morrow ph 942-9096

Equipment Description:

1. Portable Crushing and Processing Plant consists of the following:

    a. 400 TPH IROCK portable crushing plant, model RTS-25 track plant, SN RTS25-100301, manufactured on 10/29/03 (including):

        i) 52" x 17' vibrating grizzly feeder with 5' grizzly section & bypass chute;
        ii) 400 TPH 4056 horizontal shaft impact crusher;
        iii) conveyor;
        iv) watersprays at the grizzly feeder;
        iv) 525 BHP Caterpillar diesel engine, Model C-15, SN BEM02568, fired on f.o. no. 2 at 25.7 gal/hr.

    b. 600 TPH Spyder 516 T screening unit, SN D-516T-SPY-A-JC1603, manufactured on 8/18/03 (including):

        i) 2-deck screen (5' x 16');
        ii) 2 - conveyors; and
        iii) watersprays at the transfer point to the 2-deck screen.

    c. water truck for storage piles and work area.

The Standard Industrial Classification Code (SICC) for this facility is 1429 - Crushed and broken stone, not elsewhere classified.

Air Pollution Controls:

1. Sulfur content of the diesel oil no. 2 shall not exceed 0.5% by weight.
2. Waterspray bars will be used (70% efficiency) at the grizzly feeder on the mobile crusher and on the transfer point of the conveyor to the 2-deck screen. 35% control efficiency will be used for points without direct watersprays.
3. Water truck for storage piles and work area (70% efficiency).

Proposed Project:

This is a significant modification to temporary covered source permit no. 0543-01-CT, to allow Land Breeze to split up the IROCK crushing unit and Spyder 516 screening unit and thus be used at two different sites. Emissions will increase since the Spyder screening unit has a maximum capacity of 600 TPH, where previously the crushing plant's capacity of 400 TPH was used as a limiting factor where all the crushed material would be processed by the crusher prior to being screened.

The amendment to the permit will include removing the language that the material must first be fed to the crusher and then to the screen in series. The requirement for the annual SPT for the Spyder screener and associated conveyors will be adjusted to require the SPT only when the Spyder screener is located at the same site as the impact crusher, since the screener is exempt from 40 CFR 60, Subpart OOO when operated at a site without a crusher.

The conveyor transfer points has been revised to correctly have 7 transfer points instead of the 10 initially assumed.

Initially the applicant submitted a minor modification application (dated Dec. 3, 2003) and supplemental information (dated April 21, 2004), but Matt Newhouse of Screen Machine (Spyder distributor) indicated that the maximum capacity is 600 TPH for backfill material, so the applicant submitted a significant modification application (dated April 23, 2004).

The application fee of $100.00 (submitted with minor modification application) and remaining $400.00 (submitted on April 29, 2004) of the total $500.00 significant modification application filing fee was processed by the Department and the receipt mailed.

Process:

Raw material (concrete) is dropped into the vibrating grizzly by a loader and passed to the impact crusher. The crushed material drops onto a moving conveyor belt and is transported to the 2-deck Spyder screen where it is size segregated and the oversize material is conveyed back to the crusher. The product material is conveyed to three stockpiles. The crusher is powered by the 525 BHP Cat C-15 diesel engine. The 2-deck Spyder screen is powered by an insignificant 112 BHP Cummins diesel engine. The process will be essentially the same when the two units are operating separately, however the material is not fed from the crusher to the screener.

Applicable Requirements:

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

Annual Emissions Reporting (from previous initial application review):

a. CERR (type A & B) - Consolidated Emissions Reporting Requirement are not applicable to this facility since the emissions do not trigger type A & B reporting requirements.
b. Internal: Although CERR is not triggered, annual emissions reporting is required if the total combined facility's emissions of a particular pollutant exceed the in-house (old NEDS) reporting levels. Total facility emissions of PM and PM-10 (see Table 5, Summary of Emissions) exceed the in-house reporting levels, thus annual emissions reporting for internal purposes is required.

Compliance Data System (CDS)

CDS is an inventory system for covered sources subject to annual inspections. As a covered source subject to Federal requirements, the facility is a CDS source and is subject to annual emissions reporting.

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 OOO - Standards of Performance for Nonmetallic Mineral Processing Plants
The stone processing plant is applicable to NSPS Subpart OOO, since the manufacture date of the equipment is after August 1983 (NSPS trigger date of Subpart OOO) and the portable plant's initial crusher has a maximum capacity of greater than 150 TPH.

The Spyder screening unit (including the screen and conveyors) will not be subject to Subpart OOO when operating at a site without the IROCK impact crusher, as Subpart OOO is only applicable to stand alone screens when there is a Subpart OOO crusher on site.

PSD Applicability

HAR Chapter 11-60.1 Air Pollution Control / Subchapter 7 PSD Review

PSD applies to major stationary sources in an attainment area which emit or have the potential to emit 250 TPY (or 100 TPY for 28 named source categories) of any regulated pollutant, or to such major sources making a major modification involving a significant net emissions increase (e.g., 25 tons per year PM, 15 tons per year PM_{10} [HAR 11-60.1-1]). PSD does not apply since this facility does not emit more than 250 TPY of any regulated pollutant when operating at the limited 3,500 hours per year.

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.

NESHAP Requirements (40 CFR Part 61 & 63)

The facility is not subject to any standard under 40 CFR Part 61 and 63.

BACT Requirements

BACT analysis applies to new facilities or modifications to existing facilities which exceed significant emission levels. This significant modification will increase emissions above significant levels of PM and PM-10 (see Table 5, Summary of Emissions), thus a BACT analysis is required. The PM and PM10 emissions are largely fugitive in nature and controlled by watersprays and a water truck for the crushing and screening operations which is considered the most feasible alternative for meeting BACT requirements for fugitive emissions. The diesel engine will utilize good operating practices to control emissions of PM and PM10.

CAM Requirements

40 CFR Part 64

Applicability of the CAM Rule is determined on a pollutant specific basis for each affected emission unit. Each determination is based upon a series of evaluation criteria. In order for a source to be subject to CAM, each source must:

Be located at a major stationary source per Title V of the Clean Air Act Amendments of 1990;

Be subject to federally enforceable applicable requirements;
Have pre-control device potential emissions that exceed applicable major source thresholds;
Be fitted with an "active" air pollution control device; and
Not be subject to certain regulations that specifically exempt it from CAM.

Emission units are any part or activity of a stationary source that emits or has the potential to emit any air pollutant. This source does not exceed 100 tpy of any pollutant and is not a major source, thus CAM is not applicable.

Insignificant Activities (from previous initial application review):
A 112 BHP Cummins Diesel Engine, Model 4BTA3.9-C, firing diesel oil no. 2 at 0.366 lb/BHP-hr (0.366 lb/BHP-hr x 112 BHP / 7.1 lb/gal = 5.8 gal/hr) is exempt per Hawaii Administrative Rules (HAR) §11-60.1-62(d)(4) "Other than smoke house generators, fuel burning equipment with a heat input capacity less than one million BTU per hour, except where individually exempted equipment exceeds five million BTU per hour when operated within the facility and controlled by a single owner or operator."

140,000 Btu/gal x 5.8 gal/hr x 1 MMBtu / 1,000,000 Btu = 0.812 MMBtu/hr < 1 MMBtu/hr

Alternative Operating Scenarios (from previous initial application review):
Applicant (initial permit application) proposed to include an alternate operating scenario to allow the temporary replacement of the diesel engine with one of equal or lesser rating in order to continue production in case the engine becomes temporarily disabled.

(Proposed) Applicant proposed to use the portable screening unit at other sites without the crusher.

Project Emissions (from previous initial application review less Stone Processing emissions):
The project emissions that will be emitted by the mobile plant will include mostly nitrogen oxides (NOx) with lesser amounts of other criteria pollutants and hazardous air pollutants from the Caterpillar diesel engine (point source) and particulate matter (PM) and particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (PM10) from crushing and screening (fugitive sources).

Emissions Factors

- 525 BHP diesel engine emissions of NOx, CO, & PM were taken from manufacture's specs (525 BHP, 25.7 gal/hr @ 2100 rpm and 100% load), tier II not to exceed values.

NOx (ef) = 7.20 lb/hr
CO (ef) = 0.71 lb/hr
PM (ef) = 0.08 lb/hr

Other pollutant emission factors were taken from AP-42, Section 3.3, 10/96, Gasoline and Diesel Industrial Engines, less sulfur dioxide which was based on mass balance equation. For conservatism, assumed all PM = PM10.

- Stone Crushing emission factors for PM and PM10 were taken from AP-42, Section 11.19.2 Crushed Stone Processing, 1/95. The demolition material will be processed, stored, and used onsite. There will be no trucking of the material offsite and the site is already developed so no vehicle traffic on unpaved roads will be included in this assessment.

Table 1, 2, 3, & 4 show the emissions from the diesel engine, exempt diesel engine, and portable crushing (PM/PM-10), respectively, while Table 5 shows the total project emissions from the portable crushing plant (less the exempt diesel engine since the emissions would not exceed major source levels if included).

TABLE 1
525 BHP CATERPILLAR DIESEL ENGINE CRITERIA & HAPS EMISSIONS

Pollutant	Emis. Factor (lb/hp-hr)	Input (hp)	Emis. (lb/hr)	Emis. 3,500 hr/yr (tpy)	Emis. 8,760 hr/yr (tpy)	Emis. (g/s)
NOx	manuf.	525	7.200	12.600	31.536	0.907
CO	manuf.	525	0.710	1.243	3.110	0.089
SO2	mass bal.	525	1.823	3.190	7.985	0.230
PM	manuf.	525	0.080	0.140	0.350	0.010
PM10	manuf.	525	0.080	0.140	0.350	0.010
TOC	0.0025	525	1.313	2.297	5.749	0.165
HAPs	lb/MMBtu	MMBtu/hr	lb/hr	3,500 hr/yr tpy	8,760 hr/yr tpy	
Benzene	0.000933	3.598	3.36e-03	5.87e-03	1.47e-02	
Toluene	0.000409	3.598	1.47e-03	2.58e-03	6.45e-03	
Xylenes	0.000285	3.598	1.03e-03	1.79e-03	4.49e-03	
Propylene	0.00258	3.598	9.28e-03	1.62e-02	4.07e-02	
1,3-Butadiene	0.0000391	3.598	1.41e-04	2.46e-04	6.16e-04	
Formaldehyde	0.00118	3.598	4.25e-03	7.43e-03	1.86e-02	
Acetaldehyde	0.000767	3.598	2.76e-03	4.83e-03	1.21e-02	
Acrolein	0.0000925	3.598	3.33e-04	5.82e-04	1.46e-03	
Total PAH	0.000168	3.598	6.04e-04	1.06e-03	2.65e-03	
			Total HAPs =	4.06e-02	1.02e-01	

Note: Criteria pollutant emission factors (ef) from AP-42, Table 3.3-1 (10/96) less SO2 ef from mass balance (see below for calcs.). Assumed all PM = PM-10. HAPS from AP-42, Table 3.3-2 (10/96). Hours of operation based on limited and maximum operations of 3,500 and 8,760 hours per year. MMBtu/hr based on fuel consumption rate of 25.7 gal/hr and a heating value of 140,000 Btu/gal thus, 140,000 Btu/gal x 25.7 gal/hr x 1 MMBtu / 1,000,000 Btu = 3.598 MMBtu/hr.

SO2 mass balance equation (for 525 BHP Caterpillar diesel engine)
fuel feed rate x specific wt. of fuel x 0.5% sulfur = amount of sulfur in fuel (lbs/hr)
25.7 gal/hr x 7.1 lb/gal x 0.005 = 0.9124 lb/hr S

$S + O2 \rightarrow SO2$ MW: S=32.06; O=16; SO2=32.06+16(2) = 64.06

$\frac{S}{SO2} = \frac{32.06}{64.06} = \frac{0.9124}{X}$ (w/ fuel rate @ 25.7 gal/hr, yields 0.9124 lb S)

thus SO2 or X = 1.823 lb SO2/hr

TABLE 2
INSIGNIFICANT 112 BHP DIESEL ENGINE CRITERIA & HAPS EMISSIONS

Pollutant	Emis. Factor (lb/hp-hr)	Input (hp)	Emis. (lb/hr)	Emis. 3,500 hr/yr (tpy)	Emis. 8,760 hr/yr (tpy)
NOx	0.031	112	3.472	6.076	15.207
CO	0.00668	112	0.748	1.309	3.277
SO2	mass balance	112	0.411	0.720	1.802
PM	0.00220	112	0.246	0.431	1.079
PM10	0.00220	112	0.246	0.431	1.079
TOC	0.00247	112	0.277	0.484	1.212
HAPs	lb/MMBtu	MMBtu/hr	lb/hr	3,500 hr/yr tpy	8,760 hr/yr tpy
Benzene	0.000933	0.812	7.58e-04	1.33e-03	3.32e-03
Toluene	0.000409	0.812	3.32e-04	5.81e-04	1.45e-03
Xylenes	0.000285	0.812	2.31e-04	4.05e-04	1.01e-03
Propylene	0.00258	0.812	2.10e-03	3.67e-03	9.18e-03
1,3-Butadiene	0.0000391	0.812	3.17e-05	5.56e-05	1.39e-04
Formaldehyde	0.00118	0.812	9.58e-04	1.68e-03	4.20e-03
Acetaldehyde	0.000767	0.812	6.23e-04	1.09e-03	2.73e-03
Acrolein	0.0000925	0.812	7.51e-05	1.31e-04	3.29e-04
Total PAH	0.000168	0.812	1.36e-04	2.39e-04	5.98e-04
			Total HAPs	9.17e-03	2.30e-02

Note: Criteria pollutant emission factors (ef) from AP-42, Table 3.3-1 (10/96) less SO2 which is from the mass balance equation (see calcs. below). Assumed all PM = PM-10. HAPS from AP-42, Table 3.3-2 (10/96). Hours of operation based on projected and maximum operations of 3,500 and 8,760 hours per year. MMBtu/hr based on fuel consumption rate of 5.8 gal/hr and a heating value of 140,000 Btu/gal thus, 140,000 Btu/gal x 5.8 gal/hr x 1 MMBtu/1,000,000 Btu = 0.812 MMBtu/hr.

SO2 mass balance equation (for INSIGNIFICANT 112 BHP Cummins diesel engine)
fuel feed rate x specific wt. of fuel x 0.5% sulfur = amount of sulfur in fuel (lbs/hr)
5.8 gal/hr x 7.1 lb/gal x 0.005 = 0.2059 lb/hr S

$S + O2 \rightarrow SO2$ MW: S=32.06; O=16; SO2=32.06+16(2) = 64.06

$\frac{S}{SO2} = \frac{32.06}{64.06} = \frac{0.2059}{X}$ (w/ fuel rate @ 5.8 gal/hr, yields 0.2059 lb S)

thus SO2 or X = 0.4114 lb SO2/hr

TABLE 3
STONE PROCESSING PM EMISSIONS

activity	Proc. Rate (tph)	EF PM (lb/ton)	Control Efficiency (%)	PM Emis. 3,500 hr/yr (tpy)	PM Emis. 8,760 hr/yr (tpy)
primary crushing	400	0.005	70	1.050	2.628
conveyor trans. pt. (2)	400	0.0029	35	2.639	6.605
truck unloading	400	3.36e-05	0	0.024	0.059
truck loading	400	0.0002	0	0.140	0.350
screening (fines)	600	0.149	70	46.935	117.472
conveyor trans. pt. (2)	600	0.0029	35	3.959	9.908
active storage piles	600	0.005	70	1.575	3.942
				56.321	140.963

Note: Used maximum capacity of the crusher (400 tph) and screen (600 tph). Emission factors for stone processing from AP-42, Table 11.19.2-2 (1/95) crushed stone processing; active storage piles from Section 13.2.4 (1/95) aggregate handling and storage piles. Emissions from vehicle traffic on unpaved roads are not included since the portable crushing plant will be used on a developed site without any truck hauling offsite. The screening unit's 3 conveyors emissions are calculated by assuming 2 transfer points. Although there are 3 conveyors located under the screens that go to 3 different stock piles, the maximum process rate of 600 tph cannot be exceeded thus, 600 tph x 2 points x ef = total emissions from the conveyors at the screener. The crushing plant incl. only 1 conveyor so 2 transfer points are assumed.

TABLE 4
STONE PROCESSING PM-10 EMISSIONS

activity	Proc. Rate (tph)	EF PM-10 (lb/ton)	Control Efficiency (%)	PM-10 Emis. 3,500 hr/yr (tpy)	PM-10 Emis. 8,760 hr/yr (tpy)
primary crushing	400	0.0024	70	0.504	1.261
conveyor trans. pt. (2)	400	0.0014	35	1.274	3.189
truck unloading	400	1.60e-05	0	0.011	0.028
truck loading	400	0.00010	0	0.070	0.175
screening (fines)	600	0.071	70	22.365	55.976
conveyor trans. pt. (2)	600	0.0014	35	1.911	4.783
active storage piles	600	0.0024	70	0.756	1.892
				26.891	67.305

Note: Used maximum capacity of the crusher (400 tph) and screen (600 tph). Emission factors for stone processing from AP-42, Table 11.19.2-2 (1/95) crushed stone processing; active storage piles from Section 13.2.4 (1/95) aggregate handling and storage piles. Used the fines screening emission factor since when operating separately the screener could be used to process backfill material. Emissions from vehicle traffic on unpaved roads are not included since the portable crushing plant will be used on a developed site without any truck hauling offsite. See Table 3 notes for info regarding the conveyors and their transfer point emissions.

TABLE 5
SUMMARY OF EMISSIONS

Pollutant	525 BHP DE (tpy)		Port. Crushing & Processing Plant (tpy)		Total Facility Emissions (tpy)		Signif. Levels (tpy)	CERR Levels (tpy)	In-house Levels (tpy)
	3,500 hr/yr	8,760 hr/yr	3,500 hr/yr	8,760 hr/yr	3,500 hr/yr	8,760 hr/yr			
NOx	12.60	31.54			12.60	31.54	40	100	25
SO2	3.19	7.98			3.19	7.98	40	100	25
CO	1.24	3.11			1.24	3.11	100	1000	250
PM	0.14	0.35	56.32	140.96	56.46	141.31	25	NA	25
PM10	0.14	0.35	26.89	67.30	27.03	67.66	15	100	25
VOC	2.30	5.75			2.30	5.75	40	100	25
HAPs	0.04	0.10			0.04	0.10	NA	NA	NA

Synthetic Minor Source:
Synthetic Minor Applicability: A synthetic minor source is a facility that is potentially major (as defined in HAR 11-60.1-1), but is made non-major through federally enforceable permit conditions. This facility is now a synthetic minor since unlimited air emissions (mainly due to the emissions from fines screening) exceed major source threshold levels.

Air Quality Assessment (from previous initial application review):
The applicant modeled the diesel engine using BEE-Line's BEEST for Windows ISCST3 model to determine source compliance with Federal and State ambient air quality standards (AAQS) since the nearby temporary structure impacted the resulting ambient concentrations. Applicant also modeled in SCREEN3 without temporary structures for future location changes. Results from both analyses are presented below.

ISCST3 Model
Assumptions used in the ISCST3 modeling analysis include regulatory default and rural dispersion parameters. Stack parameters are shown in Table 6 and results in Table 7.

Meteorological data - The meteorological data base consisted of processed hourly surface data collected at Honolulu International Airport, Honolulu (1995) and twice daily upper air data recorded at the National Weather Service Station at Lihue, Kauai (1995).

Terrain - The applicant utilized flat terrain due to the proposed initial location at Hickam Air Force Base.

Receptor location - Receptors were located in areas considered ambient air. The initial location includes a physical barrier restricting public access, so ambient air was assumed to be outside of the fence line, although the fence line is nearby the diesel engine stack. The applicant provided dispersion modeling utilizing a discrete rectangular receptor grid (1,000 m x 1,000 m, 1,138 receptors) around the DE with a receptor spacing of 30 meters.

Potential downwash - The EPA building profile input program (BPIP) was used to derive the direction specific building dimensions for importing into the ISCST3 model. The program was used to determine the GEP stack height, analyze potential structure-induced downwash effects for the project's stack and calculate the building downwash parameters for ISCST3.

Background data - Since this is a new source, background data was included in the modeling analysis as follows:

	1 hr	3 hr	8 hr	24 hr	ann.	source
NO2					6	2001 West Beach
SO2		45		25	2	2001 Honolulu
PM10				63	16	2001 Honolulu
CO	5,244		2,209			2001 Honolulu

Honolulu monitoring station background data was used were available. Since NO2 is not available at the Honolulu monitoring station, West Beach background data was used in lieu of Kapolei since the population and industrial activities more closely represent that of Hickam Air Force Base.

TABLE 6

SOURCE EMISSION RATES AND STACK PARAMETERS FOR AIR MODELING

EMISSION RATES					STACK PARAMETERS			
SO_2 (g/s)	NO_x (g/s)	CO (g/s)	PM_{10} (g/s)	Pb (g/s)	Height (m)	Temp. (K)	Velocity (m/s)	Diameter (m)
0.230	0.907	0.089	0.010	N/A	4.267	752	117.764	0.127

TABLE 7
PREDICTED AMBIENT AIR QUALITY IMPACTS

Air Pollut.	Ave. Time	Impact ug/m^3	Background ug/m^3	Total Impact ug/m^3	Air Standard ug/m^3	% Standard
SO_2	3-hour	140.97	45	185.97	1,300	14.31%
	24-hour	42.24	25	67.24	365	18.42%
	Annual	5.55	2	7.55	80	9.44%
NO_2	Annual	22.22	6	28.22	70	40.31%
CO	1-hour	112.66	5244	5356.66	10,000	53.57%
	8-hour	38.04	2209	2247.04	5,000	44.94%
PM10	24-hour	1.88	63	64.88	150	43.25%
	Annual	0.25	16	16.25	50	32.50%

Credit not taken for annual concentrations due to the limited operating hours of 3,500.
NO2 based on ambient ratio method (ARM) tier I which assumes 100% NOx = NO2.

The combined project air emissions plus the ambient background concentrations are within State and Federal AAQS.

SCREEN3 model (for future location changes in flat terrain with no buildings)
Pursuant to Hawaii Administrative Rules, an ambient air quality impact analysis using the EPA-approved SCREEN3 model was performed on the 525 BHP Caterpillar diesel engine by the applicant and verified by DOH. The assumptions used on the modeling analysis are as follows:

- State of Hawaii scaling factor of 0.2 for annual averaging period.
- EPA scaling factors of 0.9, 0.7, and 0.4 for the 3-hr, 8-hr, & 24-hr concent., respectively.
- Urban dispersion parameters (urban resulted in more conservative concentrations than rural, so urban was accepted).
- Default meteorology.
- Ambient ratio method (ARM) tier II (75% NOx = NO2).
- Limited annual operation of 3,500 hour/year.

EMISSION SOURCES AND RATES

The point source emission rates and stack parameters used in conjunction with the modeling analysis were presented in the previous Table 6.

Potential Downwash Effect:
Potential downwash-inducing structures associated with the facility (when located at a site without any other structures except the mobile crushing plant) include the grizzly feeder, crusher housing, and screen housing, with the screen yielded the greatest impact due to downwash effects.

Receptor Locations:
Receptors are to be located in areas considered ambient air. Ambient air is considered to be located immediately adjacent to the stack. Flat terrain was used in the model (any terrain features at subsequent sites would need to be addressed). Automated receptors were placed at a distance from 1 m to 5,000 m.

Background Data:
Same as addressed in previous ISCST3 modeling analysis.

NO2:
Results of the nitrogen dioxide emissions were obtained using the Ambient Ratio Method, Tier II, which conservatively assumes that 75% of the NOx is converted to NO2.

Modeling Results:
The unitary 1-hour concentration was determined by the model to be 1,117 ug/m^3 per gram per second and was located meters from the facility. The maximum predicted ambient air concentrations are shown in Table 8.

TABLE 8
AMBIENT AIR CONCENTRATIONS

Model Conc. = 1117 µg/m^3 per gram/sec

Pollutant	Avg. Period	Emission Rate (g/s)	Time Factor	CONCENTRATION (µg/m^3)				% of std.
				Concentration	Background	Total	Standard[1]	
CO	1-HR	0.09	1.0	100.5	5244	5344.5	10,000	53.4
	8-HR	0.09	0.7	70.4	2209	2279.4	5,000	45.6
NO_2 [2]	Annual	0.91	0.2	60.9	6	66.9	70	95.6
SO_2	3-HR	0.23	0.9	231.2	45	276.2	1,300	21.2
	24-HR	0.23	0.4	102.8	25	127.8	365	35.0
	Annual	0.23	0.2	20.5	2	22.5	80	28.2
PM_{10}	24-HR	0.01	0.4	4.5	63	67.5	150	45.0
	Annual	0.01	0.2	0.9	16	16.9	50	33.8
Pb	Quarter	N/A	0.4	0.00	0.1	0.10	1.5	6.7

[1] Most stringent State or Federal standard.
[2] NO2 by ARM, Tier II.

Model conc. x Potential emissions x Time factor = Potential Ambient Air Impact
Annual concentrations takes into account the annual limit of 3,500 hr/yr (x 3,500/8,760).

Based on the information provided in the application, the emissions impact from the incinerator will comply with State and Federal ambient air quality standards.

Significant Permit Conditions:

Condition:

The IROCK portable crushing unit (including the crusher and conveyor) and Spyder portable screening unit (including the screener and conveyors) are subject to conditions of NSPS, 40 CFR Part 60 Subpart OOO. However, when the Spyder screening unit is operated at sites without the IROCK portable crushing unit the screening unit is not subject to the Subpart OOO requirements.

Purpose:

Crusher was manufactured > August 1983 and has a maximum capacity > 150 TPH (400 TPH). Stand alone screeners are not subject to Subpart OOO when operated at sites without a Subpart OOO, crusher.

Condition:

The portable crusher and screener will each be limited to 3,500 hours of operation per rolling twelve-month period.

Purpose:

Applicant proposed, to meet AAQS for NO2.

Conclusion and Recommendations:

The greatest emissions from the facility will be PM and NOx emissions generated by the portable crushing plant and diesel engine. Conservatism used in assessing pollutant emissions from the portable crushing plant included using maximum crusher capacity (400 TPH) and screening capacity (600 TPH) where actual throughput will be significantly less (more in the range of 100-200 TPH). This significant modification to allow the separation of the crushing unit and screening unit will require an amendment of the permit to allow the separation of the two units and change language to only require Subpart OOO for the screener when operating with the IROCK crusher.

Based on the information supplied by Land Breeze, Inc. it is the preliminary determination of the Hawaii Department of Health (DOH) that the proposed modification will not cause or contribute to a violation of any State or National ambient air quality standard. Issuance of a amendment to temporary covered source permit is recommended based on the review of the information provided by the applicant and subject to significant permit conditions, public comment, and EPA review.

Scott Takamoto
5/12/04