

Covered Source Permit (CSP) No. 0300-01-C Review
Application for Renewal/Modification No. 0300-02

Applicant: Castle and Cooke Resorts, LLC (fka Lanai Company, Inc.)

Equipment Description:

350 tph Stone Processing Plant (fixed)

1. Vibrating grizzly feeder;
2. Jeffery feeder;
3. Hewitt Robin double deck screen (model no. 5 x 14, serial no. VSS-50818-01);
4. 310 tph Symons secondary cone crusher (model no. 4 1/4 STD, serial no. 40659-B);
5. El-Jay triple deck vibrating screen (model no. 1242, serial no. 34E0387);
6. 350 tph El-Jay vertical shaft impactor crusher (model no. VSI-2100, serial no. 28J0386);
7. 400 tph Read Screen All (model no. CV-40-D, serial no. 1704);
8. Various conveyors; and
9. Waterspray system.

110 tph Asphalt Concrete (AC) Plant (fixed)

1. Various aggregate storage bins;
2. 110 tph Asphalt Drum Mixers, Inc. (ADM) rotary drum dryer (model no. SPL110, serial no. tbd, max 40.3 MMBtu/hr);
3. Asphalt hot oil tank/heater (model no. ATC20, serial no. tbd, 20,000 gallons, max. 1.41 MMBtu/hr);
4. Venturi wet scrubber (model no. SPL110, serial no. tbd, 18,000 acfm, 18 in water);
5. Hot mix silo; and
6. Various conveyors.

150 cy/hr Concrete Batch Plant (fixed)

1. 150 cy/hr Con-E-Co batch plant (model no. 10 Lo-Pro, serial no. n/a);
2. Con-E-Co vent baghouse servicing cement silo (model no. 30-250, serial no. BF-1297);
3. Con-E-Co vent baghouse servicing weigh batcher (model no. BV-14, serial no. n/a);
4. Dust shroud for truck loading;
5. Various conveyors; and
6. Watersprays for stockpiles.

Diesel Engine Generators (DEGs)

1. 840 kW Caterpillar DEG (model no. 3508, serial no. 23Z06358, max. 60.3 gph fuel input);
2. 1,000 kW Caterpillar DEG (model no. 3512, serial no. 24Z02067, max. 77.1 gph fuel input);
3. 225 kW Caterpillar DEG (model no. 3306, serial no. 85Z05762, max. 15.9 gph fuel input);
and
4. 205 kW Caterpillar DEG (model no. 3306, serial no. 8JJ00828), max. 15.4 gph fuel input).

Equipment Locations:

Kaumalapau Quarry, TMK 4-9-02:01
Kaumalapau Highway
Lanai City, Hawaii 96763 (Lanai)

UTM Coordinates: Zone 4; 710,620m E; 2,999,950m N (NAD-83)

Responsible Official/Point of Contact:

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Proposed Project:

This facility consists of three (3) activities that are powered by DEGs:

1. 110 tph AC plant;
2. 350 tph stone processing plant; and
3. 150 cy/hr concrete batch plant

Although there are three different activities, Standard Industrial Classification Codes (SICC) 1429 - Crushed and Broken Stone, Not Elsewhere Classified will be used as the primary activity.

The applicant proposed the following modifications to the facility:

1. replace the 172 tph AC plant with a new 110 tph AC plant;
2. remove the 800 tph jaw crusher;
3. add a 400 tph power screen;
4. raise the stack height of the 225 kW DEG to 17';
5. replace the 200 kW DEG with a new 205 kW; and
6. replace the 900 kW DEG with a new 840 kW DEG.

As such, a new ambient air quality analysis was conducted for the entire facility to ensure that the modifications comply with state and national ambient air quality standards (SAAQS and NAAQS).

The following are descriptions of activities 1 through 3:

1. 350 tph Stone Processing Plant

Since the stone processing plant, except the 310 tph secondary cone crusher, was constructed after 8/31/83 (trigger date) and the capacity greater than 25 tph (for a fixed plant), NSPS Subpart OOO is applicable. The 800 tph jaw crusher will be removed, but a 400 tph power screen will be added.

The description of processes is as follows:

Raw material is transported within the existing quarry and loaded into the feeder. The raw material is then screened and processed through the cone and VSI crushers until the desired size is produced. The final product is then stockpiled until it is used for the on-site AC plants, concrete batch plants, or transported off-site. Electrical power is supplied by one of the DEGs. Watersprays are located at all transfer points and water trucks are used throughout the facility. The operation is limited by the combined total fuel used by the 1,000 kW and 840 kW DEGs.

2. 110 tph AC Plant

This will be a new AC plant, subject to NSPS Subpart I, since it will be constructed after 6/11/73 (trigger date). The previous AC plant will be removed.

The description of processes are as follows:

Cold (unheated) aggregates are conveyed to the rotary drum dryer, which is fueled by fuel oil no. 2. The aggregate is then combined with the hot asphalt. The asphalt heater is also fueled by fuel oil no. 2. The asphalt hot-mix is mixed and then discharged into a waiting truck. Particulate matter (PM) are removed by a venturi wet scrubber. The operation is limited by 1,000 hours in any rolling 12-month period.

3. 150 cy/hr Concrete Batch Plant

There is no proposed change to this concrete batch plant.

The description of processes is as follows:

Sand and aggregate are transferred from storage piles to the elevated bins by conveyor. Cement is transferred to elevated storage silos by pneumatic pumps and hoses. The storage silo has a vent baghouse to capture PM when cement is being transferred. The aggregate and cement are measured by the weigh hopper and then loaded into a transit mix truck with water and admixtures. The operation is limited by the combined total fuel used by the 205 kW DEG. Fugitive emissions will be controlled using baghouses.

4. DEGs

There are two existing and two new DEGs. The new DEGs are not subject to NSPS IIII because they were constructed prior to July 11, 2005 (trigger date). The operational limitations are as follows: 170,000 gal/yr for the total combined fuel for the 840 kW and 1,000 kW DEGS (they also cannot operate simultaneously); 11,000 gal/yr for the 225 kW DEG; and 26,250 gal/yr for the 205 kW DEG.

This permit review is based on the application dated September 16, 2004, and its revisions dated September 20, November 23, December 16, 2004; April 26, August 15, 2005; December 4, 2006; and January 8, February 6, February 23, and March 13, 2007. A check for \$500.00 had been processed previously for a renewal of a non-major CSP application. CSP No. 0300-01-C dated January 26, 2000 will be superseded, in its entirety, upon issuance of this renewal.

Air Pollution Control Equipment:

Water sprays at the work area, roads, and stock piles (generally 70% efficiency);
Venturi wet scrubber for the AC plant (generally 99% efficiency);
Passive vent baghouses for the concrete batch plant (generally 99% efficiency); and
Shroud for the concrete batch plant (generally 70%).

Applicable Requirements:

The 110 tph AC plant is subject to New Source Performance Standards (NSPS), specifically 40 CFR Part 60 Subpart I - Standards of Performance for Hot Mix Asphalt Facilities because this facility has been constructed after June 11, 1973.

The 350 stone processing plant is subject to NSPS, specifically 40 CFR Part 60 Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants because the facilities have been constructed or modified after August 31, 1983, and the initial crushers have the capacity to process over 25 tph for the fixed plant. Only the 310 tph secondary cone crusher is not applicable since it was constructed prior to the trigger date and not modified since then.

Hawaii Administrative Rules (HAR) Title 11 Chapter 59

Hawaii Administrative Rules (HAR) Title 11 Chapter 60.1

Subchapter 1 - General Requirements

Subchapter 2 - General Prohibitions

11-60.1-32 Visible Emissions

11-60.1-33 Fugitive Dust

11-60.1-37 Process Industries

11-60.1-38 Sulfur Oxides From Fuel Combustion

Subchapter 5 - Covered Sources

Subchapter 6 - Fees for Covered Sources, Sections 111-116

Subchapter 8 - Standards of Performance for Stationary Sources

Subchapter 10 - Field Citations

This is a Synthetic Minor source since SO_x, NO_x, PM, and PM₁₀ emissions would be greater than 100 tpy (Major Source) if this source was to operate continuously.

Non-Applicable Requirements:

40 CFR Part 60 – NSPS IIII (Internal Combustion Engines) is not applicable because all of the DEGs were constructed prior to July 11, 2005 with no modification or reconstruction.

40 CFR Part 61 - National Emission Standard for Hazardous Air Pollutants (NESHAPS) is not applicable because there is no standard for DEGs, AC, and stone processing plants.

40 CFR Part 63 - Maximum Achievable Control Technology (MACT) is not applicable because there is no standard for DEGs, AC, and stone processing plants.

Prevention of Significant Deterioration (PSD) because this is not a major stationary source.

Compliance Assurance Monitoring (CAM) is to provide a reasonable assurance that compliance is being achieved with large emissions units that rely on air pollution control device equipment to meet an emissions limit or standard. Pursuant to 40 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 [>100 tpy]; and (5) not otherwise be exempt from CAM. CAM is not applicable to the plant since item 1 does not apply.

Consolidated Emissions Reporting Rule (CERR) is not applicable because emissions from the facility are less than reporting levels pursuant to 40 CFR 51, Subpart A (see **Table 1**). However, annual emissions reporting is required for covered sources.

**Table 1
CERR**

Pollutant	Facility Emissions (tpy)	CERR Triggering Levels (tpy)		Internal Reporting Threshold (tpy)	Significant Levels (tpy)
		Reporting Cycle			
		Type A (1-yr)	Type B (3-yr)		
VOC	3.21	≥ 250	≥ 100	≥ 25	≥ 40
PM	22.49	n/a	n/a	≥ 25	≥ 15
PM ₁₀ /PM _{2.5}	6.87/3.17	≥ 250	≥ 100	≥ 25	≥ 25
NO _x	46.1	$\geq 2,500$	≥ 100	≥ 25	≥ 40
SO _x	10.5	$\geq 2,500$	≥ 100	≥ 25	≥ 40
CO	18.4	$\geq 2,500$	$\geq 1,000$	≥ 250	≥ 100
HAPs (total)	0.5	n/a	n/a	≥ 5	n/a

A Best Available Control Technology (BACT) analysis is required for new sources or modifications to existing sources that would result in a net significant emissions increase as defined in HAR, Section 11-60.1-1. This is an existing source with no significant increase in emissions. As shown in the **Project Emissions** section, the modifications themselves do not trigger significant increase. Therefore, a BACT review was not performed.

Insignificant Activities/Exemptions:

No new insignificant activities/exemptions were proposed.

The following equipment are insignificant by HAR 11-60.1-82(f)(1) - storage tanks $<40,000$ gal:

1. 5,000 gallon underground storage tank for fuel oil no. 2; and
2. 12,000 gallon new hot oil tank for asphalt.

The following equipment are insignificant by HAR 11-60.1-82(f)(2) – fuel burning equipment with a heat input less than 1 MMBtu/hr: 0.19 MMBtu/hr diesel engine for the power screen.

Alternative Operating Scenarios:

Temporary replacement of DEG(s) with an equal or less emissions with similar stack parameters.

Project Emissions:

As mentioned in the **Proposed Project** section, there are proposed equipment changes for the subject facility. Furthermore, some AP-42 emission factors have been updated.

The operational limitations are proposed as follows:

350 tph stone processing plant	powered only by 170,000 gal/yr total combined for 840 kW and 1,000 kW DEGs
110 tph AC plant	1,000 hrs/yr
225 kW DEG	11,000 gal/yr
205 kW DEG	26,250 gal/yr
150 cy concrete batch plant	powered only by the 205 kW DEG
Hot oil heater	72,514 gal/yr

The emissions in **Tables 2 - 6** were calculated using the AP-42 emission factors and the operational limitations listed above.

Table 2
840 kW DEG Emissions

Pollutant	EF (lb/MMBtu)	Input (MMBtu/hr)	Emis. (lb/hr)	Emis. 170,000 gal/yr (tpy)	Emis. 8,760 hr/yr (tpy)	Emis. (g/s)
NOx	n/a	8.44	28.470	40.132	124.699	3.587
CO	n/a	8.44	1.520	2.143	6.658	0.192
SO2	.505	8.44	4.262	6.010	18.668	0.537
PM	n/a	8.44	0.320	0.451	1.402	0.040
PM10	n/a	8.44	0.320	0.451	1.402	0.040
TOC	n/a	8.44	0.790	1.114	3.460	
HAPs						
Benzene	0.000776	8.44	6.55e-03	9.23e-03	2.87e-02	
Toluene	0.000281	8.44	2.37e-03	3.34e-03	1.04e-02	
Xylenes	0.000193	8.44	1.63e-03	2.30e-03	7.13e-03	
Formaldehyde	0.0000789	8.44	6.66e-04	9.39e-04	2.92e-03	
Acetaldehyde	0.0000252	8.44	2.13e-04	3.00e-04	9.32e-04	
Acrolein	0.000008	8.44	6.75e-05	9.52e-05	2.96e-04	
Naphthalene	0.000212	8.44	1.79e-03	2.52e-03	7.84e-03	
HAPs Totals				1.87e-02	5.82e-02	

Note: Used applicant provided emission factors. Emission rates for NOx, CO, PM, and TOC from manufacturer's data; and SO2 (1.01xS = 1.01x0.5=0.505), from AP-42, Table 3.4-1 (10/96). Emission factors for HAPs from Table 3.4-3 (10/96) speciated organic compound emission factors for large uncontrolled stationary diesel engines & Table 3.4-4 (10/96) PAH emission factors for large uncontrolled stationary diesel engines. Equivalent hour limit is 170,000 gal/yr / 60.3 gal/hr = 2,819 hrs/yr. Hourly heat input is 0.140 MMBtu/gal x 60.3 gal/hr = 8.44 MMBtu/hr.

Table 3
1000 kW DEG Emissions

Pollutant	Emis. Factor (lb/MMBtu)	Input (MMBtu/hr)	Emis. (lb/hr)	Emis. 170,000 gal/yr (tpy)	Emis. 8,760 hr/yr (tpy)	Emis. (g/s)
NOx	3.2	10.79	34.541	38.080	151.289	4.352
CO	0.85	10.79	9.175	10.115	40.186	1.156
SO2	0.505	10.79	5.451	6.010	23.875	0.687
PM	0.0697	10.79	0.752	0.829	3.295	0.095
PM10	0.0573	10.79	0.619	0.682	2.709	0.078
TOC	0.09	10.79	0.971	1.071	4.255	
HAPs						
Benzene	0.000776	10.79	8.38e-03	9.23e-03	3.67e-02	
Toluene	0.000281	10.79	3.03e-03	3.34e-03	1.33e-02	
Xylenes	0.000193	10.79	2.08e-03	2.30e-03	9.12e-03	
Formaldehyde	0.0000789	10.79	8.52e-04	9.39e-04	3.73e-03	
Acetaldehyde	0.0000252	10.79	2.72e-04	3.00e-04	1.19e-03	
Acrolein	0.00000788	10.79	8.51e-05	9.38e-05	3.73e-04	
Total PAH	0.000212	10.79	2.29e-03	2.52e-03	1.00e-02	
HAPs Totals				1.87e-02	7.44e-02	

Note: Used applicant provided emission factors. Emission factors for NOx, CO, SO2 (1.01xS = 1.01x0.5=0.505), and TOC from AP-42, Table 3.4-1 (10/96), gaseous emission factors for large stationary diesel and all stationary dual-fuel engines. Emission factor for PM & PM-10 from Table 3.4-2 (10/96) particulate and particulate-sizing emission factors for large stationary diesel engines, and HAPs from Table 3.4-3 (10/96) speciated organic compound emission factors for large uncontrolled stationary diesel engines & Table 3.4-4 (10/96) PAH emission factors for large uncontrolled stationary diesel engines. Equivalent hour limit is 170,000 gal/yr / 77.1 gal/hr = 2,205 hr/yr. Hourly heat input is 140,000 Btu/gal x 77.1 gal/hr = 10.79 MMBtu/hr.

**Table 4
225 kW DEG Emissions**

Pollutant	Emis. Factor (lb/MMBtu)	Input (MMBtu/hr)	Emis. (lb/hr)	Emis. 11,000 gal/yr (tpy)	Emis. 8,760 hr/yr (tpy)	Emis. (g/s)
NOx	n/a	2.23	4.080	1.411	17.870	0.514
CO	0.95	2.23	2.119	0.732	9.279	0.267
SO2	0.50	2.23	1.115	0.385	4.884	0.140
PM	0.31	2.23	0.691	0.239	3.028	0.087
PM10	0.31	2.23	0.691	0.239	3.028	0.087
TOC	0.35	2.23	0.781	0.270	3.419	
HAPs						
Benzene	0.000933	2.23	2.08e-03	7.18e-04	9.11e-03	
Toluene	0.000409	2.23	9.12e-04	3.15e-04	3.99e-03	
Xylenes	0.000285	2.23	6.36e-04	2.19e-04	2.78e-03	
1,3-Butadiene	0.0000391	2.23	8.72e-05	3.01e-05	3.82e-04	
Formaldehyde	0.00118	2.23	2.63e-03	9.09e-04	1.15e-02	
Acetaldehyde	0.000767	2.23	1.71e-03	5.91e-04	7.49e-03	
Acrolein	0.0000925	2.23	2.06e-04	7.12e-05	9.03e-04	
PAH	0.000168	2.23	3.75e-04	1.29e-04	1.64e-03	
HAPs Totals				2.98e-03	3.78e-02	

Note: Used applicant provided emission factors. Emission factors for NOx, CO, PM, and TOC from AP-42, Table 3.3-1 (10/96), emission factors for uncontrolled gasoline and diesel industrial engines. SO2 from AP-42, Table 3.4-1 (10/96) (includes sulfur content of 0.5%). Applicant provided PM-10 emission factor not valid, so used DOH value which assumes all PM = PM-10. HAPs from Table 3.3-3 (10/96) speciated organic compounds and air toxic emission factors for uncontrolled diesel engines. Equivalent hour limit is 11,000 gal/yr (fuel limit) / 15.9 gal/hr = 691.8 hr/yr. Hourly heat input is 140,000 Btu/gal x 15.9 gal/hr = 2.23 MMBtu/hr.

Table 5
205 kW DEG Emissions

Pollutant	Emis. Factor (lb/MMBtu)	Input (MMBtu/hr)	Emis. (lb/hr)	Emis. 26,250 gal/yr (tpy)	Emis. 8,760 hr/yr (tpy)	Emis. (g/s)
NOx	n/a	2.16	3.340	2.847	14.629	0.421
CO	n/a	2.16	0.270	0.230	1.183	0.034
SO2	0.50	2.16	1.080	0.919	4.730	0.136
PM	n/a	2.16	0.070	0.060	0.307	0.009
PM10	n/a	2.16	0.070	0.060	0.307	0.009
TOC	n/a	2.16	0.110	0.094	0.482	
HAPs						
Benzene	0.000933	2.16	2.02e-03	1.71e-03	8.83e-03	
Toluene	0.000409	2.16	8.83e-04	7.52e-04	3.87e-03	
Xylenes	0.000285	2.16	6.16e-04	5.24e-04	2.70e-03	
1,3-Butadiene	0.0000391	2.16	8.45e-05	7.18e-05	3.70e-04	
Formaldehyde	0.00118	2.16	2.55e-03	2.17e-03	1.12e-02	
Acetaldehyde	0.000767	2.16	1.66e-03	1.41e-03	7.26e-03	
Acrolein	0.0000925	2.16	2.00e-04	1.70e-04	8.75e-04	
PAH	0.000168	2.16	3.63e-04	3.09e-04	1.59e-03	
HAPs Totals				7.12e-03	3.66e-02	

Note: Used applicant provided emission factors. Emission factors for NOx, CO, PM, and TOC from manufacturer's data. SO2 from AP-42, Table 3.4-1 (10/96) (includes sulfur content of 0.5%). HAPs from Table 3.3-3 (10/96) speciated organic compounds and air toxic emission factors for uncontrolled diesel engines. Equivalent hour limit is 26,250 gal/yr (fuel limit) / 15.4 gal/hr = 1,705 hr/yr. Hourly heat input is 140,000 Btu/gal x 15.4 gal/hr = 2.16 MMBtu/hr.

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June 7, 2007**

**Table 6
Facility Summary Emissions**

Pollutant	DEGs			Stone Processing (tpy)	Asphalt Concrete		Concrete Batch (tpy)	Handling & Stockpiles (tpy)	Unpaved Roads (tpy)	Total w/ Oper. Limits (tpy)	Total w/ 8,760 hrs/yr (tpy)
	1,000 kW (tpy)	225 kW (tpy)	205 kW (tpy)		Plant (tpy)	Hot Oil Htr (tpy)					
NOx	38.08	1.41	2.85	0	3.03	0.73	0	0	0	46.1	185.96
CO	10.12	0.73	0.23	0	7.15	0.18	0	0	0	18.41	106.81
SO2	6.01	0.39	0.92	0	0.61	2.57	0	0	0	10.5	34.36
PM	0.83	0.24	0.06	6.59	2.48	0.07	8.77	2.35	11.37	32.76	159.32
PM10	0.68	0.24	0.06	2.92	1.73	0.04	2.70	0.82	3.35	12.54	62.58
PM2.5	0.68	0.24	0.06	2.92	1.73	0.04	2.70	0.13	0.34	8.84	44.08
VOC	1.07	0.27	0.09	0	1.76	0.02	0	0	0	3.21	21.08
HAPs	0.019	0.003	0.007	0	0.49	0.002	0	0	0	0.521	4.39

Notes:

1. The emissions from the 840 kW DEG was not included because the worst case scenario would be to consume all 170,000 gal/yr of fuel using the 1,000 kW DEG.
2. Total w/ operational limits included operating at max capacity but limited to the proposed hour or fuel limit.
3. Total w/ 8,760 hr/yr included operating continuously at max capacity.
4. The emission factors with control efficiencies included were used when possible. If not, an efficiency factor was included when applicable.
5. The stone processing, concrete batch, handling & stockpiles, and unpaved roads emissions were recalculated by DOH to include current AP-42 emission factors (see Enclosures 1-4) and AC plant HAPs calcs (see Enclosure 5).

The maximum expected PM emission rate for the 110 tph AC plant is 4.95 lb/hr. Therefore, this facility complies with HAR 11-60.1-37 - Process Industries which limits PM emissions to $E = 4.10 p^{0.67} = \underline{95.61 \text{ lb/hr}}$ (where p = maximum input of material in tph = 110 tph), but not greater than 40 lb/hr.

Netting (calculated increase/decrease of emissions due to modifications) was not conducted since the modifications themselves did not produce significant levels of emissions.

Air Quality Assessment:

An ambient air quality analysis (AAQA) was performed using an equivalent model, BEE-Line ISCST3 "BEEST" (Version 02035), to determine source compliance with National and State ambient air quality standards (NAAQS and SAAQS). A new AAQA was required to ensure that the replacement AC plant and DEGs would meet AAQS. This AAQA is conservative because it includes all point sources when the minimum requirement is to model only the changes. The model, methodology and assumptions employed in the AAQA have been determined to be consistent with State and Federal guidelines and are discussed below.

Two groups named 840kW and 1000kW were modeled to determine the worst case scenario. Each group used the 840 kW or 1,000 kW DEG (as designated) with the rest of the equipment.

The assumptions used in the ISCST3 model included the following: simple and complex terrain impacts, rural dispersion parameters, and regulatory default options. One (1) year of meteorological data (from MECO – Miki Basin, MIKI92.ASC) was used and is representative of the location.

Receptors were placed on a Cartesian grid 30 meters apart. Elevations at each receptor were determined using U.S. Geological Survey (USGS) Digital Elevation Model (DEM) data.

A Good Engineering Practice (GEP) stack height analysis was not performed because the EPA Building Profile Input Program (BPIP) was used to determine the effects of downwash from structures in the vicinity of the DEGs.

Table 7 presents the potential to emit/allowable emission rates and stack parameters of the equipments used for the worst case scenario. The derivation of SO₂, NO_x, CO, and PM₁₀ emission rates were previously discussed in the **Project Emissions** subsection. The annual concentrations include fuel and hour limitations. Pb and H₂S are assumed to be negligible.

The predicted concentrations are compared to SAAQS shown in **Table 8**. Based on the assumptions used, the AAQA shows compliance with SAAQS and NAAQS for SO₂, NO₂, CO, and PM₁₀. See **Enclosure 6** for model runs.

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**Table 7
Source Emission Rates and Stack Parameters for Air Modeling**

SOURCE ¹		EMISSION RATES ²					STACK PARAMETERS ³			
Equipment	Stack No.	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)
840 kW DEG	1	0.537	--	0.192	0.040	0.000	4.57	724.54	64.14	0.25
annual	1	0.173	0.866	--	0.013	0.000				
1,000 kW DEG	2	0.687	--	1.156	0.078	0.000	3.05	802.59	57.24	0.30
annual	2	0.173	0.822	--	0.020	0.000				
225 kW DEG	3	0.140	--	0.266	0.087	0.000	5.18	829.26	64.45	0.13
annual	3	0.011	0.030	--	0.007	0.000				
AC Plant	4	0.152	--	1.800	0.435	0.000	8.23	355.37	10.16	1.03
annual	4	0.017	0.065	--	0.050	0.000				
205 kW DEG	5	0.136	--	0.034	0.009	0.000	6.10	800.43	102.82	0.10
annual	5	0.026	0.061	--	0.002	0.000				
Hot Oil Heater	6	0.091	--	0.006	0.001	0.000	4.11	588.71	13.04	0.25
annual	6	0.074	0.021	--	0.001	0.000				

Note:

1. The scenarios that were compared included the option of using the 840 kW or 1,000 kW DEG with the rest of the equipment.
2. The emission rates on the first row are short term and the second row are annual (as noted in the equipment column). The annual emission rates include hour and fuel limitations and NO_x emission rates include a Tier 2 factor of 0.75 (0.75 of NO_x is converted to NO₂).
3. The stack height for the 225kW DEG had to be extended to meet SAAQS.

**Application No. 0300-02 Reviewed by: CBS
June 7, 2007**

**Table 8
Predicted Ambient Air Quality Impacts**

AIR POLLUTANT	AVERAGING TIME	DEGs ¹ ($\mu\text{g}/\text{m}^3$)	BACKGROUND ² ($\mu\text{g}/\text{m}^3$)	TOTAL IMPACT ($\mu\text{g}/\text{m}^3$)	AIR STANDARD ($\mu\text{g}/\text{m}^3$)	PERCENT STANDARD	IMPACT ³ LOCATION (x,y,z)
SO ₂	3-Hour	856	40	896	1300	69%	710644, 2299990, 194
	24-Hour	312	11	323	365	88%	710584, 2299900, 192
	Annual ⁴	17.4	2	19.4	80	24%	710554, 2299840, 190
NO ₂	Annual ^{4,5}	30.4	6	36.4	70	52%	710584, 2299900, 192
CO	1-Hour	2945	1710	4655	10000	47%	710524, 2299750, 152
	8-Hour	770	1055	1825	5000	37%	710674, 2299990, 200
PM ₁₀	24-Hour	110	33	143	150	95%	710554, 2299870, 191
	Annual ⁴	0.86	12	12.86	50	26%	710584, 2299900, 192
Pb ⁶	Calendar Quarter	--	--	--	1.5	0%	--
H ₂ S ⁶	1-Hour	--	--	--	35	0%	--

Note:

1. The concentrations are from the worst case scenario for all equipment at the facility.
2. The background concentrations are taken from West Beach, Oahu for SO₂, PM₁₀, and NO₂; and Kapolei, Oahu for CO in the 2005 Hawaii Air Quality Data.
3. (x, y, z) = x-coordinate, y-coordinate, and elevation (in meters).
4. The annual concentrations include hour and fuel limitations.
5. NO₂ emission rates include a Tier 2 factor of 0.75 (0.75 of NO_x is converted to NO₂).
6. Pb and H₂S emissions are not expected at this facility.

Other Issues:

See **Enclosure 7** for an aerial photo of the facility.

Existing Permit Conditions:

350 tph stone processing plant

- subject to NSPS OOO, except for 310 tph crusher.
- shall be powered only by the 840 kW or 1,000 kW DEGs (for monitoring purposes).
- shall not operate simultaneously with the AC plant (to meet SAAQS for DEGs).
- standard fugitive emissions conditions including water sprays.

110 tph AC plant

- subject to NSPS I.
- shall not operate more than 1,000 hr/yr (to meet SAAQS).
- shall be powered only by the 840 kW or 1,000 kW DEGs (for monitoring purposes).
- shall not operate simultaneously with the stone processing plant (to meet SAAQS for DEGs).
- a venturi wet scrubber operating between 15-20 inches H₂O shall be used (to control PM).
- standard fugitive emissions conditions including water sprays.

150 cy/hr concrete batch plant

- two (2) vent baghouses shall be used to (to control PM).
- shall be powered only by the 205 kW DEG (for monitoring purposes).
- standard fugitive emissions conditions including water sprays.

DEGs

- the 840 kW and 1,000 kW DEGs combined fuel limit is 170,000 gal/yr (to meet SAAQS).
- the 840 kW and 1,000 kW DEGs shall not operate simultaneously (to meet SAAQS).
- the 225 kW DEG fuel limit is 11,000 gal/yr (to meet SAAQS).
- the 200 kW DEG fuel limit is 26,250 gal/yr (to meet SAAQS).
- alternate operating scenario allowed for replacement DEG(s).
- standard DEG conditions.

New Permit Conditions:

See equipment changes listed in the **Proposed Project** section. Otherwise there is no proposed change in operations.

Conclusion and Recommendation:

In conclusion, it is the Department of Health's preliminary determination that the facility will comply with all State and Federal laws, rules, regulations, and standards with regards to air pollution. This determination is based on the application submitted by Castle & Cooke Resorts, LLC. Therefore, a renewal with modifications to a covered source permit for Castle & Cooke Resorts, LLC subject to the above permit conditions, 30-day public notice period, and 45-day EPA review is recommended.