LARGE DIESEL GENERATOR

Goodfellow Bros.

Kihei Maui

LP-84, 121, & 130 1,000 kW Generator w/ Catepillar Diesel Engine model 3512

Diesel Engine Horsepower:	1,341	[hp=kW*1.34]	Type of Diesel Fuel:	Diesel #2
Maximum Design Fuel Feed Rate (gal/hr):		81.6	Sulfur Content by Weight (%):	0.50%
Maximum Heat Input (MMBTU/hr):		11.42	Fuel Heating Value (BTU/gal):	140,000
Operating Hours (hr/yr):	2,000		Ignition Timing Retard (Y/N):	N
Operating Hours (hr/day):	24			

Max Fuel Consumption (8,760 hr/yr): 714,816 gal
Fuel Consumption, Limited Hours: 163,200 gal

Emissions (lb/hr)= Max Heat Input x Emission Factor
AP-42 Section 3.4, revised 10/96

Pollutant	Emission Factor (lb/MMBtu)	EMISSIONS (lb/hr)	(g/s)	Max (TPY)	Limited (TPY)
SOx	0.51	5.77	0.73	25.3	5.8
NOx	3.20	36.56	4.61	160.1	36.6
CO	0.85	9.71	1.22	42.5	9.7
TOC	0.09	1.03	0.13	4.5	1.0
PM_{10}	0.06	0.65	0.08	2.9	0.7

AP-42 Section 3.4, revised 10/96

HAP	Emission Factor (lb/MMBtu)	EMISSIONS (lb/hr)	(g/s)	Max (TPY)	Limited (TPY)
BENZENE	7.76E-04	8.87E-03	1.12E-03	3.88E-02	8.87E-03
TOLUENE	2.81E-04	3.21E-03	4.04E-04	1.41E-02	3.21E-03
XYLENES	1.93E-04	2.20E-03	2.78E-04	9.66E-03	2.20E-03
NAPHTHALENE	1.30E-04	1.49E-03	1.87E-04	6.50E-03	1.49E-03
PROPYLENE	2.79E-03	3.19E-02	4.02E-03	1.40E-01	3.19E-02
FORMALDEHYDE	7.89E-05	9.01E-04	1.14E-04	3.95E-03	9.01E-04
ACETALDEHYDE	2.52E-05	2.88E-04	3.63E-05	1.26E-03	2.88E-04
ACROLEIN	7.88E-06	9.00E-05	1.13E-05	3.94E-04	9.00E-05
	TOTAL	**0.049**	**0.006**	**0.21**	**0.05**

concentration: 0 mg/m^3

Ambient Air

Pollutant	Averaging Period	Concentration (mg/m^3) Max	Adjusted[1]	Screened[2]	Background	Total	SAAQS	% of SAAQS
SOx	3 hr	-	-		652	652	1,300	50%
	24hr	-	-		111	111	365	30%
	annual	-	-		6	6	80	8%
NO_2	annual	-	-	-	7	7	70	10%
PM_{10}	24hr	-	-		131	131	150	87%
	annual	-	-		24	24	50	48%
CO	1 hr	-	-		4,778	4,778	10,000	48%
	8 hr	-	-		2,337	2,337	5,000	47%

1. "Adjusted" concentrations are corrected for annual and daily operating hours = "Max" * [Operating Hours/Averaging Period (8,760; 24; 8; or 3)]
2. "Screened" NO2 concentrations adjusted using the multi-tied screening approach detailed in Supplement C of the Guidelines of Air Quality Models, Appendix W of 40 CFR 51.

Stone Processing

Goodfellow Bros.
Kihei Maui

PROCESSING CAPACITIES

Primary =	780	TPH		
Secondary =	90	% of Primar	700	TPH
Tertiary =	45	% of Primar	350	TPH
Controlled?	Y	(Y or N)		
Hours of Operation =		2,000	hr/yr	

# of loaders =	2	ea.
# of piles =	4	ea.
# of transfer points =	18	ea.
wind speed =	15	MPH

PM-10 AP-42 Section 11.19.2, revised 8/04.

Activity	Emission Factor (lb/T)	Emissions (lb/hr)	8,760 hrs (TPY)	2,000 hrs (TPY)
Crushing				
Primary	0.0005	0.42	1.8	0.4
Secondary	0.0005	0.38	1.7	0.4
Tertiary	0.0005	0.19	0.8	0.2
Loader	0.0120	9.36	41.0	9.4
Screening				
Primary	0.0007	0.58	2.5	0.6
Secondary	0.0007	0.52	2.3	0.5
Tertiary	0.0007	0.26	1.1	0.3
Transfer Points	0.0008	1.52	6.6	1.5
Storage Piles [1]	0.0044	3.40	14.9	3.4
	TOTAL	**16.62**	**73**	**16.6**

PM-2.5 AP-42 Section 11.19.2, revised 8/04.

Activity	Emission Factor (lb/T)	Emissions (lb/hr)	8,760 hrs (TPY)	2,000 hrs (TPY)
Crushing				
Primary	0.0001	0.08	0.3	0.1
Secondary	0.0001	0.07	0.3	0.1
Tertiary	0.0001	0.04	0.2	0.0
Loader	0.0120	9.36	41.0	9.4
Screening				
Primary	0.0001	0.04	0.2	0.0
Secondary	0.0001	0.04	0.2	0.0
Tertiary	0.0001	0.02	0.1	0.0
Transfer Points	0.0002	0.43	1.9	0.4
Storage Piles [1, 2]	0.0013	0.99	4.3	1.0
	TOTAL	**11.05**	**48**	**11**

1 - Emission factor from AP-42, section 13.2.4, revised 1/95. The AP-42 emission factor is based on the amount of material dropped onto the pile. As such, the emission factor can be adjusted for the operating hours of the crushing operation.

2 - PM2.5 =0.29 * PM10; AP-42 Appendix B

Stone Processing

Goodfellow Bros.
Kihei, Maui
K-148, K-149, K-150, 400 TPH Norberg Mobile Jaw Crusher, model LT105, serial no. 72742, 72816, 72839

PROCESSING CAPACITIES

Primary =	400	TPH			# of loaders =	1	ea.
Secondary =	0	% of Primar	-	TPH	# of piles =	2	ea.
Tertiary =	0	% of Primar	-	TPH	# of transfer points =	8	ea.
Controlled?	Y	(Y or N)			wind speed =	15	MPH
Hours of Operation =	2,000	hr/yr					

PM-10 AP-42 Section 11.19.2, revised 8/04.

Activity	Emission Factor (lb/T)	Emissions (lb/hr)	8,760 hrs (TPY)	2,000 hrs (TPY)
Crushing				
Primary	0.0005	0.22	0.9	0.2
Secondary	0.0005	0.00	0.0	0.0
Tertiary	0.0005	0.00	0.0	0.0
Loader	0.0060	2.40	10.5	2.4
Screening				
Primary	0.0007	0.30	1.3	0.3
Secondary	0.0007	0.00	0.0	0.0
Tertiary	0.0007	0.00	0.0	0.0
Transfer Points	0.0004	0.15	0.6	0.1
Storage Piles [1]	0.0044	1.75	7.6	1.7
	TOTAL	**4.80**	**21**	**5**

PM-2.5 AP-42 Section 11.19.2, revised 8/04.

Activity	Emission Factor (lb/T)	Emissions (lb/hr)	8,760 hrs (TPY)	2,000 hrs (TPY)
Crushing				
Primary	0.0001	0.04	0.2	0.0
Secondary	0.0001	0.00	0.0	0.0
Tertiary	0.0001	0.00	0.0	0.0
Loader	0.0060	2.40	10.5	2.4
Screening				
Primary	0.0001	0.02	0.1	0.0
Secondary	0.0001	0.00	0.0	0.0
Tertiary	0.0001	0.00	0.0	0.0
Transfer Points	0.0001	0.04	0.2	0.0
Storage Piles [1, 2]	0.0013	0.51	2.2	0.5
	TOTAL	**3.01**	**13**	**3**

1 - Emission factor from AP-42, section 13.2.4, revised 1/95. The AP-42 emission factor is based on the amount of material dropped onto the pile. As such, the emission factor can be adjusted for the operating hours of the crushing operation.

2 - PM2.5 =0.29 * PM10; AP-42 Appendix B

Stone Processing

Goodfellow Bros.
Kihei, Maui
K-152, 450 TPH Norberg Mobile Cone Crusher, model LT300HP, serial no. 72814

PROCESSING CAPACITIES

Primary =	450	TPH			# of loaders =	1	ea.
Secondary =	0	% of Primar	-	TPH	# of piles =	2	ea.
Tertiary =	0	% of Primar	-	TPH	# of transfer points =	8	ea.
Controlled?	Y	(Y or N)			wind speed =	15	MPH
Hours of Operation =	2,000	hr/yr					

PM-10 AP-42 Section 11.19.2, revised 8/04.

Activity	Emission Factor (lb/T)	Emissions (lb/hr)	8,760 hrs (TPY)	2,000 hrs (TPY)
Crushing				
Primary	0.0005	0.24	1.1	0.2
Secondary	0.0005	0.00	0.0	0.0
Tertiary	0.0005	0.00	0.0	0.0
Loader	0.0060	2.70	11.8	2.7
Screening				
Primary	0.0007	0.33	1.5	0.3
Secondary	0.0007	0.00	0.0	0.0
Tertiary	0.0007	0.00	0.0	0.0
Transfer Points	0.0004	0.17	0.7	0.2
Storage Piles [1]	0.0044	1.96	8.6	2.0
	TOTAL	**5.41**	**24**	**5**

PM-2.5 AP-42 Section 11.19.2, revised 8/04.

Activity	Emission Factor (lb/T)	Emissions (lb/hr)	8,760 hrs (TPY)	2,000 hrs (TPY)
Crushing				
Primary	0.0001	0.05	0.2	0.0
Secondary	0.0001	0.00	0.0	0.0
Tertiary	0.0001	0.00	0.0	0.0
Loader	0.0060	2.70	11.8	2.7
Screening				
Primary	0.0001	0.02	0.1	0.0
Secondary	0.0001	0.00	0.0	0.0
Tertiary	0.0001	0.00	0.0	0.0
Transfer Points	0.0001	0.05	0.2	0.0
Storage Piles [1, 2]	0.0013	0.57	2.5	0.6
	TOTAL	**3.38**	**15**	**3**

1 - Emission factor from AP-42, section 13.2.4, revised 1/95. The AP-42 emission factor is based on the amount of material dropped onto the pile. As such, the emission factor can be adjusted for the operating hours of the crushing operation. Water sprays not effective control, per AP-42 13.2.4.4.

2 - PM2.5 =0.29 * PM10; AP-42 Appendix B

Stone Processing

Goodfellow Bros.
Kihei, Maui
K-151, 700 TPH Norberg Mobile Jaw Crusher, model LT110, serial no. 72940
K-153, 700 TPH Norberg Cone Crusher, model HP400, serial no. 123450

PROCESSING CAPACITIES

Primary =	700	TPH			# of loaders =	1	ea.
Secondary =	0	% of Primar	-	TPH	# of piles =	2	ea.
Tertiary =	0	% of Primar	-	TPH	# of transfer points =	8	ea.
Controlled?	Y	(Y or N)			wind speed =	15	MPH
Hours of Operation =	2,000	hr/yr					

PM-10 AP-42 Section 11.19.2, revised 8/04.

Activity	Emission Factor (lb/T)	Emissions (lb/hr)	8,760 hrs (TPY)	2,000 hrs (TPY)
Crushing				
Primary	0.0005	0.38	1.7	0.4
Secondary	0.0005	0.00	0.0	0.0
Tertiary	0.0005	0.00	0.0	0.0
Loader	0.0060	4.20	18.4	4.2
Screening				
Primary	0.0007	0.52	2.3	0.5
Secondary	0.0007	0.00	0.0	0.0
Tertiary	0.0007	0.00	0.0	0.0
Transfer Points	0.0004	0.26	1.1	0.3
Storage Piles [1]	0.0044	3.05	13.4	3.1
	TOTAL	**8.41**	**37**	**8**

PM-2.5 AP-42 Section 11.19.2, revised 8/04.

Activity	Emission Factor (lb/T)	Emissions (lb/hr)	8,760 hrs (TPY)	2,000 hrs (TPY)
Crushing				
Primary	0.0001	0.07	0.3	0.1
Secondary	0.0001	0.00	0.0	0.0
Tertiary	0.0001	0.00	0.0	0.0
Loader	0.0060	4.20	18.4	4.2
Screening				
Primary	0.0001	0.04	0.2	0.0
Secondary	0.0001	0.00	0.0	0.0
Tertiary	0.0001	0.00	0.0	0.0
Transfer Points	0.0001	0.07	0.3	0.1
Storage Piles [1, 2]	0.0013	0.89	3.9	0.9
	TOTAL	**5.26**	**23**	**5**

1 - Emission factor from AP-42, section 13.2.4, revised 1/95. The AP-42 emission factor is based on the amount of material dropped onto the pile. As such, the emission factor can be adjusted for the operating hours of the crushing operation.

2 - PM2.5 =0.29 * PM10; AP-42 Appendix B

SMALL ENGINE GENERATOR

Goodfellow Bros. 0242-01-CT, Minor Mod
Kihei, Maui
Nordberg LT 105 w/Caterpillar C-9 DE, K-148, 149, and 150
serial nos. CLS07165, CLJ07851, AND CLJ07329

Engine Horsepower:	300	(hp=kW*1.34)	Type of Fuel:	diesel
Maximum Design Fuel Feed Rate (gal/hr):	15		Sulfur Content by Weight (%):	0.50%
Maximum Heat Input (MMBTU/hr):	2.10		Fuel Heating Value (BTU/gal):	140,000
Operating Hours (hr/yr):	2,000			
Operating Hours (hr/day):	24			

Max Fuel Consumption (8,760 hr/yr): 131,400 gal
Fuel Consumption, Limited Hours: 30,000 gal

Emissions (lb/hr)= Max Heat Input x Emission Factor

Pollutant	Emission Factor (lb/MMBtu)	EMISSIONS (lb/hr)	(g/s)	Max (TPY)	Limited (TPY)
SOx	0.29	0.61	0.08	2.7	0.6
NOx	*	3.95	0.50	17.3	4.0
CO	*	0.63	0.08	2.8	0.6
TOC	*	0.15	0.02	0.7	0.2
Aldehydes	0.07	0.15	0.02	0.6	0.1
PM_{10}	*	0.06	0.01	0.3	0.1

AP-42 Section 3.3, revised 10/96

* - emission factor from Caterpillar, EPA tier II

AP-42 Section 3.3, revised 10/96

HAP	Emission Factor (lb/MMBtu)	EMISSIONS (lb/hr)	(g/s)	Max (TPY)	Limited (TPY)
1,3-BUTADIENE	3.91E-05	8.21E-05	1.03E-05	3.60E-04	8.21E-05
Acetaldehyde	7.67E-04	1.61E-03	2.03E-04	7.05E-03	1.61E-03
Acrolein	9.25E-05	1.94E-04	2.45E-05	8.51E-04	1.94E-04
Benzene	9.33E-04	1.96E-03	2.47E-04	8.58E-03	1.96E-03
Formaldehyde	1.18E-03	2.48E-03	3.12E-04	1.09E-02	2.48E-03
Naphthalene	8.48E-05	1.78E-04	2.24E-05	7.80E-04	1.78E-04
PAH	1.68E-04	3.53E-04	4.45E-05	1.55E-03	3.53E-04
Propylene	2.58E-03	5.42E-03	6.83E-04	2.37E-02	5.42E-03
Toluene	4.09E-04	8.59E-04	1.08E-04	3.76E-03	8.59E-04
Xylenes	2.85E-04	5.99E-04	7.54E-05	2.62E-03	5.99E-04
	TOTAL	**0.014**	**0.002**	**0.06**	**0.01**

concentration: 815.5 mg/m^3

Ambient Air

Pollutant	Averaging Period	Concentration (mg/m^3) Max	Adjusted[1]	Screened[2]	Background	Total	SAAQS	% of SAAQS
SOx	3 hr	56	56		574	630	1,300	48%
	24hr	25	25		112	137	365	38%
	annual	13	3		10	13	80	16%
NO_2	annual	81	19		9	28	70	39%
PM_{10}	24hr	2	2		78	80	150	54%
	annual	1	0		23	23	50	47%
CO	1 hr	65	65		4,788	4,853	10,000	49%
	8 hr	45	45		2,651	2,696	5,000	54%

1. "Adjusted" concentrations are corrected for annual and daily operating hours = "Max" * [Operating Hours/Averaging Period (8,760; 24; 8; or 3)]
2. "Screened" NO2 concentrations adjusted using the multi-tied screening approach detailed in Supplement C of the Guidelines of Air Quality Models, Appendix W of 40 CFR 51.
3. Background data from 2003 DOH monitoring stations:
   Kihei: PM10 - 24-hr and annual
   Waikiki: CO - 1-hr
   University: CO - 8-hr
   Hilo: SO2 - 3-hr and 24-hr
   Kona: SO2 - annual
   Kapolei: NO2 - annual

SMALL ENGINE GENERATOR

Goodfellow Bros. 0242-01-CT, Minor Mod

Kihei, Maui

Nordberg LT 110 w/Caterpillar C-12 DE, serial no. BDL04410, K-151

Engine Horsepower:	425	(hp=kW*1.34)	Type of Fuel:	diesel
Maximum Design Fuel Feed Rate (gal/hr):	20.5		Sulfur Content by Weight (%):	0.50%
Maximum Heat Input (MMBTU/hr):	2.87		Fuel Heating Value (BTU/gal):	140,000
Operating Hours (hr/yr):	2,000			
Operating Hours (hr/day):	24			

Max Fuel Consumption (8,760 hr/yr):	179,580	gal
Fuel Consumption, Limited Hours:	41,000	gal

Emissions (lb/hr)= Max Heat Input x Emission Factor

Pollutant	Emission Factor (lb/MMBtu)	EMISSIONS (lb/hr)	(g/s)	Max (TPY)	Limited (TPY)
SOx	0.29	0.83	0.10	3.6	0.8
NOx	*	5.01	0.63	21.9	5.0
CO	*	1.21	0.15	5.3	1.2
TOC	*	0.14	0.02	0.6	0.1
Aldehydes	0.07	0.20	0.03	0.9	0.2
PM_{10}	*	0.11	0.01	0.5	0.1

AP-42 Section 3.3, revised 10/96

* - emission factor from Caterpillar, EPA tier II

AP-42 Section 3.3, revised 10/96

HAP	Emission Factor (lb/MMBtu)	EMISSIONS (lb/hr)	(g/s)	Max (TPY)	Limited (TPY)
1,3-BUTADIENE	3.91E-05	1.12E-04	1.41E-05	4.92E-04	1.12E-04
Acetaldehyde	7.67E-04	2.20E-03	2.77E-04	9.64E-03	2.20E-03
Acrolein	9.25E-05	2.65E-04	3.34E-05	1.16E-03	2.65E-04
Benzene	9.33E-04	2.68E-03	3.37E-04	1.17E-02	2.68E-03
Formaldehyde	1.18E-03	3.39E-03	4.27E-04	1.48E-02	3.39E-03
Naphthalene	8.48E-05	2.43E-04	3.07E-05	1.07E-03	2.43E-04
PAH	1.68E-04	4.82E-04	6.08E-05	2.11E-03	4.82E-04
Propylene	2.58E-03	7.40E-03	9.33E-04	3.24E-02	7.40E-03
Toluene	4.09E-04	1.17E-03	1.48E-04	5.14E-03	1.17E-03
Xylenes	2.85E-04	8.18E-04	1.03E-04	3.58E-03	8.18E-04
	TOTAL	**0.019**	**0.002**	**0.08**	**0.02**

concentration: 933.6 mg/m^3

Ambient Air

Pollutant	Averaging Period	Concentration (mg/m^3) Max	Adjusted[1]	Screened[2]	Background	Total	SAAQS	% of SAAQS
SOx	3 hr	88	88		574	662	1,300	51%
	24hr	39	39		112	151	365	41%
	annual	20	4		10	14	80	18%
NO_2	annual	118	27		9	36	70	51%
PM_{10}	24hr	5	5		78	83	150	55%
	annual	3	1		23	24	50	47%
CO	1 hr	142	142		4,788	4,930	10,000	49%
	8 hr	100	100		2,651	2,751	5,000	55%

1. "Adjusted" concentrations are corrected for annual and daily operating hours = "Max" * [Operating Hours/Averaging Period (8,760; 24; 8; or 3)]
2. "Screened" NO2 concentrations adjusted using the multi-tied screening approach detailed in Supplement C of the Guidelines of Air Quality Models, Appendix W of 40 CFR 51.
3. Background data from 2003 DOH monitoring stations:
   - Kihei: PM10 - 24-hr and annual
   - Waikiki: CO - 1-hr
   - University: CO - 8-hr
   - Hilo: SO2 - 3-hr and 24-hr
   - Kona: SO2 - annual
   - Kapolei: NO2 - annual

SMALL ENGINE GENERATOR

Goodfellow Bros. 0242-01-CT, Minor Mod

Kihei, Maui

Nordberg LT 300 w/Caterpillar C-15 DE, serial no. BEM04965, K-152

Engine Horsepower:	525	(hp=kW*1.34)	Type of Fuel:	diesel
Maximum Design Fuel Feed Rate (gal/hr):		25.7	Sulfur Content by Weight (%):	0.50%
Maximum Heat Input (MMBTU/hr):		3.60	Fuel Heating Value (BTU/gal):	140,000
Operating Hours (hr/yr):	2,000			
Operating Hours (hr/day):	24			

Max Fuel Consumption (8,760 hr/yr): 225,132 gal
Fuel Consumption, Limited Hours: 51,400 gal

Emissions (lb/hr)= Max Heat Input x Emission Factor

Pollutant	Emission Factor (lb/MMBtu)	EMISSIONS (lb/hr)	(g/s)	Max (TPY)	Limited (TPY)
SOx	0.29	1.04	0.13	4.6	1.0
NOx	*	7.20	0.91	31.5	7.2
CO	*	0.71	0.09	3.1	0.7
TOC	*	0.09	0.01	0.4	0.1
Aldehydes	0.07	0.25	0.03	1.1	0.3
PM_{10}	*	0.08	0.01	0.4	0.1

AP-42 Section 3.3, revised 10/96

* - emission factor from Caterpillar, EPA tier II

AP-42 Section 3.3, revised 10/96

HAP	Emission Factor (lb/MMBtu)	EMISSIONS (lb/hr)	(g/s)	Max (TPY)	Limited (TPY)
1,3-BUTADIENE	3.91E-05	1.41E-04	1.77E-05	6.16E-04	1.41E-04
Acetaldehyde	7.67E-04	2.76E-03	3.48E-04	1.21E-02	2.76E-03
Acrolein	9.25E-05	3.33E-04	4.19E-05	1.46E-03	3.33E-04
Benzene	9.33E-04	3.36E-03	4.23E-04	1.47E-02	3.36E-03
Formaldehyde	1.18E-03	4.25E-03	5.35E-04	1.86E-02	4.25E-03
Naphthalene	8.48E-05	3.05E-04	3.84E-05	1.34E-03	3.05E-04
PAH	1.68E-04	6.04E-04	7.62E-05	2.65E-03	6.04E-04
Propylene	2.58E-03	9.28E-03	1.17E-03	4.07E-02	9.28E-03
Toluene	4.09E-04	1.47E-03	1.85E-04	6.45E-03	1.47E-03
Xylenes	2.85E-04	1.03E-03	1.29E-04	4.49E-03	1.03E-03
	TOTAL	**0.024**	**0.003**	**0.10**	**0.02**

concentration: 996.3 mg/m^3

Ambient Air

Pollutant	Averaging Period	Concentration (mg/m^3) Max	Adjusted[1]	Screened[2]	Background	Total	SAAQS	% of SAAQS
SOx	3 hr	118	118		574	692	1,300	53%
	24hr	52	52		112	164	365	45%
	annual	26	6		10	16	80	20%
NO_2	annual	181	41		9	50	70	72%
PM_{10}	24hr	4	4		78	82	150	55%
	annual	2	0		23	23	50	47%
CO	1 hr	89	89		4,788	4,877	10,000	49%
	8 hr	62	62		2,651	2,713	5,000	54%

1. "Adjusted" concentrations are corrected for annual and daily operating hours = "Max" * [Operating Hours/Averaging Period (8,760; 24; 8; or 3)]
2. "Screened" NO2 concentrations adjusted using the multi-tied screening approach detailed in Supplement C of the Guidelines of Air Quality Models, Appendix W of 40 CFR 51.
3. Background data from 2003 DOH monitoring stations:
   - Kihei: PM10 - 24-hr and annual
   - Waikiki: CO - 1-hr
   - University: CO - 8-hr
   - Hilo: SO2 - 3-hr and 24-hr
   - Kona: SO2 - annual
   - Kapolei: NO2 - annual