DOD/HECO-IR-5-1

Emission fee. Please show exactly how the $246,000 normalization adjustment was calculated based on the annual emission fees listed on page 2 of the response to CA-IR-183. Include all supporting calculations.

2. Please provide the forms submitted by HECO to the Hawaii Department of Health

- Kahe Inventory Report – See pages 78-91.
- Honolulu Inventory Report – See pages 92-101.
- Waiau Inventory Report – See pages 102-116.

b. The amount included in 2005 test year for emission fees is $574,000 ($820,000 * .70).

Hawaiian Electric Company, Inc. • PO Box 2750 • Honolulu, HI 96840-00(

HECO/C

April 22, 2005

Sherri-Ann Loo, Esq.
Manager
Environmental Department

Mr. Wilfred K. Nagamine
Manager, Clean Air Branch
Hawaii State Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Subject: 2004 Hawaii Emissions Inventory Reports and Annual Fee Payment
Hawaiian Electric Company, Inc. (HECO)
Kahe Generating Station (CSP No. 0240-01-C)
Honolulu Generating Station (CSP No. 0238-01-C)
Waiau Generating Station (CSP No. 0239-01-C)

Dear Mr. Nagamine:

In accordance with the Department's correspondence, dated January 6, 2005, please find the enclosed 2004 Hawaii Emissions Inventory Reports and a floppy disk with the electronic files for the subject facilities. On February 4, 2005, the Department granted written approval for an Extension of the Annual Fee Payment and Emission Summary Submittals. The total fee payment due for HECO is $841,544.41.

In addition to the 2004 Hawaii Emissions Inventory Reports are the following:

- Form F-1, 2005 Annual fee Summary for Covered Sources
- Form F-2, Supplement ___, 2005 Annual fee Summary for Covered Sources
- Check No. 64905, made to the order of, Hawaii State Dept. of Health, Clean Air Special Fund - COV, in the amount of $676,587.77.
- Check No. 64906, made to the order of, Hawaii State Dept. of Health, Clean Air Special Fund - NON, in the amount of $164,956.64.

Please call Michael Watanabe with questions at 543-4517.

Sincerely,

Enclosures
cc (w/o encl): T. Simmons

WINNER OF THE EDISON AWARD
FOR DISTINGUISHED INDUSTRY LEADERSHIP

2003 HAWAII MISSIONS INVENTORY REPORT

FORM F-1

2005 ANNUAL FEE SUMMARY FOR COVERED SOURCES

(FOR AIR POLLUTANTS EMITTED DURING CALENDAR YEAR 2004)

INPUT DATA IN YELLOW COLORED CELLS

Permit No.:	0240-01-C
Date Rec'd:	

1. FACILITY INFORMATION (Signature box to be signed by Responsible Official)

A. Facility Name:	HECO - Kahe Power Plant	B. Location:	92-200 Farrington Highway	C. Island:	Oahu
D. Mailing Address:	P.O. Box 2750	E. City: Honolulu	F. State: HI	G. Zip Code:	96840
H. Contact Person:	Michael Watanabe	I. Title:	Senior Environmental Scientist	J. Telephone No.:	(808) 543-4517
K. Responsible Official:	Thomas C. Simmons	L. Title:	VP, Power Supply Operations & Maint.	M. Telephone No.:	(808) 543-4301
N. Signature:	Thomas C. Simmons	Date:	4/11/05		

Based on the information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete

2. CALCULATED EMISSIONS [Report emissions to the nearest tenth of a ton (Line 2.B.) and total annual emis. (Line 2.C.) subject to fees without the fraction(s) of a ton]

Equipment: Unit No. or Activity No.	Air Pollutant Emissions (tons/yr)												
	Other Regulated Air Pollutants Including Hazardous Air Pollutants (please specify)												Annual Total
	TSP	PM_{10}	$PM_{2.5}$	SO_2	CO	NOx	VOC	Pb	HAPs	NH_3			
K1	149.1	113.5	89.9	1163.3	87.1	818.7	13.3	0.0	3.2	–			
K2	145	110.4	87.5	1132.4	84.7	796.7	12.9	0.0	3.1	–			
K3	155.1	118	88.6	1210.1	90.6	851.8	13.8	0.0	3.3	–			
K4	155.8	118.6	94	1216	91	855.5	13.9	0.0	3.3	–			
A. Supplement (if appl.) A	492.7	364.4	307.8	3089.9	232.2	1802.2	35.2	0.0	8.5	–			
B. Total Report Emissions	1097.7	824.9	667.8	7811.7	585.6	5124.9	89.1	0.0	21.4	–			
C. Total Emissions Subject to Fees	1,097			4,000		4,000	89					D.	9,186

3 ANNUAL FEE CALCULATION (Use the total annual emissions subject to fees calculated in Block 2.D.)

		Total Annual Emissions Subject to Fees (enter 2.D. value below)		Multiply	2004 $/TON	Multiply	CPI Index Adjustmnt (2.2% incr. '02 to '03)	Equal		Total
Fee payable to:	"Clean Air Special Fund - COV"	A.	9,186	x	40.77	x	1.022	=	B.	$382,752.51
	"Clean Air Special Fund - NON"	C.	9,186	x	9.94	x	1.022	=	D.	$93,317.63
							Total	=	E.	$476,070.14

Note: 2005 $/ton charge payable to Clean Air Special Fund - COV = $40.77 x 1.022 = $41.67/ton.
2005 $/ton charge payable to Clean Air Special Fund - NON = $9.94 x 1.022 = $10.16/ton.
If the summed amount found in 3.E is less than $500, then pay the minimum amount of $500, with a check made payable to the 'Clean Air Special Fund - COV.'
If the summed amount found in 3.E is greater than $500, then pay the fee amounts found in 3.B & 3.D with tow separate checks made payable to the 'Clean Air Special Fund - COV' & 'Clean Air Special Fund - NON,' respectively.

Permit No.:	0240-01-C
Date Rec'd:	

OVERED SOURCES
CALENDAR YEAR 2004)
CELLS

2-200 Farrington Highway	C. Island:
Supply Operations & Maint.	F. Telephone No.: (808) 543-4517
11/05	
in this document	

(tons/yr)					
lous Air Pollutants (please specify)					
VOC	Pb	HAPs	NH_3		
14.8	0.0	3.6	–		
20.4	0.0	4.9	–		
0	0.0	0.0	–		
0	0.0	0.0	–		
35.2	0.0	8.5	–		

Kahe 1 No 6 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	34,702,338	150,644	5,227,699	0.445	M	1163.2
NOX	34,702,338	150,644	5,227,699	0.313	A	818.1
CO	34,702,338	150,644	5,227,699	0.0333	A	87.0
VOC	34,702,338	150,644	5,227,699	0.00507	A	13.3
PM-PRI	34,702,338	150,644	5,227,699	0.057	A	149.0
PM-FIL	34,702,338	150,644	5,227,699	0.047	A	122.9
PM-CON	34,702,338	150,644	5,227,699	0.0100	A	26.1
PM10-PRI	34,702,338	150,644	5,227,699	0.0434	A	113.4
PM10-FIL	34,702,338	150,644	5,227,699	0.0334	A	87.3
PM25-PRI	34,702,338	150,644	5,227,699	0.0344	A	89.9
PM25-FIL	34,702,338	150,644	5,227,699	0.0244	A	63.8
Acetaldehyde	34,702,338	150,644	5,227,699		A	
Acrolein	34,702,338	150,644	5,227,699		A	
Antimony Compounds	34,702,338	150,644	5,227,699	3.50E-05	A	9.15E-02
Arsenic Compounds	34,702,338	150,644	5,227,699	8.80E-06	A	2.30E-02
Benzene	34,702,338	150,644	5,227,699	1.43E-06	A	3.73E-03
Beryllium Compounds	34,702,338	150,644	5,227,699	1.85E-07	A	4.84E-04
1,3-Butadiene	34,702,338	150,644	5,227,699		A	
Cadmium Compounds	34,702,338	150,644	5,227,699	2.65E-06	A	6.94E-03
Chromium Compounds	34,702,338	150,644	5,227,699	5.63E-06	A	1.47E-02
Cobalt Compounds	34,702,338	150,644	5,227,699	4.01E-05	A	1.05E-01
Ethylbenzene	34,702,338	150,644	5,227,699	4.24E-07	A	1.11E-03
Formaldehyde	34,702,338	150,644	5,227,699	4.07E-04	A	1.06E+00
Hydrochloric Acid	34,702,338	150,644	5,227,699		A	
Lead Compounds	34,702,338	150,644	5,227,699	1.01E-05	A	2.63E-02
Manganese Compounds	34,702,338	150,644	5,227,699	2.00E-05	A	5.23E-02
Mercury Compounds	34,702,338	150,644	5,227,699	7.53E-07	A	1.97E-03
Nickel Compounds	34,702,338	150,644	5,227,699	5.63E-04	A	1.47E+00
Naphthalene	34,702,338	150,644	5,227,699	7.53E-06	A	1.97E-02
Phosphorus	34,702,338	150,644	5,227,699	6.31E-05	A	1.65E-01
POM	34,702,338	150,644	5,227,699	8.67E-06	A	2.27E-02
Selenium Compounds	34,702,338	150,644	5,227,699	4.55E-06	A	1.19E-02
Toluene	34,702,338	150,644	5,227,699	4.13E-05	A	1.08E-01
Xylene	34,702,338	150,644	5,227,699		A	
o-Xylene	34,702,338	150,644	5,227,699	7.27E-07	A	1.90E-03

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Kahe 1 Spec Used Oil

Pollutant	Annual Fuel Use (gal/yr)	Emission Factor (lb/10^3 gal)	EF Ref	Annual Emissions (tons/yr)
SO2	25,866	10.7	A	0.138
NOX	25,866	47.0	A	0.608
CO	25,866	5.0	A	0.065
VOC	25,866	0.76	A	0.010
PM-PRI	25,866	5.39	A	0.070
PM-FIL	25,866	3.89	A	0.050
PM-CON	25,866	1.50	A	0.019
PM10-PRI	25,866	4.26	A	0.055
PM10-FIL	25,866	2.76	A	0.036
PM25-PRI	25,866	3.52	A	0.046
PM25-FIL	25,866	2.02	A	0.026
Acetaldehyde	25,866		A	
Acrolein	25,866		A	
Antimony Compounds	25,866		A	
Arsenic Compounds	25,866	1.10E-01	A	1.42E-03
Benzene	25,866		A	
Beryllium Compounds	25,866		A	
1,3-Butadiene	25,866		A	
Cadmium Compounds	25,866	9.30E-03	A	1.20E-04
Chromium Compounds	25,866	2.00E-02	A	2.59E-04
Cobalt Compounds	25,866	2.10E-04	A	2.72E-06
[illegible]	[illegible]		[illegible]	
Hydrochloric Acid	25,866	3.30E-02	A	4.27E-04
Lead Compounds	25,866	5.50E-01	A	7.11E-03
Manganese Compounds	25,866	6.80E-02	A	8.79E-04
Mercury Compounds	25,866		A	
Nickel Compounds	25,866	1.10E-02	A	1.42E-04
Naphthalene	25,866		A	
Phosphorus	25,866		A	
POM	25,866		A	
Selenium Compounds	25,866		A	
Toluene	25,866		A	
Xylene	25,866		A	
o-Xylene	25,866		A	

Notes:
M - Mass Balance
P - Permit Limit

Kahe 1 Propane

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	828	91,300	76	0.00424	M	0.0002
NOX	828	91,300	76	0.208	A	0.0079
CO	828	91,300	76	0.035	A	0.0013
VOC	828	91,300	76	0.00546	A	0.0002
PM-PRI	828	91,300	76	0.0121	A	0.0005
PM-FIL	828	91,300	76	0.00656	A	0.0002
PM-CON	828	91,300	76	0.00558824	A	0.0002
PM10-PRI	828	91,300	76	0.0121	A	0.0005
PM10-FIL	828	91,300	76	0.00656	A	0.0002
PM25-PRI	828	91,300	76	0.0121	A	0.0005
PM25-FIL	828	91,300	76	0.00656	A	0.0002
Acetaldehyde	828	91,300	76		A	
Acrolein	828	91,300	76		A	
Antimony Compounds	828	91,300	76		A	
Arsenic Compounds	828	91,300	76		A	
Benzene	828	91,300	76		A	
Beryllium Compounds	828	91,300	76		A	
1,3-Butadiene	828	91,300	76		A	
Cadmium Compounds	828	91,300	76		A	
Chromium Compounds	828	91,300	76		A	
Cobalt Compounds	828	91,300	76		A	
Ethylbenzene	828	91,300	76		A	
Formaldehyde	828	91,300	76		A	
Hydrochloric Acid	828	91,300	76		A	
Lead Compounds	828	91,300	76		A	
Manganese Compounds	828	91,300	76		A	
Mercury Compounds	828	91,300	76		A	
Nickel Compounds	828	91,300	76		A	
Naphthalene	828	91,300	76		A	
Phosphorus	828	91,300	76		A	
POM	828	91,300	76		A	
Selenium Compounds	828	91,300	76		A	
Toluene	828	91,300	76		A	
Xylene	828	91,300	76		A	
o-Xylene	828	91,300	76		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Kahe 1 Total

Pollutant	Annual Emissions No 6 Fuel Oil (tons/yr)	Spec Used Oil (tons/yr)	Propane (tons/yr)	Total (tons/yr)
SO2	1163.2	0.138	0.0002	1163.3
NOX	818.1	0.608	0.0079	818.7
CO	87	0.065	0.0013	87.1
VOC	13.3	0.010	0.0002	13.3
PM-PRI	149	0.070	0.0005	149.1
PM-FIL	122.9	0.050	0.0002	123
PM-CON	26.1	0.019	0.0002	26.1
PM10-PRI	113.4	0.055	0.0005	113.5
PM10-FIL	87.3	0.036	0.0002	87.3
PM25-PRI	89.9	0.046	0.0005	89.9
PM25-FIL	63.8	0.026	0.0002	63.8
Acetaldehyde				
Acrolein				
Antimony Compounds	9.15E-02			9.15E-02
Arsenic Compounds	2.30E-02	1.42E-03		2.44E-02
Benzene	3.73E-03			3.73E-03
Beryllium Compounds	4.84E-04			4.84E-04
1,3-Butadiene				
Cadmium Compounds	6.94E-03	1.20E-04		7.06E-03
Chromium Compounds	1.47E-02	2.59E-04		1.50E-02
Cobalt Compounds	1.05E-01	2.72E-06		1.05E-01
Ethylbenzene	1.11E-03			1.11E-03
Formaldehyde	1.06E+00			1.06E+00
Hydrochloric Acid		4.27E-04		4.27E-04
Lead Compounds	2.63E-02	7.11E-03		3.34E-02
Manganese Compounds	5.23E-02	8.79E-04		5.32E-02
Mercury Compounds	1.97E-03			1.97E-03
Nickel Compounds	1.47E+00	1.42E-04		1.47E+00
Naphthalene	1.97E-02			1.97E-02
Phosphorus	1.65E-01			1.65E-01
POM	2.27E-02			2.27E-02
Selenium Compounds	1.19E-02			1.19E-02
Toluene	1.08E-01			1.08E-01
Xylene				
o-Xylene	1.90E-03			1.90E-03
Total HAPs				3.20E+00

Kahe 2 No 6 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	33,783,269	150,644	5,089,247	0.445	M	1132.4
NOX	33,783,269	150,644	5,089,247	0.313	A	796.5
CO	33,783,269	150,644	5,089,247	0.0333	A	84.7
VOC	33,783,269	150,644	5,089,247	0.00507	A	12.9
PM-PRI	33,783,269	150,644	5,089,247	0.057	A	145.0
PM-FIL	33,783,269	150,644	5,089,247	0.047	A	119.6
PM-CON	33,783,269	150,644	5,089,247	0.0100	A	25.4
PM10-PRI	33,783,269	150,644	5,089,247	0.0434	A	110.4
PM10-FIL	33,783,269	150,644	5,089,247	0.0334	A	85.0
PM25-PRI	33,783,269	150,644	5,089,247	0.0344	A	87.5
PM25-FIL	33,783,269	150,644	5,089,247	0.0244	A	62.1
Acetaldehyde	33,783,269	150,644	5,089,247		A	
Acrolein	33,783,269	150,644	5,089,247		A	
Antimony Compounds	33,783,269	150,644	5,089,247	3.50E-05	A	8.91E-02
Arsenic Compounds	33,783,269	150,644	5,089,247	8.80E-06	A	2.24E-02
Benzene	33,783,269	150,644	5,089,247	1.43E-06	A	3.63E-03
Beryllium Compounds	33,783,269	150,644	5,089,247	1.85E-07	A	4.72E-04
1,3-Butadiene	33,783,269	150,644	5,089,247		A	
Cadmium Compounds	33,783,269	150,644	5,089,247	2.65E-06	A	6.75E-03
Chromium Compounds	33,783,269	150,644	5,089,247	5.63E-06	A	1.43E-02
Cobalt Compounds	33,783,269	150,644	5,089,247	4.01E-05	A	1.02E-01
Ethylbenzene	33,783,269	150,644	5,089,247	4.24E-07	A	1.08E-03
Formaldehyde	33,783,269	150,644	5,089,247	4.07E-04	A	1.03E+00
Hydrochloric Acid	33,783,269	150,644	5,089,247		A	
Lead Compounds	33,783,269	150,644	5,089,247	1.01E-05	A	2.56E-02
Manganese Compounds	33,783,269	150,644	5,089,247	2.00E-05	A	5.09E-02
Mercury Compounds	33,783,269	150,644	5,089,247	7.53E-07	A	1.92E-03
Nickel Compounds	33,783,269	150,644	5,089,247	5.63E-04	A	1.43E+00
Naphthalene	33,783,269	150,644	5,089,247	7.53E-06	A	1.92E-02
Phosphorus	33,783,269	150,644	5,089,247	6.31E-05	A	1.60E-01
POM	33,783,269	150,644	5,089,247	8.67E-06	A	2.21E-02
Selenium Compounds	33,783,269	150,644	5,089,247	4.55E-06	A	1.16E-02
Toluene	33,783,269	150,644	5,089,247	4.13E-05	A	1.05E-01
Xylene	33,783,269	150,644	5,089,247		A	
o-Xylene	33,783,269	150,644	5,089,247	7.27E-07	A	1.85E-03

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Kahe 2 Spec Used Oil

Pollutant	Annual Fuel Use (gal/yr)	Emission Factor (lb/10^3 gal)	EF Ref	Annual Emissions (tons/yr)
SO2	8,565	10.7	A	0.046
NOX	8,565	47.0	A	0.201
CO	8,565	5.0	A	0.021
VOC	8,565	0.76	A	0.003
PM-PRI	8,565	5.39	A	0.023
PM-FIL	8,565	3.89	A	0.017
PM-CON	8,565	1.50	A	0.006
PM10-PRI	8,565	4.26	A	0.018
PM10-FIL	8,565	2.76	A	0.012
PM25-PRI	8,565	3.52	A	0.015
PM25-FIL	8,565	2.02	A	0.009
Acetaldehyde	8,565		A	
Acrolein	8,565		A	
Antimony Compounds	8,565		A	
Arsenic Compounds	8,565	1.10E-01	A	4.71E-04
Benzene	8,565		A	
Beryllium Compounds	8,565		A	
1,3-Butadiene	8,565		A	
Cadmium Compounds	8,565	9.30E-03	A	3.98E-05
Chromium Compounds	8,565	2.00E-02	A	8.57E-05
Cobalt Compounds	8,565	2.10E-04	A	8.99E-07
Ethylbenzene	8,565		A	
Formaldehyde	8,565		A	
Hydrochloric Acid	8,565	3.30E-02	A	1.41E-04
Lead Compounds	8,565	5.50E-01	A	2.36E-03
Manganese Compounds	8,565	6.80E-02	A	2.91E-04
Mercury Compounds	8,565		A	
Nickel Compounds	8,565	1.10E-02	A	4.71E-05
Naphthalene	8,565		A	
Phosphorus	8,565		A	
POM	8,565		A	
Selenium Compounds	8,565		A	
Toluene	8,565		A	
Xylene	8,565		A	
o-Xylene	8,565		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Kahe 2 Propane

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	794	91,300	72	0.00424	M	0.0002
NOX	794	91,300	72	0.208	A	0.0075
CO	794	91,300	72	0.035	A	0.0013
VOC	794	91,300	72	0.00546	A	0.0002
PM-PRI	794	91,300	72	0.0121	A	0.0004
PM-FIL	794	91,300	72	0.00656	A	0.0002
PM-CON	794	91,300	72	0.00558824	A	0.0002
PM10-PRI	794	91,300	72	0.0121	A	0.0004
PM10-FIL	794	91,300	72	0.00656	A	0.0002
PM25-PRI	794	91,300	72	0.0121	A	0.0004
PM25-FIL	794	91,300	72	0.00656	A	0.0002
Acetaldehyde	794	91,300	72		A	
Acrolein	794	91,300	72		A	
Antimony Compounds	794	91,300	72		A	
Arsenic Compounds	794	91,300	72		A	
Benzene	794	91,300	72		A	
Beryllium Compounds	794	91,300	72		A	
1,3-Butadiene	794	91,300	72		A	
Cadmium Compounds	794	91,300	72		A	
Chromium Compounds	794	91,300	72		A	
Cobalt Compounds	794	91,300	72		A	
Ethylbenzene	794	91,300	72		A	
Formaldehyde	794	91,300	72		A	
Hydrochloric Acid	794	91,300	72		A	
Lead Compounds	794	91,300	72		A	
Manganese Compounds	794	91,300	72		A	
Mercury Compounds	794	91,300	72		A	
Nickel Compounds	794	91,300	72		A	
Naphthalene	794	91,300	72		A	
Phosphorus	794	91,300	72		A	
POM	794	91,300	72		A	
Selenium Compounds	794	91,300	72		A	
Toluene	794	91,300	72		A	
Xylene	794	91,300	72		A	
o-Xylene	794	91,300	72		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Kahe 2 Total

Pollutant	Annual Emissions No 6 Fuel Oil (tons/yr)	Spec Used Oil (tons/yr)	Propane (tons/yr)	Total (tons/yr)
SO2	1132.4	0.046	0.0002	1132.4
NOX	796.5	0.201	0.0075	796.7
CO	84.7	0.021	0.0013	84.7
VOC	12.9	0.003	0.0002	12.9
PM-PRI	145	0.023	0.0004	145
PM-FIL	119.6	0.017	0.0002	119.6
PM-CON	25.4	0.006	0.0002	25.4
PM10-PRI	110.4	0.018	0.0004	110.4
PM10-FIL	85	0.012	0.0002	85
PM25-PRI	87.5	0.015	0.0004	87.5
PM25-FIL	62.1	0.009	0.0002	62.1
Acetaldehyde				
Acrolein				
Antimony Compounds	8.91E-02			8.91E-02
Arsenic Compounds	2.24E-02	4.71E-04		2.29E-02
Benzene	3.63E-03			3.63E-03
Beryllium Compounds	4.72E-04			4.72E-04
1,3-Butadiene				
Cadmium Compounds	6.75E-03	3.98E-05		6.79E-03
Chromium Compounds	1.43E-02	8.57E-05		1.44E-02
Cobalt Compounds	1.02E-01	8.99E-07		1.02E-01
Ethylbenzene	1.08E-03			1.08E-03
Formaldehyde	1.03E+00			1.03E+00
Hydrochloric Acid		1.41E-04		1.41E-04
Lead Compounds	2.56E-02	2.36E-03		2.80E-02
Manganese Compounds	5.09E-02	2.91E-04		5.12E-02
Mercury Compounds	1.92E-03			1.92E-03
Nickel Compounds	1.43E+00	4.71E-05		1.43E+00
Naphthalene	1.92E-02			1.92E-02
Phosphorus	1.60E-01			1.60E-01
POM	2.21E-02			2.21E-02
Selenium Compounds	1.16E-02			1.16E-02
Toluene	1.05E-01			1.05E-01
Xylene				
o-Xylene	1.85E-03			1.85E-03
Total HAPs				3.11E+00

Kahe 3 No 6 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	36,096,579	150,644	5,437,733	0.445	M	1209.9
NOX	36,096,579	150,644	5,437,733	0.313	A	851.0
CO	36,096,579	150,644	5,437,733	0.0333	A	90.5
VOC	36,096,579	150,644	5,437,733	0.00507	A	13.8
PM-PRI	36,096,579	150,644	5,437,733	0.057	A	155.0
PM-FIL	36,096,579	150,644	5,437,733	0.047	A	127.8
PM-CON	36,096,579	150,644	5,437,733	0.0100	A	27.2
PM10-PRI	36,096,579	150,644	5,437,733	0.0434	A	118.0
PM10-FIL	36,096,579	150,644	5,437,733	0.0334	A	90.8
PM25-PRI	36,096,579	150,644	5,437,733	0.0326	A	88.6
PM25-FIL	36,096,579	150,644	5,437,733	0.0226	A	61.4
Acetaldehyde	36,096,579	150,644	5,437,733		A	
Acrolein	36,096,579	150,644	5,437,733		A	
Antimony Compounds	36,096,579	150,644	5,437,733	3.50E-05	A	9.52E-02
Arsenic Compounds	36,096,579	150,644	5,437,733	8.80E-06	A	2.39E-02
Benzene	36,096,579	150,644	5,437,733	1.43E-06	A	3.88E-03
Beryllium Compounds	36,096,579	150,644	5,437,733	1.85E-07	A	5.04E-04
1,3-Butadiene	36,096,579	150,644	5,437,733		A	
Cadmium Compounds	36,096,579	150,644	5,437,733	2.65E-06	A	7.21E-03
Chromium Compounds	36,096,579	150,644	5,437,733	5.63E-06	A	1.53E-02
Cobalt Compounds	36,096,579	150,644	5,437,733	4.01E-05	A	1.09E-01
Ethylbenzene	36,096,579	150,644	5,437,733	4.24E-07	A	1.15E-03
Formaldehyde	36,096,579	150,644	5,437,733	4.07E-04	A	1.11E+00
Hydrochloric Acid	36,096,579	150,644	5,437,733		A	
Lead Compounds	36,096,579	150,644	5,437,733	1.01E-05	A	2.74E-02
Manganese Compounds	36,096,579	150,644	5,437,733	2.00E-05	A	5.44E-02
Mercury Compounds	36,096,579	150,644	5,437,733	7.53E-07	A	2.05E-03
Nickel Compounds	36,096,579	150,644	5,437,733	5.63E-04	A	1.53E+00
Naphthalene	36,096,579	150,644	5,437,733	7.53E-06	A	2.05E-02
Phosphorus	36,096,579	150,644	5,437,733	6.31E-05	A	1.71E-01
POM	36,096,579	150,644	5,437,733	8.67E-06	A	2.36E-02
Selenium Compounds	36,096,579	150,644	5,437,733	4.55E-06	A	1.24E-02
Toluene	36,096,579	150,644	5,437,733	4.13E-05	A	1.12E-01
Xylene	36,096,579	150,644	5,437,733		A	
o-Xylene	36,096,579	150,644	5,437,733	7.27E-07	A	1.98E-03

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Kahe 3 No 2 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	11,206	136,415	1,529	0.033	M	0.025
NOX	11,206	136,415	1,529	0.171	A	0.131
CO	11,206	136,415	1,529	0.0357	A	0.027
VOC	11,206	136,415	1,529	0.00143	A	0.001
PM-PRI	11,206	136,415	1,529	0.0236	A	0.018
PM-FIL	11,206	136,415	1,529	0.0143	A	0.011
PM-CON	11,206	136,415	1,529	0.0093	A	0.007
PM10-PRI	11,206	136,415	1,529	0.0164	A	0.013
PM10-FIL	11,206	136,415	1,529	0.0071	A	0.005
PM25-PRI	11,206	136,415	1,529	0.0111	A	0.008
PM25-FIL	11,206	136,415	1,529	0.0018	A	0.001
Acetaldehyde	11,206	136,415	1,529		A	
Acrolein	11,206	136,415	1,529		A	
Antimony Compounds	11,206	136,415	1,529	3.75E-05	A	2.87E-05
Arsenic Compounds	11,206	136,415	1,529	9.43E-06	A	7.21E-06
Benzene	11,206	136,415	1,529	1.53E-06	A	1.17E-06
Beryllium Compounds	11,206	136,415	1,529	1.99E-07	A	1.52E-07
1,3-Butadiene	11,206	136,415	1,529		A	
Cadmium Compounds	11,206	136,415	1,529	2.84E-06	A	2.17E-06
Chromium Compounds	11,206	136,415	1,529	6.04E-06	A	4.61E-06
Cobalt Compounds	11,206	136,415	1,529	4.30E-05	A	3.29E-05
Ethylbenzene	11,206	136,415	1,529	4.54E-07	A	3.47E-07
Formaldehyde	11,206	136,415	1,529	4.36E-04	A	3.33E-04
Hydrochloric Acid	11,206	136,415	1,529		A	
Lead Compounds	11,206	136,415	1,529	1.08E-05	A	8.24E-06
Manganese Compounds	11,206	136,415	1,529	2.14E-05	A	1.64E-05
Mercury Compounds	11,206	136,415	1,529	8.07E-07	A	6.17E-07
Nickel Compounds	11,206	136,415	1,529	6.04E-04	A	4.61E-04
Naphthalene	11,206	136,415	1,529	8.07E-06	A	6.17E-06
Phosphorus	11,206	136,415	1,529	6.76E-05	A	5.16E-05
POM	11,206	136,415	1,529	9.29E-06	A	7.10E-06
Selenium Compounds	11,206	136,415	1,529	4.88E-06	A	3.73E-06
Toluene	11,206	136,415	1,529	4.43E-05	A	3.38E-05
Xylene	11,206	136,415	1,529		A	
o-Xylene	11,206	136,415	1,529	7.79E-07	A	5.95E-07

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Kahe 3 Spec Used Oil

Pollutant	Annual Fuel Use (gal/yr)	Emission Factor (lb/10^3 gal)	EF Ref	Annual Emissions (tons/yr)
SO2	26,698	10.7	A	0.143
NOX	26,698	47.0	A	0.627
CO	26,698	5.0	A	0.067
VOC	26,698	0.76	A	0.010
PM-PRI	26,698	5.39	A	0.072
PM-FIL	26,698	3.89	A	0.052
PM-CON	11,870	1.50	A	0.009
PM10-PRI	11,870	4.26	A	0.025
PM10-FIL	11,870	2.76	A	0.016
PM25-PRI	11,870	3.52	A	0.021
PM25-FIL	11,870	2.02	A	0.012
Acetaldehyde	26,698		A	
Acrolein	26,698		A	
Antimony Compounds	26,698		A	
Arsenic Compounds	26,698	1.10E-01	A	1.47E-03
Benzene	26,698		A	
Beryllium Compounds	26,698		A	
1,3-Butadiene	26,698		A	
Cadmium Compounds	26,698	9.30E-03	A	1.24E-04
Chromium Compounds	26,698	2.00E-02	A	2.67E-04
Cobalt Compounds	26,698	2.10E-04	A	2.80E-06
Ethylbenzene	26,698		A	
Formaldehyde	26,698		A	
Hydrochloric Acid	26,698	3.30E-02	A	4.41E-04
Lead Compounds	26,698	5.50E-01	A	7.34E-03
Manganese Compounds	26,698	6.80E-02	A	9.08E-04
Mercury Compounds	26,698		A	
Nickel Compounds	26,698	1.10E-02	A	1.47E-04
Naphthalene	26,698		A	
Phosphorus	26,698		A	
POM	26,698		A	
Selenium Compounds	26,698		A	
Toluene	26,698		A	
Xylene	26,698		A	
o-Xylene	26,698		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Kahe 3 Total

Pollutant	Annual Emissions No 6 Fuel Oil (tons/yr)	No 2 Fuel Oil (tons/yr)	Spec Used Oil (tons/yr)	Total (tons/yr)
SO2	1209.9	0.025	0.143	1210.1
NOX	851	0.131	0.627	851.8
CO	90.5	0.027	0.067	90.6
VOC	13.8	0.001	0.010	13.8
PM-PRI	155	0.018	0.072	155.1
PM-FIL	127.8	0.011	0.052	127.9
PM-CON	27.2	0.007	0.009	27.2
PM10-PRI	118	0.013	0.025	118
PM10-FIL	90.8	0.005	0.016	90.8
PM25-PRI	88.6	0.008	0.021	88.6
PM25-FIL	61.4	0.001	0.012	61.4
Acetaldehyde				
Acrolein				
Antimony Compounds	9.52E-02	2.87E-05		9.52E-02
Arsenic Compounds	2.39E-02	7.21E-06	1.47E-03	2.54E-02
Benzene	3.88E-03	1.17E-06		3.88E-03
Beryllium Compounds	5.04E-04	1.52E-07		5.04E-04
1,3-Butadiene				
Cadmium Compounds	7.21E-03	2.17E-06	1.24E-04	7.34E-03
Chromium Compounds	1.53E-02	4.61E-06	2.67E-04	1.56E-02
Cobalt Compounds	1.09E-01	3.29E-05	2.80E-06	1.09E-01
Ethylbenzene	1.15E-03	3.47E-07		1.15E-03
Formaldehyde	1.11E+00	3.33E-04		1.11E+00
Hydrochloric Acid			4.41E-04	4.41E-04
Lead Compounds	2.74E-02	8.24E-06	7.34E-03	3.47E-02
Manganese Compounds	5.44E-02	1.64E-05	9.08E-04	5.53E-02
Mercury Compounds	2.05E-03	6.17E-07		2.05E-03
Nickel Compounds	1.53E+00	4.61E-04	1.47E-04	1.53E+00
Naphthalene	2.05E-02	6.17E-06		2.05E-02
Phosphorus	1.71E-01	5.16E-05		1.72E-01
POM	2.36E-02	7.10E-06		2.36E-02
Selenium Compounds	1.24E-02	3.73E-06		1.24E-02
Toluene	1.12E-01	3.38E-05		1.12E-01
Xylene				
o-Xylene	1.98E-03	5.95E-07		1.98E-03
Total HAPs				3.33E+00

Kahe 4 No 6 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	36,277,792	150,644	5,465,032	0.445	M	1216.0
NOX	36,277,792	150,644	5,465,032	0.313	A	855.3
CO	36,277,792	150,644	5,465,032	0.0333	A	91.0
VOC	36,277,792	150,644	5,465,032	0.00507	A	13.9
PM-PRI	36,277,792	150,644	5,465,032	0.057	A	155.8
PM-FIL	36,277,792	150,644	5,465,032	0.047	A	128.4
PM-CON	36,277,792	150,644	5,465,032	0.0100	A	27.3
PM10-PRI	36,277,792	150,644	5,465,032	0.0434	A	118.6
PM10-FIL	36,277,792	150,644	5,465,032	0.0334	A	91.3
PM25-PRI	36,277,792	150,644	5,465,032	0.0344	A	94.0
PM25-FIL	36,277,792	150,644	5,465,032	0.0244	A	66.7
Acetaldehyde	36,277,792	150,644	5,465,032		A	
Acrolein	36,277,792	150,644	5,465,032		A	
Antimony Compounds	36,277,792	150,644	5,465,032	3.50E-05	A	9.56E-02
Arsenic Compounds	36,277,792	150,644	5,465,032	8.80E-06	A	2.40E-02
Benzene	36,277,792	150,644	5,465,032	1.43E-06	A	3.90E-03
Beryllium Compounds	36,277,792	150,644	5,465,032	1.85E-07	A	5.06E-04
1,3-Butadiene	36,277,792	150,644	5,465,032		A	
Cadmium Compounds	36,277,792	150,644	5,465,032	2.65E-06	A	7.25E-03
Chromium Compounds	36,277,792	150,644	5,465,032	5.63E-06	A	1.54E-02
Cobalt Compounds	36,277,792	150,644	5,465,032	4.01E-05	A	1.10E-01
Ethylbenzene	36,277,792	150,644	5,465,032	4.24E-07	A	1.16E-03
Formaldehyde	36,277,792	150,644	5,465,032	4.07E-04	A	1.11E+00
Hydrochloric Acid	36,277,792	150,644	5,465,032		A	
Lead Compounds	36,277,792	150,644	5,465,032	1.01E-05	A	2.75E-02
Manganese Compounds	36,277,792	150,644	5,465,032	2.00E-05	A	5.47E-02
Mercury Compounds	36,277,792	150,644	5,465,032	7.53E-07	A	2.06E-03
Nickel Compounds	36,277,792	150,644	5,465,032	5.63E-04	A	1.54E+00
Naphthalene	36,277,792	150,644	5,465,032	7.53E-06	A	2.06E-02
Phosphorus	36,277,792	150,644	5,465,032	6.31E-05	A	1.72E-01
POM	36,277,792	150,644	5,465,032	8.67E-06	A	2.37E-02
Selenium Compounds	36,277,792	150,644	5,465,032	4.55E-06	A	1.24E-02
Toluene	36,277,792	150,644	5,465,032	4.13E-05	A	1.13E-01
Xylene	36,277,792	150,644	5,465,032		A	
o-Xylene	36,277,792	150,644	5,465,032	7.27E-07	A	1.99E-03

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Kahe 4 No 2 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	10,855	136,415	1,481	0.033	M	0.024
NOX	10,855	136,415	1,481	0.171	A	0.127
CO	10,855	136,415	1,481	0.0357	A	0.026
VOC	10,855	136,415	1,481	0.00143	A	0.001
PM-PRI	10,855	136,415	1,481	0.0236	A	0.017
PM-FIL	10,855	136,415	1,481	0.0143	A	0.011
PM-CON	10,855	136,415	1,481	0.00929	A	0.007
PM10-PRI	10,855	136,415	1,481	0.0164	A	0.012
PM10-FIL	10,855	136,415	1,481	0.00714	A	0.005
PM25-PRI	10,855	136,415	1,481	0.0111	A	0.008
PM25-FIL	10,855	136,415	1,481	0.00179	A	0.001
Acetaldehyde	10,855	136,415	1,481		A	
Acrolein	10,855	136,415	1,481		A	
Antimony Compounds	10,855	136,415	1,481	3.75E-05	A	2.78E-05
Arsenic Compounds	10,855	136,415	1,481	9.43E-06	A	6.98E-06
Benzene	10,855	136,415	1,481	1.53E-06	A	1.13E-06
Beryllium Compounds	10,855	136,415	1,481	1.99E-07	A	1.47E-07
1,3-Butadiene	10,855	136,415	1,481		A	
Cadmium Compounds	10,855	136,415	1,481	2.84E-06	A	2.10E-06
Chromium Compounds	10,855	136,415	1,481	6.04E-06	A	4.47E-06
Cobalt Compounds	10,855	136,415	1,481	4.30E-05	A	3.18E-05
Ethylbenzene	10,855	136,415	1,481	4.54E-07	A	3.36E-07
Formaldehyde	10,855	136,415	1,481	4.36E-04	A	3.23E-04
Hydrochloric Acid	10,855	136,415	1,481		A	
Lead Compounds	10,855	136,415	1,481	1.08E-05	A	7.99E-06
Manganese Compounds	10,855	136,415	1,481	2.14E-05	A	1.59E-05
Mercury Compounds	10,855	136,415	1,481	8.07E-07	A	5.98E-07
Nickel Compounds	10,855	136,415	1,481	6.04E-04	A	4.47E-04
Naphthalene	10,855	136,415	1,481	8.07E-06	A	5.98E-06
Phosphorus	10,855	136,415	1,481	6.76E-05	A	5.00E-05
POM	10,855	136,415	1,481	9.29E-06	A	6.88E-06
Selenium Compounds	10,855	136,415	1,481	4.88E-06	A	3.61E-06
Toluene	10,855	136,415	1,481	4.43E-05	A	3.28E-05
Xylene	10,855	136,415	1,481		A	
o-Xylene	10,855	136,415	1,481	7.79E-07	A	5.76E-07

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Kahe 4 Spec Used Oil

Pollutant	Annual Fuel Use (gal/yr)	Emission Factor (lb/10^3 gal)	EF Ref	Annual Emissions (tons/yr)
SO2	4,380	10.7	A	0.023
NOX	4,380	47.0	A	0.103
CO	4,380	5.0	A	0.011
VOC	4,380	0.76	A	0.002
PM-PRI	4,380	5.39	A	0.012
PM-FIL	4,380	3.89	A	0.009
PM-CON	4,380	1.50	A	0.003
PM10-PRI	4,380	4.26	A	0.009
PM10-FIL	4,380	2.76	A	0.006
PM25-PRI	4,380	3.52	A	0.008
PM25-FIL	4,380	2.02	A	0.004
Acetaldehyde	4,380		A	
Acrolein	4,380		A	
Antimony Compounds	4,380		A	
Arsenic Compounds	4,380	1.10E-01	A	2.41E-04
Benzene	4,380		A	
Beryllium Compounds	4,380		A	
1,3-Butadiene	4,380		A	
Cadmium Compounds	4,380	9.30E-03	A	2.04E-05
Chromium Compounds	4,380	2.00E-02	A	4.38E-05
Cobalt Compounds	4,380	2.10E-04	A	4.60E-07
Ethylbenzene	4,380		A	
Formaldehyde	4,380		A	
Hydrochloric Acid	4,380	3.30E-02	A	7.23E-05
Lead Compounds	4,380	5.50E-01	A	1.20E-03
Manganese Compounds	4,380	6.80E-02	A	1.49E-04
Mercury Compounds	4,380		A	
Nickel Compounds	4,380	1.10E-02	A	2.41E-05
Naphthalene	4,380		A	
Phosphorus	4,380		A	
POM	4,380		A	
Selenium Compounds	4,380		A	
Toluene	4,380		A	
Xylene	4,380		A	
o-Xylene	4,380		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Kahe 4 Total

Pollutant	Annual Emissions No 6 Fuel Oil (tons/yr)	No 2 Fuel Oil (tons/yr)	Spec Used Oil (tons/yr)	Total (tons/yr)
SO2	1216	0.024	0.023	1216
NOX	855.3	0.127	0.103	855.5
CO	91	0.026	0.011	91
VOC	13.9	0.001	0.002	13.9
PM-PRI	155.8	0.017	0.012	155.8
PM-FIL	128.4	0.011	0.009	128.4
PM-CON	27.3	0.007	0.003	27.3
PM10-PRI	118.6	0.012	0.009	118.6
PM10-FIL	91.3	0.005	0.006	91.3
PM25-PRI	94	0.008	0.008	94
PM25-FIL	66.7	0.001	0.004	66.7
Acetaldehyde				
Acrolein				
Antimony Compounds	9.56E-02	2.78E-05		9.57E-02
Arsenic Compounds	2.40E-02	6.98E-06	2.41E-04	2.43E-02
Benzene	3.90E-03	1.13E-06		3.90E-03
Beryllium Compounds	5.06E-04	1.47E-07		5.07E-04
1,3-Butadiene				
Cadmium Compounds	7.25E-03	2.10E-06	2.04E-05	7.27E-03
Chromium Compounds	1.54E-02	4.47E-06	4.38E-05	1.54E-02
Cobalt Compounds	1.10E-01	3.18E-05	4.60E-07	1.10E-01
Ethylbenzene	1.16E-03	3.36E-07		1.16E-03
Formaldehyde	1.11E+00	3.23E-04		1.11E+00
Hydrochloric Acid			7.23E-05	7.23E-05
Lead Compounds	2.75E-02	7.99E-06	1.20E-03	2.87E-02
Manganese Compounds	5.47E-02	1.59E-05	1.49E-04	5.48E-02
Mercury Compounds	2.06E-03	5.98E-07		2.06E-03
Nickel Compounds	1.54E+00	4.47E-04	2.41E-05	1.54E+00
Naphthalene	2.06E-02	5.98E-06		2.06E-02
Phosphorus	1.72E-01	5.00E-05		1.72E-01
POM	2.37E-02	6.88E-06		2.37E-02
Selenium Compounds	1.24E-02	3.61E-06		1.24E-02
Toluene	1.13E-01	3.28E-05		1.13E-01
Xylene				
o-Xylene	1.99E-03	5.76E-07		1.99E-03
Total HAPs				3.34E+00

Kahe 5 No 6 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	38,637,062	150,644	5,820,442	0.445	M	1295.0
NOX	38,637,062	150,644	5,820,442	0.313	A	910.9
CO	38,637,062	150,644	5,820,442	0.0333	A	96.9
VOC	38,637,062	150,644	5,820,442	0.00507	A	14.8
PM-PRI	38,637,062	150,644	5,820,442	0.057	A	165.9
PM-FIL	38,637,062	150,644	5,820,442	0.047	A	136.8
PM-CON	38,637,062	150,644	5,820,442	0.0100	A	29.1
PM10-PRI	38,637,062	150,644	5,820,442	0.0434	A	126.3
PM10-FIL	38,637,062	150,644	5,820,442	0.0334	A	97.2
PM25-PRI	38,637,062	150,644	5,820,442	0.0344	A	100.1
PM25-FIL	38,637,062	150,644	5,820,442	0.0244	A	71.0
Acetaldehyde	38,637,062	150,644	5,820,442		A	
Acrolein	38,637,062	150,644	5,820,442		A	
Antimony Compounds	38,637,062	150,644	5,820,442	3.50E-05	A	1.02E-01
Arsenic Compounds	38,637,062	150,644	5,820,442	8.80E-06	A	2.56E-02
Benzene	38,637,062	150,644	5,820,442	1.43E-06	A	4.15E-03
Beryllium Compounds	38,637,062	150,644	5,820,442	1.85E-07	A	5.39E-04
1,3-Butadiene	38,637,062	150,644	5,820,442		A	
Cadmium Compounds	38,637,062	150,644	5,820,442	2.65E-06	A	7.72E-03
Chromium Compounds	38,637,062	150,644	5,820,442	5.63E-06	A	1.64E-02
Cobalt Compounds	38,637,062	150,644	5,820,442	4.01E-05	A	1.17E-01
Ethylbenzene	38,637,062	150,644	5,820,442	4.24E-07	A	1.23E-03
Formaldehyde	38,637,062	150,644	5,820,442	4.07E-04	A	1.18E+00
Hydrochloric Acid	38,637,062	150,644	5,820,442		A	
Lead Compounds	38,637,062	150,644	5,820,442	1.01E-05	A	2.93E-02
Manganese Compounds	38,637,062	150,644	5,820,442	2.00E-05	A	5.82E-02
Mercury Compounds	38,637,062	150,644	5,820,442	7.53E-07	A	2.19E-03
Nickel Compounds	38,637,062	150,644	5,820,442	5.63E-04	A	1.64E+00
Naphthalene	38,637,062	150,644	5,820,442	7.53E-06	A	2.19E-02
Phosphorus	38,637,062	150,644	5,820,442	6.31E-05	A	1.84E-01
POM	38,637,062	150,644	5,820,442	8.67E-06	A	2.52E-02
Selenium Compounds	38,637,062	150,644	5,820,442	4.55E-06	A	1.33E-02
Toluene	38,637,062	150,644	5,820,442	4.13E-05	A	1.20E-01
Xylene	38,637,062	150,644	5,820,442		A	
o-Xylene	38,637,062	150,644	5,820,442	7.27E-07	A	2.11E-03

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Kahe 5 No 2 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	12,239	136,415	1,670	0.033	M	0.028
NOX	12,239	136,415	1,670	0.171	A	0.143
CO	12,239	136,415	1,670	0.0357	A	0.030
VOC	12,239	136,415	1,670	0.00143	A	0.001
PM-PRI	12,239	136,415	1,670	0.0236	A	0.020
PM-FIL	12,239	136,415	1,670	0.0143	A	0.012
PM-CON	12,239	136,415	1,670	0.00929	A	0.008
PM10-PRI	12,239	136,415	1,670	0.0164	A	0.014
PM10-FIL	12,239	136,415	1,670	0.00714	A	0.006
PM25-PRI	12,239	136,415	1,670	0.0111	A	0.009
PM25-FIL	12,239	136,415	1,670	0.00179	A	0.001
Acetaldehyde	12,239	136,415	1,670		A	
Acrolein	12,239	136,415	1,670		A	
Antimony Compounds	12,239	136,415	1,670	3.75E-05	A	3.13E-05
Arsenic Compounds	12,239	136,415	1,670	9.43E-06	A	7.87E-06
Benzene	12,239	136,415	1,670	1.53E-06	A	1.28E-06
Beryllium Compounds	12,239	136,415	1,670	1.99E-07	A	1.66E-07
1,3-Butadiene	12,239	136,415	1,670		A	
Cadmium Compounds	12,239	136,415	1,670	2.84E-06	A	2.37E-06
Chromium Compounds	12,239	136,415	1,670	6.04E-06	A	5.04E-06
Cobalt Compounds	12,239	136,415	1,670	4.30E-05	A	3.59E-05
Ethylbenzene	12,239	136,415	1,670	4.54E-07	A	3.79E-07
Formaldehyde	12,239	136,415	1,670	4.36E-04	A	3.64E-04
Hydrochloric Acid	12,239	136,415	1,670		A	
Lead Compounds	12,239	136,415	1,670	1.08E-05	A	9.00E-06
Manganese Compounds	12,239	136,415	1,670	2.14E-05	A	1.79E-05
Mercury Compounds	12,239	136,415	1,670	8.07E-07	A	6.74E-07
Nickel Compounds	12,239	136,415	1,670	6.04E-04	A	5.04E-04
Naphthalene	12,239	136,415	1,670	8.07E-06	A	6.74E-06
Phosphorus	12,239	136,415	1,670	6.76E-05	A	5.64E-05
POM	12,239	136,415	1,670	9.29E-06	A	7.75E-06
Selenium Compounds	12,239	136,415	1,670	4.88E-06	A	4.07E-06
Toluene	12,239	136,415	1,670	4.43E-05	A	3.70E-05
Xylene	12,239	136,415	1,670		A	
o-Xylene	12,239	136,415	1,670	7.79E-07	A	6.50E-07

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Kahe 5 Total

Pollutant	Annual Emissions No 6 Fuel Oil (tons/yr)	No 2 Fuel Oil (tons/yr)	Total (tons/yr)
SO2	1295	0.028	1295
NOX	910.9	0.143	911
CO	96.9	0.030	96.9
VOC	14.8	0.001	14.8
PM-PRI	165.9	0.020	165.9
PM-FIL	136.8	0.012	136.8
PM-CON	29.1	0.008	29.1
PM10-PRI	126.3	0.014	126.3
PM10-FIL	97.2	0.006	97.2
PM25-PRI	100.1	0.009	100.1
PM25-FIL	71	0.001	71
Acetaldehyde			
Acrolein			
Antimony Compounds	1.02E-01	3.13E-05	1.02E-01
Arsenic Compounds	2.56E-02	7.87E-06	2.56E-02
Benzene	4.15E-03	1.28E-06	4.15E-03
Beryllium Compounds	5.39E-04	1.66E-07	5.40E-04
1,3-Butadiene			
Cadmium Compounds	7.72E-03	2.37E-06	7.72E-03
Chromium Compounds	1.64E-02	5.04E-06	1.64E-02
Cobalt Compounds	1.17E-01	3.59E-05	1.17E-01
Ethylbenzene	1.23E-03	3.79E-07	1.23E-03
Formaldehyde	1.18E+00	3.64E-04	1.18E+00
Hydrochloric Acid			
Lead Compounds	2.93E-02	9.00E-06	2.93E-02
Manganese Compounds	5.82E-02	1.79E-05	5.82E-02
Mercury Compounds	2.19E-03	6.74E-07	2.19E-03
Nickel Compounds	1.64E+00	5.04E-04	1.64E+00
Naphthalene	2.19E-02	6.74E-06	2.19E-02
Phosphorus	1.84E-01	5.64E-05	1.84E-01
POM	2.52E-02	7.75E-06	2.52E-02
Selenium Compounds	1.33E-02	4.07E-06	1.33E-02
Toluene	1.20E-01	3.70E-05	1.20E-01
Xylene			
o-Xylene	2.11E-03	6.50E-07	2.12E-03
Total HAPs			3.55E+00

Kahe 6 No 6 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	53,550,431	150,644	8,067,051	0.445	M	1794.9
NOX	53,550,431	150,644	8,067,051	0.22	S	887.4
CO	53,550,431	150,644	8,067,051	0.0333	A	134.3
VOC	53,550,431	150,644	8,067,051	0.00507	A	20.4
PM-PRI	53,550,431	150,644	8,067,051	0.081	S	326.7
PM-FIL	53,550,431	150,644	8,067,051	0.075	S	302.5
PM-CON	53,550,431	150,644	8,067,051	0.0060	S	24.2
PM10-PRI	53,550,431	150,644	8,067,051	0.0590	S	238.0
PM10-FIL	53,550,431	150,644	8,067,051	0.0533	S	215.0
PM25-PRI	53,550,431	150,644	8,067,051	0.0450	S	181.5
PM25-FIL	53,550,431	150,644	8,067,051	0.0390	S	157.3
Acetaldehyde	53,550,431	150,644	8,067,051		A	
Acrolein	53,550,431	150,644	8,067,051		A	
Antimony Compounds	53,550,431	150,644	8,067,051	3.50E-05	A	1.41E-01
Arsenic Compounds	53,550,431	150,644	8,067,051	8.80E-06	A	3.55E-02
Benzene	53,550,431	150,644	8,067,051	1.43E-06	A	5.75E-03
Beryllium Compounds	53,550,431	150,644	8,067,051	1.85E-07	A	7.48E-04
1,3-Butadiene	53,550,431	150,644	8,067,051		A	
Cadmium Compounds	53,550,431	150,644	8,067,051	2.65E-06	A	1.07E-02
Chromium Compounds	53,550,431	150,644	8,067,051	5.63E-06	A	2.27E-02
Cobalt Compounds	53,550,431	150,644	8,067,051	4.01E-05	A	1.62E-01
Ethylbenzene	53,550,431	150,644	8,067,051	4.24E-07	A	1.71E-03
Formaldehyde	53,550,431	150,644	8,067,051	4.07E-04	A	1.64E+00
Hydrochloric Acid	53,550,431	150,644	8,067,051		A	
Lead Compounds	53,550,431	150,644	8,067,051	1.01E-05	A	4.06E-02
Manganese Compounds	53,550,431	150,644	8,067,051	2.00E-05	A	8.07E-02
Mercury Compounds	53,550,431	150,644	8,067,051	7.53E-07	A	3.04E-03
Nickel Compounds	53,550,431	150,644	8,067,051	5.63E-04	A	2.27E+00
Naphthalene	53,550,431	150,644	8,067,051	7.53E-06	A	3.04E-02
Phosphorus	53,550,431	150,644	8,067,051	6.31E-05	A	2.54E-01
POM	53,550,431	150,644	8,067,051	8.67E-06	A	3.50E-02
Selenium Compounds	53,550,431	150,644	8,067,051	4.55E-06	A	1.84E-02
Toluene	53,550,431	150,644	8,067,051	4.13E-05	A	1.67E-01
Xylene	53,550,431	150,644	8,067,051		A	
o-Xylene	53,550,431	150,644	8,067,051	7.27E-07	A	2.93E-03

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Kahe 6 No 2 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	15,083	136,415	2,058	0.033	M	0.034
NOX	15,083	136,415	2,058	0.22	S	0.226
CO	15,083	136,415	2,058	0.0357	A	0.037
VOC	15,083	136,415	2,058	0.00143	A	0.001
PM-PRI	15,083	136,415	2,058	0.081	S	0.083
PM-FIL	15,083	136,415	2,058	0.075	S	0.077
PM-CON	15,083	136,415	2,058	0.006	S	0.006
PM10-PRI	15,083	136,415	2,058	0.059	S	0.061
PM10-FIL	15,083	136,415	2,058	0.0533	S	0.055
PM25-PRI	15,083	136,415	2,058	0.045	S	0.046
PM25-FIL	15,083	136,415	2,058	0.039	S	0.040
Acetaldehyde	15,083	136,415	2,058		A	
Acrolein	15,083	136,415	2,058		A	
Antimony Compounds	15,083	136,415	2,058	3.75E-05	A	3.86E-05
Arsenic Compounds	15,083	136,415	2,058	9.43E-06	A	9.70E-06
Benzene	15,083	136,415	2,058	1.53E-06	A	1.57E-06
Beryllium Compounds	15,083	136,415	2,058	1.99E-07	A	2.04E-07
1,3-Butadiene	15,083	136,415	2,058		A	
Cadmium Compounds	15,083	136,415	2,058	2.84E-06	A	2.92E-06
Chromium Compounds	15,083	136,415	2,058	6.04E-06	A	6.21E-06
Cobalt Compounds	15,083	136,415	2,058	4.30E-05	A	4.42E-05
Ethylbenzene	15,083	136,415	2,058	4.54E-07	A	4.67E-07
Formaldehyde	15,083	136,415	2,058	4.36E-04	A	4.48E-04
Hydrochloric Acid	15,083	136,415	2,058		A	
Lead Compounds	15,083	136,415	2,058	1.08E-05	A	1.11E-05
Manganese Compounds	15,083	136,415	2,058	2.14E-05	A	2.20E-05
Mercury Compounds	15,083	136,415	2,058	8.07E-07	A	8.30E-07
Nickel Compounds	15,083	136,415	2,058	6.04E-04	A	6.21E-04
Naphthalene	15,083	136,415	2,058	8.07E-06	A	8.30E-06
Phosphorus	15,083	136,415	2,058	6.76E-05	A	6.95E-05
POM	15,083	136,415	2,058	9.29E-06	A	9.55E-06
Selenium Compounds	15,083	136,415	2,058	4.88E-06	A	5.02E-06
Toluene	15,083	136,415	2,058	4.43E-05	A	4.56E-05
Xylene	15,083	136,415	2,058		A	
o-Xylene	15,083	136,415	2,058	7.79E-07	A	8.01E-07

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Kahe 6 Total

Pollutant	Annual Emissions No 6 Fuel Oil (tons/yr)	No 2 Fuel Oil (tons/yr)	Total (tons/yr)
SO2	1794.9	0.034	1794.9
NOX	887.4	0.226	887.6
CO	134.3	0.037	134.3
VOC	20.4	0.001	20.4
PM-PRI	326.7	0.083	326.8
PM-FIL	302.5	0.077	302.6
PM-CON	24.2	0.006	24.2
PM10-PRI	238	0.061	238.1
PM10-FIL	215	0.055	215.1
PM25-PRI	181.5	0.046	181.5
PM25-FIL	157.3	0.040	157.3
Acetaldehyde			
Acrolein			
Antimony Compounds	1.41E-01	3.86E-05	1.41E-01
Arsenic Compounds	3.55E-02	9.70E-06	3.55E-02
Benzene	5.75E-03	1.57E-06	5.76E-03
Beryllium Compounds	7.48E-04	2.04E-07	7.48E-04
1,3-Butadiene			
Cadmium Compounds	1.07E-02	2.92E-06	1.07E-02
Chromium Compounds	2.27E-02	6.21E-06	2.27E-02
Cobalt Compounds	1.62E-01	4.42E-05	1.62E-01
Ethylbenzene	1.71E-03	4.67E-07	1.71E-03
Formaldehyde	1.64E+00	4.48E-04	1.64E+00
Hydrochloric Acid			
Lead Compounds	4.06E-02	1.11E-05	4.06E-02
Manganese Compounds	8.07E-02	2.20E-05	8.07E-02
Mercury Compounds	3.04E-03	8.30E-07	3.04E-03
Nickel Compounds	2.27E+00	6.21E-04	2.27E+00
Naphthalene	3.04E-02	8.30E-06	3.04E-02
Phosphorus	2.54E-01	6.95E-05	2.54E-01
POM	3.50E-02	9.55E-06	3.50E-02
Selenium Compounds	1.84E-02	5.02E-06	1.84E-02
Toluene	1.67E-01	4.56E-05	1.67E-01
Xylene			
o-Xylene	2.93E-03	8.01E-07	2.93E-03
Total HAPs			4.93E+00

Kahe A

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	8,271	136,415	1,128	0.033	M	0.019
NOX	8,271	136,415	1,128	3.2	A	1.81
CO	8,271	136,415	1,128	0.85	A	0.480
VOC	8,271	136,415	1,128	0.0819	A	0.0462
PM-PRI	8,271	136,415	1,128	0.0697	A	0.0393
PM-FIL	8,271	136,415	1,128	0.062	A	0.0350
PM-CON	8,271	136,415	1,128	0.0077	A	0.0043
PM10-PRI	8,271	136,415	1,128	0.0573	A	0.0323
PM10-FIL	8,271	136,415	1,128	0.0496	A	0.0280
PM25-PRI	8,271	136,415	1,128	0.0556	A	0.0314
PM25-FIL	8,271	136,415	1,128	0.0479	A	0.0270
Acetaldehyde	8,271	136,415	1,128	2.52E-05	A	1.42E-05
Acrolein	8,271	136,415	1,128	7.88E-06	A	4.45E-06
Antimony Compounds	8,271	136,415	1,128		A	
Arsenic Compounds	8,271	136,415	1,128	1.10E-05	A	6.21E-06
Benzene	8,271	136,415	1,128	7.76E-04	A	4.38E-04
Beryllium Compounds	8,271	136,415	1,128	3.10E-07	A	1.75E-07
1,3-Butadiene	8,271	136,415	1,128	1.60E-05	A	9.03E-06
Cadmium Compounds	8,271	136,415	1,128	4.80E-06	A	2.71E-06
Chromium Compounds	8,271	136,415	1,128	1.10E-05	A	6.21E-06
Cobalt Compounds	8,271	136,415	1,128		A	
Ethylbenzene	8,271	136,415	1,128		A	
Formaldehyde	8,271	136,415	1,128	7.89E-05	A	4.45E-05
Hydrochloric Acid	8,271	136,415	1,128		A	
Lead Compounds	8,271	136,415	1,128	1.40E-05	A	7.90E-06
Manganese Compounds	8,271	136,415	1,128	7.90E-04	A	4.46E-04
Mercury Compounds	8,271	136,415	1,128	1.20E-06	A	6.77E-07
Nickel Compounds	8,271	136,415	1,128	4.60E-06	A	2.60E-06
Naphthalene	8,271	136,415	1,128	1.30E-04	A	7.33E-05
Phosphorus	8,271	136,415	1,128		A	
POM	8,271	136,415	1,128	2.12E-04	A	1.20E-04
Selenium Compounds	8,271	136,415	1,128	2.50E-05	A	1.41E-05
Toluene	8,271	136,415	1,128	2.81E-04	A	1.59E-04
Xylene	8,271	136,415	1,128	1.93E-04	A	1.09E-04
o-Xylene	8,271	136,415	1,128		A	
Total HAPs						1.46E-03

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Kahe B

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	8,444	136,415	1,152	0.033	M	0.019
NOX	8,444	136,415	1,152	3.2	A	1.84
CO	8,444	136,415	1,152	0.85	A	0.490
VOC	8,444	136,415	1,152	0.0819	A	0.0472
PM-PRI	8,444	136,415	1,152	0.0697	A	0.0401
PM-FIL	8,444	136,415	1,152	0.062	A	0.0357
PM-CON	8,444	136,415	1,152	0.0077	A	0.0044
PM10-PRI	8,444	136,415	1,152	0.0573	A	0.0330
PM10-FIL	8,444	136,415	1,152	0.0496	A	0.0286
PM25-PRI	8,444	136,415	1,152	0.0556	A	0.0320
PM25-FIL	8,444	136,415	1,152	0.0479	A	0.0276
Acetaldehyde	8,444	136,415	1,152	2.52E-05	A	1.45E-05
Acrolein	8,444	136,415	1,152	7.88E-06	A	4.54E-06
Antimony Compounds	8,444	136,415	1,152		A	
Arsenic Compounds	8,444	136,415	1,152	1.10E-05	A	6.34E-06
Benzene	8,444	136,415	1,152	7.76E-04	A	4.47E-04
Beryllium Compounds	8,444	136,415	1,152	3.10E-07	A	1.79E-07
1,3-Butadiene	8,444	136,415	1,152	1.60E-05	A	9.22E-06
Cadmium Compounds	8,444	136,415	1,152	4.80E-06	A	2.76E-06
Chromium Compounds	8,444	136,415	1,152	1.10E-05	A	6.34E-06
Cobalt Compounds	8,444	136,415	1,152		A	
Ethylbenzene	8,444	136,415	1,152		A	
Formaldehyde	8,444	136,415	1,152	7.89E-05	A	4.54E-05
Hydrochloric Acid	8,444	136,415	1,152		A	
Lead Compounds	8,444	136,415	1,152	1.40E-05	A	8.06E-06
Manganese Compounds	8,444	136,415	1,152	7.90E-04	A	4.55E-04
Mercury Compounds	8,444	136,415	1,152	1.20E-06	A	6.91E-07
Nickel Compounds	8,444	136,415	1,152	4.60E-06	A	2.65E-06
Naphthalene	8,444	136,415	1,152	1.30E-04	A	7.49E-05
Phosphorus	8,444	136,415	1,152		A	
POM	8,444	136,415	1,152	2.12E-04	A	1.22E-04
Selenium Compounds	8,444	136,415	1,152	2.50E-05	A	1.44E-05
Toluene	8,444	136,415	1,152	2.81E-04	A	1.62E-04
Xylene	8,444	136,415	1,152	1.93E-04	A	1.11E-04
o-Xylene	8,444	136,415	1,152		A	
Total HAPs						1.49E-03

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Summary

Pollutant	Annual Emissions (tons/year)								
	Kahe 1	Kahe 2	Kahe 3	Kahe 4	Kahe 5	Kahe 6	Kahe A	Kahe B	Total
SO2	1163.3	1132.4	1210.1	1216.0	1295.0	1794.9	0.02	0.02	7,811.7
NOX	818.7	796.7	851.8	855.5	911.0	887.6	1.81	1.84	5,124.9
CO	87.1	84.7	90.6	91.0	96.9	134.3	0.48	0.49	585.6
VOC	13.3	12.9	13.8	13.9	14.8	20.4	0.05	0.05	89.2
PM-PRI	149.1	145.0	155.1	155.8	165.9	326.8	0.04	0.04	1,097.8
PM-FIL	123.0	119.6	127.9	128.4	136.8	302.6	0.03	0.04	938.4
PM-CON	26.1	25.4	27.2	27.3	29.1	24.2	0.00	0.00	159.3
PM10-PRI	113.5	110.4	118.0	118.6	126.3	238.1	0.03	0.03	825.0
PM10-FIL	87.3	85.0	90.8	91.3	97.2	215.1	0.03	0.03	666.8
PM25-PRI	89.9	87.5	88.6	94.0	100.1	181.5	0.03	0.03	641.7
PM25-FIL	63.8	62.1	61.4	66.7	71.0	157.3	0.03	0.03	482.4
Acetaldehyde							1.42E-05	1.45E-05	0.00003
Acrolein							4.45E-06	4.54E-06	0.00001
Antimony Compounds	9.15E-02	8.91E-02	9.52E-02	9.57E-02	1.02E-01	1.41E-01			0.6145
Arsenic Compounds	2.44E-02	2.29E-02	2.54E-02	2.43E-02	2.56E-02	3.55E-02	6.21E-06	6.34E-06	0.1581
Benzene	3.73E-03	3.63E-03	3.88E-03	3.90E-03	4.15E-03	5.76E-03	4.38E-04	4.47E-04	0.0259
Beryllium Compounds	4.84E-04	4.72E-04	5.04E-04	5.07E-04	5.40E-04	7.48E-04	1.75E-07	1.79E-07	0.0033
1,3-Butadiene							9.03E-06	9.22E-06	0.0000
Cadmium Compounds	7.06E-03	6.79E-03	7.34E-03	7.27E-03	7.72E-03	1.07E-02	2.71E-06	2.76E-06	0.0469
Chromium Compounds	1.50E-02	1.44E-02	1.56E-02	1.54E-02	1.64E-02	2.27E-02	6.21E-06	6.34E-06	0.0996
Cobalt Compounds	1.05E-01	1.02E-01	1.09E-01	1.10E-01	1.17E-01	1.62E-01			0.7046
Ethylbenzene	1.11E-03	1.08E-03	1.15E-03	1.16E-03	1.23E-03	1.71E-03			0.0074
Formaldehyde	1.06E+00	1.03E+00	1.11E+00	1.11E+00	1.18E+00	1.64E+00	4.45E-05	4.54E-05	7.1400
Hydrochloric Acid	4.27E-04	1.41E-04	4.41E-04	7.23E-05					0.0011
Lead Compounds	3.34E-02	2.80E-02	3.47E-02	2.87E-02	2.93E-02	4.06E-02	7.90E-06	8.06E-06	0.1948
Manganese Compounds	5.32E-02	5.12E-02	5.53E-02	5.48E-02	5.82E-02	8.07E-02	4.46E-04	4.55E-04	0.3543
Mercury Compounds	1.97E-03	1.92E-03	2.05E-03	2.06E-03	2.19E-03	3.04E-03	6.77E-07	6.91E-07	0.0132
Nickel Compounds	1.47E+00	1.43E+00	1.53E+00	1.54E+00	1.64E+00	2.27E+00	2.60E-06	2.65E-06	9.8909
Naphthalene	1.97E-02	1.92E-02	2.05E-02	2.06E-02	2.19E-02	3.04E-02	7.33E-05	7.49E-05	0.1324
Phosphorus	1.65E-01	1.60E-01	1.72E-01	1.72E-01	1.84E-01	2.54E-01			1.1073
POM	2.27E-02	2.21E-02	2.36E-02	2.37E-02	2.52E-02	3.50E-02	1.20E-04	1.22E-04	0.1524
Selenium Compounds	1.19E-02	1.16E-02	1.24E-02	1.24E-02	1.33E-02	1.84E-02	1.41E-05	1.44E-05	0.0800
Toluene	1.08E-01	1.05E-01	1.12E-01	1.13E-01	1.20E-01	1.67E-01	1.59E-04	1.62E-04	0.7260
Xylene							1.09E-04	1.11E-04	0.0002
o-Xylene	1.90E-03	1.85E-03	1.98E-03	1.99E-03	2.12E-03	2.93E-03			0.0128
Total HAPS	3.20E+00	3.11E+00	3.33E+00	3.34E+00	3.55E+00	4.93E+00	1.46E-03	1.49E-03	21.5

2004 HAWAII EMISSIONS INVENTORY REPORT
FACILITY GENERAL INFORMATION FORM

FIPS State-County-Facility ID: 1500300500

DATA REPRESENTATIVE OF JANUARY 1, 2004 - DECEMBER 31, 2004
(Form instructions are located on the Facility General Information Form Instructions)

1) Facility Name: HECO - Honolulu Generating Station

2) Permit No(s).: 0238-01-C

3) Physical Facility Address:

Street: 170 Ala Moana Blvd.

City: Honolulu Zip Code: 96813

4) Emissions Inventory Contact Person Information:

Contact Name:	Phone # + ext:	Fax #	Internet (E-mail) Address:
Michael Watanabe	(808) 543-4517	(808) 543-4511	michael.watanabe@heco.com
Mailing Address:	**Mailing City:**	**State:**	**Zip Code:**
P.O. Box 2750	Honolulu	HI	96840

5) Identify CERR source type (CERR thresholds found on the first page of the General Instructions):
(select one) Type A: _____ Type B: X Neither: _____

6) SIC Code (Primary / Secondary): 4911 / _____ 7) NAICS Code: 221112

8) Principal Product: Electrical Generation

9) Facility UTM coordinates (m): Horizontal (x): 617550 (Easting (m)) Vertical (y): 2356600 (Northing (m))

Zone: 4 (Zone 4 or 5) Datum: Old Hawaiian (e.g., NAD 83, NAD 27, or Old Hawaiian)

10) When the 2003 Hawaii Emissions Inventory Report has been completed, please sign and date below.

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Department of Health as public record.

Signature: Thomas C. Simmons

Name: Thomas C. Simmons Date: 4/11/05
Responsible Official

Title: VP, Power Supply Operations & Maint.

Permit No.:	0238-01-C
Date Rec'd:	

FORM F-1
. FEE SUMMARY FOR COVERED SOURCES
NTS EMITTED DURING CALENDAR YEAR 2004)
DATA IN YELLOW COLORED CELLS
sponsible Official)

B. Location:	170 Ala Moana Blvd.	C. Island:	Oahu
E. City: Honolulu	F. State: HI	G. Zip Code:	96840
I. Title:	Senior Environmental Scientist	J. Telephone No.:	(808) 543-4517
L. Title:	VP, Power Supply Operations & Maint.	M. Telephone No.:	(808) 543-4301
Date:	4/11/05		

the statements and information in this document

enth of a ton (Line 2.B.) and total annual emis. (Line 2.C.) subject to fees without the fraction(s) of a ton]

Air Pollutant Emissions (tons/yr)									
ir Pollutants Including Hazardous Air Pollutants (please specify)									Annual Total
SO_2	CO	NOx	VOC	Pb	HAPs	NH_3			
215.7	16.4	153.8	2.5	0.0	0.6	–			
324.8	24.6	231.6	3.7	0.0	0.9	–			
540.5	41	385.4	6.2	0	1.5	–			
540		385	6						D. 1000

s subject to fees calculated in Block 2.D.)

issions Subject to Fees	Multiply	2004	Multiply	CPI Index Adjustmnt	Equal		Total
enter 2.D. value below)		$/TON		(2.2% incr. '02 to '03)			
1000	x	40.77	x	1.022	=	B.	$41,666.94
1000	x	9.94	x	1.022	=	D.	$10,158.68
				Total	=	E.	$51,825.62

$40.77 x 1.022 = $41.67/ton.
$9.94 x 1.022 = $10.16/ton.
the minimum amount of $500, with a check made payable to the 'Clean Air Special Fund - COV.'
pay the fee amounts found in 3.B & 3.D with tow separate checks made payable to the
d - NON,' respectively.

Honolulu 8 No 6 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	6,436,536	152,596	982,190	0.439	M	215.6
NOX	6,436,536	152,596	982,190	0.313	A	153.7
CO	6,436,536	152,596	982,190	0.0333	A	16.4
VOC	6,436,536	152,596	982,190	0.00507	A	2.5
PM-PRI	6,436,536	152,596	982,190	0.0564	A	27.7
PM-FIL	6,436,536	152,596	982,190	0.0464	A	22.8
PM-CON	6,436,536	152,596	982,190	0.0100	A	4.9
PM10-PRI	6,436,536	152,596	982,190	0.0429	A	21.1
PM10-FIL	6,436,536	152,596	982,190	0.0329	A	16.2
PM25-PRI	6,436,536	152,596	982,190	0.0341	A	16.7
PM25-FIL	6,436,536	152,596	982,190	0.0241	A	11.8
Acetaldehyde	6,436,536	152,596	982,190		A	
Acrolein	6,436,536	152,596	982,190		A	
Antimony Compounds	6,436,536	152,596	982,190	3.50E-05	A	1.72E-02
Arsenic Compounds	6,436,536	152,596	982,190	8.80E-06	A	4.32E-03
Benzene	6,436,536	152,596	982,190	1.43E-06	A	7.01E-04
Beryllium Compounds	6,436,536	152,596	982,190	1.85E-07	A	9.10E-05
1,3-Butadiene	6,436,536	152,596	982,190		A	
Cadmium Compounds	6,436,536	152,596	982,190	2.65E-06	A	1.30E-03
Chromium Compounds	6,436,536	152,596	982,190	5.63E-06	A	2.77E-03
Cobalt Compounds	6,436,536	152,596	982,190	4.01E-05	A	1.97E-02
Ethylbenzene	6,436,536	152,596	982,190	4.24E-07	A	2.08E-04
Formaldehyde	6,436,536	152,596	982,190	4.07E-04	A	2.00E-01
Hydrochloric Acid	6,436,536	152,596	982,190		A	
Lead Compounds	6,436,536	152,596	982,190	1.01E-05	A	4.94E-03
Manganese Compounds	6,436,536	152,596	982,190	2.00E-05	A	9.82E-03
Mercury Compounds	6,436,536	152,596	982,190	7.53E-07	A	3.70E-04
Nickel Compounds	6,436,536	152,596	982,190	5.63E-04	A	2.77E-01
Naphthalene	6,436,536	152,596	982,190	7.53E-06	A	3.70E-03
Phosphorus	6,436,536	152,596	982,190	6.31E-05	A	3.10E-02
POM	6,436,536	152,596	982,190	8.67E-06	A	4.26E-03
Selenium Compounds	6,436,536	152,596	982,190	4.55E-06	A	2.24E-03
Toluene	6,436,536	152,596	982,190	4.13E-05	A	2.03E-02
Xylene	6,436,536	152,596	982,190		A	
o-Xylene	6,436,536	152,596	982,190	7.27E-07	A	3.57E-04

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Honolulu 8 No 2 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	6,705	136,897	918	0.185	M	0.0849
NOX	6,705	136,897	918	0.171	A	0.0785
CO	6,705	136,897	918	0.0357	A	0.0164
VOC	6,705	136,897	918	0.00143	A	0.0007
PM-PRI	6,705	136,897	918	0.0236	A	0.0108
PM-FIL	6,705	136,897	918	0.0143	A	0.0066
PM-CON	6,705	136,897	918	0.00929	A	0.0043
PM10-PRI	6,705	136,897	918	0.0164	A	0.0075
PM10-FIL	6,705	136,897	918	0.00714	A	0.0033
PM25-PRI	6,705	136,897	918	0.0111	A	0.0051
PM25-FIL	6,705	136,897	918	0.00179	A	0.0008
Acetaldehyde	6,705	136,897	918		A	
Acrolein	6,705	136,897	918		A	
Antimony Compounds	6,705	136,897	918	3.75E-05	A	1.72E-05
Arsenic Compounds	6,705	136,897	918	9.43E-06	A	4.33E-06
Benzene	6,705	136,897	918	1.53E-06	A	7.02E-07
Beryllium Compounds	6,705	136,897	918	1.99E-07	A	9.11E-08
1,3-Butadiene	6,705	136,897	918		A	
Cadmium Compounds	6,705	136,897	918	2.84E-06	A	1.30E-06
Chromium Compounds	6,705	136,897	918	6.04E-06	A	2.77E-06
Cobalt Compounds	6,705	136,897	918	4.30E-05	A	1.97E-05
Ethylbenzene	6,705	136,897	918	4.54E-07	A	2.08E-07
Formaldehyde	6,705	136,897	918	4.36E-04	A	2.00E-04
Hydrochloric Acid	6,705	136,897	918		A	
Lead Compounds	6,705	136,897	918	1.08E-05	A	4.95E-06
Manganese Compounds	6,705	136,897	918	2.14E-05	A	9.83E-06
Mercury Compounds	6,705	136,897	918	8.07E-07	A	3.70E-07
Nickel Compounds	6,705	136,897	918	6.04E-04	A	2.77E-04
Naphthalene	6,705	136,897	918	8.07E-06	A	3.70E-06
Phosphorus	6,705	136,897	918	6.76E-05	A	3.10E-05
POM	6,705	136,897	918	9.29E-06	A	4.26E-06
Selenium Compounds	6,705	136,897	918	4.88E-06	A	2.24E-06
Toluene	6,705	136,897	918	4.43E-05	A	2.03E-05
Xylene	6,705	136,897	918		A	
o-Xylene	6,705	136,897	918	7.79E-07	A	3.57E-07

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Honolulu 8 Spec Used Oil

Pollutant	Annual Fuel Use (gal/yr)	Emission Factor (lb/10³ gal)	EF Ref	Annual Emissions (tons/yr)
SO2	89	11.0	A	0.00049
NOX	89	47	A	0.00208
CO	89	5.0	A	0.00022
VOC	89	0.76	A	0.00003
PM-PRI	89	5.36	A	0.00024
PM-FIL	89	3.86	A	0.00017
PM-CON	89	1.50	A	0.00007
PM10-PRI	89	4.24	A	0.00019
PM10-FIL	89	2.74	A	0.00012
PM25-PRI	89	3.51	A	0.00016
PM25-FIL	89	2.01	A	0.00009
Acetaldehyde	89		A	
Acrolein	89		A	
Antimony Compounds	89		A	
Arsenic Compounds	89	1.10E-01	A	4.88E-06
Benzene	89		A	
Beryllium Compounds	89		A	
1,3-Butadiene	89		A	
Cadmium Compounds	89	9.30E-03	A	4.12E-07
Chromium Compounds	89	2.00E-02	A	8.87E-07
Cobalt Compounds	89	2.10E-04	A	9.31E-09
Ethylbenzene	89		A	
Formaldehyde	89		A	
Hydrochloric Acid	89	3.30E-02	A	1.46E-06
Lead Compounds	89	5.50E-01	A	2.44E-05
Manganese Compounds	89	6.80E-02	A	3.02E-06
Mercury Compounds	89		A	
Nickel Compounds	89	1.10E-02	A	4.88E-07
Naphthalene	89		A	
Phosphorus	89		A	
POM	89		A	
Selenium Compounds	89		A	
Toluene	89		A	
Xylene	89		A	
o-Xylene	89		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Honolulu 8 Propane

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	1,435	91,300	131	0.00424	M	0.00028
NOX	1,435	91,300	131	0.208	A	0.01363
CO	1,435	91,300	131	0.035	A	0.00229
VOC	1,435	91,300	131	0.00546	A	0.00036
PM-PRI	1,435	91,300	131	0.0121	A	0.00079
PM-FIL	1,435	91,300	131	0.00656	A	0.00043
PM-CON	1,435	91,300	131	0.00558824	A	0.00037
PM10-PRI	1,435	91,300	131	0.0121	A	0.00079
PM10-FIL	1,435	91,300	131	0.00656	A	0.00043
PM25-PRI	1,435	91,300	131	0.0121	A	0.00079
PM25-FIL	1,435	91,300	131	0.00656	A	0.00043
Acetaldehyde	1,435	91,300	131		A	
Acrolein	1,435	91,300	131		A	
Antimony Compounds	1,435	91,300	131		A	
Arsenic Compounds	1,435	91,300	131		A	
Benzene	1,435	91,300	131		A	
Beryllium Compounds	1,435	91,300	131		A	
1,3-Butadiene	1,435	91,300	131		A	
Cadmium Compounds	1,435	91,300	131		A	
Chromium Compounds	1,435	91,300	131		A	
Cobalt Compounds	1,435	91,300	131		A	
Ethylbenzene	1,435	91,300	131		A	
Formaldehyde	1,435	91,300	131		A	
Hydrochloric Acid	1,435	91,300	131		A	
Lead Compounds	1,435	91,300	131		A	
Manganese Compounds	1,435	91,300	131		A	
Mercury Compounds	1,435	91,300	131		A	
Nickel Compounds	1,435	91,300	131		A	
Naphthalene	1,435	91,300	131		A	
Phosphorus	1,435	91,300	131		A	
POM	1,435	91,300	131		A	
Selenium Compounds	1,435	91,300	131		A	
Toluene	1,435	91,300	131		A	
Xylene	1,435	91,300	131		A	
o-Xylene	1,435	91,300	131		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Honolulu 8 Total

Pollutant	Annual Emissions No 6 Fuel Oil (tons/yr)	No 2 Fuel Oil (tons/yr)	Spec Used Oil (tons/yr)	Propane (tons/yr)	Total (tons/yr)
SO2	215.6	0.0849	0.0005	0.0003	215.7
NOX	153.7	0.0785	0.0021	0.0136	153.8
CO	16.4	0.0164	0.0002	0.0023	16.4
VOC	2.5	0.0007	0.0000	0.0004	2.5
PM-PRI	27.7	0.0108	0.0002	0.0008	27.7
PM-FIL	22.8	0.0066	0.0002	0.0004	22.8
PM-CON	4.9	0.0043	0.0001	0.0004	4.9
PM10-PRI	21.1	0.0075	0.0002	0.0008	21.1
PM10-FIL	16.2	0.0033	0.0001	0.0004	16.2
PM25-PRI	16.7	0.0051	0.0002	0.0008	16.7
PM25-FIL	11.8	0.0008	0.0001	0.0004	11.8
Acetaldehyde					
Acrolein					
Antimony Compounds	1.72E-02	1.72E-05			1.72E-02
Arsenic Compounds	4.32E-03	4.33E-06	4.88E-06		4.33E-03
Benzene	7.01E-04	7.02E-07			7.01E-04
Beryllium Compounds	9.10E-05	9.11E-08			9.11E-05
1,3-Butadiene					
Cadmium Compounds	1.30E-03	1.30E-06	4.12E-07		1.30E-03
Chromium Compounds	2.77E-03	2.77E-06	8.87E-07		2.77E-03
Cobalt Compounds	1.97E-02	1.97E-05	9.31E-09		1.97E-02
Ethylbenzene	2.08E-04	2.08E-07			2.08E-04
Formaldehyde	2.00E-01	2.00E-04			2.00E-01
Hydrochloric Acid			1.46E-06		1.46E-06
Lead Compounds	4.94E-03	4.95E-06	2.44E-05		4.97E-03
Manganese Compounds	9.82E-03	9.83E-06	3.02E-06		9.83E-03
Mercury Compounds	3.70E-04	3.70E-07			3.70E-04
Nickel Compounds	2.77E-01	2.77E-04	4.88E-07		2.77E-01
Naphthalene	3.70E-03	3.70E-06			3.70E-03
Phosphorus	3.10E-02	3.10E-05			3.10E-02
POM	4.26E-03	4.26E-06			4.26E-03
Selenium Compounds	2.24E-03	2.24E-06			2.24E-03
Toluene	2.03E-02	2.03E-05			2.03E-02
Xylene					
o-Xylene	3.57E-04	3.57E-07			3.57E-04
Total HAPs					6.00E-01

Honolulu 9 No 6 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	9,693,909	152,596	1,479,252	0.439	M	324.7
NOX	9,693,909	152,596	1,479,252	0.313	A	231.5
CO	9,693,909	152,596	1,479,252	0.0333	A	24.6
VOC	9,693,909	152,596	1,479,252	0.00507	A	3.7
PM-PRI	9,693,909	152,596	1,479,252	0.0564	A	41.7
PM-FIL	9,693,909	152,596	1,479,252	0.0464	A	34.3
PM-CON	9,693,909	152,596	1,479,252	0.0100	A	7.4
PM10-PRI	9,693,909	152,596	1,479,252	0.0429	A	31.7
PM10-FIL	9,693,909	152,596	1,479,252	0.0329	A	24.3
PM25-PRI	9,693,909	152,596	1,479,252	0.0341	A	25.2
PM25-FIL	9,693,909	152,596	1,479,252	0.0241	A	17.8
Acetaldehyde	9,693,909	152,596	1,479,252		A	
Acrolein	9,693,909	152,596	1,479,252		A	
Antimony Compounds	9,693,909	152,596	1,479,252	3.50E-05	A	2.59E-02
Arsenic Compounds	9,693,909	152,596	1,479,252	8.80E-06	A	6.51E-03
Benzene	9,693,909	152,596	1,479,252	1.43E-06	A	1.06E-03
Beryllium Compounds	9,693,909	152,596	1,479,252	1.85E-07	A	1.37E-04
1,3-Butadiene	9,693,909	152,596	1,479,252		A	
Cadmium Compounds	9,693,909	152,596	1,479,252	2.65E-06	A	1.96E-03
Chromium Compounds	9,693,909	152,596	1,479,252	5.63E-06	A	4.17E-03
Cobalt Compounds	9,693,909	152,596	1,479,252	4.01E-05	A	2.97E-02
Ethylbenzene	9,693,909	152,596	1,479,252	4.24E-07	A	3.14E-04
Formaldehyde	9,693,909	152,596	1,479,252	4.07E-04	A	3.01E-01
Hydrochloric Acid	9,693,909	152,596	1,479,252		A	
Lead Compounds	9,693,909	152,596	1,479,252	1.01E-05	A	7.45E-03
Manganese Compounds	9,693,909	152,596	1,479,252	2.00E-05	A	1.48E-02
Mercury Compounds	9,693,909	152,596	1,479,252	7.53E-07	A	5.57E-04
Nickel Compounds	9,693,909	152,596	1,479,252	5.63E-04	A	4.17E-01
Naphthalene	9,693,909	152,596	1,479,252	7.53E-06	A	5.57E-03
Phosphorus	9,693,909	152,596	1,479,252	6.31E-05	A	4.66E-02
POM	9,693,909	152,596	1,479,252	8.67E-06	A	6.41E-03
Selenium Compounds	9,693,909	152,596	1,479,252	4.55E-06	A	3.37E-03
Toluene	9,693,909	152,596	1,479,252	4.13E-05	A	3.06E-02
Xylene	9,693,909	152,596	1,479,252		A	
o-Xylene	9,693,909	152,596	1,479,252	7.27E-07	A	5.37E-04

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Honolulu 9 No 2 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	10,098	136,897	1,382	0.185	M	0.1279
NOX	10,098	136,897	1,382	0.171	A	0.1182
CO	10,098	136,897	1,382	0.0357	A	0.0247
VOC	10,098	136,897	1,382	0.00143	A	0.0010
PM-PRI	10,098	136,897	1,382	0.0236	A	0.0163
PM-FIL	10,098	136,897	1,382	0.0143	A	0.0099
PM-CON	10,098	136,897	1,382	0.00929	A	0.0064
PM10-PRI	10,098	136,897	1,382	0.0164	A	0.0113
PM10-FIL	10,098	136,897	1,382	0.00714	A	0.0049
PM25-PRI	10,098	136,897	1,382	0.0111	A	0.0077
PM25-FIL	10,098	136,897	1,382	0.00179	A	0.0012
Acetaldehyde	10,098	136,897	1,382		A	
Acrolein	10,098	136,897	1,382		A	
Antimony Compounds	10,098	136,897	1,382	3.75E-05	A	2.59E-05
Arsenic Compounds	10,098	136,897	1,382	9.43E-06	A	6.52E-06
Benzene	10,098	136,897	1,382	1.53E-06	A	1.06E-06
Beryllium Compounds	10,098	136,897	1,382	1.99E-07	A	1.37E-07
1,3-Butadiene	10,098	136,897	1,382		A	
Cadmium Compounds	10,098	136,897	1,382	2.84E-06	A	1.96E-06
Chromium Compounds	10,098	136,897	1,382	6.04E-06	A	4.17E-06
Cobalt Compounds	10,098	136,897	1,382	4.30E-05	A	2.97E-05
Ethylbenzene	10,098	136,897	1,382	4.54E-07	A	3.14E-07
Formaldehyde	10,098	136,897	1,382	4.36E-04	A	3.01E-04
Hydrochloric Acid	10,098	136,897	1,382		A	
Lead Compounds	10,098	136,897	1,382	1.08E-05	A	7.46E-06
Manganese Compounds	10,098	136,897	1,382	2.14E-05	A	1.48E-05
Mercury Compounds	10,098	136,897	1,382	8.07E-07	A	5.58E-07
Nickel Compounds	10,098	136,897	1,382	6.04E-04	A	4.17E-04
Naphthalene	10,098	136,897	1,382	8.07E-06	A	5.58E-06
Phosphorus	10,098	136,897	1,382	6.76E-05	A	4.67E-05
POM	10,098	136,897	1,382	9.29E-06	A	6.42E-06
Selenium Compounds	10,098	136,897	1,382	4.88E-06	A	3.37E-06
Toluene	10,098	136,897	1,382	4.43E-05	A	3.06E-05
Xylene	10,098	136,897	1,382		A	
o-Xylene	10,098	136,897	1,382	7.79E-07	A	5.38E-07

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Honolulu 9 Spec Used Oil

Pollutant	Annual Fuel Use (gal/yr)	Emission Factor (lb/10³ gal)	EF Ref	Annual Emissions (tons/yr)
SO2	151	11.0	A	0.00083
NOX	151	47	A	0.00356
CO	151	5.0	A	0.00038
VOC	151	0.76	A	0.00006
PM-PRI	151	5.36	A	0.00041
PM-FIL	151	3.86	A	0.00029
PM-CON	151	1.5	A	0.00011
PM10-PRI	151	4.24	A	0.00032
PM10-FIL	151	2.74	A	0.00021
PM25-PRI	151	3.51	A	0.00027
PM25-FIL	151	2.01	A	0.00015
Acetaldehyde	151		A	
Acrolein	151		A	
Antimony Compounds	151		A	
Arsenic Compounds	151	1.10E-01	A	8.32E-06
Benzene	151		A	
Beryllium Compounds	151		A	
1,3-Butadiene	151		A	
Cadmium Compounds	151	9.30E-03	A	7.04E-07
Chromium Compounds	151	2.00E-02	A	1.51E-06
Cobalt Compounds	151	2.10E-04	A	1.59E-08
Ethylbenzene	151		A	
Formaldehyde	151		A	
Hydrochloric Acid	151	3.30E-02	A	2.50E-06
Lead Compounds	151	5.50E-01	A	4.16E-05
Manganese Compounds	151	6.80E-02	A	5.14E-06
Mercury Compounds	151		A	
Nickel Compounds	151	1.10E-02	A	8.32E-07
Naphthalene	151		A	
Phosphorus	151		A	
POM	151		A	
Selenium Compounds	151		A	
Toluene	151		A	
Xylene	151		A	
o-Xylene	151		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Honolulu 9 Propane

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	2,280	91,300	208	0.00424	M	0.00044
NOX	2,280	91,300	208	0.208	A	0.02165
CO	2,280	91,300	208	0.035	A	0.00364
VOC	2,280	91,300	208	0.00546	A	0.00057
PM-PRI	2,280	91,300	208	0.0121	A	0.00126
PM-FIL	2,280	91,300	208	0.00656	A	0.00068
PM-CON	2,280	91,300	208	0.00558824	A	0.00058
PM10-PRI	2,280	91,300	208	0.0121	A	0.00126
PM10-FIL	2,280	91,300	208	0.00656	A	0.00068
PM25-PRI	2,280	91,300	208	0.0121	A	0.00126
PM25-FIL	2,280	91,300	208	0.00656	A	0.00068
Acetaldehyde	2,280	91,300	208		A	
Acrolein	2,280	91,300	208		A	
Antimony Compounds	2,280	91,300	208		A	
Arsenic Compounds	2,280	91,300	208		A	
Benzene	2,280	91,300	208		A	
Beryllium Compounds	2,280	91,300	208		A	
1,3-Butadiene	2,280	91,300	208		A	
Cadmium Compounds	2,280	91,300	208		A	
Chromium Compounds	2,280	91,300	208		A	
Cobalt Compounds	2,280	91,300	208		A	
Ethylbenzene	2,280	91,300	208		A	
Formaldehyde	2,280	91,300	208		A	
Hydrochloric Acid	2,280	91,300	208		A	
Lead Compounds	2,280	91,300	208		A	
Manganese Compounds	2,280	91,300	208		A	
Mercury Compounds	2,280	91,300	208		A	
Nickel Compounds	2,280	91,300	208		A	
Naphthalene	2,280	91,300	208		A	
Phosphorus	2,280	91,300	208		A	
POM	2,280	91,300	208		A	
Selenium Compounds	2,280	91,300	208		A	
Toluene	2,280	91,300	208		A	
Xylene	2,280	91,300	208		A	
o-Xylene	2,280	91,300	208		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Honolulu 9 Total

Pollutant	Annual Emissions No 6 Fuel Oil (tons/yr)	No 2 Fuel Oil (tons/yr)	Spec Used Oil (tons/yr)	Propane (tons/yr)	Total (tons/yr)
SO2	324.7	0.1279	0.0008	0.0004	324.8
NOX	231.5	0.1182	0.0036	0.0216	231.6
CO	24.6	0.0247	0.0004	0.0036	24.6
VOC	3.7	0.0010	0.0001	0.0006	3.7
PM-PRI	41.7	0.0163	0.0004	0.0013	41.7
PM-FIL	34.3	0.0099	0.0003	0.0007	34.3
PM-CON	7.4	0.0064	0.0001	0.0006	7.4
PM10-PRI	31.7	0.0113	0.0003	0.0013	31.7
PM10-FIL	24.3	0.0049	0.0002	0.0007	24.3
PM25-PRI	25.2	0.0077	0.0003	0.0013	25.2
PM25-FIL	17.8	0.0012	0.0002	0.0007	17.8
Acetaldehyde					
Acrolein					
Antimony Compounds	2.59E-02	2.59E-05			2.59E-02
Arsenic Compounds	6.51E-03	6.52E-06	8.32E-06		6.52E-03
Benzene	1.06E-03	1.06E-06			1.06E-03
Beryllium Compounds	1.37E-04	1.37E-07			1.37E-04
1,3-Butadiene					
Cadmium Compounds	1.96E-03	1.96E-06	7.04E-07		1.97E-03
Chromium Compounds	4.17E-03	4.17E-06	1.51E-06		4.17E-03
Cobalt Compounds	2.97E-02	2.97E-05	1.59E-08		2.97E-02
Ethylbenzene	3.14E-04	3.14E-07			3.14E-04
Formaldehyde	3.01E-01	3.01E-04			3.01E-01
Hydrochloric Acid			2.50E-06		2.50E-06
Lead Compounds	7.45E-03	7.46E-06	4.16E-05		7.49E-03
Manganese Compounds	1.48E-02	1.48E-05	5.14E-06		1.48E-02
Mercury Compounds	5.57E-04	5.58E-07			5.58E-04
Nickel Compounds	4.17E-01	4.17E-04	8.32E-07		4.17E-01
Naphthalene	5.57E-03	5.58E-06			5.58E-03
Phosphorus	4.66E-02	4.67E-05			4.67E-02
POM	6.41E-03	6.42E-06			6.42E-03
Selenium Compounds	3.37E-03	3.37E-06			3.37E-03
Toluene	3.06E-02	3.06E-05			3.06E-02
Xylene					
o-Xylene	5.37E-04	5.38E-07			5.38E-04

Summary

Pollutant	Annual Emissions		
	Honolulu 8	Honolulu 9	Total
SO2	215.7	324.8	540.5
NOX	153.8	231.6	385.4
CO	16.4	24.6	41.0
VOC	2.5	3.7	6.2
PM-PRI	27.7	41.7	69.4
PM-FIL	22.8	34.3	57.1
PM-CON	4.9	7.4	12.3
PM10-PRI	21.1	31.7	52.8
PM10-FIL	16.2	24.3	40.5
PM25-PRI	16.7	25.2	41.9
PM25-FIL	11.8	17.8	29.6
Acetaldehyde			
Acrolein			
Antimony Compounds	1.72E-02	2.59E-02	4.31E-02
Arsenic Compounds	4.33E-03	6.52E-03	1.09E-02
Benzene	7.01E-04	1.06E-03	1.76E-03
Beryllium Compounds	9.11E-05	1.37E-04	2.28E-04
1,3-Butadiene			
Cadmium Compounds	1.30E-03	1.97E-03	3.27E-03
Chromium Compounds	2.77E-03	4.17E-03	6.94E-03
Cobalt Compounds	1.97E-02	2.97E-02	4.94E-02
Ethylbenzene	2.08E-04	3.14E-04	5.22E-04
Formaldehyde	2.00E-01	3.01E-01	5.01E-01
Hydrochloric Acid	1.46E-06	2.50E-06	3.96E-06
Lead Compounds	4.97E-03	7.49E-03	1.25E-02
Manganese Compounds	9.83E-03	1.48E-02	2.46E-02
Mercury Compounds	3.70E-04	5.58E-04	9.28E-04
Nickel Compounds	2.77E-01	4.17E-01	6.94E-01
Naphthalene	3.70E-03	5.58E-03	9.28E-03
Phosphorus	3.10E-02	4.67E-02	7.77E-02
POM	4.26E-03	6.42E-03	1.07E-02
Selenium Compounds	2.24E-03	3.37E-03	5.61E-03
Toluene	2.03E-02	3.06E-02	5.09E-02
Xylene			
o-Xylene	3.57E-04	5.38E-04	8.95E-04
Total HAPS	6.00E-01	9.04E-01	1.50E+00

2004 HAWAII EMISSIONS INVENTORY REPORT
FACILITY GENERAL INFORMATION FORM

FIPS State-County-Facility ID: 1500300502

DATA REPRESENTATIVE OF JANUARY 1, 2004 - DECEMBER 31, 2004
(Form instructions are located on the Facility General Information Form Instructions)

1) Facility Name: HECO - Waiau Power Plant

2) Permit No(s).: 0239-01-C

3) Physical Facility Address:

Street: 475 Kamehameha Hwy.

City: Pearl City Zip Code: 96782

4) Emissions Inventory Contact Person Information:

Contact Name:	Phone # + ext:	Fax #	Internet (E-mail) Address:
Michael Watanabe	(808) 543-4517	(808) 543-4511	michael.watanabe@heco.com
Mailing Address:	**Mailing City:**	**State:**	**Zip Code:**
P.O. Box 2750	Honolulu	HI	96840

5) Identify CERR source type (CERR thresholds found on the first page of the General Instructions):
(select one) Type A: _____ Type B: X Neither: _____

6) SIC Code (Primary / Secondary): 4911 / _____ 7) NAICS Code: 221112

8) Principal Product: Electrical Generation

9) Facility UTM coordinates (m): Horizontal (x): 607337 (Easting (m)) Vertical (y): 2356837 (Northing (m))

Zone: 4 (Zone 4 or 5) Datum: Old Hawaiian (e.g., NAD 83, NAD 27, or Old Hawaiian)

10) When the 2003 Hawaii Emissions Inventory Report has been completed, please sign and date below.

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Department of Health as public record.

Signature: Thomas C. Simmons

Name: Thomas C. Simmons
Responsible Official

Date: 4/11/05

Title: VP, Power Supply Operations & Maint.

Permit No.:	0239-01-C
Date Rec'd:	

) SOURCES
AR YEAR 2004)

hameha Hwy.		C. Island:	Oahu
. State: HI		G. Zip Code:	96840
al Scientist		J. Telephone No.:	(808) 543-4517
operations & Maint.		M. Telephone No.:	(808) 543-4301
ument			

l emis. (Line 2.C.) subject to fees without the fraction(s) of a ton]

Pollutants (please specify)					Annual Total
Pb	HAPs	NH_3			
0.0	0.4	–			
0.0	0.8	–			
0.0	1.1	–			
0.0	1.2	–			
0.0	5.8	–			
0.0	9.3	–			
				D.	6,052

.)

2004 $/TON	Multiply	CPI Index Adjustmnt (2.2% incr. '02 to '03)	Equal		Total
40.77	x	1.022	=	B.	$252,168.32
9.94	x	1.022	=	D.	$61,480.33
		Total	=	E.	$313,648.65

k made payable to the 'Clean Air Special Fund - COV.'
h tow separate checks made payable to the

F-2

[redacted]

Waiau 3 No 6 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	4,634,043	150,667	698,197	0.435	M	151.9
NOX	4,634,043	150,667	698,197	0.313	A	109.3
CO	4,634,043	150,667	698,197	0.0333	A	11.6
VOC	4,634,043	150,667	698,197	0.00507	A	1.8
PM-PRI	4,634,043	150,667	698,197	0.0564	A	19.7
PM-FIL	4,634,043	150,667	698,197	0.0464	A	16.2
PM-CON	4,634,043	150,667	698,197	0.0100	A	3.5
PM10-PRI	4,634,043	150,667	698,197	0.0429	A	15.0
PM10-FIL	4,634,043	150,667	698,197	0.0329	A	11.5
PM25-PRI	4,634,043	150,667	698,197	0.0341	A	11.9
PM25-FIL	4,634,043	150,667	698,197	0.0241	A	8.4
Acetaldehyde	4,634,043	150,667	698,197		A	
Acrolein	4,634,043	150,667	698,197		A	
Antimony Compounds	4,634,043	150,667	698,197	3.50E-05	A	1.22E-02
Arsenic Compounds	4,634,043	150,667	698,197	8.80E-06	A	3.07E-03
Benzene	4,634,043	150,667	698,197	1.43E-06	A	4.98E-04
Beryllium Compounds	4,634,043	150,667	698,197	1.85E-07	A	6.47E-05
1,3-Butadiene	4,634,043	150,667	698,197		A	
Cadmium Compounds	4,634,043	150,667	698,197	2.65E-06	A	9.26E-04
Chromium Compounds	4,634,043	150,667	698,197	5.63E-06	A	1.97E-03
Cobalt Compounds	4,634,043	150,667	698,197	4.01E-05	A	1.40E-02
Ethylbenzene	4,634,043	150,667	698,197	4.24E-07	A	1.48E-04
Formaldehyde	4,634,043	150,667	698,197	4.07E-04	A	1.42E-01
Hydrochloric Acid	4,634,043	150,667	698,197		A	
Lead Compounds	4,634,043	150,667	698,197	1.01E-05	A	3.51E-03
Manganese Compounds	4,634,043	150,667	698,197	2.00E-05	A	6.98E-03
Mercury Compounds	4,634,043	150,667	698,197	7.53E-07	A	2.63E-04
Nickel Compounds	4,634,043	150,667	698,197	5.63E-04	A	1.97E-01
Naphthalene	4,634,043	150,667	698,197	7.53E-06	A	2.63E-03
Phosphorus	4,634,043	150,667	698,197	6.31E-05	A	2.20E-02
POM	4,634,043	150,667	698,197	8.67E-06	A	3.03E-03
Selenium Compounds	4,634,043	150,667	698,197	4.55E-06	A	1.59E-03
Toluene	4,634,043	150,667	698,197	4.13E-05	A	1.44E-02
Xylene	4,634,043	150,667	698,197		A	
o-Xylene	4,634,043	150,667	698,197	7.27E-07	A	2.54E-04

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Waiau 3 Spec Used Oil

Pollutant	Annual Fuel Use (gal/yr)	Emission Factor (lb/10³ gal)	EF Ref	Annual Emissions (tons/yr)
SO2	22	15.1	A	0.00017
NOX	22	47	A	0.00052
CO	22	5.0	A	0.00006
VOC	22	0.76	A	0.00001
PM-PRI	22	5.60	A	0.00006
PM-FIL	22	4.10	A	0.00005
PM-CON	22	1.50	A	0.00002
PM10-PRI	22	4.41	A	0.00005
PM10-FIL	22	2.91	A	0.00003
PM25-PRI	22	3.63	A	0.00004
PM25-FIL	22	2.13	A	0.00002
Acetaldehyde	22		A	
Acrolein	22		A	
Antimony Compounds	22		A	
Arsenic Compounds	22	1.10E-01	A	1.21E-06
Benzene	22		A	
Beryllium Compounds	22		A	
1,3-Butadiene	22		A	
Cadmium Compounds	22	9.30E-03	A	1.02E-07
Chromium Compounds	22	2.00E-02	A	2.20E-07
Cobalt Compounds	22	2.10E-04	A	2.31E-09
Ethylbenzene	22		A	
Formaldehyde	22		A	
Hydrochloric Acid	22	3.30E-02	A	3.63E-07
Lead Compounds	22	5.50E-01	A	6.05E-06
Manganese Compounds	22	6.80E-02	A	7.48E-07
Mercury Compounds	22		A	
Nickel Compounds	22	1.10E-02	A	1.21E-07
Naphthalene	22		A	
Phosphorus	22		A	
POM	22		A	
Selenium Compounds	22		A	
Toluene	22		A	
Xylene	22		A	
o-Xylene	22		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Waiau 3 Propane

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	909	91,300	83	0.00424	M	0.00018
NOX	909	91,300	83	0.208	A	0.00863
CO	909	91,300	83	0.035	A	0.00145
VOC	909	91,300	83	0.00546	A	0.00023
PM-PRI	909	91,300	83	0.0121	A	0.00050
PM-FIL	909	91,300	83	0.00656	A	0.00027
PM-CON	909	91,300	83	0.00558824	A	0.00023
PM10-PRI	909	91,300	83	0.0121	A	0.00050
PM10-FIL	909	91,300	83	0.00656	A	0.00027
PM25-PRI	909	91,300	83	0.0121	A	0.00050
PM25-FIL	909	91,300	83	0.00656	A	0.00027
Acetaldehyde	909	91,300	83		A	
Acrolein	909	91,300	83		A	
Antimony Compounds	909	91,300	83		A	
Arsenic Compounds	909	91,300	83		A	
Benzene	909	91,300	83		A	
Beryllium Compounds	909	91,300	83		A	
1,3-Butadiene	909	91,300	83		A	
Cadmium Compounds	909	91,300	83		A	
Chromium Compounds	909	91,300	83		A	
Cobalt Compounds	909	91,300	83		A	
Ethylbenzene	909	91,300	83		A	
Formaldehyde	909	91,300	83		A	
Hydrochloric Acid	909	91,300	83		A	
Lead Compounds	909	91,300	83		A	
Manganese Compounds	909	91,300	83		A	
Mercury Compounds	909	91,300	83		A	
Nickel Compounds	909	91,300	83		A	
Naphthalene	909	91,300	83		A	
Phosphorus	909	91,300	83		A	
POM	909	91,300	83		A	
Selenium Compounds	909	91,300	83		A	
Toluene	909	91,300	83		A	
Xylene	909	91,300	83		A	
o-Xylene	909	91,300	83		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Waiau 3 Total

Pollutant	Annual Emissions Fuel Oil (tons/yr)	Spec Used Oil (tons/yr)	Propane (tons/yr)	Total (tons/yr)
SO2	151.9	0.0002	0.0002	151.9
NOX	109.3	0.0005	0.0086	109.3
CO	11.6	0.0001	0.0015	11.6
VOC	1.8	0.0000	0.0002	1.8
PM-PRI	19.7	0.0001	0.0005	19.7
PM-FIL	16.2	0.0000	0.0003	16.2
PM-CON	3.5	0.0000	0.0002	3.5
PM10-PRI	15.0	0.0000	0.0005	15.0
PM10-FIL	11.5	0.0000	0.0003	11.5
PM25-PRI	11.9	0.0000	0.0005	11.9
PM25-FIL	8.4	0.0000	0.0003	8.4
Acetaldehyde				
Acrolein				
Antimony Compounds	1.22E-02			1.22E-02
Arsenic Compounds	3.07E-03	1.21E-06		3.07E-03
Benzene	4.98E-04			4.98E-04
Beryllium Compounds	6.47E-05			6.47E-05
1,3-Butadiene				
Cadmium Compounds	9.26E-04	1.02E-07		9.26E-04
Chromium Compounds	1.97E-03	2.20E-07		1.97E-03
Cobalt Compounds	1.40E-02	2.31E-09		1.40E-02
Ethylbenzene	1.48E-04			1.48E-04
Formaldehyde	1.42E-01			1.42E-01
Hydrochloric Acid		3.63E-07		3.63E-07
Lead Compounds	3.51E-03	6.05E-06		3.52E-03
Manganese Compounds	6.98E-03	7.48E-07		6.98E-03
Mercury Compounds	2.63E-04			2.63E-04
Nickel Compounds	1.97E-01	1.21E-07		1.97E-01
Naphthalene	2.63E-03			2.63E-03
Phosphorus	2.20E-02			2.20E-02
POM	3.03E-03			3.03E-03
Selenium Compounds	1.59E-03			1.59E-03
Toluene	1.44E-02			1.44E-02
Xylene				
o-Xylene	2.54E-04			2.54E-04
Total HAPs				4.26E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Waiau 4 No 6 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	8,845,085	150,667	1,332,662	0.435	M	289.9
NOX	8,845,085	150,667	1,332,662	0.313	A	208.6
CO	8,845,085	150,667	1,332,662	0.0333	A	22.2
VOC	8,845,085	150,667	1,332,662	0.00507	A	3.4
PM-PRI	8,845,085	150,667	1,332,662	0.0564	A	37.6
PM-FIL	8,845,085	150,667	1,332,662	0.0464	A	30.9
PM-CON	8,845,085	150,667	1,332,662	0.0100	A	6.7
PM10-PRI	8,845,085	150,667	1,332,662	0.0429	A	28.6
PM10-FIL	8,845,085	150,667	1,332,662	0.0329	A	21.9
PM25-PRI	8,845,085	150,667	1,332,662	0.0341	A	22.7
PM25-FIL	8,845,085	150,667	1,332,662	0.0241	A	16.1
Acetaldehyde	8,845,085	150,667	1,332,662		A	
Acrolein	8,845,085	150,667	1,332,662		A	
Antimony Compounds	8,845,085	150,667	1,332,662	3.50E-05	A	2.33E-02
Arsenic Compounds	8,845,085	150,667	1,332,662	8.80E-06	A	5.86E-03
Benzene	8,845,085	150,667	1,332,662	1.43E-06	A	9.51E-04
Beryllium Compounds	8,845,085	150,667	1,332,662	1.85E-07	A	1.23E-04
1,3-Butadiene	8,845,085	150,667	1,332,662		A	
Cadmium Compounds	8,845,085	150,667	1,332,662	2.65E-06	A	1.77E-03
Chromium Compounds	8,845,085	150,667	1,332,662	5.63E-06	A	3.75E-03
Cobalt Compounds	8,845,085	150,667	1,332,662	4.01E-05	A	2.67E-02
Ethylbenzene	8,845,085	150,667	1,332,662	4.24E-07	A	2.83E-04
Formaldehyde	8,845,085	150,667	1,332,662	4.07E-04	A	2.71E-01
Hydrochloric Acid	8,845,085	150,667	1,332,662		A	
Lead Compounds	8,845,085	150,667	1,332,662	1.01E-05	A	6.71E-03
Manganese Compounds	8,845,085	150,667	1,332,662	2.00E-05	A	1.33E-02
Mercury Compounds	8,845,085	150,667	1,332,662	7.53E-07	A	5.02E-04
Nickel Compounds	8,845,085	150,667	1,332,662	5.63E-04	A	3.75E-01
Naphthalene	8,845,085	150,667	1,332,662	7.53E-06	A	5.02E-03
Phosphorus	8,845,085	150,667	1,332,662	6.31E-05	A	4.20E-02
POM	8,845,085	150,667	1,332,662	8.67E-06	A	5.77E-03
Selenium Compounds	8,845,085	150,667	1,332,662	4.55E-06	A	3.03E-03
Toluene	8,845,085	150,667	1,332,662	4.13E-05	A	2.75E-02
Xylene	8,845,085	150,667	1,332,662		A	
o-Xylene	8,845,085	150,667	1,332,662	7.27E-07	A	4.84E-04

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Waiau 4 Spec Used Oil

Pollutant	Annual Spec Oil Use (gal/yr)	Emission Factor (lb/10³ gal)	EF Ref	Annual Emissions (tons/yr)
SO2	200	15.1	A	0.00151
NOX	200	47	A	0.00470
CO	200	5.0	A	0.00050
VOC	200	0.76	A	0.00008
PM-PRI	200	5.60	A	0.00056
PM-FIL	200	4.10	A	0.00041
PM-CON	200	1.50	A	0.00015
PM10-PRI	200	4.41	A	0.00044
PM10-FIL	200	2.91	A	0.00029
PM25-PRI	200	3.63	A	0.00036
PM25-FIL	200	2.13	A	0.00021
Acetaldehyde	200		A	
Acrolein	200		A	
Antimony Compounds	200		A	
Arsenic Compounds	200	1.10E-01	A	1.10E-05
Benzene	200		A	
Beryllium Compounds	200		A	
1,3-Butadiene	200		A	
Cadmium Compounds	200	9.30E-03	A	9.30E-07
Chromium Compounds	200	2.00E-02	A	2.00E-06
Cobalt Compounds	200	2.10E-04	A	2.10E-08
Ethylbenzene	200		A	
Formaldehyde	200		A	
Hydrochloric Acid	200	3.30E-02	A	3.30E-06
Lead Compounds	200	5.50E-01	A	5.50E-05
Manganese Compounds	200	6.80E-02	A	6.80E-06
Mercury Compounds	200		A	
Nickel Compounds	200	1.10E-02	A	1.10E-06
Naphthalene	200		A	
Phosphorus	200		A	
POM	200		A	
Selenium Compounds	200		A	
Toluene	200		A	
Xylene	200		A	
o-Xylene	200		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Waiau 4 Propane

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	1,678	91,300	153	0.00424	M	0.00032
NOX	1,678	91,300	153	0.208	A	0.01593
CO	1,678	91,300	153	0.035	A	0.00268
VOC	1,678	91,300	153	0.00546	A	0.00042
PM-PRI	1,678	91,300	153	0.0121	A	0.00093
PM-FIL	1,678	91,300	153	0.00656	A	0.00050
PM-CON	1,678	91,300	153	0.00558824	A	0.00043
PM10-PRI	1,678	91,300	153	0.0121	A	0.00093
PM10-FIL	1,678	91,300	153	0.00656	A	0.00050
PM25-PRI	1,678	91,300	153	0.0121	A	0.00093
PM25-FIL	1,678	91,300	153	0.00656	A	0.00050
Acetaldehyde	1,678	91,300	153		A	
Acrolein	1,678	91,300	153		A	
Antimony Compounds	1,678	91,300	153		A	
Arsenic Compounds	1,678	91,300	153		A	
Benzene	1,678	91,300	153		A	
Beryllium Compounds	1,678	91,300	153		A	
1,3-Butadiene	1,678	91,300	153		A	
Cadmium Compounds	1,678	91,300	153		A	
Chromium Compounds	1,678	91,300	153		A	
Cobalt Compounds	1,678	91,300	153		A	
Ethylbenzene	1,678	91,300	153		A	
Formaldehyde	1,678	91,300	153		A	
Hydrochloric Acid	1,678	91,300	153		A	
Lead Compounds	1,678	91,300	153		A	
Manganese Compounds	1,678	91,300	153		A	
Mercury Compounds	1,678	91,300	153		A	
Nickel Compounds	1,678	91,300	153		A	
Naphthalene	1,678	91,300	153		A	
Phosphorus	1,678	91,300	153		A	
POM	1,678	91,300	153		A	
Selenium Compounds	1,678	91,300	153		A	
Toluene	1,678	91,300	153		A	
Xylene	1,678	91,300	153		A	
o-Xylene	1,678	91,300	153		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Waiau 4 Total

Pollutant	Annual Emissions Fuel Oil (tons/yr)	Spec Used Oil (tons/yr)	Propane (tons/yr)	Total (tons/yr)
SO2	289.9	0.0015	0.0003	289.9
NOX	208.6	0.0047	0.0159	208.6
CO	22.2	0.0005	0.0027	22.2
VOC	3.4	0.0001	0.0004	3.4
PM-PRI	37.6	0.0006	0.0009	37.6
PM-FIL	30.9	0.0004	0.0005	30.9
PM-CON	6.7	0.0002	0.0004	6.7
PM10-PRI	28.6	0.0004	0.0009	28.6
PM10-FIL	21.9	0.0003	0.0005	21.9
PM25-PRI	22.7	0.0004	0.0009	22.7
PM25-FIL	16.1	0.0002	0.0005	16.1
Acetaldehyde				
Acrolein				
Antimony Compounds	2.33E-02			2.33E-02
Arsenic Compounds	5.86E-03	1.10E-05		5.87E-03
Benzene	9.51E-04			9.51E-04
Beryllium Compounds	1.23E-04			1.23E-04
1,3-Butadiene				
Cadmium Compounds	1.77E-03	9.30E-07		1.77E-03
Chromium Compounds	3.75E-03	2.00E-06		3.76E-03
Cobalt Compounds	2.67E-02	2.10E-08		2.67E-02
Ethylbenzene	2.83E-04			2.83E-04
Formaldehyde	2.71E-01			2.71E-01
Hydrochloric Acid		3.30E-06		3.30E-06
Lead Compounds	6.71E-03	5.50E-05		6.76E-03
Manganese Compounds	1.33E-02	6.80E-06		1.33E-02
Mercury Compounds	5.02E-04			5.02E-04
Nickel Compounds	3.75E-01	1.10E-06		3.75E-01
Naphthalene	5.02E-03			5.02E-03
Phosphorus	4.20E-02			4.20E-02
POM	5.77E-03			5.77E-03
Selenium Compounds	3.03E-03			3.03E-03
Toluene	2.75E-02			2.75E-02
Xylene				
o-Xylene	4.84E-04			4.84E-04
Total HAPs				8.14E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Waiau 5 No 6 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	11,430,154	150,667	1,722,147	0.435	M	374.6
NOX	11,430,154	150,667	1,722,147	0.313	A	269.5
CO	11,430,154	150,667	1,722,147	0.0333	A	28.7
VOC	11,430,154	150,667	1,722,147	0.00507	A	4.4
PM-PRI	11,430,154	150,667	1,722,147	0.0564	A	48.6
PM-FIL	11,430,154	150,667	1,722,147	0.0464	A	40.0
PM-CON	11,430,154	150,667	1,722,147	0.0100	A	8.6
PM10-PRI	11,430,154	150,667	1,722,147	0.0429	A	36.9
PM10-FIL	11,430,154	150,667	1,722,147	0.0329	A	28.3
PM25-PRI	11,430,154	150,667	1,722,147	0.0341	A	29.4
PM25-FIL	11,430,154	150,667	1,722,147	0.0241	A	20.8
Acetaldehyde	11,430,154	150,667	1,722,147		A	
Acrolein	11,430,154	150,667	1,722,147		A	
Antimony Compounds	11,430,154	150,667	1,722,147	3.50E-05	A	3.01E-02
Arsenic Compounds	11,430,154	150,667	1,722,147	8.80E-06	A	7.58E-03
Benzene	11,430,154	150,667	1,722,147	1.43E-06	A	1.23E-03
Beryllium Compounds	11,430,154	150,667	1,722,147	1.85E-07	A	1.60E-04
1,3-Butadiene	11,430,154	150,667	1,722,147		A	
Cadmium Compounds	11,430,154	150,667	1,722,147	2.65E-06	A	2.28E-03
Chromium Compounds	11,430,154	150,667	1,722,147	5.63E-06	A	4.85E-03
Cobalt Compounds	11,430,154	150,667	1,722,147	4.01E-05	A	3.46E-02
Ethylbenzene	11,430,154	150,667	1,722,147	4.24E-07	A	3.65E-04
Formaldehyde	11,430,154	150,667	1,722,147	4.07E-04	A	3.50E-01
Hydrochloric Acid	11,430,154	150,667	1,722,147		A	
Lead Compounds	11,430,154	150,667	1,722,147	1.01E-05	A	8.67E-03
Manganese Compounds	11,430,154	150,667	1,722,147	2.00E-05	A	1.72E-02
Mercury Compounds	11,430,154	150,667	1,722,147	7.53E-07	A	6.49E-04
Nickel Compounds	11,430,154	150,667	1,722,147	5.63E-04	A	4.85E-01
Naphthalene	11,430,154	150,667	1,722,147	7.53E-06	A	6.49E-03
Phosphorus	11,430,154	150,667	1,722,147	6.31E-05	A	5.43E-02
POM	11,430,154	150,667	1,722,147	8.67E-06	A	7.46E-03
Selenium Compounds	11,430,154	150,667	1,722,147	4.55E-06	A	3.92E-03
Toluene	11,430,154	150,667	1,722,147	4.13E-05	A	3.56E-02
Xylene	11,430,154	150,667	1,722,147		A	
o-Xylene	11,430,154	150,667	1,722,147	7.27E-07	A	6.26E-04

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Waiau 5 Spec Used Oil

Pollutant	Annual Spec Oil Use (gal/yr)	Emission Factor (lb/10³ gal)	EF Ref	Annual Emissions (tons/yr)
SO2	381	15.1	A	0.0029
NOX	381	47	A	0.0090
CO	381	5.0	A	0.0010
VOC	381	0.76	A	0.0001
PM-PRI	381	5.60	A	0.00107
PM-FIL	381	4.10	A	0.00078
PM-CON	381	1.50	A	0.00029
PM10-PRI	381	4.41	A	0.00084
PM10-FIL	381	2.91	A	0.00055
PM25-PRI	381	3.63	A	0.00069
PM25-FIL	381	2.13	A	0.00041
Acetaldehyde	381		A	
Acrolein	381		A	
Antimony Compounds	381		A	
Arsenic Compounds	381	1.10E-01	A	2.10E-05
Benzene	381		A	
Beryllium Compounds	381		A	
1,3-Butadiene	381		A	
Cadmium Compounds	381	9.30E-03	A	1.77E-06
Chromium Compounds	381	2.00E-02	A	3.81E-06
Cobalt Compounds	381	2.10E-04	A	4.00E-08
Ethylbenzene	381		A	
Formaldehyde	381		A	
Hydrochloric Acid	381	3.30E-02	A	6.29E-06
Lead Compounds	381	5.50E-01	A	1.05E-04
Manganese Compounds	381	6.80E-02	A	1.30E-05
Mercury Compounds	381		A	
Nickel Compounds	381	1.10E-02	A	2.10E-06
Naphthalene	381		A	
Phosphorus	381		A	
POM	381		A	
Selenium Compounds	381		A	
Toluene	381		A	
Xylene	381		A	
o-Xylene	381		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Waiau 5 Propane

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	2,142	91,300	196	0.00424	M	0.00041
NOX	2,142	91,300	196	0.208	A	0.02034
CO	2,142	91,300	196	0.035	A	0.00342
VOC	2,142	91,300	196	0.00546	A	0.00053
PM-PRI	2,142	91,300	196	0.0121	A	0.00118
PM-FIL	2,142	91,300	196	0.00656	A	0.00064
PM-CON	2,142	91,300	196	0.00558824	A	0.00055
PM10-PRI	2,142	91,300	196	0.0121	A	0.00118
PM10-FIL	2,142	91,300	196	0.00656	A	0.00064
PM25-PRI	2,142	91,300	196	0.0121	A	0.00118
PM25-FIL	2,142	91,300	196	0.00656	A	0.00064
Acetaldehyde	2,142	91,300	196		A	
Acrolein	2,142	91,300	196		A	
Antimony Compounds	2,142	91,300	196		A	
Arsenic Compounds	2,142	91,300	196		A	
Benzene	2,142	91,300	196		A	
Beryllium Compounds	2,142	91,300	196		A	
1,3-Butadiene	2,142	91,300	196		A	
Cadmium Compounds	2,142	91,300	196		A	
Chromium Compounds	2,142	91,300	196		A	
Cobalt Compounds	2,142	91,300	196		A	
Ethylbenzene	2,142	91,300	196		A	
Formaldehyde	2,142	91,300	196		A	
Hydrochloric Acid	2,142	91,300	196		A	
Lead Compounds	2,142	91,300	196		A	
Manganese Compounds	2,142	91,300	196		A	
Mercury Compounds	2,142	91,300	196		A	
Nickel Compounds	2,142	91,300	196		A	
Naphthalene	2,142	91,300	196		A	
Phosphorus	2,142	91,300	196		A	
POM	2,142	91,300	196		A	
Selenium Compounds	2,142	91,300	196		A	
Toluene	2,142	91,300	196		A	
Xylene	2,142	91,300	196		A	
o-Xylene	2,142	91,300	196		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Waiau 5 Total

Pollutant	Annual Emissions Fuel Oil (tons/yr)	Spec Used Oil (tons/yr)	Propane (tons/yr)	Total (tons/yr)
SO2	374.6	0.0029	0.0004	374.6
NOX	269.5	0.0090	0.0203	269.5
CO	28.7	0.0010	0.0034	28.7
VOC	4.4	0.0001	0.0005	4.4
PM-PRI	48.6	0.0011	0.0012	48.6
PM-FIL	40	0.0008	0.0006	40.0
PM-CON	8.6	0.0003	0.0005	8.6
PM10-PRI	36.9	0.0008	0.0012	36.9
PM10-FIL	28.3	0.0006	0.0006	28.3
PM25-PRI	29.4	0.0007	0.0012	29.4
PM25-FIL	20.8	0.0004	0.0006	20.8
Acetaldehyde				
Acrolein				
Antimony Compounds	3.01E-02			3.01E-02
Arsenic Compounds	7.58E-03	2.10E-05		7.60E-03
Benzene	1.23E-03			1.23E-03
Beryllium Compounds	1.60E-04			1.60E-04
1,3-Butadiene				
Cadmium Compounds	2.28E-03	1.77E-06		2.29E-03
Chromium Compounds	4.85E-03	3.81E-06		4.85E-03
Cobalt Compounds	3.46E-02	4.00E-08		3.46E-02
Ethylbenzene	3.65E-04			3.65E-04
Formaldehyde	3.50E-01			3.50E-01
Hydrochloric Acid		6.29E-06		6.29E-06
Lead Compounds	8.67E-03	1.05E-04		8.77E-03
Manganese Compounds	1.72E-02	1.30E-05		1.72E-02
Mercury Compounds	6.49E-04			6.49E-04
Nickel Compounds	4.85E-01	2.10E-06		4.85E-01
Naphthalene	6.49E-03			6.49E-03
Phosphorus	5.43E-02			5.43E-02
POM	7.46E-03			7.46E-03
Selenium Compounds	3.92E-03			3.92E-03
Toluene	3.56E-02			3.56E-02
Xylene				
o-Xylene	6.26E-04			6.26E-04
Total HAPs				1.05E+00

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Waiau 6 No 6 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	13,478,942	150,667	2,030,832	0.435	M	441.7
NOX	13,478,942	150,667	2,030,832	0.313	A	317.8
CO	13,478,942	150,667	2,030,832	0.0333	A	33.8
VOC	13,478,942	150,667	2,030,832	0.00507	A	5.1
PM-PRI	13,478,942	150,667	2,030,832	0.0564	A	57.3
PM-FIL	13,478,942	150,667	2,030,832	0.0464	A	47.1
PM-CON	13,478,942	150,667	2,030,832	0.0100	A	10.2
PM10-PRI	13,478,942	150,667	2,030,832	0.0429	A	43.6
PM10-FIL	13,478,942	150,667	2,030,832	0.0329	A	33.4
PM25-PRI	13,478,942	150,667	2,030,832	0.0341	A	34.6
PM25-FIL	13,478,942	150,667	2,030,832	0.0241	A	24.5
Acetaldehyde	13,478,942	150,667	2,030,832		A	
Acrolein	13,478,942	150,667	2,030,832		A	
Antimony Compounds	13,478,942	150,667	2,030,832	3.50E-05	A	3.55E-02
Arsenic Compounds	13,478,942	150,667	2,030,832	8.80E-06	A	8.94E-03
Benzene	13,478,942	150,667	2,030,832	1.43E-06	A	1.45E-03
Beryllium Compounds	13,478,942	150,667	2,030,832	1.85E-07	A	1.88E-04
1,3-Butadiene	13,478,942	150,667	2,030,832		A	
Cadmium Compounds	13,478,942	150,667	2,030,832	2.65E-06	A	2.69E-03
Chromium Compounds	13,478,942	150,667	2,030,832	5.63E-06	A	5.72E-03
Cobalt Compounds	13,478,942	150,667	2,030,832	4.01E-05	A	4.08E-02
Ethylbenzene	13,478,942	150,667	2,030,832	4.24E-07	A	4.31E-04
Formaldehyde	13,478,942	150,667	2,030,832	4.07E-04	A	4.13E-01
Hydrochloric Acid	13,478,942	150,667	2,030,832		A	
Lead Compounds	13,478,942	150,667	2,030,832	1.01E-05	A	1.02E-02
Manganese Compounds	13,478,942	150,667	2,030,832	2.00E-05	A	2.03E-02
Mercury Compounds	13,478,942	150,667	2,030,832	7.53E-07	A	7.65E-04
Nickel Compounds	13,478,942	150,667	2,030,832	5.63E-04	A	5.72E-01
Naphthalene	13,478,942	150,667	2,030,832	7.53E-06	A	7.65E-03
Phosphorus	13,478,942	150,667	2,030,832	6.31E-05	A	6.40E-02
POM	13,478,942	150,667	2,030,832	8.67E-06	A	8.80E-03
Selenium Compounds	13,478,942	150,667	2,030,832	4.55E-06	A	4.62E-03
Toluene	13,478,942	150,667	2,030,832	4.13E-05	A	4.20E-02
Xylene	13,478,942	150,667	2,030,832		A	
o-Xylene	13,478,942	150,667	2,030,832	7.27E-07	A	7.38E-04

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Waiau 6 Spec Used Oil

Pollutant	Annual Spec Oil Use (gal/yr)	Emission Factor (lb/10³ gal)	EF Ref	Annual Emissions (tons/yr)
SO2	594	15.1	A	0.0045
NOX	594	47	A	0.0140
CO	594	5.0	A	0.0015
VOC	594	0.76	A	0.0002
PM-PRI	594	5.60	A	0.00166
PM-FIL	594	4.10	A	0.00122
PM-CON	594	1.50	A	0.00045
PM10-PRI	594	4.41	A	0.00131
PM10-FIL	594	2.91	A	0.00086
PM25-PRI	594	3.63	A	0.00108
PM25-FIL	594	2.13	A	0.00063
Acetaldehyde	594		A	
Acrolein	594		A	
Antimony Compounds	594		A	
Arsenic Compounds	594	1.10E-01	A	3.27E-05
Benzene	594		A	
Beryllium Compounds	594		A	
1,3-Butadiene	594		A	
Cadmium Compounds	594	9.30E-03	A	2.76E-06
Chromium Compounds	594	2.00E-02	A	5.94E-06
Cobalt Compounds	594	2.10E-04	A	6.24E-08
Ethylbenzene	594		A	
Formaldehyde	594		A	
Hydrochloric Acid	594	3.30E-02	A	9.80E-06
Lead Compounds	594	5.50E-01	A	1.63E-04
Manganese Compounds	594	6.80E-02	A	2.02E-05
Mercury Compounds	594		A	
Nickel Compounds	594	1.10E-02	A	3.27E-06
Naphthalene	594		A	
Phosphorus	594		A	
POM	594		A	
Selenium Compounds	594		A	
Toluene	594		A	
Xylene	594		A	
o-Xylene	594		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Waiau 6 Propane

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	2,744	91,300	251	0.00424	M	0.00053
NOX	2,744	91,300	251	0.208	A	0.02605
CO	2,744	91,300	251	0.035	A	0.00438
VOC	2,744	91,300	251	0.00546	A	0.00068
PM-PRI	2,744	91,300	251	0.0121	A	0.00152
PM-FIL	2,744	91,300	251	0.00656	A	0.00082
PM-CON	2,744	91,300	251	0.00558824	A	0.00070
PM10-PRI	2,744	91,300	251	0.0121	A	0.00152
PM10-FIL	2,744	91,300	251	0.00656	A	0.00082
PM25-PRI	2,744	91,300	251	0.0121	A	0.00152
PM25-FIL	2,744	91,300	251	0.00656	A	0.00082
Acetaldehyde	2,744	91,300	251		A	
Acrolein	2,744	91,300	251		A	
Antimony Compounds	2,744	91,300	251		A	
Arsenic Compounds	2,744	91,300	251		A	
Benzene	2,744	91,300	251		A	
Beryllium Compounds	2,744	91,300	251		A	
1,3-Butadiene	2,744	91,300	251		A	
Cadmium Compounds	2,744	91,300	251		A	
Chromium Compounds	2,744	91,300	251		A	
Cobalt Compounds	2,744	91,300	251		A	
Ethylbenzene	2,744	91,300	251		A	
Formaldehyde	2,744	91,300	251		A	
Hydrochloric Acid	2,744	91,300	251		A	
Lead Compounds	2,744	91,300	251		A	
Mercury Compounds	2,744	91,300	251		A	
Nickel Compounds	2,744	91,300	251		A	
Naphthalene	2,744	91,300	251		A	
Phosphorus	2,744	91,300	251		A	
POM	2,744	91,300	251		A	
Selenium Compounds	2,744	91,300	251		A	
Toluene	2,744	91,300	251		A	
Xylene	2,744	91,300	251		A	
o-Xylene	2,744	91,300	251		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Waiau 6 Total

Pollutant	Annual Emissions Fuel Oil (tons/yr)	Spec Used Oil (tons/yr)	Propane (tons/yr)	Total (tons/yr)
SO2	441.7	0.0045	0.0005	441.7
NOX	317.8	0.0140	0.0261	317.8
CO	33.8	0.0015	0.0044	33.8
VOC	5.1	0.0002	0.0007	5.1
PM-PRI	57.3	0.0017	0.0015	57.3
PM-FIL	47.1	0.0012	0.0008	47.1
PM-CON	10.2	0.0004	0.0007	10.2
PM10-PRI	43.6	0.0013	0.0015	43.6
PM10-FIL	33.4	0.0009	0.0008	33.4
PM25-PRI	34.6	0.0011	0.0015	34.6
PM25-FIL	24.5	0.0006	0.0008	24.5
Acetaldehyde				
Acrolein				
Antimony Compounds	3.55E-02			3.55E-02
Arsenic Compounds	8.94E-03	3.27E-05		8.97E-03
Benzene	1.45E-03			1.45E-03
Beryllium Compounds	1.88E-04			1.88E-04
1,3-Butadiene				
Cadmium Compounds	2.69E-03	2.76E-06		2.70E-03
Chromium Compounds	5.72E-03	5.94E-06		5.73E-03
Cobalt Compounds	4.08E-02	6.24E-08		4.08E-02
Ethylbenzene	4.31E-04			4.31E-04
Formaldehyde	4.13E-01			4.13E-01
Hydrochloric Acid		9.80E-06		9.80E-06
Lead Compounds	1.02E-02	1.63E-04		1.04E-02
Manganese Compounds	2.03E-02	2.02E-05		2.03E-02
Mercury Compounds	7.65E-04			7.65E-04
Nickel Compounds	5.72E-01	3.27E-06		5.72E-01
Naphthalene	7.65E-03			7.65E-03
Phosphorus	6.40E-02			6.40E-02
POM	8.80E-03			8.80E-03
Selenium Compounds	4.62E-03			4.62E-03
Toluene	4.20E-02			4.20E-02
Xylene				
o-Xylene	7.38E-04			7.38E-04
Total HAPs				1.24E+00

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Waiau 7 No 6 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	31,128,393	150,667	4,690,022	0.435	M	1020.1
NOX	31,128,393	150,667	4,690,022	0.313	A	734.0
CO	31,128,393	150,667	4,690,022	0.0333	A	78.1
VOC	31,128,393	150,667	4,690,022	0.00507	A	11.9
PM-PRI	31,128,393	150,667	4,690,022	0.0564	A	132.3
PM-FIL	31,128,393	150,667	4,690,022	0.0464	A	108.8
PM-CON	31,128,393	150,667	4,690,022	0.0100	A	23.5
PM10-PRI	31,128,393	150,667	4,690,022	0.0429	A	100.6
PM10-FIL	31,128,393	150,667	4,690,022	0.0329	A	77.2
PM25-PRI	31,128,393	150,667	4,690,022	0.0341	A	80.0
PM25-FIL	31,128,393	150,667	4,690,022	0.0241	A	56.5
Acetaldehyde	31,128,393	150,667	4,690,022		A	
Acrolein	31,128,393	150,667	4,690,022		A	
Antimony Compounds	31,128,393	150,667	4,690,022	3.50E-05	A	8.21E-02
Arsenic Compounds	31,128,393	150,667	4,690,022	8.80E-06	A	2.06E-02
Benzene	31,128,393	150,667	4,690,022	1.43E-06	A	3.35E-03
Beryllium Compounds	31,128,393	150,667	4,690,022	1.85E-07	A	4.35E-04
1,3-Butadiene	31,128,393	150,667	4,690,022		A	
Cadmium Compounds	31,128,393	150,667	4,690,022	2.65E-06	A	6.22E-03
Chromium Compounds	31,128,393	150,667	4,690,022	5.63E-06	A	1.32E-02
Cobalt Compounds	31,128,393	150,667	4,690,022	4.01E-05	A	9.41E-02
Ethylbenzene	31,128,393	150,667	4,690,022	4.24E-07	A	9.94E-04
Formaldehyde	31,128,393	150,667	4,690,022	4.07E-04	A	9.54E-01
Hydrochloric Acid	31,128,393	150,667	4,690,022		A	
Lead Compounds	31,128,393	150,667	4,690,022	1.01E-05	A	2.36E-02
Manganese Compounds	31,128,393	150,667	4,690,022	2.00E-05	A	4.69E-02
Mercury Compounds	31,128,393	150,667	4,690,022	7.53E-07	A	1.77E-03
Nickel Compounds	31,128,393	150,667	4,690,022	5.63E-04	A	1.32E+00
Naphthalene	31,128,393	150,667	4,690,022	7.53E-06	A	1.77E-02
Phosphorus	31,128,393	150,667	4,690,022	6.31E-05	A	1.48E-01
POM	31,128,393	150,667	4,690,022	8.67E-06	A	2.03E-02
Selenium Compounds	31,128,393	150,667	4,690,022	4.55E-06	A	1.07E-02
Toluene	31,128,393	150,667	4,690,022	4.13E-05	A	9.69E-02
Xylene	31,128,393	150,667	4,690,022		A	
o-Xylene	31,128,393	150,667	4,690,022	7.27E-07	A	1.70E-03

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Waiau 7 No 2 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	5,344	136,415	729	0.038	M	0.0139
NOX	5,344	136,415	729	0.171	A	0.0623
CO	5,344	136,415	729	0.0357	A	0.0130
VOC	5,344	136,415	729	0.00143	A	0.0005
PM-PRI	5,344	136,415	729	0.0236	A	0.0086
PM-FIL	5,344	136,415	729	0.0143	A	0.0052
PM-CON	5,344	136,415	729	0.0093	A	0.0034
PM10-PRI	5,344	136,415	729	0.0164	A	0.0060
PM10-FIL	5,344	136,415	729	0.0071	A	0.0026
PM25-PRI	5,344	136,415	729	0.0111	A	0.0040
PM25-FIL	5,344	136,415	729	0.0018	A	0.0007
Acetaldehyde	5,344	136,415	729		A	
Acrolein	5,344	136,415	729		A	
Antimony Compounds	5,344	136,415	729	3.75E-05	A	1.37E-05
Arsenic Compounds	5,344	136,415	729	9.43E-06	A	3.44E-06
Benzene	5,344	136,415	729	1.53E-06	A	5.57E-07
Beryllium Compounds	5,344	136,415	729	1.99E-07	A	7.24E-08
1,3-Butadiene	5,344	136,415	729		A	
Cadmium Compounds	5,344	136,415	729	2.84E-06	A	1.04E-06
Chromium Compounds	5,344	136,415	729	6.04E-06	A	2.20E-06
Cobalt Compounds	5,344	136,415	729	4.30E-05	A	1.57E-05
Ethylbenzene	5,344	136,415	729	4.54E-07	A	1.66E-07
Formaldehyde	5,344	136,415	729	4.36E-04	A	1.59E-04
Hydrochloric Acid	5,344	136,415	729		A	
Lead Compounds	5,344	136,415	729	1.08E-05	A	3.93E-06
Manganese Compounds	5,344	136,415	729	2.14E-05	A	7.81E-06
Mercury Compounds	5,344	136,415	729	8.07E-07	A	2.94E-07
Nickel Compounds	5,344	136,415	729	6.04E-04	A	2.20E-04
Naphthalene	5,344	136,415	729	8.07E-06	A	2.94E-06
Phosphorus	5,344	136,415	729	6.76E-05	A	2.46E-05
POM	5,344	136,415	729	9.29E-06	A	3.38E-06
Selenium Compounds	5,344	136,415	729	4.88E-06	A	1.78E-06
Toluene	5,344	136,415	729	4.43E-05	A	1.61E-05
Xylene	5,344	136,415	729		A	
o-Xylene	5,344	136,415	729	7.79E-07	A	2.84E-07

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Waiau 7 Spec Used Oil

Pollutant	Annual Spec Oil Use (gal/yr)	Emission Factor (lb/10³ gal)	EF Ref	Annual Emissions (tons/yr)
SO2	1,342	15.1	A	0.0101
NOX	1,342	47	A	0.0315
CO	1,342	5.0	A	0.0034
VOC	1,342	0.76	A	0.0005
PM-PRI	1,342	5.60	A	0.00376
PM-FIL	1,342	4.10	A	0.00275
PM-CON	1,342	1.50	A	0.00101
PM10-PRI	1,342	4.41	A	0.00296
PM10-FIL	1,342	2.91	A	0.00195
PM25-PRI	1,342	3.63	A	0.00244
PM25-FIL	1,342	2.13	A	0.00143
Acetaldehyde	1,342		A	
Acrolein	1,342		A	
Antimony Compounds	1,342		A	
Arsenic Compounds	1,342	1.10E-01	A	7.38E-05
Benzene	1,342		A	
Beryllium Compounds	1,342		A	
1,3-Butadiene	1,342		A	
Cadmium Compounds	1,342	9.30E-03	A	6.24E-06
Chromium Compounds	1,342	2.00E-02	A	1.34E-05
Cobalt Compounds	1,342	2.10E-04	A	1.41E-07
Ethylbenzene	1,342		A	
Formaldehyde	1,342		A	
Hydrochloric Acid	1,342	3.30E-02	A	2.21E-05
Lead Compounds	1,342	5.50E-01	A	3.69E-04
Manganese Compounds	1,342	6.80E-02	A	4.56E-05
Mercury Compounds	1,342		A	
Nickel Compounds	1,342	1.10E-02	A	7.38E-06
Naphthalene	1,342		A	
Phosphorus	1,342		A	
POM	1,342		A	
Selenium Compounds	1,342		A	
Toluene	1,342		A	
Xylene	1,342		A	
o-Xylene	1,342		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Waiau 7 Total

Pollutant	Annual Emissions No 6 Fuel Oil (tons/yr)	No 2 Fuel Oil (tons/yr)	Spec Used Oil (tons/yr)	Total (tons/yr)
SO2	1020.1	0.0139	0.0101	1020.1
NOX	734	0.0623	0.0315	734.1
CO	78.1	0.0130	0.0034	78.1
VOC	11.9	0.0005	0.0005	11.9
PM-PRI	132.3	0.0086	0.0038	132.3
PM-FIL	108.8	0.0052	0.0028	108.8
PM-CON	23.5	0.0034	0.0010	23.5
PM10-PRI	100.6	0.0060	0.0030	100.6
PM10-FIL	77.2	0.0026	0.0020	77.2
PM25-PRI	80	0.0040	0.0024	80.0
PM25-FIL	56.5	0.0007	0.0014	56.5
Acetaldehyde				
Acrolein				
Antimony Compounds	8.21E-02	1.37E-05		8.21E-02
Arsenic Compounds	2.06E-02	3.44E-06	7.38E-05	2.07E-02
Benzene	3.35E-03	5.57E-07		3.35E-03
Beryllium Compounds	4.35E-04	7.24E-08		4.35E-04
1,3-Butadiene				
Cadmium Compounds	6.22E-03	1.04E-06	6.24E-06	6.23E-03
Chromium Compounds	1.32E-02	2.20E-06	1.34E-05	1.32E-02
Cobalt Compounds	9.41E-02	1.57E-05	1.41E-07	9.41E-02
Ethylbenzene	9.94E-04	1.66E-07		9.94E-04
Formaldehyde	9.54E-01	1.59E-04		9.54E-01
Hydrochloric Acid			2.21E-05	2.21E-05
Lead Compounds	2.36E-02	3.93E-06	3.69E-04	2.40E-02
Manganese Compounds	4.69E-02	7.81E-06	4.56E-05	4.70E-02
Mercury Compounds	1.77E-03	2.94E-07		1.77E-03
Nickel Compounds	1.32E+00	2.20E-04	7.38E-06	1.32E+00
Naphthalene	1.77E-02	2.94E-06		1.77E-02
Phosphorus	1.48E-01	2.46E-05		1.48E-01
POM	2.03E-02	3.38E-06		2.03E-02
Selenium Compounds	1.07E-02	1.78E-06		1.07E-02
Toluene	9.69E-02	1.61E-05		9.69E-02
Xylene				
o-Xylene	1.70E-03	2.84E-07		1.70E-03
Total HAPs				2.86E+00

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Waiau 8 No 6 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	22,924,971	150,667	3,454,037	0.435	M	751.3
NOX	22,924,971	150,667	3,454,037	0.313	A	540.6
CO	22,924,971	150,667	3,454,037	0.0333	A	57.5
VOC	22,924,971	150,667	3,454,037	0.00507	A	8.8
PM-PRI	22,924,971	150,667	3,454,037	0.0564	A	97.4
PM-FIL	22,924,971	150,667	3,454,037	0.0464	A	80.1
PM-CON	22,924,971	150,667	3,454,037	0.0100	A	17.3
PM10-PRI	22,924,971	150,667	3,454,037	0.0429	A	74.1
PM10-FIL	[illegible]	[illegible]	[illegible]			
PM25-PRI	22,924,971	150,667	3,454,037	0.0341	A	58.9
PM25-FIL	22,924,971	150,667	3,454,037	0.0241	A	41.6
Acetaldehyde	22,924,971	150,667	3,454,037		A	
Acrolein	22,924,971	150,667	3,454,037		A	
Antimony Compounds	22,924,971	150,667	3,454,037	3.50E-05	A	6.04E-02
Arsenic Compounds	22,924,971	150,667	3,454,037	8.80E-06	A	1.52E-02
Benzene	22,924,971	150,667	3,454,037	1.43E-06	A	2.46E-03
Beryllium Compounds	22,924,971	150,667	3,454,037	1.85E-07	A	3.20E-04
1,3-Butadiene	22,924,971	150,667	3,454,037		A	
Cadmium Compounds	22,924,971	150,667	3,454,037	2.65E-06	A	4.58E-03
Chromium Compounds	22,924,971	150,667	3,454,037	5.63E-06	A	9.73E-03
Cobalt Compounds	22,924,971	150,667	3,454,037	4.01E-05	A	6.93E-02
Ethylbenzene	22,924,971	150,667	3,454,037	4.24E-07	A	7.32E-04
Formaldehyde	22,924,971	150,667	3,454,037	4.07E-04	A	7.02E-01
Hydrochloric Acid	22,924,971	150,667	3,454,037		A	
Lead Compounds	22,924,971	150,667	3,454,037	1.01E-05	A	1.74E-02
Manganese Compounds	22,924,971	150,667	3,454,037	2.00E-05	A	3.45E-02
Mercury Compounds	22,924,971	150,667	3,454,037	7.53E-07	A	1.30E-03
Nickel Compounds	22,924,971	150,667	3,454,037	5.63E-04	A	9.73E-01
Naphthalene	22,924,971	150,667	3,454,037	7.53E-06	A	1.30E-02
Phosphorus	22,924,971	150,667	3,454,037	6.31E-05	A	1.09E-01
POM	22,924,971	150,667	3,454,037	8.67E-06	A	1.50E-02
Selenium Compounds	22,924,971	150,667	3,454,037	4.55E-06	A	7.86E-03
Toluene	22,924,971	150,667	3,454,037	4.13E-05	A	7.14E-02
Xylene	22,924,971	150,667	3,454,037		A	
o-Xylene	22,924,971	150,667	3,454,037	7.27E-07	A	1.25E-03

Notes:
M - Mass Balance

Waiau 8 No 2 FO

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	4,592	136,415	626	0.038	M	0.0119
NOX	4,592	136,415	626	0.171	A	0.0536
CO	4,592	136,415	626	0.0357	A	0.0112
VOC	4,592	136,415	626	0.00143	A	0.0004
PM-PRI	4,592	136,415	626	0.0236	A	0.0074
PM-FIL	4,592	136,415	626	0.0143	A	0.0045
PM-CON	4,592	136,415	626	0.00929	A	0.0029
PM10-PRI	4,592	136,415	626	0.0164	A	0.0051
PM10-FIL	4,592	136,415	626	0.00714	A	0.0022
PM25-PRI	4,592	136,415	626	0.0111	A	0.0035
PM25-FIL	4,592	136,415	626	0.00179	A	0.0006
Acetaldehyde	4,592	136,415	626		A	
Acrolein	4,592	136,415	626		A	
Antimony Compounds	4,592	136,415	626	3.75E-05	A	1.17E-05
Arsenic Compounds	4,592	136,415	626	9.43E-06	A	2.95E-06
Benzene	4,592	136,415	626	1.53E-06	A	4.79E-07
Beryllium Compounds	4,592	136,415	626	1.99E-07	A	6.22E-08
1,3-Butadiene	4,592	136,415	626		A	
Cadmium Compounds	4,592	136,415	626	2.84E-06	A	8.90E-07
Chromium Compounds	4,592	136,415	626	6.04E-06	A	1.89E-06
Cobalt Compounds	4,592	136,415	626	4.30E-05	A	1.35E-05
Ethylbenzene	4,592	136,415	626	4.54E-07	A	1.42E-07
Formaldehyde	4,592	136,415	626	4.36E-04	A	1.36E-04
Hydrochloric Acid	4,592	136,415	626		A	
Lead Compounds	4,592	136,415	626	1.08E-05	A	3.38E-06
Manganese Compounds	4,592	136,415	626	2.14E-05	A	6.71E-06
Mercury Compounds	4,592	136,415	626	8.07E-07	A	2.53E-07
Nickel Compounds	4,592	136,415	626	6.04E-04	A	1.89E-04
Naphthalene	4,592	136,415	626	8.07E-06	A	2.53E-06
Phosphorus	4,592	136,415	626	6.76E-05	A	2.12E-05
POM	4,592	136,415	626	9.29E-06	A	2.91E-06
Selenium Compounds	4,592	136,415	626	4.88E-06	A	1.53E-06
Toluene	4,592	136,415	626	4.43E-05	A	1.39E-05
Xylene	4,592	136,415	626		A	
o-Xylene	4,592	136,415	626	7.79E-07	A	2.44E-07

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Waiau 8 Spec Used Oil

Pollutant	Annual Spec Oil Use (gal/yr)	Emission Factor (lb/10³ gal)	EF Ref	Annual Emissions (tons/yr)
SO2	1,022	15.1	A	0.0077
NOX	1,022	47	A	0.0240
CO	1,022	5.0	A	0.0026
VOC	1,022	0.76	A	0.0004
PM-PRI	1,022	5.60	A	0.00286
PM-FIL	1,022	4.10	A	0.00210
PM-CON	1,022	1.50	A	0.00077
PM10-PRI	1,022	4.41	A	0.00225
PM10-FIL	1,022	2.91	A	0.00149
PM25-PRI	1,022	3.63	A	0.00185
PM25-FIL	1,022	2.13	A	0.00109
Acetaldehyde	1,022		A	
Acrolein	1,022		A	
Antimony Compounds	1,022		A	
Arsenic Compounds	1,022	1.10E-01	A	5.62E-05
Benzene	1,022		A	
Beryllium Compounds	1,022		A	
1,3-Butadiene	1,022		A	
Cadmium Compounds	1,022	9.30E-03	A	4.75E-06
Chromium Compounds	1,022	2.00E-02	A	1.02E-05
Cobalt Compounds	1,022	2.10E-04	A	1.07E-07
Ethylbenzene	1,022		A	
Formaldehyde	1,022		A	
Hydrochloric Acid	1,022	3.30E-02	A	1.69E-05
Lead Compounds	1,022	5.50E-01	A	2.81E-04
Manganese Compounds	1,022	6.80E-02	A	3.47E-05
Mercury Compounds	1,022		A	
Nickel Compounds	1,022	1.10E-02	A	5.62E-06
Naphthalene	1,022		A	
Phosphorus	1,022		A	
POM	1,022		A	
Selenium Compounds	1,022		A	
Toluene	1,022		A	
Xylene	1,022		A	
o-Xylene	1,022		A	

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Waiau 8 Total

Pollutant	Annual Emissions No. 6 Fuel Oil (tons/yr)	No. 2 Fuel Oil (tons/yr)	Spec Oil (tons/yr)	Total (tons/yr)
SO2	751.3	0.0119	0.0077	751.3
NOX	540.6	0.0536	0.0240	540.7
CO	57.5	0.0112	0.0026	57.5
VOC	8.8	0.0004	0.0004	8.8
PM-PRI	97.4	0.0074	0.0029	97.4
PM-FIL	80.1	0.0045	0.0021	80.1
PM-CON	17.3	0.0029	0.0008	17.3
PM10-PRI	74.1	0.0051	0.0023	74.1
PM10-FIL	56.8	0.0022	0.0015	56.8
PM25-PRI	58.9	0.0035	0.0019	58.9
PM25-FIL	41.6	0.0006	0.0011	41.6
Acetaldehyde				
Acrolein				
Antimony Compounds	6.04E-02	1.17E-05		6.05E-02
Arsenic Compounds	1.52E-02	2.95E-06	5.62E-05	1.53E-02
Benzene	2.46E-03	4.79E-07		2.46E-03
Beryllium Compounds	3.20E-04	6.22E-08		3.20E-04
1,3-Butadiene				
Cadmium Compounds	4.58E-03	8.90E-07	4.75E-06	4.59E-03
Chromium Compounds	9.73E-03	1.89E-06	1.02E-05	9.74E-03
Cobalt Compounds	6.93E-02	1.35E-05	1.07E-07	6.93E-02
Ethylbenzene	7.32E-04	1.42E-07		7.32E-04
Formaldehyde	7.02E-01	1.36E-04		7.02E-01
Hydrochloric Acid			1.69E-05	1.69E-05
Lead Compounds	1.74E-02	3.38E-06	2.81E-04	1.77E-02
Manganese Compounds	3.45E-02	6.71E-06	3.47E-05	3.46E-02
Mercury Compounds	1.30E-03	2.53E-07		1.30E-03
Nickel Compounds	9.73E-01	1.89E-04	5.62E-06	9.73E-01
Naphthalene	1.30E-02	2.53E-06		1.30E-02
Phosphorus	1.09E-01	2.12E-05		1.09E-01
POM	1.50E-02	2.91E-06		1.50E-02
Selenium Compounds	7.86E-03	1.53E-06		7.87E-03
Toluene	7.14E-02	1.39E-05		7.14E-02
Xylene				
o-Xylene	1.25E-03	2.44E-07		1.26E-03
Total HAPs				2.11E+00

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Waiau 9

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	2,873,389	137,641	395,496	0.169	M	33.4
NOX	2,873,389	137,641	395,496	0.88	A	174.0
CO	2,873,389	137,641	395,496	0.0033	A	0.7
VOC	2,873,389	137,641	395,496	0.00041	A	0.08
PM-PRI	2,873,389	137,641	395,496	0.012	A	2.4
PM-FIL	2,873,389	137,641	395,496	0.0043	A	0.9
PM-CON	2,873,389	137,641	395,496	0.0072	A	1.4
PM10-PRI	2,873,389	137,641	395,496	0.01133	A	2.2
PM10-FIL	2,873,389	137,641	395,496	0.00413	A	0.8
PM25-PRI	2,873,389	137,641	395,496	0.01107	A	2.2
PM25-FIL	2,873,389	137,641	395,496	0.00387	A	0.8
Acetaldehyde	2,873,389	137,641	395,496	2.52E-05	A	4.98E-03
Acrolein	2,873,389	137,641	395,496	7.88E-06	A	1.56E-03
Antimony Compounds	2,873,389	137,641	395,496		A	
Arsenic Compounds	2,873,389	137,641	395,496	1.10E-05	A	2.18E-03
Benzene	2,873,389	137,641	395,496	5.50E-05	A	1.09E-02
Beryllium Compounds	2,873,389	137,641	395,496	3.10E-07	A	6.13E-05
1,3-Butadiene	2,873,389	137,641	395,496	1.60E-05	A	3.16E-03
Cadmium Compounds	2,873,389	137,641	395,496	4.80E-06	A	9.49E-04
Chromium Compounds	2,873,389	137,641	395,496	1.10E-05	A	2.18E-03
Cobalt Compounds	2,873,389	137,641	395,496		A	
Ethylbenzene	2,873,389	137,641	395,496		A	
Formaldehyde	2,873,389	137,641	395,496	2.80E-04	A	5.54E-02
Hydrochloric Acid	2,873,389	137,641	395,496		A	
Lead Compounds	2,873,389	137,641	395,496	1.40E-05	A	2.77E-03
Manganese Compounds	2,873,389	137,641	395,496	7.90E-04	A	1.56E-01
Mercury Compounds	2,873,389	137,641	395,496	1.20E-06	A	2.37E-04
Nickel Compounds	2,873,389	137,641	395,496	4.60E-06	A	9.10E-04
Naphthalene	2,873,389	137,641	395,496	3.50E-05	A	6.92E-03
Phosphorus	2,873,389	137,641	395,496		A	
POM	2,873,389	137,641	395,496	4.00E-05	A	7.91E-03
Selenium Compounds	2,873,389	137,641	395,496	2.50E-05	A	4.94E-03
Toluene	2,873,389	137,641	395,496	2.81E-04	A	5.56E-02
Xylene	2,873,389	137,641	395,496	1.93E-04	A	3.82E-02
o-Xylene	2,873,389	137,641	395,496		A	
Total HAPs						3.55E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Waiau 10

Pollutant	Annual Fuel Use (gal/yr)	Fuel Heat Content (Btu/gal)	Annual Fuel Use (MMBtu/yr)	Emission Factor (lb/MMBtu)	EF Ref	Annual Emissions (tons/yr)
SO2	2,833,361	137,641	389,987	0.169	M	33.0
NOX	2,833,361	137,641	389,987	0.88	A	171.6
CO	2,833,361	137,641	389,987	0.0033	A	0.6
VOC	2,833,361	137,641	389,987	0.00041	A	0.08
PM-PRI	2,833,361	137,641	389,987	0.012	A	2.3
PM-FIL	2,833,361	137,641	389,987	0.0043	A	0.8
PM-CON	2,833,361	137,641	389,987	0.0072	A	1.4
PM10-PRI	2,833,361	137,641	389,987	0.01133	A	2.2
PM10-FIL	2,833,361	137,641	389,987	0.00413	A	0.8
PM25-PRI	2,833,361	137,641	389,987	0.01107	A	2.2
PM25-FIL	2,833,361	137,641	389,987	0.00387	A	0.8
Acetaldehyde	2,833,361	137,641	389,987	2.52E-05	A	4.91E-03
Acrolein	2,833,361	137,641	389,987	7.88E-06	A	1.54E-03
Antimony Compounds	2,833,361	137,641	389,987		A	
Arsenic Compounds	2,833,361	137,641	389,987	1.10E-05	A	2.14E-03
Benzene	2,833,361	137,641	389,987	5.50E-05	A	1.07E-02
Beryllium Compounds	2,833,361	137,641	389,987	3.10E-07	A	6.04E-05
1,3-Butadiene	2,833,361	137,641	389,987	1.60E-05	A	3.12E-03
Cadmium Compounds	2,833,361	137,641	389,987	4.80E-06	A	9.36E-04
Chromium Compounds	2,833,361	137,641	389,987	1.10E-05	A	2.14E-03
Cobalt Compounds	2,833,361	137,641	389,987		A	
Ethylbenzene	2,833,361	137,641	389,987		A	
Formaldehyde	2,833,361	137,641	389,987	2.80E-04	A	5.46E-02
Hydrochloric Acid	2,833,361	137,641	389,987		A	
Lead Compounds	2,833,361	137,641	389,987	1.40E-05	A	2.73E-03
Manganese Compounds	2,833,361	137,641	389,987	7.90E-04	A	1.54E-01
Mercury Compounds	2,833,361	137,641	389,987	1.20E-06	A	2.34E-04
Nickel Compounds	2,833,361	137,641	389,987	4.60E-06	A	8.97E-04
Naphthalene	2,833,361	137,641	389,987	3.50E-05	A	6.82E-03
Phosphorus	2,833,361	137,641	389,987		A	
POM	2,833,361	137,641	389,987	4.00E-05	A	7.80E-03
Selenium Compounds	2,833,361	137,641	389,987	2.50E-05	A	4.87E-03
Toluene	2,833,361	137,641	389,987	2.81E-04	A	5.48E-02
Xylene	2,833,361	137,641	389,987	1.93E-04	A	3.76E-02
o-Xylene	2,833,361	137,641	389,987		A	
Total HAPs						3.50E-01

Notes:
M - Mass Balance
P - Permit Limit
A - AP-42 Emission Factor
S - Stack Test Data

Summary

Pollutant	Annual Emissions (tons/year)								
	Waiau 3	Waiau 4	Waiau 5	Waiau 6	Waiau 7	Waiau 8	Waiau 9	Waiau 10	Total
SO2	151.9	289.9	374.6	441.7	1020.1	751.3	33.4	33.0	3,096
NOX	109.3	208.6	269.5	317.8	734.1	540.7	174.0	171.6	2,526
CO	11.6	22.2	28.7	33.8	78.1	57.5	0.7	0.6	233.2
VOC	1.8	3.4	4.4	5.1	11.9	8.8	0.1	0.1	35.6
PM-PRI	19.7	37.6	48.6	57.3	132.3	97.4	2.4	2.3	397.6
PM-FIL	16.2	30.9	40.0	47.1	108.8	80.1	0.9	0.8	324.8
PM-CON	3.5	6.7	8.6	10.2	23.5	17.3	1.4	1.4	72.6
PM10-PRI	15.0	28.6	36.9	43.6	100.6	74.1	2.2	2.2	303.2
PM10-FIL	11.5	21.9	28.3	33.4	77.2	56.8	0.8	0.8	230.7
PM25-PRI	11.9	22.7	29.4	34.6	80.0	58.9	2.2	2.2	241.9
PM25-FIL	8.4	16.1	20.8	24.5	56.5	41.6	0.8	0.8	169.5
Acetaldehyde							4.98E-03	4.91E-03	0.0099
Acrolein							1.56E-03	1.54E-03	0.0031
Antimony Compounds	1.22E-02	2.33E-02	3.01E-02	3.55E-02	8.21E-02	6.05E-02			0.2438
Arsenic Compounds	3.07E-03	5.87E-03	7.60E-03	8.97E-03	2.07E-02	1.53E-02	2.18E-03	2.14E-03	0.0658
Benzene	4.98E-04	9.51E-04	1.23E-03	1.45E-03	3.35E-03	2.46E-03	1.09E-02	1.07E-02	0.0315
Beryllium Compounds	6.47E-05	1.23E-04	1.60E-04	1.88E-04	4.35E-04	3.20E-04	6.13E-05	6.04E-05	0.0014
1,3-Butadiene							3.16E-03	3.12E-03	0.0063
Cadmium Compounds	9.26E-04	1.77E-03	2.29E-03	2.70E-03	6.23E-03	4.59E-03	9.49E-04	9.36E-04	0.0204
Chromium Compounds	1.97E-03	3.76E-03	4.85E-03	5.73E-03	1.32E-02	9.74E-03	2.18E-03	2.14E-03	0.0436
Cobalt Compounds	1.40E-02	2.67E-02	3.46E-02	4.08E-02	9.41E-02	6.93E-02			0.2795
Ethylbenzene	1.48E-04	2.83E-04	3.65E-04	4.31E-04	9.94E-04	7.32E-04			0.0030
Formaldehyde	1.42E-01	2.71E-01	3.50E-01	4.13E-01	9.54E-01	7.02E-01	5.54E-02	5.46E-02	2.9423
Hydrochloric Acid	3.63E-07	3.30E-06	6.29E-06	9.80E-06	2.21E-05	1.69E-05			0.0001
Lead Compounds	3.52E-03	6.76E-03	8.77E-03	1.04E-02	2.40E-02	1.77E-02	2.77E-03	2.73E-03	0.0766
Manganese Compounds	6.98E-03	1.33E-02	1.72E-02	2.03E-02	4.70E-02	3.46E-02	1.56E-01	1.54E-01	0.4497
Mercury Compounds	2.63E-04	5.02E-04	6.49E-04	7.65E-04	1.77E-03	1.30E-03	2.37E-04	2.34E-04	0.0057
Nickel Compounds	1.97E-01	3.75E-01	4.85E-01	5.72E-01	1.32E+00	9.73E-01	9.10E-04	8.97E-04	3.9253
Naphthalene	2.63E-03	5.02E-03	6.49E-03	7.65E-03	1.77E-02	1.30E-02	6.92E-03	6.82E-03	0.0662
Phosphorus	2.20E-02	4.20E-02	5.43E-02	6.40E-02	1.48E-01	1.09E-01			0.4392
POM	3.03E-03	5.77E-03	7.46E-03	8.80E-03	2.03E-02	1.50E-02	7.91E-03	7.80E-03	0.0761
Selenium Compounds	1.59E-03	3.03E-03	3.92E-03	4.62E-03	1.07E-02	7.87E-03	4.94E-03	4.87E-03	0.0415
Toluene	1.44E-02	2.75E-02	3.56E-02	4.20E-02	9.69E-02	7.14E-02	5.56E-02	5.48E-02	0.3982
Xylene							3.82E-02	3.76E-02	0.0758
o-Xylene	2.54E-04	4.84E-04	6.26E-04	7.38E-04	1.70E-03	1.26E-03			0.0051
Total HAPS	4.26E-01	8.14E-01	1.05E+00	1.24E+00	2.86E+00	2.11E+00	3.55E-01	3.50E-01	9.2100

HAWAIIAN ELECTRIC COMPANY, INC.

DATE	CHECK NO.
04/07/05	64906
HECO	006202

The attached Check is in Payment of the following invoice(s):

Date	Invoice/Credit Memo	Type	Description	Gross	Discount	Net
03/29/05	03292005 HECO 2004 ANNUAL EMISSIONS FEES, NON			164956.64		164956.64
			TOTAL	164956.64	0.00	164956.64

94/0006640/10098118 Moore Wallace North America, Inc. ©2004 SecurityScan
Patents 5,018,767; 5,193,853; 5,767,083; PressureSeal Patent 4,918,126 - 0221

REMOVE DOCUMENT ALONG THIS PERFORATION

HAWAIIAN ELECTRIC COMPANY, INC.

Bank of Hawaii
Honolulu, Hawaii
59-102 / 1213

CHECK NO. 64906

PAY ONE HUNDRED SIXTY FOUR THOUSAND NINE HUNDRED FIFTY SIX DOLLARS AND 64 CENTS

TO THE ORDER OF

HAWAII STATE DEPT. OF HEALTH
CLEAN AIR SPECIAL FUND - NON
P.O. BOX 3378
HONOLULU HI 96801

DATE 04/07/05

CHECK AMOUNT *******164,956.64

Jayne S. J. Sak

⑈064906⑈ ⑆121301028⑆ 0081⑈032688⑈

SEE REVERSE SIDE FOR OPENING INSTRUCTIONS

Hawaiian Electric Company, Inc.
PO BOX 2750 HONOLULU, HI 96840-0001
KS3-AD

HAWAII STATE DEPT. OF HEALTH
CLEAN AIR SPECIAL FUND - NON
P.O. BOX 3378
HONOLULU HI 96801

64906

HAWAIIAN ELECTRIC COMPANY, INC.

DATE	CHECK NO.
04/07/05	64905
HECO	006201

The attached Check is in Payment of the following invoice(s):

Date	Invoice/Credit Memo	Type	Description	Gross	Discount	Net
03/29/05	03292005 HECO 2004 ANNUAL EMISSIONS FEES			676587.77		676587.77
			TOTAL	676587.77	0.00	676587.77

REMOVE DOCUMENT ALONG THIS PERFORATION

HAWAIIAN ELECTRIC COMPANY, INC.

Bank of Hawaii
Honolulu, Hawaii

59-102
1213

CHECK NO.
64905

The following were submitted to DOH in electronic format

2004 HAWAII EMISSIONS INVENTORY REPORT
FACILITY GENERAL INFORMATION FORM

FIPS State-County-Facility ID: 1500300501

DATA REPRESENTATIVE OF JANUARY 1, 2004 - DECEMBER 31, 2004
(Form instructions are located on the Facility General Information Form Instructions)

1) Facility Name: HECO - Kahe Power Plant

2) Permit No(s).: 0240-01-C

3) Physical Facility Address:

Street: 92-200 Farrington Highway

City: Kapolei Zip Code: 96707

4) Emissions Inventory Contact Person Information:

Contact Name:	Phone # + ext:	Fax #	Internet (E-mail) Address:
Michael Watanabe	(808) 543-4517	(808) 543-4511	michael.watanabe@heco.com
Mailing Address:	Mailing City:	State:	Zip Code:
P.O. Box 2750	Honolulu	HI	96840

5) Identify CERR source type (CERR thresholds found on the first page of the General Instructions):
(select one) Type A: X Type B: Neither:

6) SIC Code (Primary / Secondary): 4911 / 7) NAICS Code: 221112

8) Principal Product: Electrical Generation

9) Facility UTM coordinates (m): Horizontal (x): 590070 (Easting (m)) Vertical (y): 2362250 (Northing (m))

Zone: 4 (Zone 4 or 5) Datum: Old Hawaiian (e.g., NAD 83, NAD 27, or Old Hawaiian)

10) When the 2003 Hawaii Emissions Inventory Report has been completed, please sign and date below.

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Department of Health as public record.

Signature: _____

Name: Thomas C. Simmons Date: _____
Responsible Official

Title: VP, Power Supply Operations & Maint.

Emission Unit ID	Proposed ID No. (Fuel ID No.)	Emission Unit Description (75 characters max.)	Fuel Type	Fuel Material Code	SCC	Fuel Heat Content (Annual Avg.)	Fuel Heat Content Units Abbreviation	Fuel Heat Content Units Conversion	Sulfur Content (Max. % wt. and EE Fuel Spec)	Ash Content (max. % wt. also 5.15 for #6 Fuel)	Max. Hourly Consumption Rate (Max. Hourly Maximum Capacity) (MBH)	Permitted Design Capacity	Permitted Design Capacity Unit Abbreviation	Permitted Design Capacity Conversion	Hours Per Day	Days/Wk	Wks/Yr	Seasonal Percent % (Jan. Mar.) (Jan. - Mar. 3rd Fiscal Qtr.)	Seasonal Percent % (Apr. June) (Apr. - June 4th Fiscal Qtr.)	Seasonal Percent % (July Sept.) (July - Sept. 1st Fiscal Qtr.)	Seasonal Percent % (Oct. Dec.) (Oct. - Dec. 2nd Fiscal Qtr.)	Annual Emissions Tons/Year	Daily Emissions Lbs/Day	Emissions Unit Fuel Usage Units
FK1	1	Boiler K-1	No. 6 Fuel Oil	923	10100401	150.644	E6BTU	E3GAL	0.420		92	903	E6BTU	HR	0000	24	7	52	26	25	26	23	34,702	95	E3GAL
FK1	3	Boiler K-1	Spec Used Oil	2	10101302	150.000	E6BTU	E3GAL	0.073		92	330	E6BTU	HR	0000	24	7	52	Not Applicable* - Less Than 5% of Total Fuel				25.866	NA* < 5% of Total Fuel	E3GAL
FK1	4	Boiler K-1	Propane	255	10101002	91.300	E6BTU	E3GAL	0.004		92	903	E6BTU	HR	0000	24	7	52					0.828		E3GAL
FK2	1	Boiler K-2	No. 6 Fuel Oil	923	10100401	150.644	E6BTU	E3GAL	0.420		90	900	E6BTU	HR	0000	24	7	52	26	24	26	24	33,783	93	E3GAL
FK2	3	Boiler K-2	Spec Used Oil	2	10101302	150.000	E6BTU	E3GAL	0.073		90	330	E6BTU	HR	0000	24	7	52	Not Applicable* - Less Than 5% of Total Fuel				8.565	NA* < 5% of Total Fuel	E3GAL
FK2	4	Boiler K-2	Propane	255	10101002	91.300	E6BTU	E3GAL	0.004		90	900	E6BTU	HR	0000	24	7	52					0.794		E3GAL
FK3	1	Boiler K-3	No. 6 Fuel Oil	923	10100401	150.644	E6BTU	E3GAL	0.420		92	892	E6BTU	HR	0000	24	7	52	26	25	25	24	36,097	99	E3GAL
FK3	2	Boiler K-3	No. 2 Fuel Oil	58	10100501	136.415	E6BTU	E3GAL	0.033		92	892	E6BTU	HR	0000	24	7	52	Not Applicable* - Less Than 5% of Total Fuel				11.206	NA* < 5% of Total Fuel	E3GAL
FK3	3	Boiler K-3	Spec Used Oil	2	10101302	150.000	E6BTU	E3GAL	0.073		92	330	E6BTU	HR	0000	24	7	52					26.696		E3GAL
FK4	1	Boiler K-4	No. 6 Fuel Oil	923	10100401	150.644	E6BTU	E3GAL	0.420		93	918	E6BTU	HR	0000	24	7	52	28	27	27	18	36,278	99	E3GAL
FK4	2	Boiler K-4	No. 2 Fuel Oil	58	10100501	136.415	E6BTU	E3GAL	0.033		93	918	E6BTU	HR	0000	24	7	52	Not Applicable* - Less Than 5% of Total Fuel				10.855	NA* < 5% of Total Fuel	E3GAL
FK4	3	Boiler K-4	Spec Used Oil	2	10101302	150.000	E6BTU	E3GAL	0.073		93	330	E6BTU	HR	0000	24	7	52					4.380		E3GAL
FK5	1	Boiler K-5	No. 6 Fuel Oil	923	10100401	150.644	E6BTU	E3GAL	0.420		142	1,466	E6BTU	HR	0000	24	7	52	4	35	37	24	38,637	106	E3GAL
FK5	2	Boiler K-5	No. 2 Fuel Oil	58	10100501	136.415	E6BTU	E3GAL	0.033		142	1,466	E6BTU	HR	0000	24	7	52	Not Applicable* - Less Than 5% of Total Fuel				12.239	NA* < 5% of Total Fuel	E3GAL
FK6	1	Boiler K-6	No. 6 Fuel Oil	923	10100401	150.644	E6BTU	E3GAL	0.420		142	1,516	E6BTU	HR	0000	24	7	52	26	21	28	25	53,550	147	E3GAL
FK6	2	Boiler K-6	No. 2 Fuel Oil	58	10100501	136.415	E6BTU	E3GAL	0.033		142	1,516	E6BTU	HR	0000	24	7	52	Not Applicable* - Less Than 5% of Total Fuel				15.083	NA* < 5% of Total Fuel	E3GAL
FA	2	Diesel Generator A	No. 2 Fuel Oil	58	10100501	136.415	E6BTU	E3GAL	0.033		2.5	30.5	E6BTU	HR	0000	24	7	52	26	22	27	25	8.271	0.0227	E3GAL
FB	2	Diesel Generator B	No. 2 Fuel Oil	58	10100501	136.415	E6BTU	E3GAL	0.033		2.5	30.5	E6BTU	HR	0000	24	7	52	23	32	24	21	8.444	0.0231	E3GAL

* Not Applicable - Less than 5% of Total Fuel - Due to the small percentage of fuel used compared to the primary fuel seasonal breakdown is Not Applicable.

Deviation in Operating Schedules for Calendar Year 2004 :

Did any emissions unit significantly deviate from the normal operating schedule for more than a one month period (e.g., downtime for maintenance, equipment breakdown; or deviate due to low demand, from a normal schedule of 24 hrs/day, 7 days/wk, & 52 wks/yr to a low demand schedule of 8 hrs/day, 5 days/wk) for more than one month?

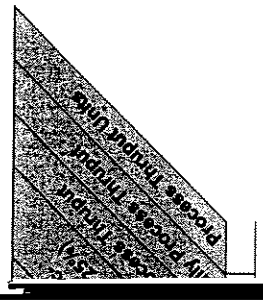
☑ Yes ☐ No

If YES, list on a separate attachment the emission unit; reason for the deviation; and deviation period, schedule, and month(s).

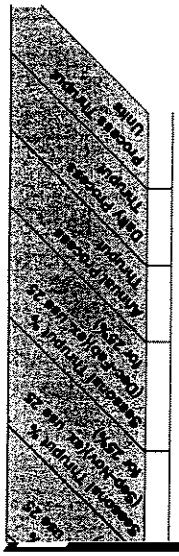
Deviation from the normal operating schedule

FK5 Unit was on outage for overhaul 2/1 - 5/14/2004

Tanks


Process Throughput
Process Throughput
Process throughput units

Misc



Velocity (ft/sec)	Stack Temperature (deg. F)	Stack Flow (ACF
5	424	4,544
5	424	4,544
5	424	4,544
2	404	4,345
2	404	4,345
2	404	4,345
1	423	4,686
1	423	4,686
1	423	4,686
1	413	4,601
1	413	4,601
1	413	4,601
1	430	7,325
1	430	7,325
1	418	6,726
1	418	6,726
3	677	415
1	677	415

Stack Info

Controls

...ection Data (if applicable)	AP-42 Efficiency Factor Reliability (A-F) (if applicable)	Annual Emissions (TON/YR)
		1163.2
	A	818.1
	A	87
	A	13.3
	A	149
	C	122.9
	D	26.1
	C	113.4
	C	87.3
	C	89.9
	C	63.8
	C	2.63E-02
		0.138
	A	0.608
	A	0.065
	A	0.010
	A	0.070
	C	0.050
	D	0.019
	C	0.055
	C	0.036
	C	0.046
	C	0.026
6	D	7.11E-03
		0.0002
6	E	0.0079
6	E	0.0013
6	E	0.0002

Emissions

...ator	Method Code	Total Capture Control Efficiency % (ex. use 90 for 90%)	EF Controlled = "C" or Uncontrolled = "U"	AP-42 Section Data (if applicable)	AP-42 Efficiency Factor Reliability (A-F) (if applicable)	Annual Emissions (TON/YR)
	08		U	10/96, 7/98	E, D	0.0005
	08		U	10/96	E	0.0002
	08		U	7/98	D	0.0002
	08		U	10/96, 7/98	E, D	0.0005
	08		U	10/96	E	0.0002
	08		U	10/96, 7/98	E, D	0.0005
	08		U	10/96	E	0.0002
	03		U			1132.4
	08		U	9/98	A	796.5
	08		U	9/98	A	84.7
	08		U	9/98	A	12.9
	08		U	9/98	A	145
	08		U	9/98	C	119.6
	08		U	9/98	D	25.4
	08		U	9/98	C	110.4
	08		U	9/98	C	85
	08		U	9/98	C	87.5
	08		U	9/98	C	62.1
	08		U	9/98	C	2.56E-02
	03		U			0.046
	08		U	9/98	A	0.201
	08		U	9/98	A	0.021
	08		U	9/98	A	0.003
	08		U	9/98	A	0.023
	08		U	9/98	C	0.017
	08		U	9/98	D	0.006
	08		U	9/98	C	0.018
	08		U	9/98	C	0.012

Emissions

Emission Factor (EF)	EF Unit Numerator	EF Unit Denominator	Method Code	Total Capture Control Efficiency % (EX use 80 for 80%)	EF Controlled = C, or Uncontrolled = U	AP-42 Section Date (if applicable)	AP-42 Efficiency Factor Reliability (A-F) (if applicable)	Annual Emissions (TON/YR)
3.5	LB	E3GAL	08		U	9/98	C	0.015
2.0	LB	E3GAL	08		U	9/98	C	0.009
5.50E-01	LB	E3GAL	08		U	10/96	D	2.36E-03
0.00424	LB	E6BTU	03		U			0.0002
0.208	LB	E6BTU	08		U	10/96	E	0.0075
0.0350	LB	E6BTU	08		U	10/96	E	0.0013
0.00546	LB	E6BTU	08		U	10/96	E	0.0002
0.01210	LB	E6BTU	08		U	10/96, 7/98	E, D	0.0004
0.00656	LB	E6BTU	08		U	10/96	E	0.0002
0.00559	LB	E6BTU	08		U	7/98	D	0.0002
0.01210	LB	E6BTU	08		U	10/96, 7/98	E, D	0.0004
0.00656	LB	E6BTU	08		U	10/96	E	0.0002
0.01210	LB	E6BTU	08		U	10/96, 7/98	E, D	0.0004
0.00656	LB	E6BTU	08		U	10/96	E	0.0002
0.445	LB	E6BTU	03		U			1209.9
0.313	LB	E6BTU	08		U	9/98	A	851.0
0.0333	LB	E6BTU	08		U	9/98	A	90.5
0.00507	LB	E6BTU	08		U	9/98	A	13.8
0.0570	LB	E6BTU	08		U	9/98	A	155
0.0470	LB	E6BTU	08		U	9/98	C	127.8
0.0100	LB	E6BTU	08		U	9/98	D	27.2
0.0434	LB	E6BTU	08		U	9/98	C	118
0.0334	LB	E6BTU	08		U	9/98	C	90.8
0.0326	LB	E6BTU	08		U	9/98	C	88.6
0.0226	LB	E6BTU	08		U	9/98	C	61.4
1.01E-05	LB	E6BTU	08		U	9/98	C	2.74E-02
0.033	LB	E6BTU	03		U			0.025
0.171	LB	E6BTU	08		U	9/98	D	0.131

cy Factor y (A-F) (if licable) / Annual Emissions (TON/YR)
0.027
0.001
0.018
0.011
0.007
0.013
0.005
0.008
0.001
8.24E-06
0.143
0.627
0.067
0.010
0.072
0.052
0.009
0.025
0.016
0.021
0.012
7.34E-03
1216
855.3
91
13.9
155.8
128.4

Emissions

EF Unit Designation	Method Code	Total Capture Control Efficiency % (ex. use 40 for 40%)	EF Controlled * C or Uncontrolled * U	AP-42 Section Date (YY-MM) applicable	AP-42 Emission Factor Reliability (A-E) (applicable)	Annual Emissions (TON/YR)
E6BTU	08		U	9/98	D	27.3
E6BTU	08		U	9/98	C	118.6
E6BTU	08		U	9/98	C	91.3
E6BTU	08		U	9/98	C	94
E6BTU	08		U	9/98	C	66.7
E6BTU	08		U	9/98	C	2.75E-02
E6BTU	03		U			0.024
E6BTU	08		U	9/98	D	0.127
E6BTU	08		U	9/98	A	0.026
E6BTU	08		U	9/98	A	0.001
E6BTU	08		U	9/98	A	0.017
E6BTU	08		U	9/98	E	0.011
E6BTU	08		U	9/98	D	0.007
E6BTU	08		U	9/98	E	0.012
E6BTU	08		U	9/98	E	0.005
E6BTU	08		U	9/98	E	0.008
E6BTU	08		U	9/98	E	0.001
E6BTU	08		U	9/98	C	7.99E-06
E3GAL	03		U			0.023
E3GAL	08		U	9/98	A	0.103
E3GAL	08		U	9/98	A	0.011
E3GAL	08		U	9/98	A	0.002
E3GAL	08		U	9/98	A	0.012
E3GAL	08		U	9/98	C	0.009
E3GAL	08		U	9/98	D	0.003
E3GAL	08		U	9/98	C	0.009
E3GAL	08		U	9/98	C	0.006
E3GAL	08		U	9/98	C	0.008

Emission Unit ID	Process ID No. (Fuel/Product/Material ID No.)	Annual Process Thruput (from process info. forms)	Annual Process Thruput Units	Pollutant	Emission Factor (EF)	EF Unit Numerator	EF Unit Denominator	Method Code	Total Capture Control Efficiency % (ex. use 80 for 80%)	EF Controlled = "C" or Uncontrolled = "U"	AP-42 Section Date (if applicable)	AP-42 Efficiency Factor Reliability (A-F) (if applicable)	Annual Emissions (TON/YR)
FK4	3	4.380	E3GAL	PM25-FIL	2.0	LB	E3GAL	08		U	9/98	C	0.004
FK4	3	4.380	E3GAL	7439921	5.50E-01	LB	E3GAL	08		U	10/96	D	1.20E-03
FK5	1	5,820,442	E6BTU	SO2	0.445	LB	E6BTU	03		U			1295
FK5	1	5,820,442	E6BTU	NOX	0.313	LB	E6BTU	08		U	9/98	A	910.9
FK5	1	5,820,442	E6BTU	CO	0.0333	LB	E6BTU	08		U	9/98	A	96.9
FK5	1	5,820,442	E6BTU	VOC	0.00507	LB	E6BTU	08		U	9/98	A	14.8
FK5	1	5,820,442	E6BTU	PM-PRI	0.0570	LB	E6BTU	08		U	9/98	A	165.9
FK5	1	5,820,442	E6BTU	PM-FIL	0.0470	LB	E6BTU	08		U	9/98	C	136.8
FK5	1	5,820,442	E6BTU	PM-CON	0.0100	LB	E6BTU	08		U	9/98	D	29.1
FK5	1	5,820,442	E6BTU	PM10-PRI	0.0434	LB	E6BTU	08		U	9/98	C	126.3
FK5	1	5,820,442	E6BTU	PM10-FIL	0.0334	LB	E6BTU	08		U	9/98	C	97.2
FK5	1	5,820,442	E6BTU	PM25-PRI	0.0344	LB	E6BTU	08		U	9/98	C	100.1
FK5	1	5,820,442	E6BTU	PM25-FIL	0.0244	LB	E6BTU	08		U	9/98	C	71
FK5	1	5,820,442	E6BTU	7439921	1.01E-05	LB	E6BTU	08		U	9/98	C	2.93E-02
FK5	2	1,670	E6BTU	SO2	0.033	LB	E6BTU	03		U			0.028
FK5	2	1,670	E6BTU	NOX	0.171	LB	E6BTU	08		U	9/98	D	0.143
FK5	2	1,670	E6BTU	CO	0.0357	LB	E6BTU	08		U	9/98	A	0.030
FK5	2	1,670	E6BTU	VOC	0.00143	LB	E6BTU	08		U	9/98	A	0.001
FK5	2	1,670	E6BTU	PM-PRI	0.0236	LB	E6BTU	08		U	9/98	A	0.020
FK5	2	1,670	E6BTU	PM-FIL	0.01430	LB	E6BTU	08		U	9/98	E	0.012
FK5	2	1,670	E6BTU	PM-CON	0.00929	LB	E6BTU	08		U	9/98	D	0.008
FK5	2	1,670	E6BTU	PM10-PRI	0.01640	LB	E6BTU	08		U	9/98	E	0.014
FK5	2	1,670	E6BTU	PM10-FIL	0.00714	LB	E6BTU	08		U	9/98	E	0.006
FK5	2	1,670	E6BTU	PM25-PRI	0.01110	LB	E6BTU	08		U	9/98	E	0.009
FK5	2	1,670	E6BTU	PM25-FIL	0.00179	LB	E6BTU	08		U	9/98	E	0.001
FK5	2	1,670	E6BTU	7439921	1.08E-05	LB	E6BTU	08		U	9/98	C	9.00E-06
FK6	1	8,067,051	E6BTU	SO2	0.445	LB	E6BTU	03		U			1794.9
FK6	1	8,067,051	E6BTU	NOX	0.220	LB	E6BTU	04		U			887.4

EF Unit Numerator	EF Unit Denominator	Method Code	Total Capture Control Efficiency % (or Leave blank for 100%)	EF Controlled "C" or Uncontrolled "U"	AP-42 Section Date (if applicable)	AP-42 Efficiency Factor (if applicable)	Annual Emissions (TONS)
	E6BTU	08		U	9/98	A	134.3
	E6BTU	08		U	9/98	A	20.4
	E6BTU	04		U			326.7
	E6BTU	04		U			302.5
	E6BTU	04		U			24.2
	E6BTU	04		U			238
	E6BTU	04		U			215
	E6BTU	04		U			181.5
	E6BTU	04		U			157.3
	E6BTU	08		U	9/98	C	4.06E-02
	E6BTU	03		U			0.034
	E6BTU	04		U			0.226
	E6BTU	08		U	9/98	A	0.037
	E6BTU	08		U	9/98	A	0.001
	E6BTU	04		U			0.083
	E6BTU	04		U			0.077
	E6BTU	04		U			0.006
	E6BTU	04		U			0.061
	E6BTU	04		U			0.055
	E6BTU	04		U			0.046
	E6BTU	04		U			0.040
	E6BTU	08		U	9/98	C	1.11E-05
	E6BTU	03		U			0.019
	E6BTU	08		U	10/96	B	1.805
	E6BTU	08		U	10/96	C	0.480
	E6BTU	08		U	10/96	E	0.046
	E6BTU	08		U	10/96	E	0.039
	E6BTU	08		U	10/96	E	0.035

Emission Unit ID	Process ID No. (Fuel/Product/Material ID No.)	Annual Process Thruput (from process info. forms)	Annual Process Thruput Units	Pollutant	Emission Factor (EF)	EF Unit Numerator	EF Unit Denominator	Method Code	Total Capture Control Efficiency % (ex. use 80 for 80%)	EF Controlled = "C" or Uncontrolled = "U"	AP-42 Section Date (if applicable)	AP-42 Efficiency Factor Reliability (A-F) (if applicable)	Annual Emissions (TON/YR)
FA	2	1,128	E6BTU	PM-CON	0.0077	LB	E6BTU	08		U	10/96	E	0.004
FA	2	1,128	E6BTU	PM10-PRI	0.0573	LB	E6BTU	08		U	10/96	E	0.032
FA	2	1,128	E6BTU	PM10-FIL	0.0496	LB	E6BTU	08		U	10/96	E	0.028
FA	2	1,128	E6BTU	PM25-PRI	0.0556	LB	E6BTU	08		U	10/96	E	0.031
FA	2	1,128	E6BTU	PM25-FIL	0.0479	LB	E6BTU	08		U	10/96	E	0.027
FA	2	1,128	E6BTU	7439921	1.40E-05	LB	E6BTU	08		U	4/00	D	7.90E-06
FB	2	1,152	E6BTU	SO2	0.033	LB	E6BTU	03		U			0.019
FB	2	1,152	E6BTU	NOX	3.20	LB	E6BTU	08		U	10/96	B	1.843
FB	2	1,152	E6BTU	CO	0.850	LB	E6BTU	08		U	10/96	C	0.490
FB	2	1,152	E6BTU	VOC	0.0819	LB	E6BTU	08		U	10/96	E	0.047
FB	2	1,152	E6BTU	PM-PRI	0.0697	LB	E6BTU	08		U	10/96	E	0.040
FB	2	1,152	E6BTU	PM-FIL	0.0620	LB	E6BTU	08		U	10/96	E	0.036
FB	2	1,152	E6BTU	PM-CON	0.0077	LB	E6BTU	08		U	10/96	E	0.004
FB	2	1,152	E6BTU	PM10-PRI	0.0573	LB	E6BTU	08		U	10/96	E	0.033
FB	2	1,152	E6BTU	PM10-FIL	0.0496	LB	E6BTU	08		U	10/96	E	0.029
FB	2	1,152	E6BTU	PM25-PRI	0.0556	LB	E6BTU	08		U	10/96	E	0.032
FB	2	1,152	E6BTU	PM25-FIL	0.0479	LB	E6BTU	08		U	10/96	E	0.028
FB	2	1,152	E6BTU	7439921	1.40E-05	LB	E6BTU	08		U	4/00	D	8.06E-06

2004 HAWAII EMISSIONS INVENTORY REPORT
FACILITY GENERAL INFORMATION FORM

FIPS State-County-Facility ID: 1500300500

DATA REPRESENTATIVE OF JANUARY 1, 2004 - DECEMBER 31, 2004
(Form instructions are located on the Facility General Information Form Instructions)

1) Facility Name: HECO - Honolulu Generating Station

2) Permit No(s).: 0238-01-C

3) Physical Facility Address:

Street: 170 Ala Moana Blvd.

City: Honolulu Zip Code: 96813

Emission Unit ID	Process ID No. (Fuel ID No.)	Emission Unit Description (75 characters max)	Fuel Type	Fuel Material Code	SCC	Fuel Feed Capacity (Annual Rate)	Fuel Heat Content (Gross Heating Value)		Fuel Heat Content (Net Heating Value)		Sulfur Content Range % (Wt. and # S/E BTU)	Ash Content Range % (Wt. and # S/E BTU)	Max Allowable Operating Rate for Boiler Submittal		Nominal Design Capacity		Permitted Design Capacity Unit Modifier	Permitted Design Capacity Unit	Deviation	Hrs/Day	Days/Wk	Wks/Yr	Percent Throughput Winter	Percent Throughput Spring	Percent Throughput Summer	Percent Throughput Fall	Annual Throughput	Daily Throughput	Throughput Units
F8	1	Boiler 8	No. 6 Fuel Oil	923	10100401	152.596	E6BTU	E3GAL	0.420			56.0	589.0	E6BTU	HR	0000	24	7	52	21	29	32	18	6,436.536	17.6	E3GAL
F8	2	Boiler 8	No. 2 Fuel Oil	58	10100501	136.897	E6BTU	E3GAL	0.180			56.0	589.0	E6BTU	HR	0000	24	7	52	Not Applicable* - Less Than 5% of Total Fuel				6.706	NA* < 5% of Total Fuel	E3GAL
F8	3	Boiler 8	Spec Used Oil	2	10101302	150.000	E6BTU	E3GAL	0.070			56.0	180.0	E6BTU	HR	0000	24	7	52					0.089		E3GAL
F8	4	Boiler 8	Propane	255	10101002	91.300	E6BTU	E3GAL	0.004			56.0	589.0	E6BTU	HR	0000	24	7	52					1.435		E3GAL
F9	1	Boiler 9	No. 6 Fuel Oil	923	10100401	152.596	E6BTU	E3GAL	0.420			57.0	631.5	E6BTU	HR	0000	24	7	52	24	27	28	21	9,693.909	26.6	E3GAL
F9	2	Boiler 9	No. 2 Fuel Oil	58	10100501	136.897	E6BTU	E3GAL	0.180			57.0	631.5	E6BTU	HR	0000	24	7	52	Not Applicable* - Less Than 5% of Total Fuel				10.098	NA* < 5% of Total Fuel	E3GAL
F9	3	Boiler 9	Spec Used Oil	2	10101302	150.000	E6BTU	E3GAL	0.070			57.0	180.0	E6BTU	HR	0000	24	7	52					0.151		E3GAL
F9	4	Boiler 9	Propane	255	10101002	91.300	E6BTU	E3GAL	0.004			57.0	631.5	E6BTU	HR	0000	24	7	52					2.280		E3GAL

* Not Applicable - Less than 5% of Total Fuel - Due to the small percentage of fuel used compared to the primary fuel seasonal breakdown is Not Applicable.

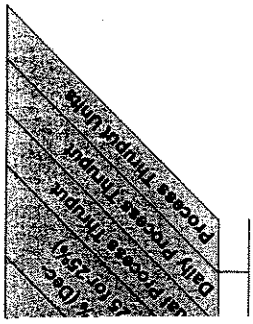
Deviation in Operating Schedules for Calendar Year 2004

Did any emissions unit significantly deviate from the normal operating schedule for more than a one month period (e.g., downtime for maintenance, equipment breakdown; or deviate due to low demand, from a normal schedule of 24 hrs/day, 7 days/wk, & 52 wks/yr to a low demand schedule of 8 hrs/day, 5 days/wk) for more than one month?

☐ Yes ☑ No

If YES, list on a separate attachment the emission unit; reason for the deviation; and deviation period, schedule, and month(s).

Tanks



Capacity Design Unit Denominator	Start Time (HHMM)	Hr/Day	Day/Wk	Wk/Yr	Seasonal Thruput % (Mar-May)(Ex. use 25 for 25%)	Seasonal Thruput % (Jun-Aug)(Ex. use 25 for 25%)	Seasonal Thruput % (Sep-Nov)(Ex. use 25 for 25%)	Seasonal Thruput % (Dec-Feb)(Ex. use 25 for 25%)	Annual Process Thruput	Daily Process Thruput	Process Telspot Units

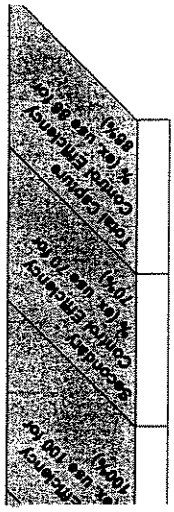
g schedule for more than a one
n; or deviate due to low
/yr to a low demand schedule of

e deviation; and deviation

Stack Height (ft)	Stack Diameter (ft)	Stack Velocity (ft/sec)	Stack Temperature (deg. F)	Stack Flow (ACFM)
161.4	9.0	48.4	325	3,073
161.4	9.0	48.4	325	3,073
161.4	9.0	48.4	325	3,073
161.4	9.0	48.4	325	3,073
161.4	9.0	48.4	325	3,073
161.4	9.0	48.4	325	3,073
161.4	9.0	48.4	325	3,073
161.4	9.0	48.4	325	3,073

Stack Info

Controls


Efficiency
Use 100 of
(100%)
Secondary
Control Efficiency
* (or use 10%)
(10%)
Coal Sphere
Control Efficiency
* (or use
99%)

Denominator	Method Code	Total Capture Control Efficiency % (ex. use 80 for 80%)	EF Controlled = "C" or Uncontrolled = "U"	AP-42 Section Date (if applicable)	AP-42 Efficiency Factor Reliability (A-F) (if applicable)	Annual Emissions (TON/YR)
U	03		U			215.6
U	08		U	9/98	A	153.7
U	08		U	9/98	A	16.4
U	08		U	9/98	A	2.5
U	08		U	9/98	A	27.7
U	08		U	9/98	C	22.8
U	08		U	9/98	D	4.9
U	08		U	9/98	C	21.1
U	08		U	9/98	C	16.2
U	08		U	9/98	C	16.7
U	08		U	9/98	C	11.8
U	08		U	9/98	C	4.94E-03
U	03		U			0.0849
U	08		U	9/98	D	0.0785
U	08		U	9/98	A	0.0164
U	08		U	9/98	A	0.0007
U	08		U	9/98	A	0.0108
U	08		U	9/98	E	0.0066
U	08		U	9/98	D	0.0043
U	08		U	9/98	E	0.0075
U	08		U	9/98	E	0.0033
U	08		U	9/98	E	0.0051
U	08		U	9/98	E	0.0008
U	08		U	9/98	C	4.95E-06
.	03		U			0.0005
.	08		U	9/98	A	0.0021
.	08		U	9/98	A	0.0002
.	08		U	9/98	A	0.0000

Emissions

nissions

Factor (A-f)(H) Annual Emissions (TONYR)
25.2
17.8
7.45E-03
0.1279
0.1182
0.0247
0.0010
0.0163
0.0099
0.0064
0.0113
0.0049
0.0077
0.0012
7.46E-06
0.0008
0.0036
0.0004
0.0001
0.0004
0.0003
0.0001
0.0003
0.0002
0.0003
0.0002
4.16E-05
0.0004

Emissions

Emissions

2004 HAWAII EMISSIONS INVENTORY REPORT
FACILITY GENERAL INFORMATION FORM

FIPS State-County-Facility ID: 1500300502

DATA REPRESENTATIVE OF JANUARY 1, 2004 - DECEMBER 31, 2004
(Form instructions are located on the Facility General Information Form Instructions)

1) Facility Name: HECO - Waiau Power Plant

2) Permit No(s).: 0239-01-C

3) Physical Facility Address:

Street: 475 Kamehameha Hwy.

City: Pearl City Zip Code: 96782

4) Emissions Inventory Contact Person Information:

Contact Name:	Phone # + ext:	Fax #	Internet (E-mail) Address:
Michael Watanabe	(808) 543-4517	(808) 543-4511	michael.watanabe@heco.com
Mailing Address:	Mailing City:	State:	Zip Code:
P.O. Box 2750	Honolulu	HI	96840

5) Identify CERR source type (CERR thresholds found on the first page of the General Instructions):
(select one) Type A: _____ Type B: X Neither: _____

6) SIC Code (Primary / Secondary): 4911 / _____ 7) NAICS Code: 221112

8) Principal Product: Electrical Generation

9) Facility UTM coordinates (m): Horizontal (x): 607337 (Easting (m)) Vertical (y): 2356837 (Northing (m))

Zone: 4 (Zone 4 or 5) Datum: Old Hawaiian (e.g., NAD 83, NAD 27, or Old Hawaiian)

10) When the 2003 Hawaii Emissions Inventory Report has been completed, please sign and date below.

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Department of Health as public record.

Signature: _____

Name: Thomas C. Simmons Date: _____
Responsible Official

Title: VP, Power Supply Operations & Maint.

Emission Unit ID	Process ID No. (Fuel ID No.)	Emission Unit Description (75 characters max.)	Fuel Type	Fuel Material Code	SCC	Fuel Heat Content (Annual Avg.)	Fuel Heat Content Unit Numerator	Fuel Heat Content Unit Denominator	Sulfur Content Mass % (or use 0.5 for 0.5%)	Ash Content Mass % (or use 0.13 for 0.13%)	Max. Kilowatts Capacity for Electric Generators (MW)	Permitted Design Capacity (Unit Numerator)	Permitted Design Capacity Unit Denominator	Start Time (Military)	Hr/Day	Day/Wk	Wk/Yr	Seasonal Throughput % (Mar-May) (as use 25 for 25%)	Seasonal Throughput % (Jun-Aug)(as use 25 for 25%)	Seasonal Throughput % (Sep-Nov)(as use 25 for 25%)	Seasonal Throughput % (Dec-Feb)(as use 25 for 25%)	Annual Process Throughput	Daily Process Throughput	Process Throughput Units
F3	1	Boiler 3	No. 6 Fuel Oil	923	10100401	150.667	E6BTU	E3GAL	0.410		49.0	576.0	E6BTU	HR	0000	24	7	52	48	3	16	33	4,634.043	12.70	E3GAL
F3	2	Boiler 3	Spec Used Oil	2	10101302	150.000	E6BTU	E3GAL	0.096		49.0	180.0	E6BTU	HR	0000	24	7	52	Not Applicable* - Less Than 5% of Total Fuel				0.022	NA* < 5% of Total Fuel	E3GAL
F3	3	Boiler 3	Propane	255	10101002	91.300	E6BTU	E3GAL	0.004		49.0	576.0	E6BTU	HR	0000	24	7	52					0.909		E3GAL
F4	1	Boiler 4	No. 6 Fuel Oil	923	10100401	150.667	E6BTU	E3GAL	0.410		49.0	585.2	E6BTU	HR	0000	24	7	52	27	26	26	21	8,845.085	24.2	E3GAL
F4	2	Boiler 4	Spec Used Oil	2	10101302	150.000	E6BTU	E3GAL	0.096		49.0	180.0	E6BTU	HR	0000	24	7	52	Not Applicable* - Less Than 5% of Total Fuel				0.200	NA* < 5% of Total Fuel	E3GAL
F4	3	Boiler 4	Propane	255	10101002	91.300	E6BTU	E3GAL	0.004		49.0	585.2	E6BTU	HR	0000	24	7	52					1.678		E3GAL
F5	1	Boiler 5	No. 6 Fuel Oil	923	10100401	150.667	E6BTU	E3GAL	0.410		57.0	633.0	E6BTU	HR	0000	24	7	52	30	21	26	23	11,430.154	31.3	E3GAL
F5	2	Boiler 5	Spec Used Oil	2	10101302	150.000	E6BTU	E3GAL	0.096		57.0	180.0	E6BTU	HR	0000	24	7	52	Not Applicable* - Less Than 5% of Total Fuel				0.381	NA* < 5% of Total Fuel	E3GAL
F5	3	Boiler 5	Propane	255	10101002	91.300	E6BTU	E3GAL	0.004		57.0	633.0	E6BTU	HR	0000	24	7	52					2.142		E3GAL
F6	1	Boiler 6	No. 6 Fuel Oil	923	10100401	150.667	E6BTU	E3GAL	0.410		58.0	637.4	E6BTU	HR	0000	24	7	52	26	27	29	18	13,478.942	36.9	E3GAL
F6	2	Boiler 6	Spec Used Oil	2	10101302	150.000	E6BTU	E3GAL	0.096		58.0	180.0	E6BTU	HR	0000	24	7	52	Not Applicable* - Less Than 5% of Total Fuel				0.594	NA* < 5% of Total Fuel	E3GAL
F6	3	Boiler 6	Propane	255	10101002	91.300	E6BTU	E3GAL	0.004		58.0	637.4	E6BTU	HR	0000	24	7	52					2.744		E3GAL
F7	1	Boiler 7	No. 6 Fuel Oil	923	10100401	150.667	E6BTU	E3GAL	0.410		92.0	921.6	E6BTU	HR	0000	24	7	52	27	25	23	25	31,128.393	85.3	E3GAL
F7	4	Boiler 7	No. 2 Fuel Oil	58	10100501	136.415	E6BTU	E3GAL	0.038		92.0	921.6	E6BTU	HR	0000	24	7	52	Not Applicable* - Less Than 5% of Total Fuel				5.344	NA* < 5% of Total Fuel	E3GAL
F7	2	Boiler 7	Spec Used Oil	2	10101302	150.000	E6BTU	E3GAL	0.096		92.0	180.0	E6BTU	HR	0000	24	7	52					1.342		E3GAL
F8	1	Boiler 8	No. 6 Fuel Oil	923	10100401	150.667	E6BTU	E3GAL	0.410		92.0	923.2	E6BTU	HR	0000	24	7	52	35	30	7	28	22,924.971	62.8	E3GAL
F8	4	Boiler 8	No. 2 Fuel Oil	58	10100501	136.415	E6BTU	E3GAL	0.038		92.0	923.2	E6BTU	HR	0000	24	7	52	Not Applicable* - Less Than 5% of Total Fuel				4.592	NA* < 5% of Total Fuel	E3GAL
F8	2	Boiler 8	Spec Used Oil	2	10101302	150.000	E6BTU	E3GAL	0.096		92.0	180.0	E6BTU	HR	0000	24	7	52					1.022		E3GAL
F9	4	CT 9	No. 2 Fuel Oil	58	20100101	136.415	E6BTU	E3GAL	0.166		52.0	690.5	E6BTU	HR	0000	24	7	52	25	43	21	11	2,873.389	7.87	E3GAL
F10	4	CT 10	No. 2 Fuel Oil	58	20100101	136.415	E6BTU	E3GAL	0.166		50.0	681.5	E6BTU	HR	0000	24	7	52	19	35	36	10	2,833.361	7.76	E3GAL

* Not Applicable - Less than 5% of Total Fuel - Due to the small percentage of fuel used compared to the primary fuel seasonal breakdown is Not Applicable.

Deviation in Operating Schedules for Calendar Year 2004:

Did any emissions unit significantly deviate from the normal operating schedule for more than a one month period (e.g., downtime for maintenance, equipment breakdown; or deviate due to low demand, from a normal schedule of 24 hrs/day, 7 days/wk, & 52 wks/yr to a low demand schedule of 8 hrs/day, 5 days/wk) for more than one month?

☑ Yes ☐ No

If YES, list on a separate attachment the emission unit; reason for the deviation; and deviation period, schedule, and month(s).

Deviations from the normal operating schedule

F3 Unit was on outage for overhaul 6/4 - 10/4/2004
F8 Unit was on outage for overhaul 8/20 - 10/29/2004
F9 Unit was on outage for repairs 10/12 - 12/31/2004

Emission Unit ID	Process ID No. (Stored Product ID No.)	Tank Description (16 characters max.)	Stored Product Type	Product Material Code	SCC	Permitted Design Capacity	Permitted Design Capacity Unit Numerator	Permitted Design Capacity Unit Denominator (if applicable)	Start Time (HHMM)	Hr/Day	Day/Wk	Wk/Yr	Seasonal Thruput % (Mar May) (use 25 for 25%)	Seasonal Thruput % (Jun Aug) (use 25 for 25%)	Seasonal Thruput % (Sep Nov) (use 25 for 25%)	Seasonal Thruput % (Dec Feb) (use 25 for 25%)	Annual Process Thruput	Daily Process Thruput	Process Thruput Units

Deviation in Operating Schedules for Calendar Year 2004:

Did any emissions unit significantly deviate from the normal operating schedule for more than a one month period (e.g., downtime for maintenance, equipment breakdown; or deviate due to low demand, from a normal schedule of 24 hrs/day, 7 days/wk, & 52 wks/yr to a low demand schedule of 8 hrs/day, 5 days/wk) for more than one month?

☐ Yes ☐ No

If YES, list on a separate attachment the emission unit; reason for the deviation; and deviation period, schedule, and month(s).

Design Capacity Unit Denominator	Start Time (HHMM)	Hr/Day	Day/Mk	Wk/Yr	Seasonal Thruput % (Mar-May)(ex. use 25 for 25%)	Seasonal Thruput % (Jun-Aug)(ex. use 25 for 25%)	Seasonal Thruput % (Sep-Nov)(ex. use 25 for 25%)	Seasonal Thruput % (Dec-Feb)(ex. use 25 for 25%)	Annual Process Thruput	Daily Process Thruput	Process Thruput Units

schedule for more than a one
or deviate due to low
to a low demand schedule of

deviation; and deviation

(m)	Zone Z (or ?)	Datum (Old Hawn. NAD Z1 or NAD 83)	Stack H (ft)	Stack D (ft)	Stack T (Deg F)	Stack Velocity (ft/sec)	Stack Flow (ACFM)
3	4	Old Hawaiian	137.8	10.0	40.2	385	3,157
3	4	Old Hawaiian	137.8	10.0	40.2	385	3,157
3	4	Old Hawaiian	137.8	10.0	40.2	385	3,157
)	4	Old Hawaiian	137.8	10.0	40.2	385	3,157
)	4	Old Hawaiian	137.8	10.0	40.2	385	3,157
)	4	Old Hawaiian	137.8	10.0	40.2	385	3,157
5	4	Old Hawaiian	137.5	9.0	40.2	286	2,551
5	4	Old Hawaiian	137.5	9.0	40.2	286	2,551
5	4	Old Hawaiian	137.5	9.0	40.2	286	2,551
3	4	Old Hawaiian	137.5	9.0	40.2	286	2,551
3	4	Old Hawaiian	137.5	9.0	40.2	286	2,551
3	4	Old Hawaiian	137.5	9.0	40.2	286	2,551
)	4	Old Hawaiian	137.5	10.5	44.1	246	3,820
)	4	Old Hawaiian	137.5	10.5	44.1	246	3,820
)	4	Old Hawaiian	137.5	10.5	44.1	246	3,820
	4	Old Hawaiian	137.5	10.5	44.1	246	3,820
	4	Old Hawaiian	137.5	10.5	44.1	246	3,820
	4	Old Hawaiian	137.5	10.5	44.1	246	3,820
5	4	Old Hawaiian	31.8	14.1	122.4	1090	19,218
)	4	Old Hawaiian	31.8	14.1	122.4	1090	19,218

ontrols

...ency Factor ...ility (A-F) (if applicable) Annual Emissions (TON/YR)
151.9
109.3
11.6
1.8
19.7
16.2
3.5
15
11.5
11.9
8.4
3.51E-03
0.00017
0.00052
0.00006
0.00001
0.00006
0.00005
0.00002
0.00005
0.00003
0.00004
0.00002
6.05E-06
0.00018
0.00863
0.00145
0.00023
0.00050

Emissions

AP-42 Section Date (if applicable)	AP-42 Efficiency Factor Reliability (A-F) (if applicable)	Annual Emissions (TON/A)
)/96	E	0.00027
/98	D	0.00023
6, 7/98	E, D	0.00050
)/96	E	0.00027
6, 7/98	E, D	0.00050
)/96	E	0.00027
		289.9
/98	A	208.6
/98	A	22.2
/98	A	3.4
/98	A	37.6
/98	C	30.9
/98	D	6.7
/98	C	28.6
/98	C	21.9
/98	C	22.7
/98	C	16.1
/98	C	6.71E-03
/98	A	0.00151
/98	A	0.00470
/98	A	0.00050
/98	A	0.00008
/98	A	0.00056
/98	C	0.00041
/98	D	0.00015
/98	C	0.00044
/98	C	0.00029
/98	C	0.00036
/98	C	0.00021

Emissions

d Code	Total Capture Control Efficiency % (EX uses 80 for 80%)	EF Controlled = "C" or Uncontrolled = "U"	AP-42 Section Date (if applicable)	AP-42 Efficiency Factor Reliability (A-F) (if applicable)	Annual Emissions (TON/YR)
		U	10/96	D	5.50E-05
		U			0.00032
		U	10/96	E	0.01593
		U	10/96	E	0.00268
		U	10/96	E	0.00042
		U	10/96, 7/98	E, D	0.00093
		U	10/96	E	0.00050
		U	7/98	D	0.00043
		U	10/96, 7/98	E, D	0.00093
		U	10/96	E	0.00050
		U	10/96, 7/98	E, D	0.00093
		U	10/96	E	0.00050
		U			374.6
		U	9/98	A	269.5
		U	9/98	A	28.7
		U	9/98	A	4.4
		U	9/98	A	48.6
		U	9/98	C	40.0
		U	9/98	D	8.6
		U	9/98	C	36.9
		U	9/98	C	28.3
		U	9/98	C	29.4
		U	9/98	C	20.8
		U	9/98	C	8.67E-03
		U	9/98	A	0.00288
		U	9/98	A	0.00895
		U	9/98	A	0.00095
		U	9/98	A	0.00014
		U	9/98	A	0.00107

	Emission Factor (EF)	EF Unit Numerator	EF Unit Denominator	Method Code	Total Capture Control Efficiency % (e.g. use .90 for 90%)	EF Controlled = "C" or Uncontrolled = "U"	AP-42 Sector Data (if applicable)	AP-42 Efficiency Factor Reliability (A-F) (if applicable)	Annual Emissions (TON/Yr)
L	4.10	LB	E3GAL	08		U	9/98	C	0.00078
)N	1.50	LB	E3GAL	08		U	9/98	D	0.00029
RI	4.41	LB	E3GAL	08		U	9/98	C	0.00084
IL	2.91	LB	E3GAL	08		U	9/98	C	0.00055
RI	3.63	LB	E3GAL	08		U	9/98	C	0.00069
IL	2.13	LB	E3GAL	08		U	9/98	C	0.00041
1	0.550	LB	E3GAL	08		U	10/96	D	1.05E-04
	0.00424	LB	E6BTU	03		U			0.00041
	0.208	LB	E6BTU	08		U	10/96	E	0.02034
	0.0350	LB	E6BTU	08		U	10/96	E	0.00342
	0.00546	LB	E6BTU	08		U	10/96	E	0.00053
I	0.01210	LB	E6BTU	08		U	10/96, 7/98	E, D	0.00118
	0.00656	LB	E6BTU	08		U	10/96	E	0.00064
N	0.00559	LB	E6BTU	08		U	7/98	D	0.00055
RI	0.01210	LB	E6BTU	08		U	10/96, 7/98	E, D	0.00118
IL	0.00656	LB	E6BTU	08		U	10/96	E	0.00064
RI	0.01210	LB	E6BTU	08		U	10/96, 7/98	E, D	0.00118
IL	0.00656	LB	E6BTU	08		U	10/96	E	0.00064
	0.435	LB	E6BTU	03		U			441.7
	0.313	LB	E6BTU	08		U	9/98	A	317.8
	0.0333	LB	E6BTU	08		U	9/98	A	33.8
	0.00507	LB	E6BTU	08		U	9/98	A	5.1
I	0.0564	LB	E6BTU	08		U	9/98	A	57.3
	0.0464	LB	E6BTU	08		U	9/98	C	47.1
N	0.0100	LB	E6BTU	08		U	9/98	D	10.2
RI	0.0429	LB	E6BTU	08		U	9/98	C	43.6
IL	0.0329	LB	E6BTU	08		U	9/98	C	33.4
RI	0.03410	LB	E6BTU	08		U	9/98	C	34.6
IL	0.02410	LB	E6BTU	08		U	9/98	C	24.5

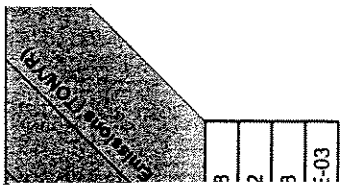
Emission Unit ID	Process ID No. (Fuel/Product/Material ID No.)	Annual Process Throughput (from process info forms)	Annual Process Throughput Units	Pollutant	Emission Factor (EF)	EF Unit Numerator	EF Unit Denominator	Method Code	Total Capture Control Efficiency % (ez use 80) for	EF Controlled = "C" or Uncontrolled = "U"	AP-42 Section Date (if applicable)	AP-42 Efficiency Factor Reliability (A-F) (if applicable)	Annual Emissions (TON/YR)
F6	1	2,030,832	E6BTU	7439921	1.01E-05	LB	E6BTU	08		U	9/98	C	1.02E-02
F6	2	0.594	E3GAL	SO2	15.1	LB	E3GAL	08		U	9/98	A	0.00448
F6	2	0.594	E3GAL	NOX	47.0	LB	E3GAL	08		U	9/98	A	0.01396
F6	2	0.594	E3GAL	CO	5.00	LB	E3GAL	08		U	9/98	A	0.00149
F6	2	0.594	E3GAL	VOC	0.760	LB	E3GAL	08		U	9/98	A	0.00023
F6	2	0.594	E3GAL	PM-PRI	5.60	LB	E3GAL	08		U	9/98	A	0.00166
F6	2	0.594	E3GAL	PM-FIL	4.10	LB	E3GAL	08		U	9/98	C	0.00122
F6	2	0.594	E3GAL	PM-CON	1.50	LB	E3GAL	08		U	9/98	D	0.00045
F6	2	0.594	E3GAL	PM10-PRI	4.41	LB	E3GAL	08		U	9/98	C	0.00131
F6	2	0.594	E3GAL	PM10-FIL	2.91	LB	E3GAL	08		U	9/98	C	0.00086
F6	2	0.594	E3GAL	PM25-PRI	3.63	LB	E3GAL	08		U	9/98	C	0.00108
F6	2	0.594	E3GAL	PM25-FIL	2.13	LB	E3GAL	08		U	9/98	C	0.00063
F6	2	0.594	E3GAL	7439921	5.50E-01	LB	E3GAL	08		U	10/96	D	1.63E-04
F6	3	251	E6BTU	SO2	0.00424	LB	E6BTU	03		U			0.00053
F6	3	251	E6BTU	NOX	0.208	LB	E6BTU	08		U	10/96	E	0.02605
F6	3	251	E6BTU	CO	0.0350	LB	E6BTU	08		U	10/96	E	0.00438
F6	3	251	E6BTU	VOC	0.00546	LB	E6BTU	08		U	10/96	E	0.00068
F6	3	251	E6BTU	PM-PRI	0.01210	LB	E6BTU	08		U	10/96, 7/98	E, D	0.00152
F6	3	251	E6BTU	PM-FIL	0.00656	LB	E6BTU	08		U	10/96	E	0.00082
F6	3	251	E6BTU	PM-CON	0.00559	LB	E6BTU	08		U	7/98	D	0.00070
F6	3	251	E6BTU	PM10-PRI	0.01210	LB	E6BTU	08		U	10/96, 7/98	E, D	0.00152
F6	3	251	E6BTU	PM10-FIL	0.00656	LB	E6BTU	08		U	10/96	E	0.00082
F6	3	251	E6BTU	PM25-PRI	0.01210	LB	E6BTU	08		U	10/96, 7/98	E, D	0.00152
F6	3	251	E6BTU	PM25-FIL	0.00656	LB	E6BTU	08		U	10/96	E	0.00082
F7	1	4,690,022	E6BTU	SO2	0.435	LB	E6BTU	03		U			1020.1
F7	1	4,690,022	E6BTU	NOX	0.313	LB	E6BTU	08		U	9/98	A	734.0
F7	1	4,690,022	E6BTU	CO	0.0333	LB	E6BTU	08		U	9/98	A	78.1
F7	1	4,690,022	E6BTU	VOC	0.00507	LB	E6BTU	08		U	9/98	A	11.9
F7	1	4,690,022	E6BTU	PM-PRI	0.0564	LB	E6BTU	08		U	9/98	A	132.3

Emissions

al Emissions (TONS)	
	08.8
	3.5
	00.6
	7.2
	0.0
	6.5
	5E-02
	1385
	6233
	1301
	0052
	0860
	0521
	0339
	0598
	0260
	0405
	0065
	E-06
	1013
	3154
	0336
	0051
	0376
	3275
	0101
	0296
	0195
	0244

Emissions

AP-42 Section, Date (if applicable)	AP-42 Efficiency Factor, Reliability (A-F) (if applicable)	Annual Emissions (TON/YR)
/98	A	0.00039
/98	A	0.00286
/98	C	0.00210
/98	D	0.00077
/98	C	0.00225
/98	C	0.00149
/98	C	0.00185
/98	C	0.00109
/96	D	2.81E-04
		33.4
/00	C	174.0
/00	C	0.7
/00	E	0.08
/00	C	2.4
/00	C	0.9
/00	C	1.4
/95	E	2.2
/95	E	0.8
/95	E	2.2
/95	E	0.8
/00	D	2.77E-03
		33.0
/00	C	171.6
/00	C	0.6
/00	E	0.08
/00	C	2.3
/00	C	0.8
/00	C	1.4
/95	E	2.2

Emissions

Emissions