TANKS 4.0
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification:	Idaho Supreme 16,000 gal Tank
City:	Firth
State:	Idaho
Company:	Idaho Supreme
Type of Tank:	Vertical Fixed Roof Tank
Description:	

Tank Dimensions

Shell Height (ft):	21.00
Diameter (ft):	11.50
Liquid Height (ft):	20.59
Avg. Liquid Height (ft):	11.00
Volume (gallons):	16,000.00
Turnovers:	465.38
Net Throughput (gal/yr):	7,446,000.00
Is Tank Heated (y/n):	Y

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition:	Good
Roof Color/Shade:	White/White
Roof Condition:	Good

Roof Characteristics

Type:	Dome
Height (ft):	0.00
Radius (ft) (Dome Roof):	0.00

Breather Vent Settings

Vacuum Settings (psig):	0.00
Pressure Settings (psig):	0.00

Meteorological Data used in Emissions Calculations: Pocatello, Idaho (Avg Atmospheric Pressure = 12.53 psia)

TANKS 4.0
Emissions Report - Summary Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F) Avg.	Min.	Max.	Liquid Bulk Temp. (deg F)	Vapor Pressures (psia) Avg.	Min.	Max.	Vap Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Distillate fuel oil no. 2	All	48.21	41.93	54.49	46.37	0.0044	0.0035	0.0054	130.0000			188.00	Option 5: A=12.101, B=8907

TANKS 4.0
Emissions Report - Summary Format
Individual Tank Emission Totals

Annual Emissions Report

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	23.19	1.05	24.25

TANKS 4.0
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification:	Idaho Supreme 20,000 gal Tank
City:	Firth
State:	Idaho
Company:	Idaho Supreme
Type of Tank:	Vertical Fixed Roof Tank
Description:	

Tank Dimensions

Shell Height (ft):	31.20
Diameter (ft):	10.50
Liquid Height (ft):	30.00
Avg. Liquid Height (ft):	20.00
Volume (gallons):	20,000.00
Turnovers:	3.50
Net Throughput (gal/yr):	70,000.00
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition:	Good
Roof Color/Shade:	White/White
Roof Condition:	Good

Roof Characteristics

Type:	Dome
Height (ft):	0.00
Radius (ft) (Dome Roof):	0.00

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig):	0.03

Meteorological Data used in Emissions Calculations: Pocatello, Idaho (Avg Atmospheric Pressure = 12.53 psia)

TANKS 4.0
Emissions Report - Summary Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F) Avg.	Min.	Max.	Liquid Bulk Temp. (deg F)	Vapor Pressures (psia) Avg.	Min.	Max.	Vap Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Distillate fuel oil no. 2	All	48.21	41.93	54.49	46.37	0.0044	0.0035	0.0054	130.0000			188.00	Option 5: A=12.101, B=8907

TANKS 4.0
Emissions Report - Summary Format
Individual Tank Emission Totals

Annual Emissions Report

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	0.94	1.75	2.69

TANKS 4.0
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification:	Idaho Supreme 30,000 Tank
City:	Firth
State:	Idaho
Company:	Idaho Supreme
Type of Tank:	Vertical Fixed Roof Tank
Description:	

Tank Dimensions

Shell Height (ft):	26.00
Diameter (ft):	14.00
Liquid Height (ft):	25.00
Avg. Liquid Height (ft):	14.00
Volume (gallons):	28,788.51
Turnovers:	258.64
Net Throughput (gal/yr):	7,446,000.00
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition:	Good
Roof Color/Shade:	White/White
Roof Condition:	Good

Roof Characteristics

Type:	Dome
Height (ft):	0.00
Radius (ft) (Dome Roof):	0.00

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig):	0.03

Meteorological Data used in Emissions Calculations: Pocatello, Idaho (Avg Atmospheric Pressure = 12.53 psia)

TANKS 4.0
Emissions Report - Summary Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F) Avg.	Min.	Max.	Liquid Bulk Temp. (deg F)	Vapor Pressures (psia) Avg.	Min.	Max.	Vap Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Distillate fuel oil no. 2	All	48.21	41.93	54.49	46.37	0.0044	0.0035	0.0054	130.0000			188.00	Option 5: A=12.101, B=8907

TANKS 4.0
Emissions Report - Summary Format
Individual Tank Emission Totals

Annual Emissions Report

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	28.36	3.38	31.74

For 2 tanks, the total emissions are 63.5 lb/yr.

TANKS 4.0
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification:	Idaho Supreme 10000 gal diesel
City:	Firth
State:	Idaho
Company:	Idaho Supreme
Type of Tank:	Horizontal Tank
Description:	

Tank Dimensions

Shell Length (ft):	27.40
Diameter (ft):	8.00
Volume (gallons):	10,000.00
Turnovers:	0.00
Net Throughput (gal/yr):	10,000.00
Is Tank Heated (y/n):	N
Is Tank Underground (y/n):	N

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition:	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig):	0.03

Meteorological Data used in Emissions Calculations: Pocatello, Idaho (Avg Atmospheric Pressure = 12.53 psia)

TANKS 4.0
Emissions Report - Summary Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F) Avg.	Min.	Max.	Liquid Bulk Temp. (deg F)	Vapor Pressures (psia) Avg.	Min.	Max.	Vap Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Distillate fuel oil no. 2	All	48.21	41.93	54.49	46.37	0.0044	0.0035	0.0054	130.0000			188.00	Option 5: A=12.101, B=8907

TANKS 4.0
Emissions Report - Summary Format
Individual Tank Emission Totals

Annual Emissions Report

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	0.13	1.49	1.62

Idaho Supreme Fugitive Emissions -- Paved Roads

AP-42, December 2003, 13.2.1 Paved Roads. Equation 2

$$E(lb/vmt) = [k\ (sL/2)^{.65}\ (W/3)^{1.5} - C]*(1-P/4N)$$

PM	0.082	lb/vmt
PM-10	0.016	lb/vmt
sL =	2.4	g/m^2
W =	10	ton avg.
P =	90	days
C =	0.00047	lb/vmt
VMT =	49,275	miles per year
PM =	13.0	tpy
PM-10 =	2.5	tpy

Grainloading Emissions for Boiler at IDaho Supreme

1. Correct the flue gas volume to the altitude of Dubois, Idaho:

$$Altitude := 4575\ ft$$

Subtract altitude pressure correction factor (inches of Hg) from standard atmospheric pressure at sea level to obtain the corrected flue gas pressure.

$$Correction := 0.01 \cdot \frac{Altitude}{10} \qquad Correction = 4.575 \quad \text{inch of Hg}$$

$$StandAtmPress := 29.92 \quad \text{inch of Hg}$$

$$CorrFluePress := StandAtmPress - Correction$$

$$CorrFluePress = 25.345 \quad \text{inch of Hg}$$

2. Convert grain loading at sea level to altitude:

cg_{sl} = grain loading at sea level, gr/dscf

cg_{alt} = grain loading at altitude, gr/dscf

$$cg_{sl} := 0.0391 \quad \frac{gr}{dscf} \qquad @\ 3\%\ O_2$$

Correct grain loading for altitude:

$$cg_{alt} := cg_{sl} \cdot \frac{CorrFluePress}{StandAtmPress}$$

$$cg_{alt} = 0.0331 \quad \frac{gr}{dscf}$$

In Compliance

3. For front half only:

$$cg_{slfh} := 0.0213 \quad \frac{gr}{dscf} \quad @\ 5.5\%\ O_2$$

$$cg_{altfh} := \frac{CorrFluePress \cdot cg_{slfh}}{StandAtmPress}$$

$$cg_{altfh} = 0.018 \quad \frac{gr}{dscf}$$

$$O_{2test} := 5.5 \quad \%$$

$$O_{2corrected} := 3.0 \quad \%$$

$$cg_{corfh} := \frac{(20.9 - O_{2corrected}) \cdot cg_{altfh}}{(20.9 - O_{2test})}$$

$$cg_{corfh} = 0.021 \quad \frac{gr}{dscf} \quad \text{front half}$$

Process Weight Calculations

Source Description	Process Weight, PW (lb/hr)	Process Weight Rate Limitations - E (lb/hr)	PM Emissions - Actual (lb/hr)	In Compliance? (Y/N)
Fluidized Bed Dryer	2,000	4.3	1.5	Y
Silo Storage A	9,600	10.9	6.40E-02	Y
Silo Storage B	9,600	10.9	6.40E-02	Y
Silo Storage C	9,600	10.9	6.40E-02	Y
Silo Storage D	9,600	10.9	6.40E-02	Y
Silo Storage E	9,600	10.9	6.40E-02	Y
Silo Storage F	9,600	10.9	6.40E-02	Y
Silo Storage G	9,600	10.9	6.40E-02	Y
Silo Storage H	9,600	10.9	6.40E-02	Y
Silo Storage I	9,600	10.9	6.40E-02	Y
Silo Storage J	9,600	10.9	6.40E-02	Y
Flaker #4	4,256	6.77	3.75E-01	Y
Flaker #3	4,256	6.77	3.75E-01	Y
Flaker #2	4,256	6.77	3.75E-01	Y
Flaker #1	4,256	6.77	3.75E-01	Y
Flaker #8	4,256	6.77	3.75E-01	Y
Flaker #7	4,256	6.77	3.75E-01	Y
Flaker #6	4,256	6.77	3.75E-01	Y
Flaker #5	4,256	6.77	3.75E-01	Y
Flaker #10	4,256	6.77	3.75E-01	Y
Flaker #9	4,256	6.77	3.75E-01	Y
Flaker #12	4,256	6.77	3.75E-01	Y
Flaker #11	4,256	6.77	3.75E-01	Y
Dryer Stage A	4,256	6.77	3.75E-01	Y
Dryer Stage B	4,256	6.77	3.75E-01	Y
Dryer Stage C	4,256	6.77	3.75E-01	Y
Secondary Dryer (1st vent)	4,256	6.77	3.75E-01	Y

$E = 0.045(PW)^{0.60}$, for PW less than 9,250 lb/hr.

$E = 1.10(PW)^{0.25}$, for PW greater than 9,250 lb/hr.

E = Emission Limit

Idaho Supreme - Boiler #4
Potential to Emit from Micronized Coal Combustion

Boiler firing Configuration:	PC, dry bottom, wall-fired, sub-bituminous, pre-NSPS	
Coal Type:	Subbituminous	
Heat Content:	12,968	Btu/lb
Sulfur Content:	0.5	% by weight
Ash Content:	9.43	% by weight
Boiler Heat Capacity:	140	MMBtu/hr
Coal Combustion Rate:	10,796	lb/hr
	5.40	ton/hr
Coal Combustion Rate:	94,571,252	lb/yr
	47,286	tons/yr

Pollutant	Emission Controls	Control Type	Emission Factor (EF)		EF Units	AP-42 Reference Table	Emissions (lb/hr)	Emissions (lb/yr)	Emissions (tons/yr)	IDAPA 585 ELs	IDAPA 586 ELs	IDAPA 585 Requires Modeling?	IDAPA 586 Requires Modeling?	IDAPA 585 AACC	IDAPA 586 AAC	Max Ann Average Impact of 1 lb/hr emissions: IDAPA 585 Model Pred Max Impact	Max 24hr Average Impact of 1 lb/hr emissions: IDAPA 586 Model Pred Max Impact	Modeling Shows Compliance?
SO_2	N		35	S	lb/ton	1.1-3	94.5	827,498	413.7									
NO_x	N		12		lb/ton	1.1-3	64.8	567,428	283.7									
CO	N		0.5		lb/ton	1.1-3	2.7	23,643	11.8									
PM[a]	N		10	A	lb/ton	1.1-4	509.0	4,459,035	2,229.5									
PM[b]	Y	Any[c]	0.1		lb/MMBtu	1.1-5	14.0	122,640	61.3									
PM-10	N		2.3	A	lb/ton	1.1-6	117.1	1,025,578	512.8									
PM-2.5	N		0.6	A	lb/ton	1.1-6	30.5	267,542	133.8									
PM-10	Y	BH	0.02	A	lb/ton	1.1-6	1.0180	8,918	4.5									
PM-2.5	Y	BH	0.01	A	lb/ton	1.1-6	0.5090	4,459	2.2									
VOCs	Y	FF	0.00918638		lb/ton	1.1-14	0.0496	434	0.2									
HCl	N		1.2		lb/ton	1.1-15	6.4775	56,743	28.4		0.05		yes		375		5.93	yes
HF	N		0.15		lb/ton	1.1-15	0.8097	7,093	3.5									
POM	N		2.08		lb/10^{12} Btu	1.1-17	0.0003	3	1.28E-03									
Sb	Y	FF	0.000018		lb/ton	1.1-18	0.0001	1	4.26E-04									
As	Y	FF	0.00041		lb/ton	1.1-18	0.0022	19	9.69E-03	1.56E-06		yes		2.30E-04		1.75E-04		yes
Be	Y	FF	0.000021		lb/ton	1.1-18	0.0001	1	4.96E-04	2.85E-05		yes		4.20E-03		8.94E-06		yes
Cd	Y	FF	0.000051		lb/ton	1.1-18	0.0003	2	1.21E-03	3.70E-06		yes		5.60E-04		2.17E-05		yes
Cr	Y	FF	0.00026		lb/ton	1.1-18	0.0014	12	6.15E-03		0.033		no					
Cr (VI)	Y	FF	0.000079		lb/ton	1.1-18	0.0004	4	1.87E-03	5.60E-07		yes		8.30E-05		3.36E-05		yes
Co	Y	FF	0.0001		lb/ton	1.1-18	0.0005	5	2.36E-03		0.0033		no					
Pb	Y	FF	0.00042		lb/ton	1.1-18	0.0023	20	9.93E-03		0.6 t/yr		no					
Mg	Y	FF	0.011		lb/ton	1.1-18	0.0594	520	2.60E-01		0.667		no					
Mn	Y	FF	0.00049		lb/ton	1.1-18	0.0026	23	1.16E-02		0.067		no					
Hg	Y	FF	0.000083		lb/ton	1.1-18	0.0004	4	1.96E-03		0.001		no					
Ni	Y	FF	0.00028		lb/ton	1.1-18	0.0015	13	6.62E-03	2.75E-05		yes		4.20E-03		1.19E-04		yes
Se	Y	FF	0.0013		lb/ton	1.1-18	0.0070	61	3.07E-02	0.013		no						
CH_4	N		0.04		lb/ton	1.1-19	0.2159	1,891	9.46E-01									
TNMOC	N		0.06		lb/ton	1.1-19	0.3239	2,837	1.42E+00									
N_2O	N		0.03		lb/ton	1.1-19	0.1619	1,419	7.09E-01									
$CO_{2\,(high)}$	N		5510		lb/ton	1.1-20	29,742	260,543,800	130,272									
$CO_{2\,(med)}$	N		6040		lb/ton	1.1-20	32,603	285,605,182	142,803									
$CO_{2\,(low)}$	N		6250		lb/ton	1.1-20	33,737	295,535,163	147,768									

[a]Filterable
[b]Condensible
[c]Any type of control without Flue Gas Desulfurization (FGD)
BH = Baghouse
FF = Fabric Filter

Criteria Pollutant emissions well below previously modeled with same stack parameters; previous modeling conservatively shows compliance for new emission rates
TAPs compared to IDAPA ELs
TAPs requiring modeling

TOXIC AIR POLLUTANT CALCULATIONS

TABLE 1. BOILER #4 - NON-CARCINOGENS
FUEL OIL

Pollutant	Emission Factor (lb/1,000 gal)	Emissions (lb/hr)	Emissions (tons/yr)	Emissions (grams/sec)
Antimony	5.25E-03	3.41E-03	1.49E-02	4.30E-04
Barium	2.57E-03	1.67E-03	7.32E-03	2.10E-04
Chromium	8.45E-04	5.49E-04	2.41E-03	6.92E-05
Cobalt	6.02E-03	3.91E-03	1.71E-02	4.93E-04
Copper	1.76E-03	1.14E-03	5.01E-03	1.44E-04
Ethylbenzene	6.36E-05	4.13E-05	1.81E-04	5.21E-06
Fluoride	3.73E-02	2.42E-02	1.06E-01	3.05E-03
Hexane	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Manganese	3.00E-03	1.95E-03	8.54E-03	2.46E-04
Mercury*	3.00E-12	4.20E-04	1.84E-03	5.E-05
Moybdenum	7.87E-04	5.12E-04	2.24E-03	6.45E-05
Naphthalene	1.13E-03	7.35E-04	3.22E-03	9.25E-05
Pentane	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Phosphorous	9.46E-03	6.15E-03	2.69E-02	7.75E-04
Selenium*	1.50E-11	2.10E-03	9.20E-03	2.6E-04
1,1,1 - Trichlorethane (Methyl Chloroform)	2.36E-04	1.53E-04	6.72E-04	1.9E-05
Toluene	6.20E-03	4.03E-03	1.77E-02	5.08E-04
o-Xylene	1.09E-04	7.09E-05	3.10E-04	8.93E-06
Vanadium	3.18E-02	2.07E-02	9.05E-02	2.60E-03
Zinc	2.91E-02	1.89E-02	8.28E-02	2.38E-03

TABLE 2. BOILER #4 - CARCINOGENS
FUEL OIL

Pollutant	Emission Factor (lb/1,000 gal)	Emissions (lb/hr)	Emissions (tons/yr)	Emissions (grams/sec)
Arsenic	1.32E-03	8.58E-04	3.76E-03	1.08E-04
Benzene	2.14E-04	1.39E-04	6.09E-04	1.75E-05
Beryllium*	3.00E-12	4.20E-04	1.84E-03	5.29E-05
Cadmium*	3.00E-12	4.20E-04	1.84E-03	5.29E-05
Chromium VI	2.48E-04	1.61E-04	7.06E-04	2.03E-05
Formaldehyde	3.30E-02	2.15E-02	9.40E-02	2.70E-03
Nickel	8.45E-02	5.49E-02	2.41E-01	6.92E-03
Benzo(a)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benz(a)anthracene	4.01E-06	2.61E-06	1.14E-05	3.28E-07
Benzo(b)fluoranthene	1.48E-06	9.62E-07	4.21E-06	1.21E-07
Benzo(k)fluoranthene	1.48E-06	9.62E-07	4.21E-06	1.21E-07
Chrysene	2.38E-06	1.55E-06	6.78E-06	1.95E-07
Dibenzo(a,h)anthracene	1.67E-06	1.09E-06	4.75E-06	1.37E-07
Indeno(1,2,3-cd)pyrene	2.14E-06	1.39E-06	6.09E-06	1.75E-07
Total PAHs	1.3E-05	8.55E-06	3.75E-05	1.08E-06

*Emissions based on #2 diesel oil (lb/10^{12} Btu) EFs and a maximum boiler capacity of 140 MMBtu. All other toxics emissions based on fuel oil EFs (lb/10^3 gal).

Notes: Emission estimates represent maximum emissions based on burning #2, #4, #5, or #6 fuel oil, and based on AP-42 Tables 1.3-9 1.3-10, and 1.3-11.

Emissions based on boiler operating with maximum fuel usage of 650 gal/hour for both residual and diesel fuels.

TPY emissions based on 8,760 hours of operation for residual and diesel fuel oil.

TABLE 3. BOILER #4 - NON-CARCINOGENS
NATURAL GAS

Pollutant	Emission Factor (lb/1,000,000 scf)	Emissions (lb/hr)	Emissions (tons/yr)	Emissions (grams/sec)
Antimony	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Barium	4.4E-03	6.0E-04	2.6E-03	7.6E-05
Chromium	1.4E-03	1.9E-04	8.4E-04	2.4E-05
Cobalt	8.4E-05	1.1E-05	5.0E-05	1.4E-06
Copper	8.5E-04	1.2E-04	5.1E-04	1.5E-05
Ethylbenzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Fluoride	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexane	1.8E+00	2.5E-01	1.1E+00	3.1E-02
Manganese	3.8E-04	5.2E-05	2.3E-04	6.5E-06
Mercury	2.6E-04	3.5E-05	1.6E-04	4.5E-06
Molybdenum	1.1E-03	1.5E-04	6.6E-04	1.9E-05
Naphthalene	6.1E-04	8.3E-05	3.6E-04	1.0E-05
Pentane	2.6E+00	3.5E-01	1.6E+00	4.5E-02
Phosphorous	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Selenium	2.4E-05	3.3E-06	1.4E-05	4.1E-07
1,1,1 - Trichlorethane (Methyl Chloroform)	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Toluene	3.4E-03	4.6E-04	2.0E-03	5.8E-05
o-Xylene	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Vanadium, V_2O_5 Respirable Dust and fume	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Zinc	2.9E-02	4.0E-03	1.7E-02	5.0E-04

TABLE 4. BOILER #4 - CARCINOGENS
NATURAL GAS

Pollutant	Emission Factor (lb/1,000,000 scf)	Emissions (lb/hr)	Emissions (tons/yr)	Emissions (grams/sec)
Arsenic	2.0E-04	2.7E-05	1.2E-04	3.4E-06
Benzene	2.1E-03	2.9E-04	1.3E-03	3.6E-05
Beryllium	1.2E-05	1.6E-06	7.2E-06	2.1E-07
Cadmium	1.1E-03	1.5E-04	6.6E-04	1.9E-05
Chromium VI	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Formaldehyde	7.5E-02	1.0E-02	4.5E-02	1.3E-03
Nickel	2.1E-03	2.9E-04	1.3E-03	3.6E-05
Benzo(a)pyrene	1.2E-06	1.6E-07	7.2E-07	2.1E-08
Benz(a)anthracene	1.8E-06	2.5E-07	1.1E-06	3.1E-08
Benzo(b)fluoranthene	1.8E-06	2.5E-07	1.1E-06	3.1E-08
Benzo(k)fluoranthene	1.8E-06	2.5E-07	1.1E-06	3.1E-08
Chrysene	1.8E-06	2.5E-07	1.1E-06	3.1E-08
Dibenzo(a,h)anthracene	1.2E-06	1.6E-07	7.2E-07	2.1E-08
Indeno(1,2,3-cd)pyrene	1.8E-06	2.5E-07	1.1E-06	3.1E-08
Total PAHs	1.1E-05	1.6E-06	6.8E-06	2.0E-07

Notes: Emissions based on boiler operating at maximum rate of 140 MMBTU/hr.
Assumed 1,027 BTU/scf heat content of natural gas.
Emissions based on 8,760 hours of operation.

TOXIC AIR POLLUTANT CALCULATIONS

TABLE 1. BOILER #3 - NON-CARCINOGENS
NATURAL GAS

Pollutant	Emission Factor (lb/1,000,000 scf)	Emissions (lb/hr)	Emissions (tons/yr)	Emissions (grams/sec)
Antimony	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Barium	4.4E-03	1.8E-04	8.1E-04	2.3E-05
Chromium	1.4E-03	5.9E-05	2.6E-04	7.4E-06
Cobalt	8.4E-05	3.5E-06	1.5E-05	4.4E-07
Copper	8.5E-04	3.6E-05	1.6E-04	4.5E-06
Ethylbenzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Fluoride	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexane	1.8E+00	7.5E-02	3.3E-01	9.5E-03
Manganese	3.8E-04	1.6E-05	7.0E-05	2.0E-06
Mercury	2.6E-04	1.1E-05	4.8E-05	1.4E-06
Molybdenum	1.1E-03	4.6E-05	2.0E-04	5.8E-06
Naphthalene	6.1E-04	2.6E-05	1.1E-04	3.2E-06
Pentane	2.6E+00	1.1E-01	4.8E-01	1.4E-02
Phosphorous	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Selenium	2.4E-05	1.0E-06	4.4E-06	1.3E-07
1,1,1 - Trichlorethane (Methyl Chloroform)	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Toluene	3.4E-03	1.4E-04	6.2E-04	1.8E-05
o-Xylene	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Vanadium, V_2O_5 Respirable Dust and fume	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Zinc	2.9E-02	1.2E-03	5.3E-03	1.5E-04

TABLE 2. BOILER #3 - CARCINOGENS
NATURAL GAS

Pollutant	Emission Factor (lb/1,000,000 scf)	Emissions (lb/hr)	Emissions (tons/yr)	Emissions (grams/sec)
Arsenic	2.0E-04	8.4E-06	3.7E-05	1.1E-06
Benzene	2.1E-03	8.8E-05	3.9E-04	1.1E-05
Beryllium	1.2E-05	5.0E-07	2.2E-06	6.3E-08
Cadmium	1.1E-03	4.6E-05	2.0E-04	5.8E-06
Chromium VI	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Formaldehyde	7.5E-02	3.1E-03	1.4E-02	4.0E-04
Nickel	2.1E-03	8.8E-05	3.9E-04	1.1E-05
Benzo(a)pyrene	1.2E-06	5.0E-08	2.2E-07	6.3E-09
Benz(a)anthracene	1.8E-06	7.5E-08	3.3E-07	9.5E-09
Benzo(b)fluoranthene	1.8E-06	7.5E-08	3.3E-07	9.5E-09
Benzo(k)fluoranthene	1.8E-06	7.5E-08	3.3E-07	9.5E-09
Chrysene	1.8E-06	7.5E-08	3.3E-07	9.5E-09
Dibenzo(a,h)anthracene	1.2E-06	5.0E-08	2.2E-07	6.3E-09
Indeno(1,2,3-cd)pyrene	1.8E-06	7.5E-08	3.3E-07	9.5E-09
Total PAHs	1.1E-05	4.8E-07	2.1E-06	6.0E-08

Notes: Emissions based on boiler operating at maximum rate of 43.03 MMBTU/hr.
Assumed 1,027 BTU/scf heat content of natural gas.
Emissions based on 8,760 hours of operation.

TOXIC AIR POLLUTANTS CALCULATIONS

TABLE 1. FLUID BED DRYER - NON-CARCINOGENS
NATURAL GAS

Pollutant	Emission Factor (lb/1,000,000 scf)	Emissions (lb/hr)	Emissions (tons/yr)	Emissions (grams/sec)
Antimony	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Barium	4.4E-03	3.0E-05	1.3E-04	3.8E-06
Chromium	1.4E-03	9.5E-06	4.2E-05	1.2E-06
Cobalt	8.4E-05	5.7E-07	2.5E-06	7.2E-08
Copper	8.5E-04	5.8E-06	2.5E-05	7.3E-07
Ethylbenzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Fluoride	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexane	1.8E+00	1.2E-02	5.4E-02	1.5E-03
Manganese	3.8E-04	2.6E-06	1.1E-05	3.3E-07
Mercury	2.6E-04	1.8E-06	7.8E-06	2.2E-07
Molybdenum	1.1E-03	7.5E-06	3.3E-05	9.4E-07
Naphthalene	6.1E-04	4.2E-06	1.8E-05	5.2E-07
Pentane	2.6E+00	1.8E-02	7.8E-02	2.2E-03
Phosphorous	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Selenium	2.4E-05	1.6E-07	7.2E-07	2.1E-08
1,1,1 - Trichlorethane (Methyl Chloroform)	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Toluene	3.4E-03	2.3E-05	1.0E-04	2.9E-06
o-Xylene	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Vanadium, V_2O_5 Respirable Dust and fume	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Zinc	2.9E-02	2.0E-04	8.7E-04	2.5E-05

TABLE 2. FLUID BED DRYER - CARCINOGENS
NATURAL GAS

Pollutant	Emission Factor (lb/1,000,000 scf)	Emissions (lb/hr)	Emissions (tons/yr)	Emissions (grams/sec)
Arsenic	2.00E-04	1.4E-06	6.0E-06	1.7E-07
Benzene	2.1E-03	1.4E-05	6.3E-05	1.8E-06
Beryllium	1.20E-05	8.2E-08	3.6E-07	1.0E-08
Cadmium	1.10E-03	7.5E-06	3.3E-05	9.4E-07
Chromium VI	0.00E+00	0.0E+00	0.0E+00	0.0E+00
Formaldehyde	7.5E-02	5.1E-04	2.2E-03	6.4E-05
Nickel	2.1E-03	1.4E-05	6.3E-05	1.8E-06
Benzo(a)pyrene	1.2E-06	8.2E-09	3.6E-08	1.0E-09
Benz(a)anthracene	1.8E-06	1.2E-08	5.4E-08	1.5E-09
Benzo(b)fluoranthene	1.8E-06	1.2E-08	5.4E-08	1.5E-09
Benzo(k)fluoranthene	1.8E-06	1.2E-08	5.4E-08	1.5E-09
Chrysene	1.8E-06	1.2E-08	5.4E-08	1.5E-09
Dibenzo(a,h)anthracene	1.2E-06	8.2E-09	3.6E-08	1.0E-09
Indeno(1,2,3-cd)pyrene	1.8E-06	1.2E-08	5.4E-08	1.5E-09
Total PAHs	1.1E-05	7.8E-08	3.4E-07	9.8E-09

Notes: Emissions based on two Maxon burners each operating at maximum rate of 3.5 MMBTU/hr.
Assumed 1,027 BTU/scf heat content of natural gas.
Emissions based on 8,760 hours of operation.

TOXIC AIR POLLUTANT CALCULATIONS

TABLE 1. DRYERS A, B, & C - NON-CARCINOGENS
NATURAL GAS

Pollutant	Emission Factor (lb/1,000,000 scf)	Emissions Dryer A (lb/hr)	Emissions Dryer B (lb/hr)	Emissions Dryer C (lb/hr)	Dryer A Emissions (grams/sec)	Dryer B Emissions (grams/sec)	Dryer C Emissions (grams/sec)	Emissions (T/yr) All Dryers
Antimony	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Barium	4.4E-03	3.4E-05	1.4E-05	1.4E-05	4.3E-06	1.7E-06	1.7E-06	2.7E-04
Chromium	1.4E-03	1.1E-05	4.4E-06	4.4E-06	1.4E-06	5.5E-07	5.5E-07	8.6E-05
Cobalt	8.4E-05	6.5E-07	2.6E-07	2.6E-07	8.2E-08	3.3E-08	3.3E-08	5.2E-06
Copper	8.5E-04	6.6E-06	2.6E-06	2.6E-06	8.3E-07	3.3E-07	3.3E-07	5.2E-05
Ethylbenzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Fluoride	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexane	1.8E+00	1.4E-02	5.6E-03	5.6E-03	1.8E-03	7.1E-04	7.1E-04	1.1E-01
Manganese	3.8E-04	3.0E-06	1.2E-06	1.2E-06	3.7E-07	1.5E-07	1.5E-07	2.3E-05
Mercury	2.6E-04	2.0E-06	8.1E-07	8.1E-07	2.6E-07	1.0E-07	1.0E-07	1.6E-05
Molybdenum	1.1E-03	8.6E-06	3.4E-06	3.4E-06	1.1E-06	4.3E-07	4.3E-07	6.8E-05
Naphthalene	6.1E-04	4.8E-06	1.9E-06	1.9E-06	6.0E-07	2.4E-07	2.4E-07	3.7E-05
Pentane	2.6E+00	2.0E-02	8.1E-03	8.1E-03	2.6E-03	1.0E-03	1.0E-03	1.6E-01
Phosphorous	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Selenium	2.4E-05	1.9E-07	7.5E-08	7.5E-08	2.4E-08	9.4E-09	9.4E-09	1.5E-06
1,1,1 - Trichlorethane (Methyl Chloroform)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Toluene	3.4E-03	2.6E-05	1.1E-05	1.1E-05	3.3E-06	1.3E-06	1.3E-06	2.1E-04
o-Xylene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Vanadium, V_2O_5 Respirable Dust and fume	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Zinc	2.9E-02	2.3E-04	9.0E-05	9.0E-05	2.8E-05	1.1E-05	1.1E-05	1.8E-03

TABLE 2. DRYERS A, B, & C - CARCINOGENS
NATURAL GAS

Pollutant	Emission Factor (lb/1,000,000 scf)	Emissions Dryer A (lb/hr)	Emissions Dryer B (lb/hr)	Emissions Dryer C (lb/hr)	Dryer A Emissions (grams/sec)	Dryer B Emissions (grams/sec)	Dryer C Emissions (grams/sec)	Emissions (T/yr) All Dryers
Arsenic	2.0E-04	1.6E-06	6.2E-07	6.2E-07	2.0E-07	7.9E-08	7.9E-08	1.2E-05
Benzene	2.1E-03	1.6E-05	6.5E-06	6.5E-06	2.1E-06	8.2E-07	8.2E-07	1.3E-04
Beryllium	1.2E-05	9.3E-08	3.7E-08	3.7E-08	1.2E-08	4.7E-09	4.7E-09	7.4E-07
Cadmium	1.1E-03	8.6E-06	3.4E-06	3.4E-06	1.1E-06	4.3E-07	4.3E-07	6.8E-05
Chromium VI	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Formaldehyde	7.5E-02	5.8E-04	2.3E-04	2.3E-04	7.4E-05	2.9E-05	2.9E-05	4.6E-03
Nickel	2.1E-03	1.6E-05	6.5E-06	6.5E-06	2.1E-06	8.2E-07	8.2E-07	1.3E-04
Benzo(a)pyrene	1.2E-06	9.3E-09	3.7E-09	3.7E-09	1.2E-09	4.7E-10	4.7E-10	7.4E-08
Benz(a)anthracene	1.8E-06	1.4E-08	5.6E-09	5.6E-09	1.8E-09	7.1E-10	7.1E-10	1.1E-07
Benzo(b)fluoranthene	1.8E-06	1.4E-08	5.6E-09	5.6E-09	1.8E-09	7.1E-10	7.1E-10	1.1E-07
Benzo(k)fluoranthene	1.8E-06	1.4E-08	5.6E-09	5.6E-09	1.8E-09	7.1E-10	7.1E-10	1.1E-07
Chrysene	1.8E-06	1.4E-08	5.6E-09	5.6E-09	1.8E-09	7.1E-10	7.1E-10	1.1E-07
Dibenzo(a,h)anthracene	1.2E-06	9.3E-09	3.7E-09	3.7E-09	1.2E-09	4.7E-10	4.7E-10	7.4E-08
Indeno(1,2,3-cd)pyrene	1.8E-06	1.4E-08	5.6E-09	5.6E-09	1.8E-09	7.1E-10	7.1E-10	1.1E-07
Total PAHs	1.1E-05	8.9E-08	3.6E-08	3.6E-08	1.1E-08	4.5E-09	4.5E-09	7.0E-07

Notes: Emissions based on Dryer A operating at 8 MMBTU/hr, Dryer B operating at 3.2 MMBTU/hr, and Dryer C operating at 3.2 MMBTU/hr.
Assumed 1,027 BTU/scf heat content of natural gas.
Emissions based on 8,760 hours of operation for each dryer.

TOXIC AIR POLLUTANT CALCULATIONS

TABLE 1. SPACE HEATERS N, E, & S - NON-CARCINOGENS
NATURAL GAS

Pollutant	Emission Factor (lb/1,000,000 scf)	Emissions SH South (lb/hr)	Emissions SH North (lb/hr)	Emissions SH East (lb/hr)	Emissions SH South (grams/sec)	Emissions SH North (grams/sec)	Emissions SH East (grams/sec)	Emissions (T/yr) All Dryers
Antimony	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Barium	4.4E-03	3.5E-05	3.5E-05	6.6E-05	4.5E-06	4.5E-06	8.3E-06	4.1E-04
Chromium	1.4E-03	1.1E-05	1.1E-05	2.1E-05	1.4E-06	1.4E-06	2.6E-06	1.3E-04
Cobalt	8.4E-05	6.7E-07	6.7E-07	1.3E-06	8.5E-08	8.5E-08	1.6E-07	7.9E-06
Copper	8.5E-04	6.8E-06	6.8E-06	1.3E-05	8.6E-07	8.6E-07	1.6E-06	8.0E-05
Ethylbenzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Fluoride	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexane	1.8E+00	1.4E-02	1.4E-02	2.7E-02	1.8E-03	1.8E-03	3.4E-03	1.7E-01
Manganese	3.8E-04	3.1E-06	3.1E-06	5.7E-06	3.8E-07	3.8E-07	7.2E-07	3.6E-05
Mercury	2.6E-04	2.1E-06	2.1E-06	3.9E-06	2.6E-07	2.6E-07	4.9E-07	2.4E-05
Molybdenum	1.1E-03	8.8E-06	8.8E-06	1.6E-05	1.1E-06	1.1E-06	2.1E-06	1.0E-04
Naphthalene	6.1E-04	4.9E-06	4.9E-06	9.1E-06	6.2E-07	6.2E-07	1.2E-06	5.7E-05
Pentane	2.6E+00	2.1E-02	2.1E-02	3.9E-02	2.6E-03	2.6E-03	4.9E-03	2.4E-01
Phosphorous	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Selenium	2.4E-05	1.9E-07	1.9E-07	3.6E-07	2.4E-08	2.4E-08	4.5E-08	2.3E-06
1,1,1 - Trichlorethane (Methyl Chloroform)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Toluene	3.4E-03	2.7E-05	2.7E-05	5.1E-05	3.4E-06	3.4E-06	6.4E-06	3.2E-04
o-Xylene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Vanadium, V_2O_5 Respirable Dust and fume	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Zinc	2.9E-02	2.3E-04	2.3E-04	4.3E-04	2.9E-05	2.9E-05	5.5E-05	2.7E-03

TABLE 2. SPACE HEATERS N, E, & S - CARCINOGENS
NATURAL GAS

Pollutant	Emission Factor (lb/1,000,000 scf)	Emissions SH South (lb/hr)	Emissions SH North (lb/hr)	Emissions SH East (lb/hr)	Emissions SH South (grams/sec)	Emissions SH North (grams/sec)	Emissions SH East (grams/sec)	Emissions (T/yr) All Dryers
Arsenic	2.0E-04	1.6E-06	1.6E-06	3.0E-06	2.0E-07	2.0E-07	3.8E-07	1.9E-05
Benzene	2.1E-03	1.7E-05	1.7E-05	3.1E-05	2.1E-06	2.1E-06	4.0E-06	2.0E-04
Beryllium	1.2E-05	9.6E-08	9.6E-08	1.8E-07	1.2E-08	1.2E-08	2.3E-08	1.1E-06
Cadmium	1.1E-03	8.8E-06	8.8E-06	1.6E-05	1.1E-06	1.1E-06	2.1E-06	1.0E-04
Chromium VI	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Formaldehyde	7.5E-02	6.0E-04	6.0E-04	1.1E-03	7.6E-05	7.6E-05	1.4E-04	7.0E-03
Nickel	2.1E-03	1.7E-05	1.7E-05	3.1E-05	2.1E-06	2.1E-06	4.0E-06	2.0E-04
Benzo(a)pyrene	1.2E-06	9.6E-09	9.6E-09	1.8E-08	1.2E-09	1.2E-09	2.3E-09	1.1E-07
Benz(a)anthracene	1.8E-06	1.4E-08	1.4E-08	2.7E-08	1.8E-09	1.8E-09	3.4E-09	1.7E-07
Benzo(b)fluoranthene	1.8E-06	1.4E-08	1.4E-08	2.7E-08	1.8E-09	1.8E-09	3.4E-09	1.7E-07
Benzo(k)fluoranthene	1.8E-06	1.4E-08	1.4E-08	2.7E-08	1.8E-09	1.8E-09	3.4E-09	1.7E-07
Chrysene	1.8E-06	1.4E-08	1.4E-08	2.7E-08	1.8E-09	1.8E-09	3.4E-09	1.7E-07
Dibenzo(a,h)anthracene	1.2E-06	9.6E-09	9.6E-09	1.8E-08	1.2E-09	1.2E-09	2.3E-09	1.1E-07
Indeno(1,2,3-cd)pyrene	1.8E-06	1.4E-08	1.4E-08	2.7E-08	1.8E-09	1.8E-09	3.4E-09	1.7E-07
Total PAHs	1.1E-05	9.2E-08	9.2E-08	1.7E-07	1.2E-08	1.2E-08	2.2E-08	1.1E-06

Notes: Emissions based on north and south space heaters operating at 8.25 MMBTU/hr, and east space heater operating at 15.4 MMBTu/hr.
Assumed 1,027 BTU/scf heat content of natural gas.
Emissions based on 6,048 hours of operation for each dryer.

TOXIC AIR POLLUTANT CALCULATIONS

TABLE 1. MISC. SPACE HEATERS - NON-CARCINOGENS
NATURAL GAS

Pollutant	Emission Factor (lb/1,000,000 scf)	Emissions (lb/hr)	Emissions (tons/yr)	Emissions (grams/sec)
Antimony	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Barium	4.4E-03	8.6E-06	2.6E-05	1.1E-06
Chromium	1.4E-03	2.7E-06	8.2E-06	3.4E-07
Cobalt	8.4E-05	1.6E-07	4.9E-07	2.1E-08
Copper	8.5E-04	1.7E-06	5.0E-06	2.1E-07
Ethylbenzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Fluoride	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexane	1.8E+00	3.5E-03	1.1E-02	4.4E-04
Manganese	3.8E-04	7.4E-07	2.2E-06	9.3E-08
Mercury	2.6E-04	5.1E-07	1.5E-06	6.4E-08
Molybdenum	1.1E-03	2.1E-06	6.5E-06	2.7E-07
Naphthalene	6.1E-04	1.2E-06	3.6E-06	1.5E-07
Pentane	2.6E+00	5.1E-03	1.5E-02	6.4E-04
Phosphorous	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Selenium	2.4E-05	4.7E-08	1.4E-07	5.9E-09
1,1,1 - Trichlorethane (Methyl Chloroform)	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Toluene	3.4E-03	6.6E-06	2.0E-05	8.3E-07
o-Xylene	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Vanadium, V_2O_5 Respirable Dust and fume	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Zinc	2.9E-02	5.6E-05	1.7E-04	7.1E-06

TABLE 2. MISC. SPACE HEATERS - CARCINOGENS
NATURAL GAS

Pollutant	Emission Factor (lb/1,000,000 scf)	Emissions (lb/hr)	Emissions (tons/yr)	Emissions (grams/sec)
Arsenic	2.0E-04	3.9E-07	1.2E-06	4.9E-08
Benzene	2.1E-03	4.1E-06	1.2E-05	5.2E-07
Beryllium	1.2E-05	2.3E-08	7.1E-08	2.9E-09
Cadmium	1.1E-03	2.1E-06	6.5E-06	2.7E-07
Chromium VI	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Formaldehyde	7.5E-02	1.5E-04	4.4E-04	1.8E-05
Nickel	2.1E-03	4.1E-06	1.2E-05	5.2E-07
Benzo(a)pyrene	1.2E-06	2.3E-09	7.1E-09	2.9E-10
Benz(a)anthracene	1.8E-06	3.5E-09	1.1E-08	4.4E-10
Benzo(b)fluoranthene	1.8E-06	3.5E-09	1.1E-08	4.4E-10
Benzo(k)fluoranthene	1.8E-06	3.5E-09	1.1E-08	4.4E-10
Chrysene	1.8E-06	3.5E-09	1.1E-08	4.4E-10
Dibenzo(a,h)anthracene	1.2E-06	2.3E-09	7.1E-09	2.9E-10
Indeno(1,2,3-cd)pyrene	1.8E-06	3.5E-09	1.1E-08	4.4E-10
Total PAHs	1.1E-05	2.2E-08	6.7E-08	2.8E-09

Notes: Emissions based on heaters operating at an aggregate maximum rate of 2 MMBTU/hr.
Assumed 1,027 BTU/scf heat content of natural gas.
Emissions based on 6,048 hours of operation for each dryer.

TOXIC AIR POLLUTANT CALCULATIONS

TABLE 1. SECONDARY DRYER - NON-CARCINOGENS
NATURAL GAS

Pollutant	Emission Factor (lb/1,000,000 scf)	Emissions (lb/hr)	Emissions (tons/yr)	Emissions (grams/sec)
Antimony	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Barium	4.4E-03	2.4E-06	1.0E-05	3.0E-07
Chromium	1.4E-03	7.5E-07	3.3E-06	9.4E-08
Cobalt	8.4E-05	4.5E-08	2.0E-07	5.7E-09
Copper	8.5E-04	4.6E-07	2.0E-06	5.7E-08
Ethylbenzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Fluoride	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexane	1.8E+00	9.6E-04	4.2E-03	1.2E-04
Manganese	3.8E-04	2.0E-07	8.9E-07	2.6E-08
Mercury	2.6E-04	1.4E-07	6.1E-07	1.8E-08
Molybdenum	1.1E-03	5.9E-07	2.6E-06	7.4E-08
Naphthalene	6.1E-04	3.3E-07	1.4E-06	4.1E-08
Pentane	2.6E+00	1.4E-03	6.1E-03	1.8E-04
Phosphorous	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Selenium	2.4E-05	1.3E-08	5.6E-08	1.6E-09
1,1,1 - Trichlorethane (Methyl Chloroform)	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Toluene	3.4E-03	1.8E-06	8.0E-06	2.3E-07
o-Xylene	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Vanadium, V_2O_5 Respirable Dust and fume	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Zinc	2.9E-02	1.6E-05	6.8E-05	2.0E-06

TABLE 2. SECONDARY DRYER - CARCINOGENS
NATURAL GAS

Pollutant	Emission Factor (lb/1,000,000 scf)	Emissions (lb/hr)	Emissions (tons/yr)	Emissions (grams/sec)
Arsenic	2.0E-04	1.1E-07	4.7E-07	1.3E-08
Benzene	2.1E-03	1.1E-06	4.9E-06	1.4E-07
Beryllium	1.2E-05	6.4E-09	2.8E-08	8.1E-10
Cadmium	1.1E-03	5.9E-07	2.6E-06	7.4E-08
Chromium VI	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Formaldehyde	7.5E-02	4.0E-05	1.8E-04	5.1E-06
Nickel	2.1E-03	1.1E-06	4.9E-06	1.4E-07
Benzo(a)pyrene	1.2E-06	6.4E-10	2.8E-09	8.1E-11
Benz(a)anthracene	1.8E-06	9.6E-10	4.2E-09	1.2E-10
Benzo(b)fluoranthene	1.8E-06	9.6E-10	4.2E-09	1.2E-10
Benzo(k)fluoranthene	1.8E-06	9.6E-10	4.2E-09	1.2E-10
Chrysene	1.8E-06	9.6E-10	4.2E-09	1.2E-10
Dibenzo(a,h)anthracene	1.2E-06	6.4E-10	2.8E-09	8.1E-11
Indeno(1,2,3-cd)pyrene	1.8E-06	9.6E-10	4.2E-09	1.2E-10
Total PAHs	1.1E-05	6.1E-09	2.7E-08	7.7E-10

Notes: Emissions based on dryer operating at a maximum rate of 0.55 MMBTU/hr.
Assumed 1,027 BTU/scf heat content of natural gas.
Emissions based on 8,760 hours of operation for each dryer.

7.0 Ambient Air Impact Analysis

An initial ambient impact analysis was performed for the Facility Wide Permit Application submitted February 25, 2005. On October 4, 2006 in response to a letter from IDEQ an additional modeling report was submitted. The October 2006 modeling report along with correspondence with IDEQ modeling personnel is included in this application. Documentation of correspondence with IDEQ modeling personnel is representative of an approved modeling protocol. All electronic modeling files are also included on a disc with this submission. Included in Appendix A is the original modeling report and TAPs analysis submitted February 25, 2005.

AIR DISPERSION MODELING REPORT
for
IDAHO SUPREME POTATOES, INC.
FIRTH FACILITY

September 19, 2006 Supplement
to the 2004 Air Quality Modeling Report
in Support of the IDEQ Air Quality Permit for the Facility

This report describes updates to the air quality modeling analysis previously provided in support of the Idaho Supreme Firth, Idaho facility's air permit, and approved by Idaho DEQ in support of that permit application.

The facility proposes changes that would not affect the emissions from any other source included in the IDEQ-approved modeling analysis but their primary boiler, the #4 Bigelow boiler. The proposed changes would not affect the stack parameters used in previous modeling analysis.

The table at the end of this document shows the proposed revised emissions from the #4 Bigelow boiler. Those changes represent decreases in emissions for all criteria pollutants below those previously modeled, most by a factor of two or more. Therefore, the modeling analysis previously submitted and approved by IDEQ during permit review conservatively demonstrates compliance with all applicable ambient air quality impact limits for all criteria pollutants.

The revised emission inventory includes emissions of TAPs from the #4 Bigelow boiler as a result of the proposed revision. The revised total emissions were assumed to represent an increase of emissions from the boiler over previously permitted emissions. That assumption is very conservative since the previously permitted conditions included TAP emissions. The estimated increase in TAP emissions was compared against IDAPA 58.01.01.585 and 58.01.01.586 Emission Limits (ELs) and showed one non-carcinogen (hydrogen chloride), and five carcinogens (arsenic, beryllium, cadmium, chromium VI, and nickel) were emitted above IDAPA ELs. A modeling analysis was performed to estimate the maximum ambient impacts of each of the above mentioned TAPs in ambient air. The predicted maximum impacts were compared against IDAPA 58.01.01.585 AACs or IDAPA 58.01.01.586 AACCs to verify compliance with IDEQ ambient impact limits for TAPs.

The revised modeling analysis was conducted using the same model and model parameters as in the previous permit modeling approved by IDEQ after being completed consistent with an IDEQ-approved modeling protocol. The only changes that were made to the model were the revised pollutant emission rates. One meteorological file covering 5 years of meteorological data was used in this analysis, the same file used for earlier permit analyses. The reported 24-hour average is conservatively the second highest predicted value over five years of meteorological data. The TAPs were modeled as one pollutant with a normalized emission rate of 1 lb/hr (0.126 g/sec). For comparison against IDAPA 58.01.01.585 AACs, the maximum predicted 24-hour average impact (0.91499 ug/m^3) was multiplied by the emission rate for the TAP emitted above the EL to estimate maximum ambient impacts for that TAP. Similarly, the maximum impact for

the IDAPA 58.01.01.586 TAPs was estimated by multiplying the maximum predicted annual average impact (0.07889 ug/m^3) by the emission rate for the TAP emitted above the EL to estimate maximum ambient impacts for that TAP.

Figure 7-1 shows the maximum impact location for the normalized TAP emissions modeled for the annual average period, which occurred on the property / ambient air boundary NE of the boiler. All model receptors with predicted max impacts over 0.04 ug/m^3 are shown.

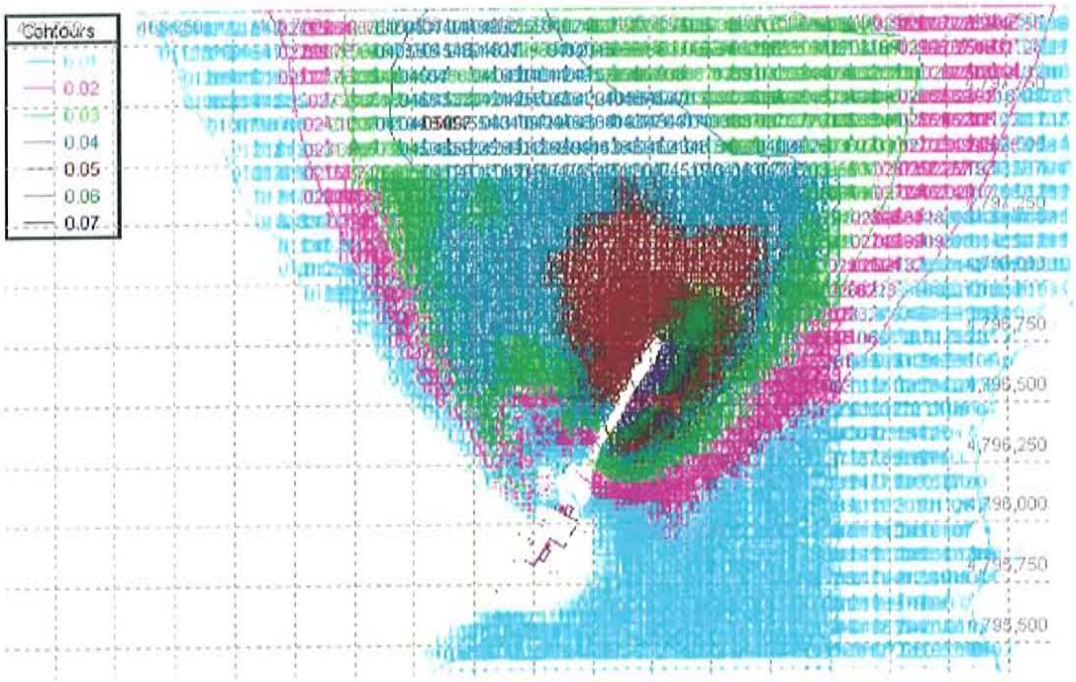

Figure 7-1 Maximum Annual Impact for 1 lb/hr Normalized Model TAP Source

Figure 7-2 shows the same for the 24-hour averaging period, where the maximum predicted impact occurred on the property / ambient air boundary west of the boiler. All model receptors with predicted max impacts over 0.4 ug/m^3 are shown.

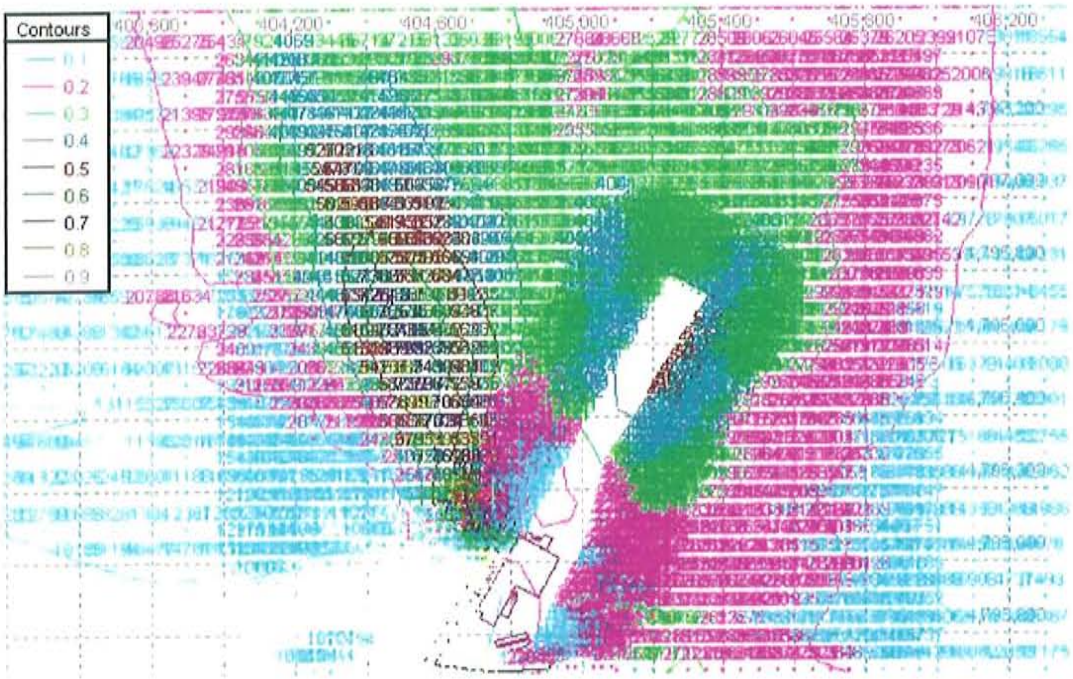

Figure 7-2 Maximum 24-hour Impact for 1 lb/hr Normalized Model TAP Source

Table 7-1 shows the estimated maximum predicted impact for each TAP and the respective IDAPA impact limit. Even with this very conservative analysis, only one TAP had predicted impacts over half the IDAPA impact limit (arsenic at 76% of the IDAPA AACC of 2.3E-04 ug/m^3), and only one additional TAP had predicted impacts over 10% of the IDAPA impact limit (chromium VI at 41% of the IDAPA AACC of 8.3E-05 ug/m^3).

All model input files, and all files needed to duplicate this analysis or review the results are included in the Idaho Supreme 0906 AQ Modeling Files.zip file.

Table 7-1 Maximum Predicted Impacts

Pollutant	Emission Controls	Control Type	Emission Factor (EF)		EF Units	AP-42 Ref. Table	Emissions (lb/hr)	Emissions (lb/yr)	Emissions (tons/yr)	IDAPA 585 ELs	IDAPA 586 ELs	IDAPA 585 Requires Modeling?	IDAPA 586 Requires Modeling?	IDAPA 585 AACC	IDAPA 586 AAC	IDAPA 585 Model Pred Max Impact	IDAPA 586 Model Pred Max Impact
SO_2	N		35	S	lb/ton	1.1-3	94.5	827,498	413.7								
NO_x	Y		12		lb/ton	1.1-3	26	226,972	113.5								
CO	N		0.5		lb/ton	1.1-3	2.7	23,643	11.8								
PM-10	Y	BH	0.02	A	lb/ton	1.1-6	1.0180	8,918	4.5								
VOCs	Y	FF	0.00918638		lb/ton	1.1-14	0.0496	434	0.2								
HCl	N		1.2		lb/ton	1.1-15	6.4775	56,743	28.4		0.05		yes		375		5.93
HF	N		0.15		lb/ton	1.1-15	0.8097	7,093	3.5								
POM	N		2.08		lb/10^{12} Btu	1.1-17	0.0003	3	1.28E-03								
Sb	Y	FF	0.000018		lb/ton	1.1-18	0.0001	1	4.26E-04								
As	Y	FF	0.00041		lb/ton	1.1-18	0.0022	19	9.69E-03	1.56E-06		yes		2.30E-04		1.75E-04	
Be	Y	FF	0.000021		lb/ton	1.1-18	0.0001	1	4.96E-04	2.85E-05		yes		4.20E-03		8.94E-06	
Cd	Y	FF	0.000051		lb/ton	1.1-18	0.0003	2	1.21E-03	3.70E-06		yes		5.60E-04		2.17E-05	
Cr	Y	FF	0.00026		lb/ton	1.1-18	0.0014	12	6.15E-03		0.033		no				
Cr (VI)	Y	FF	0.000079		lb/ton	1.1-18	0.0004	4	1.87E-03	5.60E-07		yes		8.30E-05		3.36E-05	
Co	Y	FF	0.0001		lb/ton	1.1-18	0.0005	5	2.36E-03		0.0033		no				
Pb	Y	FF	0.00042		lb/ton	1.1-18	0.0023	20	9.93E-03		0.6 t/yr		no				
Mg	Y	FF	0.011		lb/ton	1.1-18	0.0594	520	2.60E-01		0.667		no				
Mn	Y	FF	0.00049		lb/ton	1.1-18	0.0026	23	1.16E-02		0.067		no				
Hg	Y	FF	0.000083		lb/ton	1.1-18	0.0004	4	1.96E-03		0.001		no				
Ni	Y	FF	0.00028		lb/ton	1.1-18	0.0015	13	6.62E-03	2.75E-05		yes		4.20E-03		1.19E-04	
Se	Y	FF	0.0013		lb/ton	1.1-18	0.0070	61	3.07E-02	0.013		no					