

POTENTIAL TO EMIT SUMMARY
FIBERIGHT, LLC
Proposed Hampden, ME Facility

Criteria Pollutants (Ton/Year)							
	Flare	Tox	Boiler#1	Boiler #2	Scrubber #1	Scrubber #2	Total
Carbon Monoxide (CO)	6.91	2.90	44.78	44.78			99.4
Oxides of Nitrogen (Nox)	1.52	1.45	20.36	20.36			43.7
Sulfur Dioxide (SO2)	2.90	4.78	5.08	5.08			17.8
Particulate Matter (PM)	0.54	1.55	6.10	6.10			14.3
Particulate Matter < 10 µm (PM10)	0.54	1.55	4.48	4.48			11.0
Particulate Matter < 2.5 µm (PM2.5)	0.54	1.55	4.07	4.07			10.2
Volatile Organic Compounds	0.17	0.50	2.65	2.65	2.89	2.89	11.7
ammonia	0.10	0.29	0.00	0.00	0	0	0.4
HAPS	0.06	0.18	3.29	3.29	0.15	0.15	7.1
Hazardous Air Pollutants (Ton/Year)							
	Flare	Tox	Boiler#1	Boiler #2	Scrubber #1	Scrubber #2	Total
acetaldehyde	0	0	0.00	0.00	0.00	0.00	0.00
acrolein	0	0	0.00	0.00	0.00	0.00	0.01
arsenic	0	0	0.00	0.00	0.00	0.00	0.00
benzene	0	0	0.00	0.00	0.01	0.01	0.02
beryllium	0	0	0.00	0.00	0.00	0.00	0.00
cadmium	0	0	0.00	0.00	0.00	0.00	0.00
chromium	0	0	0.00	0.00	0.00	0.00	0.00
cobalt	0	0	0.00	0.00	0.00	0.00	0.00
dichlorobenzene	0	0	0.00	0.00	0.00	0.00	0.01
formaldehyde	0	0	0.00	0.00	0.00	0.00	0.01
hydrochloric acid	0	0	0.00	0.00	0.02	0.02	0.03
lead	0	0	0.00	0.00	0.00	0.00	0.00
manganese	0	0	0.00	0.00	0.00	0.00	0.00
methanol	0	0	0.00	0.00	0.00	0.00	0.00
mercury	0	0	0.00	0.00	0.00	0.00	0.00
n-hexane	0	0	0.00	0.00	0.02	0.02	0.05
napthalene	0	0	0.00	0.00	0.00	0.00	0.00
nickel	0	0	0.00	0.00	0.00	0.00	0.00
phenanthrene	0	0	0.00	0.00	0.00	0.00	0.00
toluene	0	0	0.00	0.00	0.10	0.10	0.21

Fiberight, LLC
Flare Potential to Emit

Feed gas rate (SCFM)	1200
Gas Recovery rate	90%
Operational days per year	328.5
Days venting gas (process upset)	36.5
Gas flared Annual Total (SCF)	63,072,000

Flare Potential to Emit (ton/year)	
Carbon Monoxide (CO)	6.91
Oxides of Nitrogen (Nox)	1.52
Sulfur Dioxide (SO2)	2.90
Particulate Matter (PM)	0.54
Particulate Matter < 10 µm (PM10)	0.54
Particulate Matter < 2.5 µm (PM2.5)	0.54
Volatile Organic Coumpounds	0.17
ammonia	0.10
HAPS	0.06

Emissions Factors			
Pollutant	Emission Factor	Units	Source
Carbon Monoxide (CO)	3.10E-01	lb/MMBtu	manufacturer emissions factor
Oxides of Nitrogen (Nox)	6.80E-02	lb/MMBtu	manufacturer emissions factor
Sulfur Dioxide (SO2)	5.75E-06	lb/cu ft Burned	SCC 50300601, landfill flare, WebFire
Particulate Matter (PM)	1.70E-05	lb/cu ft Burned	SCC 50300601, landfill flare, WebFire
Particulate Matter < 10 µm (PM10)	1.70E-05	lb/cu ft Burned	SCC 50300601, landfill flare, WebFire
Particulate Matter < 2.5 µm (PM2.5)	1.70E-05	lb/cu ft Burned	SCC 50300601, landfill flare, WebFire
Volatile Organic Coumpounds	5.5	lb/MM cu ft Burned	SCC 10100602, boiler
ammonia	3.2	lb/MM cu ft Burned	SCC 10100602, boiler
HAPS	1.938	lb/MM cu ft Burned	SCC 10100602, boiler

Feed Gas Btu/SCF	707
Sales Gas Btu/SCF	990
Tail Gas Btu/SCF	111

SO2 Emissions Calculations -December 2015
Flare Potential to Emit

Equation 8

$$C_S = \sum_{i=1}^n C_p * S_p$$

C_S = Concentration of total reduced sulfur compounds, ppmv as S

C_p = Concentration of each reduced sulfur compound, ppmv

S_p = Number of moles of S produced from the combustion of each reduced sulfur compound (i.e. 1 for sulfides, 2 for disulfides)

n = number of reduced sulfur compounds available for summation

Equation 8

TRS Compound	C_p (ppmv)	S_p	C_S
Carbon disulfide		2	0.000
Carbonyl Sulfide		1	0.000
Dimethyl Sulfide		1	
Isopropyl Mercaptan		1	
Hydrogen sulfide	500	1	500.000
Tert-butyl mercaptan		1	0.000
$C_S = \sum_{i=1}^n C_p * S_p$			500.0

Equation 3

$$Q_S = 1.82 * Q_{CH_4} * (C_p / (1 \times 10^6))$$

Q_S = Emission rate of Pollutant (m³/yr)

Q_{CH_4} = Generation Rate m³/yr

C_p = Concentration of Sulfur in landfill gas, ppmv

1.82 = Multiplication factor (assumes approx. 55% CH₄ and 45% CO₂ and other constituents)

1137.7
1.25E+06
500.0
1.82

Equation 4

$$UM_p = Q_p * ((MW_p * P) / (R * T * (1000 \text{ g/kg})))$$

UM_p = Uncontrolled (total) mass emissions of the pollutant of interest (kg/yr)

P = Ambient pressure, 1 atm assumed

Q_p = pollutant emissions rate m³/yr

R = Ideal gas constant 8.205 X 10⁻⁵ m³-atm/gmol-°K

T = Temperature of LFG, °K (273 + °C) (if unknown, 25°C Recommended)

MW_p = Molecular weight of pollutant (g/gmol)

1313.5
1
1137.7
8.21E-05
338.5
32.07

Equation 7

$$CM_{SO_2} = UM_S * (0_{col} / 100) * 2$$

CM_{SO_2} = Controlled Mass emissions of SO₂ kg/yr

UM_S = Uncontrolled mass emissions for reduced sulfur compounds as sulfur (kg/yr)

0_{col} = Efficiency of the collection system

2.00 = Ratio of the molecular weight of SO₂ to the Molecular weight of S

2626.9
1313.5
100
2

All calculations taken from AP-42 Section 2.4 Municipal Solid Waste Landfills

tons/year
2.90E+00

Fiberright, LLC
Thermal Oxidizer Hybrid Potential to Emit

Biogas tailings rate (SCFM)	386	Supplemental digester gas Flow rate (scfm)	26
Anticipated PSA down time	90%		
Normal Operations days per year	328.5	Total supplemental BTU Input (Mmbtu/hr)	3.7
Days venting gas (process upset)	36.5		
Tail Gas combusted Annual Total (SCF)	182,593,440		

Flare Potential to Emit (ton/year)	
Carbon Monoxide (CO)	2.90
Oxides of Nitrogen (Nox)	1.45
Sulfur Dioxide (SO2)	4.78
Particulate Matter (PM)	1.55
Particulate Matter < 10 µm (PM10)	1.55
Particulate Matter < 2.5 µm (PM2.5)	1.55
Volatile Organic Coumpounds	0.50
ammonia	0.29
HAPS	0.18

Emissions Factors			
Pollutant	Emission		Source
	Factor	Units	
Carbon Monoxide (CO)	2.00E-01	lb/MMBtu	manufacturer emissions factor
Oxides of Nitrogen (Nox)	1.00E-01	lb/MMBtu	manufacturer emissions factor
Sulfur Dioxide (SO2)	5.75E-06	lb/cu ft Burned	SCC 50300601, landfill flare, WebFire
Particulate Matter (PM)	1.70E-05	lb/cu ft Burned	SCC 50300601, landfill flare, WebFire
Particulate Matter < 10 µm (PM10)	1.70E-05	lb/cu ft Burned	SCC 50300601, landfill flare, WebFire
Particulate Matter < 2.5 µm (PM2.5)	1.70E-05	lb/cu ft Burned	SCC 50300601, landfill flare, WebFire
Volatile Organic Coumpounds	5.5	lb/MM cu ft Burned	SCC 10100602, boiler
ammonia	3.2	lb/MM cu ft Burned	SCC 10100602, boiler
HAPS	1.938	lb/MM cu ft Burned	SCC 10100602, boiler

Feed Gas Btu/SCF	707
Sales Gas Btu/SCF	990
Tail Gas Btu/SCF	111

SO2 Emissions Calculations -December 2015
ZBRID Tailings

Equation 8

$$C_S = \sum_{i=1}^n C_p * S_p$$

C_S = Concentration of total reduced sulfur compounds, ppmv as S

C_p = Concentration of each reduced sulfur compound, ppmv

S_p = Number of moles of S produced from the combustion of each reduced sulfur compound (i.e. 1 for sulfides, 2 for disulfides)

n = number of reduced sulfur compounds available for summation

Equation 8

TRS Compound	C_p (ppmv)	S_p	C_S
Carbon disulfide		2	0.000
Carbonyl Sulfide		1	0.000
Dimethyl Sulfide		1	
Isopropyl Mercaptan		1	
Hydrogen sulfide	1600	1	1600.000
Tert-butyl mercaptan		1	0.000
$C_S = \sum_{i=1}^n C_p * S_p$			1600.0

Equation 3

$$Q_S = 1.82 * Q_{CH_4} * (C_p / (1 \times 10^6))$$

Q_S = Emission rate of Pollutant (m^3/yr)

Q_{CH_4} = Generation Rate m^3/yr

C_p = Concentration of Sulfur in landfill gas, ppmv

1.82 = Multiplication factor (assumes approx. 55% CH_4 and 45% CO_2 and other constituents)

1656.2
5.69E+05
1600.0
1.82

Equation 4

$$UM_p = Q_p * ((MW_p * P) / (R * T * (1000g/kg)))$$

UM_p = Uncontrolled (total) mass emissions of the pollutant of interest (kg/yr)

P = Ambient pressure, 1 atm assumed

Q_S = pollutant emissions rate m^3/yr

R = Ideal gas constant $8.205 \times 10^{-5} m^3 \cdot atm / gmol \cdot ^\circ K$

T = Temperature of LFG, $^\circ K$ ($273 + ^\circ C$) (if unknown, $25^\circ C$ Recommended)

MW_p = Molecular weight of pollutant (g/gmol)

1912.1
1
1656.2
8.21E-05
338.5
32.07

Equation 7

$$CM_{SO_2} = UM_S * (O_{col} / 100) * 2$$

CM_{SO_2} = Controlled Mass emissions of SO_2 kg/yr

UM_S = Uncontrolled mass emissions for reduced sulfur compounds as sulfur (kg/yr)

O_{col} = Efficiency of the collection system

2.00 = Ratio of the molecular weight of SO_2 to the Molecular weight of S

3824.2
1912.1
100
2

All calculations taken from AP-42 Section 2.4
Municipal Solid Waste Landfills

tons/year
4.22E+00

SO2 Emissions Calculations -December 2015
ZBRID Supplemental Gas

Equation 8

$$C_S = \sum_{i=1}^n C_p * S_p$$

C_S = Concentration of total reduced sulfur compounds, ppmv as S

C_p = Concentration of each reduced sulfur compound, ppmv

S_p = Number of moles of S produced from the combustion of each reduced sulfur compound (i.e. 1 for sulfides, 2 for disulfides)

n = number of reduced sulfur compounds available for summation

Equation 8

TRS Compound	C_p (ppmv)	S_p	C_S
Carbon disulfide		2	0.000
Carbonyl Sulfide		1	0.000
Dimethyl Sulfide		1	
Isopropyl Mercaptan		1	
Hydrogen sulfide	500	1	500.000
Tert-butyl mercaptan		1	0.000
$C_S = \sum_{i=1}^n C_p * S_p$			500.0

Equation 3

$$Q_S = 1.82 * Q_{CH_4} * (C_p / (1 \times 10^6))$$

Q_S = Emission rate of Pollutant (m³/yr)

Q_{CH_4} = Generation Rate m³/yr

C_p = Concentration of Sulfur in landfill gas, ppmv

1.82 = Multiplication factor (assumes approx. 55% CH₄ and 45% CO₂ and other constituents)

221.8
2.44E+05
500.0
1.82

Equation 4

$$UM_p = Q_p * ((MW_p * P) / (R * T * (1000 \text{g/kg})))$$

UM_p = Uncontrolled (total) mass emissions of the pollutant of interest (kg/yr)

P = Ambient pressure, 1 atm assumed

Q_S = pollutant emissions rate m³/yr

R = Ideal gas constant 8.205 X 10⁻⁵ m³-atm/gmol-°K

T = Temperature of LFG, °K (273 +°C) (if unknown, 25°C Recommended)

MW_p = Molecular weight of pollutant (g/gmol)

256.1
1
221.8
8.21E-05
338.5
32.07

Equation 7

$$CM_{SO_2} = UM_S * (O_{col} / 100) * 2$$

CM_{SO_2} = Controlled Mass emissions of SO₂ kg/yr

UM_S = Uncontrolled mass emissions for reduced sulfur compounds as sulfur (kg/yr)

O_{col} = Efficiency of the collection system

2.00 = Ratio of the molecular weight of SO₂ to the Molecular weight of S

512.2
256.1
100
2

All calculations taken from AP-42 Section 2.4
Municipal Solid Waste Landfills

tons/year
5.65E-01

Fiberight, LLC
Boiler #1 Potential to Emit

Heat Input (mmBtu/hr)	48.87
Total Gas fired (MMBtu)	1016
Btu/Scf Natural Gas	1020
Natural Gas (scf)	996078
Annual Hours of operation	8322

Pollutant	Ton/Year
Carbon Monoxide (CO)	44.78
Oxides of Nitrogen (Nox)	20.36
Sulfur Dioxide (SO ₂)	5.08
Particulate Matter (PM)	6.10
Particulate Matter < 10 µm (PM ₁₀)	4.48
Particulate Matter < 2.5 µm (PM _{2.5})	4.07
Volatile Organic Coumpounds	2.65
ammonia	0.00
HAPS	3.3

Emissions Factors Biomass (PHS)			
Pollutant	Emission Factor (lb/mmBtu)	Emission Factor (lb/hr)	Source
Carbon Monoxide (CO)	0.22	10.75	Emision factors provided by manufacturer (AP-42 1.6)
Oxides of Nitrogen (Nox)	0.1	4.89	Emision factors provided by manufacturer (AP-42 1.6)
Sulfur Dioxide (SO ₂)	0.025	1.22	Emision factors provided by manufacturer (AP-42 1.6)
Particulate Matter (PM)	0.03	1.47	Emision factors provided by manufacturer (AP-42 1.6)
Particulate Matter < 10 µm (PM ₁₀)	0.022	1.08	Emision factors provided by manufacturer (AP-42 1.6)
Particulate Matter < 2.5 µm (PM _{2.5})	0.02	0.98	Emision factors provided by manufacturer (AP-42 1.6)
Volatile Organic Coumpounds	0.013	0.64	Emision factors provided by manufacturer (AP-42 1.6)

Emissions Factors Natural Gas / Bio-methane			
Pollutant	Emission Factor (lb/10 ⁶ scf)	Total lb/yr	Source
Carbon Monoxide (CO)	84	83.67	Emision factors provided by manufacturer (AP-42 1.4)
Oxides of Nitrogen (Nox)	50	49.80	Emision factors provided by manufacturer (AP-42 1.4)
Sulfur Dioxide (SO ₂)	0.6	0.60	Emision factors provided by manufacturer (AP-42 1.4)
Particulate Matter (PM)	7.6	7.57	Emision factors provided by manufacturer (AP-42 1.4)
Particulate Matter < 10 µm (PM ₁₀)	7.6	7.57	Emision factors provided by manufacturer (AP-42 1.4)
Particulate Matter < 2.5 µm (PM _{2.5})	7.6	7.57	Emision factors provided by manufacturer (AP-42 1.4)
Volatile Organic Coumpounds	5.5	5.48	Emision factors provided by manufacturer (AP-42 1.4)

Controls

Baghouse for PM

SNCR for Nox, Reduced EF from 0.22 lb/mmBtu to 0.10 lb/mmBtu

Fiberight, LLC
Boiler #1 Potential to Emit

HAPS EMISSIONS (PHS)		
HAP	lb/mmBtu	Ton/yr
acetaldehyde	8.300E-04	0.17
acrolein	4.00E-03	0.81
arsenic	7.90E-06	0.00
benzene	4.20E-03	0.85
beryllium	1.10E-06	0.00
cadmium	4.10E-06	0.00
chromium	2.10E-05	0.00
cobalt	6.50E-06	0.00
dichlorobenzene		0.00
formaldehyde	4.40E-03	0.89
hydrochloric acid		0.00
lead	4.80E-05	0.01
manganese	1.60E-03	0.33
methanol		0.00
mercury	3.50E-06	0.00
n-hexane		0.00
napthalene	9.70E-05	0.02
nickel	3.30E-05	0.01
phenanthrene	7.00E-06	0.00
toluene	9.20E-04	0.19

Source of EF AP-42 2.4

HAPS EMISSIONS (Natural Gas)		
HAP	lb/10 ⁶ scf	Ton/yr
arsenic	2.00E-04	0.00
benzene	2.10E-03	0.00
beryllium	1.20E-05	0.00
cadmium	1.10E-03	0.00
chromium	1.30E-03	0.00
cobalt	8.40E-05	0.00
dichlorobenzene	1.20E-03	0.00
formaldehyde	7.50E-02	0.00
lead	5.00E-04	0.00
manganese	3.80E-04	0.00
mercury	2.60E-04	0.00
n-hexane	1.80E+00	0.00
napthalene	6.10E-04	0.00
nickel	2.10E-03	0.00
phenanthrene	1.70E-05	0.00
toluene	3.40E-03	0.00

Fiberight, LLC
Boiler #2 Potential to Emit

Heat Input (mmBtu/hr)	48.87
Total Gas fired (MMBtu)	1016
Btu/Scf Natural Gas	1020
Natural Gas (scf)	996078
Annual Hours of operation	8322

Pollutant	Ton/Year
Carbon Monoxide (CO)	44.78
Oxides of Nitrogen (Nox)	20.36
Sulfur Dioxide (SO ₂)	5.08
Particulate Matter (PM)	6.10
Particulate Matter < 10 µm (PM ₁₀)	4.48
Particulate Matter < 2.5 µm (PM _{2.5})	4.07
Volatile Organic Coumpounds	2.65
ammonia	0.00
HAPS	3.3

Emissions Factors Biomass (PHS)			
Pollutant	Emission Factor (lb/mmBtu)	Emission Factor (lb/hr)	Source
Carbon Monoxide (CO)	0.22	10.75	Emision factors provided by manufacturer (AP-42 1.6)
Oxides of Nitrogen (Nox)	0.1	4.89	Emision factors provided by manufacturer (AP-42 1.6)
Sulfur Dioxide (SO ₂)	0.025	1.22	Emision factors provided by manufacturer (AP-42 1.6)
Particulate Matter (PM)	0.03	1.47	Emision factors provided by manufacturer (AP-42 1.6)
Particulate Matter < 10 µm (PM ₁₀)	0.022	1.08	Emision factors provided by manufacturer (AP-42 1.6)
Particulate Matter < 2.5 µm (PM _{2.5})	0.02	0.98	Emision factors provided by manufacturer (AP-42 1.6)
Volatile Organic Coumpounds	0.013	0.64	Emision factors provided by manufacturer (AP-42 1.6)

Emissions Factors Natural Gas / Bio-methane			
Pollutant	Emission Factor (lb/10 ⁶ scf)	Total lb/yr	Source
Carbon Monoxide (CO)	84	83.67	Emision factors provided by manufacturer (AP-42 1.4)
Oxides of Nitrogen (Nox)	50	49.80	Emision factors provided by manufacturer (AP-42 1.4)
Sulfur Dioxide (SO ₂)	0.6	0.60	Emision factors provided by manufacturer (AP-42 1.4)
Particulate Matter (PM)	7.6	7.57	Emision factors provided by manufacturer (AP-42 1.4)
Particulate Matter < 10 µm (PM ₁₀)	7.6	7.57	Emision factors provided by manufacturer (AP-42 1.4)
Particulate Matter < 2.5 µm (PM _{2.5})	7.6	7.57	Emision factors provided by manufacturer (AP-42 1.4)
Volatile Organic Coumpounds	5.5	5.48	Emision factors provided by manufacturer (AP-42 1.4)

Controls

Baghouse for PM

SNCR for Nox, Reduced EF from 0.22 lb/mmBtu to 0.10 lb/mmBtu

Fiberight, LLC
Boiler #2 Potential to Emit

HAPS EMISSIONS (PHS)		
HAP	lb/mmBtu	Ton/yr
acetaldehyde	8.300E-04	0.17
acrolein	4.00E-03	0.81
arsenic	7.90E-06	0.00
benzene	4.20E-03	0.85
beryllium	1.10E-06	0.00
cadmium	4.10E-06	0.00
chromium	2.10E-05	0.00
cobalt	6.50E-06	0.00
dichlorobenzene		0.00
formaldehyde	4.40E-03	0.89
hydrochloric acid		0.00
lead	4.80E-05	0.01
manganese	1.60E-03	0.33
methanol		0.00
mercury	3.50E-06	0.00
n-hexane		0.00
napthalene	9.70E-05	0.02
nickel	3.30E-05	0.01
phenanthrene	7.00E-06	0.00
toluene	9.20E-04	0.19

Source of EF AP-42 2.4

HAPS EMISSIONS (Natural Gas)		
HAP	lb/10 ⁶ scf	Ton/yr
arsenic	2.00E-04	0.00
benzene	2.10E-03	0.00
beryllium	1.20E-05	0.00
cadmium	1.10E-03	0.00
chromium	1.30E-03	0.00
cobalt	8.40E-05	0.00
dichlorobenzene	1.20E-03	0.00
formaldehyde	7.50E-02	0.00
lead	5.00E-04	0.00
manganese	3.80E-04	0.00
mercury	2.60E-04	0.00
n-hexane	1.80E+00	0.00
napthalene	6.10E-04	0.00
nickel	2.10E-03	0.00
phenanthrene	1.70E-05	0.00
toluene	3.40E-03	0.00

Fiberight, LLC
Scrubber #1 Potential to Emit

Operating Rate (Tons MSW/year)	214000
Operating Hours	8760
Capture Efficiency	90%
Control Efficiency	95%
VOC Emission (lb/hour)	14.64
VOC Emission (Ton/Year)	2.89

Pollutant	ppmv	Ton/year
acetaldehyde	0.08	0.00
acrolein	0.00	0.00
arsenic	0.00	0.00
benzene	2.40	0.01
beryllium	0.00	0.00
cadmium	0.00	0.00
chromium	0.00	0.00
cobalt	0.00	0.00
dichlorobenzene	1.15	0.00
formaldehyde	0.01	0.00
hydrochloric acid	5.00	0.02
lead	0.00	0.00
manganese	0.00	0.00
methanol	0.00	0.00
mercury	0.00	0.00
n-hexane	6.57	0.02
napthalene	0.00	0.00
nickel	0.00	0.00
phenanthrene	0.00	0.00
toluene	29.50	0.10

VOC Emission Factor			
Organic Compounds Rumpke Landfill	157.38	lb/hr	Ohio EPA Permit #P0112360
MSW Received at Rumpke 2011	2300000	ton/yr	Ohio EPA Permit #P0112360; PTE
Annual MSW Fiberight ME	214000	ton/yr	Maximum planned annual receipts
Organics to Scrubber	14.6432	lb/hr	Ratio (185000/2300000)*157.38 = 12.66
Reference VOC Concentration	835	ppm	

Fiberight, LLC
Scrubber #1 Potential to Emit

Operating Rate (Tons MSW/year)	214000
Operating Hours	8760
Capture Efficiency	90%
Control Efficiency	95%
VOC Emission (lb/hour)	14.64
VOC Emission (Ton/Year)	2.89

Pollutant	ppmv	Ton/year
acetaldehyde	0.08	0.00
acrolein	0.00	0.00
arsenic	0.00	0.00
benzene	2.40	0.01
beryllium	0.00	0.00
cadmium	0.00	0.00
chromium	0.00	0.00
cobalt	0.00	0.00
dichlorobenzene	1.15	0.00
formaldehyde	0.01	0.00
hydrochloric acid	5.00	0.02
lead	0.00	0.00
manganese	0.00	0.00
methanol	0.00	0.00
mercury	0.00	0.00
n-hexane	6.57	0.02
napthalene	0.00	0.00
nickel	0.00	0.00
phenanthrene	0.00	0.00
toluene	29.50	0.10

VOC Emission Factor			
Organic Compounds Rumpke Landfill	157.38	lb/hr	Ohio EPA Permit #P0112360
MSW Received at Rumpke 2011	2300000	ton/yr	Ohio EPA Permit #P0112360; PTE
Annual MSW Fiberight ME	214000	ton/yr	Maximum planned annual receipts
Organics to Scrubber	14.6432	lb/hr	Ratio (185000/2300000)*157.38 = 12.66
Reference VOC Concentration	835	ppm	