Dynamis Energy, LLC
Ada County WTE Facility

FACILITY POTENTIAL TO EMIT - CRITERIA POLLUTANTS

	Criteria Pollutants											
	NOx Emissions		CO Emissions		PM-10/PM-2.5 Emissions		SOx Emissions		VOC Emissions		Lead Emissions	
Description	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Thermal Conversion Unit - Peak	17.96	52.43	10.90	31.83	3.66	10.68	8.54	24.94			0.03	0.09
Thermal Conversion Unit - OffPeak	2.65	3.86	1.61	0.54	0.54	0.79	1.26	1.84			0.00	0.01
Cooling Tower					0.02	0.08						
Ash System					0.45	1.97					5.10E-04	2.23E-03
Emergency Generator	1.30	0.33	0.26	0.07	0.03	0.01	0.98	0.25	1.19	0.30		
Ignition Systems	0.28	1.23	0.39	1.72	0.02	0.09	0.00	0.00	0.03	0.11	2.33E-06	1.02E-05
Total	**22.183**	**57.843**	**13.164**	**34.149**	**4.720**	**13.616**	**10.786**	**27.030**	**1.211**	**0.409**	**0.0358**	**0.099**

FACILITY POTENTIAL TO EMIT - TAPS

NON-CARCINOGENS (POUNDS PER HOUR)						
Pollutant	CAS #	TAP Emissions - Max (lb/hr)	TAP Emissions - Average (lb/hr)	TAP Emissions (tpy)	Screening Level (lb/hr)	Modeling? (Y/N)
Acrolein	107-02-8	1.13E-04	1.13E-04	2.82E-05	1.70E-02	No
Aluminum	7429-90-5	1.05E-01	1.02E-01	4.48E-01	6.67E-01	No
Antimony	7440-36-0	7.86E-04	5.63E-04	2.46E-03	3.30E-02	No
Barium	7440-39-3	7.92E-04	7.32E-04	3.21E-03	3.30E-02	No
Chromium	7440-47-3	1.85E-03	1.35E-03	5.92E-03	3.30E-02	No
Cobalt	7440-48-4	1.71E-03	1.62E-03	7.09E-03	3.30E-03	No
Copper	7440-50-8	1.12E-03	9.08E-04	3.98E-03	6.70E-02	No
Fluoride (as F) (Hydrogen Fl)	16984-48-8	2.84E-03	2.03E-03	8.91E-03	1.67E-01	No
Hexane	110-54-3	8.40E-03	8.40E-03	3.68E-02	1.20E+01	No
Hydrogen Chloride	7647-01-0	5.95E-01	5.95E-01	2.61E+00	5.00E-02	See Footnote 1
Manganese	7439-96-5	6.96E-03	5.23E-03	2.29E-02	3.33E-01	No
Mercury*	7439-97-6	3.10E-03	2.22E-03	9.72E-03	N/A	*
Molybdenum	7439-98-7	2.24E-03	1.61E-03	7.06E-03	3.33E-01	No
Naphthalene**	91-20-3	3.04E-06	3.04E-06	1.25E-05	9.10E-05	No
Pentane	109-66-0	1.21E-02	1.21E-02	5.31E-02	1.18E+02	No
Phosphorous	7723-14-0	2.66E-03	2.66E-03	1.17E-02	7.00E-03	No
Selenium	7782-49-2	2.22E-03	1.59E-03	6.95E-03	1.30E-02	No
Silver	7440-22-4	2.92E-07	2.92E-07	1.28E-06	7.00E-03	No
Toluene	108-88-3	5.15E-04	5.15E-04	1.94E-04	2.50E+01	No
o-Xylene	1330-20-7	3.48E-04	3.48E-04	8.70E-05	2.90E+01	No
Zinc	7440-66-6	3.42E-01	3.09E-01	1.35E+00	6.67E-01	No

*Mercury is not listed under IDAPA 58.01.01 Section 585 as a TAP. However, it is listed here to show compliance with the MBACT rule under Section 215.

**Although listed as a noncarcinogen in the Rules, DEQ has determined that naphthalene is a possible/probable carcinogen. Compliance for naphthalene emissions should be based on the EL or AACC listed in Section 586 for PAH.
1. Regulated under NSPS Subpart Eb, excluded from modeling under IDAPA 58.01.01 210.20.

CARCINOGENS (POUNDS PER HOUR)						
Pollutant	CAS #	TAP Emissions - Max (lb/hr)	TAP Emissions - Average (lb/hr)	TAP Emissions (tpy)	Screening Level (lb/hr)	Modeling? (Y/N)
Acetaldehyde	75-07-0	9.37E-04	9.37E-04	5.35E-05	3.00E-03	No
Arsenic	7440-38-2	7.46E-07	7.46E-07	3.27E-06	1.50E-06	No
Benzene	71-43-2	1.15E-03	1.15E-03	3.28E-04	8.00E-04	Yes
Beryllium	7440-41-7	4.48E-08	4.48E-08	1.96E-07	2.80E-05	No
Cadmium	7440-43-9	3.48E-03	2.50E-03	1.09E-02	3.70E-06	See Footnote 1
Dioxin/Furan	1746-01-6	4.49E-09	3.21E-09	1.41E-08	1.50E-10	See Footnote 1
Formaldehyde	50-00-0	1.79E-03	1.79E-03	1.89E-03	5.10E-04	Yes
Nickel	7440-02-0	1.51E-02	8.69E-03	3.81E-02	2.70E-05	Yes
Benzo(a)pyrene	50-32-8	5.60E-09	5.60E-09	2.45E-08	2.00E-06	No
Benz(a)anthracene	56-55-3	8.40E-09	8.40E-09	3.68E-08	2.00E-06	No
Benzo(b)fluoranthene	205-82-3	8.40E-09	8.40E-09	3.68E-08	2.00E-06	No
Benzo(k)fluoranthene	205-99-2	8.40E-09	8.40E-09	3.68E-08	2.00E-06	No
Chrysene	218-01-9	8.40E-09	8.40E-09	3.68E-08	2.00E-06	No
Dibenzo(a,h)anthracene	53-70-3	5.60E-09	5.60E-09	2.45E-08	2.00E-06	No
Indeno(1,2,3-cd)pyrene	193-39-5	8.40E-09	8.40E-09	3.68E-08	2.00E-06	No
Total PAHs		2.45E-07	2.45E-07	1.07E-06	9.10E-05	No

Dynamis Energy WTE Facility
Thermal Conversion System
Thermal Conversion Unit

Total MSW Throughput =	367.2	tpd
Total MSW Throughput =	15.30	ton/hr
Total MSW Throughput =	30600	lb/hr
Peak Operating Hours =	5840	hr/yr
Off-Peak Operating Hours =	2920	hr/yr
Peak Exhaust Flow =	150,865	acfm @ 125.4F
Off-Peak Exhaust Flow =	39,100	acfm @ 134.5F

Hours	7am - 11pm	11pm-7am
Throughput (tpd)	342	25.2
Throughput (tph)	21.375	3.15
Percent of day	0.67	0.33

Pollutant Emission Factors	PM/PM10/ PM2.5 lb/ton	SO2 lb/ton	NOx lb/ton	CO lb/ton	Lead lb/ton
Thermal Conversion Unit Exhaust	0.29	1.39	1.4	0.51	1.44E-03

PM, NOx, CO, SO2, Lead Emission factor from source test averages
*SO2 Emission rate based on scrubber manufacturer guarantee of 71.25% control. PM2.5 emission rate based on scrubber manufacturere guarantee of 41%.
*NOx Emission rate based on SNCR manufacturer guarantee of 40% control.

7am-11pm - PEAK

	PM/PM10/PM2.5		SO_2		NOx		CO		Lead	
Pollutant	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Thermal Conversion Unit Exhaust - Uncontrolled	6.20	18.10	29.71	86.76	29.93	87.38	10.90	31.83	0.03	0.09
Thermal Conversion Unit Exhaust - Controlled	3.66	10.68	8.54	24.94	17.96	52.43	10.90	31.83	0.03	0.09
Controlled Boiler Stack Emissions (Thermal Unit + Ignition System)	3.68	10.74	8.54	24.94	18.23	53.25	11.29	32.98	0.03	0.09

11pm-7am - OFF PEAK

	PM/PM10/PM2.5		SO_2		NOx		CO		Lead	
Pollutant	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Thermal Conversion Unit Exhaust - Uncontrolled	0.91	1.33	4.38	6.39	4.41	6.44	1.61	0.54	0.00	0.01
Thermal Conversion Unit Exhaust - Controlled	0.54	0.79	1.26	1.84	2.65	3.86	1.61	0.54	0.00	0.01
Controlled Boiler Stack Emissions (Thermal Unit + Ignition System)	0.56	0.82	1.26	1.84	2.93	4.27	2.00	1.11	0.005	0.01

TOXIC AIR POLLUTANTS (TAPs) CALCULATIONS

NON-CARCINOGENS (POUNDS PER HOUR)

Pollutant	CAS #	TAP Emission Factor (lb/ton)	Peak TAP Emissions (lb/hr)	Off-Peak TAP Emissions (lb/hr)	Average TAP Emissions (lb/hr)	Screening Level (lb/hr)	Modeling (based on peak)? (Y/N)	Modeling (based on Average)? (Y/N)
Aluminium	7429-90-5	4.74E-04	8.11E-03	1.19E-03	5.80E-03	6.67E-01	No	No
Antimony	7440-36-0	4.60E-05	7.86E-04	1.16E-04	5.63E-04	3.30E-02	No	No
Barium	7440-39-3	1.23E-05	2.11E-04	3.10E-05	1.51E-04	3.30E-02	No	No
Chromium	7440-47-3	1.03E-04	1.76E-03	2.60E-04	1.26E-03	3.30E-02	No	No
Copper	7440-50-8	4.33E-05	7.41E-04	1.09E-04	5.30E-04	6.70E-02	No	No
Cobalt	7440-48-4	1.77E-05	3.03E-04	4.47E-05	2.17E-04	3.30E-03	No	No
Hydrogen Chloride	7647-01-0	See Note 1 Below	5.95E-01	5.95E-01	5.95E-01	5.00E-02	Modeling not required (IDAPA 58.01.01 210.20)	
Hydrogen Flouride	NA	1.33E-04	2.84E-03	4.19E-04	2.03E-03	1.67E-01	No	No
Manganese	7439-96-5	3.56E-04	6.08E-03	8.96E-04	4.35E-03	3.33E-01	No	No
Mercury	7439-97-6	1.45E-04	3.10E-03	4.57E-04	2.22E-03	N/A	See Note 2 Below	
Molybdenum	7439-98-7	1.30E-04	2.22E-03	3.27E-04	1.59E-03	3.33E-01	No	No
Selenium	7782-49-2	1.30E-04	2.22E-03	3.27E-04	1.59E-03	1.30E-02	No	No
Zinc	7440-66-6	6.68E-03	1.14E-01	1.68E-02	8.18E-02	6.67E-01	No	No

TAPs Emission factor from source test averages.
1. HCl emission rate of 0.595 lb/hr based on baghouse manufacturer guarantee

2. Mercury is not listed under IDAPA 58.01.01 Section 585 as a TAP. However, it is listed here to show compliance with the MBACT rule under Section 215
The scrubber manufacturer guarantees 41% control of PM2.5 and smaller, with higher control efficiency expected for larger particulates. Metals emissions (with the exception of Mercury) from the thermal unit (including primary ignition system) will be in particulate form. Metals emissions estimates include a conservative 20% control of particulate metals.

CARCINOGENS (POUNDS PER HOUR)

Pollutant	CAS #	TAP Emission Factor (lb/ton)	Peak TAP Emissions (lb/hr)	Off-Peak TAP Emissions (lb/hr)	Average TAP Emissions (lb/hr)	Screening Level (lb/hr)	Modeling (based on peak)? (Y/N)	Modeling (based on Average)? (Y/N)	Stack Emissions (Thermal Unit + Ignition System) PEAK lb/hr	PEAK tpy	OFF PEAK lb/hr	OFF PEAK tpy
Cadmium	7440-43-9	2.02E-04	3.46E-03	5.10E-04	2.48E-03	3.7E-06	Modeling not required (IDAPA 58.01.01 210.20)					
Dioxin/Furan		2.10E-10	4.49E-09	6.62E-10	3.21E-09	1.50E-10	Modeling not required (IDAPA 58.01.01 210.20)					
Nickel	7440-02-0	8.81E-04	1.51E-02	2.22E-03	8.63E-03	2.70E-05	Yes	Yes	1.51E-02	4.40E-02	2.23E-03	3.25E-03

TAPs Emission factor from source test averages.
The scrubber manufacturer guarantees 41% control of PM2.5 and smaller, with higher control efficiency expected for larger particulates. Metals emissions (with the exception of Mercury) from the thermal unit (including primary ignition system) will be in particulate form. Metals emissions estimates include a conservative 20% control of particulate metals.

Dynamis Energy WTE Facility
Thermal Conversion System - Hidden Hollow Landfill
Thermal Conversion Units - Ignition Systems Criteria Pollutants

Primary gasification ignition systems will operate on natural gas. Primary chamber ignition will be evenly distributed throughout the day; independent of MSW throughput and peak/off-peak operation.

CRITERIA POLLUTANT COMBUSTION CALCULATIONS
NATURAL GAS

Emission Unit	Fuel Usage		Conversions	
Primary Chamber Ignition (total)	111,953 scf/day		40862845	1020 MMBtu/10^6 scf
Primary Chamber Ignition (total)	4.76 MMBtu/hr			

Emission Factors

NOx	100 lb/10^6 scf	AP-42, Table 1.4-1, 1998
CO	84 lb/10^6 scf	AP-42, Table 1.4-1, 1998
PM-10	7.6 lb/10^6 scf	AP-42, Table 1.4-2, 1998
SOx	0.6 lb/10^6 scf	AP-42, Table 1.4-2, 1998
VOC	5.5 lb/10^6 scf	AP-42, Table 1.4-2, 1998
Lead	0.0005 lb/10^6 scf	AP-42, Table 1.4-2, 1998

Description	Capacity (MMBtu/hr)	Throughput (scf/hr)	Pounds per Hour					
			NOx Emissions (lb/hr)	CO Emissions (lb/hr)	PM-10/PM-2.5 Emissions (lb/hr)	SOx Emissions (lb/hr)	VOC Emissions (lb/hr)	Lead Emissions (lb/hr)
Primary Chamber Ignitions - Uncontrolled	4.76	4,665	0.4665	0.3918	0.0355	0.0028	0.0257	0.0000023
Primary Chamber Ignitions - Controlled	4.76	4,665	0.2799	0.3918	0.0209	0.0008	0.0257	0.0000023

*SO2 Emission rate based on scrubber manufacturer guarantee of 71.25% control. PM2.5 emission rate based on scrubber manufacturere guarantee of 41%.

*NOx Emission rate based on SNCR manufacturer guarantee of 40% control.

Description	Capacity (MMBtu/hr)	Throughput (scf/yr)	Ton per Year					
			Emissions (T/yr)	Emissions (T/yr)	Emissions (T/yr)	Emissions (T/yr)	Emissions (T/yr)	Emissions (T/yr)
Primary Chamber Ignitions - Uncontrolled	4.76	4,665	2.04	1.72	0.16	0.01	0.11	1.02E-05
Primary Chamber Ignitions - Controlled (Peak)	4.76	4,665	0.82	1.14	0.06	0.00	0.07	0.00
Primary Chamber Ignitions - Controlled (Off-Peak)	4.76	4,665	0.41	0.57	0.03	0.00	0.04	0.00