

ENGEN¹

Bay County Waste to Energy Facility

13-046-0222-ActualEmissionsRpt-JeffKoerner

February, 22, 2013

Mr. Jeff Koerner, P.E., Program Administrator
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

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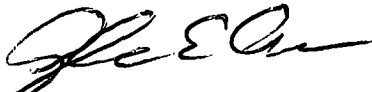
DIVISION OF AIR
RESOURCE MANAGEMENT

RE: Actual Emissions Report

Dear Mr. Koerner:

Enclosed, please find the Annual Actual Emissions Report. Based on the information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Sincerely,



Glenn Ogborn
Solid Waste Superintendent
Bay County Solid Waste Department

DC/mr

Enclosures





February 25, 2013

133-87511

Jeff Koerner, P.E., Program Administrator
Florida Department of Environmental Protection
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

**RE: BAY COUNTY RESOURCE RECOVERY FACILITY
2012 ANNUAL ACTUAL EMISSIONS REPORTING
PERMIT NO. 0050031-013-AV**

Bay County Utilities Service Department (Bay County) hereby submits the 2012 annual actual emissions report for the Bay County Waste-to-Energy (BCWTE) facility, as required by Air Operating Permit No. 0050031-013-AV. The two municipal waste combustors (MWCs) for which reporting is required, and the specific permit condition requiring the reporting, are described below.

Specific Condition No. A.42 of Title V Air Operating Permit No. 0050031-013-AV, and Specific Condition No. 18 of Air Construction Permit No. 0050031-012-AC, require an actual emissions report to be submitted to the Florida Department of Environmental Protection (FDEP) by March 1 of each year for 10 years following the changes authorized by the construction permit. The permit allowed the re-rating of the MWC Unit Nos. 1 and 2 (EU ID 001 and 002) from 245 tons per day (TPD) municipal solid waste (MSW) throughput per unit to 255 TPD MSW throughput per unit. The BCWTE facility must monitor and report emissions of carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO₂), particulate matter (PM/PM₁₀), lead (Pb), mercury (Hg), dioxin/furan (D/F), and MWC acid gases [measured as SO₂ plus hydrogen chloride (HCl)]. The conditions also require that the report contain the name, address, and telephone number of the owner/operator. This information is provided below:

Name: Glenn Ogborn, Solid Waste Superintendent
Address: Bay County Utility Services
3410 Transmitter Rd
Panama City, FL 32404
Phone: 850-784-4028
Fax: 850-872-4805
Email: gogborn@baycountyfl.gov

The facility experienced a fire on February 12, 2012 that halted the operation of the boilers for the remainder of the year. As a result, only the HCl compliance stack test report was performed in 2012. Therefore, the emission factors for particulate matter (PM), lead (Pb), mercury (Hg), dioxins/furans (PCDD/PCDF) were determined from the 2011 stack test reports.

The MWC Unit Nos. 1 and 2 baseline emissions used in the air construction permit application for the re-rate are presented in the table below, along with the actual 2012 emissions. The difference is the net change in emissions due to the project.

Y:\Projects\2013\133-87511 BCWTE\Final\Bay Cty Actual Em Rpt.docx

Golder Associates Inc.
6026 NW 1st Place
Gainesville, FL 32607 USA
Tel: (352) 336-5600 Fax: (352) 336-6603 www.golder.com



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MWC Unit Nos. 1 and 2 Emissions Accounting

Pollutant	Baseline Emissions (tons/yr)	2012 Reported Emissions (tons/yr)	Net Increase in Emissions (tons/yr)
SO ₂	8.71	1.13	-7.58
NO _x	165.78	7.63	-158.13
CO	122.87	7.50	-115.36
PM	8.87	0.66	-8.21
PM ₁₀	4.80	0.36	-4.43
Pb	0.011	0.0026	-0.0080
Hg	0.0045	0.00016	-0.0043
HCl	9.53	0.39	-9.133
D/F	1.34x10 ⁻⁵	5.0x10 ⁻⁷	-1.29x10 ⁻⁵
MWC Acid Gases	18.24	1.53	-16.71

The 2012 actual emissions were calculated using the emissions computation requirements in the air construction and Title V operating permits. The attached tables provide the basis of the calculations and emissions. These emissions therefore may differ from the emissions reported by BCWTE in the 2012 Annual Operating Report (AOR).

Thank you for consideration of this comment. If you have any questions, please do not hesitate to call me at (352) 336-5600.

Sincerely,

GOLDER ASSOCIATES INC.

Natalia Gonzalez, E.I.
Project Engineer

David A. Buff, P.E., Q.E.P.
Principal Engineer

cc: Glenn Ogborn, Bay County
Richard Brookins, BCWTE
Carol Melton, FDEP

Enclosures

NG/DB/edk

Table 1: Comparison of 2012 and Baseline Actual Emissions - Bay County Waste To Energy Facility, Panama City

Source Description	Baseline (2002 - 2003)			2012 Emissions			Net Increase (TPY)
	Activity Factor	Emission Factor	(TPY)	Activity Factor	Emission Factor	(TPY)	
Sulfur Dioxide - SO₂							
MWC Unit 001	507,017 10 ³ lb/yr Steam	0.017 lbs/10 ⁶ lb Steam	4.41	23,207 10 ³ lb/yr Steam	0.0621 lbs/10 ⁶ lb Steam	0.72	-3.69
	1.77 10 ⁶ CF Natural Gas	0.60 lb/10 ⁶ scf	5.3E-04	1.41 10 ⁶ CF Natural Gas	0.60 lb/10 ⁶ scf	4.2E-04	-1.06E-04
MWC Unit 002	489,683 10 ³ lb/yr Steam	0.018 lbs/10 ⁶ lb Steam	4.30	17,276 10 ³ lb/yr Steam	0.0476 lbs/10 ⁶ lb Steam	0.41	-3.89
	1.74 10 ⁶ CF Natural Gas	0.60 lb/10 ⁶ scf	5.2E-04	1.41 10 ⁶ CF Natural Gas	0.60 lb/10 ⁶ scf	4.2E-04	-9.80E-05
Total:			8.71			1.13	-7.58
Nitrogen Oxides - NO_x							
MWC Unit 001	507,017 10 ³ lb/yr Steam	0.29 lbs/10 ⁶ lb Steam	72.81	23,207 10 ³ lb/yr Steam	0.3655 lbs/10 ⁶ lb Steam	4.24	-68.57
	1.77 10 ⁶ CF Natural Gas	100.00 lb/10 ⁶ scf	0.088	1.41 10 ⁶ CF Natural Gas	100 lb/10 ⁶ scf	0.071	-0.02
MWC Unit 002	489,683 10 ³ lb/yr Steam	0.38 lbs/10 ⁶ lb Steam	92.80	17,276 10 ³ lb/yr Steam	0.3766 lbs/10 ⁶ lb Steam	3.25	-89.55
	1.74 10 ⁶ CF Natural Gas	100.00 lb/10 ⁶ scf	0.087	1.41 10 ⁶ CF Natural Gas	100 lb/10 ⁶ scf	0.071	-0.02
Total:			165.78			7.63	-158.13
Carbon Monoxide - CO							
MWC Unit 001	507,017 10 ³ lb/yr Steam	0.23 lbs/10 ⁶ lb Steam	58.53	23,207 10 ³ lb/yr Steam	0.3268 lbs/10 ⁶ lb Steam	3.79	-54.74
	1.77 10 ⁶ CF Natural Gas	84.00 lb/10 ⁶ scf	0.074	1.41 10 ⁶ CF Natural Gas	84 lb/10 ⁶ scf	0.059	-0.01
MWC Unit 002	489,683 10 ³ lb/yr Steam	0.26 lbs/10 ⁶ lb Steam	64.20	17,276 10 ³ lb/yr Steam	0.4157 lbs/10 ⁶ lb Steam	3.59	-60.61
	1.74 10 ⁶ CF Natural Gas	84.00 lb/10 ⁶ scf	0.073	1.41 10 ⁶ CF Natural Gas	84 lb/10 ⁶ scf	0.059	-0.01
Total:			122.87			7.50	-115.36
Particulate Matter Total - PM							
MWC Unit 001	507,017 10 ³ lb/yr Steam	0.022 lbs/10 ⁶ lb Steam	5.49	23,207 10 ³ lb/yr Steam	0.0357 lbs/10 ⁶ lb Steam	0.41	-5.07
	1.77 10 ⁶ CF Natural Gas	7.60 lb/10 ⁶ scf	0.007	1.41 10 ⁶ CF Natural Gas	7.6 lb/10 ⁶ scf	0.0054	0.00
MWC Unit 002	489,683 10 ³ lb/yr Steam	0.01 lbs/10 ⁶ lb Steam	3.37	17,276 10 ³ lb/yr Steam	0.0270 lbs/10 ⁶ lb Steam	0.23	-3.14
	1.74 10 ⁶ CF Natural Gas	7.60 lb/10 ⁶ scf	0.007	1.41 10 ⁶ CF Natural Gas	7.6 lb/10 ⁶ scf	0.0054	0.00
Total:			8.87			0.66	-8.21
Particulate Matter - PM₁₀							
MWC Unit 001	507,017 10 ³ lb/yr Steam	0.012 lbs/10 ⁶ lb Steam	2.96	23,207 10 ³ lb/yr Steam	0.0193 lbs/10 ⁶ lb Steam	0.22	-2.74
	1.77 10 ⁶ CF Natural Gas	7.60 lb/10 ⁶ scf	0.007	1.41 10 ⁶ CF Natural Gas	7.6 lb/10 ⁶ scf	0.0054	-0.001
MWC Unit 002	489,683 10 ³ lb/yr Steam	0.007 lbs/10 ⁶ lb Steam	1.82	17,276 10 ³ lb/yr Steam	0.0146 lbs/10 ⁶ lb Steam	0.13	-1.69
	1.74 10 ⁶ CF Natural Gas	7.60 lb/10 ⁶ scf	0.007	1.41 10 ⁶ CF Natural Gas	7.6 lb/10 ⁶ scf	0.0054	-0.001
Total:			4.80			0.36	-4.43
Lead - Pb							
MWC Unit 001	507,017 10 ³ lb/yr Steam	3.4E-05 lbs/10 ⁶ lb Steam	0.01	23,207 10 ³ lb/yr Steam	1.80E-04 lbs/10 ⁶ lb Steam	0.002	-0.01
	1.77 10 ⁶ CF Natural Gas	5.0E-04 lb/10 ⁶ scf	4.41E-07	1.41 10 ⁶ CF Natural Gas	5.0E-04 lb/10 ⁶ scf	3.5E-07	-8.80E-08
MWC Unit 002	489,683 10 ³ lb/yr Steam	7.9E-06 lbs/10 ⁶ lb Steam	0.00	17,276 10 ³ lb/yr Steam	6.28E-05 lbs/10 ⁶ lb Steam	0.001	0.00
	1.74 10 ⁶ CF Natural Gas	5.0E-04 lb/10 ⁶ scf	4.35E-07	1.41 10 ⁶ CF Natural Gas	5.0E-04 lb/10 ⁶ scf	3.5E-07	-8.17E-08
Total:			0.011			0.0026	-0.0080
Mercury - Hg							
MWC Unit 001	507,017 10 ³ lb/yr Steam	1.0E-05 lbs/10 ⁶ lb Steam	0.003	23,207 10 ³ lb/yr Steam	1.01E-05 lbs/10 ⁶ lb Steam	0.0001	-0.002
	1.77 10 ⁶ CF Natural Gas	2.6E-04 lb/10 ⁶ scf	2.29E-07	1.41 10 ⁶ CF Natural Gas	2.6E-04 lb/10 ⁶ scf	1.8E-07	-4.57E-08
MWC Unit 002	489,683 10 ³ lb/yr Steam	7.7E-06 lbs/10 ⁶ lb Steam	0.002	17,276 10 ³ lb/yr Steam	5.45E-06 lbs/10 ⁶ lb Steam	0.0000	-0.002
	1.74 10 ⁶ CF Natural Gas	2.6E-04 lb/10 ⁶ scf	2.26E-07	1.41 10 ⁶ CF Natural Gas	2.6E-04 lb/10 ⁶ scf	1.8E-07	-4.25E-08
Total:			0.0045			0.00016	-0.0043
Hydrogen Chloride - HCl							
MWC Unit 001	507,017 10 ³ lb/yr Steam	0.023 lbs/10 ⁶ lb Steam	5.91	23,207 10 ³ lb/yr Steam	0.0233 lbs/10 ⁶ lb Steam	0.27	-5.641
	1.77 10 ⁶ CF Natural Gas	-- lb/10 ⁶ scf	--	1.41 10 ⁶ CF Natural Gas	-- lb/10 ⁶ scf	--	--
MWC Unit 002	489,683 10 ³ lb/yr Steam	0.015 lbs/10 ⁶ lb Steam	3.62	17,276 10 ³ lb/yr Steam	0.0148 lbs/10 ⁶ lb Steam	0.13	-3.492
	1.74 10 ⁶ CF Natural Gas	-- lb/10 ⁶ scf	--	1.41 10 ⁶ CF Natural Gas	-- lb/10 ⁶ scf	--	--
Total:			9.53			0.399	-9.13
MWC - Organics (D/F)							
MWC Unit 001	507,017 10 ³ lb/yr Steam	3.1E-08 lbs/10 ⁶ lb Steam	7.90E-06	23,207 10 ³ lb/yr Steam	2.87E-08 lbs/10 ⁶ lb Steam	3.3E-07	-7.57E-06
	1.77 10 ⁶ CF Natural Gas	-- lb/10 ⁶ scf	--	1.41 10 ⁶ CF Natural Gas	-- lb/10 ⁶ scf	--	--
MWC Unit 002	489,683 10 ³ lb/yr Steam	2.3E-08 lbs/10 ⁶ lb Steam	5.53E-06	17,276 10 ³ lb/yr Steam	1.97E-08 lbs/10 ⁶ lb Steam	1.7E-07	-5.36E-06
	1.74 10 ⁶ CF Natural Gas	-- lb/10 ⁶ scf	--	1.41 10 ⁶ CF Natural Gas	-- lb/10 ⁶ scf	--	--
Total:			1.34E-05			5.0E-07	-1.29E-05
MWC Acid Gases (SO₂+HCl)							
MWC Unit 001	--	--	10.33	--	--	0.99	-9.33
	--	--	5.30E-04	--	--	4.24E-04	-1.06E-04
MWC Unit 002	--	--	7.92	--	--	0.54	-7.38
	--	--	5.22E-04	--	--	4.24E-04	-9.80E-05
Total:			18.24			1.53	-16.71

Based on Tables 2 - 4 and Table 4-1 of Air Construction and Title V Air Operation Renewal Application for BCWTE (January 2010; April 2011).

Table 2: Stack Tests and Emissions Data For MWC Unit No. 1 - Bay County Waste To Energy Facility, Panama City

Test Date	Steam Production Rate (lb/hr)	Gas Flow Rate (dscfm @ 7% O ₂)	Flow/Steam Ratio (dscfm @ 7% O ₂ / lb Steam)	Flue Gas Temp (°F)	Stack Test Emission Rate			Reporting Year	Averaging Period	5-Year Average Emission Rate (lb/10 ³ lb steam)
					Emission Rate		Permit Limit (mg/dscm @ 7% O ₂)			
					mg/dscm @ 7% O ₂	lb/hr				
Particulate Matter (PM)										
Emission Rate										
Factor										
12/15-16/1999	61,847	23,502		421	16.560	1.480	27			0.0298
12/12-15/2000	64,585	22,775		390	18.323	1.563	27	2000	1999-2004	0.0298
12/11-15/2001	64,718	23,446		390	13.800	1.197	27	2001	1999-2004	0.0298
11/17-20/2002	64,757	26,489		401	41.800	4.147	27	2002	1999-2004	0.0298
11/10-13/2003	64,369	26,646		405	32.630	3.230	27	2003	1999-2004	0.0298
6/27-29/2005	63,933	28,994		332	5.440	0.590	27	2005	2005-2008	0.0216
10/31-11/4/2005	64,000	26,410		328	1.486	0.143	27	2005	2005-2008	0.0216
11/15-19/2006	64,500	27,669		314	13.776	1.423	27	2006	2005-2008	0.0216
11/6-10/2007	64,033	28,504		321	24.224	2.567	27	2007	2005-2008	0.0216
12/1-4/2008	63,867	28,758		311	20.507	2.210	27	2008	2005-2008	0.0216
1/7/2010	64,600	31,200	28.98	325	23.264	2.710	25			
1/7/2010	64,100	30,066	28.14	325	23.530	2.640	25			
1/7/2010	64,400	29,683	27.65	326	26.345	2.920	25			
1/7/2010	64,367	30,316	28.26	325	24.38	2.76	25			
1/7/2011	66,200	32,078	29.07	330	21.140	2.530	25			
1/7/2011	66,800	32,458	29.15	337	20.435	2.470	25			
1/7/2011	65,800	33,623	30.66	337	21.464	2.690	25			
1/7/2011	66,267	32,720	29.63	335	21.013	2.563	25	2011	2006-2011	0.0357
								2012	2006-2011	0.0357
Lead (Pb)										
Emission Rate										
Factor										
12/15-16/1999	61,847	23,502		421	0.413	0.0363	0.49			-
12/12-15/2000	64,936	24,114		400	0.258	0.0237	0.49	2000	1999-2003	6.05E-04
2/12/2002	63,611	25,026		422	0.702	0.0700	0.49	2001	1999-2003	6.05E-04
11/17-20/2002	64,563	21,907		399	0.370	0.0362	0.49	2002	1999-2003	6.05E-04
1/12/2004	64,327	28,830		466	0.333	0.0356	0.49	2003	1999-2003	6.05E-04
12/4/2004	63,837	27,473		417	0.664	0.0690	0.49	2004	2000-2004	6.05E-04
6/27-29/2005	64,500	29,332		323	0.0200	0.00216	0.49			-
10/31-11/4/2005	64,000	26,410		328	0.00379	0.000377	0.49	2005	2005-2008	3.42E-05
11/15-19/2006	64,500	27,669		314	0.00199	0.000203	0.49	2006	2005-2008	3.42E-05
11/6-10/2007	64,033	28,504		321	0.0434	0.00458	0.49	2007	2005-2008	3.42E-05
12/1-4/2008	63,867	28,758		311	0.0339	0.00364	0.49	2008	2005-2008	3.42E-05
1/7/2010	64,600	31,200	28.98	325	0.33981	0.0396	0.40			
1/7/2010	64,100	30,066	28.14	325	0.32939	0.037	0.40			
1/7/2010	64,400	29,683	27.65	326	0.42779	0.0474	0.40			
1/7/2010	64,367	30,316	28.26	325	0.366	0.0413	0.40			
1/7/2011	66,200	32,078	29.07	330	0.109	0.0131	0.40			
1/7/2011	66,800	32,458	29.15	337	0.067	0.0081	0.40			
1/7/2011	65,800	33,623	30.66	337	0.028	0.0036	0.40			
1/7/2011	66,267	32,720	29.63	335	0.068	0.0083	0.40	2011	2006-2011	1.80E-04
								2012	2006-2011	1.80E-04
Mercury (Hg)										
Emission Rate										
Factor										
12/15-16/1999	61,847	23,502		421	0.0666	5.87E-03	0.070			-
12/12-15/2000	63,374	24,581		390	0.0362	3.43E-03	0.070	2000	1999-2003	7.83E-05
12/11-15/2001	64,555	22,271		387	0.0580	5.07E-03	0.070	2001	1999-2003	7.83E-05
11/17-20/2002	64,563	27,191		413	0.0500	5.05E-03	0.070	2002	1999-2003	7.83E-05
11/10-13/2003	64,271	25,176		398	0.0507	5.05E-03	0.070	2003	1999-2003	7.83E-05
6/25/2005	64,300	32,342		324	0.00438	4.78E-04	0.070			-
6/25/2005	64,400	29,047		325	0.00489	5.31E-04	0.070			-
6/27-29/2005	64,500	29,332		323	0.00800	8.70E-04	0.070			-
10/31-11/4/2005	64,000	26,410		328	0.00772	7.63E-04	0.070	2005	2005-2008	1.01E-05
11/15-19/2006	64,500	27,669		314	0.00250	2.57E-04	0.070	2006	2005-2008	1.01E-05
11/6-10/2007	64,033	28,504		321	0.0130	1.39E-03	0.070	2007	2005-2008	1.01E-05
12/1-4/2008	63,867	28,758		311	0.00254	2.72E-04	0.070	2008	2005-2008	1.01E-05
1/7/2010	64,600	31,200	28.98	325	0.00530	6.18E-04	0.050			
1/7/2010	64,100	30,066	28.14	325	0.00543	6.10E-04	0.050			
1/7/2010	64,400	29,683	27.65	326	0.00557	6.18E-04	0.050			
1/7/2010	64,367	30,316	28.26	325	0.00543	6.15E-04	0.050			
1/7/2011	66,200	32,078	29.07	330	5.00E-03	5.98E-04	0.050			
1/7/2011	66,800	32,458	29.15	337	6.25E-03	7.57E-04	0.050			
1/7/2011	65,800	33,623	30.66	337	6.33E-03	7.95E-04	0.050			
1/7/2011	66,267	32,720	29.63	335	5.86E-03	7.17E-04	0.050	2011	2006-2011	1.01E-05
								2012	2006-2011	1.01E-05
Hydrogen Chloride (HCl)										
Emission Rate										
Factor										
11/17-23/2002	64,757	26,489		401	487.45	73.44	31			0.0721
								2000	2002	0.0721
								2001	2002	0.0721
								2002	2002	0.0721
								2003	2002	0.0721
								2004	2002	0.0721
6/25-29/2005	63,933	28,994		332	189.4	31.037	31			-
10/31-11/4/2005	64,467	24,167		326	8.3	1.143	31	2005	2005-2008	0.0233
11/15-19/2006	64,267	27,752		310	1.8	0.287	31	2006	2005-2008	0.0233
11/6-10/2007	62,533	27,145		317	7.3	1.130	31	2007	2005-2008	0.0233
1/19/2009	62,067	29,583		305	19.7	3.290	31	2008	2005-2008	0.0233
1/19/2009	62,500	29,516		304	27.4	3.02	31			
1/19/2009	62,700	30,032		305	26.8	3.00	31			
1/19/2009	61,000	29,182		307	35.4	3.85	31			
1/19/2009	62,067	29,577		305	29.8	3.29	31			
1/4/2010	64,600	30,552	28.38	321	4.4	0.50	29			
1/4/2010	59,900	30,394	30.44	322	6.8	0.77	29			
1/4/2010	62,500	29,552	28.37	322	5.2	0.58	29			
1/8/2010	62,600	29,448	28.22	323	3.5	0.39	29			
1/8/2010	62,333	30,166	29.06	322	5.5	0.62	29			
1/4/2011	64,300	32,348	30.18	320	4.9	0.58	29			
1/4/2011	63,600	30,098	28.39	321	2.4	0.27	29			
1/4/2011	57,200	28,487	29.88	319	2.4	0.25	29			
1/8/2011	65,000	33,768	31.17	330	7.7	0.97	29			
1/8/2011	62,525	31,175	29.91	323	4.3	0.52	29			
1/31/2012	64,100	27,651	25.88	306	28.718	2.950	29			
1/31/2012	60,500	27,407	27.18	313	5.112	0.520	29			
1/31/2012	58,000	25,361	26.24	307	9.542	0.900	29			
1/31/2012	60,867	26,806	26.43	309	14.458	1.457	29	2012	2006-2012	0.0233
2012 Annual Flow steam Ratio: 26.43										
Dioxins/Furans (PCDD/PCDF)										
Emission Rate										
Factor										
11/17-23/2002	64,525	23,901		401	893	7.98E-05	30			4.15E-08
								2000	2002	4.15E-08
								2001	2002	4.15E-08
								2002	2002	4.15E-08
								2003	2002	4.15E-08
								2004	2002	4.15E-08
9/12-15/2005	64,500	28,853		324	16.81	1.81E-06	30			-
10/31-11/4/2005	64,167	26,499		320	19.54	1.95E-06	30	2005	2005-2008	3.12E-08
11/15-19/2006	64,167	28,584		315	14.65	1.55E-06	30	2006	2005-2008	3.12E-08
11/6-10/200										

Table 3: Stack Tests and Emissions Data For MWC Unit No. 2 - Bay County Waste To Energy Facility, Panama City

Test Date	Steam Production Rate (lb/hr)	Gas Flow Rate (dscfm @ 7% O ₂)	Flow/Steam Ratio (dscfm @ 7% O ₂ / lb Steam)	Flue Gas Temp (°F)	Stack Test Emission Rate			Reporting Year	Averaging Period	5-Year Average Emission Rate (lb/10 ³ lb steam)
					Emission Rate (mg/dscm @ 7% O ₂)	Permit Limit (mg/dscm @ 7% O ₂)	Emission Factor (lb/10 ³ lb Steam)			
Particulate Matter (PM)										
Emission Rate										
mg/dscm @ 7% O₂										
lb/hr										
Permit Limit (mg/dscm @ 7% O₂)										
Emission Factor (lb/10³ lb Steam)										
12/15-16/1999	64,687	23,987		447	39.56	3.46	27	0.0365		
12/12-15/2000	64,921	26,339		405	34.50	3.40	27	0.0409	2000	1999-2004
12/11-15/2001	64,457	23,273		418	28.37	2.55	27	0.0377	2001	1999-2004
11/17-20/2002	62,869	28,024		397	20.24	2.11	27	0.0335	2002	1999-2004
11/10-13/2003	62,816	25,124		431	40.98	3.87	27	0.0406	2003	1999-2004
									2004	1999-2004
6/27-29/2005	64,433	29,910		312	2.33	0.26	27	0.0041		
10/31-11/4/2005	62,533	26,410		328	1.56	0.15	27	0.0024	2005	2005-2008
11/15-19/2006	62,400	26,252		307	6.94	0.68	27	0.0109	2006	2005-2008
11/6-10/2007	63,533	29,449		308	17.67	1.95	27	0.0306	2007	2005-2008
12/1-4/2008	64,400	30,709		299	11.63	1.34	27	0.0208	2008	2005-2008
1/6/2010	60,200	29,854	29.8	297	20.68	2.31	25	0.0384		
1/6/2010	62,600	29,364	28.1	310	21.28	2.33	25	0.0372		
1/6/2010	63,900	29,738	27.9	303	19.05	2.12	25	0.0332		
1/9/2010	63,700	30,673	28.9	316	22.68	2.60	25	0.0408		
	62,600	29,907	28.7	307	20.92	2.34	25	0.0374		
1/7/2011	62,900	29,523	28.2	312	15.20	1.670	25	0.0266		
1/7/2011	67,100	32,822	29.3	318	25.97	3.180	25	0.0474		
1/7/2011	66,900	31,777	28.5	322	17.83	2.110	25	0.0315		
	65,633	31,374	28.7	317	19.66	2.320	25	0.035	2011	2006-2011
									2012	2006-2011
										0.0270
										0.0270
Lead (Pb)										
Emission Rate										
mg/dscm @ 7% O₂										
lb/hr										
Permit Limit (mg/dscm @ 7% O₂)										
Emission Factor (lb/10³ lb Steam)										
12/15-16/1999	64,687	23,987		447	0.831	0.075	0.49	6.81E-04		
12/12-15/2000	64,707	24,218		424	0.275	0.028	0.49	4.28E-04	2000	1999-2004
12/11-15/2001	64,307	24,296		413	0.474	0.047	0.49	7.31E-04	2001	1999-2004
11/17-20/2002	58,840	22,950		414	0.571	0.069	0.49	1.01E-03	2002	1999-2004
11/10-13/2003	54,199	28,692		443	0.360	0.040	0.49	6.23E-04	2003	1999-2004
12/4/2004	64,061	26,460		420	0.354	0.035	0.49	5.52E-04	2004	1999-2004
6/27-29/2005	64,400	29,777		316	0.00400	0.000374	0.49	5.80E-06		
10/31-11/4/2005	62,533	26,410		328	0.00273	0.000281	0.49	4.18E-06	2005	2005-2008
11/15-19/2006	62,400	26,252		307	0.00976	0.000954	0.49	1.53E-05	2006	2005-2008
11/6-10/2007	63,533	29,449		308	0.00317	0.000346	0.49	5.45E-06	2007	2005-2008
12/1-4/2008	64,400	30,709		299	0.00495	0.000568	0.49	8.83E-06	2008	2005-2008
1/6/2010	60,200	29,854	29.75	297	0.0327	0.00366	0.40	6.08E-05		
1/6/2010	62,600	29,364	28.14	310	0.0215	0.00235	0.40	3.75E-05		
1/6/2010	63,900	29,738	27.92	303	0.0339	0.00377	0.40	5.90E-05		
1/9/2010	63,700	30,673	28.89	316	0.1024	0.01170	0.40	1.84E-04		
	62,600	29,907	28.7	307	0.0476	0.00537	0.40	8.53E-05		
1/7/2011	62,900	29,523	28.16	312	0.134	0.0148	0.40	2.35E-04		
1/7/2011	67,100	32,822	29.35	318	0.113	0.0139	0.40	2.07E-04		
1/7/2011	66,900	31,777	28.50	322	0.088	0.0104	0.40	1.55E-04		
	65,633	31,374	28.67	317	0.112	0.0130	0.40	1.99E-04	2011	2006-2011
									2012	2006-2011
										6.28E-05
										6.28E-05
Mercury (Hg)										
Emission Rate										
mg/dscm @ 7% O₂										
lb/hr										
Permit Limit (mg/dscm @ 7% O₂)										
Emission Factor (lb/10³ lb Steam)										
12/15-16/1999	64,687	23,987		447	0.0694	0.00623	0.070	9.64E-05		
12/12-15/2000	62,720	24,914		411	0.0344	0.00367	0.070	5.85E-05	2000	1999-2003
12/11-15/2001	63,241	27,341		413	0.0730	0.00740	0.070	1.17E-04	2001	1999-2003
11/17-20/2002	64,280	26,876		411	0.0520	0.00419	0.070	6.52E-05	2002	1999-2003
11/10-13/2003	63,302	31,608		443	0.0747	0.0100	0.070	1.58E-04	2003	1999-2003
12/4/2004									2004	1999-2003
6/25/2005	63,650	29,740		303	0.00563	0.000625	0.070	9.81E-06		
6/25/2005	64,550	28,335		316	0.00742	0.000838	0.070	1.30E-05		
6/27-29/2005	64,033	29,777		316	0.00933	0.000990	0.070	1.55E-05		
10/31-11/4/2005	62,533	26,410		328	0.00311	0.000298	0.070	4.76E-06	2005	2005-2008
11/15-19/2006	62,400	26,252		307	0.00179	0.000177	0.070	2.84E-06	2006	2005-2008
11/6-10/2007	63,533	29,449		308	0.00587	0.000645	0.070	1.02E-05	2007	2005-2008
12/1-4/2008	64,400	30,709		299	0.00300	0.000345	0.070	5.35E-06	2008	2005-2008
1/6/2010	60,200	29,854	29.75	297	5.30E-04	5.93E-05	0.050	9.85E-07		
1/6/2010	62,600	29,364	28.14	310	2.23E-03	2.45E-04	0.050	3.91E-06		
1/6/2010	63,900	29,738	27.92	303	6.30E-04	7.01E-05	0.050	1.10E-06		
1/9/2010	63,700	30,673	28.89	316	2.23E-03	2.56E-04	0.050	4.02E-06		
	63,400	29,925	28.32	310	1.70E-03	1.90E-04	0.050	2.50E-06		
1/7/2011	62,900	29,523	28.16	312	3.82E-03	4.20E-04	0.050	6.68E-06		
1/7/2011	67,100	32,822	29.35	318	3.00E-03	3.68E-04	0.050	5.48E-06		
1/7/2011	66,900	31,777	28.50	322	3.93E-03	4.66E-04	0.050	6.97E-06		
	65,633	31,374	28.7	317	3.58E-03	4.18E-04	0.050	6.38E-06	2011	2006-2011
									2012	2006-2011
										5.45E-06
										5.45E-06
Hydrogen Chloride (HCl)										
Emission Rate										
mg/dscm @ 7% O₂										
lb/hr										
Permit Limit (ppmvd @ 7% O₂)										
Emission Factor (lb/10³ lb Steam)										
11/17-23/2002	62,869	25,476		397	429.97	67.80	31	0.0777	2000	
									2001	
									2002	
									2003	
									2004	
										0.0777
6/25-29/2005	64,433	29,910		312	290.94	49.33	31	0.0816		
10/31-11/4/2005	64,500	31,692		325	3.30	0.53	31	0.0083	2005	2005-2008
11/15-19/2006	64,700	27,728		310	2.47	0.39	31	0.0060	2006	2005-2008
11/6-10/2007	59,167	29,604		308	6.18	1.033	31	0.0175	2007	2005-2008
1/19/2009	60,733	26,490		222	11.11	1.66	31	0.0274	2008	2005-2008
1/19/2009	61,900	26,116		223	17.69	1.72	31	0.0278		
1/19/2009	56,600	28,095		222	15.96	1.67	31	0.0295		
1/19/2009	63,700	25,262		222	16.95	1.60	31	0.0251		
1/19/2009	60,733	26,491		222	16.865	1.663	31	0.0275		
1/5/2010	59,800	30,864	30.97	328	14.50	1.67	29	0.0279		
1/5/2010	61,800	28,908	28.07	312	7.78	0.84	29	0.0136		
1/5/2010	64,000	30,152	28.27	325	10.35	1.16	29	0.0181		
1/9/2010	64,300	29,993	27.99	325	2.82	0.33	29	0.0051		
	61,867	29,975	29.10	322	10.88	1.22	29	0.0199		
1/4/2011	63,900	29,083	27.31	313	1.365	0.150	29	0.0023		
1/4/2011	66,600	30,747	27.70	317	1.229	0.140	29	0.0021		
1/4/2011	67,700	26,647	23.62	321	1.563	0.150	29	0.0022		
	66,067	28,825	26.21	317	1.386	0.147	29	0.0022	2011	20

Table 4: CEMS Data for MWC Units 1 and 2 - Bay County Waste To Energy Facility, Panama City

Year	Steam Production Rate (10 ³ lb of Steam/yr)	MSW Processed (tons)	Flow/Steam Ratio (dscf @ 7% O ₂ / lb Steam)	Total Gas Flow Rate ^a (dscf/yr @ 7% O ₂)	Carbon Monoxide (CO)			Nitrogen Oxides (NO _x)			Sulfur Dioxide (SO ₂)		
					CEMS Average Emission Rate (ppmvd @ 7% O ₂)	Total Emissions (lb/yr)	Emission Factor (lb/10 ³ lb steam)	CEMS Average Emission Rate (ppmvd @ 7% O ₂)	Total Emissions (lb/yr)	Emission Factor (lb/10 ³ lb steam)	CEMS Average Emission Rate (ppmvd corrected @ 7% O ₂)	Total Emissions (lb/yr)	Emission Factor (lb/10 ³ lb steam)
2006													
MWC Unit 001	459,117	89,505	26.1	11,989,540,293	126.2	109,941	0.239	84.10	120,315	0.262	4.80	6,863	0.0149
MWC Unit 002	455,963	88,890	25.2	11,482,497,415	150.1	125,222	0.275	135.89	186,192	0.408	3.59	4,919	0.0108
2007													
MWC Unit 001	415,180	77,780	26.4	10,949,597,116	116.0	92,284	0.222	99.25	129,676	0.312	5.33	6,964	0.0168
MWC Unit 002	393,773	73,768	28.1	11,051,362,967	122.5	98,360	0.250	104.42	137,699	0.350	2.00	2,637	0.0067
2008													
MWC Unit 001	293,217	46,891	26.3	7,714,451,809	106.5	59,693	0.204	71.08	65,431	0.223	5.75	5,293	0.0181
MWC Unit 002	285,371	45,158	27.2	7,761,009,906	115.0	64,846	0.227	80.33	74,392	0.261	8.75	8,103	0.0284
2011													
MWC Unit 001	412,220	88,992	30.1	12,424,928,107	218	196,797	0.4774	115	170,499	0.4136	12	17,791	0.0432
MWC Unit 002	423,000	93,744	28.3	11,981,746,021	204	177,590	0.4198	116	165,847	0.3921	15	21,446	0.0507
2012													
MWC Unit 001	23,207		26.4	613,424,655	170.2	7,584	0.3268	115.87	8,481	0.3655	19.7	1,441	0.0621
MWC Unit 002	17,276		28.0	483,692,216	204.3	7,181	0.4157	112.71	6,505	0.3766	14.2	822	0.0476

^a Based on the average measured gas flow rate during stack tests for a given year, in terms of dscfm @ 7% O₂ per lb steam (see Tables 2 and 3).