	B	C
1	**Source Description**	
2		
3	Phase I ID No.	201
4	EPA ID No.	SCD003351699
5	Facility Name	Giant Cement
6	Facility Location	
7	City	Harleyville
8	State	SC
9	Unit ID Name/No.	Kiln No. 5
10	Other Sister Facilities	
11	Number of Sister Facilities	0
12	Combustor Class	Cement Kiln (CK)
13	Combustor Type	Wet, long
14	Combustor Characteristics	
15	Capacity (MMBtu/hr)	
16	APCS Detailed Acronym	FF
17	APCS General Class	FF
18	APCS Characteristics	Fabric filter, Fuller, A/C = 4
19	Hazardous Wastes	Liq
20	Haz Waste Description	
21	Supplemental Fuel	Coal
22		
23	Stack Characteristics	
24	Diameter (ft)	10.0
25	Height (ft)	175.0
26	Gas Velocity (ft/sec)	12.0
27	Gas Temperature (°F)	425.6
28		
29	Permitting Status	Tier I for Hg, Ag, Tl, Sb, and Ba; Tier III for Pb, As, Be, Cd, Cr, Se, Ni
30	HWC Burn Status (Date if Terminated)	Y

	B	C
1	**Condition Description**	
2		
3		
4	**201C10**	
5		
6	Report Name/Date	Giant Cement Company, BIF Recertification of Compliance, Cement Kin Nos. 2, 3, 4, and 5, November 1998
7	Report Prepare	Roy F. Weston
8	Testing Firm	R. F. Weston
9	Testing Dates	June 24 and October 7, 1998
10	Cond Dates	Jun-98
11	Condition Descr	CoC, Max operating mode waste feed, temp, prod rate
12	Content	CO, HC, HCl/Cl2, metals (no Hg stack gas), PM
13		
14	**201C11**	
15		
16	Report Name/Date	Giant Cement Company, BIF Recertification of Compliance, Cement Kin Nos. 2, 3, 4, and 5, November 1998
17	Report Prepare	Roy F. Weston
18	Testing Firm	R. F. Weston
19	Testing Dates	October 7-8, 1998
20	Cond Dates	Oct-98
21	Condition Descr	CoC, Min dp on FF
22	Content	CO, HC, HCl/Cl2, metals (no Hg stack gas), PM
23		
24		
25	PCDD/PCDF measurements not taken during 1998 ReCoC	
26		
27	**201C1**	
28		
29	Report Name/Date	Certification of Compliance, Giant Cement Co., Boiler and Industrial Furnace Regulations, August 21, 1992; Source Test Report BIF Compliance Program, Giant Resource Recovery Company, Harleyville, SC, August 13, 1992, TRC Project No. 12667-E13
30	Report Prepare	Giant Cement / Imagineering
31	Testing Firm	TRC Environmental Consultants
32	Cond Descr	CoC, MAX HW FEED, SPIKED METAL, SPIKED CHLORINE
33	Testing Dates	July 14-19, 1992
34	Cond Dates	Aug-92
35		
36	**201C2**	
37		
38	Report Name/Date	Stationary Source Sampling Report, Reference No. 10000, Giant Cement, Harleyville, SC, Kiln No. 5 Dust Collector Outlet, January 30, 1991
39	Report Prepare	Entropy
40	Testing Firm	Entropy
41	Cond Descr	DRE TEST, also PM, metals, HCl; pre BIF rule
42	Testing Dates	January 30, 1991
43	Cond Dates	Jan-91
44		
45	**201C3**	
46		
47	Report Name/Date	Particulate Emission Evaluation No. 5 Kiln Exhaust Duct, Giant Cement Co, Harleyville, SC, Davis and Floyd, June 1989
48	Report Prepare	Davis and Flyod
49	Testing Firm	
50	Cond Descr	Emissions evaluation, pre-BIF
51	Testing Dates	June 22, 1989
52	Cond Dates	Jun-89

	B	C	D	E	F	G	H	I	J	K	L	M
1	**Stack Gas Emissions 1**											
2												
3												
4	**201C10**	mode A				R1		R2		R3		Cond Avg
5												
6	PM	E1	gr/dscf	y		0.0021		0.0029		0.0025		0.0025
7												
8	CO (MHRA)	E1	ppmv	y		770		827		725		774.0
9	HC (MHRA)	E1	ppmv	y		18.7		18		16.9		17.9
10												
11	HCl		ppmv	n		3.62		2.5		3.32		
12	Cl2		ppmv	n		0.16		0.72		0.93		
13												
14	Arsenic	E2	ug/dscm	y		0.68		1.13		1.02		0.9
15	Beryllium	E2	ug/dscm	y		0.05		0.06		0.06		0.1
16	Cadmium	E2	ug/dscm	y		1.37		2.03		4.69		2.7
17	Chromium	E2	ug/dscm	y		5.29		4.59		8.16		6.0
18	Lead	E2	ug/dscm	y		21.87		21.89		18.54		20.8
19	Nickel	E2	ug/dscm	y		3.11		18.96		3.82		8.6
20	Selenium	E2	ug/dscm	y		33.37		12.1		10.2		18.6
21												
22	LVM	E2	ug/dscm	y		6.0		5.8		9.2		7.0
23	SVM	E2	ug/dscm	y		23.2		23.9		23.2		23.5
24												
25	Sampling Train	PM, HCl/Cl2	E1									
26	Stack Gas Flowrate		dscfm			59137		69121		72009		66756
27	O2		%			6.6		8.2		9.1		8.0
28	Moisture		%			33.4		29.1		30		30.8
29	Temperature		°F			487		514		519		506.7
30												
31	Sampling Train	Metals	E2									
32	Stack Gas Flowrate		dscfm			58158		70665		69215		66013
33	O2		%			6.6		8.2		9.1		8.0
34	Moisture		%			35.3		29.8		31.2		32.1
35	Temperature		°F			486		522		524		510.7
36												
37	HCl	E1	ppmv	y		3.52		2.73		3.91		3.4
38	Cl2	E1	ppmv	y		0.16		0.79		1.09		0.7
39	Total Chlorine	E1	ppmv	y		3.83		4.31		6.09		4.7
40												
41	**201C11**	mode B				R1		R2		R3		Cond Avg
42												
43	CO (MHRA)	E1	ppmv	y		219		149		297		221.7
44	HC (MHRA)	E1	ppmv	y		16.1		14		13.6		14.6
45												
46	PM	E1	gr/dscf	y		0.0013		0.0005		0.0005		0.0008
47												
48	HCl		ppmv	n		5.57		4.6		12.32		
49	Cl2		ppmv	n		2.09		1.39		2.39		
50												
51	Arsenic	E2	ug/dscm	y		0.74		0.72		0.93		0.8
52	Beryllium	E2	ug/dscm	y	nd	0.04	nd	0.05	nd	0.04	100	0.04
53	Cadmium	E2	ug/dscm	y		1.78		9.73		3.11		4.9
54	Chromium	E2	ug/dscm	y		4.87		5.36		3.33		4.5
55	Lead	E2	ug/dscm	y		21.46		20.02		29.88		23.8
56	Nickel	E2	ug/dscm	y		1.9		1.84		1.36		1.7
57	Selenium	E2	ug/dscm	y		2.9		1.71		2.79		2.5
58												
59	LVM	E2	ug/dscm	y	0.7	5.7	0.8	6.1	1	4.3	0.8	5.4
60	SVM	E2	ug/dscm	y		23.2		29.8		33.0		28.7
61												
62	Sampling Train	PM, HCl/Cl2	E1									
63	Stack Gas Flowrate		dscfm			38783		41737		40471		40330.3
64	O2		%			7.2		8.3		6.9		7.5
65	Moisture		%			30.5		29.8		30.5		30.3
66	Temperature		°F			403		411		391		401.7
67												
68	Sampling Train	Metals	E2									
69	Stack Gas Flowrate		dscfm			38789		39180		39150		39039.7
70	O2		%			7.2		8.3		6.9		7.5
71	Moisture		%			31.1		30.7		31.3		31.0

	B	C	D	E	F	G	H	I	J	K	L	M
72	Temperature		°F			403		414		391		402.7
73												
74	HCl	E1	ppmv	y		5.65		5.07		12.23		7.7
75	Cl2	E1	ppmv	y		2.12		1.53		2.37		2.0
76	Total Chlorine	E1	ppmv	y		9.89		8.14		16.98		11.7

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	**Stack Gas Emissions 2**															
2																
3	**201C1**					R1		R2		R3		R4		Cond Avg		
4																
5	PM	E1	gr/dscf	y		0.01084		0.00773		0.01506		0.11081		0.01121		R4 outlier
6	HCl	E1	ppmv	y		22.9		19.8		17.4		18.7		19.7		
7	Cl2	E1	ppmv	y		0.0		0.0		0.0		0.0		0.0		
8	Total Chlorine	E1	ppmv	y		23.0		19.8		17.4		18.7		19.7		
9	Antimony	E2	ug/dscm	y		554.2		205.3		219.0		218.0		299.1		
10	Arsenic	E2	ug/dscm	y		110.8		20.2		44.1		43.5		54.6		
11	Barium	E2	ug/dscm	y			nd	707.8	nd	753.0		872.0		777.6		high ND?
12	Beryllium	E2	ug/dscm	y		11.1		4.2		4.4		4.4		6.0		
13	Cadmium	E2	ug/dscm	y		11.1		4.2		4.4		4.4		6.0		
14	Chromium	E2	ug/dscm	y		55.4		45.3		22.0		21.8		36.1		
15	Lead	E2	ug/dscm	y	nd	387.9		45.3		44.1		43.5		130.2		R1 high ND?
16	Mercury	E2	ug/dscm	y		1.2		15.9		3.0		16.8		9.2		
17	Silver	E2	ug/dscm	y		11.1		2.0		4.4				5.8		
18	Thallium	E2	ug/dscm	y		554.2		205.3		219.0				326.2		
19	SVM	E2	ug/dscm	y		399.0		49.5		48.5		47.9		136.2		
20	LVM	E2	ug/dscm	y		177.3		69.7		70.5		69.7		96.8		
21																
22	Sampling Train	Halogens	E1													
23	Stack Gas Flowrate		dscfm			60722		64514		52720		59058				
24	O2		%			10.5		10.2		10.4		10.4				
25	Moisture		%			31.08		27.56		31.12		28.65				
26	Temperature		°F			429.6		423.7		399.3		463.1				
27																
28	Sampling Train	Metals	E2													
29	Stack Gas Flowrate		dscfm			50979		59474		58907		57403				
30	O2		%			10.5		10		10.2		10				
31	Moisture		%			29.64		29.76		29.97		28.81				
32	Temperature		°F			382.9		458.1		380.5		467.9				
33																
34	**201C2**					R1		R2		R3		R4		Cond Avg		
35																
36	PM	E1	gr/dscf	y		0.02470		0.02150		0.02680				0.02433		
37	HCl	E1	ppmv	y		5.80		9.42		3.76				6.33		
38	Cl2	E1	ppmv	y		0.46		0.12		0.08				0.22		
39	Total Chlorine	E1	ppmv	y		6.72		9.66		3.92				6.77		
40	Antimony	E2	ug/dscm	y		1.54		3.19		1.76				2.16		
41	Arsenic	E2	ug/dscm	y		0.96		1.42		1.08				1.15		
42	Barium	E2	ug/dscm	y		22.49		26.56		25.89				24.98		
43	Beryllium	E2	ug/dscm	y	nd	0.04	nd	0.05	nd	0.04			100	0.05		
44	Cadmium	E2	ug/dscm	y		57.91		157.14		41.82				85.62		
45	Chromium	E2	ug/dscm	y		31.11		33.30		34.87				33.09		
46	Lead	E2	ug/dscm	y		91.58		106.45		54.13				84.05		
47	Mercury	E2	ug/dscm	y		857.40		1145.63		893.15				965.39		
48	Nickel	E2	ug/dscm	y		23.97		26.46		23.55				24.66		
49	Selenium	E2	ug/dscm	y		6.87		5.93		13.94				8.91		
50	Silver	E2	ug/dscm	y	nd	44.44	nd	4.83	nd	4.36			100	17.88		
51	Thallium	E2	ug/dscm	y	nd	8.89	nd	9.68	nd	8.71			100	9.09		
52	SVM	E2	ug/dscm	y		149.48		263.60		95.95				169.68		
53	LVM	E2	ug/dscm	y	0	32.11	0.1	34.77	0	35.99			0.1	34.29		
54																
55	Sampling Train	Halogens	E1													
56	Stack Gas Flowrate		dscfm			63076		60436		60480						
57	O2		%			7.4		8.8		7.3						
58	Moisture		%			0		0		0						
59	Temperature		°F			0		0		0						
60																
61	Sampling Train	Metals	E2													
62	Stack Gas Flowrate		dscfm			63076		60436		60480						
63	O2		%			7.8		8.8		7.3						
64	Moisture		%			32.3		32.8		33.1						
65	Temperature		°F			405		401		401						
66																
67	Sulfur Hexafluoride	E1	%			99.9977		99.9988		99.9996						
68																
69	**201C3**					R1		R2		R3		R4		Cond Avg		
70																
71	PM	E1	gr/dscf	y		0.05452		0.05304		0.05990				0.05582		

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
72																
73	Sampling Train	Particulate	E1													
74	Stack Gas Flowrate		dscfm			45521.7		48979.67		50752.55						
75	O2		%			4.2		4.2		4.2						
76	Moisture		%			30.19		29.5423		29.6339						
77	Temperature		°F			364.6		372.3		372.8						

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD
1	**Feedstreams 1**																												
2																													
3	**201C10**	mode A			R1		R2		R3		Cond Avg		R1		R2		R3		Cond Avg		R1		R2		R3		Cond Avg		R1
4																													
5	Feedstream Number				F1		F1		F1		F1		F2		F2		F2		F2		F3		F3		F3		F3		F4
6	Feed Class				Coal		Coal		Coal		Coal		Raw Material		Raw Material		Raw Material		Raw Material		Slag		Slag		Slag		Slag		Spike
7	Feed Class 2				Coal		Coal		Coal		Coal		RM		RM		RM		RM										Spike
8	Feedstream Description				Coal		Coal		Coal		Coal		Raw Matl		Raw Matl		Raw Matl		Raw Matl		Slag		Slag		Slag		Slag		Spike
9	Feed Rate		g/hr		635,000		635,000		635,000		635,000		57,000,000		55,100,000		55,600,000		55,900,000		0		907,000		998,000		635,000		227,000
10	Thermal Feedrate		MMBtu/hr		18.8		18.8		45.2		27.6		0		0		0		0.0		0		0		0		0.0		
11	Chlorine		g/hr		468.0		327.0		617.0		470.7		0		9470		8620		6,030.0		0		19.1		20.3		13.1		174,000
12	Antimony		g/hr		0.6		0.3		0.2		0.3		49		55.1		55.6		53.2		0		0.91		0.998		0.6		
13	Arsenic		g/hr		9.6		20.1		29.3		19.7		216		771		779		588.7		0		7.89		7.68		5.2		3,780
14	Barium		g/hr		51.5		120.0		154.0		108.5		518		3910		4060		2,829.3		0		363		439		267.3		
15	Beryllium		g/hr		0.4		1.9		2.6		1.6		0		0		0		0.0		0		0		0.998		0.3		254
16	Cadmium		g/hr		0.0		0.1		0.2		0.1		0		0		0		0.0		0		0.998		1.1		0.7		2,030
17	Chromium		g/hr		4.4		9.9		13.3		9.2		137		716		834		562.3		0		907		1300		735.7		25,500
18	Lead		g/hr		3.9		10.7		11.3		8.6		0		182		195		125.7		0		87.1		94.8		60.6		21,000
19	Mercury		g/hr		0.0		0.2		0.2		0.2		1.71		1.65		1.67		1.7		0		0.91		0.0998		0.3		
20	Silver		g/hr		0.6		0.7		0.2		0.5		49		27.5		27.8		34.8		0		0.45		0.499		0.3		
21	Thallium		g/hr		0.2		0.6		0.9		0.6		9.12		55.1		55.6		39.9		0		0.91		0.998		0.6		
22																													
23	Stack Gas Flowrate		dscfm		58,158		70,665		69,215		66,013		58,158		70,665		69,215		66,013		58,158		70,665		69,215		66,013		58,158
24	Oxygen		%		6.6		8.2		9.1		8.0		6.6		8.2		9.1		8.0		6.6		8.2		9.1		8.0		6.6
25																													
26	*Feedrate MTEC Calculations*																												
27	Chlorine		ug/dscm		4,607.5		2,980.7		6,176.3		4,510.5		0.0		86,322.9		86288.0		57,786		0		174		203		126		1,713,041
28	Antimony		ug/dscm		5.5		2.5		1.5		3.1		482.4		502.3		556.6		510		0		8		10		6		0
29	Arsenic		ug/dscm		94.4		183.2		293.3		188.4		2,126.5		7,028.0		7798.0		5,641		0		72		77		50		37,214
30	Barium		ug/dscm		507.0		1,093.8		1,541.6		1,039.8		5,099.7		35,641.2		40641.5		27,114		0		3,309		4,394		2,562		0
31	Beryllium		ug/dscm		3.7		17.4		26.2		15.7		0.0		0.0		0.0		0		0		0		10		3		2,501
32	Cadmium		ug/dscm		0.0		1.0		1.5		0.8		0.0		0.0		0.0		0		0		9		11		7		19,985
33	Chromium		ug/dscm		43.1		90.3		133.1		88.1		1,348.8		6,526.6		8348.5		5,389		0		8,268		13,013		7,050		251,049
34	Lead		ug/dscm		38.8		97.5		113.1		82.9		0.0		1,659.0		1952.0		1,204		0		794		949		581		206,746
35	Mercury		ug/dscm		0.3		2.0		2.5		1.6		16.8		15.0		16.7		16		0		8		1		3		0
36	Silver		ug/dscm		5.5		5.9		1.5		4.4		482.4		250.7		278.3		333		0		4		5		3		0
37	Thallium		ug/dscm		2.1		5.5		9.3		5.6		89.8		502.3		556.6		383		0		8		10		6		0
38																													
39	SVM		ug/dscm		39		99		115		84		0		1,659		1,952		1,204		0		803		960		588		226,732
40	LVM		ug/dscm		141		291		453		292		3,475		13,555		16,146		11,030		0		8,340		13,100		7,103		290,764
41																													
42	**201C11**	mode B			R1		R2		R3		Cond Avg		R1		R2		R3		Cond Avg		R1		R2		R3		Cond Avg		R1
43																													
44	Feedstream Number				F1		F1		F1		F1		F2		F2		F2		F2		F3		F3		F3		F3		F4
45	Feed Class				Coal		Coal		Coal		Coal		Raw Material		Raw Material		Raw Material		Raw Material		Slag		Slag		Slag		Slag		Spike
46	Feed Class 2				Coal		Coal		Coal		Coal		RM		RM		RM		RM										Spike
47	Feedstream Description				Coal		Coal		Coal		Coal		Raw Matl		Raw Matl		Raw Matl		Raw Matl		Slag		Slag		Slag		Slag		Spike
48	Feed Rate		g/hr		635,000		635,000		635,000		635,000		32,200,000		31,600,000		31,500,000		31,766,667		816,000		907,000		907,000		876,667		225,000
49	Thermal Feedrate		MMBtu/hr		19		23		23		21		0		0		0		0		0		0		0		0		
50	Chlorine		g/hr		472		408		408		4.29E+02		5280		5710		5260		5,417		14		15.9		15.1		15		171,000
51	Antimony		g/hr		0.2		0.2		0.2		0.2		32.2		31.6		31.5		32		0.816		0.907		0.9		1		
52	Arsenic		g/hr		21.2		13.1		13.1		15.8		451		474		409		445		4.9		6.99		6.9		6		4,110
53	Barium		g/hr		1.2		98.0		106.0		68.4		2540		2530		2330		2,467		400		372		390.0		387		
54	Beryllium		g/hr		2.0		1.5		1.5		1.6		0		0		0		0		0		0.91		1.0		1		259
55	Cadmium		g/hr		0.1		0.1		0.1		0.1		0		0		0		0		0.82		0.91		0.9		1		2,150
56	Chromium		g/hr		10.4		9.8		9.0		9.7		483		600		504		529		1060		898		907.0		955		27,200
57	Lead		g/hr		8.3		15.5		12.2		12.0		116		123		409		216		71		109		90.7		90		19,700
58	Mercury		g/hr		0.2		0.2		2.1		0.8		0.966		1.58		1.57		1		0.33		0.091		0.0		0		
59	Silver		g/hr		0.1		0.1		0.1		0.1		16.1		15.8		15.7		16		0.41		0.454		0.5		0		
60	Thallium		g/hr		0.6		0.4		0.4		0.5		32.2		31.6		31.5		32		0.82		0.91		0.9		1		

	B	AF	AH	AJ	AL	AN	AP	AR	AT	AV	AX	AZ	BB	BD	BF	BH
1	**Feedstreams 1**															
2																
3	**201C10**	R2	R3	Cond Avg	R1	R2	R3	Cond Avg	R1	R2	R3	Cond Avg	R1	R2	R3	Cond Avg
4																
5	Feedstream Number	F4	F4	F4	F5	F5	F5	F5					F6	F6	F6	F6
6	Feed Class	Spike	Spike	Spike	Liq HW	Liq HW	Liq HW	Liq HW					Total	Total	Total	Total
7	Feed Class 2	Spike	Spike	Spike					HW	HW	HW	HW	Total	Total	Total	Total
8	Feedstream Description	Spike	Spike	Spike	HW Liquid	HW Liquid	HW Liquid	HW Liquid					Total	Total	Total	Total
9	Feed Rate	181,000	215,000		6,820,000	6,650,000	6,450,000	6,640,000								
10	Thermal Feedrate				155	149	144	149	155	149	144	149	174	168	189	177
11	Chlorine	130,000	159,000	154,333	39000	81,800	81900	67,567								
12	Antimony				149	519	2.71	224								
13	Arsenic	3,920	4,230	3,977	0	17.3	4.52	7								
14	Barium				557	17.6	41.9	206								
15	Beryllium	259	259	257	0	0	0	0.0								
16	Cadmium	2,120	2,240	2,130	0	0.665	0	0.2								
17	Chromium	27,200	28,800	27,167	208	40.2	41.3	97								
18	Lead	17,200	20,500	19,567	737	18	18.1	258								
19	Mercury				0.5	0.3	0.3	0.4								2.53
20	Silver				5.6	1.7	0.6	2.6								
21	Thallium				1.2	1.3	1.3	1.3								
22																
23	Stack Gas Flowrate	70,665	69,215	66,013	58,158	70,665	69,215	66,013								
24	Oxygen	8.2	9.1	8.0	6.6	8.2	9.1	8.0								
25																
26	*Feedrate MTEC Calcula*															
27	Chlorine	1,185,003	1,591,623	1,478,997	383,957	745,640	819,836	647,500	383,957	745,814	820,039	647,626	2,101,605	2,020,121	2,504,127	2,188,920
28	Antimony	0	0	0	1,467	4,731	27	2,143	1,467	4,739	37	2,149	1,955	5,244	595	2,662
29	Arsenic	35,732	42,343	38,109	0	158	45	70	0	230	122	119	39,435	43,173	50,557	44,058
30	Barium	0	0	0	5,484	160	419	1,969	5,484	3,469	4,814	4,531	11,090	40,204	46,997	32,685
31	Beryllium	2,361	2,593	2,466	0	0	0	0	0	0	10	3	2,504	2,378	2,629	2,485
32	Cadmium	19,325	22,423	20,412	0	6	0	2	0	15	11	9	19,985	19,341	22,435	20,422
33	Chromium	247,939	288,294	260,342	2,048	366	413	925	2,048	8,634	13,427	7,975	254,489	263,190	310,202	273,794
34	Lead	156,785	205,209	187,510	7,256	164	181	2,470	7,256	958	1,130	3,051	214,041	159,500	208,405	191,848
35	Mercury	0	0	0	5	2	3	3	5	11	4	7	22	28	23	24
36	Silver	0	0	0	55	15	6	25	55	19	11	28	543	276	291	366
37	Thallium	0	0	0	11	12	13	12	11	20	23	18	103	528	589	406
38																
39	SVM	176,110	227,632	207,922	7,256	170	181	2,472	7,256	973	1,141	3,059	234,026	178,840	230,840	212,270
40	LVM	286,032	333,230	300,917	2,048	524	459	994	2,048	8,864	13,559	8,097	296,428	308,742	363,388	320,337
41																
42	**201C11**	R2	R3	Cond Avg	R1	R2	R3	Cond Avg	R1	R2	R3	Cond Avg	R1	R2	R3	Cond Avg
43																
44	Feedstream Number	F4	F4	F4	F5	F5	F5	F5					F6	F6	F6	F6
45	Feed Class	Spike	Spike	Spike	Liq HW	Liq HW	Liq HW	Liq HW					Total	Total	Total	Total
46	Feed Class 2	Spike	Spike	Spike					HW	HW	HW	HW	Total	Total	Total	Total
47	Feedstream Description	Spike	Spike	Spike	HW Liquid	HW Liquid	HW Liquid	HW Liquid					Total	Total	Total	Total
48	Feed Rate	227,000	227,000		4,150,000	3,850,000	3,870,000	3,956,667								
49	Thermal Feedrate				103	130	130	121	103	130	130	121	122	153	153	142
50	Chlorine	174,000	174,000	173,000	45700	32700	32500	36,967								
51	Antimony				357	150	136	214								
52	Arsenic	4,110	4,110	4,110	14.5	5	3.1	8								
53	Barium				5.4	2.3	659.0	222								
54	Beryllium	259	259	259	0.0	0.0	0.0	0								
55	Cadmium	2,150	2,150	2,150	0.0	0.0	0.0	0								
56	Chromium	27,200	27,200	27,200	24.9	13.5	12.4	17								
57	Lead	19,700	19,700	19,700	11.6	10.4	15.5	13								
58	Mercury				0.1	0.2	0.4	0								2.45
59	Silver				1.3	0.4	0.4	1								
60	Thallium				0.8	0.8	0.8	1								

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD
61																													
62	Stack Gas Flowrate		dscfm		38,789		39,180		39,150		39,040		38,789		39,180		39,150		39,040		38,789		39,180		39,150		39,040		38,789
63	Oxygen		%		7.2		8.3		6.9		7.5		7.2		8.3		6.9		7.5		7.2		8.3		6.9		7.5		7.2
64																													
65	*Feedrate MTEC Calculations*																												
66	Chlorine		ug/dscm		7,270.2		6,760.6		6,094.0		6,700.0		81,327.3		94,614.6		78,564.3		84,530.1		215.6		263.5		225.5		234.1		2,633,897.0
67	Antimony		ug/dscm		3.6		4.1		2.4		3.3		496.0		523.6		470.5		495.7		12.6		15.0		13.5		13.7		0.0
68	Arsenic		ug/dscm		326.5		217.1		195.7		246.6		6,946.7		7,854.2		6,108.9		6,939.3		75.5		115.8		102.9		97.7		63,305.9
69	Barium		ug/dscm		18.2		1,623.9		1,583.2		1,067.3		39,123.4		41,922.1		34,801.3		38,493.7		6,161.2		6,164.0		5,825.1		6,044.6		0.0
70	Beryllium		ug/dscm		30.8		24.4		22.0		25.7		0.0		0.0		0.0		0.0		0.0		15.1		14.9		9.9		3,989.4
71	Cadmium		ug/dscm		1.8		1.4		1.2		1.5		0.0		0.0		0.0		0.0		12.6		15.1		13.5		13.7		33,116.2
72	Chromium		ug/dscm		160.2		162.4		134.1		151.8		7,439.6		9,942.0		7,527.8		8,255.3		16,327.1		14,879.8		13,547.1		14,903.3		418,959.1
73	Lead		ug/dscm		127.2		256.8		182.2		187.1		1,786.7		2,038.1		6,108.9		3,370.8		1,093.6		1,806.1		1,354.7		1,408.1		303,437.3
74	Mercury		ug/dscm		3.6		2.7		31.7		13.1		14.9		26.2		23.4		21.4		5.1		1.5		0.3		2.3		0.0
75	Silver		ug/dscm		1.8		1.4		1.2		1.5		248.0		261.8		234.5		247.6		6.3		7.5		6.8		6.9		0.0
76	Thallium		ug/dscm		9.1		6.8		6.1		7.3		496.0		523.6		470.5		495.7		12.6		15.1		13.5		13.7		0.0
77																													
78	SVM		ug/dscm		129.0		258.2		183.4		188.5		1,786.7		2,038.1		6,108.9		3,370.8		1,106.2		1,821.2		1,368.3		1,421.9		336,553.5
79	LVM		ug/dscm		517.5		403.8		351.7		424.1		14,386.3		17,796.2		13,636.7		15,194.6		16,402.6		15,010.8		13,664.9		15,010.9		486,254.4

	B	AF	AH	AJ	AL	AN	AP	AR	AT	AV	AX	AZ	BB	BD	BF	BH
1																
2	Stack Gas Flowrate	39,180	39,150	39,040	38,789	39,180	39,150	39,040								
3	Oxygen	8.3	6.9	7.5	7.2	8.3	6.9	7.5								
4																
5	*Feedrate MTEC Calcula*															
6	Chlorine	2,883,178	2,598,895	2,699,763	703,913	541,839	485,426	576,886	704,128	542,102	485,651	577,120	3,426,623	3,526,655	3,169,204	3,368,112
7	Antimony	0.0	0.0	0.0	5,498.8	2,485.5	2,031.3	3,344.8	5,511.4	2,500.5	2,044.9	3,358.5	6,011	3,028	2,518	3,858
8	Arsenic	68,102.7	61,387.7	64,138.9	223.3	82.8	46.3	117.6	298.8	198.7	149.2	215.3	70,878	76,373	67,841	71,540
9	Barium	0.0	0.0	0.0	83.2	38.3	9,842.9	3,468.1	6,244.3	6,202.3	15,668.1	9,512.7	45,386	49,748	52,053	49,074
0	Beryllium	4,291.6	3,868.5	4,041.8	0.0	0.0	0.0	0.0	0.0	15.1	14.9	9.9	4,020	4,331	3,905	4,077
1	Cadmium	35,625.5	32,112.8	33,552.0	0.0	0.0	0.0	0.0	12.6	15.1	13.5	13.7	33,131	35,642	32,128	33,567
2	Chromium	450,703.7	406,264.0	424,471.3	383.5	223.7	185.2	264.3	16,710.6	15,103.5	13,732.3	15,167.6	443,269	475,912	427,658	448,046
3	Lead	326,428.8	294,242.7	307,429.6	178.7	172.3	231.5	195.1	1,272.3	1,978.5	1,586.2	1,603.2	306,624	330,702	302,120	312,591
4	Mercury	0.0	0.0	0.0	1.9	3.2	5.8	3.7	7.0	4.7	6.1	5.9	26	34	61	40
5	Silver	0.0	0.0	0.0	19.3	6.4	5.8	10.5	25.6	13.9	12.6	17.4	275	277	248	266
6	Thallium	0.0	0.0	0.0	12.8	12.7	11.6	12.4	25.4	27.8	25.1	26.1	530	558	502	529
7																
8	SVM	362,054.2	326,355.5	340,981.6	178.7	172.3	231.5	195.1	1,284.9	1,993.5	1,599.8	1,616.9	339,754	366,344	334,248	346,158
9	LVM	523,098.0	471,520.2	492,652.1	606.9	306.5	231.5	381.8	17,009.4	15,317.3	13,896.4	15,392.7	518,168	556,615	499,405	523,663

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	**Feedstream 2**																									
2																										
3																										
4	**201C1**				R1		R2		R3		R4		R1		R2		R3		R4		R1		R2		R3	
5																										
6	Feedstream Number				F1		F1		F1		F1		F2		F2		F2		F2		F3		F3		F3	
7	Feed Class				Coal		Coal		Coal		Coal		Raw Material		Raw Material		Raw Material		Raw Material		Liq HW		Liq HW		Liq HW	
8	Feed Class 2				Coal		Coal		Coal		Coal		RM		RM		RM		RM		HW		HW		HW	
9	Feedstream Description				Coal		Coal		Coal		Coal		Raw Material		Raw Material		Raw Material		Raw Material		Waste		Waste		Waste	
10	Feed Rate		lb/hr		3,600		3,600		1,400		600		98,600		86,200		81,600		82,800		17,800		7,800		9,600	
11	Heating Value		Btu/lb		13,069		13,222		13,000		13,000										9,517		10,115		13,000	
12	Thermal Feedrate		MMBtu/hr		47.05		47.6		18.2		7.8										169.4		78.9		124.8	
13	Chlorine		ppmw		1900		1500		1400				12		11		50		4.4		42000		42000		38000	
14	Arsenic		ppmw		11	nd	20	nd	20		nd		20	nd	20	nd	20	nd	20	nd	20	nd	20	nd	20	nd
15	Beryllium		ppmw	nd	0.5	nd	0.5	nd	0.5		nd		0.5	nd	0.5	nd	0.5	nd	0.5	nd	0.5	nd	0.5	nd	0.5	nd
16	Cadmium		ppmw	nd	1	nd	1	nd	1		nd		1	nd	1	nd	1	nd	1		13		5.9		4.8	
17	Chromium		ppmw	nd	5		8.3		7.4		nd		5		12		9.5		13		98		51		40	
18	Lead		ppmw	nd	10	nd	10	nd	10		nd		10	nd	10	nd	10	nd	10		220		130		110	
19																										
20	Stack Gas Flowrate		dscfm		50979		59474		52720		59058		50979		59474		52720		59058		50979		59474		52720	
21	O2		%		10.5		10		10.2		10		10.5		10		10.2		10		10.5		10		10.2	
22																										
23	*Feedrate MTEC Calculations*																									
24	Chlorine		ug/dscm		47,832		30,897		12,886		0		8,274		5,425		26,823		2,099		5,227,992		1,874,434		2,398,291	
25	Arsenic		ug/dscm		277	100	412	100	184		0	100	13,790	100	9,864	100	10,729	100	9,542	100	2,490	100	893	100	1,262	100
26	Beryllium		ug/dscm	100	13	100	10	100	5		0	100	345	100	247	100	268	100	239	100	62	100	22	100	32	100
27	Cadmium		ug/dscm	100	25	100	21	100	9		0	100	690	100	493	100	536	100	477		1,618		263		303	
28	Chromium		ug/dscm	100	126		171		68		0	100	3,448		5,919		5,096		6,202		12,199		2,276		2,525	
29	Lead		ug/dscm	100	252	100	206	100	92		0	100	6,895	100	4,932	100	5,365	100	4,771		27,385		5,802		6,942	
30	SVM		ug/dscm	100	138		113		51		0	100	3,792	100	2,713	100	2,951	100	2,624		29,003		6,065		7,245	
31	LVM		ug/dscm	64	415	71	593	73	257		0	100	17,583	63	16,029	68	16,094	61	15,983	17	14,750	29	3,191	34	3,818	37
32																										
33	**201C2**																									
34																										
35	Feedrate																									
36	Heating value																									
37																										
38	no feedrates available from report?																									

	B	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA
1	**Feedstream 2**																										
2																											
3																											
4	**201C1**	R4		R1		R2		R3		R4		R1		R2		R3		R4		R1		R2		R3		R4	
5																											
6	Feedstream Number	F3		F4		F4		F4		F4		F5		F5		F5		F5		F6		F6		F6		F6	
7	Feed Class	Liq HW		Spike		Spike		Spike		Spike		Spike		Spike		Spike		Spike		Spike		Spike		Spike		Spike	
8	Feed Class 2	HW																									
9	Feedstream Descriptio	Waste		Spike A		Spike A		Spike A		Spike A		Spike B		Spike B		Spike B		Spike B		Spike C		Spike C		Spike C		Spike C	
10	Feed Rate	10,200		314		403		415		548		365		420		343		526		422		435		384		771	
11	Heating Value	10,392		0		0		0		0		0		0		0		0		0		0		0		0	
12	Thermal Feedrate	106																									
13	Chlorine	50000	nd	500	nd	500	nd	500	nd	500		4500		4700	nd	500		4100		7700		11000		11000		600	
14	Arsenic	20	nd	20	nd	20	nd	20	nd	20	nd	20	nd	20	nd	20	nd	20		20000		19000		6700		11000	
15	Beryllium	0.5	nd	0.5	nd	0.5	nd	0.5	nd	0.5	nd	0.5	nd	0.5	nd	0.5	nd	0.5		150		150		120		170	
16	Cadmium	3		470		110		100		120		710		630		860		800		7500		7100		5300		8900	
17	Chromium	35		96000		94000		83000		87000		1200		7600		4300		9000		2900		2400		1800		1300	
18	Lead	94		420		490		78		36		18000		62000		43000		83000		500		140		94		30	
19																											
20	Stack Gas Flowrate	59058		50979		59474		52720		59058		50979		59474		52720		59058		50979		59474		52720		59058	
21	O2	10		10.5		10		10.2		10		10.5		10		10.2		10		10.5		10		10.2		10	
22																											
23	*Feedrate MTEC Calcul*																										
24	Chlorine	2,938,630	100	1,097	100	1,154	100	1,365	100	1,579		11,489		11,306	100	1,129		12,419		22,713		27,385		27,796		2,665	
25	Arsenic	1,175	100	44	100	46	100	55	100	63	100	51	100	48	100	45	100	61		58,996		47,301		16,930		48,856	
26	Beryllium	29	100	1	100	1	100	1	100	2	100	1	100	1	100	1	100	2		442		373		303		755	
27	Cadmium	176		1,031		254		273		379		1,813		1,515		1,942		2,423		22,124		17,676		13,392		39,529	
28	Chromium	2,057		210,677		216,895		226,663		274,770		3,064		18,282		9,708		27,261		8,554		5,975		4,548		5,774	
29	Lead	5,525		922		1,131		213		114		45,956		149,139		97,077		251,405		1,475		349		238		133	
30	SVM	5,701		1,953		1,384		486		493		47,768		150,654		99,018		253,828		23,598		18,024		13,630		39,662	
31	LVM	3,262	0	210,700	0	216,919	0	226,691	0	274,803		3,116		18,331		9,754		27,323		67,993		53,649		21,782		55,385	
32																											
33	**201C2**																										
34																											
35	Feedrate																										
36	Heating value																										
37																											
38	no feedrates available																										

	B	BB	BD	BF	BH	BJ	BL	BN	BP	BR
1	**Feedstream 2**									
2										
3										
4	**201C1**	R1	R2	R3	R4	R1	R2	R3	R4	Cond Avg
5										
6	Feedstream Number					F7	F7	F7	F7	F7
7	Feed Class					Total	Total	Total	Total	Total
8	Feed Class 2	Spike	Spike	Spike	Spike	Total	Total	Total	Total	Total
9	Feedstream Descriptio					Total	Total	Total	Total	Total
10	Feed Rate									
11	Heating Value									
12	Thermal Feedrate					216	127	143	114	150
13	Chlorine									
14	Arsenic									
15	Beryllium									
16	Cadmium									
17	Chromium									
18	Lead									
19										
20	Stack Gas Flowrate									
21	O2									
22										
23	*Feedrate MTEC Calcul*									
24	Chlorine	35,300	39,844	30,290	16,663	5,319,398	1,950,601	2,468,289	2,957,392	3,173,920
25	Arsenic	59,091	47,395	17,030	48,980	75,648	58,564	29,205	59,697	55,779
26	Beryllium	445	376	306	758	864	655	610	1,026	789
27	Cadmium	24,968	19,445	15,607	42,331	27,301	20,222	16,456	42,985	26,741
28	Chromium	222,295	241,152	240,919	307,805	238,067	249,517	248,608	316,064	263,064
29	Lead	48,352	150,618	97,527	251,652	82,884	161,558	109,926	261,948	154,079
30	SVM	73,320	170,063	113,135	293,984	106,254	178,954	123,381	302,309	177,724
31	LVM	281,809	288,899	258,227	357,511	314,557	308,713	278,396	376,755	319,605
32										
33	**201C2**									
34										
35	Feedrate									
36	Heating value									
37										
38	no feedrates available									

	B	C	D	E	F	G
1	**Process Information 1**					
2						
3	**201C10**		mode A	1	2	3
4						
5	FF Inlet Temp	F	max HRA	509	570	566
6	Chain Temp	F	max HRA	1829	1794	1871
7						
8	**201C11**		mode B	1	2	3
9						
10	FF Pressure Drop	in H2O	min HRA	1.8	1.9	2

	C	D	E	F	G	H
1	**Process Information 2**					
2						
3	**201C1**					
4						
5	Combustion Temperature	F	1605	1610	1608	1611
6	FF Temperature	F	480	518	468	509
7	FF Pressure Drop	in H2O	4.1	4.9	4.3	4.3