	B	C
1	**Source Description**	
2		
3	Phase I ID No.	495
4	EPA ID No.	OHD004304689
5	Facility Name	PPG
6	Facility Location	
7	City	Circleville
8	State	OH
9	Unit ID Name/No.	Energy Recovery Unit
10	Other Sister Facilities	
11	Number of Sister Facilities	0
12	Combustor Class	Onsite incinerator
13	Combustor Type	Rotary kiln
14	Combustor Characteristics	Rotary Kiln/Secondary Combustion Chamber/Waste Heat Boiler
15	Capacity (MMBtu/hr)	100
16	Soot Blowing	
17	APCS Detailed Acronym	WHB/ESP/IDF/QT/PBS
18	APCS General Class	WHB,ESP,WQ,LEWS
19	APCS Characteristics	electrostatic precipitator/induced draft fan,quench tank, packed tower wet scrubber, stack
20	Hazardous Wastes	solid, liq, sludge
21	Haz Waste Description	clean-up solvents, off-specification products and raw materials from paint and resin manufacture
22	Supplemental Fuel	
23		Fossil fuel for heatup, no supplemental fuel mentioned for testing/operation
24	Stack Characteristics	
25	Diameter (ft)	4.50
26	Height (ft)	82.54166667
27	Gas Velocity (ft/sec)	47.5
28	Gas Temperature (°F)	148
29		
30	Permitting Status	
31	HWC Burn Status (Date if Terminated)	

	B	C
1	**Condition Description**	
2		
3	**495C10**	
4		
5	Report Name/Date	Final Trial Burn Report for the Energy Recovery Unit/March, 1998
6	Report Prepare	PPG Industries, Inc.
7	Testing Firm	ENSR Corp.
8	Testing Dates	Nov. 18-19, 1997
9	Cond Dates	Nov-97
10	Condition Descr	Trial Burn, Low Temperature, DRE Test
11	Content	PM, HCl/Cl2, PCDD/PCDF, DRE (PERC, MCB), SVOCs, VOCs,CO,NOx,SO2
12		
13	**495C11**	
14		
15	Report Name/Date	Final Trial Burn Report for the Energy Recovery Unit/March, 1998
16	Report Prepare	PPG Industries, Inc.
17	Testing Firm	ENSR Corp.
18	Testing Dates	November 19-20, 1997
19	Cond Dates	Nov-97
20	Condition Descr	Trial Burn, High Temperature, Metals Spike (Pb,Cr,As)
21	Content	PM, HCl/Cl2, metals, Cr+6, PCDD/PCDF, SVOCs, VOCs
22		
23	**495C1**	
24		
25	Report Name/Date	Stationary Source Sampling Report, Reference No. 5471, PPG Industries, Circleville, OH, January 11 - 15 1988
26	Report Prepare	Entropy
27	Testing Firm	Entropy
28	Cond Descr	Trial Burn, Slagging Kiln With Maximum Solids Loading
29	Testing Dates	Jan 11-15, 1988
30	Cond Dates	Jan-88
31		
32	**495C2**	
33		
34	Report Name/Date	Stationary Source Sampling Report, Reference No. 5471, PPG Industries, Circleville, OH, January 11 - 15 1988
35	Report Prepare	Entropy
36	Testing Firm	Entropy
37	Cond Descr	Trial Burn, Non-Slagging Kiln With Maximum Solid Loading
38	Testing Dates	January 13-14, 1988
39	Cond Dates	Jan-88
40		
41	**495C3**	
42		
43	Report Name/Date	Stationary Source Sampling Report, Reference No. 5471, PPG Industries, Circleville, OH, January 11 - 15 1988
44	Report Prepare	Entropy
45	Testing Firm	Entropy
46	Cond Descr	Trial burn, Liquid Feeds only
47	Testing Dates	January 12-13, 1988
48	Cond Dates	Jan-88

	B	C	D	E	F	G	H	I	J	K	L	M
1	**Stack Gas Emissions 1**											
2												
3		Comments	Units	7% O2								
4												
5												
6	**495C10**	**Low Temperature**				R1		R2		R3		Cond Avg
7												
8	CO (RA)	E1	ppmv	y		75.1		92.8		99.8		89.2
9	NOx		ppmv			76.6		79.3		79		78.3
10	SO2		ppmv			0.2		0		0		0.07
11	O2		%			13.97%		13.90%		13.78%		13.88%
12	CO2		%			5.73%		5.79%		5.74%		5.75%
13												
14												
15	PM	E1	gr/dscf	y		0.004		0.003		0.002		0.003
16												
17	HCl		lb/hr		nd	0.003		0.13	nd	0.00		0.05
18	Cl2		lb/hr		nd	0.002	nd	0.002	nd	0.002		0.002
19												
20	HCl	E1	ppmv	y	nd	0.03		1.35	nd	0.04	100	0.47
21	Cl2	E1	ppmv	y	nd	0.01	nd	0.01	nd	0.01	100	0.01
22	Total Chlorine	E1	ppmv	y	100	0.05	100	1.38	100	0.06	100	0.49
23												
24	POHC	Monochlorobenzene										
25	POHC Feedrate		lb/hr			29.3		29.2		29.1		
26	Emission Rate	E3	lb/hr		nd	1.50E-04	nd	1.50E-04		2.07E-04		
27	DRE	E3	%		>	99.9995	>	99.9995		99.9993		
28												
29	POHC	Perchloroethylene										
30	POHC Feedrate		lb/hr			30.0		30.0		30.1		
31	Emission Rate	E3	lb/hr		nd	2.13E-04		3.17E-04		5.30E-04		
32	DRE	E3	%		>	99.9993		99.9989		99.9982		
33												
34												
35	Sampling Train	PM, HCl/Cl2	E1									
36	Stack Gas Flowrate		dscfm			34280		34502		33312		34031
37	O2		%			14.0		13.9		13.8		13.9
38	Moisture		%			18.4		18.4		19		18.6
39	Temperature		°F			137		138		139		138
40												
41	Sampling Train	PCDD/PCDF	E2									
42	Stack Gas Flowrate		dscfm			32535		32488		31790		32271
43	O2		%			13.97		13.90		13.78		13.88
44	Moisture		%			20.0		20.9		21.1		20.7
45	Temperature		°F									
46												
47	Sampling Train	Semivolatile PAHs	E3									
48	Stack Gas Flowrate		dscfm			32535		32488		31790		32271
49	O2		%			13.97		13.90		13.78		13.88
50	Moisture		%			20.0		20.9		21.1		20.7
51	Temperature		°F									
52												
53	**495C11**	**High Temperature**				R1		R2		R3		Cond Avg
54												
55	CO (RA)	E1	ppmv	y		9.0		13.5		15.0		12.5
56	NOx		ppmv			115.9		115.8		109.2		113.6
57	SO2		ppmv			1.1		0.3		0.0		0.5
58	O2		%			10.10		10.16		10.14		10.13
59	CO2		%			8.7		8.8		8.6		8.7
60												
61	PM	E1	gr/dscf	y		0.004		0.003		0.003		0.003
62												
63	HCl		lb/hr		nd	0.004	nd	0.004	nd	0.004		0.004
64	Cl2		lb/hr		nd	0.002	nd	0.002	nd	0.002		0.002
65												
66												
67	HCl	E1	ppmv	y	nd	0.031	nd	0.036	nd	0.039	100	0.035
68	Cl2	E1	ppmv	y	nd	0.008	nd	0.011	nd	0.009	100	0.009
69	Total Chlorine	E1	ppmv	y	100	0.047	100	0.059	100	0.057	100	0.054
70												
71	Aluminum		lb/hr			5.45E-03		7.80E-03		4.89E-03		6.05E-03

	B	C	D	E	F	G	H	I	J	K	L	M
72	Antimony		lb/hr			1.24E-04		7.80E-05		9.30E-05		9.83E-05
73	Arsenic		lb/hr			1.29E-03		1.02E-03		1.03E-03		1.11E-03
74	Barium		lb/hr			1.37E-03		9.56E-04		1.11E-03		1.15E-03
75	Beryllium		lb/hr		nd	4.96E-06	nd	4.88E-06	nd	4.89E-06		4.91E-06
76	Cadmium		lb/hr			1.98E-05		4.88E-05		1.17E-04		6.19E-05
77	Chromium(Hex)		lb/hr			5.30E-05	nd	2.10E-05		4.00E-05		3.80E-05
78	Chromium		lb/hr			3.22E-04		4.14E-04		3.47E-04		3.61E-04
79	Lead		lb/hr			8.38E-03		7.26E-03		6.31E-03		7.32E-03
80	Mercury		lb/hr			6.85E-04		2.24E-04		1.49E-04		3.53E-04
81	Nickel		lb/hr			1.98E-04		1.32E-04		9.30E-05		1.41E-04
82	Selenium		lb/hr			1.19E-02		7.80E-03		7.34E-03		9.01E-03
83	Silver		lb/hr			4.07E-05		7.31E-06	nd	3.67E-05		2.82E-05
84	Thallium		lb/hr			6.44E-05		6.34E-05		6.36E-05		6.38E-05
85	Copper		lb/hr			4.74E-03		2.81E-03		3.31E-03		3.62E-03
86	Zinc		lb/hr			6.20E-03		2.40E-03		1.97E-03		3.52E-03
87												
88	Aluminum	E4	ug/dscm	y		62.8		89.6		56.4		69.6
89	Antimony	E4	ug/dscm	y		1.4		0.9		1.1		1.1
90	Arsenic	E4	ug/dscm	y		14.9		11.7		11.9		12.8
91	Barium	E4	ug/dscm	y		15.8		11.0		12.8		13.2
92	Beryllium	E4	ug/dscm	y	nd	0.1	nd	0.1	nd	0.1	100	0.1
93	Cadmium	E4	ug/dscm	y		0.2		0.6		1.3		0.7
94	Chromium(Hex)	E5	ug/dscm	y		0.6	nd	0.2		0.5		0.4
95	Chromium	E4	ug/dscm	y		3.7		4.8		4.0		4.2
96	Lead	E4	ug/dscm	y		96.5		83.4		72.8		84.2
97	Mercury	E4	ug/dscm	y		7.9		2.6		1.7		4.1
98	Nickel	E4	ug/dscm	y		2.3		1.5		1.1		1.6
99	Selenium	E4	ug/dscm	y		137.1		89.6		84.7		103.8
100	Silver	E4	ug/dscm	y		0.5		0.1	nd	0.4		0.3
101	Thallium	E4	ug/dscm	y		0.7		0.7		0.7		0.7
102	Copper	E4	ug/dscm	y		54.6		32.3		38.2		41.7
103	Zinc	E4	ug/dscm	y		71.4		27.6		22.7		40.6
104												
105	SVM	E4	ug/dscm	y		96.8		84.0		74.1		85.0
106	LVM	E4	ug/dscm	y		18.6		16.5		15.9		17.0
107												
108	Sampling Train	PM, HCl/Cl2	E1									
109	Stack Gas Flowrate		dscfm			28,033		28,960		30,852		29282
110	O2		%			10.10		10.16		10.14		10.13
111	Moisture		%			24.5		24.4		23.8		24.2
112	Temperature		°F			148		148		148		148
113												
114	Sampling Train	PCDD/PCDF	E2									
115	Stack Gas Flowrate		dscfm			28272		27159		29697		28376
116	O2		%			10.10		10.16		10.14		10.13
117	Moisture		%			25.7		25.6		25.6		25.6
118	Temperature		°F									
119												
120	Sampling Train	Semivolatile PAHs	E3									
121	Stack Gas Flowrate		dscfm			28272		27159		29697		28376
122	O2		%			10.10		10.16		10.14		10.13
123	Moisture		%			25.7		25.6		25.6		25.6
124	Temperature		°F									
125												
126	Sampling Train	Metals (Method 0060)	E4									
127	Stack Gas Flowrate		dscfm			29797		30030		29863		29897
128	O2		%			10.1		10.2		10.1		10.1
129	Moisture		%			24.5		24.4		23.9		24.3
130	Temperature		°F			148		148		148		148
131												
132	Sampling Train	Cr+6 (Method 0061)	E5									
133	Stack Gas Flowrate		dscfm			27716		28262		28284		28087
134	O2		%			10.10		10.16		10.14		10.13
135	Moisture		%			24.4		24.2		26		24.9
136	Temperature		°F			150		149		150		150

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	**Stack Gas Emissions 2**														
2															
3		Comments	Units	7%O2											
4															
5															
6	**495C1**					R1		R2		R3		R4		Cond Avg	
7															
8	PM	E2	gr/dscf	y		0.0382		0.0063		0.0028		0.0061		0.0134	
9	CO (RA)	E2	ppmv	y		33.9		10.4		19.9		15.2		19.9	
10	HC (RA)	E2	ppmv	y		4.2		4.2		4.8		4.7		4.5	
11	HCl	E2	ppmv	y	nd	3.5	nd	2.6	nd	2.8	nd	2.9		2.9	
12	Total Chlorine	E2	ppmv	y		3.5		2.6		2.8		2.9		2.9	
13	Beryllium	E1	ug/dscm	y	nd	4.0	nd	3.5	nd	3.4	nd	3.6		3.6	
14	Chromium	E1	ug/dscm	y		52.2		221.9		62.0		265.3		150.4	
15	Lead	E1	ug/dscm	y		2180.3		943.2		766.3		728.1		1154.5	
16	Mercury	E1	ug/dscm	y		28750.5		17979.4		11829.3		11052.3		17402.9	
17	SVM	E1	ug/dscm	y		2180.3		943.2		766.3		728.1		1154.5	(No Cd)
18	LVM	E1	ug/dscm	y		56.2		225.4		65.5		268.8		154.0	(No As)
19															
20	Carbon Tetrachloride														
21	DRE	E1	%			99.998		99.999		99.987		99.996			
22															
23	Chlorobenzene														
24	DRE	E1	%			99.9999		99.99993		99.99987		99.99998			
25															
26	Methyl Ethyl Ketone														
27	DRE	E1	%			99.9996		99.9996		99.9993		99.9996			
28															
29	Sampling Train	Metals	E1												
30	Stack Gas Flowrate		dscfm			19205.0		20652.0		21018.0		21654.0			
31	O2		%			12.7		10.5		10.5		11.1			
32	Moisture		%												
33	Temperature		°F			156.0		144.0		149.0		148.0			
34															
35	Sampling Train	Particulate	E2												
36	Stack Gas Flowrate		dscfm			19710.0		19606.0		21613.0		21165.0			
37	O2		%			12.7		10.5		10.5		11.1			
38	Moisture		%												
39	Temperature		°F			149.0		149.0		149.0		149.0			
40															
41	**495C2**					R1		R2		R3		R4		Cond Avg	
42															
43	PM	E2	gr/dscf	y		0.0040		0.0029		0.0059		0.0026		0.0038	
44	CO (RA)	E2	ppmv	y		33.5		27.7		8.4		12.3		20.5	
45	HC (RA)	E2	ppmv	y		2.2		4.1		1.6		4.2		3.0	
46	HCl	E2	ppmv	y	nd	2.9	nd	2.4	nd	2.5	nd	2.4		2.6	
47	Total Chlorine	E2	ppmv	y		2.9		2.4		2.5		2.4		2.6	
48	Beryllium	E1	ug/dscm	y	nd	3.5	nd	3.5	nd	3.6	nd	3.6	100	3.5	
49	Chromium	E1	ug/dscm	y		117.9		175.0		104.0		70.9		116.9	
50	Lead	E1	ug/dscm	y		1282.1		1706.5		1232.8		1078.5		1324.9	
51	Mercury	E1	ug/dscm	y		6478.9		6738.9		6863.4		5745.1		6456.6	
52	SVM	E1	ug/dscm	y		1282.1		1706.5		1232.8		1078.5		1324.9	No Cd
53	LVM	E1	ug/dscm	y		119.7		176.8		105.8		72.7		118.7	No As
54															
55	Carbon Tetrachloride														
56	DRE	E1	%			99.99		99.997		99.9994		99.9989			
57															
58	Chlorobenzene														
59	DRE	E1	%			99.99995		99.99995		99.9999		99.99995			
60															
61	Methyl Ethyl Ketone														
62	DRE	E1	%			99.9995		99.9995		99.9996		99.9997			
63															
64	Sampling Train	Metals	E1												
65	Stack Gas Flowrate		dscfm			23278.0		23783.0		21999.0		22544.0			
66	O2		%			11.7		11.4		11.4		11.5			
67	Moisture		%												
68	Temperature		°F			152.0		142.0		153.0		150.0			
69															
70	Sampling Train	PM, HCl/Cl2	E2												
71	Stack Gas Flowrate		dscfm			22752.0		23318.0		23348.0		23289.0			

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
72	O2		%			11.7		11.4		11.4		11.5			
73	Moisture		%												
74	Temperature		°F			149.0		149.0		150.0		150.0			
75															
76	**495C3**					R1		R2		R3		R4		Cond Avg	
77															
78	PM	E2	gr/dscf	y		0.0095		0.0021		0.0060		0.0006		0.0046	
79	CO (RA)	E2	ppmv	y		60.0		51.7		40.1		26.5		39.4	
80	HC (RA)	E2	ppmv	y		1.4		3.6		2.3		2.9		2.9	
81	HCl	E2	ppmv	y	nd	3.3	nd	2.4	nd	2.9	nd	3.1		2.8	
82	Total Chlorine	E2	ppmv	y		3.3		2.4		2.9		3.1		2.8	
83	Beryllium	E1	ug/dscm	y			nd	3.2	nd	3.1	nd	3.2		3.2	
84	Chromium	E1	ug/dscm	y				100.1		313.2		49.0		154.1	
85	Lead	E1	ug/dscm	y				57.7		18.8	nd	3.2		26.6	
86	Mercury	E1	ug/dscm	y				1991.6		5532.2		3306.7		3610.1	
87	SVM	E1	ug/dscm	y				57.7		18.8		1.6		26.0	No Cd
88	LVM	E1	ug/dscm	y				103.3		316.3		52.2		157.3	No As
89															
90	Carbon Tetrachloride														
91	DRE	E1	%			99.997		0		99.97					
92															
93	Chlorobenzene														
94	DRE	E1	%			99.99997		99.99993		99.99994					
95															
96	Methyl Ethyl Ketone														
97	DRE	E1	%			99.9998		99.9996		99.9994					
98															
99	Sampling Train	Metals	E1												
100	Stack Gas Flowrate		dscfm					20707.0		21425.0		20735.0			
101	O2		%					9.7		10.1		10.0			
102	Moisture		%												
103	Temperature		°F					157.0		153.0		154.0			
104															
105	Sampling Train	Particulate	E2												
106	Stack Gas Flowrate		dscfm			20336.0		21378.0		18678.0		20820.0			
107	O2		%			9.9		9.7		10.1		10.0			
108	Moisture		%												
109	Temperature		°F			151.0		152.0		152.0		152.0			

	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	**Feedsteam 2**																									
2																										
3																										
4	**495C10**		**Low Temperatu**		R1		R2		R3		Cond Avg		R1		R2		R3		Cond Avg		R1		R2		R3	
5																										
6	Feedstream Number				F1		F1		F1		F1		F2		F2		F2		F2		F3		F3		F3	
7	Feed Class				Liq HW		Liq HW		Liq HW		Liq HW		Solid HW		Solid HW		Solid HW		Solid HW		Spike		Spike		Spike	
8	Feed Class 2																				Spike		Spike		Spike	
9	Feedstream Description				Bulk Lance		Bulk Lance		Bulk Lance		Bulk Lance		Containerized Waste		Containerized Waste		Containerized Waste		Containerized Waste		Spike		Spike		Spike	
10	Feed Rate		lb/hr		6556		8447		7810		7604.3		3142		3122		3016		3093.3							
11	Chlorine		lb/hr		3.3		4.3		4.0		3.9		2.1		2.0		9.8		4.6		34.9		35.0		34.7	
12	Lead		lb/hr		0.26		1.21		1.08		0.85		0.53		0.49		12		4.34		0.00		0.00		0.00	
13	Chromium		lb/hr		0.08		0.08		0.08		0.08 nd		0.01 nd		0.01 nd		0.01 nd		0.01		0.00		0.00		0.00	
14	Arsenic		lb/hr		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00	
15	Ash		lb/hr		162.0		188.0		181.0		177.0		1030.0		963.0		1075.0		1022.7		0.0		0.0		0.0	
16	Thermal Feedrate		MMBtu/hr		33.4		35.8		35.7		35.0		17.2		18.4		17.6		17.7		0.0		0.0		0.0	
17																										
18	PERC		lb/hr		29.99		30.00		30.04		30.01		0.00		0.00		0.00		0.00		0.00		0.00		0.00	
19	MCB		lb/hr		0.00		0.00		0.00		0.00		29.16		19.46		28.58		25.73		0.00		0.00		0.00	
20																										
21																										
22	Stack Gas Flowrate		dscfm		34280.0		34502.0		33312		34031		34280.0		34502.0		33312		34031		34280.0		34502.0		33312	
23	Oxygen		%		14.0		13.9		13.78		14		14.0		13.9		13.78		14		14.0		13.9		13.78	
24																										
25	Estimated Firing Rate		MMBtu/hr																							
26																										
27	*Feedrate MTEC Calculations*																									
28	Ash		mg/dscm		2514.8		2871.0		2815.3		2733.7		15989.2		14706.5		16720.8		15805.5		0.0		0.0		0.0	
29																										
30	Chlorine		ug/dscm		51693.2		66125.8		61439.1		59752.7		31978.4		30084.9		152586.6		71550.0		540993.5		533893.0		540041.6	
31																										
32	Lead		ug/dscm		4036.1		18478.6		16798.5		13104.4		8227.4		7483.1		186650.3		67453.6		0.0		0.0		0.0	
33	Chromium		ug/dscm		1235.7		1235.7		1235.7		1235.7		154.5		154.5		154.5		154.5		0.0		0.0		0.0	
34	Arsenic		ug/dscm		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0	
35	LVM		ug/dscm		1235.7		1235.7		1235.7		1235.7		154.5		154.5		154.5		154.5		0.0		0.0		0.0	
36	SVM		ug/dscm		4036.1		18478.6		16798.5		13104.4		8227.4		7483.1		186650.3		67453.6		0.0		0.0		0.0	
37																										
38																										
39	**495C11**		**High Temperat**		R1		R2		R3		Cond Avg		R1		R2		R3		Cond Avg		R1		R2		R3	
40																										
41	Feedstream Number				F1		F1		F1		F1		F2		F2		F2		F2		F3		F3		F3	
42	Feed Class				Liq HW		Liq HW		Liq HW		Liq HW		Solid HW		Solid HW		Solid HW		Solid HW		Spike		Spike		Spike	
43	Feed Class 2																				Spike		Spike		Spike	
44	Feedstream Description				Bulk Lance		Bulk Lance		Bulk Lance		Bulk Lance		Containerized Waste		Containerized Waste		Containerized Waste		Containerized Waste		Spike		Spike		Spike	
45	Feed Rate		lb/hr		10406.0		10193.0		10074.0		10224.3		3496.0		3439.0		3496.0		3477.0							
46	Chlorine		lb/hr		5.57		5.47		5.32		5.45		1.12		0.63		0.62		0.79		153.95		153.97		153.96	
47	Lead		lb/hr		1.43		1.42		1.43		1.43		18.37		16.88		11.22		15.49		7.92		7.97		7.92	
48	Chromium		lb/hr		0.13		0.13		0.12		0.13 nd		0.01 nd		0.01 nd		0.01 nd		0.01		3.20		3.20		3.20	
49	Arsenic		lb/hr		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		3.30		3.30		3.30	
50	Ash		lb/hr		322.0		312.0		303.0		312.3		1441.0		1729.0		1731.0		1633.7		0.0		0.0		0.0	
51	Thermal Feedrate		MMBtu/hr		66.2		63.6		62.4		64.1		15.7		11.8		11.8		13.1		0.0		0.0		0.0	
52	Estimated Firing Rate		MMBtu/hr																							
53	PERC		lb/hr		179.0		180.0		180.0		179.7		0.0		0.0		0.0		0.0		0.0		0.0		0.0	
54	MCB		lb/hr		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0	
55																										
56	Stack Gas Flowrate		dscfm		28033.0		28,960		30,852		29282		28033.0		28,960		30,852		29282		28033.0		28,960		30,852	
57	Oxygen		%		10.1		10		10		10		10.1		10		10		10		10.1		10		10	
58																										

	B	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS
1	**Feedsteam 2**																		
2																			
3																			
4	**495C10**	Cond Avg		R1		R2		R3		Cond Avg		R1		R2		R3		Cond Avg	
5																			
6	Feedstream Number	F3		F4		F4		F4		F4									
7	Feed Class	Spike		Total		Total		Total		Total									
8	Feed Class 2	Spike		Total		Total		Total		Total		HW		HW		HW		HW	
9	Feedstream Description	Spike		Total		Total		Total		Total									
10	Feed Rate			9698.0		11569.0		10826.0		10697.7									
11	Chlorine	34.8		40.2		41.3		48.5		43.3									
12	Lead	0.00		0.79		1.70		13.08		5.19									
13	Chromium	0.00		0.09		0.09		0.09		0.09									
14	Arsenic	0.00		0.00		0.00		0.00		0.00									
15	Ash	0.0		1192.0		1151.0		1256.0		1199.7									
16	Thermal Feedrate	0.0		50.6		54.2		53.3		52.7									
17				76.5		77.8		76.4		76.9									
18	PERC	0.00		29.99		30.00		30.04		30.01									
19	MCB	0.00		29.16		19.46		28.58		25.73									
20																			
21																			
22	Stack Gas Flowrate	34031		34280.00		34502.00		33312.00		34031									
23	Oxygen	14		13.97		13.90		13.78		13.88									
24																			
25	Estimated Firing Rate			76.50		77.77		76.35		76.89									
26																			
27	*Feedrate MTEC Calculation*																		
28	Ash	0.0		18504.0		17577.5		19536.1		18539.2		18504.0		17577.5		19536.1		18539.2	
29																			
30	Chlorine	538309.4		624665.1		630103.7		754067.3		669612.0		83671.6		96210.7		214025.7		131302.7	
31																			
32	Lead	0.0		12263.6		25961.6		203448.8		80558.0		12263.6		25961.6		203448.8		80558.0	
33	Chromium	0.0		1390.2		1390.2		1390.2		1390.2		1390.2		1390.2		1390.2		1390.2	
34	Arsenic	0.0		0.0		0.0		0.0		0.0									
35	LVM	0.0		1390.2		1390.2		1390.2		1390.2		1390.2		1390.2		1390.2		1390.2	(As, Cr only)
36	SVM	0.0		12263.6		25961.6		203448.8		80558.0		12263.6		25961.6		203448.8		80558.0	(Pb only)
37																			
38																			
39	**495C11**	Cond Avg		R1		R2		R3		Cond Avg		R1		R2		R3		Cond Avg	
40																			
41	Feedstream Number	F3		F4		F4		F4		F4									
42	Feed Class	Spike		Total		Total		Total		Total									
43	Feed Class 2	Spike		Total		Total		Total		Total		HW		HW		HW		HW	
44	Feedstream Description	Spike		Total		Total		Total		Total									
45	Feed Rate			13902.0		13632.0		13570.0		13701.3									
46	Chlorine	153.96		160.64		160.07		159.90		160.20									
47	Lead	7.94		27.72		26.27		20.57		24.85									
48	Chromium	3.20		3.34		3.34		3.33		3.34									
49	Arsenic	3.30		3.30		3.30		3.30		3.30									
50	Ash	0.0		1763.0		2041.0		2034.0		1946.0									
51	Thermal Feedrate	0.0		81.9		75.4		74.2		77.2									
52	Estimated Firing Rate			97.0		99.7		106.4		103.1									
53	PERC	0.0		179.0		180.0		180.0		179.7									
54	MCB	0.0		0.0		0.0		0.0		0.0									
55																			
56	Stack Gas Flowrate	29282		28033		28960		30852		29897									
57	Oxygen	10		10.10		10.16		10.14		10.13									
58																			

	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
59	*Feedrate MTEC Calculations*																									
60	Ash		mg/dscm		3942.3		3718.0		3383.1		3681.1		17642.2		20604.0		19327.2		19191.2		0.0		0.0		0.0	
61																										
62	Chlorine		ug/dscm		68193.7		65184.6		59399.6		64259.3		13712.2		7507.5		6922.5		9380.8		1884816.2		1834820.9		1719016.9	
63																										
64	Lead		ug/dscm		17507.5		16921.8		15966.4		16798.6		224904.7		201154.6		125275.2		183778.2		96964.9		94976.4		88429.6	
65	Chromium		ug/dscm		1591.6		1549.2		1339.8		1493.5	100	122.4	100	119.2	100	111.7		110.7		39177.7		38133.6		35729.1	
66	Arsenic		ug/dscm		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		40402.0		39325.3		36845.6	
67	LVM		ug/dscm		1591.6		1549.2		1339.8		1493.5	100	122.4	100	119.2	100	111.7		110.7		79579.8		77458.8		72574.8	
68	SVM		ug/dscm		17507.5		16921.8		15966.4		16798.6		224904.7		201154.6		125275.2		183778.2		96964.9		94976.4		88429.6	

	B	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS
59	*Feedrate MTEC Calculation*																		
60	Ash	0.0		21584.5		24322.1		22710.3		22872.3		21584.5		24322.1		22710.3		22872.3	
61																			
62	Chlorine	1812884.7		1966722.2		1907513.0		1785339.1		1886524.8		81905.9		72692.1		66322.2		73640.1	
63																			
64	Lead	93457.0		339377.1		313052.8		229671.2		294033.7		242412.2		218076.4		141241.6		200576.8	
65	Chromium	37680.1	0.3	40891.8	0.3	39801.9	0.3	37180.6	0.3	39284.3	7.1	1714.0	7.1	1668.3	7.7	1451.5	7.3	1604.2	
66	Arsenic	38857.6		40402.0		39325.3		36845.6		38857.6									
67	LVM	76537.8	0.2	81294	0.2	79127	0.2	74026	0	78142.0	7.1	1714.0	7.1	1668.3	7.7	1451.5	7	1604.2	
68	SVM	93457.0		339377.1		313052.8		229671.2		294033.7		242412.2		218076.4		141241.6		200576.8	

	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	AE	AF	AG	AH	AI
1	**Feestream 2**																																	
2																																		
3																																		
4	**495C1**				R1		R2		R3		R4		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		F3							
7	Feed Class				Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW							
8	Feed Class 2																																	
9	Feedstream Description				High Btu liq - lance 3								Aqueous liq - lance 5								Aqueous liq -- lance 6								Org sludge -- lance 1					
10	Feed Rate		lb/hr		1900		1782		1956		1668		1053		2117.4		2142		2188.8		1511		666.6		745.8		890.4							
11	Heating value		Btu/lb																															
12	Ash		wt %		0.0102		0.0105		0.0024		0.0019		7.66		0.20		0.20		3.20		0.03		0.03		0.03		0.03							
13	Chlorine		lb/hr																															
14	Chromium		lb/hr																															
15	Lead		lb/hr																															
16	Mercury		lb/hr																															
17																																		
18	Gas flowrate		dscfm		19205		20652		21018		21654		19205		20652		21018		21654		19205		20652		21018		21654							
19	Oxygen		%		12.65		10.5		10.46		11.14		12.65		10.5		10.46		11.14		12.65		10.5		10.46		11.14							
20																																		
21	Thermal Feedrate		MMBtu/hr																															
22	Estimated Firing Rate		MMBtu/hr																															
23																																		
24	*Feedrate MTECs*																																	
25	Ash		mg/dscm		4.5		3.2		0.8		0.6		1882.4		72.2		71.0		1226.1		9.6		3.2		4.0		4.7							
26	Chlorine		ug/dscm																															
27	Chromium		ug/dscm																															
28	Lead		ug/dscm																															
29	Mercury		ug/dscm																															
30	LVM		ug/dscm																															
31	SVM		ug/dscm																															
32																																		
33	**495C2**				R1		R2		R3		R4		R1		R2		R3		R4		R1		R2		R3		R4		R1		R2		R3	
34																																		
35	Feedstream Number				F1		F1		F1		F1		F2		F2		F2		F2		F3		F3		F3		F3							
36	Feed Class				Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW							
37	Feed Class 2																																	
38	Feedstream Description				High Btu liq - lance 3								Aqueous liq - lance 5								Aqueous liq -- lance 6								Org sludge -- lance 1					
39	Feed Rate		lb/hr		1867.5		1989.6		1602		1693.2		2568.1		2290.8		2574		2517.6		1327.7		765.6		1038		531.84							
40	Heating value		Btu/lb																															
41	Ash		wt %		0.0056		0.0016		0.0042		0.0009		7.463		7.8822		7.6046		7.8185		0.03		0.0301		0.0318		0.0319							
42	Chlorine																																	
43	Chromium		lb/hr																															
44	Lead		lb/hr																															
45	Mercury		lb/hr																															
46																																		
47	Gas flowrate		dscfm		23278		23783		21999		22544		23278		23783		21999		22544		23278		23783		21999		22544							
48	Oxygen		%		11.65		11.44		11.38		11.46		11.65		11.44		11.38		11.46		11.65		11.44		11.38		11.46							
49																																		
50	Thermal Feedrate		MMBtu/hr																															
51	Estimated Firing Rate		MMBtu/hr																															
52																																		
53	*Feedrate MTECs*																																	
54	Ash		mg/dscm		1.8		0.5		1.2		0.3		3296.2		2972.7		3462.2		3425.9		6.9		3.8		5.8		3.0							
55	Chlorine		ug/dscm																															
56	Chromium		ug/dscm																															
57	Lead		ug/dscm																															
58	Mercury		ug/dscm																															
59	LVM		ug/dscm																															
60	SVM		ug/dscm																															

	B	AJ	AK	AL	AN	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BL	BM
1	**Feestream 2**																														
2																															
3																															
4	**495C1**	R4		R1		R2		R3		R4		R1		R2		R3		R4		R1		R2		R3		R4		Cond Avg		R1	
5																															
6	Feedstream Number																			F4		F4		F4		F4		F4			
7	Feed Class																			Total		Total		Total		Total		Total			
8	Feed Class 2																			Total		Total		Total		Total		Total		HW	
9	Feedstream Description			Aqueous sludge -- lance 2								Lance 4 -- special waste								Total		Total		Total		Total		Total			
10	Feed Rate																														
11	Heating value																														
12	Ash																														
13	Chlorine																			126.22		143.73		134.63		144.69					
14	Chromium																			166.25		189.3		177.33		190.58					
15	Lead																			281.2		320.2		299.9		322.4					
16	Mercury																			5.5		6.26		5.86		6.3					
17																															
18	Gas flowrate																			19205		20652		21018		21654					
19	Oxygen																			12.65		10.5		10.46		11.14					
20																															
21	Thermal Feedrate																														
22	Estimated Firing Rate																			50.91		68.84		70.33		67.78					
23																															
24	*Feedrate MTECs*																														
25	Ash																			1896.5		78.6		75.8		1231.3		820.6		1896.5	
26	Chlorine																			2946277		2481088		2274867		2536703		2559734			
27	Chromium																			3880673		3267724		2996377		3341246					
28	Lead																			6563882		5527339		5067464		5652313					
29	Mercury																			128383		108061		99017		110452		111478			
30	LVM																			3880673		3267724		2996377		3341246		3371505			
31	SVM																			6563882		5527339		5067464		5652313		5702749			
32																															
33	**495C2**	R4		R1		R2		R3		R4		R1		R2		R3		R4		R1		R2		R3		R4		Cond Avg		R1	
34																															
35	Feedstream Number																			F4		F4		F4		F4		F4			
36	Feed Class																			Total		Total		Total		Total		Total			
37	Feed Class 2																			Total		Total		Total		Total		Total		HW	
38	Feedstream Description			Aqueous sludge -- lance 2								Lance 4 -- special waste								Total		Total		Total		Total		Total			
39	Feed Rate																														
40	Heating value																														
41	Ash																														
42	Chlorine																			154.34		136.15		164.53		134.86					
43	Chromium																			203.28		179.32		216.71		177.63					
44	Lead																			343.84		303.32		366.56		300.46					
45	Mercury																			6.72		5.93		7.16		5.87					
46																															
47	Gas flowrate																			23278		23783		21999		22544		22901			
48	Oxygen																			11.65		11.44		11.38		11.46		11.4825			
49																															
50	Thermal Feedrate																														
51	Estimated Firing Rate																			69.10		72.18		67.18		68.28		69.19			
52																															
53	*Feedrate MTECs*																														
54	Ash																			3305		2977		3469		3429		3295		3304.9	
55	Chlorine																			2654406		2241503		2910136		2347200		2538311			
56	Chromium																			3496098		2952231		3833073		3091599		3343250			
57	Lead																			5913510		4993703		6483556		5229420		5655047			
58	Mercury																			115573		97628		126643		102166		110503			
59	LVM																			3496098		2952231		3833073		3091599		3343250			
60	SVM																			5913510		4993703		6483556		5229420		5655047			

	B	BN	BO	BP	BQ	BR	BS	BT	BU
1	**Feestream 2**								
2									
3									
4	**495C1**	R2		R3		R4			
5									
6	Feedstream Number								
7	Feed Class								
8	Feed Class 2	HW		HW		HW			
9	Feedstream Description								
10	Feed Rate								
11	Heating value								
12	Ash								
13	Chlorine								
14	Chromium								
15	Lead								
16	Mercury								
17									
18	Gas flowrate								
19	Oxygen								
20									
21	Thermal Feedrate								
22	Estimated Firing Rate								
23									
24	*Feedrate MTECs*								
25	Ash	78.6		75.8		1231.3			
26	Chlorine								
27	Chromium								
28	Lead								
29	Mercury								
30	LVM							(Cr only)	
31	SVM							(Pb only)	
32									
33	**495C2**	R2		R3		R4			
34									
35	Feedstream Number								
36	Feed Class								
37	Feed Class 2	HW		HW		HW			
38	Feedstream Description								
39	Feed Rate								
40	Heating value								
41	Ash								
42	Chlorine								
43	Chromium								
44	Lead								
45	Mercury								
46									
47	Gas flowrate								
48	Oxygen								
49									
50	Thermal Feedrate								
51	Estimated Firing Rate								
52									
53	*Feedrate MTECs*								
54	Ash	2977.1		3469.2		3429.1			
55	Chlorine								
56	Chromium								
57	Lead								
58	Mercury								
59	LVM							(Cr only)	
60	SVM							(Pb only)	

	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	AE	AF	AG	AH	AI
61																																		
62	**495C3**				R1		R2		R3		R4		R1		R2		R3		R4		R1		R2		R3		R4		R1		R2		R3	
63																																		
64	Feedstream Number				F1		F1		F1		F1		F2		F2		F2		F2		F3		F3		F3		F3		F4		F4		F4	
65	Feed Class				Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Sludge HW		Sludge HW		Sludge HW	
66	Feed Class 2																																	
67	Feedstream Description				High Btu liq - lance 3								Aqueous liq - lance 5								Aqueous liq -- lance 6								Org sludge -- lance 1					
68	Feed Rate		lb/hr		859.9		662.4		681.9		369.6		2720.3		2709		2517.2		2517		1185.5		1207.8		1201.9		1131		1705.1		1797.6		1697.7	
69	Heating value		Btu/lb																															
70	Ash		wt %		0.0001		0.0036		0.0036		0.0032		7.1855		7.7425		7.6332		7.6632		0.0322		0.0285		0.0304		0.0318		2.2776		1.7351		2.1049	
71	Chlorine																																	
72	Beryllium		ppmw																										5		5		5	
73	Chromium		ppmw																										190		160		190	
74	Chromium (Hex)		ppmw																										75		49		49	
75	Lead		ppmw																										280		200		240	
76	Mercury		ppmw																										0.15		0.125		0.055	
77																																		
78	Beryllium		lb/hr																															
79	Chromium		lb/hr																															
80	Lead		lb/hr																															
81	Mercury		lb/hr																															
82																																		
83	Gas flowrate		dscfm		20336		21378		18678		20820		20336		21378		18678		20820		20336		21378		18678		20820		20336		21378		18678	
84	Oxygen		%		9.85		9.67		10.05		9.95		9.85		9.67		10.05		9.95		9.85		9.67		10.05		9.95		9.85		9.67		10.05	
85																																		
86	Thermal Feedrate		MMBtu/hr																															
87	Estimated Firing Rate		MMBtu/hr																															
88																																		
89	*Feedrate MTECs*																																	
90	Ash		mg/dscm		0.014		0.369		0.449		0.192		3226.9		3241.5		3516.6		3138.3		6.3		5.3		6.7		5.9		641.1		482.0		654.0	
91	Chlorine		ug/dscm																															
92	Beryllium		ug/dscm																															
93	Chromium		ug/dscm																															
94	Lead		ug/dscm																															
95	Mercury		ug/dscm																															
96																																		
97	SVM		ug/dscm																															
98	LVM		ug/dscm																															

	B	AJ	AK	AL	AN	AN	AC	AP	AC	AR	AS	AT	AU	AV	AV	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BL	BN
61																															
62	**495C3**	R4		R1		R2		R3		R4		R1		R2		R3		R4		R1		R2		R3		R4		Cond Avg		R1	
63																															
64	Feedstream Number	F4		F5		F5		F5		F5		F6		F6		F6		F6		F7		F7		F7		F7		F7			
65	Feed Class	Sludge HW		Sludge HW		Sludge HW		Sludge HW		Sludge HW		Liq HW		Liq HW		Liq HW		Liq HW		Total		Total		Total		Total		Total			
66	Feed Class 2																			Total		Total		Total		Total		Total		HW	
67	Feedstream Description			Aqueous sludge -- lance 2								Lance 4 -- special waste								Total		Total		Total		Total		Total			
68	Feed Rate	1665		933.9		1054.8		1971.2		2110.8		1368.4		1443.6		1372.6		1447.6													
69	Heating value																														
70	Ash	2.1656		3.7342		3.3939		3.6182		3.6763																					
71	Chlorine																			187.76		201.93		188.7		188.78					
72	Beryllium	5		5		5		5		5																					
73	Chromium	190		1250		940		1150		1300																					
74	Chromium (Hex)	49		62		35		49		35																					
75	Lead	230		30		10		10		10																					
76	Mercury	0.25		0.175		0.125		0.15		0.125																					
77																															
78	Beryllium																				nd	0.0143	nd	0.0183	nd	0.0189					
79	Chromium																					1.28		2.59		3.06					
80	Lead																					0.37		0.43		0.4					
81	Mercury																					0.00036		0.00039		0.00068					
82																															
83	Gas flowrate	20820		20336		21378		18678		20820										20336		21378		18678		20820		20303			
84	Oxygen	9.95		9.85		9.67		10.05		9.95										9.85		9.67		10.05		9.95		9.88			
85																															
86	Thermal Feedrate																														
87	Estimated Firing Rate																			71.98		76.89		64.93		73.04		71.67			
88																															
89	*Feedrate MTECs*																														
90	Ash	586.7		575.7		553.2		1305.3		1262.6										25186.9		22478		25649		3144		19115		4450.0	
91	Chlorine																			3099623		3120686		3453613		3071561		3186371			
92	Beryllium																				100	221	100	335	100	308	100	288			
93	Chromium																					19781		47403		49788		38991			
94	Lead																					5718		7870		6508		6699			
95	Mercury																					6		7		11		8			
96																															
97	SVM																					5718		7870		6508		6699			
98	LVM																				1.1	20002	0.7	47570	0.61	50096	0.7	39223			

	B	BN	BO	BP	BQ	BR	BS	BT	BU
61									
62	**495C3**	R2		R3		R4			
63									
64	Feedstream Number								
65	Feed Class								
66	Feed Class 2	HW		HW		HW			
67	Feedstream Description								
68	Feed Rate								
69	Heating value								
70	Ash								
71	Chlorine								
72	Beryllium								
73	Chromium								
74	Chromium (Hex)								
75	Lead								
76	Mercury								
77									
78	Beryllium								
79	Chromium								
80	Lead								
81	Mercury								
82									
83	Gas flowrate								
84	Oxygen								
85									
86	Thermal Feedrate								
87	Estimated Firing Rate								
88									
89	*Feedrate MTECs*								
90	Ash	4282.4		5483.1		4993.6			
91	Chlorine								
92	Beryllium								
93	Chromium								
94	Lead								
95	Mercury								
96									
97	SVM							(Be, Cr only)	
98	LVM							(Pb only)	

	B	C	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	**Process Information**																	
2																		
3	**495C10**				Run 1				Run 2				Run 3				Condition 1 Total	
4			Avg	STDev	Max	Min	Avg	STDev	Max	Min	Avg	STDev	Max	Min	Avg	STDev	Max	Min
5	Lower SCC Temp	°F	1644.09	35.18	1781.12	1617.64	1649.91	42.96	1762.11	1573.68	1648.98	37.43	1764.71	1567.4	1647.66	38.523	1781.12	1567.4
6	Mid SCC Temp	°F	1438.77	49.76	1644.68	1378.53	1443.12	50.61	1598	1357.34	1456.61	49.18	1575.65	1364.68	1446.17	49.85	1644.68	1357.34
7	Boiler Inlet Temp	°F	1383.09	31.07	1490.75	1335.46	1384.95	32.14	1452.44	1330.91	1396.45	33.47	1478.74	1347.7	1388.16	32.227	1490.75	1330.91
8	Boiler Outlet Temp	°F	523.05	4.43	535.26	516.77	527.61	4.21	539.34	520.22	525.05	3.58	532.45	518.4	525.237	4.0733	539.34	516.77
9	Primary Air Flow	SCFM	6823.8	16.21	6853.96	6780.4	6848.64	10.1	6871.86	6818.86	6826.52	15.7	6864.03	6796.03	6832.99	14.003	6871.86	6780.4
10	FWB Blower-Sup. Primary	SCFM	2965		3267	2523	3203		3215	3195	3084		3107	3048	3084		3267	2523
11	Secondary Air Flow	SCFM	6304.52	302.33	6884.16	5582.54	6436.7	70.11	6872.62	6368.31	6272.5	180.03	6447.54	5520.68	6337.91	184.16	6884.16	5520.68
12	RFG (Tertiary) Air Flow	SCFM	2804		4636	1886	2806		4434	1966	2016		2071	1966	2542		4636	1886
13	Flue Gas Flow at ESP Outlet	SCFM	31894.17	791.27	35560.04	30806.13	32603.22	622.1	34752.99	31634.31	32019.98	915.64	34623.21	30639.57	32172.5	776.34	35560.04	30639.57
14	Heat Input (HHV)	MMBtu/hr	50.56				54.22				53.29				52.69			
15	Boiler Steam Prod.	lb/hr	36510	1747	42815	33480	37258	1971	41550	33588	37160	2125	42488	33254	36976	1947.7	42815	33254
16	Kiln Speed	RPM	0.19	0	0.19	0.19	0.17	0.04	0.22	0.13	0.22	0	0.22	0.22	0.19333	0.0133	0.22	0.13
17	SCC Static Pressure	Inches W(	-0.5	0.03	-0.37	-0.62	-0.49	0.04	-0.37	-0.62	-0.49	0.05	-0.34	-0.59	-0.4933	0.04	-0.34	-0.62
18	ESP Outlet Static Pressure	Inches W(	-1.26	0.05	-1.2	-1.5	-1.3	0.04	-1.25	-1.42	-1.27	0.06	-1.19	-1.46	-1.2767	0.05	-1.19	-1.5
19	Packed Bed Pressure Drop	Inches W(	2.52	0.1	2.91	2.38	2.68	0.06	2.86	2.58	2.59	0.11	2.88	2.32	2.59667	0.09	2.91	2.32
20	Precipitator Number of Stages On	#	3	0	3	3	3	0	3	3	3	0	3	3	3	0	3	3
21	ESP Field 1 Primary Voltage	Volts	370		370	360	295		320	265	365		380	350	343.333		380	265
22	ESP Field 1 Primary Current	Amps	51		52	48	39		52	30	50		52	42	46.6667		52	30
23	ESP Field 1 Secondary Power	Kva	50		50	49	48		50	44	50		52	46	49.3333		52	44
24	ESP Field 1 Secondary Current	mA	265		280	235	195		290	120	260		280	225	240		290	120
25	ESP Field 2 Primary Voltage	Volts	320		340	310	300		340	210	325		340	300	315		340	210
26	ESP Field 2 Primary Current	Amps	51		51	51	45		52	32	51		52	48	49		52	32
27	ESP Field 2 Secondary Power	Kva	42		43	40	40		42	36	42		42	41	41.3333		43	36
28	ESP Field 2 Secondary Current	mA	255		270	250	220		265	120	265		265	270	246.667		270	120
29	ESP Field 3 Primary Voltage	Volts	285		300	280	265		290	220	295		300	290	281.667		300	220
30	ESP Field 3 Primary Current	Amps	53		53	52	46		53	32	52		53	52	50.3333		53	32
31	ESP Field 3 Secondary Power	Kva	39		40	38	38		40	36	40		40	39	39		40	36
32	ESP Field 3 Secondary Current	mA	280		285	270	240		285	150	280		285	280	266.667		285	150
33	Quench Flow	GPM	171.41	0.26	171.85	170.8	172.4	0.22	172.89	171.87	180.18	4.37	183.06	171.82	174.663	1.6167	183.06	170.8
34	Scrubber Flow	GPM	602.94	5.33	611.7	592.34	612.9	1.3	614.85	610.05	632.79	0.82	634.81	631.03	616.21	2.4833	634.81	592.34
35	Quench Temp	°F	141.63	0.9	143.41	139.8	143.58	0.73	145.16	142.27	143.53	1.16	146.76	141.42	142.913	0.93	146.76	139.8
36	Low CO after ESP	PPM	42.52	12.43	67.77	24.07	52.81	23.35	121.92	15.4	57.51	29.32	126.1	18.22	50.9467	21.7	126.1	15.4
37	Dry O2 After ESP	PCT	13.07	0.48	13.93	11.76	13.03	0.44	14.06	12.25	12.93	0.51	13.92	11.7	13.01	0.4767	14.06	11.7
38	Opacity After ESP	PCT	3.98	0.1	4.34	3.82	1.03	0.1	4.28	3.79	3.95	0.12	4.33	3.71	2.98667	0.1067	4.34	3.71
39	High CO After ESP	PPM	43.58	9.87	71.5	29.93	50.79	17.66	101.31	21.85	52.96	21.36	105.38	25.79	49.11	16.297	105.38	21.85
40	Scrubber pH	pH	6.51	0.06	6.75	6.46	6.49	0.02	6.53	6.45	6.49	0.01	6.53	6.45	6.49667	0.03	6.75	6.45
41	Scrubber Solids	PCT	6.29		6.61	6.03	7.37		7.81	6.92	10.15		10.47	9.81	7.93667		10.47	6.03
42																		
43																		
44	**495C11**				Run 1				Run 2				Run 3				Condition 1 Total	
45			Avg	STDev	Max	Min	Avg	STDev	Max	Min	Avg	STDev	Max	Min	Avg	STDev	Max	Min
46	Lower SCC Temp	°F	2147.92	23.61	2188.54	2099.53	2087.75	26.81	2125.05	2001.55	2151.14	24.62	2194.55	2093.71	2128.94	25.013	2194.55	2001.55
47	Mid SCC Temp	°F	2176.59	28.9	2238.03	2103.65	2169.22	50.79	2254.09	2046	2208.11	37.65	2298	2118.59	2184.64	39.113	2298	2046
48	Boiler Inlet Temp	°F	1791.96	18.24	1831.63	1752.42	1770.05	29.48	1860.88	1713.82	1799.17	21.37	1848.12	1766.09	1787.06	23.03	1860.88	1713.82
49	Boiler Outlet Temp	°F	>600		>600	>600	>600		>600	>600	>600		>600	>600	>600		>600	>600
50	Primary Air Flow	SCFM	4755.65	8.39	4774.77	4731.83	4765.69	11.51	4791.12	4744.73	4791.94	7.43	4807.32	4776.73	4771.09	9.11	4807.32	4731.83
51	FWB Blower-Sup. Primary	SCFM	4090		4096	4083	4038		4087	3993	4025		4029	4021	4051		4096	3993
52	Secondary Air Flow	SCFM	3012.98	19.39	3061.42	2978.57	2949.29	17.33	2985.71	2915.84	2934.68	17.34	2975.64	2905	2965.65	18.02	3061.42	2905
53	RFG (Tertiary) Air Flow	SCFM	5800		5864	5771	5704		5535	5873	5936		5932	5700	5813.33		5932	5700
54	Flue Gas Flow at ESP Outlet	SCFM	30632.93	131.25	30967.07	30433.2	31391.98	273.81	32165.12	30940.48	30914.09	135.83	31224.02	30678.41	30979.7	180.3	32165.12	30433.2

	B	C	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
55	Heat Input (HHV)	MMBtu/hr	81.88				75.08				74.23				77.0633			
56	Boiler Steam Prod.	lb/hr	50718	1666	53657	46552	50252	2995	60047	43896	51817	2231	57604	48048	50929	2297.3	60047	43896
57	Kiln Speed	RPM	0.22	0.02	0.25	0.19	0.2	0	0.21	0.2	0.19	0.01	0.19	0.18	0.20333	0.01	0.25	0.18
58	SCC Static Pressure	Inches W(	-0.44	0.03	-0.37	-0.5	-0.49	0.01	-0.47	-0.52	-0.5	0.01	-0.47	-0.52	-0.4767	0.0167	-0.37	-0.52
59	ESP Outlet Static Pressure	Inches W(	-1.29	0.04	-1.2	-1.36	-1.36	0.03	-1.3	-1.42	-1.38	0.03	-1.32	-1.44	-1.3433	0.0333	-1.2	-1.44
60	Packed Bed Pressure Drop	Inches W(	2.35	0.06	2.47	2.1	2.47	0.03	2.54	2.39	2.49	0.07	2.61	2.18	2.43667	0.0533	2.61	2.1
61	Precipitator Number of Stages On	#	3	0	3	3	3	0	3	3	3	0	3	3	3	0	3	3
62	ESP Field 1 Primary Voltage	Volts	390		390	390	395		400	390	380		390	375	388.333		400	375
63	ESP Field 1 Primary Current	Amps	50		52	48	47		50	42	52		53	52	49.6667		53	42
64	ESP Field 1 Secondary Power	Kva	50		54	46	53		54	52	53		53	51	52		54	46
65	ESP Field 1 Secondary Current	mA	260		275	240	285		290	280	255		285	200	266.667		290	200
66	ESP Field 2 Primary Voltage	Volts	340		340	340	340		340	335	330		340	325	336.667		340	325
67	ESP Field 2 Primary Current	Amps	51		51	51	52		52	51	52		52	51	51.6667		52	51
68	ESP Field 2 Secondary Power	Kva	43		43	42	42		43	42	42		42	42	42.3333		43	42
69	ESP Field 2 Secondary Current	mA	265		270	255	265		270	265	265		270	260	265		270	255
70	ESP Field 3 Primary Voltage	Volts	305		310	300	305		310	300	300		300	290	303.333		310	290
71	ESP Field 3 Primary Current	Amps	53		53	52	52		52	52	52		53	52	52.3333		53	52
72	ESP Field 3 Secondary Power	Kva	41		41	40	41		41	41	41		41	40	41		41	40
73	ESP Field 3 Secondary Current	mA	280		285	280	285		285	285	280		280	280	281.667		285	280
74	Quench Flow	GPM	184.89	0.37	185.4	184.03	185.42	0.27	185.84	184.9	186.18	0.13	186.42	185.91	185.497	0.2567	186.42	184.03
75	Scrubber Flow	GPM	631.51	1	633.76	629.51	636.64	0.85	639.14	635.43	633.91	2.86	638.4	629.53	634.02	1.57	639.14	629.51
76	Quench Temp	^{o}F	151.38	1.36	154.52	149	151.04	2.01	156.84	147.52	152.38	1.16	155.22	150.52	151.6	1.51	156.84	147.52
77	Low CO after ESP	PPM	7.32	1.54	12.64	4.74	10.82	2.21	17.3	7.41	12.03	1.76	16.63	7.43	10.0567	1.8367	17.3	4.74
78	Dry O2 After ESP	PCT	9.62	0.19	10.03	9.22	9.8	0.32	10.26	8.69	9.79	0.26	10.2	9.19	9.73667	0.2567	10.26	8.69
79	Opacity After ESP	PCT	3.77	0.09	3.89	3.58	3.59	0.1	3.75	3.44	3.44	0.08	3.65	3.3	3.6	0.09	3.89	3.3
80	High CO After ESP	PPM	18.9	1.1	22.27	16.97	20.96	1.72	25.4	17.96	22.16	1.52	26.09	18.65	20.6733	1.4467	26.09	16.97
81	Scrubber pH	pH	6	0.02	6.06	5.96	6.01	0.08	6.51	5.89	5.99	0.02	6.03	5.92	6	0.04	6.51	5.89
82	Scrubber Solids	PCT	12.59		12.82	12.01	12.81		13.31	12.09	14.16		15.25	13.06	13.1867		15.25	12.01

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	**PCDD/PCDF**																	
2	N																	
3	Facility Name and ID:		PPG-ERU															
4	Condition ID:		495C10															
5	Condition/Test Date:		Low Temperature/Nov. 18,19, 1997															
6																		
7			I-TEF			Run 1					Run 2					Run 3		
8			Wght Fact		Total	TEQ	Total	TEQ		Total	TEQ	Total	TEQ		Total	TEQ	Total	TEQ
9					Full ND	Full ND	1/2 ND	1/2 ND		Full ND	Full ND	1/2 ND	1/2 ND		Full ND	Full ND	1/2 ND	1/2 ND
10	Detected in sample volume (pg)																	
11		2,3,7,8-TCDD	1		98	98.00	98.00	98.00		270	270.00	270.00	270.00		260	260	260	260
12		Total TCDD	0		1800	0	1800	0		5100	0.00	5100	0.00		5300	0	5300	0
13		1,2,3,7,8-PCDD	0.5		270	135.00	270.00	135.00		860	430.00	860.00	430.00		680	340	680	340
14		Total PCDD	0		2100	0	2100	0		6900	0.00	6900	0.00		6600	0	6600	0
15		1,2,3,4,7,8-HxCDD	0.1		210	21.00	210.00	21.00		840	84.00	840.00	84.00		690	69	690	69
16		1,2,3,6,7,8-HxCDD	0.1		210	21.00	210.00	21.00		670	67.00	670.00	67.00		610	61	610	61
17		1,2,3,7,8,9-HxCDD	0.1		140	14.00	140.00	14.00		440	44.00	440.00	44.00		370	37	370	37
18		Total HxCDD	0		2300	0	2300	0		7900	0.00	7900	0.00		7200	0	7200	0
19		1,2,3,4,6,7,8-HpCDD	0.01		940	9.40	940.00	9.40		1700	17.00	1700.00	17.00		2000	20	2000	20
20		Total HpCDD	0		1800	0	1800	0		3400	0.00	3400	0.00		4000	0	4000	0
21		OCDD	0.001		1900	1.90	1900.00	1.90		1700	1.70	1700	1.70		2100	2	2100	2
22		2,3,7,8-TCDF	0.1		1400	140.00	1400.00	140.00		3400	340.00	3400	340.00		3800	380	3800	380
23		Total TCDF	0		46000	0	46000	0		120000	0.00	120000	0.00		130000	0	130000	0
24		1,2,3,7,8-PCDF	0.05		1800	90	1800	90		5200	260.00	5200	260.00		4800	240	4800	240
25		2,3,4,7,8-PCDF	0.5		2700	1350	2700	1350		8500	4250.00	8500	4250.00		7100	3550	7100	3550
26		Total PCDF	0		33000	0	33000	0		99000	0.00	99000	0.00		87000	0	87000	0
27		1,2,3,4,7,8-HxCDF	0.1		1900	190	1900	190		6400	640.00	6400	640.00		4900	490	4900	490
28		1,2,3,6,7,8-HxCDF	0.1		2200	220	2200	220		7000	700.00	7000	700.00		5800	580	5800	580
29		2,3,4,6,7,8-HxCDF	0.1		3200	320	3200	320		8600	860.00	8600	860.00		6700	670	6700	670
30		1,2,3,7,8,9-HxCDF	0.1		480	48	480	48		1400	140.00	1400	140.00		1100	110	1100	110
31		Total HxCDF	0		21000	0	21000	0		66000	0.00	66000	0.00		51000	0	51000	0
32		1,2,3,4,6,7,8-HpCDF	0.01		5600	56	5600	56		15000	150.00	15000	150.00		13000	130	13000	130
33		1,2,3,4,7,8,9-HpCDF	0.01		890	9	890	9		1800	18.00	1800	18.00		1600	16	1600	16
34		Total HpCDF	0		9800	0	9800	0		24000	0.00	24000	0.00		20000	0	20000	0
35		OCDF	0.001		6300	6	6300	6		6500	6.50	6500	6.50		6400	6	6400	6
36																		
37		Gas sample volume (dscf)				127.791	127.791	127.791			129.48	129.48	129.48			131.586	131.586	131.586
38		O2 (%)				13.97	13.97	13.97			13.9	13.9	13.9			13.78	13.78	13.78
39																		
40		PCDD/PCDF (ng in sample)				2.730	126.0	2.730			8.278	340.5	8.278			6.96	319.6	6.96
41		PCDD/PCDF (ng/dscm @ 7% O2)		0.0		1.503	69.384	1.503	0.0		4.45	183.23	4.45	0.0		3.62	166.42	3.62
42																		
43		TEQ Cond Avg	3.1942															
44		Total Cond Avg	139.6775															

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	**PCDD/PCDF**																	
2	N																	
3	Facility Name and ID:		PPG-ERU															
4	Condition ID:		495C11															
5	Condition/Test Date:		High Temperature/Nov. 19,20, 1997															
6																		
7			I-TEF			Run 1					Run 2					Run 3		
8			Wght Fact		Total	TEQ	Total	TEQ		Total	TEQ	Total	TEQ		Total	TEQ	Total	TEQ
9					Full ND	Full ND	1/2 ND	1/2 ND		Full ND	Full ND	1/2 ND	1/2 ND		Full ND	Full ND	1/2 ND	1/2 ND
10	Detected in sample volume (pg)																	
11		2,3,7,8-TCDD	1		1300	1300.00	1300.00	1300.00		480	480.00	480.00	480.00		530	530	530	530
12		Total TCDD	0		36000	0	36000	0		13000	0.00	13000	0.00		14,000	0	14000	0
13		1,2,3,7,8-PCDD	0.5		13000	6500.00	13000.00	6500.00		3900	1950.00	3900.00	1950.00		4,600	2300	4600	2300
14		Total PCDD	0		110000	0	110000	0		33000	0.00	33000	0.00		39,000	0	39000	0
15		1,2,3,4,7,8-HxCDD	0.1		32000	3200.00	32000.00	3200.00		9300	930.00	9300.00	930.00		10,000	1000	10000	1000
16		1,2,3,6,7,8-HxCDD	0.1		27000	2700.00	27000.00	2700.00		7600	760.00	7600.00	760.00		9,600	960	9600	960
17		1,2,3,7,8,9-HxCDD	0.1		17000	1700.00	17000.00	1700.00		5000	500.00	5000.00	500.00		6,100	610	6100	610
18		Total HxCDD	0		280000	0	280000	0		84000	0.00	84000	0.00		97,000	0	97000	0
19		1,2,3,4,6,7,8-HpCDD	0.01		190000	1900.00	190000.00	1900.00		60000	600.00	60000.00	600.00		78,000	780	78000	780
20		Total HpCDD	0		360000	0	360000	0		130000	0.00	130000	0.00		160,000	0	160000	0
21		OCDD	0.001		280000	280.00	280000.00	280.00		150000	150.00	150000	150.00		250,000	250	250000	250
22		2,3,7,8-TCDF	0.1		17000	1700.00	17000.00	1700.00		6800	680.00	6800	680.00		7,300	730	7300	730
23		Total TCDF	0		620000	0	620000	0		280000	0.00	280000	0.00		310,000	0	310000	0
24		1,2,3,7,8-PCDF	0.05		35000	1750	35000	1750		15000	750.00	15000	750.00		18,000	900	18000	900
25		2,3,4,7,8-PCDF	0.5		100000	50000	100000	50000		43000	21500.00	43000	21500.00		54,000	27000	54000	27000
26		Total PCDF	0		1000000	0	1000000	0		440000	0.00	440000	0.00		570,000	0	570000	0
27		1,2,3,4,7,8-HxCDF	0.1		110000	11000	110000	11000		46000	4600.00	46000	4600.00		68,000	6800	68000	6800
28		1,2,3,6,7,8-HxCDF	0.1		130000	13000	130000	13000		56000	5600.00	56000	5600.00		79,000	7900	79000	7900
29		2,3,4,6,7,8-HxCDF	0.1		270000	27000	270000	27000		140000	14000.00	140000	14000.00		210,000	21000	210000	21000
30		1,2,3,7,8,9-HxCDF	0.1		37000	3700	37000	3700		16000	1600.00	16000	1600.00		24,000	2400	24000	2400
31		Total HxCDF	0		1300000	0	1300000	0		610000	0.00	610000	0.00		890,000	0	890000	0
32		1,2,3,4,6,7,8-HpCDF	0.01		690000	6900	690000	6900		390000	3900.00	390000	3900.00		620,000	6200	620000	6200
33		1,2,3,4,7,8,9-HpCDF	0.01		70000	700	70000	700		30000	300.00	30000	300.00		50,000	500	50000	500
34		Total HpCDF	0		1000000	0	1000000	0		540000	0.00	540000	0.00		860,000	0	860000	0
35		OCDF	0.001		200000	200	200000	200		150000	150.00	150000	150.00		240,000	240	240000	240
36																		
37		Gas sample volume (dscf)				118.788	118.788	118.788			116.273	116.273	116.273			125.968	125.968	125.968
38		O2 (%)				10.1	10.1	10.1			10.16	10.16	10.16			10.14	10.14	10.14
39																		
40		PCDD/PCDF (ng in sample)				133.530	5186.0	133.530			58.450	2430.0	58.450			80.10	3430.0	80.10
41		PCDD/PCDF (ng/dscm @ 7% O2)		0.0		51.018	1981.413	51.018	0.0		22.94	953.76	22.94	0.0		28.97	1240.35	28.97
42																		
43		TEQ Cond Avg	34.3083															
44		Total Cond Avg	1391.8428															