	A	B
1	**Source Description**	
2		
3	Phase II ID No.	1011
4	EPA ID No.	TND003376928
5	Facility Name	Eastman Chemicals Co. - Tennessee Eastman Div
6	Facility Location	
7	City	Kingsport
8	State	TN
9	Unit ID Name/No.	Boiler No. 20
10	Other Sister Facilities	Boiler Nos. 18 and 19
11	Combustor	Coal-fired boiler
12	Combustor Characteristics	Babcock & Wilcox, coal-fired watertube spreader-stoker, 196 MM Btu/hr, comb chamber dimensions (ft): 18 w, 17 l, 40 h, 600 psig steam
13	Capacity (MMBtu/hr)	196
14	Soot Blowing	
15	APCS	ESP
16	APCS Characteristics	Research Cottrell, 2 fields; 11,232 ft2 plate area for 135 kacfm @ 450 F, SCA=83 ft2/kacfm
17	Hazardous Wastes	Liq, sludge
18	Haz Waste Description	Mixed and unmixed solvents, biosludge
19	Supplemental Fuel	Coal
20		
21	Stack Characteristics	14 Blrs (# 11 - 24) exhaust to one common breeching interconnected to 3 stacks
22	Diameter (ft)	
23	Height (ft)	225
24	Gas Velocity (ft/sec)	
25	Gas Temperature (°F)	
26		
27	Permitting Status	BIF Interim Status Tier III for metals and chlorine
28	HWC Burn Status (Date if Terminated)	

	A	B
1	**Cond Description**	
2		
3	**1011C1**	
4		
5	Report Name/Date	Recertification of Compliance for Tennessee Eastman Division Boilers 18, 19, and 20; dated March 24, 1998
6	Report Prepar	Eastman Chemical Co
7	Testing Firm	Eastman Chemical Co
8	Testing Dates	February 4, 1998
9	Cond Dates	Feb-98
10	Cond Description	CoC; max feedrates
11	Content	PM, metals, CO, HCl/Cl2; feed analysis for metals, ash, HCl/Cl2
12		
13	**1011C2**	
14		
15	Report Name/Date	Recertification of Compliance for Tennessee Eastman Division Boilers 18, 19, and 20; dated March 24, 1998
16	Report Prepar	Eastman Chemical Co
17	Testing Firm	Eastman Chemical Co
18	Testing Dates	February 6, 1998
19	Cond Dates	Feb-98
20	Cond Description	CoC; min combustion temperature
21	Content	CO

	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	**Stack Gas Emissions**													
2														
3		Comments	Units	7% O2		Run		Run		Run		Cond Avg		
4						1		2		3				
5	**Condition 1**									sootblow				
6														
7	Sampling Train	(PM, HCl/Cl2)												
8	Stack Gas Flowrate		dscfm			64847		64729		62786		64120.7		
9	O2		%			12.1		11.3		12.1		11.8		
10	Moisture		%			10.61		10.04		9.85		10.2		
11	Temperature		°F			349		351		352		350.7		
12														
13	HCl		ppmv	n		112		110		95.9		106.0		
14	Cl2		ppmv	n		1.62		1.94		1.8		1.79		
15														
16	PM		gr/dscf	y		0.0375		0.0149		0.0291		0.0263		0.0272
17	CO (RA)		ppmv	y		45.3		51.1		46.1		47.5		
18	CO (MHRA)		ppmv	y		46.1		51.4		46.8		48.1		
19	HCl		ppmv	y		176.2		158.8		150.9		161.9		
20	Cl2		ppmv	y		2.5		2.8		2.8		2.7		
21	Total Chlorine		ppmv	y		181.3		164.4		156.5		167.4		
22														
23	Sampling Train	(Metals)												
24	Stack Gas Flowrate		dscfm			65,749		67,231		68,573		67184		
25	O2		%			12.1		11.3		12.1		11.8		
26	Moisture		%			9.53		9.85		10.18		9.85		
27	Temperature		°F			354		353		355		354		
28	Sample Volume		dscf			39.76		40.48		41.17				
29														
30	Mercury		µg/dscm	n		2.1		1.96		1.8				
31	Lead		µg/dscm	n		91.13		107.89		105.68				
32	Cadmium		µg/dscm	n		5.1		5.67		4.97				
33	Arsenic		µg/dscm	n	nd	27.1		24.22		26.26				
34	Beryllium		µg/dscm	n		2.57		3.09		3.67				
35	Chromium		µg/dscm	n		42.5		62.2		80.4				
36	Antimony		µg/dscm	n		43.79		65.69		60.15				
37														
38	Mercury		µg/dscm	y		3.3		2.83		2.9		3.0		
39	Lead		µg/dscm	y		143.35		155.72		166.23				
40	Cadmium		µg/dscm	y		8.0		8.18		7.81				
41	Arsenic		µg/dscm	y	nd	42.6		34.95		41.30				
42	Beryllium		µg/dscm	y		4.04		4.46		5.78				
43	Chromium		µg/dscm	y		66.9		89.8		126.5				
44	Antimony		µg/dscm	y		68.88		94.81		94.62				
45														
46	SVM		µg/dscm	y		151.39		163.90		174.05		163.1		
47	LVM		µg/dscm	y		92.21		129.19		173.55		131.7		
48														
49	**Condition 2**													
50														
51	CO (MHRA)		ppmv	y		87.3		86.9		88.2		87.5		
52	CO (RA)		ppmv	y		86.9		86.1		85.8		86.2		

	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	**Feedstreams**																									
2																										
3			Units		Run 1		Run 2		Run 3		Cond Avg		Run 1		Run 2		Run 3		Cond Avg		Run 1		Run 2		Run 3	
4																										
5	**1011C1**																									
6																										
7	Feedstream Description				Spike		Spike		Spike		Spike		Coal		Coal		Coal		Coal		Biosludge		Biosludge		Biosludge	
8	Feed Rate		lb/hr		62.8		61.6		60		61.5		12956		12850		12970		12870		9131		9129		9163	
9	Heat Content		Btu/lb										13202		13437		13388		13342		1150		1007		1118	
10	Ash		lb/hr										1103		1023		1055		1060		85		153.7		100.2	
11	Chlorine		lb/hr		26.7		26.6		27.6		26.9		3.86		3.85		3.87		3.86		2.71		1.82		0.91	
12	Antimony		lb/hr		0.345		0.338		0.33		0.338	nd	0.00876	nd	0.00821	nd	0.00839		0.00845		0.0346		0.0374		0.0373	
13	Arsenic		lb/hr		0.15		0.147		0.143		0.147		0.0539		0.0625		0.0633		0.0599		0.0185		0.0175		0.0174	
14	Barium		lb/hr		2.2		2.16		2.11		2.2		1.28		1.26		1.38		1.3		0.147		0.16		0.154	
15	Beryllium		lb/hr		0.0502		0.0492		0.048		0.05		0.0251		0.0236		0.0308		0.0264		0.000905		0.001		0.001	
16	Cadmium		lb/hr		0.0464		0.0455		0.0444		0.05	nd	0.000386	nd	0.000385	nd	0.000387		0.000386		0.00226		0.00246		0.00246	
17	Chromium		lb/hr		1.82		1.79		1.74		1.79		0.243		0.217		0.237		0.232		0.516		0.518		0.514	
18	Lead		lb/hr		0.439		0.43		0.419		0.43	nd	0.0264	nd	0.0245	nd	0.0253		0.0254		0.118		0.115		0.114	
19	Mercury		lb/hr		0.0147		0.0144		0.014		0.014	nd	0.000129	nd	0.000128	nd	0.000129		0.000129	nd	0.00009	nd	0.000091	nd	0.00091	
20	Silver		lb/hr		0.124		0.122		0.119		0.1	nd	0.022	nd	0.0203	nd	0.0212		0.022	nd	0.0231	nd	0.0249	nd	0.0249	
21	Thallium		lb/hr		0.169		0.166		0.162		0.2	nd	0.0176	nd	0.0176	nd	0.0169		0.0176	nd	0.0115	nd	0.0125	nd	0.0124	
22																										
23	Stack Gas Flowrate		dscfm		65,749		67,231		68,573		67184		65,749		67,231		68,573		67184		65,749		67,231		68,573	
24	O2		%		12.1		11.3		12.1		11.8		12.1		11.3		12.1		11.8		12.1		11.3		12.1	
25																										
26	Thermal Feedrate		M2 Btu/hr										171.0		172.7		173.6		171.7		10.5		9.2		10.2	
27	Estimated Firing Rate		M2 Btu/hr																							
28																										
29	*Feedrate MTEC Calculations*																									
30	Ash		mg/dscm		0.0		0.0		0.0				7055.7		5871.9		6470.8		6466.1		543.7		882.2		614.6	
31	Chlorine		µg/dscm		170796.2		152681.5		169282.5		164253.4		24691.9		22098.6		23736.4		23509.0		17335.5		10446.6		5581.4	
32	Antimony		µg/dscm		2206.9		1940.1		2024.0		2057.0	nd	56.0	nd	47.1	nd	51.5		25.8		221.3		214.7		228.8	
33	Arsenic		µg/dscm		959.5		843.8		877.1		893.5		344.8		358.7		388.2		363.9		118.3		100.4		106.7	
34	Barium		µg/dscm		14073.1		12398.2		12941.5		13137.6		8188.0		7232.3		8464.1		7961.5		940.3		918.4		944.5	
35	Beryllium		µg/dscm		321.1		282.4		294.4		299.3		160.6		135.5		188.9		161.6		5.8		5.7		6.1	
36	Cadmium		µg/dscm		296.8		261.2		272.3		276.8	nd	2.5	nd	2.2	nd	2.4		1.2		14.5		14.1		15.1	
37	Chromium		µg/dscm		11642.3		10274.4		10672.2		10863.0		1554.4		1245.6		1453.6		1417.9		3300.8		2973.3		3152.6	
38	Lead		µg/dscm		2808.2		2468.2		2569.9		2615.4	nd	168.9	nd	140.6	nd	155.2		77.4		754.8		660.1		699.2	
39	Mercury		µg/dscm		94.0		82.7		85.9		87.5	nd	0.8	nd	0.7	nd	0.8		0.4	nd	0.6	nd	0.5	nd	5.6	
40	Silver		µg/dscm		793.2		700.3		729.9		741.1	nd	140.7	nd	116.5	nd	130.0		64.5	nd	147.8	nd	142.9	nd	152.7	
41	Thallium		µg/dscm		1081.1		952.8		993.6		1009.2	nd	112.6	nd	101.0	nd	103.7		52.9	nd	73.6	nd	71.7	nd	76.1	
42																										
43	SVM		µg/dscm		3105.0		2729.3		2842.2		2892.2		85.7		71.4		78.8		78.6		769.3		674.2		714.3	
44	LVM		µg/dscm		12922.9		11400.6		11843.6		12055.7		2059.8		1739.8		2030.8		1943.4		3424.9		3079.5		3265.4	
45																										
46	**1011C2**																									

	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1									
2									
3	Cond Avg		Run 1		Run 2		Run 3		Cond Avg
4									
5									
6									
7	Biosludge		Total		Total		Total		Total
8	9084								
9	1092								
10	113.9								
11	1.82								
12	0.0364								
13	0.0178								
14	0.2								
15	0.001								
16	0.0024								
17	0.516								
18	0.115								
19	0.000091								
20	0.0243								
21	0.0121								
22									
23	67184								
24	11.8								
25									
26	9.9		181.5		181.9		183.9		181.6
27									195.5
28									
29									
30	680.2		7599.5		6754.1		7085.3		7146.3
31	11121.2		212823.6		185226.8		198600.3		198883.6
32	221.6								
33	108.5		1191.1		1073.4		1124.6		1365.9
34	934.4								
35	5.9		404.3		353.0		391.9		466.8
36	14.6		305.3		269.3		281.1		292.5
37	3142.2		14069.9		12383.9		12975.3		15423.0
38	704.7		3270.1		2868.5		2997.1		3397.6
39	1.1		94.7		83.3		89.1		89.0
40	73.9								
41	36.9								
42									
43	719.3		3960.0		3475.0		3635.3		3690.1
44	3256.6		18407.6		16219.8		17139.9		17255.8
45									
46									

	A	B	C
1	**Process Information**		
2			
3		Units	Cond Avg
4			
5	**1011C1**		
6			
7	Steam Flow	klb/hr	143.6
8	Comb Chamber Outlet Temperature	F	1164
9	ESP Inlet Temperature	F	426
10	ESP Power	kW	14.3
11	ESP Air Flow (velocity)	ft/min	2566
12			
13	**1011C2**		
14			
15	Steam Flow	klb/hr	100
16	ESP Air Flow (velocity)	ft/min	2318
17	Comb Chamber Temperature	F	974