

US EPA ARCHIVE DOCUMENT

	B	C
1	Source Description	
2		
3	Phase II ID No.	719
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. 24
10	Other Sister Facilities	Boiler No. 23
11	Number of Sister Facilities	1
12	Combustor Class	Coal-fired boiler
13	Combustor Type	Stoker
14	Combustor Characteristics	Combustion Engineering, coal-fired spreader stoker watertube boiler, 501 MMBtu/hr, comb chamber dimensions (ft): 33 w, 19 l, 40 h
15	Capacity (MMBtu/hr)	501
16	Soot blowing	Yes
17	APCS Detailed Acronym	ESP
18	APCS General Class	ESP
19	APCS Characteristics	Buell, 2 fields; 24,000 ft2 plate area for 240 kacfm @ 380 F, SCA=100 ft2/kacfm
20	Hazardous Wastes	Liq, sludge
21	Haz Waste Description	Mixed and unmixed solvents, biosludge
22	Supplemental Fuel	Coal
23		
24	Stack Characteristics	14 Blrs (# 11 - 24) exhaust to one common breeching interconnected to 3 stacks
25	Diameter (ft)	
26	Height (ft)	225
27	Gas Velocity (ft/sec)	50
28	Gas Temperature (°F)	350
29		
30	Permitting Status	BIF Interim Status Tier III for metals, HCl/Cl2
31	HWC Burn Status (Date if Terminated)	

	B	C
1	Cond Description	
2		
3	719C10	
4		
5	Report Name/Date	Recertification of Compliance for Tennessee Eastman Division Boilers 23 and 24; dated September 1, 1998
6	Report Prepar	Eastman Chemical Co
7	Testing Firm	Eastman Chemical Co
8	Testing Dates	June 23-25, 1998
9	Cond Dates	Jun-98
10	Cond Description	CoC; max feedrates
11	Content	PM, metals, CO, HCl/Cl2; feed analysis for metals, ash, HCl/Cl2
12		
13	719C11	
14		
15	Report Name/Date	Recertification of Compliance for Tennessee Eastman Division Boilers 23 and 24; dated September 1, 1998
16	Report Prepar	Eastman Chemical Co
17	Testing Firm	Eastman Chemical Co
18	Testing Dates	June 23-25, 1998
19	Cond Dates	Jun-98
20	Cond Description	CoC; min combustion temperature
21	Content	CO

	B	C	D	E	F	G	H	I	J	K	L	M
1	Stack Gas Emissions											
2												
3		Comments	Units	7% O2								
4												
5						failed leak check				sootblow		
6	719C10					R3		R1		R2		Cond Avg
7												
8	Sampling Train	(PM, HCl/Cl2)	E1									
9	Stack Gas Flowrate		dscfm					134858		136049		135453.5
10	O2		%					9.7		9.7		9.7
11	Moisture		%					11.53		13.85		12.7
12	Temperature		°F					351		343		347.0
13												
14	HCl		ppmv	n				67.8		114		90.9
15	Cl2		ppmv	n			nd	0.483	nd	0.47		0.48
16												
17	PM	E1	gr/dscf	y				0.0274		0.0182		0.0269
18	CO (RA)	E1	ppmv	y				61.1		53.9		57.5
19	CO (MHRA)	E1	ppmv	y				63.2		55.8		59.5
20	HCl	E1	ppmv	y				84.0		141.2		112.6
21	Cl2	E1	ppmv	y				0.6		0.6		0.6
22	Total Chlorine	E1	ppmv	y				85.2		142.4		113.8
23												
24	Sampling Train	(Metals)	E2									
25	Stack Gas Flowrate		dscfm					141089		133637		137363
26	O2		%					9.7		9.7		9.7
27	Moisture		%					12.2		12.9		12.55
28	Temperature		°F					353		338		346
29	Sample Volume		dscf					51.48		48.15		
30												
31	Mercury		µg/dscm	n				8.6		10.9		
32	Lead		µg/dscm	n				102.0		73.23		
33	Cadmium		µg/dscm	n				24.1		1.40		
34	Arsenic		µg/dscm	n				43.3		48.9		
35	Beryllium		µg/dscm	n				3.71		2.25		
36	Chromium		µg/dscm	n				161.0		86.14		
37	Antimony		µg/dscm	n				131.43		80.67		
38												
39	Mercury	E2	µg/dscm	y				10.6		13.5		12.1
40	Lead	E2	µg/dscm	y				126.4		90.72		108.5
41	Cadmium	E2	µg/dscm	y				29.9		1.74		15.8
42	Arsenic	E2	µg/dscm	y				53.6		60.6		57.1
43	Beryllium	E2	µg/dscm	y				4.60		2.79		3.7
44	Chromium	E2	µg/dscm	y				199.5		106.73		153.1
45	Antimony	E2	µg/dscm	y				162.84		99.94		131.4
46												
47	SVM	E2	µg/dscm	y				156.2		92.5		124.3
48	LVM	E2	µg/dscm	y				257.7		170.1		213.9
49												
50	719C11					R1		R2		R3		Cond Avg
51												
52	CO (RA)		ppmv	y				41.36		43.27		43.2
53	CO (MHRA)		ppmv	y				41.53		43.14		43.2

	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																											
4	719C10	Units	R1	R2	Cond Avg	R1	R2	Cond Avg	R1	R2	Cond Avg	R1	R2	Cond Avg	R1	R2	Cond Avg	R1	R2	Cond Avg	R1	R2					
5																											
6	Feedstream Number		F1	F1	F1	F2	F2	F2	F3	F3	F3																
7	Feed Class		Coal	Coal	Coal	Sludge HW	Sludge HW	Sludge HW	Liq HW	Liq HW	Liq HW																
8	Feed Class 2		Coal	Coal	Coal													HW	HW								
9	Feedstream Description		Coal	Coal	Coal	Biosludge	Biosludge	Biosludge	HW liquid	HW liquid	HW liquid																
10	Feed Rate	lb/hr	25914	24723	25319	19819	18998	19512	3614	3971	3747																
11	Heating Value	Btu/lb	13139	13252	13196	1146	1120	1133	11990	15667	13829																
12	Ash	lb/hr	2205	2188	2199	456	437	449 nd	3.61 nd	3.97	3.790																
13	Chlorine	lb/hr	7.77	7.42	7.60	2	4	2.89	0.3610	1.1900	0.776																
14	Antimony	lb/hr	nd	0.0176 nd	0.0176	0.02	0.09	0.08	0.09 nd	0.0034 nd	0.0038	0.004															
15	Arsenic	lb/hr		0.16	0.144	0.15	0.16	0.19	0.17 nd	0.0034 nd	0.0038	0.004															
16	Barium	lb/hr		1.94	1.93	1.94	0.34	0.33	0.33 nd	0.0001 nd	0.0001	0.00011															
17	Beryllium	lb/hr		0.0591	0.0603	0.06	0.0028	0.0025	0.0026 nd	0.0001 nd	0.0001	0.00011															
18	Cadmium	lb/hr	nd	0.00077 nd	0.00074	0.0008	0.01	0.00	0.01 nd	0.0004 nd	0.0004	0.00038															
19	Chromium	lb/hr		0.404	0.396	0.40	1.23	1.10	1.17	0.0012	0.0013	0.001															
20	Lead	lb/hr	nd	0.0529 nd	0.0524	0.05	0.25	0.23	0.24 nd	0.0034 nd	0.0038	0.004															
21	Mercury	lb/hr	nd	0.000259 nd	0.00025	0.00025	0.00258	0.00228	0.00243	0.0003	0.0001	0.000															
22	Silver	lb/hr	nd	0.0441 nd	0.0438	0.04	0.01	0.01	0.01 nd	0.0012 nd	0.0013	0.001															
23	Thallium	lb/hr	nd	0.0352 nd	0.0351	0.04 nd	0.05 nd	0.06	0.06 nd	0.0103 nd	0.0113	0.011															
24																											
25	Stack Gas Flowrate	dscfm	141089	133637	137363	141089	133637	137363	141089	133637	137363																
26	O2	%	9.7	9.7	9.70	9.7	9.7	9.7	9.7	9.7	9.70																
27																											
28																											
29	Thermal Feedrate	MMBtu/hr	340.5	327.6	334.1	22.7	21.3	22.1	43.3	62.2	51.8	66.0	83.5														
30	Estimated Firing Rate	MMBtu/hr																									
31																											
32	<i>Feedrate MTEC Calculations</i>																										
33	Ash	mg/dscm	5177.1	5423.6	5300.3	1070.6	1083.2	1076.9	100	8.5	100	9.8	100	9.2	1	1079.1	1	1093.1	1								
34	Chlorine	µg/dscm	18243.0	18392.7	18317.8	4648.8	9419.4	7034.1	847.6	2949.8	1898.7	0	5496.4	0	12369.2	0											
35	Antimony	µg/dscm	100	41.3	100	43.6	100	42.5	219.5	191.1	205.3	100	8.1	100	9.3	100	8.7	4	227.6	5	200.5	4					
36	Arsenic	µg/dscm	375.7	356.9	366.3	375.7	466.0	420.8	100	8.1	100	9.3	100	8.7	2	383.7	2	475.4	2								
37	Barium	µg/dscm	4554.9	4784.1	4669.5	786.5	818.0	802.3	100	0.3	100	0.3	100	0.3	0	786.8	0	818.3	0								
38	Beryllium	µg/dscm	138.8	149.5	144.1	6.5	6.1	6.3	100	0.3	100	0.3	100	0.3	4	6.8	5	6.4	4								
39	Cadmium	µg/dscm	100	1.8	100	1.8	100	1.8	14.9	10.4	12.6	100	0.8	100	1.0	100	0.9	5	15.7	9	11.3	7					
40	Chromium	µg/dscm	948.5	981.6	965.1	2887.9	2726.7	2807.3	2.7	3.1	2.9	0	2890.6	0	2729.8	0											
41	Lead	µg/dscm	100	124.2	100	129.9	100	127.0	594.0	562.7	578.3	100	8.1	100	9.3	100	8.7	1	602.1	2	572.0	1					
42	Mercury	µg/dscm	100	0.6	100	0.6	100	0.6	6.1	5.7	5.9	0.7	0.3	0.5	0	6.7	0	5.9	0								
43	Silver	µg/dscm	100	103.5	100	108.6	100	106.1	21.9	12.7	17.3	100	2.7	100	3.1	100	2.9	11	24.6	20	15.9	15					
44	Thallium	µg/dscm	100	82.6	100	87.0	100	84.8	100	128.9	100	137.1	100	133.0	100	24.2	100	28.0	100	26.1	100	153.1	100	165.1	100		
45																											
46	SVM	µg/dscm	100	126.0	100	131.7	100	128.9	608.9	573.0	591.0	8.9	10.3	9.6	1	618	2	583	2								
47	LVM	µg/dscm	0	1463.0	0	1488.0	0	1475.5	3270.0	3198.8	3234.4	11.0	12.8	11.9	0	3281	0	3212	0								
48																											
49	719C11																										
50	No information																										
51	Feedstream Description																										

	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
1													
2													
3													
4	Cond Avg	R1	R2				Cond Avg	R1	R2			Cond Avg	
5													
6		F4	F4				F4	F5	F5			F5	
7		Spike	Spike				Spike	Total	Total			Total	
8	HW	Spike	Spike				Spike	Total	Total			Total	
9		Spike	Spike				Spike	Total	Total			Total	
10		946	939				943						
11													
12		605	600				603						
13		53	53				53						
14		1.33	1.42				1.38						
15		0.38	0.40				0.39						
16		4.67	5.01				4.84						
17		0.03	0.03				0.03						
18		0.09	0.09				0.09						
19		6.84	7.34				7.09						
20		0.42	0.45				0.43						
21		0.02	0.03				0.03						
22		0.22	0.23				0.22						
23		0.14	0.15				0.14						
24													
25		141089	133637				137363	141089	133637			137363	
26		9.7	9.7				9.70	9.7	9.7			9.70	
27													
28													
29	74.8							406.5	411.1			408.0	
30								506.1	479.4			492.8	
31													
32													
33	1086.1	1421.4	1487.4				1454.4	0	7677.5	0	8004.0	0	7840.8
34	8932.8	123732.9	130880.5				127306.7	0	147472.3	0	161642.4	0	154557.3
35	214.0	3122.7	3519.9				3321.3	1	3391.6	1	3764.0	1	3577.8
36	429.5	882.8	1001.4				942.1	0	1642.2	1	1833.7	1	1738.0
37	802.5	10964.6	12418.8				11691.7	0	16306.2	0	18021.2	0	17163.7
38	6.6	74.4	84.3				79.4	0	219.9	0	240.2	0	230.1
39	13.5	206.1	233.5				219.8	1	223.7	1	246.7	1	235.2
40	2810.2	16059.5	18194.4				17126.9	0	19898.6	0	21905.8	0	20902.2
41	587.0	976.7	1105.5				1041.1	8	1703.0	8	1807.5	8	1755.2
42	6.3	57.3	64.9				61.1	1	64.6	1	71.5	1	68.1
43	20.2	504.8	570.1				537.5	17	632.9	16	694.6	16	663.7
44	159.1	326.4	369.3				347.8	42	562.1	41	621.4	41	591.8
45													
46	601	0	1182.9	0	1339.0	0	1261.0	7	1926.7	7	2054.2	7	1990.4
47	3246	0	17016.7	0	19280.1	0	18148.4	0	21760.7	0	23979.7	0	22870.2
48													
49													
50													
51													

	A	B	C
1	Process Information		
2			
3		Units	Cond Avg
4			
5	719C10		
6			
7	Comb Chamber Outlet Temperature	F	1327
8	Steam Flow	klb/hr	294.0
9	ESP Operation		
10	ESP Inlet Temperature	F	360
11	ESP Power	kW	16
12	ESP Air Flow (Velocity)	ft/min	3523
13			
14	719C11		
15			
16	Comb Chamber Temperature	F	1047
17	Steam Flow	klb/hr	203
18	ESP Air Flow (Velocity)	ft/min	2590