

US EPA ARCHIVE DOCUMENT

	2	3
1	Source Description	
2		
3	Phase II ID No.	1013
4	EPA ID No.	TXD007376700
5	Facility Name	Celanese
6	Facility Location	
7	City	Pampa
8	State	TX
9	Unit ID Name/No.	Boiler No. 9
10	Other Sister Facilities	None (Phase II ID No. 1014 (boiler No. 10) is identical unit but was tested)
11	Number of Sister Facilities	0
12	Combustor Class	Coal-fired boiler
13	Combustor Type	Pulverized coal
	Combustor Characteristics	Manufactured by Combustion Engineering, Model No. VU-40. Water tube, pulverized coal, corner t-fired, steam generating boiler. 750,000 lbs/hr steam capacity, 740 MMBtu/hr
14		
15	Capacity (MMBtu/hr)	740
16	Soot Blowing	Yes; undefined frequency/duration
17	APCS Detailed Acronym	FF
18	APCS General Class	FF
	APCS Characteristics	Baghouse, Joy Manufacturing Co, Model 77-023-02, 10 compartments w/ teflon finish filters, effective area 198,720 sq ft.
19		
20	Hazardous Wastes	Liq
	Haz Waste Description	Organic acids and solvent wastes, e.g., long-chain carboxylic acids, ketones, esters
21		
22	Supplemental Fuel	Coal
23		Pulverized coal, still solids
24		
25	Stack Characteristics	
26	Diameter (ft)	
27	Height (ft)	
28	Gas Velocity (ft/sec)	
29	Gas Temperature (°F)	369
30		
31	Permitting Status	Tier IA for ash, chlorides, and metals, except Tier III for Cr
	HWC Burn Status (Date if	
32	Terminated)	

	2	3
1	Cond Description	
2		
3	1013C10	
4		
5	Report Name/Date	Recertification of Compliance (ReCOC) for Celanese Boilers 9 & 10; No date, Report provided begins at Section 2.0
6	Report Prepare	Focus Environmental
7	Testing Firm	None Identified
8	Testing Dates	September 17, 1998
9	Cond Dates	Sep-98
10	Condition Descr	CoC; max waste feed rate
11	Content	PM, CO, Cr emissions; feed analysis for metals, ash, chlorides
12		
13	1013C11	
14		
15	Report Name/Date	Recertification of Compliance (ReCOC) for Celanese Boilers 9 & 10; No date, Report provided begins at Section 2.0
16	Report Prepare	Focus Environmental
17	Testing Firm	None Identified
18	Testing Dates	September 15, 1998
19	Cond Dates	Sep-98
20	Condition Descr	CoC; min combustion temp
21	Content	CO

	2	3	4	5	6	7	8	9	10	11	12	13
1	Stack Gas Emissions											
2												
3		Comments	Units	7% O2								
4										Sootblow		
5	1013C10					R1		R2		R3		Cond Avg
6												
7	PM	E1	gr/dscf	y		0.0272		0.0217		0.0243		0.0244
8	CO (RA)	E1	ppmv	y		13.6		12.2		16.4		14.1
9	CO (MHRA)	E1	ppmv	y		15.7		13.8		36.0		21.8
10	HCl		mg/dscm	n		1.91		1.76		2.77		
11	Cl2		mg/dscm	n		0.00		0.00		0.00		
12												
13	HCl		ppmv	n		1.26		1.16		1.83		
14	Cl2		ppmv	n		0.00		0.00		0.00		
15	Chromium		µg/dscm	n		6.25		10.29		7.08		
16												
17	Sampling Train	PM, HCl/Cl2	E1									
18	Stack Gas Flowrate		dscfm			212876		208115		201886		207626
19	O2		%			6.0		6.0		6.2		6.1
20	Moisture		%			10.28		10.57		11.63		11
21	Temperature		°F			359		373		376		369
22												
23	Sampling Train	Cr	E2									
24	Stack Gas Flowrate		dscfm			204759		201702		195346		200602
25	O2		%			6.0		6.0		6.2		6
26	Moisture		%			10.4		10.2		11.1		11
27	Temperature		°F			362		377		383		374
28												
29	HCl	E1	ppmv	y		1.17		1.09		1.73		1.33
30	Cl2	E1	ppmv	y		0.00		0.00		0.00		0.00
31	Total Chlorine	E1	ppmv	y		1.17		1.09		1.73		1.33
32	Chromium	E2	µg/dscm	y		5.8		9.6		6.7		7.38
33	LVM	E2	µg/dscm	y		5.8		9.6		6.7		7.38
34												
35	1013C11					R1		R2		R3		Cond Avg
36												
37	CO (RA)	E1	ppmv	y		13.13		9.83		18.7		13.9
38	CO (MHRA)	E1	ppmv	y		38		14.2		21.2		24.5
39												
40	Sampling Train	CO	E1									
41	Stack Gas Flowrate		dscfm									
42	O2		%			5.04		5.07		5.00		5.04
43	Moisture		%									
44	Temperature		°F									

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1	Feedstreams																											
2																												
3																												
4	1013C10				R1		R2		R3		Cond Avg		R1		R2		R3		Cond Avg		R1		R2		R3		Cond Avg	
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		Coal		Coal		Coal		Coal		Spike		Spike		Spike		Spike	
8	Feed Class 2				HW		HW		HW		HW		Coal		Coal		Coal		Coal		Spike		Spike		Spike		Spike	
9	Feedstream Description				HW		HW		HW		HW		Pulv Coal		Pulv Coal		Pulv Coal		Pulv Coal		Spike		Spike		Spike		Spike	
10	Feed Rate	lb/hr			15190		15280		15060		15177		57400		57180		56170		56916.67									
11	Feed Rate	scfm																										
12	Heating Value	Btu/lb			10149		10842		10615		10535		12222		12187		12191		12200									
13	Ash	lb/hr			135		66		21		74		5505		5472		5477		5484.67									
14	Chlorine	lb/hr			1.37	nd	0.15	nd	0.15		0.6	nd	1.72	nd	1.72	nd	1.69		1.71									
15	Antimony	lb/hr		nd	0.09	nd	0.09	nd	0.09		0.090	nd	0.34	nd	0.34	nd	0.34		0.34									
16	Arsenic	lb/hr		nd	0.02	nd	0.02	nd	0.02		0.020	nd	0.06	nd	0.06	nd	0.06		0.06									
17	Barium	lb/hr		nd	0.02	nd	0.02	nd	0.02		0.020		17.39		16.12		16.57		16.69									
18	Beryllium	lb/hr		nd	0	nd	0	nd	0		0.000		0.02		0.02		0.02		0.02									
19	Cadmium	lb/hr		nd	0.01	nd	0.01	nd	0.01		0.010	nd	0.03	nd	0.03	nd	0.03		0.03									
20	Chromium	lb/hr			1.86		0.7		0.42		0.993		0.1		0.08		0.1		0.09		5.340		6.270		5.370		5.66	
21	Lead	lb/hr			0.01	nd	0	nd	0		0.003	nd	0.29	nd	0.29	nd	0.28		0.29									
22	Mercury	lb/hr		nd	0.0005	nd	0.0005	nd	0.0005		0.001	nd	0.0019	nd	0.0019	nd	0.0019		0.00									
23	Nickel	lb/hr			0.23	nd	0.06		0.16		0.150	nd	0.23	nd	0.23	nd	0.22		0.23									
24	Selenium	lb/hr		nd	0.01	nd	0.01	nd	0.01		0.010		0.14		0.15		0.13		0.14									
25	Silver	lb/hr		nd	0.02	nd	0.02	nd	0.02		0.020	nd	0.06	nd	0.06	nd	0.06		0.06									
26	Thallium	lb/hr		nd	0.02	nd	0.02	nd	0.02		0.020	nd	0.06	nd	0.06	nd	0.06		0.06									
27	Zinc	lb/hr			0.05	nd	0.03	nd	0.03		0.037		0.48		0.37		0.43		0.43									
28																												
29	Stack Gas Flowrate	dscfm			204759		201702		195346		200602		204759		201702		195346		200602		204759		201702		195346		200602	
30	Oxygen	%			6.0		6.0		6.2		6.1		6.0		6.0		6.2		6.1		6.0		6.0		6.2		6.1	
31																												
32	Thermal Feedrate	MMBtu/hr			154		166		160		160		702		697		685		694									
33	Estimated Firing Rate	MMBtu/hr																										
34																												
35	<i>Feedrate MTEC Calculations</i>																											
36	Ash	mg/dscm			164.8		81.3		27.3		91.1		6709.2		6770.0		7091.2		6856.8		0.0		0.0		0.0		0.0	
37	Chlorine	µg/dscm			1669.7	100	185.6	100	194.2	18.5	683.2	100	2096.2	100	2128.0	100	2188.1	100	2137.4		0.0		0.0		0.0		0.0	
38	Antimony	µg/dscm	100		109.7	100	111.3	100	116.5	100	112.5	100	414.4	100	420.7	100	440.2	100	425.1		0.0		0.0		0.0		0.0	
39	Arsenic	µg/dscm	100		24.4	100	24.7	100	25.9	100	25.0	100	73.1	100	74.2	100	77.7	100	75.0		0.0		0.0		0.0		0.0	
40	Barium	µg/dscm	100		24.4	100	24.7	100	25.9	100	25.0		21193.9		19943.9		21453.7		20863.8		0.0		0.0		0.0		0.0	
41	Beryllium	µg/dscm	100		0.0	100	0.0	100	0.0	100	0.0		24.4		24.7		25.9		25.0		0.0		0.0		0.0		0.0	
42	Cadmium	µg/dscm	100		12.2	100	12.4	100	12.9	100	12.5	100	36.6	100	37.1	100	38.8	100	37.5		0.0		0.0		0.0		0.0	
43	Chromium	µg/dscm			2266.9		866.0		543.8		1225.6		121.9		99.0		129.5		116.8		6508.1		7757.3		6952.7		7072.7	
44	Lead	µg/dscm			12.2	100	0.0	100	0.0	0.0	4.1	100	353.4	100	358.8	100	362.5	100	358.3		0.0		0.0		0.0		0.0	
45	Mercury	µg/dscm	100		0.6	100	0.6	100	0.6	100	0.6	100	2.3	100	2.3	100	2.4	100	2.3		0.0		0.0		0.0		0.0	
46	Nickel	µg/dscm			280.3	100	74.2		207.2	13.2	187.2	100	280.3	100	284.6	100	284.8	100	283.2		0.0		0.0		0.0		0.0	
47	Selenium	µg/dscm	100		12.2	100	12.4	100	12.9	100	12.5		170.6		185.6		168.3		174.8		0.0		0.0		0.0		0.0	
48	Silver	µg/dscm	100		24.4	100	24.7	100	25.9	100	25.0	100	73.1	100	74.2	100	77.7	100	75.0		0.0		0.0		0.0		0.0	
49	Thallium	µg/dscm	100		24.4	100	24.7	100	25.9	100	25.0	100	73.1	100	74.2	100	77.7	100	75.0		0.0		0.0		0.0		0.0	
50	Zinc	µg/dscm			60.9	100	37.1	100	38.8	100	45.6		585.0		457.8		556.7		533.2		0.0		0.0		0.0		0.0	
51																												
52	SVM	µg/dscm	50		24.4	100	12.4	100	12.9	100	16.6	100	195.0	100	198.0	100	200.7	100	197.9									
53	LVM	µg/dscm	1.1		2291.2	2.8	890.8	4.5	569.7	2	1250.6	33	219.4	38	198.0	33	233.1	35	216.8		6508.1		7757.3		6952.7		7072.7	
54																												
55	1013C11				R1		R2		R3		Cond Avg		R1		R2		R3		Cond Avg									
56																												
57	Feedstream Number				F1		F1		F1		F1		F2		F2		F2		F2									
58	Feed Class				Liq HW		Liq HW		Liq HW		Liq HW		Coal		Coal		Coal		Coal									
59	Feedstream Description				HW		HW		HW		Waste		Pulv Coal		Pulv Coal		Pulv Coal		Pulv Coal									
60	Feed Rate	lb/hr			7960		11610		8030		9200		57400		57180		56340		56973									

	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53
1																								
2																								
3																								
4	R1	R2	R3	Cond Avg	R1	R2	R3	Cond Avg	R1	R2	R3	Cond Avg	R1	R2	R3	Cond Avg	R1	R2	R3	Cond Avg	R1	R2	R3	Cond Avg
5																								
6	F4	F4	F4	F4	F5	F5	F5	F5	F6	F6	F6	F6	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
7	Misc Fuel	Misc Fuel	Misc Fuel	Misc Fuel	Misc Fuel	Misc Fuel	Misc Fuel	Misc Fuel	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
8	MF	MF	MF	MF	MF	MF	MF	MF	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
9	Bug Gas	Bug Gas	Bug Gas	Bug Gas	Vent Gas	Vent Gas	Vent Gas	Vent Gas	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
10																								
11	704	717	719	713	681.76	675.81	675.4	677.66																
12																								
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31																								
32																	856	863	845				854	
33																							892	
34																								
35																								
36																								
37																	6874	6851	7119				6948	
38																	56	3766	100	2314	100	2382	100	2821
39																	100	524	100	532	100	557	100	538
40																	100	97	100	99	100	104	100	100
41																		21218	19969	21480			20889	
42																		24	25	26			25	
43																		100	49	100	49	100	52	100
44																			8897	8722	7626			8415
45																		100	366	100	359	100	363	100
46																		100	3	100	3	100	3	100
47																		50	561	100	359	42	492	65
48																		6.7	183	198	181			187
49																		100	97	100	99	100	104	100
50																		100	97	100	99	100	104	100
51																			646	495	596			579
52																								
53																			94	219	100	210	100	214
54																			1.1	9019	1.1	8846	1.3	7755
55																								1.2
56																								8540
57																								
58																								
59																								
60																								

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61																													
62																													
63	BIF Feedrate Limits																												
64																													
65	Antimony																												
66	Arsenic																												
67	Barium																												
68	Beryllium																												
69	Cadmium																												
70	Chromium																												
71	Lead																												
72	Mercury																												
73	Silver																												
74	Thallium																												
75	Chlorine																												

	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53
61																								
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	1	2	3	4	5
1	Process Information				
2					
3	1013C10		R1	R2	R3
4					
5	Comb Chamb Temp	°F	1358.1	1363.6	1359.6
6	Steam Production Rate	M lb/hr	734.65	733.44	723.14
7	Baghouse Temp	°F	379.9	390.9	390.9
8					
9					
10	1013C11		R1	R2	R3
11					
12	Comb Chamb Temp	°F	1125	1133	1138
13	Steam Production Rate	M lb/hr	622	620	620
14	Baghouse Temp	°F	344	349	350