

US EPA ARCHIVE DOCUMENT

	B	C
1	Source Description	
2		
3	Phase I ID No.	3029
4	EPA ID No.	IND006419212
5	Facility Name	Lone Star
6	Facility Location	
7	City	Greencastle
8	State	IN
9	Unit ID Name/No.	
10	Other Sister Facilities	
11	Number of Sister Facilities	0
12	Combustor Class	Cement Kiln
13	Combustor Type	Semi-dry, short, preheater, precalciner, in-line raw mill (ILRM)
14	Combustor Characteristics	
15	Capacity (MMBtu/hr)	
16	APCS Detailed Acronym	ESP (main), FF (bypass)
17	APCS General Class	ESP, FF
18	APCS Characteristics	ESP made by Southern, 10 fields; FF membrane filter, with cloth area 22,055 ft ² , Combined main / bypass single stack
19	Hazardous Wastes	Liq
20	Haz Waste Description	
21	Supplemental Fuel	Coal
22		
23	Stack Characteristics	
24	Diameter (ft)	
25	Height (ft)	
26	Gas Velocity (ft/sec)	
27	Gas Temperature (°F)	
28		
29	Permitting Status	Tier I for Hg, Ag, Tl, Sb, and Ba; Tier III for Pb, As, Be, Cd, and Cr
30	HWC Burn Status (Date if Terminated)	

	B	C
1	Cond Description	
2		
3	3029C10	
4		
5	Report Name/Date	PIC Risk Burn Report, Lone Star Industries, February, 2001
6	Report Prepare	Gossman Consulting
7	Testing Firm	Airtech Environmental Services
8	Testing Dates	December 7-9, 2000
9	Cond Dates	Dec-00
10	Condition Descr	Risk burn, max oper temp, normal wastes
11	Content	PICs, D/F
12		
13	3029C11	
14		
15	Report Name/Date	Final Recertification of Compliance Test Report, Lone Star Industries, January 2001
16	Report Prepare	Gossman Consulting
17	Testing Firm	Airtech Environmental Services
18	Testing Dates	December 6, 2000
19	Cond Dates	Dec-00
20	Condition Descr	CoC; max oper conditions
21	Content	PM, HCl/Cl ₂ , metals, CO, HC

	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Stack Gas Emissions 1												
2													
3													
4	3029C10	Risk burn PICs				R1		R2		R3		Cond Avg	
5													
6	CO (RA)	E1	ppmv	y		15		5.5		6.5		9.0	bypass?
7	CO (MHRA)	E1	ppmv	y		24		14.1		9.4		15.8	bypass?
8													
9	HC (RA)	E1	ppmv	y		0.2		0.1		0.1		0.1	bypass?
10	HC (MHRA)	E1	ppmv	y		0.4		0.4		0.2		0.3	bypass?
11													
12	Sampling Train	PCDD/PCDF	E1										
13	Stack Gas Flowrate		dscfm			226000		220000		215000		220333	
14	O2		%			4.8		5.8		6.4		5.7	
15	Moisture		%			37.1		36.7		36.2		36.7	
16	Temperature		°F			378		377		376		377.0	
17													
18													
19	3029C11					R1		R2		R3		Cond Avg	
20													
21	CO (RA)	E1	ppmv	y		6		12		27		15.0	bypass?
22	CO (MHRA)	E1	ppmv	y		10		38		51		33.0	bypass?
23													
24	HC (RA)	E1	ppmv	y		0.2		0.6		0.7		0.5	bypass?
25	HC (MHRA)	E1	ppmv	y		0.3		0.9		1		0.7	bypass?
26													
27	PM	E1	gr/dscf	y		0.01		0.00992		0.0113		0.0104	
28													
29	HCl	E1	ppmv	y		0.319		2.28		1.71		1.44	
30	Cl2	E1	ppmv	y		0.0814		0.242		0.162		0.16	
31	Total Chlorine	E1	ppmv	y		0.4818		2.764		2.034		1.76	
32													
33	Silver	E2	ug/dscm	y		1.73		0.804		0.724		1.09	
34	Aluminum	E2	ug/dscm	y		893		619		753		755.00	
35	Arsenic	E2	ug/dscm	y		0.693		0.603		0.579		0.63	
36	Barium	E2	ug/dscm	y		10.5		8.98		9.2		9.56	
37	Beryllium	E2	ug/dscm	y		0.0693		0.067		0.0724		0.07	
38	Cadmium	E2	ug/dscm	y		0.346		0.268		0.362		0.33	
39	Chromium	E2	ug/dscm	y		13.4		12.9		12.7		13.00	
40	Cobalt	E2	ug/dscm	y		0.554		0.603		0.579		0.58	
41	Copper	E2	ug/dscm	y		3.74		3.35		6.01		4.37	
42	Manganese	E2	ug/dscm	y		13		16.1		38.8		22.63	
43	Nickel	E2	ug/dscm	y		1.73		1.74		1.59		1.69	
44	Lead	E2	ug/dscm	y		2.91		2.55		2.9		2.79	
45	Antimony	E2	ug/dscm	y		0.9		0.536		0.724		0.72	
46	Selenium	E2	ug/dscm	y	nd	0.346	nd	0.335	nd	0.362		0.35	
47	Thallium	E2	ug/dscm	y		5.4		3.22		3.26		3.96	
48	Vanadium	E2	ug/dscm	y		1.8		1.14		1.67		1.54	
49	Zinc	E2	ug/dscm	y		7.34		10.6		7.82		8.59	
50	Mercury	E2	ug/dscm	y		6.34		5.29		2.9		4.84	
51	Chromium (Hex)	E2	ug/dscm	y	nd	0.314	nd	0.549	nd	0.53		0.46	
52													
53	SVM	E2	ug/dscm	y		3.3		2.8		3.3		3.11	
54	LVM	E2	ug/dscm	y		14.2		13.6		13.4		13.69	
55													
56	Sampling Train	PM, HCl/Cl2	E1										
57	Stack Gas Flowrate		dscfm			232000		233100		239700		234933.3	
58	O2		%			4.3		4.4		5.2		4.6	
59	Moisture		%			33.8		34.7		32.5		33.7	
60	Temperature		°F			374		382		378		378.0	
61													
62	Sampling Train	Metals	E2										
63	Stack Gas Flowrate		dscfm			216500		222000		222500		220333.3	
64	O2		%			4.5		4.3		5.5		4.8	
65	Moisture		%			35.3		34.1		35.5		35.0	
66	Temperature		°F			372		381		376		376.3	

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1	Feedstream 1																							
2	3029C10	Risk Burn PICs																						
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																								
30																								
31																								
32																								
33																								
34																								
35																								
36																								
37																								
38																								
39																								
40																								
41																								
42																								
43																								
44																								
45																								
46																								
47																								
48																								
49																								
50																								
51																								
52																								
53																								

	B	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU
1	Feedstream 1																						
2	3029C10	R3	Cond Avg	R1	R2	R3	Cond Avg	R1	R2	R3	Cond Avg	R1	R2	R3	Cond Avg	R1							
3	Feedstream Number	F3	Liq HW	Solid non-HW Non-HW	F4	Solid non-HW Non-HW	F4	Solid non-HW Non-HW	F4	Solid non-HW Non-HW	F4	Solid non-HW Non-HW	F4	Solid non-HW Non-HW	F4	Solid non-HW Non-HW							
4	Feed Class	Liq Waste	24200	400	400	400	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9							
5	Feed Class 2	Liq Waste	283.1	294.8	294.8	294.8	294.8	294.8	294.8	294.8	294.8	294.8	294.8	294.8	294.8	294.8							
6	Feedstream Description																						
7	Feed Rate																						
8	Thermal Feedrate																						
9	Chlorine																						
10	Stack Gas Flowrate																						
11	Oxygen																						
12	Feedrate MTEC Calculations																						
13	Chlorine																						
14	3029C11	R3	Cond Avg	R1	R2	R3	Cond Avg	R1	R2	R3	Cond Avg	R1	R2	R3	Cond Avg	R1							
15	Feedstream Number	F3	Liq HW	Solid non-HW Non-HW	F4	Solid non-HW Non-HW	F4	Solid non-HW Non-HW	F4	Solid non-HW Non-HW	F4	Solid non-HW Non-HW	F4	Solid non-HW Non-HW	F4	Solid non-HW Non-HW							
16	Feed Class	Liq Waste	11.9	11	11	11	11	11	11	11	11	11	11	11	11	11							
17	Feed Class 2	Liq Waste	12300	7490	7490	7490	7490	7490	7490	7490	7490	7490	7490	7490	7490	7490							
18	Feedstream Description																						
19	Feed Rate																						
20	Heating Value																						
21	Thermal Feedrate																						
22	Chlorine																						
23	Mercury																						
24	Antimony																						
25	Arsenic																						
26	Barium																						
27	Beryllium																						
28	Cadmium																						
29	Chromium																						
30	Lead																						
31	Nickel																						
32	Selenium																						
33	Silver																						
34	Thallium																						
35	Stack Gas Flowrate																						
36	Oxygen																						
37	Feedrate MTEC Calculations																						
38	Chlorine																						
39	Mercury																						
40	Antimony																						
41	Arsenic																						
42	Barium																						
43	Beryllium																						
44	Cadmium																						
45	Chromium																						

	B	AV	AM	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH
1	Feedstream 1													
2														
3	3029C10	R2	R3		Cond Avg									
4	Feedstream Number													
5	Feed Class	F5	F5	Total	Total									
6	Feed Class 2	Total	Total	Total	Total									
7	Feedstream Description													
8	Feed Rate													
9	Thermal Feedrate	790.1		751.5	792.5									
10	Chlorine													
11														
12	Stack Gas Flowrate													
13	Oxygen													
14														
15	Feedrate MTEC Calculations													
16	Chlorine				651344.2									
17														
18														
19	3029C11	R2	R3	Cond Avg										Cond Avg
20														
21	Feedstream Number	F5	F5	Spike	F5	F6	F6	F6	F6	F6	F6	F6	F6	F6
22	Feed Class	Spike	Spike	Spike	Spike	Total	Total	Total	Total	Total	Total	Total	Total	Total
23	Feed Class 2	Spike	Spike	Spike	Spike	Total	Total	Total	Total	Total	Total	Total	Total	Total
24	Feedstream Description													
25	Feed Rate													
26	Heating Value													
27	Thermal Feedrate					764.2		760.3		791.9				772.2
28	Chlorine													
29	Mercury													
30	Antimony													
31	Arsenic	3096.3		3473.1	3.29E+03									
32	Barium													
33	Beryllium													
34	Cadmium	3000.9		3087.2	2960									
35	Chromium	25269.6		26454.6	26488									
36	Lead	10074.3		10437.5	10171									
37	Nickel													
38	Selenium													
39	Silver													
40	Thallium													
41														
42	Stack Gas Flowrate	233100.0		239700.0	234933.3									
43	Oxygen	4.4		5.2	4.6									
44														
45	Feedrate MTEC Calculations													
46	Chlorine	0		0	0	497220		637817		636353		589110		8
47	Mercury	0		0	0	7		8		9		8		8
48	Antimony	0		0	0	823		769		784		791		791
49	Arsenic	6598		7561	7061	10203		9457		10647		10095		10095
50	Barium	0		0	0	74191		75759		78577		76092		76092
51	Beryllium	0		0	0	400		375		399		391		391
52	Cadmium	6394		6721	6347	6243		6697		7035		6653		6653
53	Chromium	53844		57593	56798	92709		86698		92306		90532		90532

US EPA ARCHIVE DOCUMENT

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
54	Lead		ug/dscm	y	1155	1009	1106	1090	1646	1586	1668	1633	3800	4973										
55	Nickel		ug/dscm	y	1116	975	1068	1052	8396	8091	8509	8328	191	253										
56	Selenium		ug/dscm	y	74	65	71	70	1276	1230	1293	1266	14	24										
57	Silver		ug/dscm	y	11	9	10	10	136	131	138	135	21	29										
58	Thallium		ug/dscm	y	38	33	36	36	14	14	15	14	6	7										
59																								
60	SVM		ug/dscm	y	1179	1030	1129	1112	1886	1817	1911	1870	3836	5023										
61	LVM		ug/dscm	y	2803	2449	2684	2644	32079	30914	32509	31818	2316	2682										

US EPA ARCHIVE DOCUMENT

	B	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU
54	Lead	4940	4560	351	275	12	213	4151	5248	4952	4773	21284											
55	Nickel	268	236	18	22	5	15	209	276	273	252	0											
56	Selenium	21	19	1	1	1	1	15	25	22	20	0											
57	Silver	31	27	1	3	0	1	22	32	31	28	0											
58	Thallium	7	7	0	0	0	0	6	8	8	7	0											
59																							
60	SVM	4988	4605	353	276	12	214	4189	5298	5001	4819	27226											
61	LVM	2993	2665	40	44	11	32	2356	2726	3005	2697	66075											

US EPA ARCHIVE DOCUMENT

	B	AV	AVM	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH
54	Lead	21466	0	22723	0	21810	0	28237	29309	9341	9851	30449	29306	
55	Nickel	0	0	0	0	0	0	9721	9341	1319	1386	9851	9632	
56	Selenium	0	0	0	0	0	0	1365	1319	172	179	1386	1356	
57	Silver	0	0	0	0	0	0	168	172	55	58	179	173	
58	Thallium	0	0	0	0	0	0	59	55	57	58	58	57	
59														
60	SVM	27860	29444	28157	34479	36006	37485	35959						
61	LVM	60442	65154	63859	103313	96530	103352	101018						

	B	C	D	E	F	G	H
1	Process Information 1						
2							
3	3029C10		Ris	1	2	3	Cond Avg
4							
5	ESP Power	kVA		180	183	177	
6	ESP Inlet Temp	F		401	399	401	400
7	FF Bypass Inlet Temp	F		428	425	422	425
8	Combustion Temp	F		1722	1699	1703	
9							
10	3029C11		20C	1	2	3	Cond Avg
11							
12	ESP Power	kVA		199	215	211	
13	ESP Inlet Temp	F		401	414	405	407
14	FF Bypass Inlet Temp	F		389	386	395	390
15	Combustion Temp	F		1723	1722	1720	

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	PCDD/PCDF																
2	Facility Name and ID:																
3	3029C10																
4	Condition/ID:																
5	PIC risk burn, Dec 2000																
6																	
7																	
8																	
9																	
10	Detected in sample volume (pg)																
11	2,3,7,8-TCDD	1	nd	9.46	9.4600	4.730	4.7300	nd	8.09	8.0900	4.045	4.0450	nd	10.9	10.9000	5.450	5.4500
12	1,2,3,7,8-PCDD	0.5	nd	13.2	6.6000	6.600	3.3000	nd	14.4	7.2000	7.200	3.6000	nd	15.3	7.6500	7.650	3.8250
13	1,2,3,4,7,8-HxCDD	0.1	nd	27.4	2.7400	13.700	1.3700	nd	20	2.0000	10.000	1.0000	nd	27.5	2.7500	13.750	1.3750
14	1,2,3,6,7,8-HxCDD	0.1	nd	30.6	3.0600	15.300	1.5300	nd	22.3	2.2300	11.150	1.1150	nd	30.6	3.0600	15.300	1.5300
15	1,2,3,7,8,9-HxCDD	0.1	nd	27.4	2.7400	13.700	1.3700	nd	19.9	1.9900	9.950	0.9950	nd	27.4	2.7400	13.700	1.3700
16	1,2,3,4,6,7,8-HpCDD	0.01	nd	26.4	0.2640	13.200	0.1320	nd	34.4	0.3440	17.200	0.1720	nd	21.4	0.2140	10.700	0.1070
17	OCDD	0.001	nd	51.9	0.0519	25.950	0.0260	nd	90.3	0.0903	45.150	0.0452	nd	53.5	0.0535	26.750	0.0268
18	2,3,7,8-TCDF	0.1	nd	29.9	2.9900	14.950	1.4950	nd	19.2	1.9200	9.600	0.9600		10	1.0000	10.000	1.0000
19	1,2,3,7,8-PCDF	0.05		20.9	1.0450	20.900	1.0450	nd	20.7	1.0350	10.350	0.5175	nd	15	0.7500	7.500	0.3750
20	2,3,4,7,8-PCDF	0.5		23.6	11.8000	23.600	11.8000	nd	20.3	10.1500	10.150	5.0750	nd	14.8	7.4000	7.400	3.7000
21	1,2,3,4,7,8-HxCDF	0.1		20.4	2.0400	20.400	2.0400	nd	6.45	0.6450	3.225	0.3225	nd	8.8	0.8800	4.400	0.4400
22	1,2,3,6,7,8-HxCDF	0.1		17.7	1.7700	17.700	1.7700	nd	5.9	0.5900	2.950	0.2950	nd	8.04	0.8040	4.020	0.4020
23	2,3,4,6,7,8-HxCDF	0.1		11.3	1.1300	11.300	1.1300	nd	6.27	0.6270	3.135	0.3135	nd	8.56	0.8560	4.280	0.4280
24	1,2,3,7,8,9-HxCDF	0.1	nd	10.9	1.0900	5.450	0.5450	nd	7.17	0.7170	3.585	0.3585	nd	9.79	0.9790	4.895	0.4895
25	1,2,3,4,6,7,8-HpCDF	0.01		20.9	0.2090	20.900	0.2090	nd	13.2	0.1320	6.600	0.0660	nd	13.5	0.1350	6.750	0.0675
26	1,2,3,4,7,8,9-HpCDF	0.01	nd	15	0.1500	7.500	0.0750	nd	15.7	0.1570	7.850	0.0785	nd	16.1	0.1610	8.050	0.0805
27	OCDF	0.001	nd	38.3	0.0383	19.150	0.0192	nd	46.6	0.0466	23.300	0.0233	nd	50.4	0.0504	25.200	0.0252
28																	
29	TCDD Total	0		67.3	0.0000	67.300	0.0000		68.4	0.0000	68.400	0.0000		33.9	0.0000	33.900	0.0000
30	PCDD Total	0		32.4	0.0000	32.400	0.0000		78.7	0.0000	78.700	0.0000		30.9	0.0000	30.900	0.0000
31	HxCDD Total	0		133	0.0000	133.000	0.0000		141.5	0.0000	141.500	0.0000		42.6	0.0000	42.600	0.0000
32	HpCDD Total	0		0	0.0000	0.0000	0.0000		0	0.0000	0.0000	0.0000		0	0.0000	0.0000	0.0000
33	TCDF Total	0		593	0.0000	593.000	0.0000		137	0.0000	137.000	0.0000		259	0.0000	259.000	0.0000
34	PCDF Total	0		247	0.0000	247.000	0.0000		0	0.0000	0.0000	0.0000		0	0.0000	0.0000	0.0000
35	HxCDF Total	0		136	0.0000	136.000	0.0000		0	0.0000	0.0000	0.0000		0	0.0000	0.0000	0.0000
36	HpCDF Total	0		20.9	0.0000	20.900	0.0000		0	0.0000	0.0000	0.0000		0	0.0000	0.0000	0.0000
37																	
38	Gas sample volume (dsccf)				132.39	132.39	132.39			129.92	129.92	129.92			124.98	124.98	124.98
39	O2 (%)				4.8	4.8	4.8			5.8	5.8	5.8			6.4	6.4	6.4
40																	
41	PCDD/PCDF (ng in sample)				47.178	1274.700	32.586			37.964	494.050	18.982			40.383	418.350	20.691
42	PCDD/PCDF (ng/dscm @ 7% O2)		61.9		0.0109	0.294	0.0075	100		0.0095	0.124	0.0048	97.5		0.0109	0.113	0.0056
43																	
44	TEQ Cond Avg				0.0060												
45	Total Cond Avg				0.177												