

US EPA ARCHIVE DOCUMENT

	B	C
1	Source Description	
2		
3	Phase I ID No.	3003
4	EPA ID No.	UT5210090002
5	Facility Name	CAMDS Tooele Army Depot South (TOCDF)
6	Facility Location	
7	City	Tooele
8	State	UT
9	Unit ID Name/No.	Deactivation Furnace System
10	Other Sister Facilities	
11	Number of Sister Facilities	0
12	Combustor Class	Onsite incinerator, DoD government, chem demil
13	Combustor Type	Rotary kiln
14	Combustor Characteristics	Rotary kiln
15	Capacity (MMBtu/hr)	
16	Soot Blowing	
17	APCS Detailed Acronym	AB/C/Q/VS/PBS/DM
18	APCS General Class	HEWS, WQ, LEWS
19	APCS Characteristics	Quench, venturi scrubber, packed bed, demister, cyclone, afterburner
20	Hazardous Wastes	Solid
21	Haz Waste Description	Ammunition with chemical nerve agents
22	Supplemental Fuel	Natural gas
23		
24	Stack Characteristics	
25	Diameter (ft)	2.00
26	Height (ft)	
27	Gas Velocity (ft/sec)	61.2
28	Gas Temperature (°F)	223
29		
30	Permitting Status	Tier I for all metals ???
31	HWC Burn Status (Date if Terminated)	

	B	C
1	Condition Description	
2		
3	3003C1	
4		
5	Report Name/Date	RCRA Compliance Test Results - Final Report, October 1993
6	Report Prepare	TRC Environmental Corporation
7	Testing Firm	TRC Environmental Corporation
8	Testing Dates	July 27 - August 3, 1993
9	Cond Dates	Jul-93
10	Condition Descr	Trial burn, mixed agent VX/munitions feed
11	Content	PM, CO, HCl/Cl ₂ , metals, PCDD/F
12		
13	3003C2	
14		
15	Report Name/Date	RCRA Compliance Test Results - Final Report, April 1992
16	Report Prepare	Alliance Technologies Corporation
17	Testing Firm	Alliance Technologies Corporation
18	Testing Dates	January 8-16, 1992
19	Cond Dates	Jan-92
20	Condition Descr	Trial burn, mixed agent HD/munitions feed
21	Content	PM, HCl, metals, PCCD/F
22		
23	3003C3	
24		
25	Report Name/Date	Results of the Chromium Emissions Report, May 1993
26	Report Prepare	TRC Environmental Corporation
27	Testing Firm	TRC Environmental Corporation
28	Testing Dates	February 24-26, 1993
29	Cond Dates	Feb-93
30	Condition Descr	Trial burn, Chromium testing
31	Content	Cr, Cr+6

	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Stack Gas Emissions 1													
2														
3		Comm Units		7% O2										
4														
5	3003C1	Trial Burn				R1		R2		R3		R4		Cond Avg
6														
7	PM	E1	gr/dscf	y		0.00802		0.01349		0.0118		0.01315		0.0116
8	CO (RA)	E1	ppmv	y		10.19		3.75		18.13		18.43		12.63
9	CO (MHRA)	E1	ppmv	y		14.65		7.25		21.7		24.08		16.92
10														
11	HCl		lb/hr		nd	1.34E-03	nd	1.39E-03	nd	1.21E-03		2.13E-02		
12														
13	Antimony		lb/hr		nd	7.42E-06	nd	7.79E-06	nd	7.81E-06	nd	7.70E-06		
14	Arsenic		lb/hr		nd	7.42E-06	nd	7.79E-06	nd	7.81E-06	nd	7.70E-06		
15	Barium		lb/hr			1.48E-05		3.12E-05		5.70E-04		2.31E-05		
16	Beryllium		lb/hr		nd	2.97E-06	nd	3.12E-06	nd	3.12E-06	nd	3.08E-06		
17	Cadmium		lb/hr			2.97E-05		2.96E-05		4.29E-05		1.46E-05		
18	Chromium (Hex)		lb/hr		nd	5.64E-06	nd	5.80E-06	nd	5.74E-06	nd	3.23E-06		
19	Chromium		lb/hr			5.94E-05		3.90E-05		6.24E-05		7.70E-05		
20	Copper		lb/hr		nd	2.97E-05		9.35E-05		1.33E-04		3.24E-04		
21	Lead		lb/hr		nd	7.42E-05		1.25E-04	nd	7.81E-05		1.23E-04		
22	Mercury		lb/hr		nd	2.23E-05		1.32E-04	nd	1.56E-05	nd	1.54E-05		
23	Nickel		lb/hr		nd	7.42E-05	nd	7.79E-05	nd	7.81E-05	nd	7.70E-05		
24	Selenium		lb/hr		nd	7.42E-06	nd	7.79E-06	nd	7.81E-06	nd	7.70E-06		
25	Silver		lb/hr		nd	7.42E-06	nd	7.79E-06	nd	7.81E-06	nd	7.70E-06		
26	Thallium		lb/hr		nd	7.42E-05	nd	7.79E-05	nd	7.81E-05	nd	7.70E-05		
27														
28	Sampling Train	PM	E1											
29	Stack Gas Flowrate		dscfm			4187		4261.0		3973.0		4016		4109.3
30	O2		%			11.4		11.2		11.3		11.6		11.4
31	Moisture		%			44.7		45.1		45.6		45		45.1
32	Temperature		°F			231		230		230		236		231.8
33														
34	Sampling Train		metals E2											
35	Stack Gas Flowrate		dscfm			4404		4445.0		4192.0		4196		4309.3
36	O2		%			11.37		11.2		11.3		11.6		11.4
37	Moisture		%			44.6		44.7		44.2		44.3		44.5
38	Temperature		°F			229		230		230		230		229.8
39														
40	HCl	E1	ppmv	y	nd	8.33E-02	nd	8.32E-02	nd	7.85E-02		1.41E+00		0.4
41	Total Chlorine	E1	ppmv	y	100	8.33E-02	100	8.32E-02	100	7.85E-02		1.41E+00	15	4.14E-01
42														
43	Antimony	E2	ug/dscm	y	nd	0.65	nd	0.67	nd	0.72	nd	0.73	100	0.7
44	Arsenic	E2	ug/dscm	y	nd	0.65	nd	0.67	nd	0.72	nd	0.73	100	0.7
45	Barium	E2	ug/dscm	y		1.31		2.68		52.47		2.19		14.7
46	Beryllium	E2	ug/dscm	y	nd	0.26	nd	0.27	nd	0.29	nd	0.29	100	0.3
47	Cadmium	E2	ug/dscm	y		2.62		2.54		3.95		1.39		2.6
48	Chromium (Hex)	E2	ug/dscm	y	nd	0.50	nd	0.50	nd	0.53	nd	0.31	100	0.5
49	Chromium	E2	ug/dscm	y		5.24		3.35		5.74		7.31		5.4
50	Copper	E2	ug/dscm	y	nd	2.62		8.03		12.24		30.75		13.4
51	Lead	E2	ug/dscm	y	nd	6.55		10.74	nd	7.19		11.67		9.0
52	Mercury	E2	ug/dscm	y	nd	1.97		11.34	nd	1.44	nd	1.46	100	4.1
53	Nickel	E2	ug/dscm	y	nd	6.55	nd	6.69	nd	7.19	nd	7.31	100	6.9
54	Selenium	E2	ug/dscm	y	nd	0.65	nd	0.67	nd	0.72	nd	0.73	100	0.7
55	Silver	E2	ug/dscm	y	nd	0.65	nd	0.67	nd	0.72	nd	0.73	100	0.7
56	Thallium	E2	ug/dscm	y	nd	6.55	nd	6.69	nd	7.19	nd	7.31	100	6.9
57														
58	SVM	E2	ug/dscm	y	71	9.17		13.28	65	11.14		13.06	29	11.7
59	LVM	E2	ug/dscm	y	15	6.16	22	4.29	15	6.75	12	8.33	15	6.4
60														
61														
62	3003C2	Trial Burn				R1		R2		R3		R4		Cond Avg
63														
64	PM	E1	gr/dscf	y		0.01518		0.01435		0.00436		0.01006		0.0110
65	CO (RA)	E1	ppmv	y		19.54		24.25		12.22		12.51		17.13
66	CO (MHRA)	E1	ppmv	y		22.98		88.7		13.97		14.52		35.04
67														
68	HCl		lb/hr		nd	4.66E-01	nd	4.40E-01		1.32E-01		2.95E-01		
69														
70	Antimony		lb/hr		nd	1.00E-05	nd	9.92E-06	nd	9.06E-06	nd	1.02E-05		
71	Arsenic		lb/hr			2.01E-05		2.97E-05		1.81E-05		3.05E-05		

	B	C	D	E	F	G	H	I	J	K	L	M	N	O
72	Barium		lb/hr			3.72E-04		3.77E-04		2.81E-04		2.85E-04		
73	Beryllium		lb/hr		nd	2.01E-05	nd	1.98E-05	nd	1.81E-05	nd	2.03E-05		
74	Cadmium		lb/hr			4.02E-05		5.95E-05		4.53E-05		6.20E-05		
75	Chromium		lb/hr			4.32E-04		7.34E-04		2.27E-04		9.15E-05		
76	Copper		lb/hr			3.46E-04		4.47E-04		2.52E-04		1.90E-04		
77	Lead		lb/hr			1.51E-04		1.98E-04		9.06E-05	nd	4.07E-05		
78	Mercury		lb/hr			2.41E-04		1.78E-04		1.54E-04		3.05E-04		
79	Nickel		lb/hr			2.21E-04		2.97E-04		1.36E-04		2.74E-04		
80	Selenium		lb/hr		nd	1.00E-05	nd	9.92E-06	nd	9.06E-06	nd	4.07E-05		
81	Silver		lb/hr			1.00E-05		9.92E-06	nd	9.06E-06		4.07E-05		
82	Thallium		lb/hr		nd	1.00E-04	nd	9.92E-05	nd	9.06E-05	nd	1.02E-04		
83														
84	Sampling Train	PM	E1											
85	Stack Gas Flowrate		dscfm			5118		5213.0		5206.0		4936		5118.3
86	O2		%			11.2		11.4		11.5		11.3		11.4
87	Moisture		%			43.8		41.5		43.8		45.5		43.7
88	Temperature		°F			220.8		216.8		210.6		213.5		215.4
89														
90	Sampling Train		metals E2											
91	Stack Gas Flowrate		dscfm			5494		5118.0		5003.0		5226		5210.3
92	O2		%			11.2		11.44		11.5		11.3		11.4
93	Moisture		%			42.7		42.9		44.4		43.8		43.5
94	Temperature		°F			221.4		209.4		211.9		214.1		214.2
95														
96	HCl	E1	ppmv	y	nd	2.90E+01	nd	2.63E+01		8.56E+00		1.95E+01		20.9
97	Total Chlorine	E1	ppmv	y	100	2.90E+01	100	2.63E+01		8.56E+00		1.95E+01	66	2.09E+01
98														
99	Antimony	E2	ug/dscm	y	nd	0.88	nd	0.85	nd	0.83	nd	0.97	100	0.9
100	Arsenic	E2	ug/dscm	y		1.77		2.55		1.67		2.89		2.2
101	Barium	E2	ug/dscm	y		32.83		32.40		25.87		27.05		29.5
102	Beryllium	E2	ug/dscm	y	nd	1.40	nd	1.70	nd	1.67	nd	1.93	100	1.7
103	Cadmium	E2	ug/dscm	y		3.55		5.11		4.17		5.88		4.7
104	Chromium	E2	ug/dscm	y		38.13		63.07		20.90		8.68		32.7
105	Copper	E2	ug/dscm	y		24.06		38.41		23.20		18.03		25.9
106	Lead	E2	ug/dscm	y		13.33		17.01		8.34	nd	3.86		10.6
107	Mercury	E2	ug/dscm	y		21.27		15.30		14.18		28.95		19.9
108	Nickel	E2	ug/dscm	y		19.51		25.52		12.52		26.00		20.9
109	Selenium	E2	ug/dscm	y	nd	0.88	nd	0.85	nd	0.83	nd	3.86	100	1.6
110	Silver	E2	ug/dscm	y		0.88		0.85	nd	0.83		3.86		1.6
111	Thallium	E2	ug/dscm	y	nd	8.83	nd	8.52	nd	8.34	nd	9.68	100	8.8
112														
113	SVM	E2	ug/dscm	y		16.88		22.13		12.51	40	9.75	6.3	15.3
114	LVM	E2	ug/dscm	y	4.3	41.30	2.5	67.33	6.9	24.23	14	13.50	4.8	36.6
115														
116	3003C3		Trial Burn			R1		R2		R3		R4		Cond Avg
117														
118	CO (RA)	E1	ppmv	y		0.00		0.00		14.38				4.8
119	CO (MHRA)	E1	ppmv	y		0.00		0.00		18.38				6.1
120														
121	Chromium		lb/hr			8.50E-05		1.52E-04		7.60E-05				
122	Chromium (Hex)		lb/hr			0.000017		0.000018		0.000018				
123														
124	Sampling Train	Cr	E1											
125	Stack Gas Flowrate		dscfm			4022		4358.0		4026.0				4135.3
126	O2		%			12.9		10		10.83				11.2
127	Moisture		%			44		44.7		43.7				44.1
128	Temperature		°F			223		220		225				222.7
129														
130	Sampling Train	Cr+6	E2											
131	Stack Gas Flowrate		dscfm			4271		4321.0		4042.0				4211.3
132	O2		%			12.9		10		10.83				11.2
133	Moisture		%			40.2		44.7		44.1				43.0
134	Temperature		°F			223		220		226				223.0
135														
136	Chromium	E1	ug/dscm	y		9.77		11.87		6.95				9.5
137	Chromium (Hex)	E2	ug/dscm	y		1.84		1.42		1.64				1.6
138	LVM	E1	ug/dscm	y		9.8		11.9		6.9				9.5

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Feedstream 1													
2														
3														
4	*	3003C1	Trial burn			R1		R2		R3		R4		Cond Avg
5														
6		Feedstream Number				F1	F1			F1		F1		F1
7		Feed Class				Solid HW	Solid HW			Solid HW		Solid HW		Solid HW
8		Feedstream Description				Agent	Agent			Agent		Agent		Agent
9		Feed Rate	lb/hr			282.3	277.68			260.22		287.1		
10														
11														
12	*	3003C2	Trial burn			R1		R2		R3		R4		Cond Avg
13														
14		Feedstream Number				F1	F1			F1		F1		F1
15		Feed Class				Solid HW	Solid HW			Solid HW		Solid HW		Solid HW
16		Feedstream Description				Agent	Agent			Agent		Agent		Agent
17		Feed Rate	lb/hr			75.0	76.23			68.46		70.1		

	B	C	D	E	F	G	H
1	Process Information						
2							
3	3003C1			R1	R2	R3	R4
4							
5	Venturi Pressure Drop	in. H2O		28.79	30.1	26.05	28.08
6	Retort Pressure	in. H2O		-0.65	-0.65	-0.6	-0.65
7	Fiber Bed Pressure	in. H2O		9.99	10.6	9.42	9.83
8	Venturi Brine Flow	gpm		111.97	113.66	114.85	131.05
9	Liquor Flow	gpm		219.8	219.78	219.8	219.78
10	Retort Discharge Temp	°F		1314.5	1350.35	1331.26	1368.75
11	Retort Feed End Temp	°F		1424.39	1428.16	1388.42	1407.78
12	Discharge Conveyor Temp	°F		1096.13	1095.72	1095.62	1080.23
13	Afterburner Temp	°F		1986.3	1966.74	1960.88	1955.67
14	Venturi Outlet Temp	°F		163.77	164.26	164	162.45
15							
16	3003C2			R1	R2	R3	R4
17							
18	Venturi Pressure Drop	in. H2O		25.32	25.28	25.13	22.22
19	Fiber Bed Pressure	in. H2O		31.63	30.11	34.32	36.46
20	Venturi Brine Flow	gpm		121.64	125.08	125.68	126.55
21	Liquor Flow	gpm		205.6	205.61	205.61	205.6
22	Retort Discharge Temp	°F		1287.85	1320.64	1317.18	1267.59
23	Discharge Conveyor Temp	°F		1061.56	1112.14	1104.8	1107.59
24	Afterburner Temp	°F		1962.54	1974.78	1953.37	1954.33
25	Venturi Outlet Temp	°F		163.58	164.4	164.12	164.62
26							
27	3003C3 Trial burn			R1	R2	R3	
28							
29	Venturi Pressure Drop	in. H2O		29.09	34.2	29.48	
30	Retort Pressure	in. H2O		0.45	0.7	0.7	
31	Fiber Bed Pressure	in. H2O		16.82	18.49	29.93	
32	Venturi Brine Flow	gpm		125.48	126.61	127.61	
33	Liquor Flow	gpm		199.76	199.77	199.79	
34	Retort Discharge Temp	°F		1222.93	1420.74	1219.81	
35	Retort Feed End Temp	°F		1210.41	1326.1	1616.51	
36	Discharge Conveyor Temp	°F		1047.19	1087.55	1078.58	
37	Afterburner Temp	°F		2027.02	2026.76	2030.14	
38	Venturi Outlet Temp	°F		163.24	163.93	164.6	

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
1	PCDD/PCDF																					
2	N																					
3	Facility Name and ID:	CAMDS Tooele Army Depot South (TOCDF)																				
4	Condition ID:	3003C1																				
5	Condition/Test Date:	Trial burn, mixed agent VX/munitions feed																				
6																						
7	I-TEF	Run 1				Run 2				Run 3				Run 4								
8	Wght Fact	Total	TEQ	Total	TEQ	Total	TEQ	Total	TEQ	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	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 (ng)																					
11	2,3,7,8-TCDD	1																				
12	1,2,3,7,8-PCDD	0.5																				
13	1,2,3,4,7,8-HxCDD	0.1																				
14	1,2,3,6,7,8-HxCDD	0.1																				
15	1,2,3,7,8,9-HxCDD	0.1																				
16	1,2,3,4,6,7,8-HpCDD	0.01																				
17	OCDD	0.001				0.03 0.0000 0.0300 0.0000								0.007 0.000 0.007 0.000								
18	2,3,7,8-TCDF	0.1				0.01 0.0010 0.0100 0.0010				0.007 0.001 0.007 0.001				0.009 0.001 0.009 0.001								
19	1,2,3,7,8-PCDF	0.05																				
20	2,3,4,7,8-PCDF	0.5																				
21	1,2,3,4,7,8-HxCDF	0.1																				
22	1,2,3,6,7,8-HxCDF	0.1																				
23	2,3,4,6,7,8-HxCDF	0.1				0.010 0.001 0.010 0.001				0.010 0.001 0.010 0.001				0.020 0.002 0.020 0.002								
24	1,2,3,7,8,9-HxCDF	0.1																				
25	1,2,3,4,6,7,8-HpCDF	0.01																				
26	1,2,3,4,7,8,9-HpCDF	0.01																				
27	OCDF	0.001																				
28	Total TCDD	0																				
29	Total PCDD	0																				
30	Total HxCDD	0																				
31	Total HpCDD	0																				
32	Total TCDF	0												0.011 0.000 0.011 0.000								
33	Total PCDF	0																				
34	Total HxCDF	0																				
35	Total HpCDF	0																				
36																						
37	Gas sample volume (dscf)	112.98 112.98 112.98				112.41 112.41 112.41				105.52 105.52 105.52				105.92 105.92 105.92								
38	O2 (%)	11.40 11.40 11.40				11.2 11.2 11.2				11.30 11.30 11.30				11.60 11.60 11.60								
39																						
40	PCDD/PCDF (ng in sample)	0.00				0.00				0.00				0.00								
41	PCDD/PCDF (ng/dscm @ 7% O2)	0.0		0.0005		0.0005 0.0		0.0005		0.0005 0.0		0.0008		0.0008 0.0		0.0015		0.0015				
42																						
43	TEQ Cond Avg	0.0008																				
44	Total Cond Avg																					

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
1		PCDD/PCDF																					
2		N																					
3		Facility Name and ID:	CAMDS Tooele Army Depot South (TOCDF)																				
4		Condition ID:	3003C2																				
5		Condition/Test Date:	Trial burn, mixed agent HD/munitions feed																				
6																							
7		I-TEF	Run 1				Run 2				Run 3				Run 4								
8		Wght Fact	Total	TEQ	Total	TEQ	Total	TEQ	Total	TEQ	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	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 (ng)																					
11		2,3,7,8-TCDD	1																				
12		1,2,3,7,8-PCDD	0.5																				
13		1,2,3,4,7,8-HxCDD	0.1																				
14		1,2,3,6,7,8-HxCDD	0.1																				
15		1,2,3,7,8,9-HxCDD	0.1																				
16		1,2,3,4,6,7,8-HpCDD	0.01	0.050	0.00	0.05	0.00													0.070	0.001	0.070	0.001
17		OCDD	0.001	0.330	0.000	0.330	0.000	0.37	0.0004	0.3700	0.0004				0.58	0.0006	0.5800	0.0006		0.480	0.000	0.480	0.000
18		2,3,7,8-TCDF	0.1	0.03	0.00	0.03	0.00								0.06	0.0060	0.0600	0.0060		0.050	0.005	0.050	0.005
19		1,2,3,7,8-PCDF	0.05																				
20		2,3,4,7,8-PCDF	0.5																				
21		1,2,3,4,7,8-HxCDF	0.1																				
22		1,2,3,6,7,8-HxCDF	0.1																				
23		2,3,4,6,7,8-HxCDF	0.1																	0.010	0.001	0.010	0.001
24		1,2,3,7,8,9-HxCDF	0.1																				
25		1,2,3,4,6,7,8-HpCDF	0.01																				
26		1,2,3,4,7,8,9-HpCDF	0.01																				
27		OCDF	0.001																				
28		Total TCDD	0																				
29		Total PCDD	0																				
30		Total HxCDD	0																				
31		Total HpCDD	0																				
32		Total TCDF	0					0.05	0.00	0	0.00			0.02	0.00	0	0.00		0.080	0.000	0.080	0.000	
33		Total PCDF	0											0.03	0.00	0	0.00		0.030	0.000	0.030	0.000	
34		Total HxCDF	0																				
35		Total HpCDF	0																				
36																							
37		Gas sample volume (dscf)		136.46	136.46	136.46				130.45	130.45	130.45			130.67	130.67	130.67			132.39	132.39	132.39	
38		O2 (%)		11.20	11.20	11.20				11.4	11.4	11.4			11.50	11.50	11.50			11.30	11.30	11.30	
39																							
40		PCDD/PCDF (ng in sample)		0.0038	0.0038	0.0038			0.0004	0.0004	0.0004			0.01	0.01	0.01			0.01	0.01	0.01	0.01	
41		PCDD/PCDF (ng/dscm @ 7% O2)	0.0	0.0014	0.0014	0.0			0.0001	0.0001	0.0001	0.0		0.0026	0.0026	0.0			0.0028	0.0028	0.0028	0.0028	
42																							
43		TEQ Cond Avg	0.0017																				
44		Total Cond Avg																					