	B	C
1	**Source Description**	
2		
3	Phase II ID No.	2001
4	EPA ID No.	LAD008187080
5	Facility Name	Dow Chemical Co.
6	Facility Location	
7	City	Plaquemine
8	State	LA
9	Unit ID Name/No.	F-410
10	Other Sister Facilities	F-420 identical unit
11	Number of Sister Facilities	1
12	Combustor Class	Liquid-fired boiler
13	Combustor Type	Liquid-fired
14	Combustor Characteristics	Firetube boiler. Refractory lined furnace, firetube multi-pass boiler, 235 psig steam, 40 MMBtu/hr
15	Capacity (MMBtu/hr)	40
16	Soot Blowing	
17	APCS Detailed Acronym	HCl/ABS/CWS
18	APCS General Class	LEWS
19	APCS Characteristics	(HCl absorber, Cl2 wet scrubber); Water in HCl absorber, caustic sodium hydroxide in Cl2 scrubber
20	Hazardous Wastes	Liq
21	Haz Waste Description	Liquid/gaseous wastes
22	Supplemental Fuel	Natural gas
23		
24	Stack Characteristics	
25	Diameter (ft)	1.96
26	Height (ft)	90
27	Gas Velocity (ft/sec)	
28	Gas Temperature (°F)	
29		
30	Permitting Status	Tier I for all metals except Cr+6
31	HWC Burn Status (Date if Terminated)	

	B	C
1	**Cond Description**	
2		
3	**2001C1**	
4		
5	Report Name/Date	Trial Burn Report, Vinyl II Plant, Industrial Boiler F-410, Dow Chem., Louisiana Operations, Volume 1: Report, December 19, 1997
6	Report Prepar	Radian International
7	Testing Firm	Radian International
8	Testing Dates	September 17, 1997
9	Cond Dates	Sep-97
10	Cond Description	Trial burn; not used for permit setting (max oper cond)
11	Content	PM, HCl/Cl2, DRE, CO, Cr+6
12		
13	**2001C2**	
14		
15	Report Name/Date	Trial Burn Report, Vinyl II Plant, Industrial Boiler F-410, Dow Chem., Louisiana Operations, Volume 1: Report, December 19, 1997
16	Report Prepar	Radian International
17	Testing Firm	Radian International
18	Testing Dates	September 18, 1997
19	Cond Dates	Sep-97
20	Cond Description	Trial burn; min comb chamber temp
21	Content	PM, HCl/Cl2, DRE, CO
22		
23	**2001C3**	
24		
25	Report Name/Date	Trial Burn Report, Vinyl II Plant, Industrial Boiler F-410, Dow Chem., Louisiana Operations, Volume 1: Report, December 19, 1997
26	Report Prepar	Radian International
27	Testing Firm	Radian International
28	Testing Dates	September 15-16, 1997
29	Cond Dates	Sep-97
30	Cond. Description	Risk burn; normal operating conditions
31	Content	Organics, PCDD/PCDF
32		
33	**2001C4**	
34		
35	Report Name/Date	Trial Burn Report, Vinyl II Plant, Industrial Boiler F-410, Dow Chem., Louisiana Operations, Volume 1: Report, December 19, 1997
36	Report Prepar	Radian International
37	Testing Firm	Radian International
38	Testing Dates	September 24, 1997
39	Cond Dates	Sep-97
40	Cond Description	Trial burn; max waste feedrates (Cr, ash spiking)
41	Content	PM, HCl/Cl2, DRE, CO, Cr+6

	B	C	D	E	F	G	H	I	J	K	L	M
1	**Stack Gas Emissions**											
2												
3		Comments	Units	7% O2								
4												
5												
6	**2001C1**	**(max oper cond. -- not used for permitting th**				R1		R2		R3		Cond Avg
7												
8	PM	E1	gr/dscf	y		0.019		0.02		0.019		0.0193
9	CO (RA)	E1	ppmv	y		0.0		0.0		0.0		0.0
10	HCl		µg/dscm	n		669	nd	20.6	nd	20.3		
11	Cl2		µg/dscm	n		54.7		22.1		16.1		
12	Chromium (Hex)		µg/dscm	n		2		3.72		3.61		
13												
14	POHC DRE	1,1,2-Trichloroethane										
15	POHC Feedrate		lb/hr			594		630		656		
16	Emissions Rate											
17	DRE	E1	%		>	99.999998	>	99.999998	>	99.999998		
18	POHC DRE	Chlorobenzene										
19	POHC Feedrate		lb/hr			185		191		188		
20	Emissions Rate											
21	DRE	E1	%		>	99.999995	>	99.999998	>	99.999998		
22												
23	Sampling Train	PM, HCl/Cl2	E1									
24	Stack Gas Flowrate		dscfm			5688		5852		5701		5747.0
25	O2		%			7.2		8.3		7.9		7.8
26	Moisture		%			17.7		17		17.9		17.5
27	Temperature		°F			136		134		136		135.3
28												
29	HCl	E1	ppmv	y		0.45		0.02		0.01		0.2
30	Cl2	E1	ppmv	y		0.02		0.01		0.01		0.0
31	Total Chlorine	E1	ppmv	y		0.49		0.03		0.03		0.2
32	Chromium (Hex)	E1	µg/dscm	y		2.03		4.10		3.86		3.3
33												
34	**2001C2**	**(min comb temp)**				R1		R2		R3		Cond Avg
35												
36	PM	E1	gr/dscf	y		0.0015		0.0012		0.0015		0.0014
37	CO (RA)	E1	ppmv	y		0		0		0		0.0
38	HCl		µg/dscm	n	nd	19	nd	19.3	nd	19.6		
39	Cl2		µg/dscm	n		16.2		59.1		13.6		
40												
41	POHC DRE	1,1,2-Trichloroethane										
42	POHC Feedrate		lb/hr			652		435		591		
43	Emissions Rate											
44	DRE	E1	%		>	99.999998	>	99.999998	>	99.999998		
45												
46	POHC DRE	Chlorobenzene										
47	POHC Feedrate		lb/hr			89.4		76.4		87		
48	Emissions Rate											
49	DRE	E1	%		>	99.99998	>	99.99998	>	99.99998		
50												
51	Sampling Train	PM, HCl/Cl2	E1									
52	Stack Gas Flowrate		dscfm			5936		6108		5946		5996.7
53	O2		%			8.2		8.1		7.9		8.1
54	Moisture		%			14.1		14.4		14.1		14.2
55	Temperature		°F			127		128		127		127.3
56												
57	HCl	E1	ppmv	y		0.01		0.01		0.01		0.01
58	Cl2	E1	ppmv	y		0.01		0.02		0.00		0.01
59	Total Chlorine	E1	ppmv	y		0.03		0.06		0.02		0.04
60												
61	**2001C3**	**(risk burn normal operations)**				R1		R2		R3		Cond Avg
62												
63	PM	E1	gr/dscf	y		0.0012		0.0011		0.0017		0.0013
64	CO (RA)	E1	ppmv	y		0		0		0		0.0
65	HCl		µg/dscm	n		568		14420		414		
66	Cl2		µg/dscm	n		113		803		22.2		
67												

	B	C	D	E	F	G	H	I	J	K	L	M
68	Sampling Train	PM, HCl/Cl2	E1									
69	Stack Gas Flowrate		dscfm			5469		5014		5211		5231.3
70	O2		%			8.5		8.7		8.3		8.5
71	Moisture		%			7.5		7.7		7.5		7.6
72	Temperature		°F			105		106		105		105.3
73												
74	HCl	E1	ppmv	y		0.42		10.96		0.30		3.90
75	Cl2	E1	ppmv	y		0.04		0.31		0.01		0.12
76	Total Chlorine	E1	ppmv	y		0.51		11.59		0.32		4.14
77												
78	**2001C4**	**(max oper cond.)**				R1		R2		R3		Cond Avg
79												
80	PM	E1	gr/dscf	y		0.031		0.03		0.032		0.0310
81	CO (RA)	E1	ppmv	y		0		0		0		0.0
82	HCl		µg/dscm	n		328		182		225		
83	Cl2		µg/dscm	n		2173		723		1126		
84	Chromium (Hex)		µg/dscm	n		6.6		7.9		6.1		
85												
86	POHC DRE	1,1,2-Trichloroethane										
87	POHC Feedrate		lb/hr			559		591		633		
88	Emissions Rate											
89	DRE	E1	%		>	99.999998	>	99.999998	>	99.999998		
90												
91	POHC DRE	Chlorobenzene										
92	POHC Feedrate		lb/hr			87.2		88.9		92		
93	Emission Rate											
94	DRE	E1	%		>	99.99998	>	99.99998	>	99.99998		
95												
96	Sampling Train	PM, HCl/Cl2	E1									
97	Stack Gas Flowrate		dscfm			7994		8026		8009		8009.7
98	O2		%			7.4		7.2		7.4		7.3
99	Moisture		%			18.8		18.7		19		18.8
100	Temperature		°F			138		138		139		138.3
101												
102	HCl	E1	ppmv	y		0.23		0.12		0.15		0.2
103	Cl2	E1	ppmv	y		0.77		0.25		0.40		0.5
104	Total Chlorine	E1	ppmv	y		1.76		0.63		0.95		1.1
105	Chromium (Hex)	E1	µg/dscm	y		6.79		8.01		6.28		7.0

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1	**Feedstreams**																			
2																				
3			Units																	
4																				
5	**2001C1**				R1		R2		R3		Cond Avg		R1		R2		R3		Cond Avg	
6																				
7	Feedstream Number				F1		F1		F1		F1		F2		F2		F2		F2	
8	Feed Class				Liq HW		Liq HW		Liq HW		Liq HW		Total		Total		Total		Total	
9	Feed Class 2				HW		HW		HW		HW		Total		Total		Total		Total	
10	Feedstream Description				Liq waste		Liq waste		Liq waste		Liq waste		Total		Total		Total		Total	
11	Feed Rate		lb/hr		3349.2		3349.8		3349.6		3350									
12	Heating Value		Btu/lb		6300		6400		6400		6400									
13	Ash		lb/hr		15		15		14.93		15									all from spike
14	Chlorine		lb/hr		2123.7		1990.1		2290.8		2000									most in actual waste
15	Chromium (Hex)		lb/hr		0.259		0.256		0.262		0.026									spiked
16																				
17	Stack Gas Flowrate		dscfm		5688		5852		5701		5747									
18	Oxygen		%		7.2		8.3		7.9		7.8									
19																				
20	Thermal Feedrate		MMBtu/hr		21.09996		21.43872		21.43744		21.44		21.09996		21.43872		21.43744		21.44	
21	Estimated Firing Rate		MMBtu/hr										24.92		23.59		23.71		24.08	
22																				
23	*Feedrate MTEC Calculations*																			
24																				
25	Ash		mg/dscm		715.3		755.5		748.3		739.7		715.3		755.5		748.3		739.7	spiked
26	Chlorine		ug/dscm		101274637		100233539		114818281		105442152.3		101274637.1		100233538.9		114818281.0		105442152.3	
27	Chromium (Hex)		ug/dscm		12351		12894		13132		12792.2		12351.1		12893.7		13131.8		12792.2	spiked
28																				
29	**2001C2**				R1		R2		R3		Cond Avg		R1		R2		R3		Cond Avg	
30																				
31	Feedstream Number				F1		F1		F1		F1		F2		F2		F2		F2	
32	Feed Class				Liq HW		Liq HW		Liq HW		Liq HW		Total		Total		Total		Total	
33	Feed Class 2				HW		HW		HW		HW		Total		Total		Total		Total	
34	Feedstream Description				Liq waste		Liq waste		Liq waste		Liq waste		Total		Total		Total		Total	
35	Feed Rate		lb/hr		3198.5		3195.6		3199.8		3200									
36	Heating Value		Btu/lb		6300		6300		6400		6350									
37	Ash		lb/hr	nd	0.32	nd	0.32	nd	0.32		0.32									no spiking
38	Chlorine		lb/hr		2030.9		1965		2095.7		2000									most in actual waste
39																				
40	Stack Gas Flowrate		dscfm		5936		6108		5946		5996.7									
41	Oxygen		%		8.2		8.1		7.9		8.1									
42																				
43	Thermal Feedrate		MMBtu/hr		20.15055		20.13228		20.47872		20.32		20.15055		20.13228		20.47872		20.32	
44	Estimated Firing Rate		MMBtu/hr										24.12		25.01		24.73		24.62	
45																				
46	*Feedrate MTEC Calculations*																			
47																				
48	Ash		mg/dscm	100	15.76	100	15.20	100	15.38	100	15.4	100	15.8	100	15.2	100	15.4	100	15.4	not spiked
49	Chlorine		ug/dscm		100053176		93351224		100711512		98038637.5		50026588.1		46675612.2		50355755.9		49019318.8	
50																				
51	**2001C3**				R1		R2		R3		Cond Avg		R1		R2		R3		Cond Avg	
52																				
53	Feedstream Number				F1		F1		F1		F1		F2		F2		F2		F2	
54	Feed Class				Liq HW		Liq HW		Liq HW		Liq HW		Total		Total		Total		Total	
55	Feed Class 2				HW		HW		HW		HW		Total		Total		Total		Total	
56	Feedstream Description				Liq waste		Liq waste		Liq waste		Liq waste		Total		Total		Total		Total	
57	Feed Rate		lb/hr		2119.5		2119.2		2119.4		2200									
58	Heating Value		Btu/lb		6300		6700		6400		6500									

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
59	Density		g/cm3		1.32		1.32		1.32		1.33									
60	Ash		lb/hr		0.22	nd	0.22	nd	0.22		0.01									
61	Chlorine		lb/hr		1429.7		1275.5		1429.6											
62	Mercury		mg/L		0.024		0.012		0.018		0.02									
63	Lead		mg/L		0.668		0.748		0.822		0.7									
64	Cadmium		mg/L		0.014	nd	0.0342	nd	0.0342		0.02									
65	Arsenic		mg/L		2.82		2.38		3.13		2.7									
66	Beryllium		mg/L	nd	0.0388	nd	0.0388	nd	0.0388		0.04									
67	Chromium		mg/L		0.734		0.534		0.506		0.6									
68	Nickel		mg/L	nd	0.115	nd	0.115	nd	0.115		0.12									
69	Antimony		mg/L	nd	0.828	nd	0.828	nd	0.828		0.83									
70	Selenium		mg/L		5.63		5.02		4.91		5									
71																				
72	Stack Gas Flowrate		dscfm		5469		5014		5211		5231.3									
73	Oxygen		%		8.5		8.7		8.3		8.5									
74																				
75	Thermal Feedrate		MMBtu/hr		13.4		14.2		13.6		14.3		13.35285		14.19864		13.56416		14.3	
76	Estimated Firing Rate		MMBtu/hr										21.7		19.6		21.0		20.8	
77																				
78	*Feedrate MTEC Calculations*																			
79																				
80	Ash		mg/dscm		12.0	100	13.4	100	12.4	68	12.6		12.0	100	13.4	100	12.4	68	12.6	not spiked
81	Chlorine		ug/dscm		78284032		77417158		80860412		78853867.1		78284031.6		77417158.0		80860411.7		78853867.1	
82	Mercury		µg/dscm		3		2		2		2.2		2.8		1.5		2.2		2.2	
83	Lead		µg/dscm		78		96		99		90.8		77.5		96.2		98.5		90.8	
84	Cadmium		µg/dscm		2	100	4	100	4	84	3.4		1.6	100	4.4	100	4.1	84	3.4	
85	Arsenic		µg/dscm		327		306		375		336.2		327.3		306.1		375.2		336.2	
86	Beryllium		µg/dscm	100	5	100	5	100	5	100	4.7	100	4.5	100	5.0	100	4.7	100	4.7	
87	Chromium		µg/dscm		85		69		61		71.5		85.2		68.7		60.7		71.5	
88	Nickel		µg/dscm	100	13	100	15	100	14	100	14.0	100	13.3	100	14.8	100	13.8	100	14.0	
89	Antimony		µg/dscm	100	96	100	107	100	99	100	100.6	100	96.1	100	106.5	100	99.3	100	100.6	
90	Selenium		µg/dscm		653		646		589		629.2		653.4		645.7		588.6		629.2	
91	SVM		µg/dscm		79	4.5	98	4.08	101	3.1	92.7		79.1	4.5	98.4	4.1	100.6	3.1	92.7	
92	LVM		µg/dscm	1.08	417	1.3	380	1.06	441	1.1	412.4	1.1	417.0	1.3	379.8	1.1	440.5	1.1	412.4	
93																				
94	**2001C4**				R1		R2		R3		Cond Avg		R1		R2		R3		Cond Avg	
95																				
96	Feedstream Number				F1		F1		F1		F1		F2		F2		F2		F2	
97	Feed Class				Liq HW		Liq HW		Liq HW		Liq HW		Total		Total		Total		Total	
98	Feed Class 2				HW		HW		HW		HW		Total		Total		Total		Total	
99	Feedstream Description				Liq waste		Liq waste		Liq waste		Liq waste		Total		Total		Total		Total	
100	Feed Rate		lb/hr		3449.7		3449.8		3449.7		3450									
101	Heating Value		Btu/lb		6500		6500		6500		6500									
102	Ash		lb/hr		14.99		15		15		15									all from spike
103	Chlorine		lb/hr		2258		2223.7		2223.6		2225									most in actual waste
104	Chromium (Hex)		lb/hr		0.0262		0.025		0.0254		0.026									spiked
105																				
106	Stack Gas Flowrate		dscfm		7994		8026		8009		8009.7									
107	Oxygen		%		7.4		7.2		7.4		7.3									
108																				
109	Thermal Feedrate		MMBtu/hr		22.4		22.4		22.4		22.4		22.42305		22.4237		22.42305		22.425	
110	Estimated Firing Rate		MMBtu/hr										34.5		35.2		34.6		34.8	
111																				
112	*Feedrate MTEC Calculations*																			
113																				
114	Ash		mg/dscm		516.1		506.9		515.5		512.8		516.1		506.9		515.5		512.8	spiked
115	Chlorine		ug/dscm		77744037		75152625		76416240		76437634.2		77744036.9		75152625.4		76416240.2		76437634.2	
116	Chromium (Hex)		ug/dscm		902		845		873		873.3		902.1		844.9		872.9		873.3	spiked

	A	B	C	D	E
1	**Process Information**				
2					
3		Units	Run	Run	Run
4			1	2	3
5	**2001C1**				
6					
7	Comb Temperature	°F	2483.6	2480	2471
8	Steam Production	gal/min	43	42	42
9					
10	**2001C2**				
11					
12	Comb Temperature	°F	2084	2087.6	2089.4
13	Steam Production	gal/min	35	35	35
14					
15	**2001C3**				
16					
17	Comb Temperature	°F	2282	2282	2282
18	Steam Production	gal/min	35	35	34
19					
20	**2001C4**				
21					
22	Comb Temperature	°F	2485.4	2487.2	2487.2
23	Steam Production	gal/min	58	58	58

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	**PCDD/PCDF**																	
2	N																	
3	Facility Name and ID:		Dow (Plaquemine LA), Boiler F-410															
4	Condition ID:		2001C3															
5	Condition/Test Date:		Risk burn normal op cond, September 15-16, 1997															
6																		
7			I-TEF			Run 1					Run 2					Run 3		
8			Wght Fact		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
10	Detected in sample volume (ng)																	
11		2,3,7,8-TCDD	1		0.0200	0.0200	0.0200	0.0200		0.0300	0.0300	0.0300	0.0300		0.0300	0.0300	0.0300	0.0300
12		TCDD Other	0															
13		1,2,3,7,8-PCDD	0.5		0.0800	0.0400	0.0800	0.0400		0.0900	0.0450	0.0900	0.0450		0.1300	0.0650	0.1300	0.0650
14		PCDD Other	0															
15		1,2,3,4,7,8-HxCDD	0.1		0.0900	0.0090	0.0900	0.0090		0.0900	0.0090	0.0900	0.0090		0.1200	0.0120	0.1200	0.0120
16		1,2,3,6,7,8-HxCDD	0.1		0.1500	0.0150	0.1500	0.0150		0.1500	0.0150	0.1500	0.0150		0.2100	0.0210	0.2100	0.0210
17		1,2,3,7,8,9-HxCDD	0.1		0.0700	0.0070	0.0700	0.0070		0.0900	0.0090	0.0900	0.0090		0.1200	0.0120	0.1200	0.0120
18		HxCDD Other	0															
19		1,2,3,4,6,7,8-HpCDD	0.01		0.4300	0.0043	0.4300	0.0043		0.3400	0.0034	0.3400	0.0034		0.5000	0.0050	0.5000	0.0050
20		HpCDD Other	0															
21		OCDD	0.001		0.3900	0.0004	0.3900	0.0004		0.3500	0.0004	0.3500	0.0004		0.3600	0.0004	0.3600	0.0004
22		2,3,7,8-TCDF	0.1		1.3000	0.1300	1.3000	0.1300		1.3000	0.1300	1.3000	0.1300		1.5000	0.1500	1.5000	0.1500
23		TCDF Other	0															
24		1,2,3,7,8-PCDF	0.05		1.5000	0.0750	1.5000	0.0750		1.5000	0.0750	1.5000	0.0750		1.8000	0.0900	1.8000	0.0900
25		2,3,4,7,8-PCDF	0.5		0.7200	0.3600	0.7200	0.3600		0.7600	0.3800	0.7600	0.3800		0.9700	0.4850	0.9700	0.4850
26		PCDF Other	0															
27		1,2,3,4,7,8-HxCDF	0.1		4.2000	0.4200	4.2000	0.4200		3.8000	0.3800	3.8000	0.3800		4.6000	0.4600	4.6000	0.4600
28		1,2,3,6,7,8-HxCDF	0.1		1.1000	0.1100	1.1000	0.1100		0.9900	0.0990	0.9900	0.0990		1.3000	0.1300	1.3000	0.1300
29		2,3,4,6,7,8-HxCDF	0.1		0.1800	0.0180	0.1800	0.0180		0.1800	0.0180	0.1800	0.0180		0.1900	0.0190	0.1900	0.0190
30		1,2,3,7,8,9-HxCDF	0.1		0.0700	0.0070	0.0700	0.0070		0.0700	0.0070	0.0700	0.0070		0.0800	0.0080	0.0800	0.0080
31		HxCDF Other	0															
32		1,2,3,4,6,7,8-HpCDF	0.01		4.7000	0.0470	4.7000	0.0470		5.2000	0.0520	5.2000	0.0520		6.4000	0.0640	6.4000	0.0640
33		1,2,3,4,7,8,9-HpCDF	0.01		2.0000	0.0200	2.0000	0.0200		1.3000	0.0130	1.3000	0.0130		2.6000	0.0260	2.6000	0.0260
34		HpCDF Other	0															
35		OCDF	0.001		3.0000	0.0030	3.0000	0.0030		2.8000	0.0028	2.8000	0.0028		3.3000	0.0033	3.3000	0.0033
36																		
37		Gas sample volume (dscf)				124.10		124.10			124.90		124.90			126.50		126.50
38		O2 (%)				8.50		8.50			8.70		8.70			8.30		8.30
39																		
40		PCDD/PCDF (ng in sample)				1.2857		1.2857			1.2686		1.2686			1.5807		1.5807
41		PCDD/PCDF (ng/dscm @ 7% O2)		0.0		0.4100		0.4100	0.0		0.4085		0.4085	0.0		0.4867		0.4867
42																		
43		TEQ Cond Avg	0.44															