

US EPA ARCHIVE DOCUMENT

	B	C
1	Source Description	
2		
3	Phase I ID No.	3014
4	EPA ID No.	MND006172969
5	Facility Name	3M Company
6	Facility Location	
7	City	Cottage Grove
8	State	Minnesota
9	Unit ID Name/No.	3M Corporate Incinerator
10	Other Sister Facilities	None
11	Number of Sister Facilities	0
12	Combustor Class	Onsite incinerator
13	Combustor Type	Rotary kiln
14	Combustor Characteristics	Brand new rotary kiln replacing old unit ID No. 334
15	Capacity (MMBtu/hr)	
16	Soot Blowing	
17	APCS Detailed Acronym	Q/WESP/SC/S
18	APCS General Class	WQ, WESP, LEWS
19	APCS Characteristics	Venturi quench, wet ESP, subcooler, M1 scrubber
20	Hazardous Wastes	Liq, solid
21	Haz Waste Description	Aqueous non-fuel-grade POHC mixture, POHC mixture liquid.
22	Supplemental Fuel	Oil
23		
24	Stack Characteristics	
25	Diameter (ft)	4.20
26	Height (ft)	
27	Gas Velocity (ft/sec)	46.0
28	Gas Temperature (°F)	170
29		
30	Permitting Status	Tier I for all metals except Pb (tier III)
31	HWC Burn Status (Date if Terminated)	

	B	C
1	Condition Description	
2		
3	3014C1	
4		
5	Report Name/Date	Trial Burn Report, November 2001
6	Report Prepare	Focus Environmental, Inc
7	Testing Firm	Pace Analytical Services, Inc.
8	Testing Dates	July 17-19, 2001
9	Cond Dates	Jul-01
10	Condition Descr	Trial burn, min comb temp
11	Content	PM, HCl/Cl ₂ , DRE, PCDD/F
12		
13	3014C2	
14		
15	Report Name/Date	Trial Burn Report, November 2001
16	Report Prepare	Focus Environmental, Inc
17	Testing Firm	Pace Analytical Services, Inc.
18	Testing Dates	July 24-26, 2001
19	Cond Dates	Jul-01
20	Condition Descr	Trial burn, max comb temp, max feedrate
21	Content	PM, HCl/Cl ₂ , DRE, PCDD/F, metals

	B	C	D	E	F	G	H	I	J	K	L	M
1	Stack Gas Emissions 1											
2												
3		Comme	Units		7%	O2						
4												
5												
6	3014C1	Trial Burn				R1		R2		R3		Cond Avg
7												
8	PM	E1	gr/dscf	y		0.0082		0.0085		0.0084		0.0084
9	CO (RA)	E1	ppmv	y		32.8		0.0		1.7		11.5
10	HC (RA)	E1	ppmv	y		1.0		1.0		1.0		1.0
11												
12	HCl		mg/dscf	y		3.4		2.2		4.3		
13	Cl2		mg/dscf	y		0.43		0.51		0.19		
14	HBr		mg/dscf	y	nd	0.75	nd	0.9	nd	0.9		
15	HF		mg/dscf	y	nd	0.78	nd	0.94	nd	0.94		
16												
17	HCl	E1	ppmv	y		2.24		1.45		2.83		2.1739
18	Cl2	E1	ppmv	y		0.15		0.17		0.06		0.1276
19	Total Chlorine	E1	ppmv	y		2.53		1.79		2.96		2.4290
20	HBr	E1	ppmv	y	nd	1.32	nd	1.58	nd	1.58		
21	HF	E1	ppmv	y	nd	1.03	nd	1.24	nd	1.24		
22												
23	POHC	OCDB										
24	POHC Feedrate		lb/hr			241		189		261		
25	Emission Rate	E2	lb/hr		nd	1.89E-04	nd	1.90E-04	nd	1.88E-04		
26	DRE	E2	%			99.999933		99.999934		99.99993		
27												
28	POHC	Napthalene										
29	POHC Feedrate		lb/hr			92		107		105		
30	Emission Rate	E2	lb/hr		nd	1.29E-04	nd	1.29E-04	nd	1.28E-04		
31	DRE	E2	%			99.99986		99.99988		99.99988		
32												
33	POHC	Tetrachloroethylene										
34	POHC Feedrate		lb/hr			55		67		64		
35	Emission Rate	E2	lb/hr		nd	2.00E-05	nd	1.80E-05	nd	1.70E-05		
36	DRE	E2	%			99.999963		99.999973		99.99997		
37												
38	Sampling Train	PM, HC E1										
39	Stack Gas Flowrate		dscfm			38300		38300		37600		38067
40	O2		%			12.3		12.2		12.3		12.3
41	Moisture		%			27.2		26.5		28		27.2
42	Temperature		°F			168		165		171		168.0
43												
44	Sampling Train	DRE E2										
45	Stack Gas Flowrate		dscfm			40400		39900		37900		39400
46	O2		%			12.6		12		12.3		12.3
47	Moisture		%			26.4		26.7		26.5		26.5
48	Temperature		°F			164		165		164		164.3
49												
50	Sampling Train	PCDD/F E3										
51	Stack Gas Flowrate		dscfm			39000		38200		38600		38600
52	O2		%			12.6		12		12.3		12.3
53	Moisture		%			26.7		26.3		27		26.7
54	Temperature		°F			162		163		163		162.7
55												
56	3014C2	Trial Burn				R1		R2		R3		Cond Avg
57												
58	PM	E1	gr/dscf	y		0.0069		0.0080		0.0062		0.0070
59	CO (RA)	E1	ppmv	y		0.7		10.5		0.2		3.8
60	HC (RA)	E1	ppmv	y		1.0		1.0		1.0		1.0
61												
62	HCl		lb/hr	n		0.417		0.316		0.16		
63	Cl2		lb/hr	n		0.045		0.058		0.073		
64												
65	POHC	OCDB										
66	POHC Feedrate		lb/hr			248		242		241		
67	Emission Rate	E3	lb/hr		nd	1.66E-04	nd	1.59E-04	nd	1.60E-04		
68	DRE	E3	%			99.999933		99.999934		99.99993		
69												
70	POHC	Tetrachloroethylene										
71	POHC Feedrate		lb/hr			112		65		166		

	B	C	D	E	F	G	H	I	J	K	L	M
72	Emission Rate	E3	lb/hr		nd	1.40E-05	nd	1.70E-05	nd	4.90E-04		
73	DRE	E3	%			99.999988		99.999974		99.99971		
74												
75	Metals											
76												
77	Aluminum		lb/hr			1.40E-02		1.20E-02		1.30E-02		
78	Antimony		lb/hr			1.80E-03		2.05E-02		9.20E-03		
79	Arsenic		lb/hr			7.30E-05		1.43E-04		4.80E-05		
80	Barium		lb/hr			4.30E-04		1.80E-04		7.00E-05		
81	Beryllium		lb/hr		nd	9.00E-06	nd	8.00E-06	nd	8.00E-06		
82	Cadmium		lb/hr			4.00E-05		3.50E-05	nd	4.00E-06		
83	Chromium		lb/hr			8.40E-04		8.30E-04		9.10E-04		
84	Chromium (Hex)		lb/hr		nd	6.10E-04	nd	6.20E-04	nd	4.70E-04		
85	Cobalt		lb/hr			7.10E-05		6.30E-05		5.50E-05		
86	Copper		lb/hr			5.10E-03		6.60E-03		3.10E-03		
87	Lead		lb/hr			1.06E-02		1.21E-02		7.30E-03		
88	Manganese		lb/hr			8.60E-04		6.90E-04		4.30E-04		
89	Mercury		lb/hr			5.40E-05		3.50E-05		6.00E-05		
90	Nickel		lb/hr			1.30E-03		1.60E-03		1.00E-03		
91	Selenium		lb/hr			7.30E-05		1.86E-04		6.10E-05		
92	Silver		lb/hr			4.00E-04	nd	1.50E-05		1.50E-04		
93	Thallium		lb/hr		nd	6.00E-06	nd	5.00E-06	nd	5.00E-06		
94	Vanadium		lb/hr			4.70E-05		3.00E-05		6.00E-06		
95	Zinc		lb/hr			3.90E-02		8.40E-02		2.70E-02		
96												
97												
98	Sampling Train	PM, HCE1										
99	Stack Gas Flowrate		dscfm			50004		49464		54183.6		51217
100	O2		%			7.3		8.3		8.3		8.0
101	Moisture		%			31.58		31.17		31.32		31.4
102	Temperature		°F			171		170		173.42		171.5
103												
104	Sampling Train	Metals E2										
105	Stack Gas Flowrate		dscfm			49680		48816		48924		49140
106	O2		%			7.3		8.3		8.3		8.0
107	Moisture		%			32.54		31.42		31.17		31.7
108	Temperature		°F			172		171.96		172.46		172.1
109												
110	Sampling Train	DRE E3										
111	Stack Gas Flowrate		dscfm			50630.4		49939.2		49852.8		50141
112	O2		%			7.3		8.3		8.3		8.0
113	Moisture		%			31.5		31		31.12		31.2
114	Temperature		°F			169		168.73		169.4		169.0
115												
116	Sampling Train	PCDD/F E4										
117	Stack Gas Flowrate		dscfm			49928.4		49064.4		49485.6		49493
118	O2		%			7.3		8.3		8.3		8.0
119	Moisture		%			31.11		31.83		31.59		31.5
120	Temperature		°F			170.94		169.27		171.35		170.5
121												
122	HCl	E1	ppmv	y		1.52		1.26		0.58		1.1201
123	Cl2	E1	ppmv	y		0.08		0.12		0.14		0.1132
124	Total Chlorine	E1	ppmv	y		1.69		1.49		0.85		1.3464
125												
126	Aluminum	E2	ug/dscm	y		77.00		72.45		78.32		75.92
127	Antimony	E2	ug/dscm	y		9.90		123.78		55.43		63.03
128	Arsenic	E2	ug/dscm	y		0.40		0.86		0.29		0.52
129	Barium	E2	ug/dscm	y		2.36		1.09		0.42		1.29
130	Beryllium	E2	ug/dscm	y	nd	0.05	nd	0.05	nd	0.05	100	0.05
131	Cadmium	E2	ug/dscm	y		0.22		0.21	nd	0.02		0.15
132	Chromium	E2	ug/dscm	y		4.62		5.01		5.48		5.04
133	Chromium (Hex)	E2	ug/dscm	y	nd	3.35	nd	3.74	nd	2.83	100	3.31
134	Cobalt	E2	ug/dscm	y		0.39		0.38		0.33		0.37
135	Copper	E2	ug/dscm	y		28.05		39.85		18.68		28.86
136	Lead	E2	ug/dscm	y		58.30		73.06		43.98		58.44
137	Manganese	E2	ug/dscm	y		4.73		4.17		2.59		3.83
138	Mercury	E2	ug/dscm	y		0.30		0.21		0.36		0.29
139	Nickel	E2	ug/dscm	y		7.15		9.66		6.02		7.61
140	Selenium	E2	ug/dscm	y		0.40		1.12		0.37		0.63
141	Silver	E2	ug/dscm	y		2.20	nd	0.09		0.90		1.06
142	Thallium	E2	ug/dscm	y	nd	0.03	nd	0.03	nd	0.03	100	0.03

	B	C	D	E	F	G	H	I	J	K	L	M
143	Vanadium	E2	ug/dscm	y		0.26		0.18		0.04		0.16
144	Zinc	E2	ug/dscm	y		214.49		507.18		162.66		294.78
145												
146	SVM	E2	ug/dscm	y		58.52		73.27		44.00		58.60
147	LVM	E2	ug/dscm	y		5.07		5.92		5.82		5.60

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1	Feedstream 1																						
2																							
3																							
4																							
5																							
6	3014C1																						
7	Feedstream Number																						
8	Feed Class																						
9	Feed Class 2																						
10	Feedstream Description																						
11	Feed Rate																						
12	Thermal Feedrate																						
13	Density																						
14	Heating Value																						
15	Viscosity																						
16	Ash																						
17	Chlorine																						
18	Stack Gas Flowrate																						
19	Oxygen																						
20	Estimated Firing Rate																						
21																							
22																							
23	Feedrate MTEC Calculations																						
24	Ash																						
25	Chlorine																						
26																							
27	3014C2																						
28																							
29	Feedstream Number																						
30	Feed Class																						
31	Feed Class 2																						
32	Feedstream Description																						
33	Feed Rate																						
34	Thermal Feedrate																						
35	Density																						
36	Heating Value																						
37	Viscosity																						
38	Ash																						
39	Chlorine																						
40	Antimony																						
41	Arsenic																						
42	Barium																						
43	Beryllium																						
44	Cadmium																						
45	Chromium																						
46	Lead																						
47	Mercury																						
48	Silver																						
49	Thallium																						
50																							
51	Stack Gas Flowrate																						
52	Oxygen																						
53																							
54	Estimated Firing Rate																						
55																							
56	Feedrate MTEC Calculations																						
57	Ash																						
58	Chlorine																						
59	Antimony																						
60	Arsenic																						

	B	Y	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																								
3																								
4	3014C1	R3		Cond Avg	R1						R3	Cond Avg	R1		R1	R2	R3				Cond Avg		R1	
5	Feedstream Number	F3		F3	F4						F4	F4	F4	F5	F5	F5	F5				F5			
6	Feed Class	Sludge		Sludge	Sludge						Sludge	Sludge	Sludge	Sludge	Sludge	Sludge	Sludge				Sludge			
7	Feed Class 2																							
8	Feedstream Description	1	Sludge Tank1	Sludge Tank2	Sludge Tank2	Sludge Tank1	Sludge Tank2	Sludge Tank2	Sludge Tank2	Sludge Tank2	Sludge Tank2	Sludge Tank2	Sludge Tank2	Sludge Tank2	Sludge Tank3	Sludge Tank3	Sludge Tank3	Sludge Tank3	Sludge Tank3	Sludge Tank3	Sludge Tank3	Sludge Tank3	Sludge Tank3	HW
9	Feed Rate	3191	3337.7	4918	3661	3599	4059.3	5077	5077	5077	5077	5077	5077	5077	5077	5077	5077	5077	5077	5077	5077.0	5077.0	5077.0	
11	Thermal Feedrate																							
12	Density			0.9631	0.9406	1																		
13	Heating Value			5620	13381	1699																		
14	Viscosity			6.8	31.8	2																		
15	Ash			94.4	48.3	19.4	54.0															37.7		
16	Chlorine			0.013	1.86	0.713	0.9															1.2		
17																								
18	Stack Gas Flowrate		37600	38300	38300	37600	38067	38300	38067	37600	38300	38067	38067	38300	38300	38300	37600	37600	37600	37600	38067	38067	38067	
19	Oxygen		12	12.3	12	12	12	12	12	12	12	12	12	12	12.3	12	12	12	12	12	12	12	12	
20	Estimated Firing Rate																							
22	Feedrate MTEC Calculations																							
23	Ash		416.2	1060.5	536.4	222.0	606.3																	
24	Chlorine		14761.4	146.0	20657.5	8158.8	9654.1																	
25																								
26																								
27	3014C2	R3		Cond Avg	R1						R3	Cond Avg	R1		R1	R2	R3				Cond Avg		R1	
28	Feedstream Number	F3		F3	F4						F4	F4	F4	F5	F5	F5	F5				F5			
29	Feed Class	Liq non-HW		Liq non-HW	Sludge						Sludge	Sludge	Sludge	Sludge	Sludge	Sludge	Sludge				Sludge			
30	Feed Class 2																							
31	Feedstream Description	1	Sludge Tank1	Sludge Tank2	Sludge Tank2	Sludge Tank1	Sludge Tank2	Sludge Tank2	Sludge Tank2	Sludge Tank2	Sludge Tank2	Sludge Tank2	Sludge Tank2	Sludge Tank2	Sludge Tank3	Sludge Tank3	Sludge Tank3	Sludge Tank3	Sludge Tank3	Sludge Tank3	Sludge Tank3	Sludge Tank3	Sludge Tank3	HW
32	Feed Rate	3960	3880.0	3991	4647	5054	4564.0	5061	5061	5061	5061	4564.0	4564.0	5061	5061	5061	5359	5910	5910	5910	5443.3	5443.3	5443.3	
33	Thermal Feedrate																							
35	Density		0.874	1.237	1.019	0.999																		
36	Heating Value		8083	1554	2409	1339																		
37	Viscosity		1.25	1.84	2.43	3.15																		
38	Ash		25.3	87.8	16.7	37.4	47.3																	
39	Chlorine		8.7	0.3223	0.967	3	1.1																	
40	Antimony		2.26E-03	6.08E-04	2.20E-02	4.36E-02	2.2E-02																	
41	Arsenic		7.98E-05	1.00E-05	6.89E-05	7.80E-05	5.2E-05																	
42	Barium		1.05E-03	1.08E-03	1.00E-02	7.04E-03	6.0E-03																	
43	Beryllium		1.50E-06	1.2E-06	4.69E-07	3.54E-07	8.0E-07																	
44	Cadmium		5.70E-07	7.30E-07	2.46E-06	5.57E-07	1.2E-06																	
45	Chromium		1.93E-03	1.51E-04	7.12E-04	2.13E-03	1.0E-03																	
46	Lead		1.86E-03	3.21E-04	1.35E-03	1.05E-03	9.1E-04																	
47	Mercury		3.64E-05	7.82E-06	1.34E-05	1.52E-05	1.2E-05																	
48	Silver		3.63E-07	4.69E-07	1.57E-06	3.54E-07	8.0E-07																	
49	Thallium		9.07E-06	1.14E-05	3.92E-05	4.43E-05	3.2E-05																	
50																								
51	Stack Gas Flowrate		54184	50004	49464	54184	51217	50004	49464	54184	51217	51217	51217	50004	50004	49464	49464	54184	54184	54184	51217	51217	51217	
52	Oxygen		8	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
53	Estimated Firing Rate																							
55	Feedrate MTEC Calculations																							
56	Ash		137.6	479.8	99.5	203.4	260.9																	
57	Chlorine		47325.4	1761.1	5762.1	16319.1	7947.4																	
58	Antimony		12.3	3.3	131.1	237.2	123.9																	
59	Arsenic		100	0.1	0.4	0.4	0.3																	
60																								

	B	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BL	BM	BN	BO	BP	BQ	BR	BS
1	Feedstream 1																								
2																									
3																									
4	3014C1	R2	R3		Cond Avg	R1				R2	R3		Cond Avg												
5																									
6	Feedstream Number																								
7	Feed Class																								
8	Feed Class 2																								
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15	Ash																								
16	Chlorine																								
17																									
18	Stack Gas Flowrate																								
19	Oxygen																								
20																									
21	Estimated Firing Rate																								
22																									
23	Feedrate MTEC Calculations																								
24	Ash	34025.8	44455.9		40296.2	41569.4				34025.8	44455.9		40296.2												
25	Chlorine	9507446.5	8799685.3		8853677.2	8227023.0				9507446.5	8799685.3		8853677.2												
26																									
27	3014C2	R2	R3		Cond Avg	R1				R2	R3		Cond Avg												
28																									
29	Feedstream Number																								
30	Feed Class																								
31	Feed Class 2																								
32	Feedstream Description																								
33	Feed Rate																								
34	Thermal Feedrate																								
35	Density																								
36	Heating Value																								
37	Viscosity																								
38	Ash																								
39	Chlorine																								
40	Antimony																								
41	Arsenic																								
42	Barium																								
43	Beryllium																								
44	Cadmium																								
45	Chromium																								
46	Lead																								
47	Mercury																								
48	Silver																								
49	Thallium																								
50																									
51	Stack Gas Flowrate																								
52	Oxygen																								
53																									
54	Estimated Firing Rate																								
55																									
56	Feedrate MTEC Calculations																								
57	Ash	19487.3	10467.9		18502.8					1113.7	302.4		708.1												
58	Chlorine	4870762.1	4279789.6		4366213.0					19365.9	87035.1		53200.5												
59	Antimony	15300.8	82	11409.3	71	13112.4				5535.7	1767.9		3651.8												
60	Arsenic	954.8	100	1034.6	100	1082.0				0.5	0.3		0.2												

	B	BT	BU	BV	BW	BX
1	Feedstream 1					
2						
3						
4	3014C1					
5						
6	Feedstream Number					
7	Feed Class					
8	Feed Class 2					
9	Feedstream Description					
10	Feed Rate					
11	Thermal Feedrate					
12	Density					
13	Heating Value					
14	Viscosity					
15	Ash					
16	Chlorine					
17						
18	Stack Gas Flowrate					
19	Oxygen					
20						
21	Estimated Firing Rate					
22						
23	Feedrate MTEC Calculations					
24	Ash					
25	Chlorine					
26						
27	3014C2		R2	R3		Cond Avg
28						
29	Feedstream Number		F8	F8		F8
30	Feed Class		Total	Total		Total
31	Feed Class 2		Total	Total		Total
32	Feedstream Description		Total	Total		Total
33	Feed Rate					33292.3
34	Thermal Feedrate					
35	Density					
36	Heating Value					
37	Viscosity					
38	Ash					2315.3
39	Chlorine					587.8
40	Antimony					
41	Arsenic					
42	Barium					
43	Beryllium					
44	Cadmium					
45	Chromium					
46	Lead					
47	Mercury					
48	Silver					
49	Thallium					
50						
51	Stack Gas Flowrate					
52	Oxygen					
53						
54	Estimated Firing Rate					
55						
56	Feedrate MTEC Calculations					
57	Ash		19703.6	10605.6		18720.6
58	Chlorine		4907706.1	4327114.9		4402972.6
59	Antimony		15343.7	82	11421.6	70
60	Arsenic		955.2	100	1035.0	100
						1082.3

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	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
61	Barium			100	48903.9	100	834.2	100	1033.5	100	16923.9										21.5		12.5
62	Beryllium	ug/dscm		100	1202.1	100	834.2	100	1033.5	100	1023.3									100	0.0	100	0.0
63	Cadmium	ug/dscm		100	1202.1	100	834.2	100	1033.5	100	1023.3									100	0.0	100	0.0
64	Chromium	ug/dscm		100	3278.5	100	1072.6	100	1087.9	100	1813.0										51.7	33.4	38.8
65	Lead	ug/dscm		100	3824.9	100	1072.6	100	1087.9	100	1995.1										33.4	0.1	25.4
66	Mercury	ug/dscm		100	3.8	100	3.0	100	3.8	100	3.5									100	0.0	100	0.0
67	Silver	ug/dscm		100	1202.1	100	1132.2	100	1033.5	100	1122.6									100	0.0	100	0.0
68	Thallium	ug/dscm		100	1256.7	100	1191.7	100	1087.9	100	1178.8									100	0.0	100	0.3
69																							
70	SVM	ug/dscm		100	5027.0	100	1906.8	100	2121.5	100	3018.4										33.5		25.5
71	LVM	ug/dscm		100	5737.3	100	2860.2	100	3155.0	100	3917.5										51.7		39.2

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	B	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU		
61	Barium		5.7		13.2		5.9		59.6		38.3		34.6		243.2		91.2		11.3		115.2		99	49153.0	78	
62	Beryllium	100	0.0	100	0.0	100	0.0	100	0.0	100	0.0	100	0.1	100	0.0	100	0.0	100	0.1	100	0.0	100	0.0	100	1202.1	100
63	Cadmium	100	0.0	100	0.0	100	0.0	100	0.0	100	0.0	100	0.0	100	0.0	100	0.0	100	0.0	100	0.0	100	0.0	100	1202.1	100
64	Chromium		10.5		33.7		0.8		4.2		11.6		5.6		0.1		1.9		2.9		1.6		100	3279.4	98	
65	Lead		10.1		23.0		1.8		8.0		5.7		5.2		2.9		6.3		2.2		3.8		100	3829.6	96	
66	Mercury		0.2		0.2	100	0.0	100	0.1	100	0.1	100	0.1	100	0.1	100	0.1	100	0.1	100	0.1	100	0.1	100	3.9	100
67	Silver	100	0.0	100	0.0	100	0.0	100	0.0	100	0.0	100	0.0	100	0.0	100	0.0	100	0.0	100	0.0	100	0.0	100	1202.1	100
68	Thallium	100	0.0	100	0.1	100	0.1	100	0.2	100	0.2	100	0.2	100	0.0	100	0.3	100	0.1	100	0.1	100	0.1	100	1256.9	100
69																										
70	SVM		10.1		23.0		1.76		8.06		5.71		5.18		2.93		6.33		2.21		0		3.82	100	5031.7	98
71	LVM		10.9		34.0	6.5	0.88	9.01	4.66	3.5	12.01	5.1	5.85	26	0.16	20.8	2.34	9.5	3.16	15	1.89	100	5738.4	99		

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	B	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BL	BM	BN	BO	BP	BQ	BR	BS	
61	Barium	1070.2	88	1178.3	99	17163.9				85.2	0.0	95.2	90.2										99	49174.5	77	
62	Beryllium	834.3	100	1033.6	100	1023.3			100	0.0	100	0.0	0.0	0.0									100	1202.1	100	
63	Cadmium	834.3	100	1033.6	100	1023.4			100	0.0	0.0	0.1	0.0	0.0									100	1202.1	100	
64	Chromium	1091.7	91	1193.8	97	1872.3				13.0		91.4	52.2	5835.7	5835.7			6042.1	5421.7	5421.7		5766.5	36	9166.8	15	
65	Lead	1114.2	97	1120.6	98	2030.1				27.2		24.8	26.0	5835.7	5835.7			6042.1	5421.7	5421.7		5766.5	39	9698.7	15	
66	Mercury	3.2	100	4.1	101	3.8			100	0.1	100	0.1	0.1										98	4.0	91	
67	Silver	1132.2	100	1034.1	100	1122.9			100	0.0	0.0	0.6	0.3										100	1202.1	100	
68	Thallium	1192.5	100	1088.6	100	1179.3			100	0.3	100	0.4	0.2										100	1256.9	100	
69						0.0																				
70	SVM	1948.4	98	2154.2	99	3053.5				27.2		24.8	26.04					6042.1	5421.7	5421.7		5766.5	46	10900.8	24	
71	LVM	2880.7	97	3261.9	99	3977.9			3.6	13.5	0.4	91.7	52.61					6042.1	5421.7	5421.7		5766.5	49	11625.8	32	

	B	BT	BU	BV	BW	BX
61	Barium	1082.6	87	1184.0	99	17177.1
62	Beryllium	834.3	100	1033.6	100	1023.3
63	Cadmium	834.3	100	1033.6	100	1023.4
64	Chromium	7172.6	16	6626.0	24	7672.5
65	Lead	7181.8	17	6552.5	26	7819.6
66	Mercury	3.6	95	4.3	95	4.0
67	Silver	1132.2	100	1034.1	100	1122.9
68	Thallium	1192.8	100	1088.7	100	1179.4
69						
70	SVM	8016.0	28	7586.1	34	8843.0
71	LVM	8962.1	36	8694.6	40	9778.4

	B	C	D	E	F	G
1	Process Information					
2						
3	3014C1					
4				1	2	3
5	Kiln Exit Temperature	°F		1632	1608	1616
6	SCC Exit Temperature	°F		1718	1702	1704
7	Comb Gas Flowrate	scfm		40153	39897	40057
8	Quench Pressure Drop	in H2O		4.2	4	4
9	Subcooler Water Flowrate	gpm		2837	2838	2845
10	Subcooler Water pH	pH		3.37	3.79	3.25
11	WESP Power	kW		5.11	4.92	5.06
12	Quench Outlet Temperature (1-min average)	°F		169	169	170
13	Quench Outlet Temperature (hourly average)	°F		169	169	170
14	Quench Blowdown Rate	gpm		75	76	74
15	Subcooler Blowdown Rate (1-min average)	gpm		57	81	68
16	M1 Blowdown Rate (1-min average)	gpm		156	155	155
17						
18	3014C2					
19				1	2	3
20	Kiln Exit Temperature	°F		2003	2005	2000
21	SCC Exit Temperature	°F		2042	2017	2014
22	Comb Gas Flowrate	scfm		37646	37862	37816
23	Quench Pressure Drop	in H2O		4	4	4
24	Subcooler Water Flowrate	gpm		3243	3240	3269
25	Subcooler Water pH	pH		3.21	3.07	4
26	WESP Power	kW		4.96	5.07	5.07
27	Quench Outlet Temperature (1-min average)	°F		179	178	179
28	Quench Outlet Temperature (hourly average)	°F		179	178	179
29	Quench Blowdown Rate	gpm		76	77	77
30	Subcooler Blowdown Rate (1-min average)	gpm		166	161	159
31	M1 Blowdown Rate (1-min average)	gpm		160	162	160

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:	3M Company															
4	Condition ID:	3014C1															
5	Condition/Test Date:	Trial burn, min comb temp															
6																	
7		I-TEF															
8		Wght Fact															
9																	
10	Detected in sample volume (ng)																
11	2,3,7,8-TCDD	1	nd	0.005	0.005	0.002	0.002	nd	0.006	0.006	0.003	0.003	nd	0.007	0.007	0.004	0.004
12	Total TCDD	0		0.089	0.089	0.089	0.000	0.000	0.324	0.324	0.324	0.000	0.000	0.082	0.082	0.082	0.000
13	1,2,3,7,8-PCDD	0.5	nd	0.020	0.010	0.010	0.005	nd	0.021	0.011	0.011	0.005	nd	0.020	0.010	0.010	0.005
14	Total PCDD	0		0.041	0.000	0.041	0.000	0.000	0.230	0.230	0.230	0.000	0.000	0.037	0.000	0.037	0.000
15	1,2,3,4,7,8-HxCDD	0.1	nd	0.020	0.002	0.010	0.000	nd	0.020	0.010	0.010	0.001	nd	0.020	0.002	0.010	0.001
16	1,2,3,6,7,8-HxCDD	0.1	nd	0.020	0.002	0.010	0.001	nd	0.021	0.002	0.010	0.001	nd	0.020	0.002	0.010	0.001
17	1,2,3,7,8,9-HxCDD	0.1	nd	0.020	0.002	0.010	0.001	nd	0.020	0.002	0.010	0.001	nd	0.020	0.002	0.010	0.001
18	Total HxCDD	0		0.056	0.000	0.056	0.000	0.000	0.068	0.068	0.068	0.000	0.000	0.051	0.000	0.051	0.000
19	1,2,3,4,6,7,8-HpCDD	0.01		0.041	0.000	0.041	0.000	0.000	0.110	0.110	0.110	0.001	0.001	0.060	0.001	0.060	0.001
20	Total HpCDD	0		0.082	0.000	0.082	0.000	0.000	0.190	0.190	0.190	0.000	0.000	0.108	0.000	0.108	0.000
21	OCDD	0.001		0.136	0.000	0.136	0.000	0.000	0.533	0.533	0.533	0.001	0.001	0.295	0.000	0.295	0.000
22	2,3,7,8-TCDF	0.1	nd	0.009	0.001	0.005	0.000	nd	0.009	0.001	0.004	0.000	nd	0.009	0.001	0.005	0.000
23	Total TCDF	0		0.282	0.000	0.282	0.000	0.000	0.332	0.332	0.332	0.000	0.000	0.312	0.000	0.312	0.000
24	1,2,3,7,8-PCDF	0.05	nd	0.030	0.002	0.015	0.001	nd	0.024	0.001	0.012	0.001	nd	0.021	0.001	0.011	0.001
25	2,3,4,7,8-PCDF	0.5	nd	0.043	0.022	0.022	0.011	nd	0.037	0.019	0.019	0.009	nd	0.037	0.019	0.019	0.009
26	Total PCDF	0		0.390	0.000	0.195	0.000	nd	0.300	0.000	0.150	0.000	nd	0.270	0.000	0.135	0.000
27	1,2,3,4,7,8-HxCDF	0.1	nd	0.067	0.007	0.034	0.003	nd	0.041	0.004	0.021	0.002	nd	0.041	0.004	0.021	0.002
28	1,2,3,6,7,8-HxCDF	0.1	nd	0.050	0.005	0.025	0.003	nd	0.038	0.004	0.019	0.002	nd	0.039	0.004	0.020	0.002
29	2,3,4,6,7,8-HxCDF	0.1	nd	0.046	0.005	0.023	0.002	nd	0.051	0.005	0.026	0.003	nd	0.038	0.004	0.019	0.002
30	1,2,3,7,8,9-HxCDF	0.1	nd	0.029	0.003	0.015	0.001	nd	0.027	0.003	0.014	0.001	nd	0.021	0.002	0.011	0.001
31	Total HxCDF	0		0.330	0.000	0.165	0.000	nd	0.330	0.000	0.165	0.000	nd	0.280	0.000	0.140	0.000
32	1,2,3,4,6,7,8-HpCDF	0.01		0.156	0.002	0.156	0.002	0.000	0.170	0.002	0.170	0.002	0.000	0.102	0.001	0.102	0.001
33	1,2,3,4,7,8,9-HpCDF	0.01	nd	0.036	0.000	0.018	0.000	nd	0.035	0.000	0.018	0.000	nd	0.024	0.000	0.012	0.000
34	Total HpCDF	0		0.216	0.000	0.216	0.000	0.000	0.380	0.000	0.380	0.000	0.000	0.140	0.000	0.140	0.000
35	OCDF	0.001		0.126	0.000	0.126	0.000	0.000	0.210	0.000	0.210	0.000	0.000	0.120	0.000	0.120	0.000
36																	
37	Gas sample volume (dscf)			115.19	115.19	115.19	115.19		110.93	110.93	110.93	110.93		112.84	112.84	112.84	112.84
38	O2 (%)			12.60	12.60	12.60	12.60		12.0	12.0	12.0	12.0		12.30	12.30	12.30	12.30
39																	
40	PCDD/PCDF (ng in sample)			0.067	1.4	1.4	0.034		0.062	2.6	2.6	0.033		0.060	1.4	1.4	0.031
41	PCDD/PCDF (ng/dscm @ 7% O2)			0.034	0.710	0.710	0.018	94.3	0.03	1.28	1.28	0.02	96.6	0.030	0.72	0.72	0.016
42																	
43	TEQ Cond Avg			0.016													
44	Total Cond Avg			0.902													

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:	3M Company															
4	Condition ID:	3014C2															
5	Condition/Test Date:	Trial burn, max comb temp, max feedrate															
6																	
7		I-TEF															
8		Wght Fact															
9																	
10																	
	Detected in sample volume (ng)																
11	2,3,7,8-TCDD	1	nd	0.007	0.007	0.003	0.003	nd	0.004	0.004	0.002	0.002	nd	0.004	0.004	0.002	0.002
12	Total TCDD	0		0.160	0.000	0.160	0.160	0.000	0.173	0.000	0.173	0.000		0.143	0.000	0.143	0.000
13	1,2,3,7,8-PCDD	0.5	nd	0.020	0.010	0.010	0.010	nd	0.020	0.010	0.010	0.005	nd	0.020	0.010	0.010	0.005
14	Total PCDD	0		0.123	0.000	0.123	0.123	nd	0.065	0.000	0.033	0.000	nd	0.051	0.000	0.026	0.000
15	1,2,3,4,7,8-HxCDD	0.1	nd	0.020	0.002	0.010	0.010	nd	0.020	0.002	0.010	0.001	nd	0.020	0.002	0.010	0.001
16	1,2,3,6,7,8-HxCDD	0.1	nd	0.020	0.002	0.011	0.011	nd	0.020	0.002	0.010	0.001	nd	0.021	0.002	0.011	0.001
17	1,2,3,7,8,9-HxCDD	0.1	nd	0.020	0.002	0.010	0.010	nd	0.020	0.002	0.010	0.001	nd	0.020	0.002	0.010	0.001
18	Total HxCDD	0		0.129	0.000	0.129	0.129	0.000	0.046	0.000	0.046	0.000	nd	0.058	0.000	0.029	0.000
19	1,2,3,4,6,7,8-HpCDD	0.01		0.096	0.001	0.096	0.096	0.001	0.075	0.001	0.075	0.001	nd	0.061	0.001	0.031	0.000
20	Total HpCDD	0		0.181	0.000	0.181	0.181	0.000	0.148	0.000	0.148	0.000	nd	0.110	0.000	0.055	0.000
21	OCDD	0.001		0.340	0.000	0.340	0.340	0.000	0.276	0.000	0.276	0.000	nd	0.140	0.000	0.070	0.000
22	2,3,7,8-TCDF	0.1	nd	0.013	0.001	0.007	0.007	nd	0.010	0.001	0.005	0.001	nd	0.036	0.004	0.018	0.002
23	Total TCDF	0		0.830	0.000	0.830	0.830	0.000	0.732	0.000	0.732	0.000		1.302	0.000	1.302	0.000
24	1,2,3,7,8-PCDF	0.05	nd	0.038	0.002	0.019	0.019	nd	0.031	0.002	0.016	0.001	nd	0.053	0.003	0.027	0.001
25	2,3,4,7,8-PCDF	0.5		0.069	0.035	0.069	0.069	nd	0.057	0.029	0.029	0.014	nd	0.099	0.050	0.050	0.025
26	Total PCDF	0		0.713	0.000	0.713	0.713	nd	0.600	0.000	0.300	0.000	nd	1.010	0.000	0.505	0.000
27	1,2,3,4,7,8-HxCDF	0.1		0.084	0.008	0.084	0.084	0.008	0.061	0.006	0.061	0.006	nd	0.120	0.012	0.060	0.006
28	1,2,3,6,7,8-HxCDF	0.1		0.071	0.007	0.071	0.071	0.007	0.057	0.006	0.057	0.006	nd	0.066	0.007	0.033	0.003
29	2,3,4,6,7,8-HxCDF	0.1		0.081	0.008	0.081	0.081	0.008	0.073	0.007	0.073	0.007	nd	0.101	0.010	0.051	0.005
30	1,2,3,7,8,9-HxCDF	0.1	nd	0.038	0.004	0.019	0.019	0.002	0.028	0.003	0.028	0.003	nd	0.048	0.005	0.024	0.002
31	Total HxCDF	0		0.800	0.000	0.800	0.800	0.000	0.630	0.000	0.630	0.000	nd	0.880	0.000	0.440	0.000
32	1,2,3,4,6,7,8-HpCDF	0.01		0.195	0.002	0.195	0.195	0.002	0.217	0.002	0.217	0.002	nd	0.170	0.002	0.085	0.001
33	1,2,3,4,7,8,9-HpCDF	0.01	nd	0.035	0.000	0.018	0.018	0.000	0.022	0.000	0.022	0.000	nd	0.032	0.000	0.016	0.000
34	Total HpCDF	0		0.270	0.000	0.270	0.270	0.000	0.278	0.000	0.278	0.000	nd	0.220	0.000	0.110	0.000
35	OCDF	0.001		0.144	0.000	0.144	0.144	0.000	0.128	0.000	0.128	0.000	nd	0.068	0.000	0.034	0.000
36																	
37	Gas sample volume (dscl)			99.91	99.91	99.91	99.91	99.91	125.06	125.06	125.06	125.06		125.64	125.64	125.64	125.64
38	O2 (%)			7.30	7.30	7.30	7.30	7.30	8.3	8.3	8.3	8.3		8.30	8.30	8.30	8.30
39																	
40	PCDD/PCDF (ng in sample)			0.092	0.092	3.7	3.7	0.077	0.077	0.077	2.7	0.051		0.112	0.112	2.7	0.056
41	PCDD/PCDF (ng/dscm @ 7% O2)		33.0	0.033	0.033	1.334	1.334	0.028	0.028	0.028	0.85	0.02	100.0	0.035	0.035	0.84	0.017
42																	
43	TEQ Cond Avg		0.020														
44	Total Cond Avg		1.010														