	B	C
1	**Source Description**	
2		
3	Phase II ID No.	833
4	EPA ID No.	TXD008081697
5	Facility Name	BASF Corporation
6	Facility Location	
7	City	Freeport
8	State	TX
9	Unit ID Name/No.	Neol Boiler
10	Other Sister Facilities	None
11	Number of Sister Facilities	0
12	Combustor Class	Liquid-fired boiler
13	Combustor Type	Liquid-fired
14	Combustor Characteristics	
15	Capacity (MMBtu/hr)	
16	Soot Blowing	
17	APCS Detailed Acronym	None
18	APCS General Class	
19	APCS Characteristics	NA
20	Hazardous Wastes	Liq
21	Haz Waste Description	Wastewater, HDO Heavies Waste
22	Supplemental Fuel	?
23		
24	Stack Characteristics	
25	Diameter (ft)	2.4
26	Height (ft)	54.1
27	Gas Velocity (ft/sec)	
28	Gas Temperature (°F)	
29		
30	Permitting Status	Tier I for metals and chlorine
31	HWC Burn Status (Date if Terminated)	

	B	C
1	**Cond Description**	
2		
3	**833C10**	
4		
5	Report Name/Date	Source Emission Survey BASF Corp. NOEL Boiler Stack (EPN 5-5-08) Trial Burn, no date listed (Risk Burn also included)
6	Report Prepare	METCO Environmental
7	Testing Firm	not identified
8	Testing Dates	May 19-20, 1998
9	Cond Dates	May-98
10	Condition Descr	Trial burn; Wastewater and HDO Heavies Waste Feeds
11	Content	Monochlorobenzene DRE; PM/CO/Chlorine Stack Emissions; Ash/Metals/Chlorine Feed Analysis
12		
13	**833C11**	
14		
15	Report Name/Date	Source Emission Survey BASF Corp. NOEL Boiler Stack (EPN 5-5-08) Trial Burn, no date listed (Risk Burn also included)
16	Report Prepare	METCO Environmental
17	Testing Firm	not identified
18	Testing Dates	May 20 1998
19	Cond Dates	May-98
20	Condition Descr	Trial burn; HDO Heavies Waste Feeds
21	Content	PM/CO/Chlorine Stack Emissions; Ash/Metals/Chlorine Feed Analysis
22		
23	**833C12**	
24		
25	Report Name/Date	Source Emission Survey BASF Corp. NOEL Boiler Stack (EPN 5-5-08) Trial Burn, no date listed (Risk Burn also included)
26	Report Prepare	METCO Environmental
27	Testing Firm	not identified
28	Testing Dates	May 26-29, 1998
29	Cond Dates	May-98
30	Condition Descr	Risk burn
31	Content	Metals, aldehydes/ketones, dioxins/furans, SVOCs, total organics, VOCs as stack emissions

	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	**833C10**	**Trial Burn**				R1		R2		R3		Cond Avg
7												
8	PM	E1	gr/dscf	y		0.0204		0.0136		0.0181		0.0
9	HCl		ppmv	n		3.07		9.76		16.16		9.7
10	Cl2		ppmv	n		0.03		0.02		0.01		0.0
11												
12	Sampling Train	PM	E1									
13	Stack Gas Flowrate		dscfm			10158		10353		10086		10199.0
14	O2		%			6.6		6.3		6.5		6.5
15	Moisture		%			33.14		32.4		33.01		32.9
16	Temperature		°F			564		568		590		574.0
17												
18	HCl	E1	ppmv	y		3.0		9.3		15.6		9.29
19	Cl2	E1	ppmv	y		0.0		0.0		0.0		0.02
20	Total Chlorine	E1	ppmv	y		3.0		9.3		15.6		9.33
21												
22	POHC DRE	Monochlorobenzene										
23	POHC Feedrate		lb/hr			11.1		11.1		11.1		
24	Emissions Rate		lb/hr			0.00022		0.0003327		0.000333		
25	DRE	E1	%		>	99.998	>	99.997	>	99.997		
26												
27												
28	**833C11**					R1		R2		R3		Cond Avg
29												
30	PM	E1	gr/dscf	y		0.0128		0.0115		0.0105		0.0116
31	HCl		ppmv	n		12.65		18.55		22		17.73
32	Cl2		ppmv	n		0.02		0.02		0.02		0.02
33												
34	Sampling Train	PM	E1									
35	Stack Gas Flowrate		dscfm			10669		10609		10680		10652.7
36	O2		%			4.4		3.5		3.7		3.9
37	Moisture		%			19.71		19.65		19.6		19.7
38	Temperature		°F			630		638		645		637.7
39												
40	HCl	E1	ppmv	y		10.7		14.8		17.8		14.4
41	Cl2	E1	ppmv	y		0.0		0.0		0.0		0.0
42	Total Chlorine	E1	ppmv	y		10.7		14.9		17.8		14.5
43												
44	POHC DRE	Monochlorobenzene										
45	POHC Feedrate		lb/hr			10.95		11.1		11.1		
46	Emissions Rate					0.00066		0.000777		0.000777		
47	DRE	E1	%		>	99.994	>	99.993	>	99.993		
48												
49												
50	**833C12**					R1		R2		R3		Cond Avg
51												
52	Sampling Train	Metals	E1									
53	Stack Gas Flowrate		dscfm			10159		10001		10100		10087
54	O2		%			5		5.8		6.4		6
55	Moisture		%			29.45		30.53		29.09		30
56	Temperature		°F			627		640		649		639
57												
58	Chromium (Hex)	E1	µg/dscm	y		3.46		2.70		2.13		2.76
59	Nickel	E1	µg/dscm	y	nd	0.0001	nd	0.0001	nd	0.0001	100	0.00006
60	Selenium	E1	µg/dscm	y	nd	0.0006	nd	0.0006	nd	0.0006	100	0.00028
61	Zinc	E1	µg/dscm	y	nd	0.0009	nd	0.0016	nd	0.0014	100	0.00065
62												
63	**Particle Size Distribution**	**in microns**										
64	Median Size um					0.94	<	0.76		0.9		
65	Particles < 2 um					70.5		91		74.5		
66	Particles < 10 um					93		98		94		

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	**Feedstreams**																								
2																									
3																									
4	**833C10**				R1		R2		R3		Cond Avg		R1		R2		R3		Cond Avg		Cond Avg		R1		R2
5																									
6	Feedstream Number				F1		F1		F1		F1		F2		F2		F2		F2				F3		F3
7	Feed Class				Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW				Spike		Spike
8	Feed Class 2																				HW		Spike		Spike
9	Feedstream Description				Wastewater		Wastewater		Wastewater		Wastewater		HDO Heavies		HDO Heavies		HDO Heavies		HDO Heavies				Spike MCB		Spike MCB
10	Feed Rate		lb/hr								?								?				11.1		11.09
11	Heating Value		Btu/lb								913.0								13949.0						
12	Viscosity		cSt								2.6								117.3						
13	Density		g/ml								0.970								0.990						
14	Ash		% wt		0.013		0.013		0.02		0.015		0.038		0.048		0.042		0.043						
15	Chlorine		ppmw	nd	1.0	nd	1.0	nd	1.0	nd	1.0		9.9		9.7		5.2		8.3						
16	Antimony		ppbw		31.2		33.2		51.6		38.7	nd	500	nd	500	nd	500	nd	500						
17	Arsenic		ppbw		115		109		165		129.7		1920		1880		1250	nd	1680						
18	Barium		ppbw		10		10		10		10	nd	1000	nd	1000	nd	1000	nd	1000						
19	Beryllium		ppbw	nd	2	nd	2	nd	2	nd	2	nd	200	nd	200	nd	200	nd	200						
20	Cadmium		ppbw		4.7	nd	2		4.7	nd	3.8	nd	200	nd	200	nd	200	nd	200						
21	Chromium		ppbw		101		108		152		120.3	nd	500	nd	500	nd	500	nd	500						
22	Lead		ppbw		27.1		24.7		32.7		28.2	nd	500	nd	500	nd	500	nd	500						
23	Mercury		ppbw	nd	20	nd	20	nd	20	nd	20		104		92		100	nd	99						
24	Silver		ppbw	nd	5	nd	5	nd	5	nd	5	nd	500	nd	500	nd	500	nd	500						
25	Thallium		ppbw	nd	5	nd	5	nd	5	nd	5	nd	500	nd	500	nd	500	nd	500						
26																									
27	Stack Gas Flowrate		dscfm		10158		10353		10086		10199		10158		10353		10086		10199						
28	Oxygen		%		6.6		6.3		6.5		6.5		6.6		6.3		6.5		6.47						
29																									
30	Thermal Feedrate		MMBtu/hr																						
31	Estimated Firing Rate		MMBtu/hr																						
32																									
33	Need total waste feedrates to make Feedrate MTEC Calculations																								
34																									
35	**833C11**												R1		R2		R3		Cond Avg		R1		R2		R3
36																									
37	Feedstream Number												F1		F1		F1		F1		F2		F2		F2
38	Feed Class												Liq HW		Liq HW		Liq HW		Liq HW		Spike		Spike		Spike
39	Feed Class 2												HW		HW		HW		HW		Spike		Spike		Spike
40	Feedstream Description												HDO Heavies		HDO Heavies		HDO Heavies		HDO Heavies		Spike MCB		Spike MCB		Spike MCB
41	Feed Rate		lb/hr																?		10.95		11.09		11.09
42	Heating Value		Btu/lb																14048						
43	Viscosity		cp																116.50						
44	Density		g/ml																1.000						
45	Ash		% wt										0.038		0.036		0.042		0.039						
46	Chlorine		ppmw										4.1		6.8		4.4		5.1						
47	Antimony		ppmw										0.59		0.88		0.88		0.8						
48	Arsenic		ppmw										1.63		2.32		2.93		2.3						
49	Barium		ppmw									nd	1	nd	1	nd	1	nd	1						
50	Beryllium		ppmw									nd	0.2	nd	0.2	nd	0.2	nd	0.2						
51	Cadmium		ppmw									nd	0.2	nd	0.2	nd	0.2	nd	0.2						
52	Chromium		ppmw										0.6	nd	0.5	nd	0.5	nd	0.5						
53	Lead		ppmw									nd	0.5	nd	0.5	nd	0.5	nd	0.5						
54	Mercury		ppmw									nd	0.104	nd	0.098	nd	0.102	nd	0.101						
55	Silver		ppmw									nd	0.5	nd	0.5	nd	0.5	nd	0.5						
56	Thallium		ppmw									nd	0.5	nd	0.5	nd	0.5	nd	0.5						
57																									
58	Stack Gas Flowrate		dscfm																10652.7						
59	Oxygen		%																3.9						
60																									

	B	AA	AB	AC	AD	AE	AF	AG
1	**Feedstreams**							
2								
3								
4	**833C10**		R3			Cond Avg		Cond Avg
5								
6	Feedstream Number		F3			F3		F4
7	Feed Class		Spike			Spike		Total
8	Feed Class 2		Spike			Spike		Total
9	Feedstream Description		Spike MCB			Spike MCB		
10	Feed Rate		11.1			11.10		
11	Heating Value							
12	Viscosity							
13	Density							
14	Ash							
15	Chlorine							
16	Antimony							
17	Arsenic							
18	Barium							
19	Beryllium							
20	Cadmium							
21	Chromium							
22	Lead							
23	Mercury							
24	Silver							
25	Thallium							
26								
27	Stack Gas Flowrate					10199		
28	Oxygen					6.5		
29								
30	Thermal Feedrate							
31	Estimated Firing Rate							47.06
32								
33	Need total waste feedra							
34								
35	**833C11**		Cond Avg	Cond Avg				
36								
37	Feedstream Number		F2	F3				
38	Feed Class		Spike	Total				
39	Feed Class 2		Spike	Total				
40	Feedstream Description		Spike MCB		Total			
41	Feed Rate		11.04					
42	Heating Value							
43	Viscosity							
44	Density							
45	Ash							
46	Chlorine							
47	Antimony							
48	Arsenic							
49	Barium							
50	Beryllium							
51	Cadmium							
52	Chromium							
53	Lead							
54	Mercury							
55	Silver							
56	Thallium							
57								
58	Stack Gas Flowrate							
59	Oxygen							
60								

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
61	Estimated Firing Rate		MMBtu/hr																						
62																									
63	Need total waste feedrates to make Feedrate MTEC Calculations																								
64																									
65	**833C12**				R1		R2		R3		Cond Avg		R1		R2		R3		Cond Avg		Cond Avg		Cond Avg		
66																									
67	Feedstream Number				F1		F1		F1		F1		F2		F2		F2		F2				F3		
68	Feed Class				Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW		Liq HW				Total		
69	Feed Class 2																				HW		Total		
70	Feedstream Description				Wastewater		Wastewater		Wastewater		Wastewater		Mixed Waste		Mixed Waste		Mixed Waste		Mixed Waste				Total		
71	Feed Rate		g/hr								?								?						
72	Heating Value		Btu/lb								1025								14369						
73	Viscosity		cp								2.71								5.71						
74	Density		g/ml								0.97								0.86						
75	Ash		% wt	nd	0.01	nd	0.01	nd	0.01	nd	0.01		0.012		0.014		0.012		0.013						
76	Chlorine		ppmw	nd	1.0	nd	1.0	nd	1.0	nd	1		3.6		2.2		3.5		3.1						
77	Antimony		ppmw		0.0298		0.0247		0.0458		0.03	nd	0.322	nd	0.375	nd	0.312		0.4						
78	Arsenic		ppmw		0.115		0.102		0.184		0.1337		0.4	nd	0.375		0.581		0.45						
79	Barium		ppmw		0.0326		0.017		0.0164		0.02	nd	0.645	nd	0.75	nd	0.625		0.7						
80	Beryllium		ppmw		0.002		0.002		0.002		0.002	nd	0.129	nd	0.15	nd	0.125		0.14						
81	Cadmium		ppmw	nd	0.002	nd	0.002		0.0032	nd	0.0024	nd	0.129	nd	0.15	nd	0.125		0.14						
82	Chromium		ppmw		0.144		0.0973		0.0881		0.11	nd	0.322	nd	0.375	nd	0.312		0.34						
83	Lead		ppmw		0.017		0.0139		0.0231		0.018		0.406		0.585	nd	0.312		0.44						
84	Mercury		ppmw	nd	0.0002	nd	0.0002	nd	0.00025		0.0002		0.193	nd	0.105	nd	0.103		0.14						
85	Silver		ppmw	nd	0.005	nd	0.005	nd	0.005		0.005	nd	0.322	nd	0.375	nd	0.312		0.34						
86	Thallium		ppmw	nd	0.005	nd	0.005	nd	0.005		0.005	nd	0.322	nd	0.375	nd	0.312		0.34						
87																									
88	Stack Gas Flowrate		dscfm		10159.0		10001.0		10100.0		10086.7		10159.0		10001.0		10100.0		10086.7						
89	Oxygen		%		5.0		5.8		6.4		5.7		5.0		5.8		6.4		5.7						
90																									
91	Estimated Firing Rate		MMBtu/hr																		48.9		48.9		
92																									
93	Need total waste feedrates to make Feedrate MTEC Calculations																								

	B	AA	AB	AC	AD	AE	AF	AG
61	Estimated Firing Rate			57.9				
62								
63	Need total waste feedra							
64								
65	**833C12**							
66								
67	Feedstream Number							
68	Feed Class							
69	Feed Class 2							
70	Feedstream Description							
71	Feed Rate							
72	Heating Value							
73	Viscosity							
74	Density							
75	Ash							
76	Chlorine							
77	Antimony							
78	Arsenic							
79	Barium							
80	Beryllium							
81	Cadmium							
82	Chromium							
83	Lead							
84	Mercury							
85	Silver							
86	Thallium							
87								
88	Stack Gas Flowrate							
89	Oxygen							
90								
91	Estimated Firing Rate							
92								
93	Need total waste feedra							

	A
1	**Process Information**
2	
3	Nothing available

	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:		BASF, Freeport, TX															
4	Condition ID:		833C12															
5	Condition/Test Date :		Risk burn. May 26-28, 1998															
6																		
7		**833C3**	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	nd	0.0030	0.0030	0.0015	0.0015	nd	0.004	0.0040	0.0020	0.0020	nd	0.02	0.0200	0.0100	0.0100
12		TCDD Total	0		0.0150	0.0000	0.0150	0.0000		0.004	0.0000	0.0040	0.0000		0.009	0.0000	0.0090	0.0000
13		1,2,3,7,8-PCDD	0.5	nd	0.0040	0.0020	0.0020	0.0010	nd	0.005	0.0025	0.0025	0.0013	nd	0.004	0.0020	0.0020	0.0010
14		PCDD Total	0	nd	0.0040	0.0000	0.0020	0.0000	nd	0.005	0.0000	0.0025	0.0000	nd	0.004	0.0000	0.0020	0.0000
15		1,2,3,4,7,8-HxCDD	0.1	nd	0.0070	0.0007	0.0035	0.0004	nd	0.008	0.0008	0.0040	0.0004	nd	0.008	0.0008	0.0040	0.0004
16		1,2,3,6,7,8-HxCDD	0.1	nd	0.0070	0.0007	0.0035	0.0004	nd	0.008	0.0008	0.0040	0.0004	nd	0.008	0.0008	0.0040	0.0004
17		1,2,3,7,8,9-HxCDD	0.1	nd	0.0060	0.0006	0.0030	0.0003	nd	0.007	0.0007	0.0035	0.0004	nd	0.007	0.0007	0.0035	0.0004
18		HxCDD Total	0	nd	0.0070	0.0000	0.0035	0.0000	nd	0.008	0.0000	0.0040	0.0000	nd	0.008	0.0000	0.0040	0.0000
19		1,2,3,4,6,7,8-HpCDD	0.01		0.0130	0.0001	0.0130	0.0001		0.015	0.0002	0.0150	0.0002		0.013	0.0001	0.0130	0.0001
20		HpCDD Total	0		0.0130	0.0000	0.0130	0.0000		0.015	0.0000	0.0150	0.0000		0.013	0.0000	0.0130	0.0000
21		OCDD	0.001		0.0360	0.0000	0.0360	0.0000		0.092	0.0001	0.0920	0.0001		0.029	0.0000	0.0290	0.0000
22		2,3,7,8-TCDF	0.1		0.0070	0.0007	0.0070	0.0007		0.034	0.0034	0.0340	0.0034		0.008	0.0008	0.0080	0.0008
23		TCDF Total	0		0.0170	0.0000	0.0170	0.0000		0.17	0.0000	0.1700	0.0000		0.14	0.0000	0.1400	0.0000
24		1,2,3,7,8-PCDF	0.05		0.0150	0.0008	0.0150	0.0008		0.008	0.0004	0.0080	0.0004	nd	0.005	0.0003	0.0025	0.0001
25		2,3,4,7,8-PCDF	0.5		0.0090	0.0045	0.0090	0.0045		0.006	0.0030	0.0060	0.0030	nd	0.005	0.0025	0.0025	0.0013
26		PCDF Total	0		0.1500	0.0000	0.1500	0.0000		0.053	0.0000	0.0530	0.0000		0.024	0.0000	0.0240	0.0000
27		1,2,3,4,7,8-HxCDF	0.1		0.0320	0.0032	0.0320	0.0032		0.018	0.0018	0.0180	0.0018		0.01	0.0010	0.0100	0.0010
28		1,2,3,6,7,8-HxCDF	0.1		0.0290	0.0029	0.0290	0.0029		0.013	0.0013	0.0130	0.0013		0.008	0.0008	0.0080	0.0008
29		2,3,4,6,7,8-HxCDF	0.1		0.0180	0.0018	0.0180	0.0018		0.008	0.0008	0.0080	0.0008	nd	0.005	0.0005	0.0025	0.0003
30		1,2,3,7,8,9-HxCDF	0.1		0.0120	0.0012	0.0120	0.0012		0.008	0.0008	0.0080	0.0008	nd	0.005	0.0005	0.0025	0.0003
31		HxCDF Total	0		0.2200	0.0000	0.2200	0.0000		0.082	0.0000	0.0820	0.0000		0.039	0.0000	0.0390	0.0000
32		1,2,3,4,6,7,8-HpCDF	0.01		0.1700	0.0017	0.1700	0.0017		0.13	0.0013	0.1300	0.0013		0.067	0.0007	0.0670	0.0007
33		1,2,3,4,7,8,9-HpCDF	0.01		0.0510	0.0005	0.0510	0.0005		0.051	0.0005	0.0510	0.0005		0.021	0.0002	0.0210	0.0002
34		HpCDF Total	0		0.2700	0.0000	0.2700	0.0000		0.22	0.0000	0.2200	0.0000		0.11	0.0000	0.1100	0.0000
35		OCDF	0.001		0.4000	0.0004	0.4000	0.0004		0.64	0.0006	0.6400	0.0006		0.18	0.0002	0.1800	0.0002
36																		
37		Gas sample volume (dscf)			118.36	118.36	118.36	118.36		119.40	119.40	119.40	119.40		117.70	117.70	117.70	117.70
38		O2 (%)			5.00	5.00	5.00	5.00		5.80	5.80	5.80	5.80		6.40	6.40	6.40	6.40
39																		
40		PCDD/PCDF (ng in sample)			1.1320	0.0248	1.1265	0.0213		1.2890	0.0230	1.2825	0.0186		0.5560	0.0319	0.5500	0.0178
41		PCDD/PCDF (ng/dscm @ 7% O2)		28.2	0.2957	0.0065	0.2943	0.0056	38.3	0.3514	0.0063	0.3496	0.0051	88.0	0.1601	0.0092	0.1583	0.0051
42																		
43		TEQCondAvg	0.0053															
44		TotalCondAvg	0.2674															