	B	C
1	**Source Description**	
2		
3	Phase II ID No.	834
4	EPA ID No.	LAD040776809
5	Facility Name	BASF
6	Facility Location	
7	City	Geismar
8	State	LA
9	Unit ID Name/No.	Amines
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	Combustor/waste heat boiler. McGill Envir. 3 zone low NOx combustor (oxidizing chamber, reducing chamber, reoxidation chamber), waste heat boiler, economizer, 9000 lb/hr steam @ 650 psig and 650°F
15	Capacity (MMBtu/hr)	15
16	Soot Blowing	No
17	APCS Detailed Acronym	None
18	APCS General Class	
19	APCS Characteristics	NA
20	Hazardous Wastes	Liq
21	Haz Waste Description	Liq ignitable wastes (DOO1) from amines production, methanol (F003), process vent gases, butanediol light ends
22	Supplemental Fuel	Natural gas
23		
24	Stack Characteristics	
25	Diameter (ft)	1
26	Height (ft)	79
27	Gas Velocity (ft/sec)	98.4
28	Gas Temperature (°F)	330
29		
30	Permitting Status	Tier I for all metals
31	HWC Burn Status (Date if Terminated)	

	B	C
1	**Cond Description**	
2		
3	**834C10**	
4		
5	Report Name/Date	BASF Corp. DRE Trial Burn Report, March 1998, Rev. 2
6	Report Prepar	?
7	Testing Firm	METCO
8	Testing Dates	Feburary 28 - March 2, 1997
9	Cond Dates	Mar-97
10	Cond Description	Trial burn
11	Content	DRE, PM, HCl/Cl2, CO; metals, chlorine, ash feeds
12		
13	**834C11**	
14		
15	Report Name/Date	Risk Burn Report Amines Boiler, Number 6 Utility Boiler, March 1998
16	Report Prepar	ICF Kaiser/BASF
17	Testing Firm	METCO
18	Testing Dates	March 3-5, 1997
19	Cond Dates	Mar-97
20	Cond Description	Risk burn, worst case op cond (max temp, feedrates, prod rates)
21	Content	PM, chlorine, D/F, organics (metals in feedstream only)

	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	**834C10**	**trial burn**				R1		R2		R3		Cond Avg
7												
8	PM	E1	gr/dscf	y		0.0057		0.0047		0.0031		0.0045
9	CO (RA)	E1	ppmv	y		0.1		0.9		3.3		1.4
10	HCl		ppmv	n		0.02		0.01		0.01		0.01
11	Cl2		ppmv	n	nd	0	nd	0	nd	0		nd
12												
13	POHC DRE	Toluene										
14	Feedrate		lb/hr			32.2		26		30.7		
15	Emissions Rate		lb/hr			2.254E-05		1.82E-05		1.54E-05		
16	DRE	E1	%			99.99993		99.99993		99.99995		
17												
18	Sampling Train	PM, HCl/Cl2	E1									
19	Stack Gas Flowrate		dscfm			2047		2109		2006		2054
20	O2		%			3		3		3		3.0
21	Moisture		%			30.1		29.9		30.3		30.1
22	Temperature		°F			341.6		341.6		341.6		341.6
23												
24	HCl	E1	ppmv	y		0.02		0.01		0.01		0.01
25	Cl2	E1	ppmv	y		0.00		0.00		0.00		0.00
26	Total Chlorine	E1	ppmv	y		0.02		0.01		0.01		0.01
27												
28												
29	**834C11**	**Worst case risk burn**				R1		R2		R3		Cond Avg
30												
31	PM	E1	gr/dscf	y		0.0171		0.0144		0.0127		0.0147
32	CO (RA)	E1	ppmv	y		0.1		0.4		0.1		0.2
33	HCl		ppmv	n		0.01		0.01		0.03		0.02
34	Cl2		ppmv	n	nd	0	nd	0	nd	0		nd
35												
36	Sampling Train	PM, HCl/Cl2	E1									
37	Stack Gas Flowrate		dscfm			2229		2224		2148		2200
38	O2		%			4.4		4.1		4		4.2
39	Moisture		%			25.8		25.1		26		25.6
40	Temperature		°F			329		329		323.6		327.2
41												
42	HCl	E1	ppmv	y		0.01		0.01		0.02		0.01
43	Cl2	E1	ppmv	y		0.00		0.00		0.00		0.00
44	Total Chlorine	E1	ppmv	y		0.01		0.01		0.02		0.01

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	**Feedstreams**																		
2																			
3	**834C10**	**(trial burn)**			R1		R2		R3		Cond Avg		R1		R2		R3		Cond Avg
4																			
5	Feedstream Number				F1		F1		F1		F1		F2		F2		F2		F2
6	Feed Class				Liq HW		Liq HW		Liq HW		Liq HW		Total		Total		Total		Total
7	Feed Class 2				HW		HW		HW		HW		Total		Total		Total		Total
8	Feedstream Description				Liquid waste		Liquid waste		Liquid waste		Liquid waste		Total		Total		Total		Total
9	Feed Rate		g/hr		542621		549435		550207		547421								
10	Density		g/ml		0.92		0.92		0.92		0.92								
11	Heating Value		Btu/lb		7700		7700		7700		7700								
12	Ash		g/hr	nd	0.543		15.934		7.153			nd							
13	Chlorine		g/hr	nd	0.271	nd	0.275	nd	0.275			nd							
14	Antimony		g/hr		0.014		0.014		0.014										
15	Arsenic		g/hr		0.01		0.01		0.01										
16	Barium		g/hr		0.054		0.055		0.055										
17	Beryllium		g/hr		0.001		0.001		0.001										
18	Cadmium		g/hr		0.002		0.002		0.002										
19	Chromium		g/hr		0.022		0.022		0.022										
20	Lead		g/hr		0.007		0.007		0.007										
21	Mercury		g/hr		0.023		0.024		0.024										
22	Nickel		g/hr		0.028		0.029		0.029										
23	Selenium		g/hr		0.017		0.018		0.018										
24	Silver		g/hr		0.003		0.003		0.003										
25	Thallium		g/hr		0.01		0.01		0.01										
26																			
27																			
28	Stack Gas Flowrate		dscfm		2047		2109		2006		2054		2047		2109		2006		2054
29	O2		%		3.0		3.0		3.0		3.0		3.0		3.0		3.0		3.0
30																			
31	Thermal Feedrate		MMBtu/hr		9.2		9.3		9.3		9.3		9.2		9.3		9.3		9.3
32	Estimated Firing Rate		MMBtu/hr																11.7
33																			
34	*Feedrate MTEC Calculations*																		
35	Ash		mg/dscm	100	0.1		3.5		1.6	2	1.7	100	0.1		3.5		1.6	2	1.7
36	Chlorine		µg/dscm	100	60.6	100	59.7	100	62.8	100	61.1	100	60.6	100	59.7	100	62.8	100	61.1
37	Antimony		µg/dscm		3.1		3.0		3.2		3.1		3.1		3.0		3.2		3.1
38	Arsenic		µg/dscm		2.2		2.2		2.3		2.2		2.2		2.2		2.3		2.2
39	Barium		µg/dscm		12.1		11.9		12.6		12.2		12.1		11.9		12.6		12.2
40	Beryllium		µg/dscm		0.2		0.2		0.2		0.2		0.2		0.2		0.2		0.2
41	Cadmium		µg/dscm		0.4		0.4		0.5		0.4		0.4		0.4		0.5		0.4
42	Chromium		µg/dscm		4.9		4.8		5.0		4.9		4.9		4.8		5.0		4.9
43	Lead		µg/dscm		1.6		1.5		1.6		1.6		1.6		1.5		1.6		1.6
44	Mercury		µg/dscm		5.1		5.2		5.5		5.3		5.1		5.2		5.5		5.3
45	Nickel		µg/dscm		6.3		6.3		6.6		6.4		6.3		6.3		6.6		6.4
46	Selenium		µg/dscm		3.8		3.9		4.1		3.9		3.8		3.9		4.1		3.9
47	Silver		µg/dscm		0.7		0.7		0.7		0.7		0.7		0.7		0.7		0.7
48	Thallium		µg/dscm		2.2		2.2		2.3		2.2		2.2		2.2		2.3		2.2
49																			
50	SVM		µg/dscm		2.0		2.0		2.1		2.0		2.0		2.0		2.1		2.0
51	LVM		µg/dscm		7.4		7.2		7.5		7.4		7.4		7.2		7.5		7.4
52																			
53																			
54																			
55	**834C11**	**(risk burn)**			R1		R2		R3		Cond Avg		R1		R2		R3		Cond Avg
56			Units																
57	Feedstream Number				F1		F1		F1		F1		F2		F2		F2		F2
58	Feed Class				Liq HW		Liq HW		Liq HW		Liq HW		Total		Total		Total		Total

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
59	Feed Class 2				HW		HW		HW		HW		Total		Total		Total		Total
60	Feedstream Description				Liquid waste		Liquid waste		Liquid waste		Liquid waste		Total		Total		Total		Total
61	Feed Rate		g/hr		533609		545549		527689		535616								
62	Density		g/ml		0.86		0.86		0.86		0.86								
63	Heat Content		Btu/lb		9886		9886		9886		9886								
64	Ash		g/hr	nd	0.53	nd	0.55	nd	0.53			nd							
65	Chlorine		g/hr		3.61		2.32	nd	0.26										
66	Antimony		g/hr	nd	0.013	nd	0.014	nd	0.013			nd							
67	Arsenic		g/hr	nd	0.01	nd	0.01	nd	0.01			nd							
68	Barium		g/hr	nd	0.048	nd	0.049	nd	0.053			nd							
69	Beryllium		g/hr	nd	0.001	nd	0.001	nd	0.001			nd							
70	Cadmium		g/hr		0.002	nd	0.001	nd	0.001										
71	Chromium		g/hr	nd	0.021	nd	0.022	nd	0.021			nd							
72	Lead		g/hr	nd	0.007	nd	0.007	nd	0.007			nd							
73	Mercury		g/hr	nd	0.022	nd	0.023	nd	0.022			nd							
74	Nickel		g/hr		0.028	nd	0.01	nd	0.01										
75	Selenium		g/hr	nd	0.017	nd	0.017	nd	0.017			nd							
76	Silver		g/hr	nd	0.003	nd	0.003	nd	0.003			nd							
77	Thallium		g/hr	nd	0.01	nd	0.01	nd	0.01			nd							
78																			
79																			
80	Stack Gas Flowrate		dscfm		2229		2224		2148		2200		2229		2224		2148		2200
81	O2		%		4.4		4.1		4.0		4.2		4.4		4.1		4.0		4.2
82																			
83	Thermal Feedrate		MMBtu/hr		11.6		11.9		11.5		11.7		11.6		11.9		11.5		11.7
84	Estimated Firing Rate		MMBtu/hr																11.8
85																			
86	*Feedrate MTEC Calculations*																		
87	Ash		mg/dscm	100	0.118	100	0.121	100	0.120	100	0.12	100	0.118	100	0.121	100	0.120	100	0.1
88	Chlorine		µg/dscm		804.4		508.9	100	58.7	4	457.3	0	804.4	0	508.9	100	58.7	4	457.3
89	Antimony		µg/dscm	100	2.9	100	3.1	100	2.9	100	3.0	100	2.9	100	3.1	100	2.9	100	3.0
90	Arsenic		µg/dscm	100	2.2	100	2.2	100	2.3	100	2.2	100	2.2	100	2.2	100	2.3	100	2.2
91	Barium		µg/dscm	100	10.7	100	10.7	100	12.0	100	11.1	100	10.7	100	10.7	100	12.0	100	11.1
92	Beryllium		µg/dscm	100	0.2	100	0.2	100	0.2	100	0.2	100	0.2	100	0.2	100	0.2	100	0.2
93	Cadmium		µg/dscm		0.4	100	0.2	100	0.2	50	0.3	0	0.4	100	0.2	100	0.2	50	0.3
94	Chromium		µg/dscm	100	4.7	100	4.8	100	4.7	100	4.7	100	4.7	100	4.8	100	4.7	100	4.7
95	Lead		µg/dscm	100	1.6	100	1.5	100	1.6	100	1.6	100	1.6	100	1.5	100	1.6	100	1.6
96	Mercury		µg/dscm	100	4.9	100	5.0	100	5.0	100	5.0	100	4.9	100	5.0	100	5.0	100	5.0
97	Nickel		µg/dscm		6.2	100	2.2	100	2.3	42	3.6	0	6.2	100	2.2	100	2.3	42	3.6
98	Selenium		µg/dscm	100	3.8	100	3.7	100	3.8	100	3.8	100	3.8	100	3.7	100	3.8	100	3.8
99	Silver		µg/dscm	100	0.7	100	0.7	100	0.7	100	0.7	100	0.7	100	0.7	100	0.7	100	0.7
100	Thallium		µg/dscm	100	2.2	100	2.2	100	2.3	100	2.2	100	2.2	100	2.2	100	2.3	100	2.2
101																			
102	SVM		µg/dscm	78	2.0	100	1.8	100	1.8	92	1.9	78	2.0	100	1.8	100	1.8	92	1.9
103	LVM		µg/dscm	100	7.1	100	7.2	100	7.2	100	7.2	100	7.1	100	7.2	100	7.2	100	7.2
104																			
105																			
106	**Tier I BIF Limits**																		
107																			
108	Antimony		g/hr		153														
109	Arsenic		g/hr		0.16														
110	Barium		g/hr		25458														
111	Beryllium		g/hr		0.12														
112	Cadmium		g/hr		0.15														
113	Chlorine		g/hr		96														
114	Chromium		g/hr		0.34														
115	Lead		g/hr		40														
116	Mercury		g/hr		36														

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
117	Silver		g/hr		1500														
118	Thallium		g/hr		253														

	A	B	C	D	E	F
1	**Process Information**					
2						
3		Units	Run	Run	Run	Avg
4			1	2	3	
5	**834C10**					
6						
7	Temp Zone 1	°F	1990	1990	1990	

	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, Geismar, LA, Amines Boiler															
4		Condition ID:	834C11															
5		Condition/Test Date:	Risk burn worst case conditions, March 3-5, 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	nd	0.0100	0.0100	0.0050	0.0050	nd	0.01	0.0100	0.0050	0.0050	nd	0.01	0.0100	0.0050	0.0050
12		TCDD Total	0		0.0100	0.0000	0.0100	0.0000	nd	0.01	0.0000	0.0050	0.0000	nd	0.01	0.0000	0.0050	0.0000
13		1,2,3,7,8-PCDD	0.5	nd	0.0100	0.0050	0.0050	0.0025	nd	0.02	0.0100	0.0100	0.0050	nd	0.01	0.0050	0.0050	0.0025
14		PCDD Total	0	nd	0.0100	0.0000	0.0050	0.0000	nd	0.02	0.0000	0.0100	0.0000	nd	0.01	0.0000	0.0050	0.0000
15		1,2,3,4,7,8-HxCDD	0.1	nd	0.0100	0.0010	0.0050	0.0005	nd	0.02	0.0020	0.0100	0.0010	nd	0.01	0.0010	0.0050	0.0005
16		1,2,3,6,7,8-HxCDD	0.1	nd	0.0100	0.0010	0.0050	0.0005	nd	0.01	0.0010	0.0050	0.0005	nd	0.01	0.0010	0.0050	0.0005
17		1,2,3,7,8,9-HxCDD	0.1	nd	0.0100	0.0010	0.0050	0.0005	nd	0.01	0.0010	0.0050	0.0005	nd	0.01	0.0010	0.0050	0.0005
18		HxCDD Total	0		0.0100	0.0000	0.0100	0.0000	nd	0.01	0.0000	0.0050	0.0000	nd	0.01	0.0000	0.0050	0.0000
19		1,2,3,4,6,7,8-HpCDD	0.01	nd	0.0300	0.0003	0.0150	0.0002		0.02	0.0002	0.0200	0.0002	nd	0.01	0.0001	0.0050	0.0001
20		HpCDD Total	0	nd	0.0500	0.0000	0.0250	0.0000		0.02	0.0000	0.0200	0.0000		0.01	0.0000	0.0100	0.0000
21		OCDD	0.001	nd	0.0700	0.0001	0.0350	0.0000		0.04	0.0000	0.0400	0.0000	nd	0.03	0.0000	0.0150	0.0000
22		2,3,7,8-TCDF	0.1		0.0700	0.0070	0.0700	0.0070	nd	0.01	0.0010	0.0050	0.0005	nd	0.01	0.0010	0.0050	0.0005
23		TCDF Total	0		0.4100	0.0000	0.4100	0.0000	nd	0.01	0.0000	0.0050	0.0000	nd	0.01	0.0000	0.0050	0.0000
24		1,2,3,7,8-PCDF	0.05		0.0100	0.0005	0.0100	0.0005	nd	0.01	0.0005	0.0050	0.0003	nd	0.01	0.0005	0.0050	0.0003
25		2,3,4,7,8-PCDF	0.5		0.0200	0.0100	0.0200	0.0100	nd	0.01	0.0050	0.0050	0.0025	nd	0.01	0.0050	0.0050	0.0025
26		PCDF Total	0		0.1700	0.0000	0.1700	0.0000	nd	0.01	0.0000	0.0050	0.0000	nd	0.01	0.0000	0.0050	0.0000
27		1,2,3,4,7,8-HxCDF	0.1		0.0300	0.0030	0.0300	0.0030		0.01	0.0010	0.0100	0.0010	nd	0.01	0.0010	0.0050	0.0005
28		1,2,3,6,7,8-HxCDF	0.1	nd	0.0100	0.0010	0.0050	0.0005	nd	0.01	0.0010	0.0050	0.0005	nd	0.01	0.0010	0.0050	0.0005
29		2,3,4,6,7,8-HxCDF	0.1		0.0200	0.0020	0.0200	0.0020		0.01	0.0010	0.0100	0.0010	nd	0.01	0.0010	0.0050	0.0005
30		1,2,3,7,8,9-HxCDF	0.1	nd	0.0100	0.0010	0.0050	0.0005	nd	0.01	0.0010	0.0050	0.0005	nd	0.01	0.0010	0.0050	0.0005
31		HxCDF Total	0		0.0800	0.0000	0.0800	0.0000		0.04	0.0000	0.0400	0.0000		0.01	0.0000	0.0100	0.0000
32		1,2,3,4,6,7,8-HpCDF	0.01		0.0300	0.0003	0.0300	0.0003		0.03	0.0003	0.0300	0.0003	nd	0.01	0.0001	0.0050	0.0001
33		1,2,3,4,7,8,9-HpCDF	0.01	nd	0.0100	0.0001	0.0050	0.0001	nd	0.02	0.0002	0.0100	0.0001	nd	0.01	0.0001	0.0050	0.0001
34		HpCDF Total	0		0.0300	0.0000	0.0300	0.0000		0.03	0.0000	0.0300	0.0000		0.01	0.0000	0.0100	0.0000
35		OCDF	0.001		0.0300	0.0000	0.0300	0.0000	nd	0.03	0.0000	0.0150	0.0000	nd	0.01	0.0000	0.0050	0.0000
36																		
37		Gas sample volume (dscf)			132.70	132.70	132.70	132.70		132.80	132.80	132.80	132.80		133.50	133.50	133.50	133.50
38		O2 (%)			4.20	4.20	4.20	4.20		4.10	4.10	4.10	4.10		4.40	4.40	4.40	4.40
39																		
40		PCDD/PCDF (ng in sample)			0.8700	0.0433	0.8050	0.0331		0.2200	0.0353	0.1750	0.0189		0.1200	0.0288	0.0750	0.0144
41		PCDD/PCDF (ng/dscm @ 7% O2)		47.3	0.1931	0.0096	0.1786	0.0073	92.8	0.0485	0.0078	0.0386	0.0042	100.0	0.0268	0.0064	0.0167	0.0032
42																		
43		TEQ Cond Avg	0.0049															
44		Total Cond Avg	0.0780															