APPENDIX

Appendix A: Process Operating Data
Appendix B: Calculations
Appendix C: Raw Field Data and Calibration Data Sheets
Appendix D: Reduced Field Data Sheets
Appendix E: Sampling Log and Chain of Custody Records
Appendix F: Analytical Data Sheets
Appendix G: List of Participants

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Table 4
MERCURY SPECIATION TEST UNIT OPERATING DATA

Station: City of Grand Island Platte Station			Unit: 1			
Test Date: 8/18/99			Reviewed By: JAP			
Time:	10:00	10:30	11:00	11:30	12:00	12:30
✓ Gross (MWH)	95.98	95.82	94.79	94.02	98.52	95.21
✓ Auxiliary Use (MWH)	3.46 4.05 7.51	3.46 4.07	3.51 3.96	3.52 3.87	3.53 3.88	3.36 3.98
2413 Net Generation (MWH)	88.47			88.15	88.21	22.99
Time:						
Steam Conditions						
1149 ✓ Throttle Stm Temp (°F)	1002.31	998.06	998.66	997.13	994.23	991.78
✓ Throttle Stm Press (PSIG)	1796.06	1799.31	1800.06	1806.56	1794.91	1800.06
474 First Stage Press (PSIG)	1779.60	1779.25	1781.36	1782.61	1775.59	1779.85
✓ Cold RH Temp (°F)	656.41	654.84	654.27	653.64	652.88	647.98
✓ Cold RH Press (PSIG)	431.03	430.00	427.62	424.52	432.76	428.86
✓ Main Stm Flow (KLBH)	630.43	633.56	619.22	615.83	628.85	624.16
Feedwater						
✓ Feedwater Temp (°F)	453.76	452.69	453.90	454.33	454.23	454.07
✓ #1 MS Attemp Flow (KLBH)	19.02	20.65	23.52	24.89	24.92	22.99
? — 289 #1 RH Attemp Flow (KLBH)	0	0	0			

- 30 min. increments
- Precip Screen data

Table 4
MERCURY SPECIATION TEST UNIT OPERATING DATA
Hourly Readings

	Condenser						
1225	Circ Water In (°F)	78.60	77.92	77.77	78.36	78.36	76.95
1231	Circ Water Out (°F)	107.18	106.06	106.36	107.39	107.54	106.58
✓ VACUUM	Condenser Press (INHG)	2.71	2.68	2.73	2.73	2.72	2.66
	Boiler						
2248	#1 AH Gas In Temp (°F)	713.80	718.22	720.56	723.52	725.51	726.11
252	#1 AH Gas Out Temp (°F)	294.73	300.13	302.48	305.5	306.27	309.12
253	#1 AH Air In Temp (°F)	92.55	94.00	95.83	96.78	98.13	100.32
2247	#1 AH Air Out Temp (°F)	640.22	646.42	649.35	652.57	654.62	656.65
2399	FD Fan Suction Temp (°F)	82.75	84.48	86.03	86.84	88.47	89.52
Klb/hr	~~Coal Flow~~	113.7					
	CEM						
scfh	Stack Flow	16058475	15778279	15760154	15846214	15757762	15481786
°F	Temperature	297.5	303.5	305.0	308.5	310.0	313.0
%	Opacity	5.8	6.2	5.8	5.8	5.5	5.2
✓ 83%	Carbon Dioxide (CO_2)	12.0	12.2	12.2	12.1	12.1	12.7
		10:00	10:30	11:00	11:30	12:00	

BAR. PRESS. 30.47 WEATHER
30.14 CEMS STACK

Table 5
MERCURY SPECIATION TEST FUEL FLOW READING

Date:	8/18/99	Test Hours:	1000 to 1230	Operator	
Unit:	1			Load (MW):	95 (Gross)

Ending ~~Total~~ Readings

Data Point	Read From	Hour 0	Hour 1	Hour 2	Hour 3	Hour 4	AVG.
Feeder A ~~(Total Pounds)~~	Coal Feeder Counter	38.22	37.87	38.11	38.24	38.29	38.15
Feeder B ~~(Total Pounds)~~	Coal Feeder Counter	38.47	38.06	38.43	38.52	38.65	38.43
Feeder C ~~(Total Pounds)~~	Coal Feeder Counter	~~3~~	~~2~~				
Feeder D ~~(Total Pounds)~~	Coal Feeder Counter	37.69	37.36	37.70	37.91	37.88	37.71
Fuel Samples Taken	☑ Yes ☐ No						114.29
Fly Ash Samples Taken	☐ Yes ☐ No						

127 Klb/hr
130
133
136

8/18/99									
CEM	3:00	3:30	4:00	4:30	5:00	5:30	6:00		
STACK FLOW	15452037	15632951	15202993	15682516	15147026	15362762	15238365		
TEMPERATURE	313.5	316.5	316.0	315.0	314.0	317.5	317.5		
OPACITY	5.0	5.3	5.6	5.1	5.6	6.5	5.0		
CARBON DIOXIDE (CO2)	13.0	12.6	12.8	12.7	12.8	12.6	12.9		

46
47
48
49
50

UNIT1 EFF LOG 4 15MIN WEDNESDAY AUG 18,1999 09:10:52

THROTT PSIG	MAINSTM DEG F	MAINSTM KLB/HR	COLDRH PSIG	COLDRH DEG F	HOTRH PSIG	HOTRH DEG F	FWTOECN DEG F	SHDESUP KLB/HR	NET GEN	GROSS MW	SWGR 1A MW	SWGR 1B MW	FIRST STAGE	CW IN	CW OUT	AHGAS IN	COND VAC	AHGAS OUT	AHAIR IN	AHAIR OUT	FDFAN SUCT	COALFED A	COALFED B	COALFED D
1794.44	1005.47	543.34	366.96	632.58	349.08	981.33	438.00	13.82	74.24	82.63	3.06	3.74	1777.60	77.11	104.66	691.95	2.46	297.46	90.68	633.17	80.15	32.92	33.29	32.79

28

START

TEST

UNIT1 EFF LOG 4 15MIN WEDNESDAY AUG 18,1999 10:01:36

THROTT PSIG	MAINSTM DEG F	MAINSTM KLB/HR	COLDRH PSIG	COLDRH DEG F	HOTRH PSIG	HOTRH DEG F	FWTOECN DEG F	SHDESUP KLB/HR	NET GEN	GROSS MW	SWGR 1A MW	SWGR 1B MW	FIRST STAGE	CW IN	CW OUT	AHGAS IN	COND VAC	AHGAS OUT	AHAIR IN	AHAIR OUT	FDFAN SUCT	COALFED A	COALFED B	COALFED D
1798.06	1002.31	630.43	431.03	656.41	407.13	996.13	453.76	19.02	88.29	95.98	3.46	4.05	1779.60	78.60	107.18	713.80	2.71	294.73	92.55	640.22	82.75	38.22	38.47	37.69

UNIT1 EFF LOG 4 15MIN WEDNESDAY AUG 18,1999 10:31:36

THROTT PSIG	MAINSTM DEG F	MAINSTM KLB/HR	COLDRH PSIG	COLDRH DEG F	HOTRH PSIG	HOTRH DEG F	FWTOECN DEG F	SHDESUP KLB/HR	NET GEN	GROSS MW	SWGR 1A MW	SWGR 1B MW	FIRST STAGE	CW IN	CW OUT	AHGAS IN	COND VAC	AHGAS OUT	AHAIR IN	AHAIR OUT	FDFAN SUCT	COALFED A	COALFED B	COALFED D
1799.31	998.06	633.56	430.00	654.84	408.70	991.11	452.89	20.85	86.48	95.82	3.46	4.07	1779.25	77.92	106.06	718.22	2.68	300.13	94.00	646.42	84.48	37.87	38.06	37.36

30

UNIT1 EFF LOG 4 15MIN WEDNESDAY AUG 18,1999 11:01:37

THROTT PSIG	MAINSTM DEG F	MAINSTM KLB/HR	COLDRH PSIG	COLDRH DEG F	HOTRH PSIG	HOTRH DEG F	FWTOECN DEG F	SHDESUP KLB/HR	NET GEN	GROSS MW	SWGR 1A MW	SWGR 1B MW	FIRST STAGE	CW IN	CW OUT	AHGAS IN	COND VAC	AHGAS OUT	AHAIR IN	AHAIR OUT	FDFAN SUCT	COALFED A	COALFED B	COALFED D
1800.06	998.66	619.22	427.62	654.27	406.15	991.42	453.90	23.52	87.38	94.79	3.51	3.98	1781.36	77.77	106.36	720.56	2.73	302.48	95.83	649.35	86.03	38.11	38.43	37.70

UNIT1 EFF LOG 4 15MIN WEDNESDAY AUG 18,1999 11:31:36

THROTT	MAINSTM	MAINSTM	COLDRH	COLDRH	HOTRH	HOTRH	FWTOECN	SHDESUP	NET	GROSS	SWGR	SWGR	FIRST	CW	CW	AHGAS	COND	AHGAS	AHAIR	AHAIR	FDFAN	COALFED	COALFED	COALFED
PSIG	DEG F	KLB/HR	PSIG	DEG F	PSIG	DEG F	DEG F	KLB/HR	GEN	MW	1A MW	1B MW	STAGE	IN	OUT	IN	VAC	OUT	IN	OUT	SUCT	A	B	D
1806.56	997.13	615.83	424.52	653.64	402.58	989.53	454.33	24.89	88.15	94.02	3.52	3.87	1782.61	78.36	107.39	723.52	2.73	305.50	96.78	652.57	86.84	38.24	38.52	37.91

UNIT1 EFF LOG 4 15MIN WEDNESDAY AUG 18,1999 12:01:36

THROTT PSIG	MAINSTM DEG F	MAINSTM KLB/HR	COLDRH PSIG	COLDRH DEG F	HOTRH PSIG	HOTRH DEG F	FWTOECN DEG F	SHDESUP KLB/HR	NET GEN	GROSS MW	SWGR 1A MW	SWGR 1B MW	FIRST STAGE	CW IN	CW OUT	AHGAS IN	COND VAC	AHGAS OUT	AHAIR IN	AHAIR OUT	FDFAN SUCT	COALFED A	COALFED B	COALFED D
1794.91	994.23	628.85	432.76	652.88	411.02	988.72	454.23	24.92	88.21	95.82	3.53	3.88	1775.59	78.36	107.54	725.51	2.72	306.27	98.13	654.62	88.47	38.29	38.65	37.88

UNIT1 EFF LOG 4 15MIN WEDNESDAY AUG 18,1999 12:31:37

THROTT	MAINSTM	MAINSTM	COLDRH	COLDRH	HOTRH	HOTRH	FWTOECN	SHDESUP	NET	GROSS	SWGR	SWGR	FIRST	CW	CW	AHGAS	COND	AHGAS	AHAIR	AHAIR	FDFAN	COALFED	COALFED	COALFED
PSIG	DEG F	KLB/HR	PSIG	DEG F	PSIG	DEG F	DEG F	KLB/HR	GEN	MW	1A MW	1B MW	STAGE	IN	OUT	IN	VAC	OUT	IN	OUT	SUCT	A	B	D
1800.06	991.78	624.16	428.86	647.98	407.40	989.94	454.07	22.99	87.53	95.21	3.36	3.98	1779.85	76.95	106.58	726.11	2.66	309.12	100.32	656.65	89.52	38.19	38.62	37.88

UNIT1 EFF LOG 4 15MIN WEDNESDAY AUG 18,1999 13:01:36

THROTT	MAINSTM	MAINSTM	COLDRH	COLDRH	HOTRH	HOTRH	FWTOECN	SHDESUP	NET	GROSS	SWGR	SWGR	FIRST	CW	CW	AHGAS	COND	AHGAS	AHAIR	AHAIR	FDFAN	COALFED	COALFED	COALFED
PSIG	DEG F	KLB/HR	PSIG	DEG F	PSIG	DEG F	DEG F	KLB/HR	GEN	MW	1A MW	1B MW	STAGE	IN	OUT	IN	VAC	OUT	IN	OUT	SUCT	A	B	D
1795.66	996.34	641.35	440.56	655.45	418.52	988.30	455.67	21.31	89.91	97.47	3.46	4.11	1777.60	76.50	105.98	725.60	2.67	312.26	100.73	657.92	70.00	39.07	39.52	38.57

UNIT1 EFF LOG 4 15MIN WEDNESDAY AUG 18,1999 13:31:36

THROTT PSIG	MAINSTM DEG F	MAINSTM KLB/HR	COLDRH PSIG	COLDRH DEG F	HOTRH PSIG	HOTRH DEG F	FWTOECN DEG F	SHDESUP KLB/HR	NET GEN	GROSS MW	SWGR 1A MW	SWGR 1B MW	FIRST STAGE	CW IN	CW OUT	AHGAS IN	COND VAC	AHGAS OUT	AHAIR IN	AHAIR OUT	FDFAN SUCT	COALFED A	COALFED B	COALFED D
1798.06	997.81	637.59	437.96	657.61	416.02	992.86	455.89	24.68	89.45	97.17	3.45	4.17	1778.35	76.71	104.86	724.06	2.65	308.32	101.13	656.17	70.00	38.86	39.34	38.37

UNIT1 EFF LOG 4 15MIN WEDNESDAY AUG 18,1999 14:01:36

THROTT PSIG	MAINSTM DEG F	MAINSTM KLB/HR	COLDRH PSIG	COLDRH DEG F	HOTRH PSIG	HOTRH DEG F	FWTOECN DEG F	SHDESUP KLB/HR	NET GEN	GROSS MW	SWGR 1A MW	SWGR 1B MW	FIRST STAGE	CW IN	CW OUT	AHGAS IN	COND VAC	AHGAS OUT	AHAIR IN	AHAIR OUT	FDFAN SUCT	COALFED A	COALFED B	COALFED D
1800.56	992.02	640.44	440.56	653.06	418.29	982.70	455.59	23.93	89.46	97.17	3.42	4.33	1779.50	76.42	105.30	725.18	2.65	311.30	101.47	656.43	70.00	39.33	39.78	38.85

UNIT1 EFF LOG 4 15MIN WEDNESDAY AUG 18,1999 14:31:36

THROTT PSIG	MAINSTM DEG F	MAINSTM KLB/HR	COLDRH PSIG	COLDRH DEG F	HOTRH PSIG	HOTRH DEG F	FWTDECN DEG F	SHDESUP KLB/HR	NET GEN	GROSS MW	SWGR 1A MW	SWGR 1B MW	FIRST STAGE	CW IN	CW OUT	AHGAS IN	COND VAC	AHGAS OUT	AHAIR IN	AHAIR OUT	FDFAN SUCT	COALFED A	COALFED B	COALFED D
1794.53	993.17	644.33	445.17	652.94	422.57	986.36	456.28	25.35	90.40	97.87	3.44	4.35	1780.23	76.27	105.75	726.72	2.65	311.16	101.87	657.84	70.00	39.08	39.47	38.53

UNIT1 EFF LOG 4 15MIN WEDNESDAY AUG 18,1999 15:01:36

THROTT PSIG	MAINSTM DEG F	MAINSTM KLB/HR	COLDRH PSIG	COLDRH DEG F	HOTRH PSIG	HOTRH DEG F	FWTOECN DEG F	SHDESUP KLB/HR	NET GEN	GROSS MW	SWGR 1A MW	SWGR 1B MW	FIRST STAGE	CW IN	CW OUT	AHGAS IN	COND VAC	AHGAS OUT	AHAIR IN	AHAIR OUT	FDFAN SUCT	COALFED A	COALFED B	COALFED D
1802.06	998.95	637.17	439.10	657.53	417.20	998.88	455.40	29.74	89.33	97.27	3.40	4.03	1780.59	76.86	105.45	727.47	2.65	310.33	102.50	657.73	70.00	39.15	39.56	38.68

UNIT1 EFF LOG 4 15MIN WEDNESDAY AUG 18,1999 15:31:36

THROTT PSIG	MAINSTM DEG F	MAINSTM KLB/HR	COLDRH PSIG	COLDRH DEG F	HOTRH PSIG	HOTRH DEG F	FWTOECN DEG F	SHDESUP KLB/HR	NET GEN	GROSS MW	SWGR 1A MW	SWGR 1B MW	FIRST STAGE	CW IN	CW OUT	AHGAS IN	COND VAC	AHGAS OUT	AHAIR IN	AHAIR OUT	FDFAN SUCT	COALFED A	COALFED B	COALFED D
1804.03	990.75	636.07	438.68	650.22	417.05	992.05	456.15	25.13	88.14	97.33	4.04	3.86	1783.49	79.68	96.71	731.59	2.06	314.88	102.88	661.93	70.00	39.16	39.60	38.60

UNIT1 EFF LOG 4 15MIN WEDNESDAY AUG 18,1999 16:01:37

THROTT PSIG	MAINSTM DEG F	MAINSTM KLB/HR	COLDRH PSIG	COLDRH DEG F	HOTRH PSIG	HOTRH DEG F	FWTDECN DEG F	SHDESUP KLB/HR	NET GEN	GROSS MW	SWGR 1A MW	SWGR 1B MW	FIRST STAGE	CW IN	CW OUT	AHGAS IN	COND VAC	AHGAS OUT	AHAIR IN	AHAIR OUT	FDFAN SUCT	COALFED A	COALFED B	COALFED D
1808.94	998.73	629.14	432.11	657.81	416.72	996.45	455.88	24.56	90.06	96.41	3.60	3.85	1786.61	80.57	97.75	730.26	2.19	313.91	102.95	662.18	70.00	39.07	39.37	38.48

UNIT1 EFF LOG 4 15MIN WEDNESDAY AUG 18,1999 16:31:37

THROTT	MAINSTM	MAINSTM	COLDRH	COLDRH	HOTRH	HOTRH	FWTOECN	SHDESUP	NET	GROSS	SWGR	SWGR	FIRST	CW	CW	AHGAS	COND	AHGAS	AHAIR	AHAIR	FDFAN	COALFED	COALFED	COALFED
PSIG	DEG F	KLB/HR	PSIG	DEG F	PSIG	DEG F	DEG F	KLB/HR	GEN	MW	1A MW	1B MW	STAGE	IN	OUT	IN	VAC	OUT	IN	OUT	SUCT	A	B	D
1791.14	996.77	639.11	440.41	654.63	418.29	994.02	455.07	24.23	97.07	97.54	3.54	3.86	1776.73	84.99	102.60	729.88	2.52	312.22	103.32	661.92	70.00	40.93	41.08	35.74

UNIT1 EFF LOG 4 15MIN WEDNESDAY AUG 18,1999 17:01:36

THROTT PSIG	MAINSTM DEG F	MAINSTM KLB/HR	COLDRH PSIG	COLDRH DEG F	HOTRH PSIG	HOTRH DEG F	FWTOECN DEG F	SIDECUT KLB/HR	NET GEN	GROSS MW	SNGR 1A MW	SNGR 1B MW	FIRST STAGE	CW IN	CW OUT	AHGAS IN	COND VAC	AHGAS OUT	AHAIR IN	AHAIR OUT	FDFAN SUCT	COALFED A	COALFED B	COALFED D
1806.56	997.50	629.04	435.20	658.78	413.09	992.34	455.95	22.98	90.39	96.07	3.57	3.99	1784.00	84.38	103.46	730.04	2.50	312.57	103.22	661.82	70.00	40.59	41.22	35.61

UNIT1 CIT LOG 4 15MIN WEDNESDAY AUG 18,1999 17:31:36

THROTT PSIG	MAINSTM DEG F	MAINSTM KLB/HR	COLDRH PSIG	COLDRH DEG F	HOTRH PSIG	HOTRH DEG F	FWTQECN DEG F	SHDESUP KLB/HR	NET GEN	GROSS MW	SNGR 1A MW	SNGR 1B MW	FIRST STAGE	CW IN	CW OUT	AHGAS IN	COND VAC	AHGAS OUT	AHAIR IN	AHAIR OUT	FURAN SUCT	COALFED A	COALFED B	COALFED D
1800.44	995.67	640.31	437.21	654.45	415.27	987.55	455.48	22.41	89.58	96.95	3.60	3.92	1787.99	84.85	102.02	729.09	2.47	314.80	104.08	661.26	70.00	41.23	41.52	35.75

UNIT1 EFF LOG 4 15MIN WEDNESDAY AUG 18,1999 18:01:36

THROTT	MAINSTM	MAINSTM	COLDRH	COLDRH	HOTRH	HOTRH	FNTOECN	SHDESUP	NET	GROSS	SWGR	SWGR	FIRST	CW	CW	AHGAS	COND	AHGAS	AHAIR	AHAIR	FUFAN	COALFED	COALFED	COALFED
PSIG	DEG F	KLB/HR	PSIG	DEG F	PSIG	DEG F	DEG F	KLB/HR	GEN	MW	1A MW	1B MW	STAGE	IN	OUT	IN	VAC	OUT	IN	OUT	SUCT	A	B	D
1003.74	998.81	629.23	432.82	659.08	411.35	995.08	456.86	25.03	87.20	96.07	3.50	3.86	1782.47	85.70	103.08	729.72	2.49	315.30	103.01	662.39	70.00	40.59	41.05	35.52

END of TEST.

1800 Hrs.

8-19-99

	9:30	10:00	10:30	11:00	11:30	12:00	12:30
STACK FLOW	15293078	15238183	15292005	15336856	15153397	15148321	
TEMP.	291.6	295.6	306.3	308.2	310.6	309.0	
OPACITY	5.8	5.8	5.5	5.6	5.6	5.5	
CO_2	12.4	12.5	12.6	12.5	12.5	12.6	

UNIT1 CFF LOG 4 15MIN THURSDAY AUG 17,1999 09:29:07

THROTT PSIG	MAINSTM DEG F	MAINSTM KLB/HR	COLDRH PSIG	COLDRH DEG F	COALFED C	HOTRH DEG F	FWTDECN DEG F	SHDESUP KLB/HR	NET GEN	GROSS MW	SWGR 1A MW	SWGR 1B MW	FIRST STAGE	CW IN	CW OUT	AHGAS IN	COND VAC	AHGAS OUT	AHAIR IN	AHAIR OUT	FUFAN SUCT	COALFED A	COALFED B	COALFED D
1806.56	996.70	604.74	421.76	655.39	39.04	971.50	454.07	34.25	87.51	93.28	4.39	3.45	1774.86	72.79	105.39	723.92	2.57	290.24	87.03	644.84	77.59	38.61	39.17	0.09

UNIT1 EFF LOG 4 15MIN THURSDAY AUG 19,1999 09:59:07

THROTT PSIG	MAINSTM DEG F	MAINSTM KLB/HR	COLDRH PSIG	COLDRH DEG F	COALFED C	HOTRH DEG F	FWTOECN DEG F	SHDESUP KLB/HR	NET GEN	GROSS MW	SNGR 1A MW	SNGR 1B MW	FIRST STAGE	CW IN	CW OUT	AHGAS IN	COND VAC	AHGAS OUT	AHAIR IN	AHAIR OUT	FUFAN SUCT	COALFED A	COALFED B	COALFED D
1796.81	992.88	608.10	423.16	651.02	39.08	982.20	454.13	29.73	88.34	93.65	4.36	3.46	1775.34	73.55	105.84	726.95	2.63	299.40	88.67	653.11	78.93	38.64	38.91	0.09

UNIT1 EFF LOG 4 15MIN THURSDAY AUG 19,1999 10:29:07

THROTT PSIG	MAINSTM DEG F	MAINSTM KLB/HR	COLDRH PSIG	COLDRH DEG F	COALFED C	HOTRH DEG F	FWTOECN DEG F	SHDESUP KLB/HR	NET GEN	GROSS MW	SWGR 1A MW	SWGR 1B MW	FIRST STAGE	CW IN	CW OUT	AHGAS IN	COND VAC	AHGAS OUT	AHAIR IN	AHAIR OUT	FDFAN SUCT	COALFED A	COALFED B	COALFED D
1796.28	997.25	615.51	421.93	653.59	39.17	994.23	454.20	32.39	87.19	94.09	4.10	3.27	1777.36	73.50	105.79	730.50	2.62	303.41	90.03	657.59	80.17	38.72	39.13	0.09

UNIT1 EFF LOG 4 1SMIN THURSDAY AUG 19,1999 10:59:07

THROTT PSIG	MAINSTM DEG F	MAINSTM KLB/HR	COLDRH PSIG	COLDRH DEG F	COALFED C	HOTRH DEG F	FWTOECN DEG F	SHDESUP KLB/HR	NET GEN	GROSS MW	SWGR 1A MW	SWGR 1B MW	FIRST STAGE	CW IN	CW OUT	AHGAS IN	COND VAC	AHGAS OUT	AHAIR IN	AHAIR OUT	FLFAN SUCT	COALFED A	COALFED B	COALFED D
1805.56	976.34	626.47	436.18	654.97	38.78	988.47	454.28	33.61	87.85	95.80	3.63	3.62	1736.50	74.71	108.63	732.29	2.77	308.59	92.88	661.98	81.67	38.30	38.85	0.09

UNIT1 EFF LOG 4 15MIN THURSDAY AUG 19,1999 11:29:07

THROTT PSIG	MAINSTM DEG F	MAINSTM KLB/HR	COLDRH PSIG	COLDRH DEG F	COALFED C	HOTRH DEG F	FWTDECN DEG F	SHDESUP KLB/HR	NET GEN	GROSS MW	SWGR 1A MW	SWGR 1B MW	FIRST STAGE	CW IN	CW OUT	AHGAS IN	COND VAC	AHGAS OUT	AHAIR IN	AHAIR OUT	FUFAN SUCT	COALFED A	COALFED B	COALFED D
1003.06	777.30	614.77	426.58	656.64	38.61	938.69	454.35	34.21	87.63	94.17	3.63	3.63	1775.79	73.80	107.57	728.24	2.68	307.56	92.20	661.20	81.84	38.24	38.63	0.09

UNIT1 CIT LOG 4 15MIN THURSDAY AUG 19,1999 11:59:07

THROTT	MAINSTM	MAINSTM	COLDRH	COLDRH	COALFED	HOTRH	FWTOECN	SHDESUP	NET	GROSS	SWGR	SWGR	FIRST	CW	CW	AHGAS	COND	AHGAS	AHAIR	AHAIR	FDFAN	COALFED	COALFED	COALFED
PSIG	DEG F	KLB/HR	PSIG	DEG F	C	DEG F	DEG F	KLB/HR	GEN	MW	1A MW	1B MW	STAGE	IN	OUT	IN	VAC	OUT	IN	OUT	SUCT	A	B	D
1804.66	997.13	619.78	422.90	652.75	38.69	991.78	454.35	36.82	88.86	94.73	3.57	3.80	1785.11	73.74	107.52	726.53	2.71	304.33	93.02	658.45	82.61	38.18	38.69	0.09

CITY OF GRAND ISLAND
UTILITIES DEPARTMENT
MONTHLY REPORT
PLATTE GENERATING STATION
August-99

DATE		HRS OP	PEAK GENERATION MW	PEAK GENERATION TIME	UNIT STS	GENERATOR WATTHOUR METER	5KV SWITCHGEAR 1A	5KV SWITCHGEAR 1B	5KV SWITCHGEAR TOTAL	PGS NET GEN	METERED DISCHARGE	FEEDER D LBS	FEEDER C LBS	FEEDER B LBS	FEEDER A LBS	TOTAL ALL FEEDERS	CONV 1 TONS	CONV 4 TONS	OTHER COAL ADD	OIL BURNED BOILER
y	1	24	44.20	100	0	1232	42.6	79.8	122.4	1109.6	710,000	-	-	669,000	664,600	667		899.90		1.00
S	2	24	64.00	1000	0	1534	45.6	79.2	124.8	1409.2	698,000	-	-	814,100	809,700	812		703.90		-
ljn	3	21	79.30	1700	1	1396	47.8	81.0	128.8	1267.2	778,000	394,700	374,500	503,000	212,600	742		754.00		1,594.00
m	4	24	87.80	1700	0	2072	63.6	87.6	151.2	1920.8	306,000	809,500	817,400	527,900	-	1,077		1,031.40		-
J	5	24	87.80	1700	0	1983	66.0	79.8	145.8	1837.2	671,000	774,400	779,800	509,600	-	1,032		925.70		-
H	6	24	81.70	1200	0	2081	81.4	74.4	155.8	1925.2	738,000	787,400	791,500	573,400	-	1,076		1,250.50		-
m	7	24	77.60	1700	0	1832	75.4	66.6	142.0	1690.0	500,000	799,600	804,000	282,800	-	943		917.10		-
H	8	24	74.60	1900	0	1698	70.4	65.4	135.8	1562.2	718,000	763,200	766,000	249,500	-	889		1,013.70		-
m	9	24	98.20	1600	0	2412	88.4	82.8	171.2	2240.8	682,000	894,800	902,200	682,400		1,240		943.80		-
RW	10	24	96.60	1500	0	2428	88.6	85.0	173.6	2252.4	751,000	74,200	894,300	897,600	680,100	1,273		1,433.40		-
B	11	24	95.20	1900	0	2362	94.0	79.2	173.2	2188.8	711,000	100	749,400	855,700	852,400	1,229		1,485.90		1.00
LT	12	24	93.20	1600	0	2304	79.0	87.6	166.6	2137.4	832,000	519,900	215,200	840,000	886,900	1,231		1,345.10		328.00
RT	13	24	82.60	1700	0	2010	65.2	82.2	147.4	1862.6	720,000	325,000	183,500	811,200	807,100	1,064		1,354.50		119.00
B	14	24	82.60	1800	0	1784	61.2	77.4	138.6	1645.4	575,000	-	270,400	819,400	815,200	953		708.70		-
LT	15	24	89.80	1700	0	1848	67.2	77.4	144.6	1703.4	588,000		365,000	816,500	813,300	997		995.80		
RT	16	24	95.60	1700	0	2368	78.4	87.8	166.2	2201.8	710,000	678,200	913,300	917,000	4,300	1,256		1,232.30		-
RT	17	24	97.00	1400	0	2292	81.0	87.2	168.2	2123.8	556,000	881,000	922,500	666,600	38,500	1,255		1,300.30		-
V	18	24	89.80	1700	0	2186	77.6	83.8	161.4	2024.6	738,000	414,000	188,700	880,600	876,400	1,179		1,636.10		70.00
RM	19	24	89.00	1700	0	2137	76.8	78.4	155.2	1981.8	642,000	-	869,800	873,000	590,100	1,166		787.80		5.00
V	20	24	93.60	1800	0	2184	64.4	90.2	154.6	2029.4	608,000	587,700	868,900	872,200	-	1,164		1,229.90		-
RM	21	24	89.20	1800	0	2115	61.8	90.0	151.8	1963.2	582,000	856,500	868,100	526,700		1,126		1,248.00		
LV	22	24	85.80	1800	0	1979	57.2	88.0	145.2	1833.8	526,000	837,600	845,700	381,700	-	1,033		1,056.50		-
RM	23	24	94.40	1700	0	2274	72.4	86.0	158.4	2115.6	611,000	825,200	869,000	657,600	-	1,176		1,174.20		-
RM	24	24	94.20	1700	0	2118	70.6	82.6	153.2	1964.8	614,000	553,900	841,600	872,300	-	1,134		1,248.50		-
G	25	24	94.60	1700	0	2247	79.0	78.6	157.6	2089.4	638,000	5,300	868,700	871,100	630,000	1,188		925.10		-

SUMMARY OF RESULTS CALCULATIONS

$$Vm\,(std) = 17.647 \times Vm \times \left[\frac{P_{bar} + \frac{DH}{13.6}}{(460 + Tm)}\right] \times Y$$

$$Vw\,(std) = 0.0471 \times Vlc$$

Vlc = water + silica net

$$Bws = \left[\frac{Vw\,(std)}{Vw\,(std) + Vm\,(std)}\right]$$

$$Md = (0.44 \times \%CO_2) + (0.32 \times \%O_2) + [0.28 \times (100 - \%CO_2 - \%O_2)]$$

$$MS = Md \times (1 - Bws) + (18 \times Bws)$$

$$Vs = \sqrt{\frac{(Ts + 460)}{Ms \times Ps}} \times \sqrt{DP} \times Cp \times 85.49$$

Cp = pitot tube correction factor
Ps = absolute flue gas pressure
Ms = molecular weight of gas (lb/lb mole)
Md = dry molecular weight of gas (lb/lb mole)
Bws = water vapor in gas stream proportion by volume

$$Acfm = Vs \times Area\,(of\ stack\ or\ duct) \times 60$$

$$Dscfm = Acfm \times 17.647 \times \left[\frac{Ps}{(460 + Ts)}\right] \times (1 - Bws)$$

$$Scfm = Acfm \times 17.647 \times \left[\frac{Ps}{(460 + Ts)}\right]$$

$$Scfh = Scfm \times 60\frac{min}{hr}$$

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CALCULATION FORMULAS

1. $$V_{m(std)} = V_m Y \left(\frac{T_{std}}{T_m}\right)\left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{P_{std}}\right) = K_1 V_m Y \frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m}$$

2. $$V_{w(std)} = V_{lc}\left(\frac{\rho_w}{M_w}\right)\left(\frac{RT_{std}}{P_{std}}\right) = K_2 V_{lc}$$

3. $$B_{ws} = \frac{V_{w(std)}}{V_{m(std)} + V_{w(std)}}$$

4a. $$C_a = \frac{m_a}{V_a \rho_a}$$

4b. $$W_a = C_a V_{aw} \rho_a$$

5. $$C_S = (15.43 \text{ grains/gram})\,(m_n / V_{m(std)})$$

6. $$C_{acf} = 15.43 K_i \left(\frac{m_n P_s}{V_{w(std)} + V_{m(std)}\, T_s}\right)$$

7. $$\%EA = \left(\frac{\%O_2 - (0.5\,\%CO}{0.264\,\%N_2 - (\%O_2 - 0.5\,\%CO)}\right) \times 100$$

8. $$M_d = 0.44(\%CO_2) + 0.32(\%O_2) + 0.28(\%N_2 + \%CO)$$

9. $$M_s = M_d(1 - B_{ws}) + 18.0 B_{ws}$$

10. $$v_s = K_p C_p \sqrt{\frac{\Delta P\, T_s}{P_s M_s}}$$

11. $$Q_{acfm} = v_s A(60_{sec/min})$$

12. $$Q_{sd} = (3600_{sec/hr})(1 - B_{ws})\, v_s \left(\frac{T_{std} P_s}{T_s P_{std}}\right) A$$

13. $$E \text{ (emission rate, lbs/hr)} = Q_{std}(C_s / 7000 \text{ grains/lb})$$

14. $$IKV = \frac{T_s V_{m(std)} P_{std}}{T_{std} v_s \theta A_n P_s 60(1 - B_{ws})} = K_4 \frac{T_s V_{m(std)}}{P_s v_s A_n \theta (1 - B_{ws})}$$

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NOMENCLATURE

A = Cross-sectional area of stack or duct, ft^2
A_n = Cross-sectional area of nozzle, ft^2
B_{ws} = Water vapor in gas stream, proportion by volume
C_a = Acetone blank residue concentration, g/g
C_{acf} = Concentration of particulate matter in gas stream at actual conditions, gr/acf
C_p = Pitot tube coefficient, dimensionless
C_s = Concentration of particulate matter in gas stream, dry basis, corrected to standard conditions, gr/dscf
IKV = Isokinetic sampling variance, must be $.90 \leq IKV \leq 1.10$
M_d = Dry molecular weight of gas, lb/lb-mole
m_n = Total amount of particulate matter collected, grams
M_s = Molecular weight of gas, wet basis, lb/lb-mole
M_w = Molecular weight of water, 18.0 lb/lb-mole
m_a = Mass of residue of acetone after evaporation, grams
P_{bar} = Barometric pressure at testing site, in. Hg
P_g = Static pressure of gas, in. Hg (in. H_2O/13.6)
P_s = Absolute pressure of gas, in. Hg = $P_{bar} + P_g$
P_{std} = Standard absolute pressure, 29.92 in. Hg
Q_{acfm} = Actual volumetric gas flow rate, acfm
Q_{sd} = Dry volumetric gas flow rate corrected to standard conditions, dscf/hr
R = Ideal gas constant, 21.85 in. Hg-ft^3/°R-lb-mole
T_m = Absolute dry gas meter temperature, °R
T_s = Absolute gas temperature, °R
T_{std} = Standard absolute temperature, 528°R
V_a = Volume of acetone blank, ml
V_{aw} = Volume of acetone used in wash, ml
V_{lc} = Total volume of liquid collected in impingers and silica gel, ml
V_m = Volume of gas sample as measured by dry gas meter, dcf
$V_{m(std)}$ = Volume of gas sample measured by dry gas meter, corrected to standard conditions, dscf
v_s = Gas velocity, ft/sec
$V_{w(std)}$ = Volume of water vapor in gas sample, corrected to standard conditions, scf
W_a = Weight of residue in acetone wash, grams
Y = Dry gas meter calibration factor
ΔH = Average pressure differential across the orifice meter, in. H_2O
Δp = Velocity head of gas, in. H_2O
ρ_a = Density of acetone, 0.7855 g/ml (average)
ρ_w = Density of water, 0.002201 lb/ml
θ = Total sampling time, minutes
K_1 = 17.64 °R/in. Hg
K_2 = 0.04707 ft^3/ml
K_4 = 0.09450/100 = 0.000945
K_p = Pitot tube constant, $85.49 \frac{ft}{sec}\left[\frac{(lb/lb-mole)(in.Hg)}{(°R)(in.H_2O)}\right]^{1/2}$
%EA = Percent excess air
$\%CO_2$ = Percent carbon dioxide by volume, dry basis
$\%O_2$ = Percent oxygen by volume, dry basis
%CO = Percent carbon monoxide by volume, dry basis
$\%N_2$ = Percent nitrogen by volume, dry basis
0.264 = Ratio of O_2 to N_2 in air, v/v
0.28 = Molecular weight of N_2 or CO, divided by 100
0.32 = Molecular weight of O_2 divided by 100
0.44 = Molecular weight of CO_2 divided by 100
13.6 = Specific gravity of mercury (Hg)

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MERCURY CALCULATIONS

Determination of Speciated Mercury

Concentration

$$\frac{\text{ug of Mercury detected} \times \frac{10^{-6}\,\text{g}}{\text{ug}}}{453.6\,\text{g/lb}} = \text{lbs Mercury/sample}$$

$$\frac{\text{lbs Mercury/sample}}{\text{Vm(std)}} = \text{lbs Mercury/dscf}$$

Emission Rates

$$\text{lbs Mercury/hr} = \text{lbs/dscf} \times \text{dscf/min} \times 60\ \text{min/hr}$$

$$\text{lbs Mercury}/10^{12}\,\text{Btu} = \text{lbs/dscf} \times F_d\,\text{Factor}\left(\text{dscf}/10^{6}\,\text{Btu}\right) \times \frac{20.9\%}{20.9\% - O_2\%} \times 10^{6}$$

Mercury Fractions

Elemental Mercury Catch – mercury collected in the acidified hydrogen peroxide (HNO_3-H_2O_2) and potassium permanganate (H_2SO_4-$KMnO_4$) impinger solutions.

Oxidized Mercury Catch – mercury collected in the aqueous potassium chloride (KCl) impinger solution.

Particle-bound Mercury Catch – mercury associated with the particulate matter collected in the front half of the sampling train.

Determination of Mercury Available from Coal

$$\text{lbs Mercury/hr} = \frac{\text{ug Mercury}}{\text{g Coal}}(\text{dry}) \times \frac{10^{-6}\,\text{g}}{\text{ug}} \times \frac{\text{lbs Coal (wet)}}{\text{hr}} \times (1 - B_{ws})\ \text{moisture corr.}$$

$$\text{lbs Mercury}/10^{12}\,\text{Btu} = \frac{\text{lbs Mercury}}{\text{hr}} \div \frac{10^{12}\,\text{Btu}}{\text{hr}}$$

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EMISSION RATE CALCULATIONS

A pollutant emission rate (E), expressed as pounds of pollutant per million Btu heat input from the fuel combusted can be calculated by several methods as follows:

1. $C = C_s/7000$ where, C = pollutant concentration, lb/dscf
   c_s = pollutant concentration, grains/dscf

2. If fuel flow is monitored and the fuel combusted during the test is sampled and analyzed for gross calorific value, then:

$$E = \frac{Q_{sd} C}{\text{fuel flow rate (lb / hr) GCV}} \times 10^6$$

where, E = lbs per million Btu
GCV = gross calorific value, Btu / lb
Q_{sd} = dry volumetric gas flow at standard conditions, dscf / hr

3. If an integrated gas sample is taken during the test and analyzed for $\%CO_2$ or $\%O_2$, dry basis by volume, with an Orsat gas analyzer, then

$$E = C F_c \frac{100}{(\%CO_2)} \text{ or, } E = C F \frac{20.9}{(20.9 - \%O_2)} \text{ where,}$$

$\%CO_2$ and $\%O_2$ are expressed as percent; and, for example, for subbituminous and bituminous coals:

F_c = a factor representing a ratio of the volume of carbon dioxide generated to the calorific value of the fuel combusted, 1800 scf CO_2/million Btu.

F = a factor representing a ratio of the volume of dry flue gases generated to the calorific value of the fuel combusted, 9780 dscf/million Btu.

4. If fuel sample increments are taken and composited during the test and an ultimate analysis is performed and the GCV is determined, then

$$F_c = \frac{321 \times 10^3 (\%C)}{GCV}$$ where, %C = carbon content by weight expressed as percent

$$F = \frac{[3.64 (\%H) + 1.53 (\%C) + 0.57 (\%S) + 0.14 (\%N) - 0.46 (\%O_2)]}{GVC} \times 10^6$$

where, H, C, S, N, and O are content by weight of hydrogen, carbon, sulfur, nitrogen, and oxygen (expressed as percent) respectively.

5. If fuels other than subbituminous and bituminous coals are fired, other F-factors than those above will apply; and, if combinations of different fuels are fired, the F-factors must be prorated according to the fraction of the total heat input derived from each type of fuel.

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MOSTARDI-PLATT ASSOCIATES, INC.
TEST SUPPORT DATA

175,000 [illegible]

TEST RUN NO. 1

COMPANY: Grand Island Utilities
PLANT: Platte Generating Station
TEST LOCATION: Inlet
CLIENT: City of Grand Island
OPERATOR: Jeff Daniels
DATE: 8-18-99
CONTROL BOX: E21 POT. NO.: E21
METER NO.: E21
METER CALIBRATION FACTOR: 1.008
PITOT ID NO.: 437B
PITOT TUBE COEFFICIENT: 0.829
PORT LENGTH: 24 in.
PORT SIZE: 4 in.
PORT TYPE: Nipple (vertical)

IMPINGER H_2O
FINAL: 5255.10 ml/gm
INITIAL: 5122.10 ml/gm
GAIN: 133.00 ml/gm

SILICA GEL:
FINAL WT: 817.60 gm
INITIAL WT: 805.50 gm
WT. GAIN: 12.10 gm

TOTAL H_2O COLLECTED: SEE LAB NOTES
DESCRIPTION OF IMPINGER H_2O: ↓
SILICA GEL EXHAUSTED?:
IMPINGERS RECOVERED BY: JW
SILICA GEL WEIGHED BY: JW

THIMBLE NO: 004 TARE WT: 3.1224
FILTER NO: — TARE WT: —
BAROMETRIC PRESSURE in. Hg: 28.0
FLUE PRESSURE in. H_2O: -4.3
FLUE PRESSURE in. Hg ABS: 27.684
PROBE LENGTH: 9 ft.
PROBE LINER MATERIAL: Glass
NOZZLE IDENTIFICATION NO: Glass
CALIBRATED NOZZLE DIAMETER: 0.236
LEAK CHECK: PRE: 0.006 POST: 0.010 @ 15/10 in. Hg
DUCT SHAPE: Rectangle Eq. DIAMETER: 15.67643
DUCT AREA: 193.0039 sq. ft. L 6' 6.375" W 29' 6.625"
DISTURBANCE UPSTREAM: 9 DOWNSTREAM: 10
TEST LENGTH: 125 min
MINUTES PER POINT: 5
TOTAL NUMBER OF TRAVERSE POINTS: 25
GAS ANALYSIS (ORSAT/FYRITE):
CO_2: 14.4 / 4.6
O_2: 4.6 / 4.4

PITOT LEAK CHECK: PRE 3.8" H_2O POST 4.8" H_2O
ΔH@ 1.871
SAMPLES REMOVED FROM SITE BY: JRP/DJN/JCD

COMMENTS & NOTES

orsat pump - integrated train ok @ 12" Hg
Port 1 - Still purple
Port 4 - Still purple

752.6
[illegible]

For computer data entry: Supervisor, please complete.
Do you want to enter a fuel analysis? Y ☐ N ☐
What value do you want to use? F = 9,780 F_c = 1,800 Other = _____
Circle to indicate "Yes" or add other value if not given.

Form 1053 [Rev. 6/97]

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JCN City of Holland

FIELD TEST DATA SHEET FOR ISOKINETIC SAMPLING

MOSTARDI-PLATT ASSOCIATES, INC.

PROJECT Platte Generating Station

TEST RUN NO. 1

TEST LOCATION Unit 1 Inlet

DATE 8-16-99 PAGE 1 OF 2

1.31 ~~1.10~~ ~~1.58~~ ~~1.332~~ ~~.68~~ 0.67 0.66 ~~.672~~

Port-Point No.	Velocity Head (P) in. H_2O	$\sqrt{P}$	Clock Time 24 hr.	Meter Volume (Vm) ft^3	Orifice (H) in. H_2O	Stack Temp (t_s) °F	Meter Temp. (t_m) Inlet °F	Meter Temp. (t_m) Outlet °F	Meter Rate cfm	Pump Vacuum in. Hg	X 5 Notes		Probe Temp. °F	Filter Holder Temp. °F	Impinger Outlet Temp. °F
1-1	0.15	.87	1000	[illegible]	0.20	758	111	107	0.26	2.0	1.301	803.415	262	235	78
2	0.33	0.574	1005	804.86	0.44	764	108	106	0.386	3.0	1.930	804.776	265	230	75
3	0.51	0.714	1010	806.75	0.68	752	108	104	0.48	3.0	2.400	806.700	250	225	72
4	0.60	[illegible]	1015	808.19	0.80	761	106	104	0.521	3.0	2.603	809.106	263	227	69
5	0.38	0.616	1020	811.83	0.53	771	104	104	0.425	3.0	2.127	811.709	[illegible]	[illegible]	67
		3.0665	1025	813.915	2.66	3806	1061					813.2[illegible]			
				10.44											
2-1	0.26	0.510	1028	813.915	0.36	778	104	104	0.352	3.0	1.759		256	226	62
2	0.40	0.632	1033	815.710	0.55	790	103	103	0.[illegible]	3.0	2.150	815.595	263	208	73
3	0.57	0.755	1038	817.94	0.79	778	[illegible]	102	0.513	4.0	2.567	817.[illegible]	265	229	70
4	0.54	0.735	1043	820.36	0.75	775	104	102	0.500	4.0	2.498	819.72	260	226	65
5	0.52	0.721	1048	822.96	0.72	759	103	102	0.490	3.0	2.452	822.22	262	229	64
		3.3539	1053	825.435	3.17	3880	1030					824.67			
				11.52											
3-1	0.11	0.436	1056	825.[illegible]	0.27	784	103	102	0.301	3	0.902	824.67	265	225	70
			1059	826.345			205					825.57			
		post	0.010	@ 10" Hg			* Switched	out	heated	line - line			was	heating	
				0.91				out	of control						
		Pre	0.008	@ 11" Hg											
												+0.99			
3-1	0.20	0.447	1107	827.53	0.28	784	99	100	0.309	3	0.617	827.53	269	230	77
2	0.35	0.592	1139	828.95	0.49	790	100	101	0.408	4	2.041	827.947	270	223	71
3	0.41	0.663	1144	830.08	[illegible]	758	101	100	0.45	5	2.245	829.99	272	228	67
4	0.50	0.707	1149	832.34	0.68	790	105	101	0.481	5	2.404	832.233	261	228	67
5	0.52	0.721	1154	834.70	0.70	790	103	100	0.490	5	2.452	834.657	260	230	66
		3.1361	1159	837.00	2.74	3912	1010					837.089			
				(9.47)											
				32.34											

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FIELD TEST DATA SHEET
FOR ISOKINETIC SAMPLING

MOSTARDI-PLATT ASSOCIATES, INC.

PROJECT City of Grand [illegible] Plate [illegible]
TEST RUN NO. 1 O/H - Hg
TEST LOCATION Inlet Duct

DATE 8-18-99 PAGE 2 OF 2

Port-Point No.	Velocity Head (P) in. H_2O	$\sqrt{P}$	Clock Time 24 hr.	Meter Volume (Vm) ft^3	1.31 Orifice (H) in. H_2O	Stack Temp (t_s) °F	Meter Temp. (t_m) Inlet °F	Meter Temp. (t_m) Outlet °F	0.66 Meter Rate cfm	Pump Vacuum in. Hg	x 5 Notes		Probe Temp. °F	Filter Holder Temp. °F	Impinger Outlet Temp. °F
4-1	0.16	0.400	1202	837.20	0.21	799	100	101	0.264	3	1.32	837.07	268	228	71
2	0.37	0.608	1207	838.30	0.47	787	106	101	0.401	3	2.007	838.39	272	229	67
3	0.59	0.768	1212	840.96	0.77	772	102	101	0.507	6	2.535	840.39	275	235	62
4	0.60	0.775	1217	84[illegible]	[illegible]	770	102	101	0.511	6	2.556	84[illegible]	275	244	[illegible]
5	0.47	0.68[illegible]	1222	845.15	0.62	780	103	102	[illegible]	6	2.26[illegible]	845.48	274	24[illegible]	68
		3.2366	1227	847.51	2.86	3908	1011					847.74			
				(10.31)											
1	0.25	0.50	1230	847.61	0.33	760	103	102	0.33	4	1.65		262	240	70
2	0.44	0.663	1235	849.50	[illegible]	767	104	103	0.4[illegible]	6	2.189	849.24	272	245	66
3	0.60	0.775	1240	851.65	0.79	762	104	103	0.511	7	2.556	[illegible]	275	245	67
4	0.43	0.656	1245	854.14	0.56	743	104	103	0.433	6	2.164	85[illegible]	274	245	68
5	0.58	0.762	1250	856.10	0.76	785	104	[illegible]	0.503	5	2.513	856.15	276	[illegible]	[illegible]
		3.[illegible]	1255	859.56	3.01	3817	1033					858.66			
		[illegible].5918		11.94	5.87	7725		[illegible]							
		9.98[illegible]		32.34	8.83	12382		3[illegible]06							
				22.25											
		16.5784			1.7	20107		5358							
	÷26														
		0.6376		54.59	0.565	773.35		103.04							
						1233.35		563.04							

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MOSTARDI-PLATT ASSOCIATES, INC.
TEST SUPPORT DATA

TEST RUN NO. 2 011-Hg

COMPANY: City of Grand Island
PLANT: Platte Generating Station
TEST LOCATION: Inlet
CLIENT: City of Grand Island
OPERATOR: Jeff Daniels
DATE: 8-18-99
CONTROL BOX: E21 POT. NO.: E21
METER NO.: E21
METER CALIBRATION FACTOR: 1.008
PITOT ID NO.: 437 B
PITOT TUBE COEFFICIENT: 0.829
PORT LENGTH: 24 in.
PORT SIZE: 4 in.
PORT TYPE: Nipple (Vertical)

IMPINGER H_2O / SILICA GEL:
FINAL: 5633.60 ml/gm — FINAL WT: 821.20 gm
INITIAL: 5499.90 ml/gm — INITIAL WT: 804.90 gm
GAIN: 133.70 ml/gm — WT. GAIN: 16.30 gm
TOTAL H_2O COLLECTED: See lab Notes
DESCRIPTION OF IMPINGER H_2O:
SILICA GEL EXHAUSTED?:
IMPINGERS RECOVERED BY: JW
SILICA GEL WEIGHED BY: JW

COMMENTS & NOTES

THIMBLE NO: 005 TARE WT: 3.0441
FILTER NO: TARE WT:
BAROMETRIC PRESSURE in. Hg: 28.10
FLUE PRESSURE in. H_2O: -4.7
FLUE PRESSURE in. Hg ABS: 27.75
PROBE LENGTH: 9 ft.
PROBE LINER MATERIAL: Glass
NOZZLE IDENTIFICATION NO: Glass
CALIBRATED NOZZLE DIAMETER: 0.236
LEAK CHECK: PRE: 0.002 POST: 0.002 @ 15/2 in. Hg
DUCT SHAPE: Rectangle DIAMETER:
DUCT AREA: 193.0037 sq. ft. L 6' 6.375 W 29' 6.625
DISTURBANCE UPSTREAM: 1 DOWNSTREAM: 1
TEST LENGTH: 125 min
MINUTES PER POINT: 5
TOTAL NUMBER OF TRAVERSE POINTS: 25
GAS ANALYSIS (ORSAT/FYRITE):
CO_2: 14.8 / 15.0
O_2: 4.4 / 4.0

PITOT LEAK CHECK: PRE 4" H_2O POST 4"
ΔH@ 1.871
SAMPLES REMOVED FROM SITE BY: JRP/DJN/CCD

For computer data entry: Supervisor, please complete.
Do you want to enter a fuel analysis? Y ☐ N ☐
What value do you want to use? F = 9,780 F_c = 1,800 Other = _____
Circle to indicate "Yes" or add other value if not given.

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FIELD TEST DATA SHEET
FOR ISOKINETIC SAMPLING

MOSTARDI-PLATT ASSOCIATES, INC.

PROJECT City of Grand Island Platte Generating Station
TEST RUN NO. 2 OH - Hg
TEST LOCATION Inlet

DATE 8-18-99 PAGE 1 OF 2

Port-Point No.	Velocity Head (P) in. H_2O	$\sqrt{P}$	Clock Time 24 hr.	Meter Volume (Vm) ft^3	1.25 Orifice (H) in. H_2O	Stack Temp (t_s) °F	Meter Temp. (t_m) Inlet °F	Meter Temp. (t_m) Outlet °F	0.65 Meter Rate cfm	Pump Vacuum in. Hg	x5 Notes		Probe Temp. °F	Filter Holder Temp. °F	Impinger Outlet Temp. °F
5-1	0.27	0.520	1500	859.97	0.34	778	106	107	0.338	4	1.689		242	230	65
2	0.42	0.648	1505	861.78	0.53	778	106	106	0.421	5	2.106	861.66	252	229	67
3	0.62	0.787	1510	863.40	0.78	780	106	107	0.512	6	2.56	863.77	253		68
4	0.45	0.671	1515	865.95	0.56	748	107	107	0.436	7	2.180	866.33	252	225	70
5	0.59	0.768	1520	867.93	0.74	790	106	104	0.499	7	2.496	868.1	253	230	
		3.3940	1525	870.35	2.95	3874	1062					871.01			
				10.38											
4-1	0.17	0.412	1528	870.48	0.21	788	105	106	0.264	4	1.340		244	232	72
2	0.25	0.50	1533	872.00	0.31	776	106	106	0.325	5	1.625	871.82	263	225	65
3	0.57	0.755	1538	873.69	0.71	776	108	105	0.491	8	2.454	873.445	255	237	63
4	0.60	0.775	1543	876.10	0.75	776	107	105	0.503	8	2.517	875.90	263	228	65
5	0.51	0.714	1548	878.40	0.64	786	107	105	0.464	7	2.321	878.42	264	230	67
		2.3814	1553	880.74	2.62	3902	1060					880.74			
				10.23											
3-1	0.19	0.436	1555	880.79	0.24	780	108	106	0.283	5	1.417		254	227	66
2	0.37	0.608	1600	882.32	0.46	788	107	106	0.395	7	1.977	882.21	265	226	67
3	0.43	0.656	1605	884.20	0.54	781	107	107	0.426	7	2.131	884.187	268	227	67
4	0.49	0.693	1610	886.25	0.60	793	107	107	0.450	8	2.252	886.32	266	227	65
5	0.45	0.671	1615	888.78	0.56	793	107	107	0.436	7	2.180	888.57	261	228	67
		3.06355	1620	890.72	2.4	3935	1069					890.750			
				9.93											
2-1	0.32	0.56	1623	890.80	0.40	780	106	106	0.368	6	1.840		258	228	67
2	0.38	0.616	1628	892.78	0.48	769	106	106	0.401	7	2.005	892.638	267	227	66
3	0.55	0.742	1633	894.72	0.69	785	106	106	0.482	8	2.410	894.643	265	227	66
4	0.50	0.707	1638	897.15	0.63	780	106	106	0.460	8	2.298	897.053	264	228	66
5	0.50	0.707	1643	899.21	0.63	770	107	106	0.460	10	2.298	899.35	260	225	68
		3.338	1640	901.33	2.83	3884	1061					901.65			
				10.53											

FIELD TEST DATA SHEET
FOR ISOKINETIC SAMPLING

MOSTARDI-PLATT ASSOCIATES, INC.

PROJECT City of Grand Island Platte Generating Station
TEST RUN NO. 2
TEST LOCATION Inlet Duct

DATE 8/18/99 PAGE 2 OF 2

Port-Point No.	Velocity Head (P) in. H_2O	$\sqrt{P}$	Clock Time 24 hr.	Meter Volume (Vm) ft^3	1.25 Orifice (H) in. H_2O	Stack Temp (t_s) °F	Meter Temp. (t_m) Inlet °F	Meter Temp. (t_m) Outlet °F	0.65 Meter Rate cfm	Pump Vacuum in. Hg	x 5 Notes		Probe Temp. °F	Filter Holder Temp. °F	Impinger Outlet Temp. °F
1-1	0.13	0.361	1650	901.40	0.16	734	106	105	0.234	5	1.172		257	224	70
2	0.32	0.566	1655	902.84	0.40	755	106	106	0.368	7	1.838	902.572	263	229	68
3	0.47	0.686	1700	904.60	0.59	752	106	106	0.446	10	2.228	904.41	264	232	68
4	0.57	0.755	1705	906.75	0.71	772	106	107	0.491	10	2.454	906.64	264	230	68
5	0.35	0.592	1710	909.17	0.44	787	107	106	0.385	9	1.923	909.094	262	224	68
		2.95846	1715	911.05	2.30	3800	1061					911.02			
				7.65											
		12.17695		41.07	10.8	15595	4252								
		15.13555		50.72	13.1	19395	5313								
		0.605		50.72	0.524	775.8	106.26								

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MOSTARDI-PLATT ASSOCIATES, INC.
TEST SUPPORT DATA

TEST RUN NO. 3

COMPANY: Grand Island Utilities
PLANT: Platte Generating Station
TEST LOCATION: Inlet Duct
CLIENT: City of Grand Island
OPERATOR: Jeff Daniels
DATE: 8-19-99
CONTROL BOX: E21 POT. NO.: E21
METER NO.: E21
METER CALIBRATION FACTOR: 1.000
PITOT ID NO.: 437 B
PITOT TUBE COEFFICIENT: 0.829
PORT LENGTH: 24 in.
PORT SIZE: 4 in.
PORT TYPE: Nipple

IMPINGER H_2O
FINAL: 5381.80 ml/gm
INITIAL: 5222.90 ml/gm
GAIN: 158.90 ml/gm

SILICA GEL:
FINAL WT: 817.90 gm
INITIAL WT: 806.80 gm
WT. GAIN: 11.10 gm

TOTAL H_2O COLLECTED: SEE LAB NOTES
DESCRIPTION OF IMPINGER H_2O: ↓
SILICA GEL EXHAUSTED?:
IMPINGERS RECOVERED BY: JW
SILICA GEL WEIGHED BY: JW

THIMBLE NO: 014 TARE WT:
FILTER NO: TARE WT:
BAROMETRIC PRESSURE in. Hg: 28.63
FLUE PRESSURE in. H_2O: -4.2
FLUE PRESSURE in. Hg ABS: 28.32
PROBE LENGTH: 9 ft.
PROBE LINER MATERIAL: Glass
NOZZLE IDENTIFICATION NO: Glass (Set 3)
CALIBRATED NOZZLE DIAMETER: 0.235
LEAK CHECK: PRE: 0.004 POST: 0.004 @ 16/12 in. Hg
DUCT SHAPE: Rectangle DIAMETER:
DUCT AREA: 193.0037 sq. ft. L 6' 6.375" W 29' 6.25"
DISTURBANCE UPSTREAM: 9 DOWNSTREAM: 10
TEST LENGTH: 125 min
MINUTES PER POINT: 5
TOTAL NUMBER OF TRAVERSE POINTS: 25
GAS ANALYSIS (ORSAT/FYRITE):

CO_2:	16	16.2	15.8
O_2:	2.8	2.6	3.2
	18.8	18.8	19.0

PITOT LEAK CHECK: PRE 5.8" H_2O POST 4.5" H_2O
ΔH@ 1.871
SAMPLES REMOVED FROM SITE BY: TRP / DTN / RD

COMMENTS & NOTES Orsat pump ✓ okay @ 12" Hg
Bag @ 15" Hg
Port 4 - Imps
5 - "

For computer data entry: Supervisor, please complete.
Do you want to enter a fuel analysis? Y ☐ N ☐
What value do you want to use? F = 9,780 F_c = 1,800 Other =
Circle to indicate "Yes" or add other value if not given.

Form 1053 [Rev. 6/97]

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FIELD TEST DATA SHEET FOR ISOKINETIC SAMPLING

MOSTARDI-PLATT ASSOCIATES, INC.

PROJECT City of Grand Island - Platte River

TEST RUN NO. 3 OH-17g

TEST LOCATION Inlet 1.105

DATE 8-19-99 (0.592) PAGE 1 OF 2

Port-Point No.	Velocity Head (P) in. H_2O	$\sqrt{P}$	Clock Time 24 hr.	Meter Volume (Vm) ft^3	~~1.149~~ Orifice (H) in. H_2O	Stack Temp (t_s) °F	Meter Temp. (t_m) Inlet °F	Meter Temp. (t_m) Outlet °F	~~0.675~~ Meter Rate cfm	Pump Vacuum in. Hg	X 5 Notes		Probe Temp. °F	LINE Filter Holder Temp. °F	Impinger Outlet Temp. °F
1-1	0.16	0.40	930	911.515	0.18	774	82	82	2.246	3	1.23	911.515	258	228	61
2	0.32	0.566	935	912.84	0.35	772	74	73	0.335	4	1.674	912.915	263	231	61
3	0.36	0.60	940	914.56	0.40	747	74	72	0.355	4	1.776	914.619	265	234	65
4	0.58	0.762	945	916.22	0.64	781	73	72	0.451	5	2.254	916.125	270	237	67
5	0.35	0.592	950	918.31	0.37	717	72	73	0.350	4	1.751	918.449	271	237	68
		(2.1187)	955	120.12	(1.96)	(3871)	(741)					920.20			
				(8.605)											
2-1	0.35	0.592	955	920.21	0.39	779	73	73	0.350	4	1.751		271		
2	0.37	0.608	1002	921.74	0.41	807	73	72	0.360	5	1.800	921.6	264	236	
3	0.52	0.721	1007	923.55	0.57	799	72	73	0.427	5	2.134	923.76	267		
4	0.55	0.742	1012	925.76	0.61	791	74	73	0.439	6	2.195	925.958	272	238	
5	0.52	0.721	1017	927.72	0.57	778	75	73	0.427	6	2.134	928.093	268	230	68
		(3.3817)	1022	930.06	(2.55)	(3954)	(731)					930.21			
				(9.85)											
3-1	0.17	0.412	1024	930.09	.19	795	75	74	0.244	3	1.220		269	230	67
2	0.35	0.592	1029	931.33	0.37	798	75	73	0.350	5	1.751	931.31	272	231	70
3	0.42	0.648	1034	932.95	0.46	793	76	73	0.384	6	1.918	933.06	276	230	65
4	0.46	0.678	1039	934.84	0.51	777	76	73	0.402	6	2.008	934.998	276	232	66
5	0.52	0.721	1044	936.7	0.57	800	77	74	0.427	7	2.134	936.986	270	229	68
		(3.0513)	1049	938.54	(2.12)	(3963)	(746)					939.12			
				(8.85)											
4-1	0.15	0.387	1051	939.04	0.17	804	75	74	0.229	3	1.146		266	229	61
2	0.28	0.529	1056	940.34	0.31	799	75	74	0.313	4	1.567	940.186	264	231	60
3	0.60	0.775	1101	941.55	0.66	777	75	74	0.459	7	2.293	941.75	274	231	63
4	0.63	0.794	1106	944.00	0.70	767	76	74	0.470	8	2.349	944.04	275	231	64
5	0.58	0.762	1111	946.31	0.64	778	77	74	0.451	8	2.254	946.39	272	231	68
		(3.246)	1116	948.41	(2.48)	(3925)	(748)					948.64			
				(9.37)											
		12.5999		36.675	9.11	15713	2974								

Form [illegible] Rev. [illegible]

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FIELD TEST DATA SHEET
FOR ISOKINETIC SAMPLING

MOSTARDI-PLATT ASSOCIATES, INC.

PROJECT City of Grand Island - Platte Generating Station
TEST RUN NO. 3 OH - Hg
TEST LOCATION Inlet

DATE 8-19-99 PAGE 2 OF 2

Port-Point No.	Velocity Head (P) in. H_2O	$\sqrt{P}$	Clock Time 24 hr.	Meter Volume (Vm) ft^3	1.105 Orifice (H) in. H_2O	Stack Temp (t_s) °F	Meter Temp. (t_m) Inlet °F	Meter Temp. (t_m) Outlet °F	0.592 Meter Rate cfm	Pump Vacuum in. Hg	x 5 Notes		Probe Temp. °F	Filter Holder Temp. °F	Impinger Outlet Temp. °F
5-1	0.35	0.592	11:19	948.48	0.39	749	76	75	0.350	6	1.751		264	228	70
2	0.52	0.721	1124	950.24	0.57	762	80	78	0.427	8	2.134	950.231	274	230	64
3	0.62	0.787	11:29	952.47	0.69	761	80	78	0.466	9	2.331	952.37	273	231	66
4	0.45	0.671	11:34	954.91	0.50	743	82	79	0.397	8	1.987	954.70	275	237	68
5	0.58	0.762	11:39	957.05	0.64	786	80	78	0.451	9	2.254	956.687	265	228	68
		3.533	11:44	959.14	2.79	3801	786					958.941			
				10.66											
		12.5999		36.675	9.11	15713	2974								
29															
		16.1329			11.90	19514	3760								
		0.6455		47.335	0.476	780.56	752								

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MOSTARDI-PLATT ASSOCIATES, INC.
TEST SUPPORT DATA

TEST RUN NO. #1

COMPANY: City of Grand Island
PLANT: Platte Generating Station
TEST LOCATION: Unit 1 Outlet duct
CLIENT: City of Grand Island
OPERATOR: D. Najorsen
DATE: August 18, 1999
CONTROL BOX: E-35 POT. NO.: E-35
METER NO.: E-35
METER CALIBRATION FACTOR: 1.001
PITOT ID NO.: 434A
PITOT TUBE COEFFICIENT: 0.830
PORT LENGTH: 17.5 in.
PORT SIZE: 4 in.
PORT TYPE: NIPPLE

IMPINGER H_2O
FINAL: 5424.5 ml/gm
INITIAL: 5275.5 ml/gm
GAIN: 149.0 ml/gm

SILICA GEL:
FINAL WT: 890.8 gm
INITIAL WT: 878.7 gm
WT. GAIN: 12.1 gm

TOTAL H_2O COLLECTED: 161
DESCRIPTION OF IMPINGER H_2O:
SILICA GEL EXHAUSTED?:
IMPINGERS RECOVERED BY:
SILICA GEL WEIGHED BY:

COMMENTS & NOTES
Perform leak check after test [illegible]
0.000 @ 10" Hg

THIMBLE NO: TARE WT:
FILTER NO: 001 TARE WT: 3.1228
BAROMETRIC PRESSURE in. Hg: 28.10
FLUE PRESSURE in. H_2O: -1.0
FLUE PRESSURE in. Hg ABS: 28.03
PROBE LENGTH: 11.5 ft.
PROBE LINER MATERIAL: Teflon
NOZZLE IDENTIFICATION NO: #6
CALIBRATED NOZZLE DIAMETER: [illegible]
LEAK CHECK: PRE: 0.002 POST: 0.00 @ 15/10/8 in. Hg
DUCT SHAPE: Rectangular 0.000 (MID) DIAMETER: —
DUCT AREA: 100 sq. ft. L 10 W [illegible]
DISTURBANCE UPSTREAM: DOWNSTREAM:
TEST LENGTH: 120 min
MINUTES PER POINT: 6
TOTAL NUMBER OF TRAVERSE POINTS: 20
GAS ANALYSIS (ORSAT/FYRITE):
CO_2: 13.2 13.4 13.4
O_2: 5.8 6.0 6.0

PITOT LEAK CHECK: PRE OK @ ≥ 3" POST OK @ ≥ 4"
ΔH@
SAMPLES REMOVED FROM SITE BY: DJN

For computer data entry: Supervisor, please complete.
Do you want to enter a fuel analysis? Y ☐ N ☐
What value do you want to use? F = 9,780 F_c = 1,800 Other =
Circle to indicate "Yes" or add other value if not given.

Form 1053 [Rev. 6/97]

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FIELD TEST DATA SHEET FOR ISOKINETIC SAMPLING

MOSTARDI-PLATT ASSOCIATES, INC.

PROJECT City of Grand Island - Platte Gen Station

TEST RUN NO. 1

TEST LOCATION Unit 1 Outlet Duct

DATE August 18, 1999 PAGE 1 OF 2

Port-Point No.	Velocity Head (P) in. H_2O	$\sqrt{P}$	Clock Time 24 hr.	Meter Volume (Vm) ft^3	Orifice (H) in. H_2O	Stack Temp (t_s) °F	Meter Temp. (t_m) Inlet °F	Meter Temp. (t_m) Outlet °F	Meter Rate cfm	Pump Vacuum in. Hg	X 6	Notes	Probe Temp. °F	Filter Holder Temp. °F	Impinger Outlet Temp. °F
1-1	0.98	0.990	10:01	407.700	0.677	300	73	75	0.467	3	2.80		256	256	60
2	1.20	1.095	10:07	410.02	0.829	301	73	75	0.517	4	3.10	410.00	256	256	60
* 3	1.30	1.140	10:13	412.97	0.924	303	75	76	0.546	5	3.28	413.10	256	256	63
4	1.20	1.095	10:19	416.30	0.823	304	76	77	0.519	4	4.67	416.38	256	257	62
			10:25	420.97								421.05			
		4.320			3.283	1208	75	305							
2-1	1.05	1.025	10:28	420.97	0.746	304	78	77	0.491	4	2.95		256	258	60
2	1.05	1.025	10:34	423.66	0.746	304	78	77	0.491	4	2.95	423.92	256	259	60
3	1.15	1.072	10:40	426.67	0.818	307	79	78	0.514	4	3.08	426.86	256	258	60
4	1.20	1.095	10:46	429.73	0.853	308	79	78	0.525	4	3.15	429.94	256	258	60
			10:52	433.038								433.09			
		4.217			3.163	1223	314	310							
3-1	1.05	1.025	10:55	433.038	0.746	304	79	79	0.491	4	2.95		257	260	60
2	1.05	1.026	11:01	435.99	0.747	305	80	80	0.491	4	2.94	435.98	257	259	59
3	0.98	0.990	11:07	438.97	0.697	308	82	82	0.474	4	2.85	438.92	257	258	59
4	1.20	1.095	11:13	441.71	0.852	311	82	82	0.525	4	3.15	441.77	257	257	60
			11:19	444.89								444.91			
		4.135			3.013	1228	325	322							

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FIELD TEST DATA SHEET
FOR ISOKINETIC SAMPLING

MOSTARDI-PLATT ASSOCIATES, INC.

PROJECT City of Grand Island - Platte Gen. Station
TEST RUN NO. 1
TEST LOCATION Unit 1 Outlet Duct

DATE August 18, 1999 PAGE 2 OF 2

Port-Point No.	Velocity Head (P) in. H_2O	$\sqrt{P}$	Clock Time 24 hr.	Meter Volume (Vm) ft^3	0.711 Orifice (H) in. H_2O	Stack Temp (t_s) °F	Meter Temp. (t_m) Inlet °F	Meter Temp. (t_m) Outlet °F	0.479 Meter Rate cfm	Pump Vacuum in. Hg	x 6	Notes	Probe Temp. °F	Filter Holder Temp. °F	Impinger Outlet Temp. °F
4-1	0.98	0.990	11:52	444.920	0.697	309	82	81	0.474	4	2.84		258	257	56
2	1.00	1.00	11:58	447.69	0711	310	82	81	0.479	4	2.87	447.76	258	258	56
3	1.00	1.00	12:04	450.65	0711	313	83	80	0.479	4	2.87	450.63	258	257	57
4	1.05	1.02	12:10	453.32	0747	313	83	81	0.488	4	2.93	453.50	257	256	57
			12:16	456.44								456.43			
		4.01			2.866	1245	330	323							
5-1	0.72	0.849	12:18	456.44	0.512	309	82	81	0.406	3	2.44		257	256	53
2	0.82	0.906	12:24	458.92	0.583	313	82	81	0.434	3	2.60	458.88	258	256	58
3	0.92	0.959	12:30	461.51	0.654	318	83	82	0.459	3	2.76	461.48	258	257	59
4	0.75	0.866	12:36	464.20	0.533	317	83	83	0.415	3	2.49	464.24	258	257	60
			12:42	466.725								466.73			
		3.58			2.282	1257	330	327							
							79.8	79.20							
		1.013		59.525	0.732	308.05	79.55								

Form 1026 [Rev. 5/27]

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MOSTARDI-PLATT ASSOCIATES, INC.

TEST SUPPORT DATA

TEST RUN NO. 2

COMPANY: City of Grand Island
PLANT: Platte Generating Station
TEST LOCATION: Unit 1 Outlet Duct
CLIENT: City of Grand Island
OPERATOR: D Nagorsen
DATE: August 18, 1999
CONTROL BOX: E-35 POT. NO.: E-35
METER NO.: E-35
METER CALIBRATION FACTOR: 1.001
PITOT ID NO.: 434A
PITOT TUBE COEFFICIENT: 0.830
PORT LENGTH: 17.5 in.
PORT SIZE: 4 in.
PORT TYPE: Nipple

IMPINGER H_2O
FINAL: 5415.5 ml/gm
INITIAL: 5241.1 ml/gm
GAIN: 171.4 ml/gm
TOTAL H_2O COLLECTED: 182.5

SILICA GEL:
FINAL WT: 853.2 gm
INITIAL WT: 842.1 gm
WT. GAIN: 11.1 gm

DESCRIPTION OF IMPINGER H_2O:
SILICA GEL EXHAUSTED?:
IMPINGERS RECOVERED BY:
SILICA GEL WEIGHED BY:

COMMENTS & NOTES
LEAK CHECK FROM PORT 3 OK @ 15" 0.00"

THIMBLE NO: TARE WT:
FILTER NO: 002 TARE WT: 3.0915
BAROMETRIC PRESSURE in. Hg: 28.10
FLUE PRESSURE in. H_2O: -1.25
FLUE PRESSURE in. Hg ABS: 28.01
PROBE LENGTH: 11.5 ft.
PROBE LINER MATERIAL: Teflon
NOZZLE IDENTIFICATION NO: #6
CALIBRATED NOZZLE DIAMETER: 0.180
LEAK CHECK: PRE: 0.005 POST: 0.002 @ 14/15 in. Hg
DUCT SHAPE: Rectangular DIAMETER: —
DUCT AREA: 180 sq. ft. L 10' W 10'
DISTURBANCE UPSTREAM: DOWNSTREAM:
TEST LENGTH: 120 min
MINUTES PER POINT: 6
TOTAL NUMBER ~~OF TRAVERSE~~ POINTS: 20
GAS ANALYSIS (ORSAT/FYRITE):
CO_2: 13.27
O_2: 5.73

PITOT LEAK CHECK: PRE OK @ 4" POST OK @ >4"
ΔH@
SAMPLES REMOVED FROM SITE BY: DJN

For computer data entry: Supervisor, please complete.
Do you want to enter a fuel analysis? Y ☐ N ☐
What value do you want to use? F = 9,780 F_c = 1,800 Other = _____
Circle to indicate "Yes" or add other value if not given.

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MOSTARDI-PLATT ASSOCIATES, INC.
TEST SUPPORT DATA

TEST RUN NO. 3

COMPANY: City of Grand Island
PLANT: Platte Generating Station
TEST LOCATION: U. 1 Outlet duct
CLIENT: City of Grand Island
OPERATOR: [illegible]
DATE: August 19, 1999
CONTROL BOX: E-35 POT. NO.: E-35
METER NO.: E-35
METER CALIBRATION FACTOR: 1.01
PITOT ID NO.: 434A
PITOT TUBE COEFFICIENT: 0.830
PORT LENGTH: 17.5 in.
PORT SIZE: 4 in.
PORT TYPE: NIPPLE

IMPINGER H_2O / SILICA GEL:
FINAL: 5621.0 ml/gm — FINAL WT: 8660 gm
INITIAL: 5465.2 ml/gm — INITIAL WT: 853.0 gm
GAIN: 155.8 ml/gm — WT. GAIN: 13.0 gm
TOTAL H_2O COLLECTED: 168.8
DESCRIPTION OF IMPINGER H_2O:
SILICA GEL EXHAUSTED?:
IMPINGERS RECOVERED BY:
SILICA GEL WEIGHED BY:

THIMBLE NO: TARE WT:
FILTER NO: 003 TARE WT: 2.0941
BAROMETRIC PRESSURE in. Hg: 28.64
FLUE PRESSURE in. H_2O: -0.75
FLUE PRESSURE in. Hg ABS: 28.58
PROBE LENGTH: 11.5 ft.
PROBE LINER MATERIAL: Teflon
NOZZLE IDENTIFICATION NO: #6
CALIBRATED NOZZLE DIAMETER: 0.180
LEAK CHECK: PRE: 0.002 POST: 0.000 @ 14/15 in. Hg
DUCT SHAPE: Rectangular DIAMETER:
DUCT AREA: 100 sq. ft. L 10' W 10
DISTURBANCE UPSTREAM: DOWNSTREAM:
TEST LENGTH: 120 min
MINUTES PER POINT: 6
TOTAL NUMBER OF TRAVERSE POINTS: 20
GAS ANALYSIS (ORSAT/FYRITE):
CO_2: 13.2 13.2 13.2
O_2: 6.0 5.8 5.8
PITOT LEAK CHECK: PRE OK > 3" POST OK > 4"
ΔH@
SAMPLES REMOVED FROM SITE BY:

COMMENTS & NOTES

Leak check prior to part 3 OK @ 20" Hg 0.00"

For computer data entry: Supervisor, please complete.

Do you want to enter a fuel analysis? Y ☐ N ☐

What value do you want to use? F = 9,780 F_c = 1,800 Other = _____

Circle to indicate "Yes" or add other value if not given.

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FIELD TEST DATA SHEET
FOR ISOKINETIC SAMPLING

MOSTARDI-PLATT ASSOCIATES, INC.

PROJECT City of Grand Island - Platte Station
TEST RUN NO. #3
TEST LOCATION Unit 1 Outlet Duct

DATE August 19, 1999 PAGE 1 OF 2

Port-Point No.	Velocity Head (P) in. H_2O	$\sqrt{P}$	Clock Time 24 hr.	Meter Volume (Vm) ft^3	0.634 Orifice (H) in. H_2O	Stack Temp (t_s) °F	Meter Temp. (t_m) Inlet °F	Meter Temp. (t_m) Outlet °F	0.448 Meter Rate cfm	Pump Vacuum in. Hg	x 6 Notes		Probe Temp. °F	Filter Holder Temp. °F	Impinger Outlet Temp. °F
1-1	1.00	1.000	0930	27.016	0.634	292	73	75	0.448	6	2.688		256	260	59
2	1.20	1.095	0936	29.75	0.761	297	75	75	0.491	6	2.945	29.704	256	258	57
3	1.30	1.140	0942	32.63	0.824	300	76	76	0.511	6	3.065	32.649	257	259	57
4	1.15	1.072	0948	35.69	0.729	304	76	77	0.480	6	2.88	35.714	257	259	56
			0954	38.58								38.60			
		4.307			2.948	1193	300	303							
2-1	1.15	1.072	0956	38.58	0.729	301	76	78	0.480	6	2.88		257	258	58
2	1.00	1.000	1002	41.73	0.634	304	77	77	0.448	6	2.688	41.72	257	258	57
3	1.15	1.072	1008	44.41	0.729	307	77	77	0.480	6	2.88	44.408	258	258	57
4	1.20	1.095	1014	47.23	0.761	308	79	79	0.491	6	2.94	47.29	256	259	57
			1020	50.25								50.235			
		4.239			2.853	1220	309	311							
3-1	1.10	1.049	1027	50.615	0.697	307	78	80	0.470	6	2.82		257	259	56
2	0.94	0.970	1033	53.50	0.596	309	79	79	0.434	6	2.61	53.434	257	259	53
3	0.98	0.990	1039	56.11	0.621	309	79	80	0.443	6	2.66	56.040	258	260	54
4	1.20	1.095	1045	58.76	0.761	312	81	83	0.491	6	2.94	58.70	258	260	55
			1051	61.65								61.64			
		4.104			2.675	1236	317	322							

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FIELD TEST DATA SHEET
FOR ISOKINETIC SAMPLING

MOSTARDI-PLATT ASSOCIATES, INC.

PROJECT City of Grand Island - Platte Station
TEST RUN NO. 2
TEST LOCATION Unit 1 Outlet Duct

DATE August 19, 1999 PAGE 2 OF 2

Port-Point No.	Velocity Head (P) in. H_2O	$\sqrt{P}$	Clock Time 24 hr.	Meter Volume (Vm) ft^3	0.634 Orifice (H) in. H_2O	Stack Temp (t_s) °F	Meter Temp. (t_m) Inlet °F	Meter Temp. (t_m) Outlet °F	0.448 Meter Rate cfm	Pump Vacuum in. Hg	x6	Notes	Probe Temp. °F	Filter Holder Temp. °F	Impinger Outlet Temp. °F
4-1	0.94	0.970	1053	61.65	0.596	309	80	82	0.435	6	2.61		257	259	53
2	0.92	0.959	1059	64.24	0.583	311	81	82	0.430	6	2.58	64.26	258	260	53
3	0.98	0.990	1105	66.82	0.624	314	82	82	0.443	6	2.66	66.84	258	260	54
4	1.05	1.025	1111	69.51	0.666	315	83	83	0.459	6	2.75	69.50	258	259	54
			1117	72.251								72.25			
		3.944			2.466	1249	326	3[illegible]7							
5-1	0.69	0.831	11:19	72.251	0.437	306	82	83	0.372	5	2.23		258	260	58
2	0.82	0.906	1125	74.49	0.520	311	84	83	0.406	5	2.43	74.484	258	260	55
3	0.93	0.964	1131	76.91	0.590	314	83	82	0.432	5	2.59	76.918	258	260	55
4	0.86	0.927	1137	79.51	0.545	314	83	82	0.415	5	2.49	79.509	257	259	55
			1143	81.993								82.00			
		3.628			2.092	1245	332	3[illegible]0							
		1.011		54.977	0.652	30715	79.2	79.75							
							79.475								

Form 1026 [Rev. 5/27]

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METHOD 3 - FIELD DATA SHEET
INTEGRATED SAMPLES - GAS ANALYSIS

Project: City of Grand Island - Platte Generating Station Date: 8-18-99
Sampling Location: Inlet Duct
Source Condition: Normal Monitor Model No: Hayes Orsat
Fuel Type: Coal Serial No:
Module No: P2 Rate Meter Units: lpm Orsat No. 3008-008 Bag Type: Tedlar

Test (Run) No. 1

SAMPLING

Port-Point No.	Clock Time 24hr	Flow Rate
1-2	1005-1010	0.5
3	1010-1015	0.5
4	1015-1020	0.5
2-2	1033-1038	0.5
3	1038-1043	0.5
4	1043-1048	0.5
3-2	1139-1144	0.5
3	1144-1149	0.5
4	1149-1154	0.5
4-2	1207-1212	0.5
3	1212-1217	0.5
4	1217-1222	0.5
5-2	1235-1240	0.5
3	1240-1245	0.5
4	1245-1250	0.5

ANALYSIS

% By Volume (dry basis)			
Total	CO_2	O_2	CO
19.0	14.4	4.6	—
19.2	14.6	4.4	—
Avg.	14.5	4.5	

Pre-Run Leak Check:
Train: ok @ 12" Hg
Bag: ok @ [illegible]
Pipettes: 4 min okay
Burette: [illegible]

Post-Run Leak Check:
Train: ok @ 12" Hg
Bag: —
Pipettes: 4 min okay
Burette: 4 min okay

VALIDATION

Fuel Factor (F_o)		Percent Difference
Orsat	Fuel	

Test (Run) No. 2

SAMPLING

Port-Point No.	Clock Time 24hr	Flow Rate
1-2	1505-1510	0.5
3	1512-1515	0.5
4	1515-1520	0.5
2-2	1533-1538	0.5
3	1538-1543	0.5
4	1543-1548	0.5
3-2	1600-1605	0.5
3	1605-1610	0.5
4	1610-[illegible]	0.5
4-2	1627-1633	0.5
3	1633-1637	0.5
4	[illegible]	
5-2	1655-1700	0.5
3	1700-1705	0.5
4	1705-1710	0.5

ANALYSIS

% By Volume (dry basis)			
Total	CO_2	O_2	CO
19.2	14.8	4.4	
19.0	15.0	4.0	
Avg.	14.9	4.2	

Pre-Run Leak Check:
Train: ok @ 12" Hg
Bag: ok @ 15" Hg
Pipettes: ok @ 4 min
Burette: ok @ 4 min

Post-Run Leak Check:
Train: ok @ 11" Hg
Bag: —
Pipettes: ok @ 4 min
Burette: ok @ 4 min

VALIDATION

Fuel Factor (F_o)		Percent Difference
Orsat	Fuel	

Comments:

Operator: Jeff Daniels

$$F12_o(\text{Orsat}) = \frac{20.9 - (\%O_2 - 0.5\,\%CO)}{\%CO_2 + \%CO}$$

$$F_o(\text{Fuel}) = \frac{0.209\,F_o}{F_c} = \frac{0.651\,(1.53\,\%C - 3.64\,\%H - 0.57\,\%S + 0.14\,\%S + 0.14\,\%N - 0.46\,\%O)}{\%C}$$

$$\%\ \text{Difference} = \frac{F_o(\text{Orsat}) - F_o(\text{Fuel})}{F_o(\text{Fuel})} \cdot 100$$

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METHOD 3 - FIELD DATA SHEET
INTEGRATED SAMPLES - GAS ANALYSIS

Project: City of Grand Island - Platte Generating Station Date: 8-19-99
Sampling Location: Inlet
Source Condition: Full
Fuel Type: Coal
Module No: P-2 Rate Meter Units: lph Orsat No. 3008-008
Monitor Model No: Orsat
Serial No:
Bag Type:

Test (Run) No. 3

SAMPLING

Port-Point No.	Clock Time 24hr	Flow Rate
1-2	935	0.5
3	↓	↓
4	950	
2-2	1002	
3	↓	
4	1017	
3-2	1029	
3	↓	
4	1044	
4-2	1056	
3	↓	
4	1111	
5-2	1124	
3	↓	
4	1139	↓

ANALYSIS

% By Volume (dry basis)			
Total	CO_2	O_2	CO
18.8	16.0	2.8	
18.8	16.2	2.6	
19.0	15.8	3.2	
Avg.	16.0	2.87	

Pre-Run Leak Check:
Train: ✓ okay @ 12" Hg
Bag: [illegible] Hg
Pipettes: ✓ @ 4 min
Burette: ✓ @ 4 min

Post-Run Leak Check:
Train: okay @ 10" Hg
Bag: —
Pipettes: ✓ @ 4 min
Burette: ✓ @ 4 min

VALIDATION

Fuel Factor (F_o)		Percent Difference
Orsat	Fuel	

Test (Run) No.

SAMPLING

Port-Point No.	Clock Time 24hr	Flow Rate

ANALYSIS

% By Volume (dry basis)			
Total	CO_2	O_2	CO
Avg.			

Pre-Run Leak Check:
Train:
Bag:
Pipettes:
Burette:

Post-Run Leak Check:
Train:
Bag:
Pipettes:
Burette:

VALIDATION

Fuel Factor (F_o)		Percent Difference
Orsat	Fuel	

Comments:

Operator: J. Daniels

$$F12_o(\text{Orsat}) = \frac{20.9 - (\%O_2 - 0.5\,\%CO)}{\%CO_2 + \%CO}$$

$$F_o(\text{Fuel}) = \frac{0.209\,F_o}{F_c} = \frac{0.651\,(1.53\,\%C + 3.64\,\%H - 0.57\,\%S + 0.14\,\%S + 0.14\,\%N - 0.46\,\%O)}{\%C}$$

$$\%\text{ Difference} = \frac{F_o(\text{Orsat}) - F_o(\text{Fuel})}{F_o(\text{Fuel})} \cdot 100$$

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PITOT TRAVERSE DATA

Project: [illegible] – Platte Generating Station

Location: Inlet Duct

Date: 8-18-99 Test No: Preliminary Time: _____

WEST

Point No.	ΔP	$\sqrt{\Delta P}$	t_s	α	Point No.	ΔP	$\sqrt{\Delta P}$	t_s	α
1-1	0.30		777		4-1	0.19		807	
2	0.47		773		2	0.30		806	
3	0.73		766		3	0.67		801	
4	0.53		777		4	0.78		799	
5	0.68		683		5	0.68		798	
2-1	0.20		810		5-1	0.30		821	
2	0.41		810		2	0.45		828	
3	0.49		819		3	0.72		820	
4	0.60		822		4	0.65		807	
5	0.54		798		5	0.65		800	
					TM	95	555		
3-1	0.18		790		TS	795	1255		
2	0.44		787		Y	1.008			
3	0.60		786						
4	0.68		796		K ≈	0.714			
5	0.44		780		V_{KS}	88.52			
					K	.66			
					K_1	1.34			
					D_N =	0.245			

P_{bar} 28.1 "Hg Static -4.3 "H_2O P_g -.316 "Hg P_s 27.784 "Hg Pitot ID 437B C_p .829 Temp. ID _____

0.44 × 14 %CO_2 = _____ $\sqrt{\Delta P}$ 0.697 t_s 794.44 °F T 1255 °R Flue Area _____ ft^2

0.32 × _____ %O_2 = + _____ Duct Dimensions _____

0.28 × _____ %N_2 = + _____ B_{ws} 0.06 1 - B_{ws} 0.94 Disturbance: Upstream _____

(_____ Md × _____ 1-B_{ws}) + (18 × _____ B_{ws}) = _____ (Ms) Downstream _____

$$v_s = 85.49 \times \_\_\_\_ Cp \times \sqrt{\frac{(\_\_\_\_)Ts\,°R}{\_\_\_\_ Ms \times \_\_\_\_ Ps}} \times \_\_\_\_ \sqrt{\Delta P} = \_\_\_\_ \text{ ft/sec (Vs)}$$

Q_{acfm} = _____ Vs × _____ Flue Area × 60 = _____ acfm Port Length _____ Inches

$$Q_{dscfm} = 17.647 \times ACFM \times \frac{Ps}{Ts\,°R} = \_\_\_\_ \text{ SCFM}$$

$$Q_{dscfm} = 17.647 \times ACFM \times \frac{Ps}{Ts\,°R} \times (1\text{-}Bws) = \_\_\_\_ \text{ DSCFM}$$

Pre-test leak check 4 "H_2O

Post-test leak check 45 "H_2O

Data Taken By: JCD

Field Engineer / Test Technician

Form 1012 [Rev. 5/97]

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PITOT TRAVERSE DATA

Project: City of Grand Island Platte Sta. - [illegible]

Location: [illegible] Duct Cyclonic Flow Check - Null Point Traverse

Date: 8-19-99 Test No: 1 Time: 834 - 916

EAST GND

Point No.	ΔP	$\sqrt{\Delta P}$	t_s	From Ø α	Point No.	ΔP	$\sqrt{\Delta P}$	t_s	From Ø α
1-1	0.12			-2°	4-1	0.18			+2°
2	0.32			+2°	2	0.25			+5°
3	0.46			+18°	3	0.58			+14°
4	0.52			+10°	4	0.55			+9°
5	0.30			+12°	5	0.45			+3°
2-1	0.28			-2°	5-1	0.30			+9°
2	0.35			+5°	2	0.42			+4°
3	0.52			+5°	3	0.60			+9°
4	0.48			-5°	4	0.43			+13°
5	0.43			-7°	5	0.53			+9°
3-1	0.16			-2°				AVERAGE	+5.28°
2	0.32			+7°					
3	0.40			+5°					
4	0.50			+1°					
5	0.38			-6°					

Ø =

P_{bar} _____ "Hg Static _____ "H_2O P_g _____ "Hg P_s _____ "Hg Pitot ID _____ C_p _____ Temp. ID _____

0.44 × _____ $\%CO_2$ = _____ $\sqrt{\Delta P}$ _____ t_s _____ °F T _____ °R Flue Area _____ ft^2

0.32 × _____ $\%O_2$ = + _____ Duct Dimensions _____

0.28 × _____ $\%N_2$ = + _____ B_{ws} _____ 1 - B_{ws} _____ Disturbance: Upstream _____

(_____ Md × _____ 1-B_{ws}) + (18 × _____ B_{ws}) = _____ (Ms) Downstream _____

$$v_s = 85.49 \times \_\_\_\_ Cp \times \sqrt{\frac{(\_\_\_\_)Ts\,°R}{\_\_\_\_ Ms \times \_\_\_\_ Ps}} \times \_\_\_\_ \sqrt{\Delta P} = \_\_\_\_ \text{ ft/sec (Vs)}$$

Q_{acfm} = _____ Vs × _____ Flue Area × 60 = _____ acfm Port Length _____ Inches

$$Q_{dscfm} = 17.647 \times ACFM \times \frac{Ps}{Ts\,°R} = \_\_\_\_ \text{ SCFM}$$

$$Q_{dscfm} = 17.647 \times ACFM \times \frac{Ps}{Ts\,°R} \times (1\text{-}Bws) = \_\_\_\_ \text{ DSCFM}$$

Pre-test leak check 3.5 "H_2O

Post-test leak check 4.5 "H_2O

Data Taken By: JCD, JRP/NS

Field Engineer / Test Technician

WEST +

~~80~~

Stack ←

Form 1012 [Rev. 5/97]

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METHOD 3 - FIELD DATA SHEET
INTEGRATED SAMPLES - GAS ANALYSIS

Project: _____ Date: _____

Sampling Location: _____

Source Condition: _____ Monitor Model No: _____

Fuel Type: _____ Serial No: _____

Module No: _____ Rate Meter Units: _____ Orsat No. _____ Bag Type: _____

Test (Run) No. 1

SAMPLING

Port-Point No.	Clock Time 24hr	Flow Rate
1-2	1007	0.50 l/min
3	↓	
4	1025	
2-2	1031	
3	↓	
4	10.52	
3-2	1101	
2	↓	
	1119	
4-2	11.58	
3	↓	
4	12.16	
5-2	12 21	
3	↓	
4	1242	✓

ANALYSIS

% By Volume (dry basis)

	Total	CO_2	O_2	CO
#1		13.2	5.8	
#2		13.4	6.0	
#3		13.4	6.0	
Avg.		13.33	5.93	

Pre-Run Leak Check:
Train: ✓
Bag:
Pipettes: ✓
Burette: ✓

Post-Run Leak Check:
Train: ✓
Bag:
Pipettes: ✓
Burette: ✓

VALIDATION

Fuel Factor (F_o)		Percent Difference
Orsat	Fuel	

Test (Run) No. 2

SAMPLING

Port-Point No.	Clock Time 24hr	Flow Rate
1-2	1506	0.6 l/min
3	↓	
4	1524	
2-2	1533	
3	↓	
4	1551	
3-2	1605	
3	↓	
4	1623	
4-2	1631	
3	↓	
4	1647	
5-2	1657	
3	↓	
4	1705	
		✓

ANALYSIS

% By Volume (dry basis)

	Total	CO_2	O_2	CO
		13.2	5.8	
		13.2	5.8	
		13.4	5.6	
Avg.		13.27	5.73	

Pre-Run Leak Check:
Train: ✓
Bag:
Pipettes: ✓
Burette: ✓

Post-Run Leak Check:
Train:
Bag:
Pipettes:
Burette:

VALIDATION

Fuel Factor (F_o)		Percent Difference
Orsat	Fuel	

Comments:

Operator: DJN

$$F12_{,}(Orsat) = \frac{20.9 - (\%O_2 - 0.5\,\%CO)}{\%CO_2 + \%CO}$$

$$F_{,}(Fuel) = \frac{0.209\,F_{,}}{F_{,}} = \frac{0.651\,(1.53\,\%C - 3.64\,\%H - 0.57\,\%S - 0.14\,\%S - 0.14\,\%N - 0.46\,\%O)}{\%C}$$

$$\%\ Difference = \frac{F_{,}(Orsat) - F_{,}(Fuel)}{F_{,}(Fuel)} \cdot 100$$

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METHOD 3 - FIELD DATA SHEET
INTEGRATED SAMPLES - GAS ANALYSIS

Project: City of Grand Island - Platte Generating Station Date: August 2, 1995
Sampling Location: Unit 1 Outlet Duct
Source Condition: High Load Monitor Model No:
Fuel Type: Coal Serial No:
Module No: P1 Rate Meter Units: l/min Orsat No. 008-008 Bag Type: Tedlar

Test (Run) No. 3

SAMPLING

Port-Point No.	Clock Time 24hr	l/min Flow Rate
1-2	0936	0.55
3	↓	
4	0954	
2-2	1002	
3	↓	
4	1020	
3-2	1033	
3	↓	
	1051	
4-2	1059	
	↓	
4	1117	
5-2		
3		
4		

ANALYSIS

% By Volume (dry basis)

Total	CO_2	O_2	CO
	13.2	6.0	
	13.2	5.8	
	13.2	5.8	
Avg.	13.2	5.87	

Pre-Run Leak Check:
Train: ✓
Bag:
Pipettes: ✓
Burette: ✓

Post-Run Leak Check:
Train:
Bag:
Pipettes:
Burette:

VALIDATION

Fuel Factor (F_o)		Percent Difference
Orsat	Fuel	

Test (Run) No.

SAMPLING

Port-Point No.	Clock Time 24hr	Flow Rate

ANALYSIS

% By Volume (dry basis)

Total	CO_2	O_2	CO
Avg.			

Pre-Run Leak Check:
Train:
Bag:
Pipettes:
Burette:

Post-Run Leak Check:
Train:
Bag:
Pipettes:
Burette:

VALIDATION

Fuel Factor (F_o)		Percent Difference
Orsat	Fuel	

Comments:

Operator: DJN

$$F12_{,}(\text{Orsat}) = \frac{20.9 - (\%O_2 - 0.5\,\%CO)}{\%CO_2 + \%CO}$$

$$F_{,}(\text{Fuel}) = \frac{0.209 F_{,}}{F_{,}} = \frac{0.651\,(1.53\,\%C + 3.64\,\%H - 0.57\,\%S - 0.14\,\%S - 0.14\,\%N - 0.46\,\%O)}{\%C}$$

$$\%\ \text{Difference} = \frac{F_{,}(\text{Orsat}) - F_{,}(\text{Fuel})}{F_{,}(\text{Fuel})} \cdot 100$$

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PITOT TRAVERSE DATA

Project: Dam Generating Station

Location: Dunst

Date: 8/17/99 Test No: [illegible] #2 Time: 1450 - 1550

Point No.	ΔP	$\sqrt{\Delta P}$	t_s	α	Point No.	ΔP	$\sqrt{\Delta P}$	t_s	α
1-1	0.80		327	+15	5-1	1.20		331	—
2	1.00		327	+10	2	1.50		334	—
3	1.10		332	+8	3	1.50		333	—
4	1.10		337	+13	4	1.50		335	+20
							1.100	333.9	
2-1	1.10		330	+13					
2	1.05		334	+10					
3	1.20		338	+10					
4	1.20		338	+10					
3-1	1.30		332	+15					
2	1.10		334	+12					
3	1.20		338	+12					
4	1.40		339	+10					
4-1	1.30		332	+15					
2	1.20		335	+10					
3	1.20		335	+20					
4	1.40		337	+10					

P_{bar} 29.40 "Hg Static -.25 "H_2O P_g ____ "Hg P_s 29.382 "Hg Pitot ID 440B C_p 0.830 Temp. ID E-35

0.44 × 14.0 %CO_2 = 6.16 $\sqrt{\Delta P}$ 1.100 t_s 333.9 °F T 793.9 °R Flue Area 100 ft^2

0.32 × 4.0 %O_2 = + 1.28 Duct Dimensions 10' x 10'

0.28 × 82 %N_2 = + 22.96 B_{ws} 0.060 1 - B_{ws} .94 Disturbance: Upstream ____

(30.40 Md × .94 1-B_{ws}) + (18 × .06 B_{ws}) = 29.656 (Ms) Downstream ____

$v_s = 85.49 \times .830 Cp \times \sqrt{\frac{(793.9)\ Ts\ °R}{29.656\ Ms \times 29.382\ Ps}} \times 1.1 \sqrt{\Delta P} = 74.503$ ft/sec (Vs)

Q_{acfm} = 74.503 Vs × 100 Flue Area × 60 = 447,016 acfm Port Length 175 Inches

$Q_{dscfm} = 17.647 \times ACFM \times \frac{Ps}{Ts\ °R}$ = 291950.8 SCFM

$Q_{dscfm} = 17.647 \times ACFM \times \frac{Ps}{Ts\ °R} \times (1\text{-}Bws)$ = 274433.8 DSCFM

Pre-test leak check ✓ "H_2O

Post-test leak check ✓ "H_2O

Data Taken By: DJN / CCM

Field Engineer / Test Technician

Form 1012 [Rev. 5/97]

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PROJECT

Continued From Page

PLATTE GENERATING STATION (GRAND ISLAND, NE)

~~BALAN~~ - WAS Weigh: Field BLANK

8/18/99 - WEDS

Balance check (2000g) → 1999.8g

→ INLET, TEST 1

INKCI	Imp 1	636.3	752.6
	Imp 2	759.5	773.8
	Imp 3	749.8	751.4
HNO_3/H_2O_2	Imp 4	750.8	751.5
$H_2SO_4/KMnO_4$	Imp 5	740.3	740.1
	Imp 6	746.9	746.9
	Imp 7	738.5	738.8
Silica	Imp 8	805.5	817.6
	Total	5927.6	6072.7

145.1

Imps 5122.1 5255.1

→ OUTLET, TEST 1

INKCI	Imp 1	663.6	~~663.6~~ 774.5
	Imp 2	~~802.0~~ ~~820.0~~	~~820.8~~ 802.0 826.7
	Imp 3	801.1	809.6
HNO_3/H_2O_2	Imp 4	714.6	719.7
$H_2SO_4/KMnO_4$	Imp 5	767.8	768.5
	Imp 6	771.1	771.1
	Imp 7	755.3	754.4
Silica	Imp 8	878.7	890.8
		6154.2	6315.3

161.1

5275.5 5424.5

→ INLET, FIELD BLANK

Imp 1	705.7	705.7
Imp 2	795.5	795.5
Imp 3	764.7	764.8
Imp 4	795.7	795.7
Imp 5	804.4	804.4
Imp 6	796.6	796.6
Imp 7	775.5	775.6
Imp 8	824.3	824.3

764.7

→ OUTLET, FIELD BLANK

Imp 1	664.7	664.6
Imp 2	820.8	820.8
Imp 3	719.5	719.6
Imp 4	739.6	739.6
Imp 5	801.2	801.2
Imp 6	771.9	771.9
Imp 7	706.1	706.1
Imp 8	842.0	842.0

→ INLET, TEST 2

Imp 1	740.8	858.1
Imp 2	802.4	818.0
Imp 3	767.8	768.7
Imp 4	797.9	801.2
Imp 5	806.4	805.1
Imp 6	810.4	809.4
Imp 7	774.2	773.1
Imp 8	804.9	821.2
Total	6304.8	6454.8

150

5499.9 5633.6

→ OUTLET, TEST 2

Imp 1	672.5	809.4
Imp 2	825.3	853.5
Imp 3	722.2	724.3
Imp 4	737.4	739.9
Imp 5	801.8	803.3
Imp 6	777.0	777.2
Imp 7	707.9	707.4
Imp 8	842.1	~~842.1~~ 853.7
	6086.2	6268.7

182.5

5244.1 5415.0

Continued on Page →

Read and Understood By

Signed Date Signed Date

8/19/99 - THURS Balance check (2000g) - 1999.8g

INLET TEST 3

Inp 1	663.5	792.2	
Inp 2	821.0	846.2	
Inp 3	717.4	720.7	5222.9
Inp 4	734.7	737.3	5381.8
Inp 5	804.4	802.6	
Inp 6	774.2	773.8	
Inp 7	707.7	709.0	
Inp 8	~~799.6~~	806.8	817.9
	6029.7	6199.7	170

→ OUTLET TEST 3

Inp 1	707.1	834.6	
Inp 2	801.2	825.0	
Inp 3	769.1	773.5	~~5465.8~~
Inp 4	798.7	802.3	5621
Inp 5	805.4	805.9	
Inp 6	809.0	808.8	
Inp 7	774.7	770.9	
Inp 8	853.0	866.0	
	6318.2	6487	168.8

Continued on Page

Read and Understood By

Signed Date Signed Date

CALIBRATION PROCEDURES

PITOT TUBES

The pitot tubes used during this test program are fabricated according to the specification described and illustrated in the *Code of Federal Regulations*, Title 40, Part 60, Appendix A, Methods 1 through 5 as published in the *Federal Register*, Volume 42, No. 160; hereafter referred to by the appropriate method number. The pitot tubes comply with the alignment specifications in Method 2, Section 4; and the pitot tube assemblies are in compliance with specifications in the same section.

Pitot tube assemblies are calibrated in accordance with Method 2, Section 4, against a standard hemispherical pitot utilizing a wind tunnel meeting the specification in Method 2, Section 4.1.2.

NOZZLES

The nozzles are measured according to Method 5, Section 5.1.

TEMPERATURE SENSING DEVICES

The potentiometer and thermocouples are calibrated against a mercury thermometer in a calibration well. Alternatively, readings are checked utilizing a NBS traceable millivolt source.

DRY GAS METERS

The test meters are calibrated according to Method 5, Section 5.3 and "Procedures for Calibrating and Using Dry Gas Volume Meters as Calibration Standards" by P.R. Westlin and R.T. Shigehara, March 10, 1978.

ANALYTICAL BALANCE

The accuracy of the analytical balance is checked with Class S, Stainless Steel Type 303 weights manufactured by F. Hopken and Son, Jersey City, New Jersey.

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Mercury ICR Glassware Cleaning Procedure

1. Rinse all sampling train glassware with hot tap water and then wash in hot soapy water.

2. Rinse glassware three times with tap water, followed by three additional rinses with RO/DI water.

3. Soak all glassware in a 10 percent (v/v) nitric acid solution for a minimum of 4 hours.

4. Rinse three times with RO/DI water, rinse a final time with acetone and allow to air dry.

5. Cover all glassware openings where contamination can occur until the sampling train is assembled for sampling.

I, Emily D. Thomas cleaned the glassware according to the above procedure on 8/11 - 8/13 1999.

TYPE S PITOT TUBE INSPECTION DATA FORM

Pitot tube assembly level? x yes _____ no

Pitot tube openings damaged? _____ yes (explain below) x no

α_1 = 2 ° (<10°), α_2 = 1 ° (<10°) z = A sin γ = 0.039 (in.); (<0.125 in.)

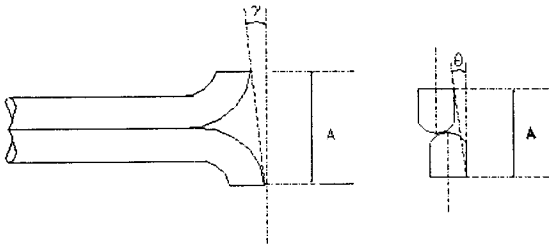
β_1 = 2 ° (<5°), β_2 = 2 ° (<5°) w = A sin θ = 0.013 (in.); (<0.03125 in.)

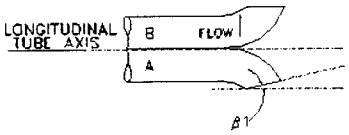
γ = 3 °, θ = 1 °, A = 0.736 (in.) P_A = 0.37 (in.), P_B = 0.36 (in.), D_t = 0.157 (in.)

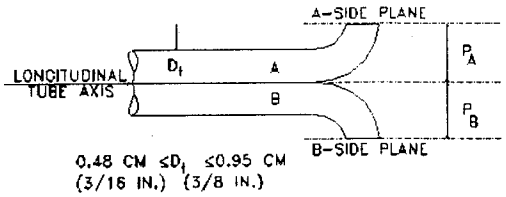
Comments: M5 probe

Calibration required? _____ yes x no

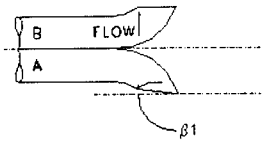
Pitot Tube No.: 437 Date: 10/8/99 Name: LC/RR

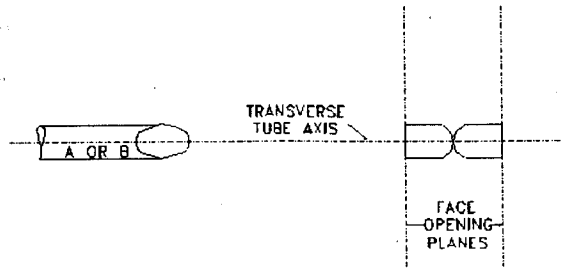


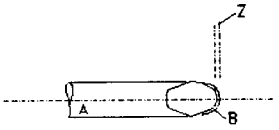


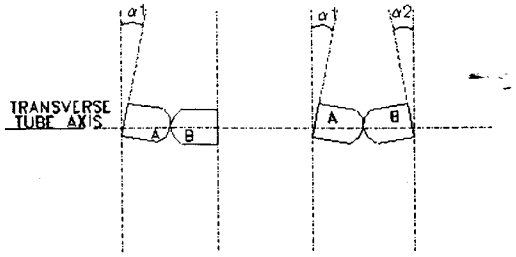


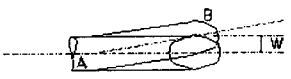
NOTE:
1.05 D_t<P_t <1.50 D
P_A = P_B











Pitot Tube Calibration Data

Calibration Pitot Tube: Type: HEMI STD Size (OD): 1/4" Pitot ID #: 16018

Type "S" Pitot Tube ID Numbe 434 (1/4") Cp(std) = 0.99

Calibration Date: 12/4/1997 Performed By: M. McIntyre

P_{std}, (in.) H_2O		A-Side Calibration		
Set Value	**Read Value**	**P_s, (in.) H_2O**	**$C_{p(S)}$ [a]**	**DEV. [b]**
0.25	0.27	0.39	0.829	0.001
0.55	0.55	0.78	0.830	0.000
0.85	0.85	1.20	0.831	0.000
1.00	1.05	1.50	0.828	0.002
2.00	2.00	2.80	0.837	0.006
3.00	3.00	4.30	0.827	0.003
		Average	0.830	0.002

P_{std}, (in.) H_2O		B-Side Calibration		
Set Value	**Read Value**	**P_s, (in.) H_2O**	**$C_{p(S)}$ [a]**	**DEV. [b]**
0.25	0.26	0.37	0.830	0.001
0.55	0.55	0.78	0.830	0.001
0.85	0.85	1.20	0.831	0.001
1.00	1.05	1.50	0.828	0.003
2.00	2.00	2.80	0.837	0.005
3.00	3.00	4.25	0.832	0.000
		Average	0.831	0.002

$\overline{C_p}(A) - \overline{C_p}(B) =$ 0.001 (must be ≤ 0.01)

[a] $C_{p(S)} = C_{p(std)}\sqrt{\frac{\Delta P_{std}}{\Delta P_s}}$

[b] $DEV = C_{p(S)} - \overline{C_p}$, (must be ≤ 0.01)

TYPE S PITOT TUBE INSPECTION DATA FORM

Pitot tube assembly level? x yes _____ no

Pitot tube openings damaged? _____ yes (explain below) x no

α_1 = 0.5 ° (<10°), α_2 = 1 ° (<10°) z = A sin γ = 0.027 (in.); (<0.125 in.)

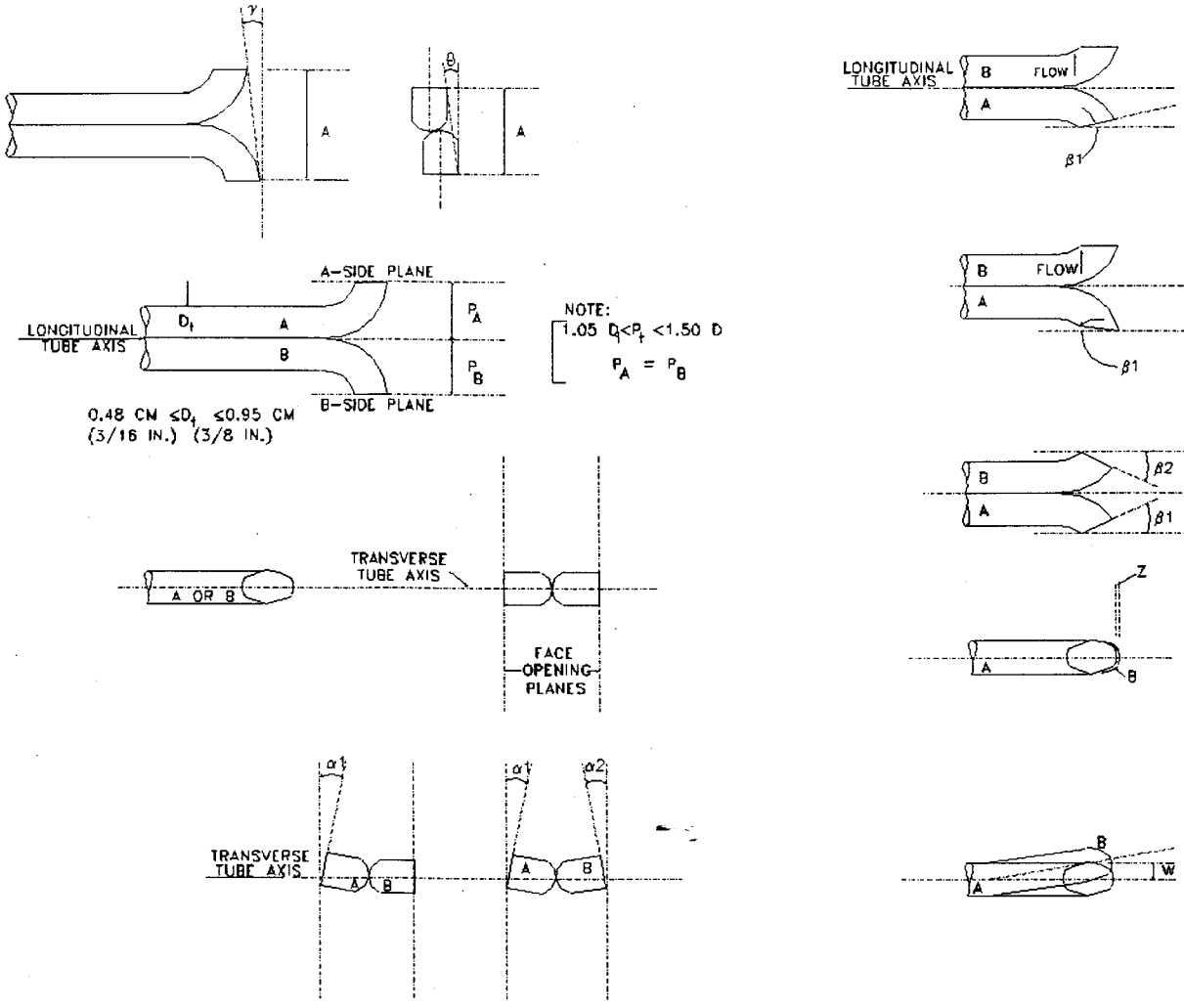
β_1 = 0 ° (<5°), β_2 = 4 ° (<5°) w = A sin θ = 0.007 (in.); (<0.03125 in.)

γ = 2 °, θ = 0.5 °, A = 0.768 (in.) P_A = 0.38 (in.), P_B = 0.38 (in.), D_t = 0.213 (in.)

Comments: 11' 7" M5 probe

Calibration required? _____ yes x no

Pitot Tube No.: 434 Date: 7/7/99 Name: SCK

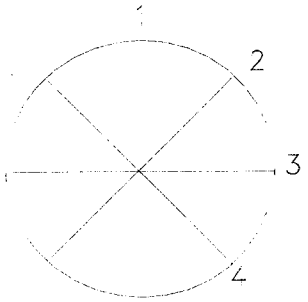


Nozzle Calibration

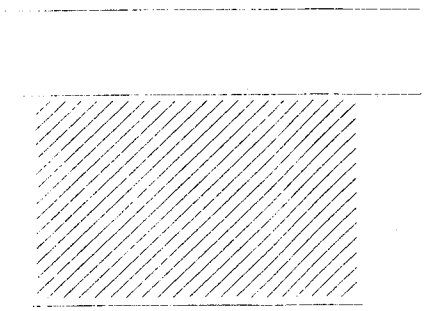
Date: 8/18/99

Nozzle ID No.: #6

Analyst: DJN



Pre Test		Post Test
0.179	1	√
0.180	2	√
0.180	3	√
0.180	4	√



Average
0.180

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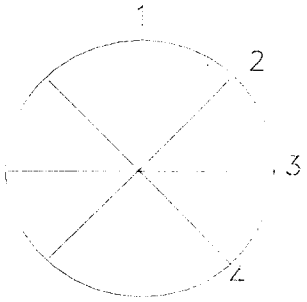
Nozzle Calibration

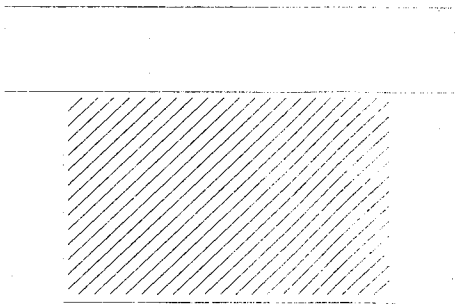
Date: 8/18/99

Nozzle ID No.: Glass - Set 3

Analyst: JCD



Pre Test		Post Test
0.236	1	√
0.236	2	√
0.235	3	√
0.235	4	√



Average
0.236

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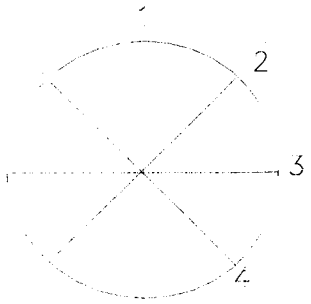
Nozzle Calibration

Date: 8/18/99

Nozzle ID No.: Glass - Set 3

Analyst: JCD



Pre Test		Post Test
0.235	1	√
0.235	2	√
0.235	3	√
0.236	4	√

Average
0.235

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STACK TEMPERATURE SENSOR CALIBRATION DATA FORM (FOR K-TYPE THERMOCOUPLES)

EPA Control Module Number: E-21 Name: Sarah Kaufman

Ambient Temperatu 84 °F Date: 07-20-99

Model 1061; S/N: A20821 Reference Source (T/C Calibrator): Transmation, Inc.

Date of Calibration Verification: 10/18/94

Primary Standards Directly Traceable to
National Institute of Standards and Technology (NIST)

Reference[a] Source Temperature, (°F)	**Test Thermometer Temperature, (°F)**	**Temperature Difference,[b] %**
50	50	0.000
100	100	0.000
150	150	0.000
200	201	0.152
250	250	0.000
300	301	0.132
350	351	0.123
400	401	0.116
450	451	0.110
500	501	0.104
550	551	0.099
600	602	0.189
650	652	0.180
700	703	0.259
800	803	0.238
900	902	0.147
1000	1003	0.205
1100	1103	0.192
1200	1204	0.241

[a]Every (50°F) for each reference point.

$$\frac{(\text{Ref. Temp., °F} + 460) - (\text{Test Therm. Temp., °F} + 460)}{\text{Ref. Temp., °F} + 460} * 100 <= 1.5\ \%$$

STACK TEMPERATURE SENSOR CALIBRATION DATA FORM (FOR K-TYPE THERMOCOUPLES)

EPA Control Module Number: E21 Name: Rich Russ

Ambient Temperatu 74 °F Date: 09-15-99

Model 1061; S/N: A20821 Reference Source (T/C Calibrator): Transmation, Inc.

Date of Calibration Verification: 10/18/94

Primary Standards Directly Traceable to
National Institute of Standards and Technology (NIST)

Reference[a] Source Temperature, (°F)	Test Thermometer Temperature, (°F)	Temperature Difference,[b] %
50	50	0.000
100	100	0.000
150	150	0.000
200	200	0.000
250	250	0.000
300	300	0.000
350	350	0.000
400	400	0.000
450	450	0.000
500	500	0.000
550	550	0.000
600	600	0.000
650	650	0.000
700	700	0.000
800	800	0.000
900	900	0.000
1000	1000	0.000
1100	1100	0.000
1200	1200	0.000

[a]Every (50°F) for each reference point.

$$\frac{(\text{Ref. Temp., °F} + 460) - (\text{Test Therm. Temp., °F} + 460)}{\text{Ref. Temp., °F} + 460} * 100 <= 1.5\ \%$$

STACK TEMPERATURE SENSOR CALIBRATION DATA FORM (FOR K-TYPE THERMOCOUPLES)

EPA Control Module Number: E35 Name: Sarah Kaufman

Ambient Temperatu 88 °F Date: 07-27-99

Model 1061; S/N: A20821 Reference Source (T/C Calibrator): Transmation, Inc.

Date of Calibration Verification: 10/18/94

Primary Standards Directly Traceable to
National Institute of Standards and Technology (NIST)

Reference[a] Source Temperature, (°F)	Test Thermometer Temperature, (°F)	Temperature Difference,[b] %
50	51	0.196
100	100	0.000
150	150	0.000
200	200	0.000
250	250	0.000
300	300	0.000
350	350	0.000
400	400	0.000
450	451	0.110
500	500	0.000
550	551	0.099
600	601	0.094
650	650	0.000
700	700	0.000
800	800	0.000
900	901	0.074
1000	1000	0.000
1100	1101	0.064
1200	1201	0.060

[a]Every (50°F) for each reference point.

$$\frac{(\text{Ref. Temp., °F} + 460) - (\text{Test Therm. Temp., °F} + 460)}{\text{Ref. Temp., °F} + 460} * 100 <= 1.5\ \%$$

STACK TEMPERATURE SENSOR CALIBRATION DATA FORM (FOR K-TYPE THERMOCOUPLES)

EPA Control Module Number: E35 Name: Michael Sawyer

Ambient Temperatu 87 °F Date: 9/04/99

Model 1061; S/N: A20821 Reference Source (T/C Calibrator): Transmation, Inc.

Date of Calibration Verification: 10/18/94

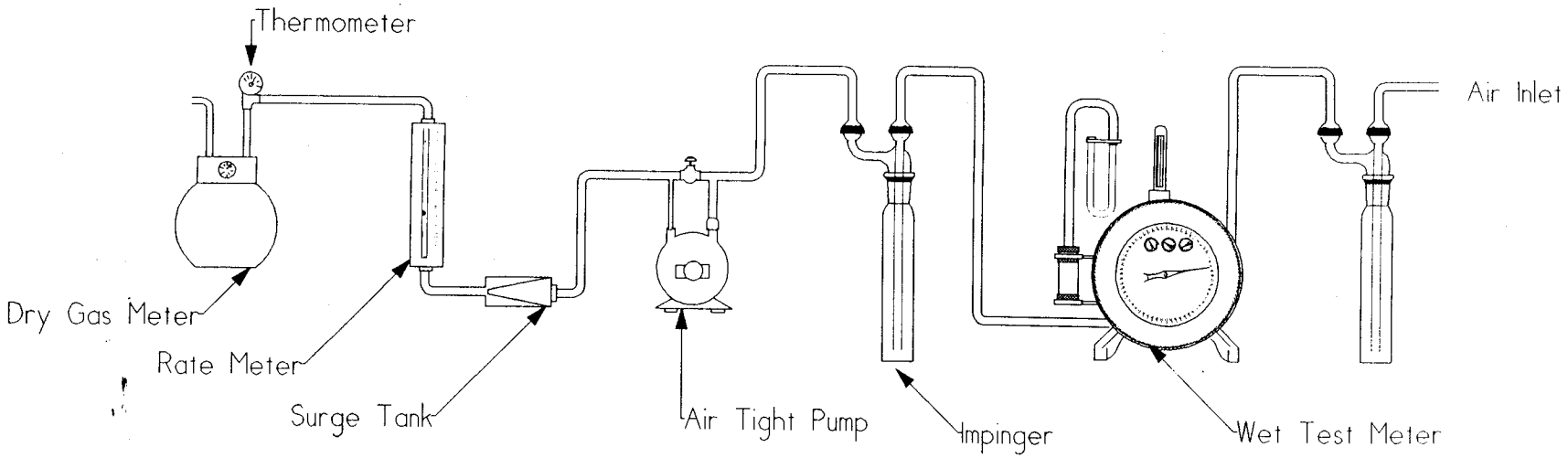
Primary Standards Directly Traceable to
National Institute of Standards and Technology (NIST)

Reference[a] Source Temperature, (°F)	Test Thermometer Temperature, (°F)	Temperature Difference,[b] %
50	52	0.392
100	101	0.179
150	151	0.164
200	201	0.152
250	251	0.141
300	301	0.132
350	351	0.123
400	401	0.116
450	451	0.110
500	501	0.104
550	551	0.099
600	601	0.094
650	651	0.090
700	701	0.086
800	801	0.079
900	901	0.074
1000	1001	0.068
1100	1101	0.064
1200	1201	0.060

[a]Every (50°F) for each reference point.

$$\frac{(\text{Ref. Temp., °F} + 460) - (\text{Test Therm. Temp., °F} + 460)}{\text{Ref. Temp., °F} + 460} * 100 <= 1.5\ \%$$

Gas Meter Calibration Train



Mostardi Platt

A Full Service Environmental Consulting Company

DWG-AF

[Rev. 7/97]

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METER BOX CALIBRATION

Dry Gas Meter No.	E21	Date:	07-20-99
Standard Meter No.	677191	Calibrated By:	Sarah Kaufman
Standard Meter (Yr)	0.9991	Barometric Pressure :	29.38

Formula Protection Password: MPA

Run Number		Orifice Setting in H20 Chg (H)	Standard Meter Gas Volume Vr	Dry Meter Gas Volume Vd	Standard Meter Temp. F tr	Dry Gas Meter Inlet Temp. F tdi	Dry Gas Meter Outlet Temp. F tdo	Dry Gas Meter Avg. Temp. F td	Time Min.	Time Sec.	Y	Chg (H@)
Final			81.527	22.968	82	84	83					
Inital			75.334	16.823	81	83	81					
Difference	1	0.20	6.193	6.145	81.5	83.5	82	82.75	24	13	1.010	1.782
Final			86.886	28.305	82	85	83					
Inital			81.832	23.285	82	84	82					
Difference	2	0.50	5.054	5.020	82	84.5	82.5	83.5	13	10	1.008	1.978
Final			55.938	97.659	85	89	87					
Inital			50.672	92.424	85	87	87					
Difference	3	0.70	5.266	5.235	85	88	87	87.5	10	55	1.009	1.760
Final			92.399	33.786	83	86	83					
Inital			87.181	28.591	82	85	83					
Difference	4	0.90	5.218	5.195	82.5	85.5	83	84.25	9	55	1.005	1.895
Final			97.811	39.189	83	86	84					
Inital			92.541	33.931	83	85	84					
Difference	5	1.20	5.270	5.258	83	85.5	84	84.75	8	45	1.002	1.931
Final			62.176	103.834	85	90	87					
Inital			56.069	97.796	85	88	86					
Difference	6	2.00	6.107	6.038	85	89	86.5	87.75	7	45	1.011	1.883
									Average		1.008	1.871

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METER BOX CALIBRATION

Dry Gas Meter No.	E21	Date:	09-15-99
Standard Meter No.	3623853	Calibrated By:	Rich Russ
Standard Meter (Yr)	0.9943	Barometric Pressure :	29.44

Formula Protection Password: MPA

Run Number		Orifice Setting in H20 Chg (H)	Standard Meter Gas Volume Vr	Dry Meter Gas Volume Vd	Standard Meter Temp. F tr	Dry Gas Meter Inlet Temp. F tdi	Dry Gas Meter Outlet Temp. F tdo	Dry Gas Meter Avg. Temp. F td	Time Min.	Time Sec.	Y	Chg (H@)
Final			56.307	51.550	73	78	77					
Inital			51.444	46.646	73	77	75					
Difference	1	0.20	4.863	4.904	73	77.5	76	76.75	18	33	0.998	1.657
Final			64.724	60.012	73	80	78					
Inital			58.933	54.191	73	79	77					
Difference	2	0.50	5.791	5.821	73	79.5	77.5	78.5	14	12	1.004	1.707
Final			50.465	45.669	73	77	75					
Inital			45.449	40.624	73	76	73					
Difference	3	0.70	5.016	5.045	73	76.5	74	75.25	10	34	0.997	1.774
Final			71.298	66.602	73	81	78					
Inital			65.781	61.076	73	80	78					
Difference	4	0.90	5.517	5.526	73	80.5	78	79.25	10	12	1.008	1.744
Final			77.948	73.302	73	81	79					
Inital			72.874	68.202	73	81	78					
Difference	5	1.20	5.074	5.100	73	81	78.5	79.75	8	7	1.004	1.739
Final			85.514	80.848	73	82	79					
Inital			78.658	73.985	73	81	79					
Difference	6	2.00	6.856	6.863	73	81.5	79	80.25	8	43	1.008	1.829
									Average		1.003	1.742

1.02

VOLUME METERING SYSTEM FIELD AUDIT

Date: 07-20-99 Name: Sarah Kaufman

EPA Control Module No.: E21 Ambient Temperature: 82 °F

Calibration (Y): 1.008 Barometric Pressure: 29.33 "Hg

Delta H: 1.871

Run No.	Time (Minutes)	Gas Meter Reading (Cubic Feet)	Gas Meter Temperature Inlet (°F)	Gas Meter Temperature Outlet (°F)	Yc (Calculated)
1	0	39.424	85	84	1.038
	10	46.839	87	84	
	Vm=	7.415	Avg.= 85.00	545.00	
2	0	46.839	87	84	1.024
	10	54.362	88	85	
	Vm=	7.523	Avg.= 86.00	546.00	
3	0	54.362	87	84	1.018
	10	61.934	88	85	
	Vm=	7.572	Avg.= 86.00	546.00	

$$Yc = \frac{10}{Vm}\sqrt{\frac{Pbar}{0.0319Tm}}$$

Limit: 0.97Y <Yc< 1.03Y

Limit: 0.978 <Yc< 1.038

$$\text{Calc. Delta H @} = \frac{0.0319\,(\text{Delta H})(Tm)(100)}{Pbar(Y^2)(Vm^2)}$$ (From Calibration Data) = 1.941

METER BOX CALIBRATION

Dry Gas Meter No.	E35	Date:	07-27-99
Standard Meter No.	3623853	Calibrated By:	Sarah Kaufman
Standard Meter (Yr)	0.9943	Barometric Pressure :	29.29

Formula Protection Password: MPA

Run Number		Orifice Setting in H20 Chg (H)	Standard Meter Gas Volume Vr	Dry Meter Gas Volume Vd	Standard Meter Temp. F tr	Dry Gas Meter Inlet Temp. F tdi	Dry Gas Meter Outlet Temp. F tdo	Dry Gas Meter Avg. Temp. F td	Time Min.	Time Sec.	Y	Chg (H@)
Final			34.299	69.181	88	91	92					
Inital			28.936	63.809	88	91	90					
Difference	1	0.20	5.363	5.372	88	91	91	91	20	14	1.003	1.678
Final			39.699	74.629	89	92	92					
Inital			34.440	69.339	89	91	92					
Difference	2	0.50	5.259	5.290	89	91.5	92	91.75	13	1	0.998	1.810
Final			22.614	57.504	88	91	91					
Inital			16.544	51.396	88	90	89					
Difference	3	0.70	6.070	6.108	88	90.5	90	90.25	12	56	0.996	1.876
Final			45.019	79.949	89	93	92					
Inital			39.954	74.882	89	92	92					
Difference	4	0.90	5.065	5.067	89	92.5	92	92.25	9	34	1.003	1.895
Final			50.304	85.236	89	93	91					
Inital			45.206	80.155	89	92	92					
Difference	5	1.20	5.098	5.081	89	92.5	91.5	92	8	31	1.006	1.978
Final			28.595	63.471	88	92	91					
Inital			22.922	57.793	88	90	91					
Difference	6	2.00	5.673	5.678	88	91	91	91	7	27	1.000	2.033
									Average		1.001	1.878

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METER BOX CALIBRATION

Dry Gas Meter No.	E35	Date:	04-Sep-99
Standard Meter No.	3623851	Calibrated By:	Michael Sawyer
Standard Meter (Yr)	1.0063	Barometric Pressure :	29.34

POST TEST CALIBRATION

Run Number		Orifice Setting in H20 Chg (H)	Standard Meter Gas Volume Vr	Dry Meter Gas Volume Vd	Standard Meter Temp. F tr	Dry Gas Meter Inlet Temp. F tdi	Dry Gas Meter Outlet Temp. F tdo	Dry Gas Meter Avg. Temp. F td	Time Min.	Time Sec.	Y	Chg (H@)
Final			39.423	23.413	85	93	86					
Inital			31.715	15.626	85	93	86					
Difference	1	2.00	7.708	7.787	85	93	86	89.5	10	0	0.993	1.965
Final			47.126	31.192	85	94	86					
Inital			39.423	23.413	85	93	86					
Difference	2	2.00	7.703	7.779	85	93.5	86	89.75	10	0	0.994	1.966
Final			54.804	38.984	86	94	87					
Inital			47.126	31.192	85	94	86					
Difference	3	2.00	7.678	7.792	85.5	94	86.5	90.25	10	0	0.989	1.981
									Average		0.992	1.971

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VOLUME METERING SYSTEM FIELD AUDIT

Date: 07-27-99 Name: Sarah Kaufman

EPA Control Module No.: E35 Ambient Temperature: 90 °F

Calibration (Y): 1.001 Barometric Pressure: 29.29 "Hg

Delta H: 1.878

#VALUE!

Run No.	Time (Minutes)	Gas Meter Reading/Gas Meter Temperature (Cubic Feet)	Inlet (°F)	Outlet (°F)	Yc (Calculated)
1	0	8.861	94	93	1.020
	10	16.474	95	92	
	Vm=	7.613	Avg.= 93.50	553.50	
2	0	16.474	94	92	1.018
	10	24.099	95	93	
	Vm=	7.625	Avg.= 93.50	553.50	
3	0	24.099	94	92	1.018
	10	31.724	95	92	
	Vm=	7.625	Avg.= 93.25	553.25	

$$Yc = \frac{10}{Vm}\sqrt{\frac{Pbar}{0.0319Tm}}$$

Limit: 0.97Y <Yc< 1.03Y

Limit: 0.971 <Yc< 1.031

$$\text{Calc. Delta H @} = \frac{0.0319\ (\text{Delta H})(Tm)(100)}{Pbar(Y^2)(Vm^2)}$$ (From Calibration Data) = 1.945

M&R BALANCE

SALES AND SERVICE

3614 NORTH ORIOLE AVENUE
CHICAGO, ILLINOIS 60634
Phone 773-625-9444
Fax 773-625-1344

Balance/Scale Calibration Record

Company: MOSTARDI-PLATT ASSOC.

Address: 945 OAKLAWN AVE.
ELMHURST, IL 60126

Contact: MR. FRANK JARKE

Balance Number: _____ Location Of Balance : LABORATORY

Manufacturer: THE TORSION BALANCE CO Model: EA-1

Serial No.: 168491 Capacity: 160 g.

Resolution: 0.1 mg.

WEIGHTS USED	READING BEFORE SERVICE	READING AFTER SERVICE
5 mg.	0.0050 g.	0.0050 g.
1 g.	1.0001 g.	1.0000 g.
10 g.	10.0001 g.	10.0000 g.
100 g.	99.9993 g.	99.9994 g.

SHIFT TEST: WEIGHT USED 20 g. SERIAL NUMBER E559

FRONT 19.9997g. BACK N/A LEFT 19.9993 g. RIGHT 20.0007 g.

(Shift test is used to check the integrity of the weighing mechanism)

REPRODUCIBILITY TEST: WEIGHT USED 100 mg. SERIAL NUMBER E559

1ST 0.1000 g. 2ND 0.1000g. 3RD 0.1000g. 4TH 0.1000g.

REPEAT ZERO TEST: WEIGHT USED 100 mg. SERIAL NUMBER E559

1ST 0.0000 g. 2ND 0.0000 g. 3RD 0.0000 g. 4TH 0.0000 g.

The weights used in the above calibration were certified against M&R's certified weights:

Weight Certification: 1 mg. TO 100 g. ASTM. CLASS '1' NIST 822/260017-98
RICE LAKE METROLOGY LAB. TEST # 427099 WEIGHT SET # E559

Date Weights Last Certified: 11/30/98 Next Certification Date: 11/00

Environment / Service / Comments: CLEANED & ADJUSTED CALIBRATION ON
BALANCE TO NIST. SPECS.

Serviced by: Michael J. Fitzpatrick Date: 5/17/99

ONTARIO HYDRO METHOD TEST SUPPORT DATA

PROJECT NO.:	93305	**TEST RUN NO.:**	1	**TEST DATE:**	8/18/99

CUSTOMER:	City of Grand Island	**BAROMETRIC PRESSURE (Pb)**		28	**in. Hg.**
PLANT:	Platte Generating Station	**STATIC PRESSURE**		-4.3	**in. H2O**
TEST LOC.:	Unit 1 Inlet Duct	**FLUE PRESSURE (Ps)**		27.68	**in. Hg. abs.**
CLIENT:	City of Grand Island	**PROBE LENGTH:**		9	**ft.**
OPERATOR:	J. Daniels	**PROBE LINER MATERIAL:**		Glass	
CONTROL BOX:	E-21	**NOZZLE IDENTIFICATION NO.:**		N/A	
METER NO.:	E-21	**CALIBRATED NOZZLE DIAMETER:**		0.236	**in.**
METER CALIBRATION FACTOR:	1.008	**LEAK CHECK**	**PRE:**	0.006	**POST:** 0.010 @ 10 in. Hg.
PITOT ID NO.:	437B	**DUCT SHAPE:**	Circular	DIA.	Feet
PITOT TUBE COEFFICIENT:	0.829		Rectangular	6.53125 Feet	29.55 Feet
PORT LENGTH:	24 in.	**DUCT AREA:**		193.01202	**sq. ft.**
PORT SIZE:	4 in.	**TEST LENGTH:**		125	**min.**
PORT TYPE:	Nipple (Vertical)	**MINUTES PER POINT:**		5	
		TOTAL NUMBER OF TRAVERSE POINTS:		25	

ONTARIO HYDRO METHOD TRAVERSE DATA

Company: City of Grand Island **Date:** 8/18/99 **Test Ru** 1

Location: Unit 1 Inlet Duct

Point	Δp	Sq. Root Δp	Time	Volume cubic fe	ΔH	Stack Temp °F	Meter Inlet °F	Meter Outlet °F	Vacuum in. Hg	
1-1	0.15	0.387	10:00	803.48	0.20	758	111	107	2	1.405
1-2	0.33	0.574	10:05	804.88	0.44	764	108	106	3	1.870
1-3	0.51	0.714	10:10	806.75	0.68	752	108	104	3	2.440
1-4	0.60	0.775	10:15	809.19	0.80	761	105	104	3	2.640
1-5	0.38	0.616	10:20	811.83	0.53	771	104	104	3	2.085
			10:25	813.92						0.000
2-1	0.26	0.510	10:28	813.92	0.36	778	104	104	3	1.795
2-2	0.40	0.632	10:33	815.71	0.55	790	103	103	3	2.230
2-3	0.57	0.755	10:38	817.94	0.79	778	103	102	4	2.420
2-4	0.54	0.735	10:43	820.36	0.75	775	104	102	4	2.600
2-5	0.52	0.721	10:48	822.96	0.72	759	103	102	3	2.475
			10:53	825.44						0.000
3-1	0.19	0.436	10:56	825.44	0.27	784	103	102	3	0.910
			10:59	826.35						0.000
3-1	0.20	0.447	11:37	827.53	0.28	784	99	100	3	1.420
3-2	0.35	0.592	11:39	828.95	0.49	790	100	101	4	1.130
3-3	0.44	0.663	11:44	830.08	0.59	758	101	100	5	2.260
3-4	0.50	0.707	11:49	832.34	0.68	790	105	101	5	2.360
3-5	0.52	0.721	11:54	834.70	0.70	790	103	100	5	2.300
			11:59	837.00						0.000
4-1	0.16	0.400	12:02	837.20	0.21	799	100	101	3	1.100
4-2	0.37	0.608	12:07	838.30	0.47	787	106	101	3	2.680
4-3	0.59	0.768	12:12	840.98	0.77	772	102	101	6	1.720
4-4	0.60	0.775	12:17	842.70	0.79	770	102	101	6	2.450
4-5	0.47	0.686	12:22	845.15	0.62	780	103	102	6	2.360
			12:27	847.51						0.000
5-1	0.25	0.500	12:30	847.61	0.33	760	103	102	4	1.890
5-2	0.44	0.663	12:35	849.50	0.57	767	104	103	6	2.150
5-3	0.60	0.775	12:40	851.65	0.79	762	104	103	7	2.490
5-4	0.43	0.656	12:45	854.14	0.56	743	104	103	6	1.960
5-5	0.58	0.762	12:50	856.10	0.76	785	104	103	5	3.460
			12:55	859.56						0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
		0.638		54.600	0.57	773	104	102		######
							103.04			

MOISTURE, DILUENT AND MERCURY DATA

Company City of Grand Island **Date:** 8/18/99 **Test Run:** 1

Location: Unit 1 Inlet Duct

SILICA GEL FINAL WT.:	817.60	**grams**
SILICA GEL INITIAL WT.:	805.50	**grams**
DIFFERENCE:	12.10	
FINAL IMPINGER WATER:	5255.10	**mls.**
INITIAL IMPINGER WATER:	5122.10	**mls.**
DIFFERENCE:	133.00	
TOTAL WATER GAIN:	145.10	

ITEM	MERCURY (UG)		= NET WT. (G)
FILTER: 4	0.034		0.000000034
PROBE WASH:	0.003		0.000000003
		Particle-bound Total:	0.000000037
KCl:	5.201		0.000005201
		Oxidized Total:	0.000005201
HNO_3/H_2O_2:	0.277		0.000000277
$KMNO_4$:	12.056		0.000012056
		Elemental Total:	0.000012333

Orsat Analysis	1	2	3	Average
Carbon Dioxide:	14.40	14.60		14.50
Oxygen:	4.60	4.40		4.50

ONTARIO HYDRO METHOD DATA ENTRY FORM

Field Data/Calculated Data

Company:	**City of Grand Island**
Date:	8/18/99
Test Run:	1
Stack or Duct No.:	Unit 1 Inlet Duct
Start Time:	10:00
Stop Time:	12:55

Pb:	28.00	Inches Hg
Static	-4.30	Inches H2O
Ps:	27.68	Inches Hg Abs.
Vlc:	145	ml + grams
Mn:	0.0000	gm
Test Time:	125	minutes
% O2:	4.50	%
% CO2:	14.50	%
% N2:	81.00	%
Delta H:	0.57	Inches H20
Cp:	0.829	Dimensionless - pitot
Tm:	103.04	°F
Sqrt P:	0.638	Inches H20
Ts:	773.35	°F
Vm:	54.600	Cubic Feet
Dn:	0.236	Inches - nozzle
As:	193.01	Sq. Feet
Yd:	1.008	Mcf
CF:	N/A	Process tons/hr
Heat Input:	N/A	MM BTU/hr
Fd:	N/A	dscf/10^6 Btu
Fc:	N/A	scf/10^6 Btu

Vmstd:	48.371	cubic feet (dry)
Vwstd:	6.834	cubic feet (wet)
Bwo:	0.124	
Md:	30.500	lb/lb-mole (dry)
Ms:	28.953	lb/lb-mole (wet)
Excess Air (%)	26.652	
Vs:	56.056	fps
ACFM:	649169.	
DSCFM:	225307.	
WSCFM:	257140	
%I:	109.2	isokinetic variance
GR/ACF:	---	
GR/DSCF:	---	
lbs/hr	---	
lbs/ton prod.:	N/A	
lbs/MM BTU:	N/A	Heat Input
lbs/MM BTU:	N/A	O2 Basis
lbs/MM BTU:	N/A	CO2 Basis

ONTARIO HYDRO METHOD TEST SUPPORT DATA

PROJECT NO.:	93305	**TEST RUN NO.:**	2	**TEST DATE:**	8/18/99

CUSTOMER:	City of Grand Island	**BAROMETRIC PRESSURE (Pb)**	28.1	**in. Hg.**	
PLANT:	Platte Generating Station	**STATIC PRESSURE**	-4.7	**in. H2O**	
TEST LOC.:	Unit 1 Inlet Duct	**FLUE PRESSURE (Ps)**	27.75	**in. Hg. abs.**	
CLIENT:	City of Grand Island	**PROBE LENGTH:**	9	**ft.**	
OPERATOR:	J. Daniels	**PROBE LINER MATERIAL:**	Glass		
CONTROL BOX:	E-21	**NOZZLE IDENTIFICATION NO.:**	N/A		
METER NO.:	E-21	**CALIBRATED NOZZLE DIAMETER:**	0.236	**in.**	
METER CALIBRATION FACTOR:	1.008	**LEAK CHECK** **PRE:**	0.002	**POST:**	0.002 @ 12 in. Hg.
PITOT ID NO.:	437B	**DUCT SHAPE:**	Circular	DIA.	Feet
PITOT TUBE COEFFICIENT:	0.829		Rectangular	6.53125 Feet	29.55 Feet
PORT LENGTH:	24 in.	**DUCT AREA:**	193.01202	**sq. ft.**	
PORT SIZE:	4 in.	**TEST LENGTH:**	125	**min.**	
PORT TYPE:	Nipple (Vertical)	**MINUTES PER POINT:**	5		
		TOTAL NUMBER OF TRAVERSE POINTS:	25		

ONTARIO HYDRO METHOD TRAVERSE DATA

Company: City of Grand Island **Date:** 8/18/99 **Test Ru** 2

Location: Unit 1 Inlet Duct

Point	Δp	Sq. Root Δp	Time	Volume cubic fe	ΔH	Stack Temp °F	Meter Inlet °F	Meter Outlet °F	Vacuum in. Hg	
5-1	0.27	0.520	15:00	859.97	0.34	778	106	107	4	1.810
5-2	0.42	0.648	15:05	861.78	0.53	778	106	106	5	1.620
5-3	0.62	0.787	15:10	863.40	0.78	780	106	107	6	2.550
5-4	0.45	0.671	15:15	865.95	0.56	748	107	107	7	1.980
5-5	0.59	0.768	15:20	867.93	0.74	790	106	104	7	2.420
			15:25	870.35						0.000
4-1	0.17	0.412	15:28	870.48	0.21	788	105	106	4	1.520
4-2	0.25	0.500	15:33	872.00	0.31	776	106	106	5	1.690
4-3	0.57	0.755	15:38	873.69	0.71	776	108	105	8	2.410
4-4	0.60	0.775	15:43	876.10	0.75	776	107	105	8	2.300
4-5	0.51	0.714	15:48	878.40	0.64	786	107	105	7	2.310
			15:53	880.71						0.000
3-1	0.19	0.436	15:55	880.79	0.24	780	108	106	5	1.530
3-2	0.37	0.608	16:00	882.32	0.46	788	107	106	7	1.880
3-3	0.43	0.656	16:05	884.20	0.54	781	107	107	7	2.050
3-4	0.48	0.693	16:10	886.25	0.60	793	107	107	8	2.530
3-5	0.45	0.671	16:15	888.78	0.56	793	107	107	7	1.940
			16:20	890.72						0.000
2-1	0.32	0.566	16:23	890.80	0.40	780	106	106	6	1.980
2-2	0.38	0.616	16:28	892.78	0.48	769	106	106	7	1.940
2-3	0.55	0.742	16:33	894.72	0.69	785	106	106	8	2.430
2-4	0.50	0.707	16:38	897.15	0.63	780	106	106	8	2.060
2-5	0.50	0.707	16:43	899.21	0.63	770	107	106	10	2.120
			16:48	901.33						0.000
1-1	0.13	0.361	16:50	901.40	0.16	734	106	105	5	1.440
1-2	0.32	0.566	16:55	902.84	0.40	755	106	106	7	1.760
1-3	0.47	0.686	17:00	904.60	0.59	752	106	106	10	2.150
1-4	0.57	0.755	17:05	906.75	0.71	772	106	107	10	2.420
1-5	0.35	0.592	17:10	909.17	0.44	787	107	106	9	1.880
			17:15	911.05						0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
		0.636		50.720	0.52	776	106	106		#####
							106.26			

MOISTURE, DILUENT AND MERCURY DATA

Company City of Grand Island **Date:** 8/18/99 **Test Run:** 2

Location: Unit 1 Inlet Duct

SILICA GEL FINAL WT.:	821.20	**grams**
SILICA GEL INITIAL WT.:	804.90	**grams**
DIFFERENCE:	16.30	
FINAL IMPINGER WATER:	5633.60	**mls.**
INITIAL IMPINGER WATER:	5499.90	**mls.**
DIFFERENCE:	133.70	
TOTAL WATER GAIN:	150.00	

ITEM	MERCURY (UG)		= NET WT. (G)
FILTER: 5	0.037		0.000000037
PROBE WASH:	0.001		0.000000001
		Particle-bound Total:	0.000000038
KCl:	2.271		0.000002271
		Oxidized Total:	0.000002271
HNO_3/H_2O_2:	0.444		0.000000444
$KMNO_4$:	12.956		0.000012956
		Elemental Total:	0.000013400

Orsat Analysis	1	2	3	Average
Carbon Dioxide:	14.80	15.00		14.90
Oxygen:	4.40	4.00		4.20

ONTARIO HYDRO METHOD DATA ENTRY FORM

Field Data/Calculated Data

Company:	**City of Grand Island**
Date:	8/18/99
Test Run:	2
Stack or Duct No.:	Unit 1 Inlet Duct
Start Time:	15:00
Stop Time:	17:15

Pb:	28.10	Inches Hg
Static	-4.70	Inches H2O
Ps:	27.75	Inches Hg Abs.
Vlc:	150	ml + grams
Mn:	0.0000	gm
Test Time:	125	minutes
% O2:	4.20	%
% CO2:	14.90	%
% N2:	80.90	%
Delta H:	0.52	Inches H20
Cp:	0.829	Dimensionless - pitot
Tm:	106.26	°F
Sqrt P:	0.636	Inches H20
Ts:	775.80	°F
Vm:	50.720	Cubic Feet
Dn:	0.236	Inches - nozzle
As:	193.01	Sq. Feet
Yd:	1.008	Mcf
CF:	N/A	Process tons/hr
Heat Input:	N/A	MM BTU/hr
Fd:	N/A	dscf/10^6 Btu
Fc:	N/A	scf/10^6 Btu

Vmstd:	44.833	cubic feet (dry)
Vwstd:	7.065	cubic feet (wet)
Bwo:	0.136	
Md:	30.552	lb/lb-mole (dry)
Ms:	28.843	lb/lb-mole (wet)
Excess Air (%)	24.479	
Vs:	56.038	fps
ACFM:	648964.	
DSCFM:	222189.	
WSCFM:	257203	
%I:	102.6	isokinetic variance
GR/ACF:	---	
GR/DSCF:	---	
lbs/hr	---	
lbs/ton prod.:	N/A	
lbs/MM BTU:	N/A	Heat Input
lbs/MM BTU:	N/A	O2 Basis
lbs/MM BTU:	N/A	CO2 Basis

ONTARIO HYDRO METHOD TEST SUPPORT DATA

PROJECT NO.:	93305	**TEST RUN NO.:**	3	**TEST DATE:**	8/19/99

CUSTOMER:	City of Grand Island	**BAROMETRIC PRESSURE (Pb)**	28.63	**in. Hg.**	
PLANT:	Platte Generating Station	**STATIC PRESSURE**	-4.2	**in. H2O**	
TEST LOC.:	Unit 1 Inlet Duct	**FLUE PRESSURE (Ps)**	28.32	**in. Hg. abs.**	
CLIENT:	City of Grand Island	**PROBE LENGTH:**	9	**ft.**	
OPERATOR:	J. Daniels	**PROBE LINER MATERIAL:**	Glass		
CONTROL BOX:	E-21	**NOZZLE IDENTIFICATION NO.:**	N/A		
METER NO.:	E-21	**CALIBRATED NOZZLE DIAMETER:**	0.235	**in.**	
METER CALIBRATION FACTOR:	1.008	**LEAK CHECK** **PRE:**	0.004	**POST:**	0.004 @ 12 in. Hg.
PITOT ID NO.:	437B	**DUCT SHAPE:**	Circular	DIA.	Feet
			Rectangular	6.53125 Feet	29.55 Feet
PITOT TUBE COEFFICIENT:	0.829	**DUCT AREA:**	193.01202	**sq. ft.**	
PORT LENGTH:	24 in.	**TEST LENGTH:**	125	**min.**	
PORT SIZE:	4 in.	**MINUTES PER POINT:**	5		
PORT TYPE:	Nipple (Vertical)	**TOTAL NUMBER OF TRAVERSE POINTS:**	25		

ONTARIO HYDRO METHOD DATA ENTRY FORM

Field Data/Calculated Data

Company:	City of Grand Island
Date:	8/19/99
Test Run:	3
Stack or Duct No.:	Unit 1 Inlet Duct
Start Time:	9:30
Stop Time:	11:44

Pb:	28.63	Inches Hg
Static	-4.20	Inches H2O
Ps:	28.32	Inches Hg Abs.
Vlc:	170	ml + grams
Mn:	0.0000	gm
Test Time:	125	minutes
% O2:	2.87	%
% CO2:	16.00	%
% N2:	81.13	%
Delta H:	0.48	Inches H20
Cp:	0.829	Dimensionless - pitot
Tm:	75.20	°F
Sqrt P:	0.645	Inches H20
Ts:	780.56	°F
Vm:	47.335	Cubic Feet
Dn:	0.235	Inches - nozzle
As:	193.01	Sq. Feet
Yd:	1.008	Mcf
CF:	N/A	Process tons/hr
Heat Input:	N/A	MM BTU/hr
Fd:	N/A	dscf/10^6 Btu
Fc:	N/A	scf/10^6 Btu

Vmstd:	45.097	cubic feet (dry)
Vwstd:	8.007	cubic feet (wet)
Bwo:	0.151	
Md:	30.675	lb/lb-mole (dry)
Ms:	28.764	lb/lb-mole (wet)
Excess Air (%)	15.452	
Vs:	56.438	fps
ACFM:	653592.	
DSCFM:	223610.	
WSCFM:	263312	
%I:	103.5	isokinetic variance
GR/ACF:	---	
GR/DSCF:	---	
lbs/hr	---	
lbs/ton prod.:	N/A	
lbs/MM BTU:	N/A	Heat Input
lbs/MM BTU:	N/A	O2 Basis
lbs/MM BTU:	N/A	CO2 Basis

ONTARIO HYDRO METHOD TEST SUPPORT DATA

PROJECT NO.:	93305	**TEST RUN NO.:**	1	**TEST DATE:**	8/18/99

CUSTOMER:	City of Grand Island	**BAROMETRIC PRESSURE (Pb)**	28.1	**in. Hg.**	
PLANT:	Platte Generating Station	**STATIC PRESSURE**	-1	**in. H2O**	
TEST LOC.:	Unit 1 Outlet Duct	**FLUE PRESSURE (Ps)**	28.03	**in. Hg. abs.**	
CLIENT:	City of Grand Island	**PROBE LENGTH:**	11.5	**ft.**	
OPERATOR:	D. Nagorsen	**PROBE LINER MATERIAL:**	Teflon		
CONTROL BOX:	E-35	**NOZZLE IDENTIFICATION NO.:**	#6		
METER NO.:	E-35	**CALIBRATED NOZZLE DIAMETER:**	0.180	**in.**	
METER CALIBRATION FACTOR:	1.001	**LEAK CHECK** **PRE:**	0.002	**POST:**	0.000 @ 8 in. Hg.
PITOT ID NO.:	434A	**DUCT SHAPE:**	Circular DIA.		Feet
PITOT TUBE COEFFICIENT:	0.830		Rectangular	10 Feet	10 Feet
PORT LENGTH:	17.5 in.	**DUCT AREA:**	100	**sq. ft.**	
PORT SIZE:	4 in.	**TEST LENGTH:**	120	**min.**	
PORT TYPE:	Nipple	**MINUTES PER POINT:**	6		
		TOTAL NUMBER OF TRAVERSE POINTS:	20		

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ONTARIO HYDRO METHOD TRAVERSE DATA

Company: City of Grand Island **Date:** 8/18/99 **Test Ru** 1

Location: Unit 1 Outlet Duct

Point	Δp	Sq. Root Δp	Time	Volume cubic fe	ΔH	Stack Temp °F	Meter Inlet °F	Meter Outlet °F	Vacuum in. Hg	
1-1	0.98	0.990	10:01	407.20	0.68	300	73	75	3	2.820
1-2	1.20	1.095	10:07	410.02	0.83	301	73	75	4	2.950
1-3	1.30	1.140	10:13	412.97	0.92	303	75	76	5	3.330
1-4	1.20	1.095	10:19	416.30	0.85	304	76	77	4	4.670
			10:25	420.97						0.000
2-1	1.05	1.025	10:28	420.97	0.75	304	78	77	4	2.690
2-2	1.05	1.025	10:34	423.66	0.75	304	78	77	4	3.010
2-3	1.15	1.072	10:40	426.67	0.82	307	79	78	4	3.060
2-4	1.20	1.095	10:46	429.73	0.85	308	79	78	4	3.308
			10:52	433.04						0.000
3-1	1.05	1.025	10:55	433.04	0.75	304	79	79	4	2.952
3-2	1.05	1.025	11:01	435.99	0.75	305	80	80	4	2.980
3-3	0.98	0.990	11:07	438.97	0.70	308	83	82	4	2.740
3-4	1.20	1.095	11:13	441.71	0.85	311	83	82	4	3.180
			11:19	444.89						0.000
4-1	0.98	0.990	11:52	444.92	0.70	309	82	81	4	2.770
4-2	1.00	1.000	11:58	447.69	0.71	310	82	81	4	2.960
4-3	1.00	1.000	12:04	450.65	0.71	313	83	80	4	2.670
4-4	1.05	1.025	12:10	453.32	0.75	313	83	81	4	3.120
			12:16	456.44						0.000
5-1	0.72	0.849	12:18	456.44	0.51	309	82	81	3	2.380
5-2	0.82	0.906	12:24	458.82	0.58	313	82	81	3	2.690
5-3	0.92	0.959	12:30	461.51	0.65	318	83	82	3	2.690
5-4	0.75	0.866	12:36	464.20	0.53	317	83	83	3	2.525
			12:42	466.73						0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
		1.013		59.495	0.73	308	80	79		#####
							79.55			

MOISTURE, DILUENT AND MERCURY DATA

Company City of Grand Island **Date:** 8/18/99 **Test Run:** 1

Location: Unit 1 Outlet Duct

SILICA GEL FINAL WT.:	890.80 **grams**
SILICA GEL INITIAL WT.:	878.70 **grams**
DIFFERENCE:	12.10
FINAL IMPINGER WATER:	5424.50 **mls.**
INITIAL IMPINGER WATER:	5275.50 **mls.**
DIFFERENCE:	149.00
TOTAL WATER GAIN:	161.10

ITEM	MERCURY (UG)		= NET WT. (G)
FILTER:	0.034		0.000000034
PROBE WASH:	0.000		0.000000000
		Particle-bound Total:	0.000000034
KCl:	1.891		0.000001891
		Oxidized Total:	0.000001891
HNO_3/H_2O_2:	0.750		0.000000750
$KMNO_4$:	10.656		0.000010656
		Elemental Total:	0.000011406

Orsat Analysis	1	2	3	Average
Carbon Dioxide:	13.20	13.40	13.40	13.33
Oxygen:	5.80	6.00	6.00	5.93

ONTARIO HYDRO METHOD DATA ENTRY FORM

Field Data/Calculated Data

Company:	**City of Grand Island**
Date:	8/18/99
Test Run:	1
Stack or Duct No.:	Unit 1 Outlet Duct
Start Time:	10:01
Stop Time:	12:42

Pb:	28.10	Inches Hg
Static	-1.00	Inches H2O
Ps:	28.03	Inches Hg Abs.
Vlc:	161	ml + grams
Mn:	0.0000	gm
Test Time:	120	minutes
% O2:	5.93	%
% CO2:	13.33	%
% N2:	80.73	%
Delta H:	0.73	Inches H20
Cp:	0.830	Dimensionless - pitot
Tm:	79.55	°F
Sqrt P:	1.013	Inches H20
Ts:	308.05	°F
Vm:	59.495	Cubic Feet
Dn:	0.180	Inches - nozzle
As:	100.00	Sq. Feet
Yd:	1.001	Mcf
CF:	N/A	Process tons/hr
Heat Input:	N/A	MM BTU/hr
Fd:	N/A	dscf/10^6 Btu
Fc:	N/A	scf/10^6 Btu

Vmstd:	54.839	cubic feet (dry)
Vwstd:	7.588	cubic feet (wet)
Bwo:	0.122	
Md:	30.371	lb/lb-mole (dry)
Ms:	28.867	lb/lb-mole (wet)
Excess Air (%)	38.578	
Vs:	70.058	fps
ACFM:	420351.	
DSCFM:	237783.	
WSCFM:	270683	
%I:	108.8	isokinetic variance
GR/ACF:	---	
GR/DSCF:	---	
lbs/hr	---	
lbs/ton prod.:	N/A	
lbs/MM BTU:	N/A	Heat Input
lbs/MM BTU:	N/A	O2 Basis
lbs/MM BTU:	N/A	CO2 Basis

ONTARIO HYDRO METHOD TEST SUPPORT DATA

PROJECT NO.:	93305	**TEST RUN NO.:**	2	**TEST DATE:**	8/18/99

CUSTOMER:	City of Grand Island	**BAROMETRIC PRESSURE (Pb)**	28.1	**in. Hg.**
PLANT:	Platte Generating Station	**STATIC PRESSURE**	-1.25	**in. H2O**
TEST LOC.:	Unit 1 Outlet Duct	**FLUE PRESSURE (Ps)**	28.01	**in. Hg. abs.**
CLIENT:	City of Grand Island	**PROBE LENGTH:**	11.5	**ft.**
OPERATOR:	D. Nagorsen	**PROBE LINER MATERIAL:**	Teflon	
CONTROL BOX:	E-35	**NOZZLE IDENTIFICATION NO.:**	#6	
METER NO.:	E-35	**CALIBRATED NOZZLE DIAMETER:**	0.180	**in.**
METER CALIBRATION FACTOR:	1.001	**LEAK CHECK** **PRE:**	0.005	**POST:** 0.002 @ 15 in. Hg.
PITOT ID NO.:	434A	**DUCT SHAPE:**	Circular DIA.	Feet
PITOT TUBE COEFFICIENT:	0.830		Rectangular 10 Feet	10 Feet
PORT LENGTH:	17.5 in.	**DUCT AREA:**	100	**sq. ft.**
PORT SIZE:	4 in.	**TEST LENGTH:**	120	**min.**
PORT TYPE:	Nipple	**MINUTES PER POINT:**	6	
		TOTAL NUMBER OF TRAVERSE POINTS:	20	

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ONTARIO HYDRO METHOD TRAVERSE DATA

Company: City of Grand Island **Date:** 8/18/99 **Test Ru** 2

Location: Unit 1 Outlet Duct

Point	Δp	Sq. Root Δp	Time	Volume cubic fe	ΔH	Stack Temp °F	Meter Inlet °F	Meter Outlet °F	Vacuum in. Hg	
1-1	0.94	0.970	15:00	467.93	0.64	311	86	90	5	2.730
1-2	1.20	1.095	15:06	470.66	0.81	312	87	90	5	3.140
1-3	1.30	1.140	15:12	473.80	0.88	316	88	89	5	3.010
1-4	1.20	1.095	15:18	476.81	0.81	320	89	88	5	3.105
			15:24	479.92						0.000
2-1	1.10	1.049	15:27	479.92	0.74	315	88	85	5	2.885
2-2	1.10	1.049	15:33	482.80	0.74	315	87	84	5	2.970
2-3	1.05	1.025	15:39	485.77	0.71	317	87	84	5	2.820
2-4	1.15	1.072	15:45	488.59	0.78	317	88	86	5	3.220
			15:51	491.81						0.000
3-1	1.05	1.025	15:59	492.11	0.71	314	88	86	5.5	2.988
3-2	1.00	1.000	16:05	495.10	0.68	318	87	86	5	2.800
3-3	1.00	1.000	16:11	497.90	0.68	319	89	87	5	2.800
3-4	1.20	1.095	16:17	500.70	0.81	318	90	89	5	3.070
			16:23	503.77						0.000
4-1	0.90	0.949	16:25	503.77	0.61	313	89	86	4	2.640
4-2	0.92	0.959	16:31	506.41	0.62	314	89	85	4	2.790
4-3	0.98	0.990	16:37	509.20	0.66	319	89	86	4.5	2.730
4-4	1.10	1.049	16:43	511.93	0.74	321	90	87	5	3.040
			16:49	514.97						0.000
5-1	0.72	0.849	16:51	514.97	0.49	314	88	85	4	2.440
5-2	0.82	0.906	16:57	517.41	0.55	313	87	84	4	2.510
5-3	0.95	0.975	17:03	519.92	0.64	319	86	84	5	2.760
5-4	0.78	0.883	17:09	522.68	0.53	322	87	85	5	2.515
			17:15	525.20						0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
		1.009		56.963	0.69	316	88	86		#####
							87.13			

MOISTURE, DILUENT AND MERCURY DATA

Company City of Grand Island **Date:** 8/18/99 **Test Run:** 2

Location: Unit 1 Outlet Duct

SILICA GEL FINAL WT.:	853.20	**grams**
SILICA GEL INITIAL WT.:	842.10	**grams**
DIFFERENCE:	11.10	
FINAL IMPINGER WATER:	5415.50	**mls.**
INITIAL IMPINGER WATER:	5244.10	**mls.**
DIFFERENCE:	171.40	
TOTAL WATER GAIN:	182.50	

ITEM	MERCURY (UG)		= NET WT. (G)
FILTER:	0.033		0.000000033
PROBE WASH:	0.000		0.000000000
		Particle-bound Total:	0.000000033
KCl:	0.973		0.000000973
		Oxidized Total:	0.000000973
HNO_3/H_2O_2:	0.353		0.000000353
$KMNO_4$:	20.656		0.000020656
		Elemental Total:	0.000021009

Orsat Analysis	1	2	3	Average
Carbon Dioxide:	13.27			13.27
Oxygen:	5.73			5.73

ONTARIO HYDRO METHOD DATA ENTRY FORM

Field Data/Calculated Data

Company:	**City of Grand Island**
Date:	8/18/99
Test Run:	2
Stack or Duct No.:	Unit 1 Outlet Duct
Start Time:	15:00
Stop Time:	17:15

Pb:	28.10	Inches Hg
Static	-1.25	Inches H2O
Ps:	28.01	Inches Hg Abs.
Vlc:	183	ml + grams
Mn:	0.0000	gm
Test Time:	120	minutes
% O2:	5.73	%
% CO2:	13.27	%
% N2:	81.00	%
Delta H:	0.69	Inches H20
Cp:	0.830	Dimensionless - pitot
Tm:	87.13	°F
Sqrt P:	1.009	Inches H20
Ts:	316.35	°F
Vm:	56.963	Cubic Feet
Dn:	0.180	Inches - nozzle
As:	100.00	Sq. Feet
Yd:	1.001	Mcf
CF:	N/A	Process tons/hr
Heat Input:	N/A	MM BTU/hr
Fd:	N/A	dscf/10^6 Btu
Fc:	N/A	scf/10^6 Btu

Vmstd:	51.773	cubic feet (dry)
Vwstd:	8.596	cubic feet (wet)
Bwo:	0.142	
Md:	30.352	lb/lb-mole (dry)
Ms:	28.594	lb/lb-mole (wet)
Excess Air (%)	36.604	
Vs:	70.471	fps
ACFM:	422823.	
DSCFM:	230859.	
WSCFM:	269188	
%I:	105.8	isokinetic variance
GR/ACF:	---	
GR/DSCF:	---	
lbs/hr	---	
lbs/ton prod.:	N/A	
lbs/MM BTU:	N/A	Heat Input
lbs/MM BTU:	N/A	O2 Basis
lbs/MM BTU:	N/A	CO2 Basis

ONTARIO HYDRO METHOD TEST SUPPORT DATA

PROJECT NO.:	93305	**TEST RUN NO.:**	3	**TEST DATE:**	8/19/99

CUSTOMER:	City of Grand Island	**BAROMETRIC PRESSURE (Pb)**	28.64 **in. Hg.**
PLANT:	Platte Generating Station	**STATIC PRESSURE**	-0.75 **in. H2O**
TEST LOC.:	Unit 1 Outlet Duct	**FLUE PRESSURE (Ps)**	28.58 **in. Hg. abs.**
CLIENT:	City of Grand Island	**PROBE LENGTH:**	11.5 **ft.**
OPERATOR:	D. Nagorsen	**PROBE LINER MATERIAL:**	Teflon
CONTROL BOX:	E-35	**NOZZLE IDENTIFICATION NO.:**	#6
METER NO.:	E-35	**CALIBRATED NOZZLE DIAMETER:**	0.180 **in.**
METER CALIBRATION FACTOR:	1.001	**LEAK CHECK PRE:**	0.002 **POST:** 0.000 @ 15 in. Hg.
PITOT ID NO.:	434A	**DUCT SHAPE:**	Circular DIA. Feet Rectangular 10 Feet 10 Feet
PITOT TUBE COEFFICIENT:	0.830	**DUCT AREA:**	100 **sq. ft.**
PORT LENGTH:	17.5 in.	**TEST LENGTH:**	120 **min.**
PORT SIZE:	4 in.	**MINUTES PER POINT:**	6
PORT TYPE:	Nipple	**TOTAL NUMBER OF TRAVERSE POINTS:**	20

ONTARIO HYDRO METHOD TRAVERSE DATA

Company: City of Grand Island **Date:** 8/19/99 **Test Ru** 3

Location: Unit 1 Outlet Duct

Point	Δp	Sq. Root Δp	Time	Volume cubic fe	ΔH	Stack Temp °F	Meter Inlet °F	Meter Outlet °F	Vacuum in. Hg	
1-1	1.00	1.000	9:30	27.02	0.63	292	73	75	6	2.734
1-2	1.20	1.095	9:36	29.75	0.76	297	75	75	6	2.880
1-3	1.30	1.140	9:42	32.63	0.82	300	76	76	6	3.060
1-4	1.15	1.072	9:48	35.69	0.73	304	76	77	6	2.890
			9:54	38.58						0.000
2-1	1.15	1.072	9:56	38.58	0.73	301	76	78	6	3.150
2-2	1.00	1.000	10:02	41.73	0.63	304	77	77	6	2.680
2-3	1.15	1.072	10:08	44.41	0.73	307	77	77	6	2.820
2-4	1.20	1.095	10:14	47.23	0.76	308	79	79	6	3.020
			10:20	50.25						0.000
3-1	1.10	1.049	10:27	50.62	0.70	307	78	80	6	2.885
3-2	0.94	0.970	10:33	53.50	0.60	308	79	79	6	2.610
3-3	0.98	0.990	10:39	56.11	0.62	309	79	80	6	2.650
3-4	1.20	1.095	10:45	58.76	0.76	312	81	83	6	2.890
			10:51	61.65						0.000
4-1	0.94	0.970	10:53	61.65	0.60	309	80	82	6	2.590
4-2	0.92	0.959	10:59	64.24	0.58	311	81	82	6	2.580
4-3	0.98	0.990	11:05	66.82	0.62	314	82	82	6	2.690
4-4	1.05	1.025	11:11	69.51	0.67	315	83	83	6	2.741
			11:17	72.25						0.000
5-1	0.69	0.831	11:19	72.25	0.44	306	82	83	5	2.239
5-2	0.82	0.906	11:25	74.49	0.52	311	84	83	5	2.420
5-3	0.93	0.964	11:31	76.91	0.59	314	83	82	5	2.600
5-4	0.86	0.927	11:37	79.51	0.55	314	83	82	5	2.483
			11:43	81.99						0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
		1.011		54.612	0.65	307	79	80		#####
							79.48			

MOISTURE, DILUENT AND MERCURY DATA

Company City of Grand Island **Date:** 8/19/99 **Test Run:** 3

Location: Unit 1 Outlet Duct

SILICA GEL FINAL WT.:	866.00	**grams**
SILICA GEL INITIAL WT.:	853.00	**grams**
DIFFERENCE:	13.00	
FINAL IMPINGER WATER:	5621.00	**mls.**
INITIAL IMPINGER WATER:	5465.20	**mls.**
DIFFERENCE:	155.80	
TOTAL WATER GAIN:	168.80	

ITEM	MERCURY (UG)		= NET WT. (G)
FILTER:	0.027		0.000000027
PROBE WASH:	0.000		0.000000000
		Particle-bound Total:	0.000000027
KCl:	1.851		0.000001851
		Oxidized Total:	0.000001851
HNO_3/H_2O_2:	0.301		0.000000301
$KMNO_4$:	17.856		0.000017856
		Elemental Total:	0.000018157

Orsat Analysis	1	2	3	Average
Carbon Dioxide:	13.20	13.20	13.20	13.20
Oxygen:	6.00	5.80	5.80	5.87

ONTARIO HYDRO METHOD DATA ENTRY FORM

Field Data/Calculated Data

Company:	City of Grand Island
Date:	8/19/99
Test Run:	3
Stack or Duct No.:	Unit 1 Outlet Duct
Start Time:	9:30
Stop Time:	11:43

Pb:	28.64	Inches Hg
Static	-0.75	Inches H2O
Ps:	28.58	Inches Hg Abs.
Vlc:	169	ml + grams
Mn:	0.0000	gm
Test Time:	120	minutes
% O2:	5.87	%
% CO2:	13.20	%
% N2:	80.93	%
Delta H:	0.65	Inches H20
Cp:	0.830	Dimensionless - pitot
Tm:	79.48	°F
Sqrt P:	1.011	Inches H20
Ts:	307.15	°F
Vm:	54.612	Cubic Feet
Dn:	0.180	Inches - nozzle
As:	100.00	Sq. Feet
Yd:	1.001	Mcf
CF:	N/A	Process tons/hr
Heat Input:	N/A	MM BTU/hr
Fd:	N/A	dscf/10^6 Btu
Fc:	N/A	scf/10^6 Btu

Vmstd:	51.300	cubic feet (dry)
Vwstd:	7.950	cubic feet (wet)
Bwo:	0.134	
Md:	30.347	lb/lb-mole (dry)
Ms:	28.690	lb/lb-mole (wet)
Excess Air (%)	37.850	
Vs:	69.394	fps
ACFM:	416363.	
DSCFM:	237042.	
WSCFM:	273778	
%I:	102.1	isokinetic variance
GR/ACF:	---	
GR/DSCF:	---	
lbs/hr	---	
lbs/ton prod.:	N/A	
lbs/MM BTU:	N/A	Heat Input
lbs/MM BTU:	N/A	O2 Basis
lbs/MM BTU:	N/A	CO2 Basis

Project Summary-Samples Received Report

Project	*Client*	*Unit*
93305	CITY OF GRAND ISLAND	GRAND ISLAND,NB

Project	*Sample*	*Sample Point*	*Date Received*	*Analyte Detail*
93305	001	COAL SAMPLE T1	8/20/1999	Mercury
93305	001	COAL SAMPLE T1	8/20/1999	Ultimate/Proximate on Coal
93305	001	COAL SAMPLE T1	8/20/1999	Chloride
93305	002	COAL SAMPLE T2	8/20/1999	Chloride
93305	002	COAL SAMPLE T2	8/20/1999	Mercury
93305	002	COAL SAMPLE T2	8/20/1999	Ultimate/Proximate on Coal
93305	003	COAL SAMPLE T3	8/20/1999	Chloride
93305	003	COAL SAMPLE T3	8/20/1999	Mercury
93305	003	COAL SAMPLE T3	8/20/1999	Ultimate/Proximate on Coal
93305	004	ASH SAMPLE	8/20/1999	Hold
93305	005	INL HNO3 RNS T1	8/20/1999	Mercury
93305	006	INL HNO3 RNS T2	8/20/1999	Mercury
93305	007	INL HNO3 RNS T3	8/20/1999	Mercury
93305	008	INL KCL IMP.T1	8/20/1999	Mercury
93305	009	INL KCL IMP.T2	8/20/1999	Mercury
93305	010	INL KCL IMP.T3	8/20/1999	Mercury
93305	011	IN HNO3/H2O2 T1	8/20/1999	Mercury
93305	012	IN HNO3/H2O2 T2	8/20/1999	Mercury
93305	013	IN HNO3/H2O2 T3	8/20/1999	Mercury
93305	014	INL KMNO4 IM T1	8/20/1999	Mercury
93305	015	INL KMNO4 IM T2	8/20/1999	Mercury
93305	016	INL KMNO4 IM T2	8/20/1999	Mercury
93305	017	OUT HNO3 IMP T1	8/20/1999	Mercury
93305	018	OUT HNO3 IMP T2	8/20/1999	Mercury
93305	019	OUT HNO3 IMP T3	8/20/1999	Mercury
93305	020	OUT KCL IMP T1	8/20/1999	Mercury

Project	*Sample*	*Sample Point*	*Date Received*	*Analyte Detail*
93305	021	OUT KCL IMP T2	8/20/1999	Mercury
93305	022	OUT KCL IMP T3	8/20/1999	Mercury
93305	023	OUT HNO3/H202-1	8/20/1999	Mercury
93305	024	OUT HNO3/H202-2	8/20/1999	Mercury
93305	025	OUT HNO3/H2O2-3	8/20/1999	Mercury
93305	026	OUT KMNO4 IM T1	8/20/1999	Mercury
93305	027	OUT KMNO4 IM T2	8/20/1999	Mercury
93305	028	OUT KMNO4 IM T3	8/20/1999	Mercury
93305	029	FLD BLNK IN KCL	8/20/1999	Mercury
93305	030	F/B INHNO3/H2O2	8/20/1999	Mercury
93305	031	FLD BL IN KMNO4	8/20/1999	Mercury
93305	032	FLD BL OUT KCL	8/20/1999	Mercury
93305	033	F/B HNO3/H2O2	8/20/1999	Mercury
93305	034	F/B OUTL KMNO4	8/20/1999	Mercury
93305	035	BLANK:QRTZ FLT	8/20/1999	Mercury
93305	036	BLANK:QRTZ FLT	8/20/1999	Mercury
93305	037	BLANK:QRTZ FLT	8/20/1999	Mercury
93305	038	REAG.BLNK-HNO3	8/20/1999	Mercury
93305	039	REAG.BLNK-KCL	8/20/1999	Mercury
93305	040	R/BL HNO3/H2O2	8/20/1999	Mercury
93305	041	R/BL HYDROXYLAM	8/20/1999	Mercury
93305	042	REAG.BLNK KMNO4	8/20/1999	Mercury
93305	043	REAG.BLNK KMNO4	8/20/1999	Mercury

LABORATORY REPORT

TEI Analytical, Inc.
7177 N. Austin
Niles, IL 60714-4617
847-647-1345

PREPARED FOR:

Frank Jarke
Mostardi-Platt Associates, Inc.
945 Oaklawn Avenue
Elmhurst, IL 60126

Report #: 35561
Report Date: 1/19/00
Sample Received:
8/25/99 16:53

TEI	93305	Type	Total ug	mg/kg	Date	%RSD	Lin.Reg.	Blank	CPI	MS	MSD
35561	005	HNO3	0.003		1/3/00	4.05	0.99999	NA	98.6	93.8	88.6
35562	006	HNO3	<0.002		1/3/00	7.38	0.99999	NA	98.6	93.8	88.6
35563	007	HNO3	0.005		1/3/00	1.21	0.99999	NA	98.6	93.8	88.6
35564	008	KCl	5.21		12/23/99	0.528	1.00000	0.219	96.8	101	103
35565	009	KCl	2.28		12/23/99	0.206	1.00000	0.219	96.8	101	103
35566	010	KCl	5.64		12/23/99	0.233	1.00000	0.219	96.8	101	103
35567	011	H2O2	0.277		1/6/00	0.132	0.99959	0.148	107	99.5	84.3
35568	012	H2O2	0.444		1/6/00	1.66	0.99959	0.148	107	99.5	84.3
35569	013	H2O2	0.676		1/6/00	0.710	0.99959	0.148	107	99.5	84.3
35570	014	KMnO4	12.1		12/13/99	1.08	1.00000	<0.03	93.5	118	110
35571	015	KMnO4	13		12/13/99	0.835	1.00000	<0.03	93.5	118	110
35572	016	KMnO4	14.3		12/13/99	1.40	1.00000	<0.03	93.5	118	110
35573	017	HNO3	<0.002		1/3/00	4.36	0.99999	NA	98.6	93.8	88.6
35574	018	HNO3	<0.002		1/3/00	3.65	0.99999	NA	98.6	93.8	88.6
35575	019	HNO3	<0.002		1/3/00	1.51	0.99999	NA	98.6	93.8	88.6
35576	020	KCl	1.9		12/23/99	0.461	1.00000	0.219	96.8	101	103
35577	021	KCl	0.982		12/23/99	0.574	1.00000	0.219	96.8	101	103
35578	022	KCl	1.86		12/23/99	0.145	1.00000	0.219	96.8	101	103
35579	023	H2O2	0.75		1/6/00	1.17	0.99959	0.148	107	99.5	84.3
35580	024	H2O2	0.353		1/6/00	1.87	0.99959	0.148	107	99.5	84.3
35581	025	H2O2	0.301		1/6/00	3.06	0.99959	0.148	107	99.5	84.3
35582	026	KMnO4	10.7		12/13/99	0.840	1.00000	<0.03	93.5	118	110
35583	027	KMnO4	20.7		12/13/99	0.756	1.00000	<0.03	93.5	118	110
35584	028	KMnO4	17.9		12/13/99	0.826	1.00000	<0.03	93.5	118	110
35585	029	KCl	0.454		12/16/99	0.375	1.00000	<0.03	99.0	106	108

Gayle E. O'Neill, Ph.D.

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TEI Analytical, Inc.
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Mostardi-Platt Associates, Inc.
945 Oaklawn Avenue
Elmhurst, IL 60126

Report #: 35561
Report Date: 1/19/00
Sample Received:
8/25/99 16:53

TEI	93305	Type	Total ug	mg/kg	Date	%RSD	Lin.Reg.	Blank	CPI	MS	MSD
35586	030	H2O2	0.06		1/5/00	4.24	0.99998	0.105	98.0	99.6	101
35587	031	KMnO4	0.18		12/13/99	23.8	1.00000	<0.03	93.5	118	110
35588	032	KCl	0.908		12/16/99	0.400	1.00000	<0.03	99.0	106	108
35589	033	H2O2	0.077		1/5/00	2.86	0.99998	0.105	98.0	99.6	101
35590	034	KMnO4	0.25		12/13/99	4.64	1.00000	<0.03	93.5	118	110
35591	035	Filt		0.046	9/25/99	4.46	0.99951	0.224	89.0	111	121
35592	036	Filt		0.034	9/25/99	3.11	0.99951	0.224	89.0	111	121
35593	037	Filt		0.027	9/25/99	1.77	0.99951	0.224	89.0	111	121
35594	038	HNO3	<0.002		1/3/00	1.38	0.99999	NA	98.6	93.8	88.6
35595	039	KCl	0.009		10/25/99	6.11	0.99883	NA	102	108	109
35596	040	H2O2	<0.008		10/25/99	1.78	0.99877	NA	99.6	102	103
35597	041	NH2OH	0.003		10/13/99	2.48	1.00000	NA	96.5	119	119
35598	042	KMnO4	0.068		12/12/99	0.240	0.99999	0.070	92.3	108	108
35599	043	KMnO4	0.019		12/12/99	9.24	0.99999	0.070	92.3	108	108
36024	005	Filt		0.049	9/29/99	2.16	0.99884	0.759	98.7	109	84.1
36025	006	Filt		0.053	9/29/99	3.75	0.99884	0.759	98.7	109	84.1
36027	007	Filt		0.045	9/29/99	1.66	0.99884	0.759	98.7	109	84.1
36028	017	Filt		0.048	9/29/99	0.455	0.99884	0.759	98.7	109	84.1
36029	018	Filt		0.047	9/29/99	5.98	0.99884	0.759	98.7	109	84.1
36030	019	Filt		0.038	9/29/99	2.98	0.99884	0.759	98.7	109	84.1

Gayle E. O'Neill, Ph.D.

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LABORATORY REPORT

TEI Analytical, Inc.
7177 N. Austin
Niles, IL 60714-4617
847-647-1345

PREPARED FOR:

Frank Jarke
Mostardi-Platt Associates, Inc.
945 Oaklawn Avenue
Elmhurst, IL 60126

Report #: 35561
Report Date: 1/19/00
Sample Received:
8/25/99 16:53

Mercury (Ontario Hydro Method)

The QAPP called for the analysis of all samples in duplicate with every tenth sample run in triplicate. To simplify the instrument setup, we chose to run all samples, blanks, standards, matrix spikes and matrix spike duplicates in triplicate. The reported %RSD is for the triplicate measurements.

All sample results are reported as total micrograms in the sample received by the laboratory, with the exception of the filter samples. The filter sample results are expressed as mg/kg.

The instrument was calibrated at least daily with a blank and four standards. The Lin.Reg. column in this report represents the linear regression coefficient obtained during the calibration.

The laboratory method blank is reported in ug/l in the Blank column of this report. For samples requiring only addition of Hydroxylamine Hydrochloride, NA is entered in this column. No laboratory method blanks were applicable for these samples.

The CPI column presents the % Recovery of an independent standard (obtained from CPI). The calibration curve was prepared in our laboratory from Mercuric Chloride in accordance with EPA Method 7470.

The MS and MSD columns present the % Recovery of the Matrix Spikes and Matrix Spike Duplicates.

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Report #: 35561
Report Date: 1/19/00
Sample Received:
8/25/99 16:53

In reviewing the initial data for these samples, inconsistently high results were obtained, particularly for the KCl solutions. After considerable investigation, it was determined that the disposable plastic tubes used for the sample digestion were the source of the contamination.

It was also determined that adjustments in the instrument parameters and calibration levels were required to reach the lower limits required for this program. Where possible, samples were reanalysed following these adjustments. However, some samples had insufficient quantity for reanalysis. This was particularly true in the case of the filters.

Gayle E. O'Neill, Ph.D.

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COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 1919 SOUTH HIGHLAND AVE., SUITE 210-B, LOMBARD, ILLINOIS 60148 • TEL: 630-953-9300 FAX: 630-953-9306

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SGS Member of the SGS Group (Société Générale de Surveillance)

ADDRESS ALL CORRESPONDENCE TO:
16130 VAN DRUNEN RD.
SOUTH HOLLAND, IL 60473
TEL: (708) 331-2900
FAX: (708) 333-3060

September 16, 1999

MOSTARDI-PLATT ASSOCIATES, INC
945 Oaklawn Avenue
Elmhurst, IL 60126
Attn: Frank Jarke

Sample identification by
Mostardi-Platt Assoc., Inc.

Kind of sample reported to us: Coal

MPA Sample No: 93305-001

Sample taken at: ------

Sample taken by: Mostardi-Platt Assoc., Inc.

Date sampled: ------

Date received: August 26, 1999

P.O. No. 22120

Analysis Report No. 71-101053 Page 1 of 2

PROXIMATE ANALYSIS	As Received	Dry Basis
% Moisture	31.68	xxxxx
% Ash	5.21	7.63
% Volatile	29.81	43.64
% Fixed Carbon	33.30	48.73
	100.00	100.00
Btu/lb	8356	12230
% Sulfur	0.31	0.45
MAF Btu		13240

ULTIMATE ANALYSIS	As Received	Dry Basis
% Moisture	31.68	xxxxx
% Carbon	48.12	70.44
% Hydrogen	3.40	4.97
% Nitrogen	0.79	1.16
% Sulfur	0.31	0.45
% Ash	5.21	7.63
% Oxygen(diff)	10.49	15.35
	100.00	100.00
CHLORIDE, ug/g	121	177

METHODS

Moisture: ASTM D 3302; Ash: ASTM D 3174; Volatile: ASTM D 3175; Fixed Carbon: Calculated Value; ASTM D 3172
Btu/lb: ASTM 3286; Sulfur: ASTM D 4239 (Method C); Carbon, Hydrogen & Nitrogen: ASTM D 5373; Chloride: ASTM D 4208

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

MEMBER ACIL

137 South Holland Laboratory

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TERMS AND CONDITIONS ON REVERSE

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16130 VAN DRUNEN RD.
SOUTH HOLLAND, IL 60473
TEL: (708) 331-2900
FAX: (708) 333-3060

September 16, 1999

MOSTARDI-PLATT ASSOCIATES, INC
945 Oaklawn Avenue
Elmhurst, IL 60126
Attn: Frank Jarke

Sample identification by
Mostardi-Platt Assoc., Inc.

Kind of sample reported to us: Coal

MPA Sample No: 93305-001

Sample taken at: ------

Sample taken by: Mostardi-Platt Assoc., Inc.

Date sampled: ------

Date received: August 26, 1999

P.O. No. 22120

Analysis Report No. 71-101053

	Dry Basis, ug/g	
Mercury, Hg	0.11	
	Expected	Observed
SARM 1157	0.05	0.05
NIST 1630A	0.11	0.10

METHOD
Mercury: ASTM D 3684

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

MEMBER ACIL

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TERMS AND CONDITIONS ON REVERSE

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COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 1919 SOUTH HIGHLAND AVE., SUITE 210-B, LOMBARD, ILLINOIS 60148 • TEL: 630-953-9300 FAX: 630-953-9306

SGS Member of the SGS Group (Société Générale de Surveillance)

ADDRESS ALL CORRESPONDENCE TO:
16130 VAN DRUNEN RD.
SOUTH HOLLAND, IL 60473
TEL: (708) 331-2900
FAX: (708) 333-3060

September 16, 1999

MOSTARDI-PLATT ASSOCIATES, INC
945 Oaklawn Avenue
Elmhurst, IL 60126
Attn: Frank Jarke

Sample identification by
Mostardi-Platt Assoc., Inc.

Kind of sample reported to us: Coal

MPA Sample No: 93305-002

Sample taken at: ------

Sample taken by: Mostardi-Platt Assoc., Inc.

Date sampled: ------

Date received: August 26, 1999

P.O. No. 22120

Analysis Report No. 71-101054

PROXIMATE ANALYSIS	As Received	Dry Basis
% Moisture	29.14	xxxxx
% Ash	4.92	6.94
% Volatile	30.92	43.64
% Fixed Carbon	35.02	49.42
	100.00	100.00
Btu/lb	8653	12211
% Sulfur	0.30	0.43
MAF Btu		13122

ULTIMATE ANALYSIS	As Received	Dry Basis
% Moisture	29.14	xxxxx
% Carbon	50.28	70.95
% Hydrogen	3.47	4.90
% Nitrogen	0.81	1.15
% Sulfur	0.30	0.43
% Ash	4.92	6.94
% Oxygen(diff)	11.08	15.63
	100.00	100.00
CHLORIDE, ug/g	123	174

METHODS
Moisture: ASTM D 3302; Ash: ASTM D 3174; Volatile: ASTM D 3175; Fixed Carbon: Calculated Value; ASTM D 3172
Btu/lb: ASTM 3286; Sulfur: ASTM D 4239 (Method C); Carbon, Hydrogen & Nitrogen: ASTM D 5373; Chloride: ASTM D 4208

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

South Holland Laboratory

MEMBER ACIL

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES

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TERMS AND CONDITIONS ON REVERSE

COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 1919 SOUTH HIGHLAND AVE., SUITE 210-B, LOMBARD, ILLINOIS 60148 • TEL: 630-953-9300 FAX: 630-953-9306

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SGS Member of the SGS Group (Société Générale de Surveillance)

ADDRESS ALL CORRESPONDENCE TO:
16130 VAN DRUNEN RD.
SOUTH HOLLAND, IL 60473
TEL: (708) 331-2900
FAX: (708) 333-3060

September 16, 1999

MOSTARDI-PLATT ASSOCIATES, INC
945 Oaklawn Avenue
Elmhurst, IL 60126
Attn: Frank Jarke

Sample identification by
Mostardi-Platt Assoc., Inc.

Kind of sample reported to us: Coal

MPA Sample No: 93305-002

Sample taken at: ------

Sample taken by: Mostardi-Platt Assoc., Inc.

Date sampled: ------

Date received: August 26, 1999

P.O. No. 22120

Analysis Report No. 71-101054

	Dry Basis, ug/g	
Mercury, Hg	0.09	
	Expected	Observed
SARM 1157	0.05	0.05
NIST 1630A	0.11	0.10

METHOD
Mercury: ASTM D 3684

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

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FAX: (708) 333-3060

September 16, 1999

MOSTARDI-PLATT ASSOCIATES, INC
945 Oaklawn Avenue
Elmhurst, IL 60126
Attn: Frank Jarke

Sample identification by
Mostardi-Platt Assoc., Inc.

Kind of sample reported to us: Coal

MPA Sample No: 93305-003

Sample taken at: ------

Sample taken by: Mostardi-Platt Assoc., Inc.

Date sampled: ------

Date received: August 26, 1999

P.O. No. 22120

Analysis Report No. 71-101055 Page 1 of 2

PROXIMATE ANALYSIS	As Received	Dry Basis
% Moisture	31.22	xxxxx
% Ash	4.89	7.11
% Volatile	29.98	43.59
% Fixed Carbon	33.91	49.30
	100.00	100.00
Btu/lb	8449	12284
% Sulfur	0.29	0.42
MAF Btu		13224

ULTIMATE ANALYSIS	As Received	Dry Basis
% Moisture	31.22	xxxxx
% Carbon	48.56	70.60
% Hydrogen	3.42	4.97
% Nitrogen	0.79	1.15
% Sulfur	0.29	0.42
% Ash	4.89	7.11
% Oxygen(diff)	10.83	15.75
	100.00	100.00
CHLORIDE, ug/g	131	191

METHODS

Moisture: ASTM D 3302; Ash: ASTM D 3174; Volatile: ASTM D 3175; Fixed Carbon: Calculated Value; ASTM D 3172
Btu/lb: ASTM 3286; Sulfur: ASTM D 4239 (Method C); Carbon, Hydrogen & Nitrogen: ASTM D 5373; Chloride: ASTM D 4208

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COMMERCIAL TESTING & ENGINEERING CO.

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Kind of sample reported to us: Coal

MPA Sample No: 93305-003

Sample taken at: ------

Sample taken by: Mostardi-Platt Assoc., Inc.

Date sampled: ------

Date received: August 26, 1999

P.O. No. 22120

Analysis Report No. 71-101055

	Dry Basis, ug/g	
Mercury, Hg	0.07	
	Expected	Observed
SARM 1157	0.05	0.05
NIST 1630A	0.11	0.10

METHOD
Mercury: ASTM D 3684

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

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TERMS AND CONDITIONS ON REVERSE

LIST OF PARTICIPANTS

Name	Organization	Project Role
Andrew Cofas	City of Grand Island	Plant Coordinator
James R. Platt	Mostardi Platt	Vice President
Daniel J. Nagorsen	Mostardi Platt	Project Manager
Jeffrey C. Daniels	Mostardi Platt	Project Supervisor
John Wendell	Mostardi Platt	Chemist
Chris Mirecki	Mostardi Platt	Test Technician
Norm Smith	Mostardi Platt	Test Technician
Gayle E. O'Neill, Ph.D.	TEI Analytical, Inc.	Speciated Hg Sample Analysis
Joseph Houser	CTE	Coal Sample Analysis