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FINAL REPORT

FLUORIDES EMISSIONS AND LOADING
AND
SULFUR DIOXIDE EMISSIONS
EVALUATION

OF

FAIRCREST PLANT
EAF SHOP

THE TIMKEN COMPANY
CANTON, OHIO

BLUE MOUNTAIN PROJECT 561

May 6, 2002

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1.0 EXECUTIVE SUMMARY

The Timken Company (Timken) located in Canton, Ohio contracted Blue Mountain Environmental Management Corporation (Blue Mountain) to conduct a fluoride and sulfur dioxide (SO_2) emission evaluation at the Electric Arc Furnace (EAF) Melt Shop located at the Faircrest Plant. Simultaneously with the fluoride emission evaluation, the inlet fluoride loading rate was measured to determine the baghouse capture efficiency for fluorides The EAF Shop is exhausted to a baghouse. The baghouse controls particulate emissions from the EAF and other ancillary operations in the Melt Shop including fugitive emissions. Emission testing was performed to demonstrate compliance with certain Ohio EPA Permit To Install No. 15-01339 permit (Permit) conditions.

The average fluoride emission rate was 0.147 pounds per hour (lb/hr). The allowable emission rate is 1.4 pounds per hour. The inlet baghouse fluoride loading rate averaged 33.29 lb/hr. The average baghouse fluoride removal efficiency was 99.57 percent.

The sulfur dioxide (SO_2) emission rate averaged 13.4 lb/hr and 0.11 pounds per ton (lb/ton). The compliance limits are 8 lb/hr and 0.04 lb/ton.

2.0 SCOPE AND OBJECTIVES

The scope of this project was to conduct a fluorides and SO_2 emission evaluation at the Faircrest Plant Melt Shop using approved reference-sampling methods and the submitted Ohio EPA Intent To Test Notification. Simultaneously with the fluoride emission evaluation, the inlet fluorides loading rate was measured to determine the baghouse capture efficiency for fluorides. The EAF Shop is exhausted to a baghouse. The baghouse controls particulate emissions from the EAF and other ancillary operations in the Melt Shop including fugitive emissions. Emission testing was performed to demonstrate compliance with certain Permit conditions.

Sampling was conducted on April 15 and 16, 2002. The Blue Mountain test personnel consisted of Messrs. Paul Jadlowiec, Joseph Stanger and Richard Eboli. Mr. Gus Dria represented the Ohio EPA. Mr. Jeff Marshal served as company liaison.

3.0 PROCEDURES

3.1 FIELD WORK

3.1.1 Field Data Sheets

Copies of all field data sheets are contained in Appendix A.

31.2 Emission Testing Station and Traverse Locations

As specified in EPA Method 5D-Determination of Particulate Emissions from Positive Pressure Fabric Filters, an inlet to a positive pressure baghouse can be used as a location to determine the gas flow exhausting from the baghouse when the velocity of the exhaust gases exiting the baghouse compartments are too low to measure accurately (Section 4.3). The velocity at the baghouse outlet averaged 7.67 feet per second calculated from the velocity measured at the baghouse inlet duct.

The inlet duct to the EAF Baghouse has an internal diameter of 212 inches at the test location for measuring the exhaust gas flow. The nearest upstream and downstream disturbances are less than two diameters from the test location but is the best and only location for the measurement of exhaust gas flow. EPA Method 1-Sample and Velocity Traverses From Stationary Sources was used to determine the number and location of the traverse points. Twenty-four points were used to collect the velocity traverse data, six points at each of four test ports. The six traverse points were located at the following distances from the inner duct wall: 4.5, 14.2, 25.0, 37.0, 53.0 and 75.4 inches.

Sampling for fluorides and SO_2 were conducted by sampling in the compartments directly above the bags. The baghouse exhaust has two roof vents with each internal dimension being 94 feet, 8 inches X 12 feet. The baghouse contains ten compartments. One half of the compartments exhaust to one of the two roof vents, the remaining five compartments to the other roof vent. There are 25 sampling ports for each roof vent, five for each compartment.

For the sampling of fluorides, fifteen sampling points were selected above the bags in each compartment, constituting a 5X3 matrix. The five traverse points for each test port were located at the following distances from the inner vent wall: 24, 72 and 120 inches. The 72-inch distance had to be adjusted to approximately 60 inches in order to avoid the placement of the sampling nozzle directly above a structural member. Three and one-third compartments were sampled for each sampling run resulting in 50 sampling points sampled for each test run.

For the sampling of SO_2, one sampling point was used in each compartment that was located at the center test port approximately 5 feet into the compartment.

3.1.3 Determination of Gas Flow and Gas Temperature

The gas flow rate and temperature profiles for the gas stream were measured by conducting a velocity and temperature traverse for each emission sampling run and were collected during the sampling for fluorides at the inlet location. Gas velocity head was measured with a calibrated "S"-type Pitot tube that was connected to an inclined manometer. A chrome-alumel thermocouple attached to a digital indicator was used to measure the gas temperature at each of the traverse points. The gas flow and gas temperature measurements followed the principles of EPA Method 2-Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube).

3.1.4 Determination of Dry Molecular Weight

A Fyrite analyzer was used to determine the molecular weight of the exhaust gas using the principles of EPA Method 3-Gas Analysis for the Determination of Dry Molecular Weight. The average of three grab samples was used to calculate the molecular weight of the exhaust gas for each sample run. Percent carbon dioxide (CO_2) and oxygen (O_2) by volume were measured. Percent nitrogen (N_2) by volume was determined by difference.

3.1.5 Determination of Moisture Content

Moisture sampling was conducted using the principles presented in EPA Method 4-Determination of Moisture Content In Stack Gases concurrently with the emission sampling. Parameters evaluated in order to determine the gas stream moisture content were: sample gas volume, sample gas temperature, sample gas pressure, impinger moisture gain, and silica gel moisture gain. The moisture contents measured at the inlet locations were used to calculate the exhaust gas flow rates.

3.1.6 Determination of Fluoride Emissions and Loading

Fluoride emissions sampling was conducted using EPA Method 13B-Determination of Fluoride Emissions from Stationary Sources (Ion specific probe analysis) and EPA Method 5D. Particulate matter was withdrawn isokinetically from the gas stream and collected in a nozzle, probe, impingers containing distilled water and filter. A calibrated dry gas meter measured the gas sample volume that exceeded 219 dry standard cubic feet for each 250-minute sample run. The sampling train was configured as shown in Figure 1.

Fluoride loading sampling was conducted using EPA Method 13B. Particulate matter was withdrawn isokinetically from the inlet gas stream and collected in a nozzle, heated probe, heated filter and impingers containing distilled water. The sampling train was configured and operated like an EPA Method 5 sampling train. A calibrated dry gas meter measured the gas sample volume that exceeded 72 dry standard cubic feet for each 240-minute sample run.

3.1.7 Determination of Sulfur Dioxide Emissions

SO_2 was measured using the principles of EPA Method 6-Determination of Sulfur Dioxide Emissions From Stationary Sources. The midget impingers were replaced with 500-milliliter impingers. The sampling rate ranged from 0.66 to 0.69 cubic feet per minute. The analysis was conducted using ion chromatography to provide a better detection limit than titration. A plug of glass wool was used in place of a filter between the first and second impingers to inhibit liquid carryover. Portions of this methodology conformed to EPA Method 8 for the collection of sulfuric acid mist and SO_2. Each sample run lasted 250 minutes. Seventy-five (75) minutes in each compartment.

3.2 ANALYTICAL

Copies of all analytical reports are contained in Appendix B.

3.3 CALCULATIONS

Emission calculations were completed using a computer spreadsheet format. The results of each pertinent parameter are detailed on the spreadsheet for each sampling run and are contained in Appendix C.

3.4 FIELD EQUIPMENT CALIBRATIONS

The following field equipment calibration data are contained in Appendix D.

Pitot tube;

Thermocouples, and

Dry Gas Meters and Orifices.

3.5 Electric Arc Furnace Operation Data

Copies of pertinent portions of the Melt Shop Log Reports are contained in Appendix E. The pertinent data includes the charges and additions made, start and stop times of charges and taps, and steel produced for each heat. A summary table used to calculate the production during each sampling period is included.

4.0 SUMMARY OF RESULTS

4.1 Fluoride Emissions

Table 1 summarizes the fluoride emission data.

The fluoride emission rate ranged from 0.10 to 0.19 lb/hr. The average was 0.147 lb/hr. The compliance limit is 1.4 lb/hr.

4.2 Fluoride Loading and Baghouse Capture Efficiency

Table 2 summarizes the fluoride loading data and baghouse capture efficiency.

The fluoride loading rate ranged from 30.41 to 34.84 lb/hr. The average was 33.290 lb/hr.

The baghouse capture efficiency for fluorides ranged from 99.4 to 99.7 percent. The average was 99.57 percent.

4.3 Sulfur Dioxide Emissions

Table 3 summarizes the SO_2 emission data.

The SO_2 emission rates ranged from 12.7 to 13.8 lb/hr and 0.09 to 0.12 lb/ton. The average emission rates were 13.4 lb/hr and 0.11 lb/ton. The compliance limits are 8 lb/hr and 0.04 lb/ton.

TABLES

TABLE 1

TIMKEN
FAIRCREST EAF SHOP

FLUORIDE EMISSION SUMMARY

Parameter	Run 1	Run 2	Run 3	Average
Gas Flow (acfm)	1030139	1058231	1031462	**1039944**
Gas Flow (dscfm)	809455	827787	804558	**813933**
Sample Volume (dscf)	219.802	223.653	222.099	**221.851**
Isokinetic Ratio (%)	108.3	108.6	110.0	**109.0**
Production Rate (ton/hr)	113.05	147.08	115.45	**162.8**
Fluoride Emissions:				
gr/dscf	0.0000140	0.0000207	0.0000277	**0.0000208**
lb/hr	0.10	0.15	0.19	**0.147**

TABLE 2

TIMKEN
FAIRCREST EAF SHOP

FLUORIDE LOADING SUMMARY

Parameter	Run 1	Run 2	Run 3	Average
Gas Flow (acfm)	1030139	1058231	1031462	**1039944**
Gas Flow (dscfm)	809455	827787	804558	**813933**
Sample Volume (dscf)	72.906	73.949	73.389	**73.415**
Isokinetic Ratio (%)	103.9	103.2	104.2	**103.8**
Production Rate (ton/hr)	113.05	147.08	115.45	**162.8**
Fluoride Loading:				
gr/dscf	0.00499	0.00491	0.00441	**0.00477**
lb/hr	34.62	34.84	30.41	**33.290**

Baghouse Fluoride Removal Efficiency (%)	99.7	99.6	99.4	**99.57**

TABLE 3

TIMKEN
FAIRCREST EAF SHOP

SULFUR DIOXIDE EMISSION SUMMARY

Parameter	Run 1	Run 2	Run 3	Average
Gas Flow (acfm)	1030139	1058231	1031462	**1039944**
Gas Flow (dscfm)	809455	827787	804558	**813933**
Production Rate (ton/hr)	114.69	147.08	115.45	**125.74**
Sulfur Dioxide Emissions:				
ppmv	1.70	1.50	1.70	**1.600**
lb/hr	13.6	12.7	13.8	**13.4**
lb/ton	0.12	0.09	0.12	**0.11**

Figures

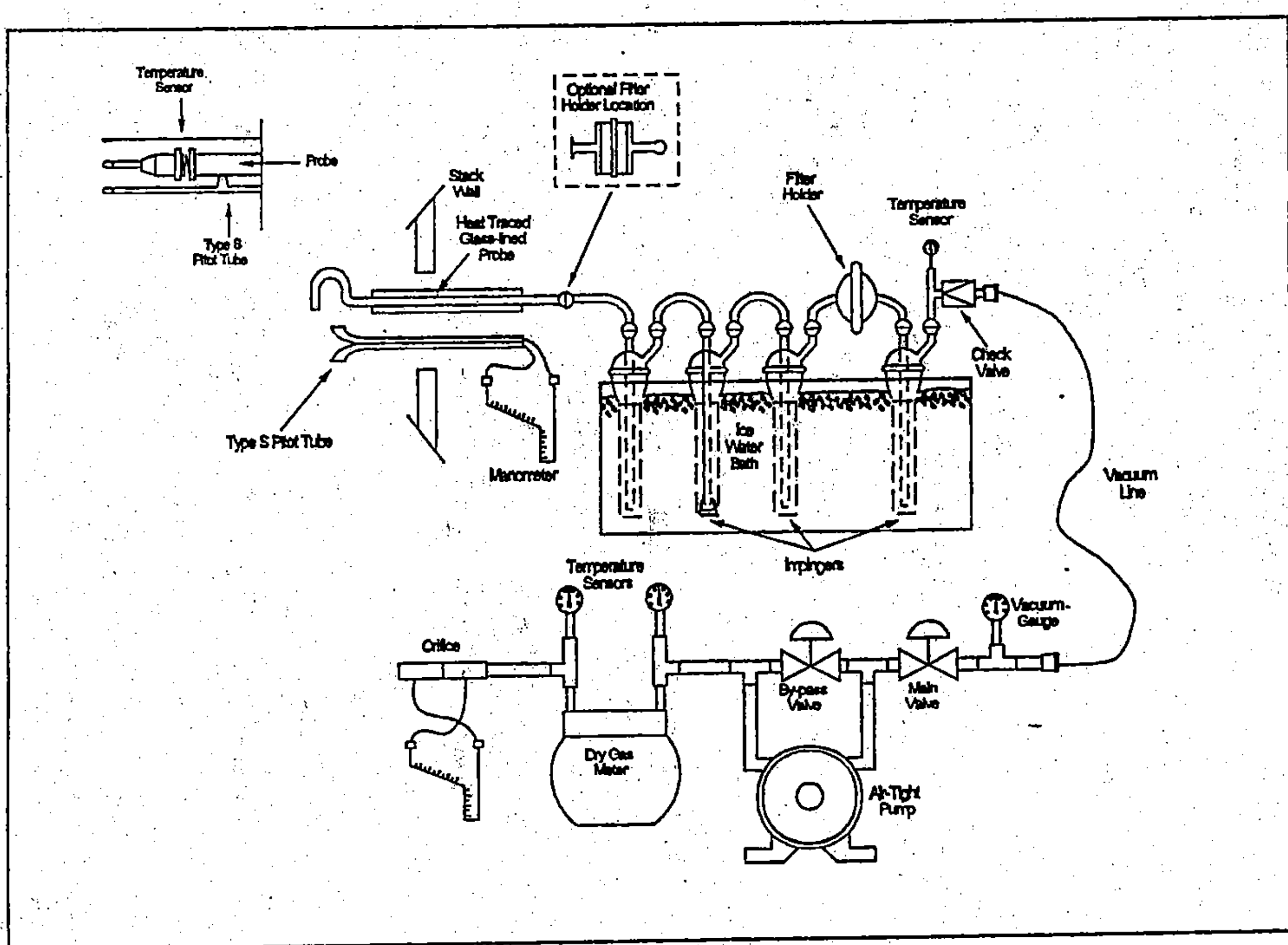

Figure 1

EPA Method 13B Sampling Train

APPENDIX A

FIELD DATA SHEETS

250 3.2 1 of 3 4.85 - 5 min

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 13 DATA SHEET

F1

Client: Timken Faircrest
Project No.:
Source: Baghouse Outlet
Date: 4/15/02
Techs: JS

Run No.: 1
Noz. Dia.: ~~0.640~~ 0.640
Baro. Press.: 30.02 28.84
Static Press.: 0.0
Moisture:

Meter delta H@: 1.73
Meter Corr.: 1.007
Pitot Corr.:
Control Box ID: 1
Probe ID: Box 3

Filter No.:
Stack Dia.:
Ambient Temp.:
Start Time: 1354
Stop Time: 1821

Point	Elapsed Time	Time	Meter Volume	Velocity Press.	Orifice Pessure Drop	Vacuum	Probe Temp.	Stack Temp.	Meter Temp.	Filter Temp	Imp. Temp.	Comments
				in. water	in. water	in. Hg	°F	°F	°F	°F	°F	
	0	1354	168.882									
17	5	1359	174.0		3.3	7		165	99		67	
	10	1405	179.1		3.3	7		166	101		66	
16	15	1410	184.0		3.1	7		141	100		67	
	20	1415	189.0		3.1	7		137	100		66	
	25	1422	194.2		2.1	6		135	100		66	
15	30	1427	199.2		2.9	6		134	101		65	
	35	1432 1433	204.2		2.8	6		136	101		66	
	40	1438	208.9		2.6	5		131	101		66	
14	45	1443	213.6		2.7	5		139	101		67	
	50	1448 1449	218.3		2.7	5		160	101		66	
	55	1454	223.0		2.7	5		158	101		65	
13	60	1459	227.7		2.7	5		166	101		65	
	65	1504 1505	232.4		2.7	5		172	101		66	
	70	1510	237.1		2.7	5		168	101		66	
12	75	1515	241.8		2.7	5		166	101		65	
	80	1520	246.5		2.7	5		178	101		65	
Tot/Avg	80		240.129		2.76			167.1	103.6			

Sample Train Leak Check

	Vacuum	Leak Rate
Pre	21 in. Hg	0.004 CFM
Post	15 in. Hg	0.002 CFM

Pitot Leak Check

Pos.	OK
Neg.	OK

Moisture Train Analysis

Impinger	Final Wt.	Initial Wt.	Difference
1	751.5 gm	697.4 gm	54.1 gm
2	724.8 gm	701.6 gm	23.2 gm
3	614.5 gm	607.4 gm	7.1 gm
4	854.5 gm	818.3 gm	36.2 gm
5	gm	gm	gm
Total	gm	gm	120.6 gm

Fyrite Analysis

Gas	Run 1	Run 2	Run 3	Average
O_2				
CO_2				

0.97 = CFM

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BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 13 DATA SHEET

Client: Timken **Source:** Baghouse **Run No.:** 1

Point	Elap. Time	Time	Meter Volume	Velocity Press.	Orifice Pessure Drop	Vacuum	Probe Temp.	Stack Temp.	Meter Temp	Filter Temp.	Imp. Temp.	Comments
	0	1521	246.5	in. water	in. water	in. Hg	°F	°F	°F	°F	°F	
	85	1526	251.2		2.7	5		171	104		64	
11	90	1531	255.9		2.7	5		170	105		67	
	95	1536 1537	260.6		2.7	5		176	105		67	
	100	1542	265.4		2.7	5		170	105		67	
10	105	1547	270.1		2.7	5		178	105		68	
	110	1552 1553	274.8		2.7	5		176	105		66	
	115	1558	278.8		2.7	5		171	105		66	
9	120	1603	283.5		2.7	5		171	106		64	
	125	1608 1609	288.2		2.7	5		177	106		66	
	130	1614	293.0		2.7	5		183	106		66	
8	135	1619	297.8		2.7	5		180	106		66	
	140	1624 1625	302.5		2.7	5		180	106		65	
	145	1630	307.2		2.7	5		177	106		64	
7	150	1635	312.0		2.7	5		176	106		64	
	155	1640 1641	316.8		2.7	5		179	106		64	
	160	1646	321.5		2.7	5		181	105		64	
6	165	1651	326.2		2.7	5		186	105		63	
	170	1656 1657	331.0		2.7	5		179	105		64	
	175	1702	335.8		2.7	5		180	105		63	
5	180	1707	340.6		2.7	5		185	105		63	
	185	1712 1713	345.3		2.7	5		180	105		63	
	190	1718	350.0		2.7	5		181	105		62	
4	195	1723	354.8		2.7	5		180	105		60	
	200	1728 1729	359.5		2.7	5		175	105		60	

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BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 13 DATA SHEET

Client: **Source:** Outlet **Run No.:** 1

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
	0	1729	359.5									
	205	1734	364.3		2.7	5		170	105		63	
3	210	1739	369.0		2.7	5		175	105		63	
	215	1744	373.8		2.7	5		180	105		62	
	220	1750	378.5		2.7	5		170	105		62	
2	225	1755	383.2		2.7	5		165	105		61	
	230	1800 1801	388.0		2.7	5		160	104		61	
	235	1806	392.7		2.7	5		165	104		61	
1	240	1811	398.4		2.7	5		160	104		61	
	245	1816	404.210		2.7	5		170	104		61	
	250	1823	409.011		2.7	5		161	103		60	
17												

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BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 13 DATA SHEET

Client:	TIMKEN	**Run No.:**	2 OUTLET	**Meter delta H@:**		**Filter No.:**	—
Project No.:		**Noz. Dia.:**	0.640	**Meter Corr.:**	1.007	**Stack Dia.:**	—
Source:	EAF	**Baro. Press.:**	30.11 SC	**Pitot Corr.:**		**Ambient Temp.:**	75
Date:	4/16/02	**Static Press.:**	0.0	**Control Box ID:**	1	**Start Time:**	0800
Techs:	JS RE	**Moisture:**		**Probe ID:**		**Stop Time:**	1315

Point	Elapsed Time	Time	Meter Volume	Velocity Press.	Orifice Pessure Drop	Vacuum	Probe Temp.	Stack Temp.	Meter Temp.	Filter Temp	Imp. Temp.	Comments
				in. water	in. water	in. Hg	°F	°F	°F	°F	°F	
	0	0800	411.725									
1	5	0807	416.6		2.7	5		158	92		68	
2	10	0812	421.0		2.7	5		159	92		68	
3	15	0817	425.5		2.7	5		162	93		68	
4	20	0822	430.2		2.7	5		162	94		68	
5	25	0829	434.9		2.7	5		162	95		68	
6	30	0834	439.8		2.7	5		162	96		64	
7	35	0839	444.9		2.7	5		171	98		57	
8	40	0847	449.5		2.7	5		164	100		56	
9	45	0852	454.4		2.7	5		163	101		49	
10	50	0857	459.4		2.7	5		161	102		49	
11	55	0904	464.2		2.7	5		151	102		56	
12	60	0909	469.2		2.7	5		144	103		49	
13	65	0914	474.2		2.7	5		153	104		50	
14	70	0921	479.0		2.7	5		162	104		50	
15	75	0926	483.8		2.7	5		164	104		52	
16	80	0931	486.7		2.7	5		160	105		54	
Tot/Avg	250		240370		2.70			163.3	96.1			
			121.197									
			119.173									

Sample Train Leak Check

	Vacuum	Leak Rate
Pre	11 in. Hg	0.001 CFM
Post	6 in. Hg	0.004 CFM

Pitot Leak Check

Pos.	—
Neg.	—

Moisture Train Analysis

Impinger	Final Wt.	Initial Wt.	Difference
1	768.4 gm	697.0 gm	71.4 gm
2	714.3 gm	697.9 gm	16.4 gm
3	611.0 gm	605.6 gm	5.4 gm
4	862.2 gm	822.5 gm	39.7 gm
5	gm	gm	gm
Total	gm	gm	132.9 gm

Fyrite Analysis

Gas	Run 1	Run 2	Run 3	Average
O_2				
CO_2				

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352 406 4605

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 13 DATA SHEET

Client: Timken **Source:** Faircrest EAF **Run No.:** 2

Point	Elap. Time	Time	Meter Volume	Velocity Press. In. water	Orifice Pessure Drop In. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
17	85	0941	493.5		2.7	5		174	105		59	
18	90	0946	498.4		2.7	5		177	106		55	
19	95	0951	503.3		2.7	5		177	107		56	
20	100	0958	508.2		2.7	5		161	107		57	
21	105	1003	513.0		2.7	5		157	108		56	
22	110	1008	517.9		2.7	5		156	109		56	
23	115	1015	522.7		2.7	5		160	111		58	
24	120	1020	527.6		2.7	5		156	112		59	
25	125	1025	532.716		2.7	5		154	112		58	Move leak ✓ 0.001 @ 7 in Hg
26	130	1055	532.902 537.7		2.7	5		155	101		52	compartment 9
27	135	1100	542.6		2.7	5		157	99		53	
28	140	1105	547.5		2.7	5		160	96		55	
29	145	1112	552.1		2.7	5		154	93		56	
30	150	1117	556.8		2.7	5		164	92		55	
31	155	1122	561.5		2.7	5		162	91		55	
32	160	1129	566.2		2.7	5		155	90		55	
33	165	1134	571.0		2.7	5		154	89		55	
34	170	1139	575.8		2.7	5		151	88		55	
35	175	1148	580.5		2.7	5		162	88		57	
36	180	1153	585.3		2.7	5		166	87		57	
37	185	1158	590.1		2.7	5		171	87		58	
38	190	1205	594.9		2.7	5		170	87		59	
39	195	1210	599.5		2.7	5		170	87		54	
40	200	1215	604.3		2.7	5		171	87		52	
41	205	1222	609.0		2.7	5		174	87		50	

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BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 13 DATA SHEET

Client: Timken **Source:** Faircrest EAF **Run No.:** 2

Point	Elap. Time	Time	Meter Volume	Velocity Press. In. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
42	210	1227	613.8		2.7	5		181	87		50	
43	215	1232	618.6		2.7	5		178	87		51	
44	220	1239	623.4		2.7	5		167	90		53	
45	225	1244	628.1		2.7	5		171	88		51	
46	230	1249	632.9		2.7	5		160	88		51	
47	235	1258	637.6		2.7	5		169	89		52	
48	240	1303	642.4		2.7	5		174	89		53	
49	245	1308	647.2		2.7	5		172	89		53	
50	250	1315	652.075		2.7	5		168	89		55	

OUTLET FC

1 of 3

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 13 DATA SHEET

Client: Timken	**Run No.:** 3	**Meter delta H@:** 1.73	**Filter No.:**
Project No.:	**Noz. Dia.:** 0.640	**Meter Corr.:** 1.007	**Stack Dia.:**
Source: Faircrest EAF outlet	**Baro. Press.:** 30.11	**Pitot Corr.:**	**Ambient Temp.:** 92° F
Date: 4/16/02	**Static Press.:**	**Control Box ID:** OUT 1	**Start Time:** 1444
Techs: RE / JS	**Moisture:**	**Probe ID:**	**Stop Time:**

Point	Elapsed Time	Time	Meter Volume	Velocity Press.	Orifice Pessure Drop	Vacuum	Probe Temp.	Stack Temp.	Meter Temp.	Filter Temp	Imp. Temp.	Comments
	0	1444	652.379	in. water	in. water	in. Hg	°F	°F	°F	°F	°F	
1	5	1449	657.1		2.7	5		179	92		50	
2	10	1454	662.0		2.7	5		187	93		57	
3	15	1501	666.8		2.7	5		154	93		60	
4	20	1506	671.5		2.7	5		181	94		58	
5	25	1511	676.3		2.7	5		181	95		59	
6	30	1518	681.0		2.7	5		163	96		59	
7	35	1523	685.8		2.7	5		185	97		59	
8	40	1528	690.6		2.7	5		166	97		61	
9	45	1535	695.4		2.7	5		161	98		62	
10	50	1540	700.2		2.7	5		184	98		61	
11	55	1545	705.0		2.7	5		183	99		60	
12	60	1552	709.8		2.7	5		183	99		60	
13	65	1557	714.8		2.7	5		167	99		61	
14	70	1602	719.6		2.7	5		172	99		62	
15	75	1608	724.4		2.7	5		191	100		62	
16	80	1613	729.2		2.7	5		158	100		63	
Tot/Avg	830		240.303		2.7			171.7	100.3			

Sample Train Leak Check

	Vacuum	Leak Rate
Pre	8 in. Hg	0.001 CFM
Post	8 in. Hg	0.001 CFM

Pitot Leak Check

Pos.	
Neg.	

Moisture Train Analysis

Impinger	Final Wt.	Initial Wt.	Difference
1	751.9 gm	695.0 gm	56.9 gm
2	711.5 gm	698.3 gm	13.2 gm
3	609.1 gm	605.8 gm	3.3 gm
4	831.3 gm	817.8 gm	13.5 gm
5	gm	gm	gm
Total	gm	gm	86.9 gm

Fyrite Analysis

Gas	Run 1	Run 2	Run 3	Average
O_2				
CO_2				

A7

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 13 DATA SHEET

Client: Timken Source: Fairclest EAF outlet F1 Run No.: 3

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
17	85	1618	734.2		2.7	5		153	100		63	
18	90	1625	739.0		2.7	5		147	100		64	
19	95	1630	743.9		2.7	5		144	101		64	
20	100	1655	748.7		2.7	5		142	101		64	Furnace down
21	105	1701	753.5		2.7	5		152	99		62	
22	110	1706	758.3		2.7	5		172	99		62	
23	115	1711	763.1		2.7	5		174	99		62	
24	120	1718	767.9		2.7	5		171	99		64	
25	125	1723	772.7		2.7	5		152	100		60	
26	130	1728	777.5		2.7	5		147	101		59	
27	135	1735	782.3		2.7	5		160	101		59	
28	140	1740	787.1		2.7	5		168	101		59	
29	145	1745	792.9		2.7	5		173	101		59	
30	150	1752	796.8		2.7	5		173	101		60	
31	155	1757	801.6		2.7	5		170	101		60	
32	160	1802	806.4		2.7	5		159	101		60	
33	165	1809	811.2		2.7	5		158	111		59	
34	170	1814	816.0		2.7	5		176	102		61	
35	175	1819	820.9		2.7	5		190	102		60	
36	180	1826	825.7		2.7	5		187	102		59	
37	185	1831	830.5		2.7	5		189	102		60	
38	190	1836	835.3		2.7	5		189	102		59	
39	195	1843	840.2		2.7	5		190	102		60	
40	200	1848	845.0		2.7	5		188	102		59	
41	205	1853	849.8		2.7	5		191	103		60	

A8

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD ~~5~~ 13 DATA SHEET

Client: Timken **Source:** Faircrest EAF Outlet F1 **Run No.:** 3

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
42	210	1900	854.6		2.7	5		167	103		64	
43	215	1905	859.4		2.7	5		161	104		64	
44	220	1910	864.2		2.7	5		173	105		66	
45	225	1917	869.0		2.7	5		175	105		66	
46	230	1922	873.7		2.7	5		177	105		63	
47	235	1927	878.5		2.7	5		177	105		60	
48	240	1934	883.2		2.7	5		176	105		60	
49	245	1939	888.0		2.7	5		182	105		62	
50	250	1944	892.882		2.7	5		185	104			

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 13 DATA SHEET

Client: Timken - Fairmont	Run No.: 1	Meter delta H@: 1.796	Filter No.: —
Project No.:	Noz. Dia.: 0.123	Meter Corr.: 0.999	Stack Dia.:
Source: Inlet	Baro. Press.: ~~30.02~~ SL 28.84	Pitot Corr.: 0.84	Ambient Temp.: ~80 °F
Date: 4-15-01	Static Press.: ~~-0.1~~ -3.9	Control Box ID: 3	Start Time: 1355
Techs: PJ	Moisture: ~1.5%	Probe ID: 8-1 Box 2	Stop Time: 1813

ELV 1081 Gt

Point	Elapsed Time	Time	Meter Volume	Velocity Press.	Orifice Pessure Drop	Vacuum	Probe Temp.	Stack Temp.	Meter Temp.	Filter Temp	Imp. Temp.	Comments
	0	1355	76.057	in. water	in. water	in. Hg	°F	°F	°F	°F	°F	No Impinger Temp Box alway Full of Ice
5G	5		77.9	1.4	0.30	0	244	142	81	251		
8	10		79.4	1.4	0.30	0	243	137	81	248		
6 9	15		81.1	1.5	0.32	0	248	129	81	256		
9	20		82.8	1.5	0.32	0	249	127	81	250		
4 8	25		84.4	1.5	0.32	0	251	125	81	252		
6	30		86.0	1.5	0.32	0	250	125	82	251		
3	35		87.7	1.5	0.32 30	0	249	125	82	252		
	40		89.1	~~1.0~~ 1.4	~~0.21~~ 2	0	251	125	82	252		
2	45		90.8	1.4	0.30	0	251	136	83	249		
	50		92.5	1.4	0.30	0	250	160	83	235		
1	55	↓	93.7	1.1	0.23	0	250	138	83	247		
	60	1435	95.1	0.95	0.22	0	251	151	84	249		
		1459										
E6	↓		96.3	0.95	0.22	0	245	164	84	246		
	70	↓	97.8	0.95	0.22	0	243	186	85	255		
5	75		99.0	0.85	0.19	0	251	183	85	242		
Tot/Avg	240		72.906	~~1.184~~ 1.118	0.277			1684	88.8			

avg ΔP = 1.28

Sample Train Leak Check

	Vacuum	Leak Rate
Pre	15 in. Hg	0.000 CFM
Post	3 in. Hg	0.000 CFM

Pitot Leak Check

Pos.	OK
Neg.	OK

Moisture Train Analysis

Impinger	Final Wt.	Initial Wt.	Difference
1	735.8 gm	708.3 gm	27.5 gm
2	711.9 gm	707.4 gm	4.5 gm
3	622.5 gm	620.8 gm	1.7 gm
4	823.1 gm	803.3 gm	19.8 gm
5	gm	gm	gm
Total	gm	gm	53.5 gm

K= 0.211
K 0.22

Fyrite Analysis

Gas	Run 1	Run 2	Run 3	Average
O_2	21.0	21.0	21.0	21.0
CO_2	0.0	0.0	0.0	0.0

A10

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 13 DATA SHEET

Client: Timken-Faircrest **Source:** INLET **Run No.:** 1

Point	Elap. Time	Time	Meter Volume	Velocity Press. In. water	Orifice Pessure Drop In. water	Vacuum In. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
			100.3	0.85	0.19	0	245	183	85	248		
4			101.5	0.83	0.19	0	249	167	85	255		
			102.6	0.78	0.17	0	248	167	86	243		
3			103.9	0.75	0.16	0	247	142	86	245		
			105.1	0.75	0.16	0	245	187	86	260		
2			106.2	0.75	0.16	0	247	189	86	241		
			107.4	0.73	0.16	0	246	156	86	239		
1			108.5	0.72	0.16	0	246	158	86	242		
	120	1559	109.7	0.72	0.16	0	246	158	86	245		
		1605										
W 6			111.3	1.4	0.30	0	246	196	87	248		
			112.9	1.8	0.32	0	244	196	87	244		
5			114.5	1.4	0.30	0	243	197	87	246		
			116.0	1.4	0.30	1	249	198	87	257		
4			117.6	1.5	0.32	1	241	187	87	246		
			119.3	1.6	0.32	1	247	191	87	240		
3			121.1	1.6	0.35	1	249	145	88	248		
			122.8	1.7	0.37	1	247	148	88	242		
2			124.5	1.7	0.37	1	247	141	88	244		
			126.3	1.6	0.35	1	247	143	88	244		
1			128.0	1.5	0.32	1	249	128	88	242		
		1706	129.6	1.4	0.30	1	245	126	88	245		
Λ		1713										
N 5			131.5	1.5	0.32	1	250	164	88	252		
			133.1	1.4	0.30	1	250	176	88	243		

A11

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 13 DATA SHEET

Client: Timken - Faircrest Source: INLET Run No.: 1

Point	Elap. Time	Time	Meter Volume	Velocity Press. In. water	Orifice Pessure Drop In. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
5		134.8	~~133.7~~	1.6	0.35	1	249	173	88	250		
		136.4	~~134.8~~	1.5	0.32	1	247	171	88	244		
4		138.2	~~136.7~~	1.5	0.32	1	248	157	88	242		
		139.6	~~139.0~~	1.5	0.32	1	250	143	88	240		
3			141.2	1.5	0.32	1	246	175	88	244		
			142.7	1.5	0.32	1	248	176	89	248		
2			144.4	1.6	0.35	2	246	174	88	245		
			146.2	1.6	0.35	2	245	179	88	245		
1		↓	147.6	1.0	0.22	1	247	127	88	236		
	240	1813	148.963	.88	0.19	1	242	132	88	247		

A12

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 13 DATA SHEET INLET

Client: Timken- Faircrest
Project No.:
Source: INLET
Date: 4-16-01
Techs: DJ

Run No.: 2
Noz. Dia.: 0.123
Baro. Press.: 30.11 SL 28.93
Static Press.: -3.8
Moisture: 1.6%

Meter delta H@: 1.79
Meter Corr.: 0.999
Pitot Corr.: 0.84
Control Box ID: 3
Probe ID: 8-1

Filter No.: —
Stack Dia.: 212
Ambient Temp.:
Start Time: 0800
Stop Time: 1301

Point	Elapsed Time	Time	Meter Volume	Velocity Press.	Orifice Pessure Drop	Vacuum	Probe Temp.	Stack Temp.	Meter Temp.	Filter Temp	Imp. Temp.	Comments
	0	0800	149.353	in. water	in. water	in. Hg	°F	°F	°F	°F	°F	No Imp Temp. Impingers allways Iced down
S 6	5		151.0	1.4	0.31 ~~1.1~~	0	244	178	74	249		
	↓		152.6	1.4	0.31	0	240	168	74	250		
5			154.2	1.4	0.31	0	246	167	74	246		
			155.8	1.4	0.31	0	250	171	74	249		
4			157.4	1.4	0.31	0	249	166	75	249		
			159.0	1.4	0.31	0	251	170	75	251		
3			160.6	1.4	0.31	0	251	177	76	248		
			162.2	1.4	0.31	0	250	171	77	251		
2			163.8	1.3	0.29	0	250	179	78	256		
			165.5	1.3	0.29	0	248	180	78	250		
1			166.8	0.90	0.20	0	250	123	79	256		
	60	0900 0905	168.2	1.0	0.22	0	251	114	80	252		
E 6			169.5	1.3	0.29	0	244	124	81	250		
			171.2	1.0	0.22	0	244	166	82	249		
5			172.4	0.85	0.19	0	244	167	83	254		
			173.7	0.85	0.19	0	240	168	83	258		
Tot/Avg	240		73.949	1.244	0.292			166.3	86.8			

Sample Train Leak Check

	Vacuum	Leak Rate
Pre	15 in. Hg	0.000 CFM
Post	4 in. Hg	0.000 CFM

Pitot Leak Check

Pos.	OK
Neg.	OK

Moisture Train Analysis

Impinger	Final Wt.	Initial Wt.	Difference
1	722.6 gm	696.8 gm	25.8 gm
2	696.7 gm	692.0 gm	4.7 gm
3	623.4 gm	622.2 gm	1.2 gm
4	818.5 gm	803.5 gm	15.0 gm
5	gm	gm	gm
Total	gm	gm	46.7 gm

Fyrite Analysis

Gas	Run 1	Run 2	Run 3	Average
O_2	21.0	21.0	21.0	21.0
CO_2	0.0	0.0	0.0	0.0

D

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 13 DATA SHEET

Client: Timken - Faircrest Source: Inlet Run No.: 2

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
4			174.9	0.85	~~.19~~ .19	0	238	171	84	252		
			176.2	0.85	~~1~~ .19	0	243	153	85	247		
3			177.4	0.80	.18	0	242	179	86	247		
			178.7	0.85	.19	0	241	182	87	253		
2			179.9	0.78	.17	0	238	197	88	247		
			181.1	0.73	.16	0	237	193	88	250		
1		↓	182.2	0.63	.14	0	239	173	89	251		
		120 1010	183.3	0.67	.15	0	249	157	87	252		
N 6			185.0	1.16	.35	1	252	139	90	249		
		1020	186.8	1.7	.37	1	249	142	90	251		
5		1104	188.4	1.5	.33	1	245	172	96	251		
			190.1	1.4	.31	1	245	179	95	248		
4			191.7	1.5	.33	1	246	177	94	248		
			193.4	1.5	.33	1	244	181	93	246		
3			195.1	1.6	.33	1	252	171	93	249		
			196.7	1.5	.33	1	254	146	93	254		
2			198.4	1.5	.33	1	255	142	92	247		
			200.0	1.6	.33	1	256	157	92	248		
1			201.6	1.3	.29	1	255	135	92	242		
		1154	203.2	1.3	.29	1	252	134	91	249		
		1201		~~[illegible]~~	.33	~~1~~	~~[illegible]~~	~~[illegible]~~	~~91~~	~~248~~		
W 6			204.9	1.5	.33	1	261	170	91	248		
			206.3	1.5	.33	1	253	188	91	238		
5			208.0	1.5	.33	1	250	180	92	243		
			209.7	1.5	.33	2	250	188	92	237		

A14

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 13 DATA SHEET

Client: JInKen Source: INLET Run No.: 2

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
4			211.4	1.5	.33	2	251	198	93	240		
			213.0	1.5	.33	2	252	185	94	250		
3			214.7	1.5	.33	3	251	179	94	253		
			216.4	1.6	.33	3	254	153	94	254		
2			218.1	1.5	.33	3	250	200	95	248		
			219.8	1.6	.37	3	254	148	95	252		
1			221.4	1.5	.33	3	254	160	95	255		
	1301 →	1301	223.0	1.6	.33	3	255	164	95	253		
	24 min											

A16

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 13 DATA SHEET

Client: TIMKen	Run No.: 3	Meter delta H@: 1.79	Filter No.: —
Project No.:	Noz. Dia.: 0.123	Meter Corr.: 0.99	Stack Dia.: 212"
Source:	Baro. Press.: ~~30.11.56~~ 28.93	Pitot Corr.: 0.84	Ambient Temp.: ~85°F
Date: 4-16-02	Static Press.: -4.3	Control Box ID: 3	Start Time: 1450
Techs: PJ	Moisture:	Probe ID: 8-1	Stop Time: 1912

Point	Elapsed Time	Time	Meter Volume	Velocity Press.	Orifice Pessure Drop	Vacuum	Probe Temp.	Stack Temp.	Meter Temp.	Filter Temp	Imp. Temp.	Comments
			223.429	in. water	in. water	in. Hg	°F	°F	°F	°F	°F	
	0	1450	~~223.429~~									
W 6	5		225.1	1.5	0.33	0	251	198	90	254		
	10		226.6	1.3	0.29	0	252	183	90	247		
5	15		228.3	1.5	0.33	0	252	180	90	251		
	20		230.0	1.5	0.33	0	251	177	91	255		
4	25		231.6	1.5	0.33	0	249	191	91	267		
	30		233.2	1.5	0.33	0	253	189	92	240		
3	35		235.0	1.5	0.33	0	248	191	92	268		
	40		236.7	1.5	0.33	0	247	152	93	227		
2	45		238.4	1.6	0.35	0	245	149	93	249		
	50		240.1	1.6	0.35	0	245	187	94	227		
1	55		241.7	1.5	0.33	0	244	179	94	255		
	60	1553	243.4	1.5	0.33	0	251	179	94	250		
N 6			245.0	1.5	0.33	0	251	136	94	241		
			246.6	1.3	0.29	0	257	174	94	243		
5			248.2	1.5	0.33	0	258	180	94	242		
			249.9	1.5	0.33	0	259	148	94	245		
Tot/Avg	240		73.389	1.113	0.280			168.5	92.9			

Sample Train Leak Check

	Vacuum	Leak Rate
Pre	15 in. Hg	0.000 CFM
Post	3 in. Hg	0.000 CFM

Pitot Leak Check

Pos.	OK
Neg.	OK

Moisture Train Analysis

Impinger	Final Wt.	Initial Wt.	Difference
1	745.7 gm	694.4 gm	51.3 gm
2	664.3 gm	691.8 gm	-27.5 gm
3	623.2 gm	621.8 gm	1.4 gm
4	829.8 gm	812.5 gm	17.3 gm
5	gm	gm	gm
Total	gm	gm	42.5 gm

Fyrite Analysis

Gas	Run 1	Run 2	Run 3	Average
O_2	21.0	21.0	21.0	21.0
CO_2	0.0	0.0	0.0	0.0

Page 2 of 3

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD ~~5~~ 13 DATA SHEET

Client: Timken

Source: Inlet

Run No.: 3

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
4			251.8	1.5	0.33	0	254	141	94	241		
			253.3	1.5	0.33	0	256	139	94	242		
3			254.9	1.6	0.35	0	255	133	94	239		
			256.7	1.6	0.35	0	254	133	94	242		
2			258.8	1.2	0.26	0	254	132	94	243		
		1643 1655	259.8	1.2	0.26	0	254	131	94	243		
1			261.4	1.5	0.33	0	253	138	94	240		
	180	1703 1707	263.1	1.5	0.33	0	253	165	94	242		
E 6			264.4	.95	0.21	0	253	175	93	242		
			265.7	.95	0.21	0	244	185	93	239		
5			267.1	.95	0.21	0	248	142	93	233		
			268.4	1.0	0.22	0	241	136	93	237		
4			269.7	0.85	0.19	0	246	161	93	256		
			270.9	0.75	0.16	0	250	144	93	244		
3			272.1	0.85	0.19	0	246	170	93	240		
			273.3	0.90	0.20	0	253	181	93	244		
2			274.6	0.90	0.20	0	249	187	93	238		
			275.9	0.90	0.20	0	251	183	93	250		
1			276.9	0.55	0.12	0	250	150	93	253		
		1807	278.0	0.55	0.12	0	255	144	93	254		
	180	1812										
S 6			279.6	1.2	0.26	1	252	209	93	256		
			281.1	1.2	0.26	1	252	204	43	247		
5			282.6	1.3	0.29	1	251	201	93	251		
			284.1	1.3	0.29	1	254	203	93	253		

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD ~~6~~ 13 DATA SHEET

Client: Timken   Source: Inlet   Run No. 3

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
4			285.8	1.2	0.29	1	259	194	93	251		
			287.3	1.2	0.29	1	256	197	93	250		
3			288.9	1.2	0.29	1	251	190	93	250		
			290.5	1.3	0.29	1	251	151	93	254		
2			292.0	1.3	0.29	1	252	147	92	250		
			293.6	1.2	0.29	1	253	145	92	251		
1			295.2	1.2	0.29	1	248	169	92	251		
	240	1912	296.848	1.2	0.29	1	253	180	92	251		

75,75, , .25
1 of 3

240

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 6 DATA SHEET SO_2

Client: Timber Fairchst
Project No.:
Source: Brownse
Date: 4/15/01
Techs: JS

Run No.: 1
Baro. Press.: 30.02 SL 28.84
Static Press.: 0.0
Meter delta H@: 1.75
Meter Corr.: 1.017

Control Box ID: 2
Probe ID: 6-2
Stack Dia.:
Ambient Temp.: 80

Box 1

Start Time: 1350
Stop Time: 1803

Point	Elapsed Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop In. water	Vacuum In. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp. °F	Filter Temp °F	Imp. Temp. °F	Comments
	0	1350	441.120									
10	5	1355	445.1		1.7	6	263	164	101	264	67	
	10	1400	449.0		1.7	7	244	157	101	261	70	
	15	1405	452.1		1.7	7	243	160	101	262	71	
	20	1410	455.1		1.7	7	244	140	101	260	68	
	25	1415	459.5		1.7	7	245	136	102	261	68	
	30	1420	463.3		1.7	7	244	134	102	261	67	
	35	1425	466.8		1.7	6	245	133	103	260	66	
	40	1430	470.7		1.7	6	244	134	103	259	67	
	45	1435	474.3		1.7	6	242	133	103	259	66	
	50	1440	478.0		1.7	6	242	138	103	259	68	
	55	1445	481.7		1.7	6	242	153	103	260	67	
	60	1450	485.3		1.7	6	242	158	103	260	66	
	65	1455	489.0		1.7	6	242	171	103	259	66	
	70	1500	492.7		1.7	6	242	167	103	259	66	
	75	1505	496.4		1.7	6	242	165	103	258	66	
Tot/Avg	250		178.491		1.7				1055			

Sample Train Leak Check

	Vacuum	Leak Rate
Pre	15 in. Hg	0.002 CFM
Post	15 in. Hg	0.001 CFM

Pitot Leak Check

Pos.	/
Neg.	/

Moisture Train Analysis

Impinger	Final Wt.	Initial Wt.	Difference
1	655.2 gm	704.6 gm	-49.4 gm
2	728.2 gm	695.8 gm	32.4 gm
3	730.3 gm	710.8 gm	19.5 gm
4	835.6 gm	797.4 gm	38.2 gm
5	gm	gm	gm
Total	gm	gm	40.7 gm

Fyrite Analysis

Gas	Run 1	Run 2	Run 3	Average
O2				
CO2				

A19

2 of 3

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 6 DATA SHEET SO_2

Client: Timken **Source:** Baghouse **Run No.:** 1

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
	0	1506	496.4									
8	5	1511	500.0	1.7	1.7	6	241	175	105	259	66	
	10	1516	503.7		1.7	6	240	171	105	260	65	
	15	1521	507.1		1.7	6	240	173	105	260	65	
	20	1526	510.4		1.7	6	240	171	105	260	66	
	25	1531	513.8		1.7	6	241	160	107	260	67	
	30	1536	518.5		1.7	6	241	160	108	261	66	
	35	1541	522.0		1.7	6	241	169	109	261	66	
	40	1546	525.7		1.7	6	242	175	108	262	65	
	45	1551	529.2		1.7	6	241	173	107	261	66	
	50	1556	532.9		1.7	6	242	177	107	262	66	
	55	1601	536.7		1.7	6	240	171	107	262	65	
	60	1606	540.5		1.7	6	240	183	108	259	66	
	65	1611	544.2		1.7	6	241	180	108	259	66	
	70	1616	547.9		1.7	6	242	181	109	260	66	
	75	1621	551.5		1.7	6	242	180	109	261	60	
6	0	1622	551.5									
	5	1627	555.3		1.7	6	241	178	109	261	66	
	10	1632	559.0		1.7	6	241	182	107	260	65	
	15	1637	562.7		1.7	6	241	181	109	260	65	
	20	1642	566.4		1.7	6	241	176	107	259	64	
	25	1647	570.1		1.7	6	243	170	109	259	63	
	30	1652	573.8		1.7	6	241	168	109	259	63	
	35	1657	578.5		1.7	6	243	160	109	260	63	
	40	1702	581.6		1.7	6	242	160	108	260	62	
	45	1707	585.3		1.7	6	242	154	108	261	62	

A20

30.3

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 6 DATA SHEET

Client: TIMKEN **Source:** Baghouse **Run No.:** 1

Point	Elap. Time	Time	Meter Volume	Velocity Press. In. water	Orifice Pessure Drop In. water	Vacuum In. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
	0	1707	585.3									
	50	1712	589.0		1.7	6	240	157	105	260	62	
6	55	1717	592.9		1.7	6	240	158	105	261	62	
	60	1722	596.6		1.7	6	241	160	105	260	62	
	65	1727	600.3		1.7	6	240	160	105	260	63	
	70	1732	604.0		1.7	6	242	175	105	259	63	
	75	1737	607.8		1.7	6	241	170	105	260	63	
#	0	1738	601.5									
	5	1743	605.2		1.7	6	240	160	105	259	62	
	10	1748	609.00		1.7	6	241	160	105	259	61	
4	15	1753	612.3		1.7	6	241	160	105	259	60	
	20	1758	616.00		1.7	6	241	159	105	259	61	
	25	1803	619.611		1.7	6	241	158	105	259	61	

A21

50, 75, 75, 50

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 6 DATA SHEET

Client: Timken Faircrest
Project No.:
Source: Baghouse
Date: 4/16/02
Techs: JS RE

Run No.: 2 WRET
Baro. Press.: 30.11 SL 28.93
Static Press.: —
Meter delta H@: 1.75
Meter Corr.: 1.017

Control Box ID: 2
Probe ID: 6-2
Stack Dia.: —
Ambient Temp.: 75

Start Time: 802
Stop Time: 1252

Point	Elapsed Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp. °F	Filter Temp °F	Imp. Temp. °F	Comments
Comp. 4	0	802	634.790									
	5	807	638.4		1.7	5	234	166	93	240	68	
	10	812	642.1		1.7	5	234	163	94	240	52	
	15	817	645.8		1.7	5	235	160	96	240	54	
	20	822	649.5		1.7	5	235	163	96	240	55	
	25	827	652.9		1.7	5	233	166	99	240	58	
Comp 4	30	832	656.7		1.7	5	235	172	100	241	59	
	35	837	660.4		1.7	5	235	178	101	241	58	
	40	842	664.1		1.7	5	231	174	101	240	53	
	45	847	667.9		1.7	5	234	175	101	240	54	
	50	852	671.7		1.7	5	236	169	109	242	51	
	55	858	675.4		1.7	5	235	162	110	242	53	
Comp 2	100	903	679.1		1.7	5	236	159	111	241	55	
	65	908	682.8		1.7	5	237	157	112	241	55	
	70	913	686.5		1.7	5	237	162	112	240	56	
	75	918	690.0		1.7	5	236	168	113	240	57	
	80	923	693.8		1.7	5	237	165	113	242	58	
Tot/Avg	250		184.565		1.7				98.8			

Sample Train Leak Check

	Vacuum	Leak Rate
Pre	12 in. Hg	0.000 CFM
Post	12 in. Hg	0.001 CFM

Pitot Leak Check

Pos.	—
Neg.	—

Moisture Train Analysis

Impinger	Final Wt.	Initial Wt.	Difference
1	660.5 gm	690.3 gm	-29.8 gm
2	731.1 gm	696.0 gm	35.1 gm
3	717.8 gm	698.4 gm	19.4 gm
4	870.8 gm	821.0 gm	49.8 gm
5	gm	gm	gm
Total	gm	gm	74.5 gm

Fyrite Analysis

Gas	Run 1	Run 2	Run 3	Average
O2				
CO2				

50, 75, ?. 0

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 6 DATA SHEET

Client: HUNKEN **Source:** BAGHOUSE **Run No.:** 2 [illegible]

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
	0	923	693.8									
	85	928	697.5		1.7	5	234	167	113	240	58	
	90	933	701.2		1.7	5	234	169	113	241	58	
	95	938	704.9		1.7	5	233	170	113	242	62	
2	100	943	708.7		1.7	5	233	172	114	241	60	
	105	948	712.5		1.7	5	233	170	114	242	60	
	110	953	716.3		1.7	5	234	180	114	241	57	
	115	958	720.0		1.7	5	236	182	114	240	56	
	120	1003	723.8		1.7	5	236	169	114	240	56	
	125	1008	727.650		1.7	5	236	159	114	242	56	LEAK CHECK 0.000
	0	1055	728.040									12" VAC.
	130	1100	731.7		1.7	5	225	160	95	235	66	
	135	1105	735.4		1.7	5	225	168	95	232	53	
	140	1110	739.1		1.7	5	239	173	93	231	57	
1	145	1115	[illegible]		1.7	5	240	176	91	238	58	
	150	1120	746.3		1.7	5	240	177	90	242	59	
	155	1125	749.9		1.7	5	240	176	90	241	58	
	160	1130	753.7		1.7	5	241	180	90	241	58	
	165	1135	757.4		1.7	5	240	184	90	240	58	
	170	1140	761.1		1.7	5	240	178	90	241	58	
	175	1145	764.8		1.7	5	241	170	90	240	57	
	180	1150	768.5		1.7	5	241	169	91	240	57	
	185	1155	772.2		1.7	5	240	170	91	241	57	
	190	1200	775.9		1.7	5	240	164	91	241	57	
	195	1205	779.6		1.7	5	240	167	90	241	57	
	200	1210	783.4		1.9	5	240	168	90	240	56	

A23

#3

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 6 DATA SHEET

Client: Timken Faircrest **Source:** Baghouse outlet **Run No.:** 2

Point	Elap. Time	Time	Meter Volume	Velocity Press.	Orifice Pessure Drop	Vacuum	Probe Temp.	Stack Temp.	Meter Temp	Filter Temp.	Imp. Temp.	Comments
	0	1202	783.4	in. water	in. water	in. Hg	°F	°F	°F	°F	°F	
	205	1207	787.0		1.7	5	245	185	89	236	55	
	210	1212	790.6		1.7	5	242	177	89	237	52	
	215	1217	794.2		1.7	5	243	182	89	237	52	
	220	1222	797.8		1.7	5	243	185	89	238	52	
3	225	1227	801.4		1.7	5	242	187	88	237	53	
	230	1232	805.0		1.7	5	242	186	88	236	53	
	235	1237	808.5		1.7	5	245	169	89	237	54	
	240	1242	812.2		1.7	5	244	177	89	240	55	
	245	1247	815.8		1.7	5	241	162	90	239	56	
	250	1252	819.355		1.7	5	242	166	90	240	55	

A24

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD ~~13~~ 6 DATA SHEET

Client:	TIMKEN FAIRCREST	**Run No.:**	3 OUTLET	**Meter delta H@:**	1.75	**Filter No.:**	—
Project No.:		**Noz. Dia.:**	0.640	**Meter Corr.:**	1.017	**Stack Dia.:**	—
Source:	BAGHOUSE OUTLET	**Baro. Press.:**	30.11 SL	**Pitot Corr.:**	—	**Ambient Temp.:**	85
Date:	9/16/02	**Static Press.:**	0.0	**Control Box ID:**	2	**Start Time:**	~~245~~ 1445
Techs:	JS RE	**Moisture:**		**Probe ID:**	~~6-2~~	**Stop Time:**	1913

Point	Elapsed Time	Time	Meter Volume	Velocity Press. (in. water)	Orifice Pessure Drop (in. water)	Vacuum (in. Hg)	Probe Temp. (°F)	Stack Temp. (°F)	Meter Temp. (°F)	Filter Temp (°F)	Imp. Temp. (°F)	Comments
	0	1445	828.058									
	5	1450	831.6		1.7	5	248	169	93	248	68	
	10	1455	835.2		1.7	5	247	193	94	241	56	
3	15	1500	838.9		1.7	5	247	193	94	239	58	
	20	1505	842.4		1.7	5	247	183	95	241	66	
	25	1510	846.027		1.7	5	245	183	96	236	65	
	—	1513	846.027									
	30	1518	849.7		1.7	5	245	184	97	243	68	
	35	1523	853.4		1.7	5	245	170	98	242	56	
	40	1528	857.0		1.7	5	246	167	99	242	55	
5	45	1533	860.6		1.7	5	246	165	99	242	56	
	50	1538	864.3		1.7	5	246	166	100	240	56	
	55	1543	868.0		1.7	5	246	163	100	241	56	
	60	1548	871.7		1.7	5	246	170	101	242	56	
	65	1553	874.4		1.7	5	246	175	101	241	57	
	70	1558	878.1		1.7	5	246	186	101	241	56	
	75	1603	881.8		1.7	5	245	189	102	241	56	
Tot/Avg	250		183.828		1.7				101.5			

Sample Train Leak Check

	Vacuum	Leak Rate
Pre	8 in. Hg	0.000 CFM
Post	10 in. Hg	0.001 CFM

Pitot Leak Check

Pos.	—
Neg.	—

Moisture Train Analysis

Impinger	Final Wt.	Initial Wt.	Differernce
1	651.5 gm	686.2 gm	-34.7 gm
2	734.6 gm	704.2 gm	30.4 gm
3	713.3 gm	695.8 gm	17.5 gm
4	835.8 gm	793.1 gm	42.7 gm
5	gm	gm	gm
Total	gm	gm	55.9 gm

Fyrite Analysis

Gas	Run 1	Run 2	Run 3	Average
O_2				
CO_2				

A 25

25, 75, 85, 85

2 o. 3

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD ~~13~~ 6 DATA SHEET

Client: Timken Faircrest **Source:** Baghouse Outlet **Run No.:** 3

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
	75	1603	881.8									
	80	1608	885.5		1.7	5	245	184	102	241	56	
	85	1613	889.2		1.7	5	245	165	102	241	55	
5	90	1618	892.9		1.7	5	246	151	103	242	56	
	95	1623	896.5		1.7	5	245	147	103	242	56	
	100	1628	900.5		1.7	5	244	138	103	242	57	
	—	1631	900.5									
	105	1636	904.5		1.7	5	242	138	103	240	57	
	110	1641	908.5		1.7	5	244	143	103	241	58	STOPPED NOT RUNNING
	115	1650	911.7		1.7	5	241	152	103	240	59	
	120	1702	915.3		1.7	5	241	165	103	241	60	
7	125	1707	919.0		1.7	5	243	173	102	242	60	
[illegible]	130	1712	922.7		1.7	5	244	181	101	242	61	
	135	1717	926.4		1.7	5	246	187	101	242	61	
	140	1722	930.1		1.7	5	246	152	102	242	60	
	145	1727	933.8		1.7	5	247	159	102	242	60	
	150	1732	937.4		1.7	5	248	150	102	241	60	
	155	1737	941.0		1.7	5	249	165	102	241	59	
	160	1742	945.7		1.7	5	247	175	103	240	59	
	165	1747	949.4		1.7	5	248	179	103	241	59	
	170	1752	953.1		1.7	5	246	189	103	241	60	
	175	1757	956.803		1.7	5	247	175	103	240	60	
	—	1758	956.803									
	180	1803	960.6		1.7	5	246	176	103	239	56	
9	185	1808	964.4		1.7	5	246	182	103	239	56	
	190	1813	968.0		1.7	5	247	194	103	240	56	

1652 Restart

A26

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD ~~13~~ 6 DATA SHEET

Client: Timken Faircrest **Source:** Baghouse outlet **Run No.:** 3

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
	190	1813	968.0									
	195	1818	971.6		1.7	5	246	192	103	241	57	
	200	1823	975.2		1.7	5	246	196	103	240	57	
	205	1828	978.9		1.7	5	247	193	103	240	57	
	210	1833	982.5		1.7	5	247	192	104	240	58	
9	215	1838	986.1		1.7	5	243	195	104	239	58	
	220	1843	989.8		1.7	5	241	197	104	239	59	
	225	1848	993.4		1.7	5	240	175	104	240	59	
	230	1853	997.0		1.7	5	239	162	104	240	60	
	235	1858	0.6		1.7	5	237	173	104	240	60	
	240	1903	4.5		1.7	5	237	180	104	240	60	
	245	1908	8.2		1.7	5	238	178	104	240	60	
	250	1913	1011.886		1.7	5	237	182	104	240	61	
												Purge 10 min

A27

APPENDIX B

Analytical Reports

AIR QUALITY SERVICES, INC.

4527 Clairton Boulevard
Pittsburgh, PA 15236
(412) 881-5630

TABLE I
ANALYSIS OF SAMPLES FOR SULFUR DIOXIDE CONTENT
BLUE MOUNTAIN ENVIRONMENTAL MANAGEMENT, INC.
1191 PITTSBURGH ROAD
VALENCIA, PA 16059
SAMPLES RECEIVED: APRIL 18, 2002

BMEM SAMPLE ID	AQS LABORATORY NUMBER	SAMPLE VOLUME MILLILITERS	SULFUR DIOXIDE TOTAL MILLIGRAMS
OUTLET			
RUN #1	AQS-86857	310	20.9
RUN #2	AQS-86858	330	20.0
RUN #3	AQS-86859	340	22.1
H_2O_2 PEROXIDE BLANK	AQS-86860	380	**NDA UG/ML**
AUDIT C-8698	AQS-86861		**300 MG/DSCM**

THE SAMPLES WERE ANALYZED BY ION CHROMATOGRAPHY USING THE ANION SUPPRESSOR SYSTEM IN ACCORDANCE WITH THE COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION SECTION 3.1.2.1 OF THE SOURCE TESTING MANUAL REVISION 3.3 NOVEMBER 2000.

Nancy M. Kodesko
AIR QUALITY SERVICES, INC.

JOB 7240
REPORTED: APRIL 26, 2002

The presented data has been analyzed according to approved protocol and is certified to be complete and accurate.

Summary of Total Fluoride Analysis

Sample ID	Fluoride Total mg	Spike Recovery
Run 1 Outlet	0.2	106%
Run 2 Outlet	0.3	
Run 3 Outlet	0.4	
Run 1 Inlet	22.0	92%
Run 2 Inlet	22.0	
Run 3 Inlet	19.4	
DI Water Blank	< 0.1	

Element One Analytical Narrative

Client	Sampling & Analytical Management, Inc.	Element One #:	0306
Client ID:	Blue Mountain	Analyst:	IJJ
Client PO:		Method:	13B
Date Received	4/22/02	Dates Analyzed	4/24-26/02
Analytes	Fluoride		

Summary of Analysis

The samples were prepared and analyzed according to Method 13B protocol. Samples were analyzed for fluoride with an Accumet® AR25 pH/ion meter and a Symphony combination fluoride electrode.

Detection Limits

The instrument detection limit for was 0.1 µg/ml

Analysis QA/QC

Spike sample recovery data are summarized with the summary of results. All QC was within the criteria of the method.

The result for the fluoride audit sample, received with samples, was reported to Mr. Rick Miller of the Canton City Health Department. A copy of the audit result is on the following page.

Additional Comments

The reported results have not been corrected for any blank values or spike recovery values. Nothing unusual was noticed with any of the samples or analyses.

APPENDIX C

CALCULATIONS

C1

TIMKEN
FAIRCREST PLANT
EAF BAGHOUSE
APRIL 15 AND 16, 2002

FLUORIDE EMISSIONS

SYMBOL	DESCRIPTION	Run No. 1	Run No. 2	Run No. 3	Average
Theta	Duration of test, min.	250	250	250	250
Vm	Dry sample volume (meter conditions), in. water	240.129	240.370	240.503	240.334
dH	Orifice pressure drop, in. water	2.75	2.70	2.70	2.72
Ts	Average compartment temperature, deg. F	167.1	163.3	171.7	167.4
Tm	Average dry gas meter temperature, deg. F	103.6	96.1	100.3	100.0
CO_2	CO_2 in stack gas, %	0.0	0.0	0.0	0.0
O_2	O_2 in stack gas, %	21.0	21.0	21.0	21.0
$CO+N_2$	CO and N_2 in stack gas, %	79.0	79.0	79.0	79.0
Pbar	Barometric pressure, in. Hg.	28.84	28.93	28.93	28.90
Y	Dry gas meter correction factor	1.007	1.007	1.007	1.007
Dn	Diameter of nozzle, in.	0.6400	0.6400	0.6400	0.6400
Vlc	Volume of liquid collected in impingers and silica gel, ml	120.6	132.9	86.9	113.5
Mn	Total fluoride catch, mg	0.2	0.3	0.4	0.3
Qs	Inlet gas flow, acfm	1030139	1058231	1031462	1039944
Qsd	Inlet gas flow, dscfm	809455	827787	804558	813933
Ts	Inlet gas temperature, deg. F	158.1	166.3	168.5	164.3
Ao	Outlet exhaust total area, sq. ft.	2272	2272	2272	2272
Vs(O)	Avg. velocity at outlet measurment site, ft/sec.	7.67	7.73	7.61	7.67
An	Area of the nozzle, sq. ft.	0.00223	0.00223	0.00223	0.00223
Md	Dry molecular weight of stack gas, dry basis, lb/lb-mole	28.84	28.84	28.84	28.84
Vw(std)	Volume of liquid collected, cu. ft.	5.677	6.256	4.090	5.34
Ms	Molecular weight of stack gas, wet basis, lb/lb-mole	28.57	28.55	28.64	28.59
Vm(std)	Dry sample volume (standard conditions), dscf	219.802	223.653	222.099	221.851
Bws	Moisture content of the gas stream, %	2.5	2.7	1.8	2.3
I	Isokinetic ratio, %	108.3	108.6	110.0	109.0

FLUORIDE EMISSIONS

C's	Fluoride concentration, gr/dscf	1.40E-05	2.07E-05	2.77E-05	2.08E-05
E	Fluoride emission rate, lb/hr	0.10	0.15	0.19	0.147

C2

FAIRCREST PLANT
EAF BAGHOUSE
INLET
April 15 and 16, 2002
BLUE MOUNTAIN PROJECT 561

TOTAL FLUORIDE LOADING

SYMBOL	DESCRIPTION	Run 1	Run 2	Run 3	Average
Theta	Duration of test, min.	240	240	240	240
Vm	Dry sample volume (meter conditions), cu. ft.	72.906	73.949	73.389	73.415
SQRT(dP)	Average of square roots of pitot pressure, in. water	1.118	1.144	1.113	1.125
dH	Orifice pressure drop, in. water	0.277	0.292	0.280	0.283
Ts	Average stack temperature, deg. F	158.1	166.3	168.5	164.3
Tm	Average dry gas meter temperature, deg. F	85.8	86.8	92.9	88.5
CO_2	CO_2 in stack gas, %	0.0	0.0	0.0	0.0
O_2	O_2 in stack gas, %	21.0	21.0	21.0	21.0
$CO+N_2$	CO and N_2 in stack gas, %	79.0	79.0	79.0	79.0
Pbar	Barometric pressure, in. Hg.	28.84	28.93	28.93	28.90
Pa	Static pressure, in. water	-3.90	-3.80	-4.30	-4.00
Ps	Stack pressure (absolute), in. Hg.	28.55	28.65	28.61	28.60
Cp	Pitot correction factor, dimensionless	0.84	0.84	0.84	0.84
Y	Dry gas meter correction factor	0.999	0.999	0.999	0.999
Dn	Diameter of nozzle, in.	0.1230	0.1230	0.1230	0.1230
Ds	Diameter of stack, in.	212.00	212.00	212.00	212.00
Vlc	Volume of liquid collected in impingers and silica gel, ml	53.5	46.7	42.5	47.6
Mn	Total fluoride catch, mg	22.0	22.0	19.4	21.13
	CALCULATED VALUES				
An	Area of the nozzle, sq. ft.	8.250E-05	8.250E-05	8.250E-05	8.250E-05
As	Area of the stack, sq. ft.	245.131	245.131	245.131	245.131
Md	Dry molecular weight of stack gas, dry basis, lb/lb-mole	28.84	28.84	28.84	28.84
Vw(std)	Volume of liquid collected, cu. ft.	2.518	2.198	2.000	2.239
Ms	Molecular weight of stack gas, wet basis, lb/lb-mole	28.45	28.50	28.53	28.49
Vm(std)	Dry sample volume (standard conditions), dscf	67.935	68.998	67.718	68.217
Vs	Stack velocity, ft/sec	70.04	71.95	70.13	70.71
Bws	Moisture content of the gas stream, %	3.6	3.1	2.9	3.2
Qs	Stack gas flow, acfm	1030139	1058231	1031462	1039944
Qsd	Stack gas flow, dscfm	809455	827787	804558	813933
I	Isokinetic ratio, %	103.9	103.2	104.2	103.8
	FLUORIDE LOADING				
C's	Fluoride concentration gr/dscf	0.00499	0.00491	0.00441	0.00477
E	Fluoride loading rate, lb/hr	34.62	34.84	30.41	33.290
RE	Baghouse Fluoride Removal Efficiency (%)	99.7	99.6	99.4	99.57

TIMKEN
FAIRCREST PLANT
EAF SHOP BAGHOUSE
April 15 and 16, 2002

SULFUR DIOXIDE EMISSIONS

SYMBOL	DESCRIPTION	Run No. 1	Run No. 2	Run No. 3	Average
Theta	Duration of test, min.	250	250	250	250
Vm	Dry sample volume (meter conditions), in. water	178.491	184.565	183.828	182.295
dH	Orifice pressure drop, in. water	1.7	1.7	1.7	1.7
Tm	Average dry gas meter temperature, deg. F	105.5	98.8	101.5	101.9
Pbar	Barometric pressure, in. Hg.	28.84	28.93	28.93	28.90
Y	Dry gas meter correction factor	1.017	1.017	1.017	1.017
Vlc	Volume of liquid collected in impingers and silica gel, ml	40.7	74.5	55.9	57.0
Mn	Total sulfur dioxide catch, mg	20.9	20.0	22.1	21.0
Qs	Inlet gas flow, acfm	1030139	1058231	1031462	1060586
Qsd	Inlet gas flow, dscfm	809455	827781	804558	908543
PR	Production rate, tons/hr	114.69	147.08	115.45	125.74
Vw(std)	Volume of liquid collected, cu. ft.	1.916	3.507	2.631	2.68
Vm(std)	Dry sample volume (standard conditions), dscf	164.012	172.160	170.648	168.940
Bws	Moisture content of the gas stream, %	1.2	2.0	1.5	1.6

SULFUR DIOXIDE EMISSIONS

SYMBOL	DESCRIPTION	Run No. 1	Run No. 2	Run No. 3	Average
C's	Sulfur dioxide concentration, mg/dscf	0.0020	0.0018	0.0020	0.0019
E(a)	Sulfur dioxide emission rate, lb/hr	13.6	12.7	13.8	13.4
E(b)	Sulfur dioxide emission rate, lb/ton	0.12	0.09	0.12	0.11
PPMv	Sulfur dioxide concentration, ppmv	1.7	1.5	1.7	1.6

APPENDIX D

FIELD EQUIPMENT CALIBRATIONS

D1

NOZZLE FIELD CALIBRATION

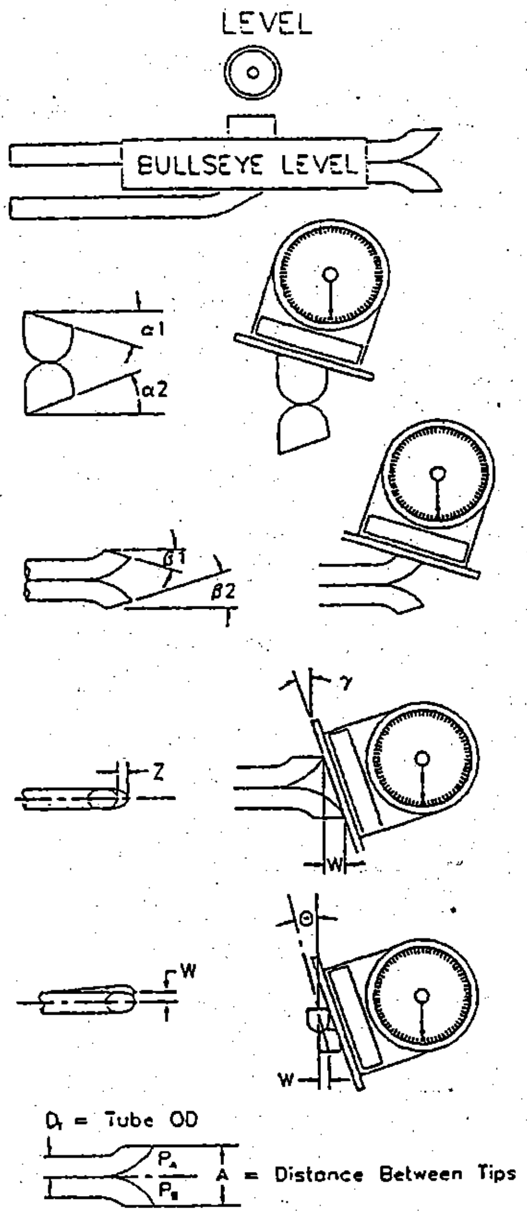
Client: Timken
Plant: Faircrest
Location: EAF Baghouse Inlet + Outlet - Fluorides

Project No.: 565
Date: 4-15-02
Technician: PJ

Nozzle ID	Dn1	Dn2	Dn3	Dn	Dn avg.
Inlet -	0.123	0.123	0.123	0.000	0.1230
Outlet	0.640	0.640	0.640	0.000	0.6400

TYPE S PITOT TUBE INSPECTION DATA SHEET

D2



Parameter	Value	Allowable Range
Assembly Level?	Yes	Yes
Holes Damaged?	No	No
Obstructed?	No	No
α1	0°	-10° < α1 < +10°
α2	0°	-10° < α2 < +10°
β1	0°	-5° < β1 < +5°
β2	0°	-5° < β2 < +5°
γ	0°	
θ	0°	
A	0.940	for 1/4" OD, 0.526 to 0.750 for 3/8" OD, 0.788 to 1.125
$Z = A \sin \gamma$	0.000	Z = ≤ 0.125"
$W = A \sin \theta$	0.000	W = ≤ 0.031"
P_A	0.470	for 1/4" OD, 0.263 to 0.375 for 3/8" OD, 0.394 to 0.563
P_B	0.470	for 1/4" OD, 0.263 to 0.375 for 3/8" OD, 0.394 to 0.563
$P_A - P_B$	0.000	-0.063 to 0.063"
D_T	0.375	0.188 to 0.375"

Certification

I certify that the Type S pitot tube/probe ID # 8-1 meets or exceeds all specifications, criteria and/or applicable design features and is hereby assigned a pitot tube calibration factor C_p of 0.84

Certified By: Paul [signature] 4/18/02
Personnel (Signature/Date)

D3

TEMPERATURE SENSOR CALIBRATION DATA SHEET

DATE 8-10-00

PERSONNEL Paul Judlowioc

AMBIENT TEMPERATURE 82°F

THERMOCOUPLE NO. 8-1

REFERENCE:

ASTM MERCURY-IN-GLASS ID # 1A

NIST REFERENCE TC ID #

Date	Reference Point Number	Source (Specify)	Reference Thermometer Temperature	Thermocouple Display Temperature	Absolute Temperature Difference %
8-10-00		water	40	40	0.0
			83	81	2.4
			130	131	0.8
			214	214	0.0
		oil	303	303	0.0
			390	391	0.2
3-30-01		oil	325	323	0.6
		water	55	56	1.8
			140	141	0.7
			214	214	0.0
2-8-02		water	52	52	0.0
			137	136	0.7
			214	213	0.5
4-18-02		water	62	62	0.0
			142	142	0.0
			214	214	0.0

Checked By: Paul Jalbowee 8/10/00

Personnel (Signature/Date)

D4

TEMPERATURE SENSOR CALIBRATION DATA SHEET

DATE 8-25-00 THERMOCOUPLE NO. 6-2

PERSONNEL Paul Jadlowiec REFERENCE:

AMBIENT TEMPERATURE 77°F ASTM MERCURY-IN-GLASS ID # 1A

NIST REFERENCE TC ID #

Date	Reference Point Number	Source (Specify)	Reference Thermometer Temperature	Thermocouple Display Temperature	Absolute Temperature Difference %
8-25-00		water	40	39	2.5
			83	82	1.2
			128	128	0.0
			214	214	0.0
		Oil	302	303	0.3
			396	392	1.0
2-9-01		water	50	50	0.0
			80	81	1.2
			142	141	0.7
			214	214	0.0
		oil	398	395	0.8
3-20-01		water			
			55	55	0.0
			140	141	0.7
			214	213	0.5
7-24-01		water	67	67	0.0
			130	129	0.8
			214	213	0.5
3-15-02		water	58	58	0.0
			122	120	1.6
			214	212	0.9

Checked By: Paul Jadlowiec 8-25-00

Personnel (Signature/Date)

D5

TEMPERATURE SENSOR CALIBRATION DATA SHEET

DATE 3-30-01
THERMOCOUPLE NO. 1A
PERSONNEL Paul Jadlowiec
REFERENCE:
AMBIENT TEMPERATURE 55°F
ASTM MERCURY-IN-GLASS ID # 1A
NIST REFERENCE TC ID #

Date	Reference Point Number	Source (Specify)	Reference Thermometer Temperature	Thermocouple Display Temperature	Absolute Temperature Difference %
3-30-01		water	55	55	0.0
↓		↓	141.	141	0.0
			214	213	0.5
4-18-02		water	62	61	1.6
↓		↓	142	140	1.4
			214	214	0.0

Checked By: Paul Jadlowiec
Personnel (Signature/Date)

D6

BLUE MOUNTAIN ENVIRONMENTAL MANAGEMENT
Dry Gas Meter Calibration
March 17, 2002

Barometric Pressure:	**29.01**	**Console:**	**Unit 1**
Theoretical Critical Vacuum:	**13.68**	**Analyist:**	**P. Jadlowiec**

DRY GAS METER READINGS

Delta H (in H_2O)	Time (min)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	Initial Temperature Inlet (deg F)	Initial Temperature Outlet (deg F)	Final Temperature Inlet (deg F)	Final Temperature Outlet (deg F)
0.28	26.00	441.036	449.007	7.971	71	71	73	73
0.61	34.00	449.007	464.342	15.335	73	73	76	76
1.10	21.00	464.420	476.943	12.523	77	77	78	78
1.80	28.00	490.788	512.378	21.590	81	81	81	81
3.30	13.00	476.943	490.788	13.845	78	78	81	81

CRITICAL ORIFICE READINGS

Orifice Serial No.	K Orifice Coefficient	Actual Vacuum (in Hg)	Ambient Temperature Initial (deg F)	Ambient Temperature Final (deg F)	Ambient Temperature Average (deg F)	Average Temperatures DGM Outlet	Average Temperatures DGM Overall	Average Temperatures Ambient Temp
JO40	0.2376	18	70	72	71.0	532.0	532.0	531.0
JO48	0.3458	18	71	72	71.5	534.5	534.5	531.5
JO55	0.4560	18	72	71	71.5	537.5	537.5	531.5
JO63	0.5852	18	71	72	71.5	541.0	541.0	531.5
JO73	0.8132	18	72	72	72.0	539.5	539.5	532.0

DRY GAS METER

VOLUME CORRECTED Vm(std) (cu ft)	VOLUME CORRECTED Vm(std) (liters)
7.673	217.3
14.705	416.4
11.956	338.6
20.515	581.0
13.242	375.0

DRY GAS METER CALIBRATION FACTOR Value	Variation
1.014	0.006
1.006	-0.001
1.008	0.001
1.005	-0.002
1.004	-0.003

Average Y 1.007

ORIFICE

VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME CORRECTED Vcr(std) (liters)	NOMINAL Vcr (cu ft)
7.777	220.2	8.070
14.794	419.0	15.366
12.050	341.3	12.515
20.619	583.9	21.415
13.296	376.6	13.823

ORIFICE CALIBRATION FACTOR Value	Value	Variation
1.694	43.03	-0.040
1.736	44.09	0.002
1.790	45.46	0.056
1.767	44.88	0.033
1.684	42.77	-0.050

Average Delta H@ 1.734

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.

For Orifice Calibration Factor Delta H@, the orifice differential pressure in inches of H_2O that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +-0.2.

SIGNED: Paul Jadlowiec

Date: 3-17-02

D7

BLUE MOUNTAIN ENVIRONMENTAL MANAGEMENT
Dry Gas Meter Calibration
March 17, 2002

Barometric Pressure: 29.01 **Console:** Unit 2
Theoretical Critical Vacuum: 13.68 **Analyist:** P. Jadlowiec

DRY GAS METER READINGS

Delta H (in H_2O)	Time (min)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	Initial Temperature Inlet (deg F)	Initial Temperature Outlet (deg F)	Final Temperature Inlet (deg F)	Final Temperature Outlet (deg F)
0.28	20.00	258.006	264.174	6.168	80	80	81	81
0.62	26.00	226.900	238.531	11.631	74	74	76	76
1.10	33.00	238.531	258.006	19.475	76	76	81	81
1.80	14.00	264.174	274.843	10.669	81	81	83	83
3.50	12.00	283.282	296.085	12.803	83	83	83	83

CRITICAL ORIFICE READINGS

Orifice Serial No.	K Orifice Coefficient	Actual Vacuum (in Hg)	Ambient Temperature Initial (deg F)	Ambient Temperature Final (deg F)	Ambient Temperature Average (deg F)	Average Temperatures DGM Outlet	Average Temperatures DGM Overall	Average Temperatures Ambient Temp
JO40	0.2376	18	72	71	71.5	540.5	540.5	531.5
JO48	0.3458	18	70	70	70.0	535.0	535.0	530.0
JO55	0.4560	18	71	72	71.5	538.5	538.5	531.5
JO63	0.5852	18	71	72	71.5	542.0	542.0	531.5
JO73	0.8132	18	72	75	73.5	543.0	543.0	533.5

DRY GAS METER

VOLUME CORRECTED Vm(std) (cu ft)	VOLUME CORRECTED Vm(std) (liters)
5.844	165.5
11.143	315.6
18.559	525.6
10.119	286.6
12.173	344.7

DRY GAS METER CALIBRATION FACTOR Value	Variation
1.023	0.006
1.017	0.000
1.020	0.003
1.019	0.002
1.007	-0.010

Average Y 1.017

ORIFICE

VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME CORRECTED Vcr(std) (liters)	NOMINAL Vcr (cu ft)
5.980	169.3	6.211
11.329	320.8	11.734
18.935	536.3	19.667
10.309	292.0	10.707
12.256	347.1	12.778

ORIFICE CALIBRATION FACTOR Value	Value	Variation
1.669	42.39	-0.082
1.758	44.64	0.006
1.787	45.38	0.035
1.764	44.80	0.012
1.779	45.19	0.028

Average Delta H@ 1.751

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.

For Orifice Calibration Factor Delta H@, the orifice differential pressure in inches of H_2O that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +-0.2.

SIGNED: Paul Jadlowiec Date: 3-17-02

D8

UNIT 3 - Never Used

APEX INSTRUMENTS
EPA METHOD 5
Meter Box Pre-Test Calibration
English Meter Box and English Calibration Meter Units

Filename: F:\DATAFILE\CALIBRAT\CAL_MENU.DSK\DGM_PREL.SP\0111102.WK1

Model Number:	522	Date:	->	11/24/01
Serial Number:	0111102	Barometric Pressure:	->	29.75 (in. Hg)
		Calibration Meter Factor Yc:	->	1.0000 (number)

dH (in H2O)	Elaspe Time (min)	DRY GAS METER READING Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)		GAS Temperature Inlet (deg F)	Outlet (deg F)	CALIBRATION METER READINGS Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	CALIBRATION METER Temperature Inlet (deg F)	Outlet (deg F)
5.00	4.50	37.995	43.568	5.573	Initial-	76.0	77.0	570.258	575.848	5.590	72.0	72.0
					Final---	76.0	77.0					
3.00	9.00	43.568	52.482	8.914	Initial-	77.0	78.0	575.848	584.600	8.752	72.0	71.0
					Final---	77.0	78.0					
2.00	10.00	52.482	60.391	7.909	Initial-	77.0	78.0	584.600	592.441	7.841	72.0	72.0
					Final---	77.0	78.0					
1.00	12.50	60.391	67.380	6.989	Initial-	78.0	78.0	592.441	599.395	6.954	72.0	72.0
					Final---	78.0	78.0					
0.50	21.00	67.380	75.788	8.408	Initial-	78.0	77.0	599.395	607.805	8.410	72.0	72.0
					Final---	78.0	77.0					

	DRY GAS METER METER CALIBRATION FACTOR Y Value (number)	Variation (number)		DRY GAS METER ORIFICE CALIBRATION FACTOR dH@ Value (in H2O)	Variation (in H2O)
	0.999	0.000		1.820	0.024
	0.986	-0.013		1.775	-0.021
	0.997	-0.002		1.823	0.027
	1.004	0.005		1.811	0.015
	1.009	0.010		1.751	-0.045
Average	0.999		Average	1.796	

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.

For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +-0.2.

I certify that the above Dry Gas Meter was calibrated in accordance with E.P.A. Method 5, paragraph 7.1 ;CFR 40 Part 60, using the Precision Wet Test Meter # 11AE6, which in turn was calibrated using the American Bell Prover # 3785, certificate # F107, which is traceable to the National Bureau of Standards (N.I.S.T.).

Signature [signature] Date 11-24-01

APPENDIX E

EAF OPERATION DATA

E1

TIMKEN
FAIRCREST EAF

APRIL 2002 EMISSION TESTING

PRODUCTION DATA

Test	Run No.	Date	Sampling Time Start	Sampling Time End	First Charge and Last Tap Time of Heats During Sampling Start	First Charge and Last Tap Time of Heats During Sampling End	Total EAF Time Min.	Total EAF Delays Time Min.	Furnace Running Time Min.	Heat Nos. And Process Weights No./pounds					Total Steel Tapped tons	Production Rate tons/hr
Fluoride	1	04/15/02	1:54 PM	6:21 PM	1:39 PM	7:43 PM	364	0	364	W2279 340684	W2280 344764	W2281 342966	W2282 343280		686	113.05
Fluoride	2	04/16/02	8:00 AM	1:15 PM	7:59 AM	1:48 PM	349	0	349	W2292 341763	W2293 341722	W2294 342097	W2295 343195	W2296 342240	856	147.08
Fluoride	3	04/16/02	2:44 PM	7:44 PM	2:07 PM	8:03 PM	356	0	356	W2297 340780	W2298 339070	W2299 350937	W2300 339162		685	115.45
SO_2	1	04/15/02	1:55 PM	6:03 PM	1:39 PM	6:08 PM	269	0	269	W2279 340684	W2280 344764	W2281 342966			514	114.69
SO_2	2	04/16/02	8:02 AM	12:52 PM	7:59 AM	1:48 PM	349	0	349	W2292 341763	W2293 341722	W2294 342097	W2295 343195	W2296 342240	856	147.08
SO_2	3	04/16/02	2:45 AM	7:13 PM	2:07 PM	8:03 PM	356	0	356	W2297 340780	W2298 339070	W2299 350937	W2300 339162		685	115.45

HEAT NO	START OF HEAT	START OF TAP	END OF TAP	STEEL IN LADLE	[illegible]	[illegible]	[illegible]	[illegible]
W2278	4/15/02 12:30 PM	4/15/02 1:29 PM	4/15/02 1:36 PM	341412.56	0220AO	1026		47.5
W2279	4/15/02 1:39 PM	4/15/02 3:19 PM	4/15/02 3:26 PM	340684	0420TH	1060		58.5
W2280	4/15/02 3:29 PM	4/15/02 4:34 PM	4/15/02 4:41 PM	344764.44	0080BA	1018		57.2
W2281	4/15/02 4:59 PM	4/15/02 6:01 PM	4/15/02 6:08 PM	342966.44	3700AA	4317CR15		52.3
W2282	4/15/02 6:13 PM	4/15/02 7:37 PM	4/15/02 7:43 PM	343279.72	3761TP	4319		55.5
W2283	4/15/02 7:47 PM	4/15/02 8:40 PM	4/15/02 8:47 PM	341391	6902AA	8319		48.7
W2284	4/15/02 8:51 PM	4/15/02 9:56 PM	4/15/02 10:03 PM	341611.28	6821AB	8019		47.7
W2285	4/15/02 10:07 PM	4/15/02 11:28 PM	4/15/02 11:34 PM	342853.16	2325AB	4127S16M5V1TI		54.7
W2286	4/15/02 11:39 PM	4/16/02 12:40 AM	4/16/02 12:46 AM	341079.72	6821AB	8019		48.7
W2287	4/16/02 12:50 AM	4/16/02 1:53 AM	4/16/02 1:58 AM	342207.28	6821AB	8019		52.5
W2288	4/16/02 2:03 AM	4/16/02 3:18 AM	4/16/02 3:24 AM	347793	6821AB	8019		58.9
W2289	4/16/02 3:28 AM	4/16/02 4:39 AM	4/16/02 4:45 AM	340979.72	6821AB	8019		60.4
W2290	4/16/02 4:49 AM	4/16/02 6:10 AM	4/16/02 6:15 AM	341278.72	6821AB	8019		62.3
W2291	4/16/02 6:38 AM	4/16/02 7:46 AM	4/16/02 7:51 AM	345997	6821AB	8019		55.9
W2292	4/16/02 7:59 AM	4/16/02 8:54 AM	4/16/02 9:00 AM	341763.44	6821AB	8019		46.2
W2293	4/16/02 9:06 AM	4/16/02 10:09 AM	4/16/02 10:14 AM	341721.56	6821AB	8019		48.0
W2294	4/16/02 10:20 AM	4/16/02 11:26 AM	4/16/02 11:31 AM	342097	2123AA	41B17M1		49.5
W2295	4/16/02 11:35 AM	4/16/02 12:31 PM	4/16/02 12:36 PM	343194.56	0360AG	1045		49.9
W2296	4/16/02 12:43 PM	4/16/02 1:43 PM	4/16/02 1:48 PM	342240.16	6160AA	5135		52.5
W2297	4/16/02 2:07 PM	4/16/02 3:21 PM	4/16/02 3:26 PM	340780.28	0080AD	1018		61.3
W2298	4/16/02 3:29 PM	4/16/02 5:21 PM	4/16/02 5:27 PM	339070.44	2740AC	4142		49.0
W2299	4/16/02 5:30 PM	4/16/02 6:45 PM	4/16/02 6:51 PM	350937.84	3281AE	4150CA1		60.7
W2300	4/16/02 6:54 PM	4/16/02 7:58 PM	4/16/02 8:03 PM	339162.44	2580FJ	4140		56.9

E2

E3

HEATNO	BUCKET	START OF PERIOD	METALLICWGT	NONMETALLICWGT
W2278	B_1	4/15/02 12:30 PM	252350	13058
W2278	BL2	4/15/02 12:50 PM	131100	6681
W2279	B_1	4/15/02 1:39 PM	295350	9368
W2279	BL2	4/15/02 2:46 PM	87500	4684
W2280	B_1	4/15/02 3:29 PM	220250	12503
W2280	BL2	4/15/02 3:56 PM	201900	5840
W2281	B_1	4/15/02 4:59 PM	288550	11691
W2281	BL2	4/15/02 5:18 PM	84800	7668
W2282	B_1	4/15/02 6:13 PM	300030	13758
W2282	BL2	4/15/02 6:42 PM	87300	4188
W2283	B_1	4/15/02 7:47 PM	291350	12778
W2283	BL2	4/15/02 8:11 PM	87100	3956
W2284	B_1	4/15/02 8:51 PM	299850	13546
W2284	BL2	4/15/02 9:15 PM	79200	4177
W2285	B_1	4/15/02 10:07 PM	235650	12013
W2285	BL2	4/15/02 10:36 PM	142700	7097
W2286	B_1	4/15/02 11:39 PM	267900	12507
W2286	BL2	4/15/02 11:59 PM	106600	6545
W2287	B_1	4/16/02 12:50 AM	276450	12842
W2287	BL2	4/16/02 1:17 AM	105800	7326
W2288	B_1	4/16/02 2:03 AM	292350	13689
W2288	BL2	4/16/02 2:20 AM	96100	6351
W2289	B_1	4/16/02 3:28 AM	282850	15680
W2289	BL2	4/16/02 3:47 AM	105600	4922
W2290	B_1	4/16/02 4:49 AM	296450	11199
W2290	BL2	4/16/02 5:13 AM	99500	9643
W2291	B_1	4/16/02 6:38 AM	255250	12074
W2291	BL2	4/16/02 7:04 AM	134900	10533
W2292	B_1	4/16/02 7:59 AM	265700	11621
W2292	BL2	4/16/02 8:23 AM	106300	5363
W2293	B_1	4/16/02 9:06 AM	290150	9171
W2293	BL2	4/16/02 9:28 AM	77800	7304
W2294	B_1	4/16/02 10:20 AM	246450	9808
W2294	BL2	4/16/02 10:50 AM	164200	5775
W2295	B_1	4/16/02 11:35 AM	223150	9548
W2295	BL2	4/16/02 12:03 PM	162300	5177
W2296	B_1	4/16/02 12:43 PM	259650	10357
W2296	BL2	4/16/02 1:08 PM	132700	4698
W2297	B_1	4/16/02 2:07 PM	214350	10479
W2297	B_2	4/16/02 2:35 PM	140000	4618
W2297	BL3	4/16/02 2:51 PM	50150	563
W2298	B_1	4/16/02 3:29 PM	253700	10099
W2298	BL2	4/16/02 3:59 PM	134800	4600
W2299	B_1	4/16/02 5:30 PM	278600	10514
W2299	BL2	4/16/02 5:55 PM	119750	4505
W2300	B_1	4/16/02 6:54 PM	233375	10929
W2300	BL2	4/16/02 7:19 PM	158500	8047

E4

HEATNO	BUCKET	STARTOFPERIOD	METALINBCKT	NONMETALLICWGT
W2278	B_1	4/15/02 12:30 PM	252350	13058
W2278	BL2	4/15/02 12:50 PM	131100	6681
W2279	B_1	4/15/02 1:39 PM	295350	9368
W2279	BL2	4/15/02 2:46 PM	87500	4684
W2280	B_1	4/15/02 3:29 PM	220250	12503
W2280	BL2	4/15/02 3:56 PM	201900	5840
W2281	B_1	4/15/02 4:59 PM	288550	11691
W2281	BL2	4/15/02 5:18 PM	84800	7668
W2282	B_1	4/15/02 6:13 PM	300030	13758
W2282	BL2	4/15/02 6:42 PM	87300	4188
W2283	B_1	4/15/02 7:47 PM	291350	12778
W2283	BL2	4/15/02 8:11 PM	87100	3956
W2284	B_1	4/15/02 8:51 PM	299850	13546
W2284	BL2	4/15/02 9:15 PM	79200	4177
W2285	B_1	4/15/02 10:07 PM	235650	12013
W2285	BL2	4/15/02 10:36 PM	142700	7097
W2286	B_1	4/15/02 11:39 PM	267900	12507
W2286	BL2	4/15/02 11:59 PM	106600	6545
W2287	B_1	4/16/02 12:50 AM	276450	12842
W2287	BL2	4/16/02 1:17 AM	105800	7326
W2288	B_1	4/16/02 2:03 AM	292350	13689
W2288	BL2	4/16/02 2:20 AM	96100	6351
W2289	B_1	4/16/02 3:28 AM	282850	15680
W2289	BL2	4/16/02 3:47 AM	105600	4922
W2290	B_1	4/16/02 4:49 AM	296450	11199
W2290	BL2	4/16/02 5:13 AM	99500	9643
W2291	B_1	4/16/02 6:38 AM	255250	12074
W2291	BL2	4/16/02 7:04 AM	134900	10533
W2292	B_1	4/16/02 7:59 AM	265700	11621
W2292	BL2	4/16/02 8:23 AM	106300	5363
W2293	B_1	4/16/02 9:06 AM	290150	9171
W2293	BL2	4/16/02 9:28 AM	77800	7304
W2294	B_1	4/16/02 10:20 AM	246450	9808
W2294	BL2	4/16/02 10:50 AM	164200	5775
W2295	B_1	4/16/02 11:35 AM	223150	9548
W2295	BL2	4/16/02 12:03 PM	162300	5177
W2296	B_1	4/16/02 12:43 PM	259650	10357
W2296	BL2	4/16/02 1:08 PM	132700	4698
W2297	B_1	4/16/02 2:07 PM	214350	10479
W2297	B_2	4/16/02 2:35 PM	140000	4618
W2297	BL3	4/16/02 2:51 PM	50150	563
W2298	B_1	4/16/02 3:29 PM	253700	10099
W2298	BL2	4/16/02 3:59 PM	134800	4600
W2299	B_1	4/16/02 5:30 PM	278600	10514
W2299	BL2	4/16/02 5:55 PM	119750	4505
W2300	B_1	4/16/02 6:54 PM	233375	10929
W2300	BL2	4/16/02 7:19 PM	158500	8047

E5

W2297	4/16/02 2:26 PM	#FCOAL63	310	F1
W2297	4/16/02 2:29 PM	#FCOAL63	308	F1
W2297	4/16/02 2:57 PM	#FCOAL63	306	F1
W2297	4/16/02 2:59 PM	#FBRLM62	257	F1
W2297	4/16/02 3:15 PM	#FCOAL63	303	F1
W2299	4/16/02 5:43 PM	#FCOALNT	500	F1
W2299	4/16/02 5:43 PM	#FDOLM69	1005	F1
W2299	4/16/02 6:27 PM	#FCOAL63	310	F1
W2299	4/16/02 6:29 PM	#FCOAL63	306	F1
W2299	4/16/02 6:36 PM	#FCOAL63	311	F1
W2299	4/16/02 6:38 PM	#FCOAL63	310	F1
W2300	4/16/02 7:12 PM	#FMGOO69	202	F1
W2300	4/16/02 7:12 PM	#FBRLM62	657	F1
W2300	4/16/02 7:12 PM	#FCOAL63	202	F1
W2300	4/16/02 7:30 PM	#FMGOO69	706	F1
W2300	4/16/02 7:30 PM	#FBRLM62	1302	F1
W2300	4/16/02 7:33 PM	#FBRLM62	1104	F1
W2300	4/16/02 7:48 PM	#FCOAL63	301	F1
W2300	4/16/02 7:50 PM	#FCOAL63	310	F1

E6

W2291	4/16/02 7:08 AM	#FCOAL63	201	F1
W2291	4/16/02 7:09 AM	#FCOAL63	203	F1
W2291	4/16/02 7:09 AM	#FBRLM62	320	F1
W2291	4/16/02 7:12 AM	#FCOAL63	200	F1
W2291	4/16/02 7:12 AM	#FBRLM62	563	F1
W2291	4/16/02 7:12 AM	#FMGOO69	986	F1
W2291	4/16/02 7:15 AM	#FDOLM69	1003	F1
W2291	4/16/02 7:16 AM	#FDOLM69	1003	F1
W2291	4/16/02 7:18 AM	#FDOLM69	502	F1
W2292	4/16/02 8:17 AM	#FCOAL63	304	F1
W2292	4/16/02 8:18 AM	#FCOAL63	205	F1
W2292	4/16/02 8:18 AM	#FMGOO69	751	F1
W2292	4/16/02 8:18 AM	#FBRLM62	1002	F1
W2292	4/16/02 8:20 AM	#FBRLM62	1002	F1
W2292	4/16/02 8:33 AM	#FMGOO69	128	F1
W2292	4/16/02 8:33 AM	#FBRLM62	1056	F1
W2292	4/16/02 8:50 AM	#FCOAL63	306	F1
W2293	4/16/02 9:16 AM	#FCOAL63	309	F1
W2293	4/16/02 9:23 AM	#FCOAL63	303	F1
W2293	4/16/02 9:37 AM	#FCOAL63	202	F1
W2293	4/16/02 9:37 AM	#FMGOO69	811	F1
W2293	4/16/02 9:46 AM	#FDOLM69	1005	F1
W2293	4/16/02 9:49 AM	#FBRLM62	1004	F1
W2293	4/16/02 10:01 AM	#FCOAL63	307	F1
W2293	4/16/02 10:02 AM	#FBRLM62	1166	F1
W2293	4/16/02 10:03 AM	#FCOAL63	310	F1
W2294	4/16/02 10:32 AM	#FCOAL63	308	F1
W2294	4/16/02 10:32 AM	#FCOAL63	407	F1
W2294	4/16/02 10:33 AM	#FMGOO69	1146	F1
W2294	4/16/02 10:35 AM	#FCOAL63	304	F1
W2294	4/16/02 10:36 AM	#FCOAL63	306	F1
W2294	4/16/02 10:38 AM	#FCOAL63	307	F1
W2294	4/16/02 10:59 AM	#FMGOO69	313	F1
W2294	4/16/02 10:59 AM	#FCOAL63	206	F1
W2294	4/16/02 10:59 AM	#FBRLM62	831	F1
W2294	4/16/02 11:12 AM	#FCOAL63	302	F1
W2295	4/16/02 11:48 AM	#FCOAL63	310	F1
W2295	4/16/02 11:51 AM	#FCOAL63	307	F1
W2295	4/16/02 12:08 PM	#FBRLM62	78	F1
W2295	4/16/02 12:08 PM	#FMGOO69	17	F1
W2295	4/16/02 12:09 PM	#FCOAL63	311	F1
W2295	4/16/02 12:16 PM	#FCOAL63	305	F1
W2296	4/16/02 12:57 PM	#FCOAL63	301	F1
W2296	4/16/02 12:58 PM	#FCOAL63	306	F1
W2296	4/16/02 1:00 PM	#FCOAL63	307	F1
W2296	4/16/02 1:35 PM	#FCOAL63	309	F1
W2296	4/16/02 1:36 PM	#FCOALNT	216	F1
W2296	4/16/02 1:36 PM	#FDOLM69	756	F1
W2297	4/16/02 2:24 PM	#FCOAL63	303	F1

E7

W2288	4/16/02 2:23 AM	#FDOLM69	1006	F1
W2288	4/16/02 2:34 AM	#FDOLM69	1006	F1
W2288	4/16/02 3:05 AM	#FCOAL63	302	F1
W2288	4/16/02 3:05 AM	#FDOLM69	603	F1
W2288	4/16/02 3:07 AM	#FCOAL63	306	F1
W2288	4/16/02 3:11 AM	#FCOAL63	307	F1
W2288	4/16/02 3:13 AM	#FCOAL63	307	F1
W2288	4/16/02 3:15 AM	#FCOAL63	306	F1
W2289	4/16/02 3:31 AM	#FBRLM62	721	F1
W2289	4/16/02 3:32 AM	#FMGOO69	835	F1
W2289	4/16/02 3:32 AM	#FCOAL63	202	F1
W2289	4/16/02 3:33 AM	#FBRLM62	719	F1
W2289	4/16/02 3:33 AM	#FCOAL63	205	F1
W2289	4/16/02 3:34 AM	#FBRLM62	720	F1
W2289	4/16/02 3:35 AM	#FCOAL63	201	F1
W2289	4/16/02 3:36 AM	#FBRLM62	720	F1
W2289	4/16/02 3:36 AM	#FCOAL63	206	F1
W2289	4/16/02 3:39 AM	#FDOLM69	1005	F1
W2289	4/16/02 3:40 AM	#FCOAL63	310	F1
W2289	4/16/02 3:41 AM	#FDOLM69	1003	F1
W2289	4/16/02 3:53 AM	#FDOLM69	504	F1
W2289	4/16/02 4:26 AM	#FCOAL63	301	F1
W2289	4/16/02 4:30 AM	#FBRLM62	3011	F1
W2289	4/16/02 4:34 AM	#FSCLE68	3000	F1
W2290	4/16/02 5:08 AM	#FCOAL63	307	F1
W2290	4/16/02 5:09 AM	#FMGOO69	947	F1
W2290	4/16/02 5:09 AM	#FBRLM62	1001	F1
W2290	4/16/02 5:17 AM	#FCOAL63	202	F1
W2290	4/16/02 5:18 AM	#FBRLM62	587	F1
W2290	4/16/02 5:19 AM	#FCOAL63	200	F1
W2290	4/16/02 5:19 AM	#FBRLM62	589	F1
W2290	4/16/02 5:20 AM	#FCOAL63	201	F1
W2290	4/16/02 5:21 AM	#FBRLM62	588	F1
W2290	4/16/02 5:22 AM	#FCOAL63	205	F1
W2290	4/16/02 5:22 AM	#FBRLM62	589	F1
W2290	4/16/02 5:26 AM	#FDOLM69	501	F1
W2290	4/16/02 5:39 AM	#FDOLM69	501	F1
W2290	4/16/02 5:41 AM	#FDOLM69	1006	F1
W2290	4/16/02 5:43 AM	#FDOLM69	506	F1
W2290	4/16/02 5:45 AM	#FCOAL63	307	F1
W2290	4/16/02 5:50 AM	#FDOLM69	306	F1
W2290	4/16/02 6:05 AM	#FCOAL63	301	F1
W2291	4/16/02 6:43 AM	#FBRLM62	528	F1
W2291	4/16/02 6:44 AM	#FBRLM62	529	F1
W2291	4/16/02 6:46 AM	#FBRLM62	526	F1
W2291	4/16/02 6:47 AM	#FBRLM62	529	F1
W2291	4/16/02 7:06 AM	#FBRLM62	74	F1
W2291	4/16/02 7:06 AM	#FCOAL63	177	F1
W2291	4/16/02 7:08 AM	#FBRLM62	321	F1

E8

W2285	4/15/02 10:22 PM	#FMGOO69	454	F1
W2285	4/15/02 10:22 PM	#FCOAL63	201	F1
W2285	4/15/02 10:22 PM	#FBRLM62	1606	F1
W2285	4/15/02 10:59 PM	#FMGOO69	453	F1
W2285	4/15/02 10:59 PM	#FCOAL63	206	F1
W2285	4/15/02 10:59 PM	#FBRLM62	1559	F1
W2285	4/15/02 11:22 PM	#FCOAL63	300	F1
W2285	4/15/02 11:24 PM	#FCOAL63	308	F1
W2286	4/15/02 11:49 PM	#FBRLM62	880	F1
W2286	4/15/02 11:49 PM	#FMGOO69	764	F1
W2286	4/15/02 11:49 PM	#FCOAL63	202	F1
W2286	4/15/02 11:50 PM	#FBRLM62	880	F1
W2286	4/15/02 11:50 PM	#FCOAL63	204	F1
W2286	4/15/02 11:52 PM	#FBRLM62	882	F1
W2286	4/15/02 11:52 PM	#FCOAL63	202	F1
W2286	4/16/02 12:00 AM	#FBRLM62	448	F1
W2286	4/16/02 12:00 AM	#FMGOO69	133	F1
W2286	4/16/02 12:00 AM	#FCOAL63	206	F1
W2286	4/16/02 12:07 AM	#FDOLM69	1006	F1
W2286	4/16/02 12:13 AM	#FDOLM69	504	F1
W2286	4/16/02 12:31 AM	#FDOLM69	305	F1
W2286	4/16/02 12:34 AM	#FCOAL63	307	F1
W2287	4/16/02 1:06 AM	#FBRLM62	916	F1
W2287	4/16/02 1:06 AM	#FCOAL63	202	F1
W2287	4/16/02 1:06 AM	#FMGOO69	794	F1
W2287	4/16/02 1:07 AM	#FBRLM62	910	F1
W2287	4/16/02 1:07 AM	#FCOAL63	205	F1
W2287	4/16/02 1:08 AM	#FBRLM62	912	F1
W2287	4/16/02 1:08 AM	#FCOAL63	202	F1
W2287	4/16/02 1:18 AM	#FBRLM62	349	F1
W2287	4/16/02 1:18 AM	#FCOAL63	203	F1
W2287	4/16/02 1:18 AM	#FMGOO69	106	F1
W2287	4/16/02 1:23 AM	#FDOLM69	1004	F1
W2287	4/16/02 1:25 AM	#FDOLM69	500	F1
W2287	4/16/02 1:29 AM	#FDOLM69	504	F1
W2287	4/16/02 1:35 AM	#FDOLM69	306	F1
W2287	4/16/02 1:40 AM	#FDOLM69	303	F1
W2287	4/16/02 1:41 AM	#FCOAL63	305	F1
W2287	4/16/02 1:42 AM	#FDOLM69	301	F1
W2287	4/16/02 1:48 AM	#FCOAL63	308	F1
W2288	4/16/02 2:07 AM	#FBRLM62	816	F1
W2288	4/16/02 2:07 AM	#FCOAL63	202	F1
W2288	4/16/02 2:07 AM	#FMGOO69	939	F1
W2288	4/16/02 2:08 AM	#FBRLM62	815	F1
W2288	4/16/02 2:08 AM	#FCOAL63	205	F1
W2288	4/16/02 2:10 AM	#FBRLM62	812	F1
W2288	4/16/02 2:10 AM	#FCOAL63	201	F1
W2288	4/16/02 2:11 AM	#FBRLM62	816	F1
W2288	4/16/02 2:11 AM	#FCOAL63	205	F1

E9

HEATNO	[illegible]	[illegible]	[illegible]	LOC
W2278	4/15/02 12:44 PM	#FCOAL63	310	F1
W2278	4/15/02 1:00 PM	#FCOAL63	308	F1
W2278	4/15/02 1:22 PM	#FCOAL63	304	F1
W2279	4/15/02 3:16 PM	#FCOAL63	301	F1
W2279	4/15/02 3:17 PM	#FCOAL63	308	F1
W2279	4/15/02 3:18 PM	#FCOAL63	305	F1
W2280	4/15/02 3:39 PM	#FCOAL63	305	F1
W2280	4/15/02 3:40 PM	#FCOAL63	302	F1
W2280	4/15/02 4:29 PM	#FCOAL63	300	F1
W2281	4/15/02 5:10 PM	#FMGOO69	307	F1
W2281	4/15/02 5:10 PM	#FCOAL63	300	F1
W2281	4/15/02 5:11 PM	#FBRLM62	410	F1
W2281	4/15/02 5:12 PM	#FMGOO69	305	F1
W2281	4/15/02 5:12 PM	#FCOAL63	308	F1
W2281	4/15/02 5:14 PM	#FMGOO69	407	F1
W2281	4/15/02 5:21 PM	#FBRLM62	238	F1
W2281	4/15/02 5:25 PM	#FBRLM62	1401	F1
W2281	4/15/02 5:32 PM	#FBRLM62	1201	F1
W2282	4/15/02 6:27 PM	#FMGOO69	358	F1
W2282	4/15/02 6:27 PM	#FCOAL63	303	F1
W2282	4/15/02 6:28 PM	#FBRLM62	1152	F1
W2282	4/15/02 6:30 PM	#FMGOO69	354	F1
W2282	4/15/02 6:30 PM	#FCOAL63	308	F1
W2282	4/15/02 6:31 PM	#FBRLM62	1152	F1
W2282	4/15/02 6:31 PM	#FMGOO69	306	F1
W2282	4/15/02 6:31 PM	#FCOAL63	302	F1
W2282	4/15/02 6:32 PM	#FBRLM62	1152	F1
W2282	4/15/02 7:27 PM	#FCOAL63	305	F1
W2282	4/15/02 7:33 PM	#FCOAL63	305	F1
W2283	4/15/02 8:01 PM	#FMGOO69	301	F1
W2283	4/15/02 8:01 PM	#FCOAL63	201	F1
W2283	4/15/02 8:02 PM	#FBRLM62	1101	F1
W2283	4/15/02 8:04 PM	#FMGOO69	355	F1
W2283	4/15/02 8:04 PM	#FCOAL63	200	F1
W2283	4/15/02 8:05 PM	#FBRLM62	1101	F1
W2283	4/15/02 8:06 PM	#FMGOO69	306	F1
W2283	4/15/02 8:06 PM	#FCOAL63	201	F1
W2283	4/15/02 8:07 PM	#FBRLM62	1101	F1
W2283	4/15/02 8:32 PM	#FBRLM62	1101	F1
W2284	4/15/02 9:02 PM	#FMGOO69	356	F1
W2284	4/15/02 9:02 PM	#FCOAL63	203	F1
W2284	4/15/02 9:02 PM	#FBRLM62	1206	F1
W2284	4/15/02 9:03 PM	#FMGOO69	356	F1
W2284	4/15/02 9:03 PM	#FBRLM62	1210	F1
W2284	4/15/02 9:04 PM	#FCOAL63	202	F1
W2284	4/15/02 9:08 PM	#FMGOO69	354	F1
W2284	4/15/02 9:08 PM	#FCOAL63	200	F1
W2284	4/15/02 9:08 PM	#FBRLM62	1107	F1

ELECTRIC ARC FURNACE
AIR EMISSIONS TEST PROGRAM
FAIRCREST PLANT

THE TIMKEN COMPANY

OPTIMAL PROJECT 1274

April 1998

PREPARED FOR:

The Timken Company
1835 Dueber Avenue
Canton, Ohio 44706

PREPARED BY:

Paul Jadlowiec
Program Manager - Source Testing
Optimal Technologies, Inc.
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Pittsburgh, Pennsylvania 15238

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1.0 EXECUTIVE SUMMARY

The Timken Company (Timken) contracted Optimal Technologies, Inc. (Optimal) to perform a particulate and sulfur dioxide (SO_2) emissions test program on the electric arc furnace (EAF) located at the Faircrest Plant. Testing and analyses were conducted according to the U.S. Environmental Protection Agency (EPA) methodology as specified in 40 CFR, Part 60, Appendix A. The test results are intended to demonstrate compliance with the State of Ohio, Environmental Protection Agency (Ohio EPA) emission limitations. The particulate emission rate was 1.831 pounds per hour (lb/hr) or 0.0143 pounds per ton of steel produced (lb/T). The SO_2 emission rate was 5.3 lb/hr or 0.0436 lb/T.

2.0 SCOPE AND OBJECTIVES

The scope of this project was to determine the emission rates of particulate and SO_2 from the EAF baghouse at the Faircrest Plant. The results of the test will be used to demonstrate compliance with the Ohio EPA emission limitations as specified in the EAF permit conditions. U.S. EPA sampling reference methods were used to determine the emission rates. An Ohio EPA Intent to Test Notification was submitted prior to the test.

3.0 PROCEDURES

3.1 FIELD WORK

The field sampling program to determine EAF particulate emissions was performed on March 3 and 4, 1998. The Optimal test personnel consisted of Messrs. Paul Jadlowiec, James Phillippi, William Stanziana, and Brian Schmidt. Mr. Jeffrey Marshall served as plant liaison. The tests were witnessed by Mr. Richard Miller of the Ohio EPA.

3.2 FIELD DATA SHEETS

All field data sheets are contained in Appendix A.

3.3 TESTING STATION AND TRAVERSE LOCATIONS

As specified in EPA Method 5D–Determination of Particulate Emissions from Positive Pressure Fabric Filters, an inlet to a positive pressure baghouse is used as a location to determine the gas flow exhausting from the baghouse when the velocity of the exhaust gases exiting the baghouse compartments are too low to measure accurately.

The inlet duct to the EAF Baghouse has an internal diameter of 212 inches at the test location. The nearest upstream and downstream disturbances are greater than two diameters from the test location. EPA Method 1–Sample and Velocity Traverses From Stationary Sources was utilized to determine the number and location of the traverse points. Twenty-four points were sampled (12 on each diameter).

Sampling for particulate matter was conducted by sampling in the compartment directly above the bags. The baghouse exhaust has two roof vents with each internal dimension being 94 feet, 8 inches x 12 feet. The baghouse contains ten compartments. One-half of the compartments exhaust to one of the roof vents, the remaining ten to the other roof vent. There are 25 sampling ports at each roof vent, five to each compartment. The sampling locations for the roof vents are illustrated in Figure 1. Twenty-five sampling points for particulate sampling were selected above the bags in each compartment, constituting a 5 x 5 matrix.

3.4 GAS FLOW AND GAS TEMPERATURE MEASUREMENTS

The flow rate and temperature profiles for the gas streams were measured at the baghouse inlet by conducting simultaneous velocity and temperature traverses. Gas velocity head was measured with a calibrated "S"-type pitot tube which was connected to an inclined manometer. The static pressure was measured using the same pitot tube and manometer. A chrome-alumel thermocouple attached to a digital potentiometer was used to measure the gas temperature at each of the traverse points. The gas flow and gas temperature measurement followed EPA Method 2–Determination of Stack Gas Velocity and Volumetric Flow Rate (Type "S" pitot tube). As described in Method 5D, Section 4.3, the gas velocity was determined for each test run at the baghouse inlet duct.

3.5 MOLECULAR WEIGHT DETERMINATION

A Fyrite analyzer was used to measure the concentration of carbon dioxide (CO_2) and oxygen (O_2) to determine the molecular weight of the exhaust gas using EPA Method 3–Determination of Molecular Weight in Exhaust Gases.

3.6 MOISTURE CONTENT SAMPLING

Moisture sampling was conducted using the principles presented in EPA Method 4–Determination of Moisture Content in Stack Gases and concurrently with particulate sampling. Parameters evaluated to determine the gas stream moisture content were sample gas volume, sample gas temperature, sample gas pressure, impinger moisture gain, and silica gel moisture gain.

3.7 DETERMINATION OF PARTICULATE EMISSIONS

Sampling procedures to measure particulate emissions followed those described in EPA Method 5D and EPA Method 17–Determination of Particulate Matter from Stationary Sources - In Stack Filtration Method. A schematic of the sampling train is presented in Figure 2. The sampling procedures of the Method 5D and the sampling train of Method 17 were utilized. Each of the ten baghouse compartments were sampled. The sampling to two compartments constituted a test run for a total of five test runs. Each test run was for a duration of 250 minutes.

3.8 DETERMINATION OF SULFUR DIOXIDE EMISSIONS

SO_2 concentration data was collected by utilizing EPA Method 6C–Determination of Sulfur Dioxide Emissions from Stationary Sources (Instrumental Analyzer Procedure). A gas sample was continuously extracted from the exhaust gas and a portion of the sample was conveyed to an ultraviolet (UV) non-dispersive infrared (NDIR) analyzer. Three four-hour sample runs were conducted.

3.9 SAMPLE RECOVERY PROCEDURES

The sample recovery was conducted on-site in the Optimal Air Van.

3.10 SAMPLE ANALYSES

All particulate sample analyses were conducted by Optimal at their Pittsburgh office. All analytical data sheets are contained in Appendix B.

3.11 CALCULATIONS

Particulate emissions calculations were performed using a computer spreadsheet format. Each pertinent parameter is provided on the spreadsheet for all test runs. The spreadsheets are contained in Appendix C.

3.12 FIELD EQUIPMENT CALIBRATIONS

The following field equipment calibrations are contained in Appendix D:

- Nozzle Diameter,
- Thermocouple,
- Dry Gas Meter and Orifice,
- Pitot Tube
- SO_2 Calibration Data, and
- SO_2 Calibration Gas Certificates.

3.13 PROCESS DATA

All process data is contained in Appendix E. The data includes the times when the power to the EAF was on or off, the time of any EAF delays, and the weights of all charge materials and steel produced at the "end of tap."

4.0 SUMMARY OF RESULTS

4.1 PARTICULATE EMISSIONS

Table 1 contains a summary of the EAF particulate emission results. The particulate emissions ranged from 1.352 lb/hr to 2.260 lb/hr or 0.0096 lb/T to 0.0183 lb/T. The average of the five test runs was 1.831 lb/hr or 0.0143 lb/T.

4.2 SULFUR DIOXIDE EMISSIONS

Table 2 contains a summary of the SO_2 emission results. The SO_2 emissions ranged from 2.2 lb/hr to 7.3 lb/hr, or 0.0155 lb/T to 0.0635 lb/T. The average of the three test runs was 5.3 lb/hr or 0.0436 lb/T.

TABLES

TABLE 1

ELECTRIC ARC FURNACE

SUMMARY OF PARTICULATE EMISSIONS SAMPLING DATA

Run No. **Compartment No.**	**1** **1 and 3**	**2** **10 and 8**	**3** **6 and 4**	**4** **5 and 7**	**5** **2 and 9**	**Average**
Gas Flow (acfm)	436,304	936,304	858,941	906,153	906,153	900,466
Gas Flow (dscfm)	801,941	801,941	730,743	734,062	734,062	755,582
Gas Temp. (°F)	109.9	109.9	113.7	148.9	148.9	126.3
Gas Moisture (%)	1.5	1.1	1.7	1.4	1.1	1.4
Particulate Emission						
(gr/dscf)	3.09×10^{-4}	3.29×10^{-4}	2.36×10^{-4}	2.15×10^{-4}	2.93×10^{-4}	2.76×10^{-4}
(lb/hr)	2.125	2.260	1.479	1.352	1.844	1.831
(lb/T)	0.0157	0.0183	0.0118	0.0096	0.0160	0.0143

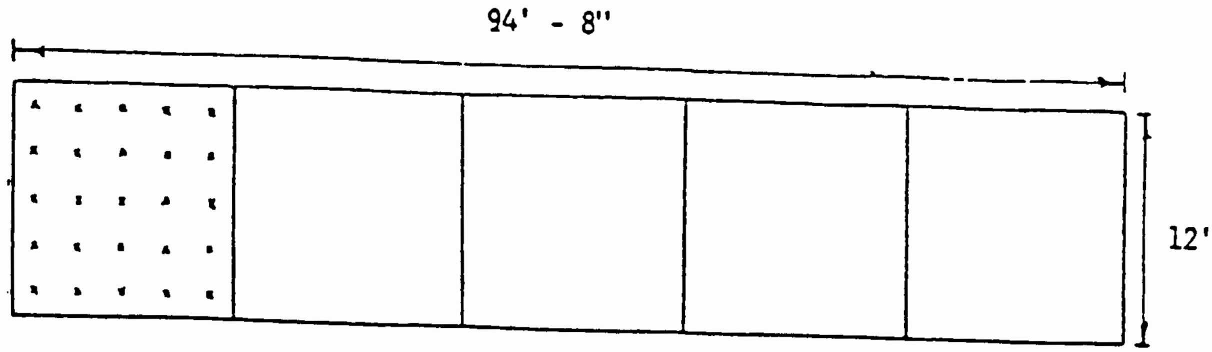
TABLE 2

ELECTRIC ARC FURNACE

SUMMARY OF SO_2 EMISSIONS SAMPLING DATA

Emission	Run No. 1	Run No. 2	Run No. 3	Average
ppm	0.8	0.3	1.0	0.7
lb/hr	6.4	2.2	7.3	5.3
lb/T	0.0518	0.0155	0.0635	0.0436

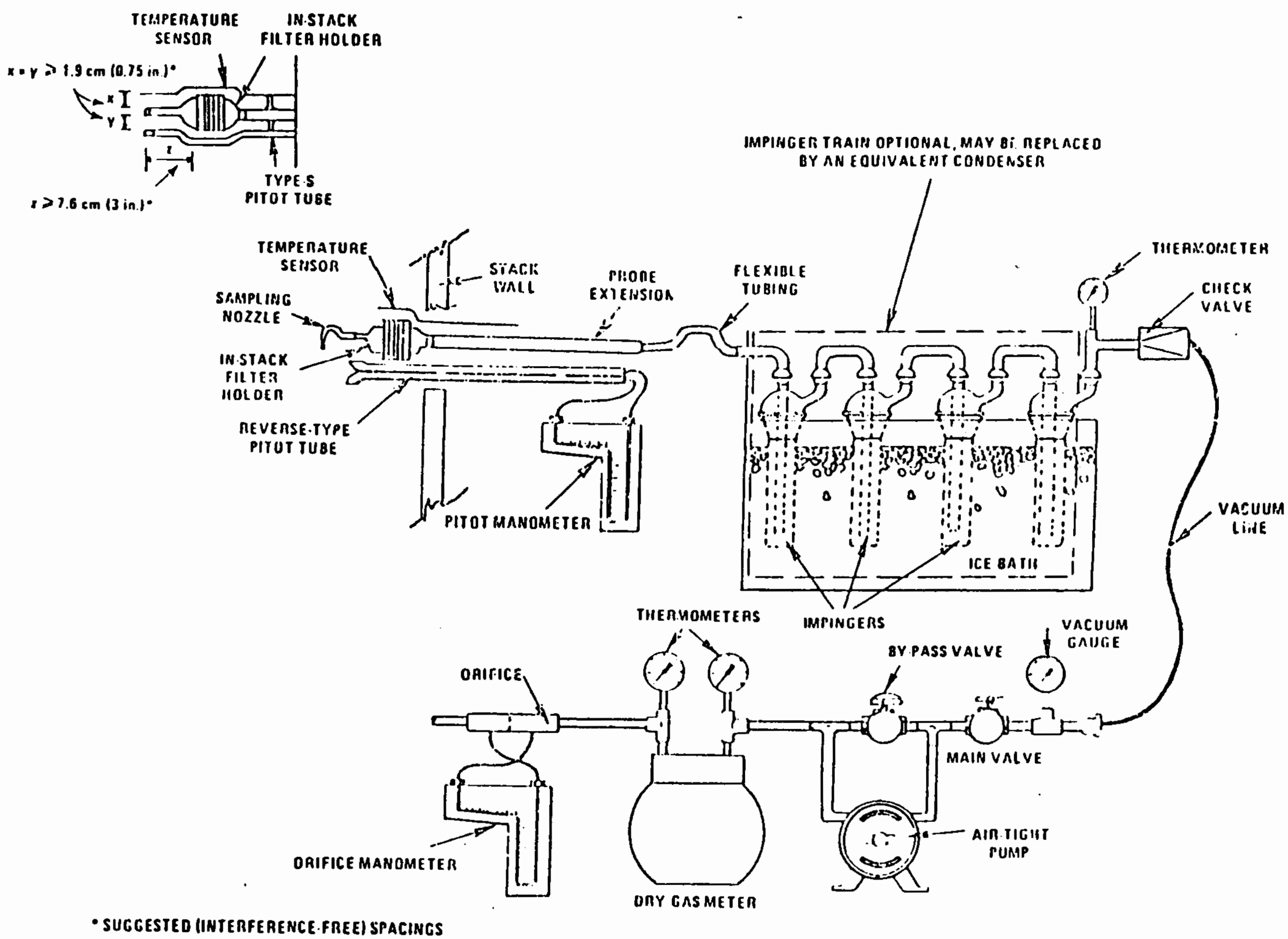
FIGURES



OPTIMAL TECHNOLOGIES

BAGHOUSE OUTLET VENT
ONE OF TWO IDENTICAL LOCATIONS

Figure 1



OPTIMAL TECHNOLOGIES

METHOD 17 SCHEMATIC

Figure 2

APPENDIX A

Field Data Sheets

A-1

TRAVERSE POINT LOCATION FOR ~~RECTANGULAR~~ CIRCULAR DUCTS

Plant TIMKEN - FAIRCREST

Date FEBRUARY 27, 1998

Sampling location EAF BAGHOUSE INLET

Duct width, inches NA

Inside of far wall to outside of nipple ____

Inside of near wall to outside of nipple (nipple length) ____

Duct Length, inches NA

~~Equivalent~~ diameter = ~~2 x L x W / (L + W)~~ = 212 inches

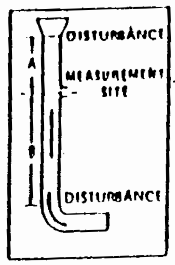
Distance downstream from flow disturbance (Distance B):

____ inches / equivalent diameter = ____ dd

Distance upstream from flow disturbance (Distance A):

____ inches / equivalent diameter = ____ dd

Calculated by JEP



SCHEMATIC OF SAMPLING LOCATION

TRAVERSE POINT NO. FOR EACH PORT	FRACTION OF LENGTH	LENGTH (in.)	PRODUCT OF COLUMNS 2 AND 3* (TO NEAREST 1/8 in.)	NIPPLE LENGTH (in.)	TRAVERSE POINT LOCATION SUM OF COLUMNS 4 AND 5
1					4.5
2					14.2
3					25.0
4					37.5
5					63.0
6					75.4

IF NO PORTS, CALCULATE DISTANCES FROM STACK WALLS FOR PORT LOCATIONS

NO. OF PORTS	FRACTION OF WIDTH	WIDTH (in.)	PORT LOCATION = PRODUCT OF COLUMNS 2 AND 3* (TO NEAREST 1/8 in.)

*All points or ports should be an equal distance from each other (D) and one-half of that distance from the stack walls (D/2), where D = Width / No. of points or ports.

A-2

VELOCITY TRAVERSE DATA

CLIENT: TimKen
PROJECT No: 1074
LOCATION: Faircrest EAF Baghouse Inlet
DATE: 3-2-98
RUN No: Preliminary
OPERATORS: DJ - BS - JEP
PITOT TUBE I D: Special Faircrest Inlet
STATIC PRESSURE, (in. water): -7.4
BAROMETRIC PRESSURE, (in. Hg):

TRAVERSE POINT No.	VELOCITY DELTA P In.water	TEMPERATURE Ts deg. F
A 1	.98	~145
2	1.1	
3	1.1	
4	1.1	
5	.95	
6	.95	
B 1	.40	
2	.44	
3	.32	
4	.38	
5	.35	
6	.53	
C 1	1.3	
2	1.4	
3	1.6	
4	1.5	
5	1.3	
6	1.3	
D 1	1.3	
2	1.4	
3	1.4	
4	1.4	
5	1.3	
6	1.4	
AVERAGE	~~0.999~~ 1.000	145

VELOCITY TRAVERSE DATA

CLIENT: Timken
PROJECT No: 1274
LOCATION: Faircrest EAF Baghouse Inlet
DATE: 3-3-98
RUN No: 1
OPERATORS: PJ WS
PITOT TUBE I D: Special Inlet
STATIC PRESSURE, (In. water): -7.6
BAROMETRIC PRESSURE, (In. Hg): 28.64

O_2 - 20.5
CO_2 0.5

TRAVERSE POINT No.	VELOCITY DELTA P In.water	TEMPERATURE Ts deg. F
A 1	1.1	94
2	1.3	112
3	1.6	117
4	1.6	119
5	1.3	114
6	1.3	129
B 1	.50	89
2	.50	101
3	.40	106
4	.45	108
5	.56	107
6	.91	104
C 1	1.3	100
2	1.4	100
3	1.4	103
4	1.3	103
5	1.3	104
6	1.3	103
D 1	1.3	137
2	1.3	148
3	1.4	113
4	1.4	111
5	1.4	110
6	1.3	106
AVERAGE	1.055	109.9

VELOCITY TRAVERSE DATA

CLIENT: Timken
PROJECT No: 1274
LOCATION: Faircrest EAF Baghouse Inlet
DATE: 3-3-98
RUN No: 2
OPERATORS: PJ + WS
PITOT TUBE I D: Special Inlet
STATIC PRESSURE, (In. water): ~~2.7~~ -7.4
BAROMETRIC PRESSURE, (In. Hg): 28.68

O_2 20.5
CO_2 0.5

TRAVERSE POINT No.	VELOCITY DELTA P In.water	TEMPERATURE Ts deg. F
A 1	.77	121
2	.85	140
3	.90	141
4	.88	141
5	.85	141
6	.75	143
B 1	.37	103
2	.37	119
3	.32	128
4	.36	129
5	.37	130
6	.43	129
C 1	1.2	120
2	1.1	115
3	1.2	107
4	1.3	106
5	1.1	106
6	1.0	106
D 1	1.5	85
2	1.5	84
3	1.7	84
4	1.8	83
5	1.7	83
6	1.6	85
AVERAGE	0.965	113.7

A-5

VELOCITY TRAVERSE DATA

CLIENT: Timken
PROJECT No: 12741
LOCATION: Faircrest
DATE: 3/4/98
RUN No: 3
OPERATORS: PJ + WAB
PITOT TUBE I D: Special Inlet
STATIC PRESSURE, (in. water): -7.0
BAROMETRIC PRESSURE, (in. Hg): 28.82

O_2 - 20.5
CO_2 0.5

TRAVERSE POINT No.	VELOCITY DELTA P in.water	TEMPERATURE Ts deg. F
1 A	1.1	134
2	1.1	143
3	1.2	153
4	1.1	151
5	1.1	153
6	1.1	157
1 B	0.38	143
2	0.34	143
3	0.34	145
4	0.35	151
5	0.49	156
6	0.57	165
1 C	1.2	120
2	1.3	147
3	1.3	156
4	1.4	160
5	1.3	160
6	1.2	160
1 D	1.2	[illegible]
2	1.3	153
3	1.3	148
4	1.3	153
5	1.3	146
6	1.2	158
AVERAGE	~~1.12~~	143.9

0.992

A-6

TRAVERSE POINT LOCATION FOR RECTANGULAR DUCTS

Plant TIMKEN – FAIRCREST

Date FEBRUARY 27, 1998

Sampling location EAF BAGHOUSE

Duct width, inches 144"

Inside of far wall to outside of nipple NA

Inside of near wall to outside of nipple (nipple length) NA

Duct Length, inches 1,136

Equivalent diameter = 2 x L x W / (L + W) = ____________ inches

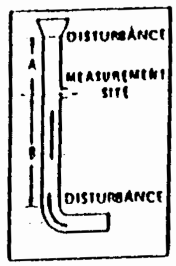
Distance downstream from flow disturbance (Distance B):

________ inches / equivalent diameter = ________ dd

Distance upstream from flow disturbance (Distance A):

________ inches / equivalent diameter = ________ dd

Calculated by JEP



SCHEMATIC OF SAMPLING LOCATION

TRAVERSE POINT NO. FOR EACH PORT	FRACTION OF LENGTH	LENGTH (in.)	PRODUCT OF COLUMNS 2 AND 3* (TO NEAREST 1/8 in.)	NIPPLE LENGTH (in.)	TRAVERSE POINT LOCATION SUM OF COLUMNS 4 AND 5
1					14.4
2					~~28.8~~
3					57.6
4					86.4
5					115.2

14.4
43.2
72.0
100.8
129.6

IF NO PORTS, CALCULATE DISTANCES FROM STACK WALLS FOR PORT LOCATIONS

NO. OF PORTS	FRACTION OF WIDTH	WIDTH (in.)	PORT LOCATION = PRODUCT OF COLUMNS 2 AND 3* (TO NEAREST 1/8 in.)

*All points or ports should be an equal distance from each other (D) and one-half of that distance from the stack walls (D/2), where D = Width / No. of points or ports.

EPA METHOD 5
FIELD DATA SHEET

Run No:	#1	Control Box Number:	80900	Nozzle Diameter:	0.625
Date:	MARCH 3, 1998	Pitot Number:	14-1	Meter H@:	1.943
Client:	TIMKEN	Filter Number:	~~14-1~~ 96	Correction Factor:	0.991
Plant:	FAIRCREST	Umbilical Length:	~40'	Pitot Correction Factor:	0.84
Location:	EAF BAGHOUSE compartment 1-3	Barometric Pressure:	28.62	Probe Number:	14-1
Project No:	1274	Static Pressure:	NA	Thermocouple No:	14-1
Test Crew:	JW	Assumed Moisture:		Probe Length:	~14'
Ambient Temperature:	~32°	Calculated Multiplier:	NA	Stack Diameter:	

Traverse Point Number	Elapsed Time	Clock Time	Gas Meter Reading	Velocity Head	Orifice Pressure	Pump Vacuum	Meter Temp. In	Meter Temp. Out	Stack Temp.	Probe Temp.	Oven Temp.	Impinger Temp.	Comments
	0	1035	80.662										
A-5	5	1040	84.489	NA	2.0	7.0	47	46	105	NA	NA	38	0.79 CFM
4	10	1045	88.344		2.0	7.0	48	46	122			38	
3	15	1050	92.197		2.0	7.0	48	46	128			40	
2	20	1055	96.010		2.0	7.0	48	45	129			41	
1	25	1100	99.849		2.0	7.0	48	45	124			41	
B 5	30	1105	103.574		2.0	7.0	48	44	119			39	
4	35	1110	107.363		2.0	7.0	48	47	129			42	
3	40	1115	110.502		2.0	7.0	47	44	130			41	
2	45	1120	114.390		2.0	7.0	47	44	121			40	
1	50	1125	118.697		2.0	7.0	48	43	112			40	
C 5	55	1130	122.436		2.0	7.0	48	44	99			39	
4	60	1135	126.252		2.0	7.0	49	44	98			39	
3	65	1140	130.072		2.0	7.0	48	44	93			38	
2	70	1145	133.906		2.0	7.0	48	44	115			38	
1	75	1150	137.735		2.0	7.0	48	44	116			37	
Total/Avg													

9

Sample Train Leak Check

Time	in. Hg	CFM
Initial	15	0.005
Final	10	0.003

Pitot Leak Check

Pressure	OK
Static	OK

Gas Analysis

Run	1	2	3	Avg.
CO2				
O2				
CO				
N2				

Moisture Gain

Impinger	Final Vol.	Inital Vol.	Difference
1	131	100	31
2	102	100	2
3		0	0
4	241.8	211.6	30.2
5			
		Total Gain	63.2

EPA METHOD 5
FIELD DATA SHEET

Run No: 2/1 Date: 3/3/98 Client: TIMKEN-FAIRWAY Location: EAF BAGHOUSE Page 2 of 3

Traverse Point No.	Elapsed Time	Clock Time	Gas Meter Reading	Velocity Head	Orifice Pressure	Pump Vacuum	Meter Temp. In	Meter Temp. Out	Stack Temp.	Probe Temp.	Oven Temp.	Impinger Temp	Comments
D-5	80	1155	141.535	NA	2.0	7.5	48	43	128	NA	NA	37	
4	85	1200	145.332		2.0	7.5	47	43	139			36	
3	90	1205	149.120		2.0	7.5	47	43	139			36	
2	95	1210	152.914		2.0	7.5	47	43	122			36	
1	100	1215	156.743		2.0	7.5	47	42	125			36	
E-5	105	1220	160.617		2.0	7.5	47	43	125			36	
4	110	1225	164.620		2.15	8.0	47	42	126			36	
3	115	1230	168.617		2.15	8.0	47	43	122			36	
2	120	1235	172.641		2.15	8.0	47	42	126			36	
1	125	1240	176.613		2.15	8.0	47	43	116			36	
F-5	130	1245	180.614		2.15	8.0	48	42	108			35	
4	135	1250	184.618		2.15	8.0	48	43	108			37	
3	140	1255	188.625		2.15	8.0	48	43	107			37	
2	145	1300	192.626		2.15	8.0	48	43	115			37	
1	150	1305	196.627		2.15	8.0	49	43	120			38	
G-5	155	1310	200.624		2.15	8.0	49	44	126			37	
4	160	1315	204.621		2.15	8.0	49	44	128			36	
3	165	1320	208.623		2.15	8.0	49	44	129			36	
2	170	1325	212.618		2.15	8.0	49	44	126			36	
1	175	1330	216.609		2.15	8.0	49	44	134			37	
H-5	180	1335	220.610		2.15	8.0	49	44	124			37	
4	185	1340	224.591		2.15	8.0	49	44	136			37	
3	190	1345	228.575		2.15	8.0	49	44	142			37	
2	195	1350	232.524		2.15	8.0	48	44	137			36	
1	200	1355	236.534		2.15	8.0	49	44	136			36	
I-5	205	1400	240.548		2.15	8.0	49	44	109			37	
4	210	1405	244.598		2.15	8.0	49	44	109			37	
3	215	1410	248.629		2.15	8.0	49	44	98			37	
2	220	1415	252.699		2.15	8.0	49	44	96			36	
1	225	1420	256.702		2.15	8.0	49	44	95			36	
Total/Avg.													

9

7

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EPA METHOD 5
FIELD DATA SHEET

Run No: ~~2~~ 1 Date: 3/3/98 Client: Timken-Fairclest Location: EAF Baghouse Page 3 of 3

Traverse Point No.	Elapsed Time	Clock Time	Gas Meter Reading	Velocity Head	Orifice Pressure	Pump Vacuum	Meter Temp. In	Meter Temp. Out	Stack Temp.	Probe Temp.	Oven Temp.	Impinger Temp	Comments
J-5	230	1425	260.703	NA	2.15	8.0	49	44	101	NA	NA	37	
4	235	1430	264.683	↓	2.15	8.0	48	44	110	↓	↓	37	
3	240	1435	268.645	↓	2.15	8.0	48	44	118	↓	↓	37	
2	245	1440	272.654	↓	2.15	8.0	48	44	123	↓	↓	37	
1	250	1445	270.567	↓	2.15	8.0	48	44	116	↓	↓	38	
Total/Avg.			195.905		2.087		47.3		119.4				

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EPA METHOD 5
FIELD DATA SHEET

Run No:	2	Control Box Number:	80872	Nozzle Diameter:	.625
Date:	3/3/98	Pitot Number:	14	Meter H@:	1.726
Client:	TIMKEN	Filter Number:	93	Correction Factor:	1.001
Plant:	FAIRCREST	Umbilical Length:	~50'	Pitot Correction Factor:	0.84
Location:	#10 COMPARTMENT	Barometric Pressure:	28.62	Probe Number:	14-1
Project No:		Static Pressure:	28.62	Thermocouple No:	14-1
Test Crew:	BSS, PS, JEP, WAS	Assumed Moisture:	1/2 %	Probe Length.	14'
Ambient Temperature:	~30	Calculated Multiplier:	81	Stack Diameter:	

Traverse Point Number	Elapsed Time	Clock Time	Gas Meter Reading	Velocity Head	Orifice Pressure	Pump Vacuum	Meter Temp. In	Meter Temp. Out	Stack Temp.	Probe Temp.	Oven Temp.	Impinger Temp.	Comments
	0	0755	012.921							NA	NA		
A 5	5	0800	016.832		1.65	3	66	72	111			63	
4	10	0805	020.675		1.6	3	69	69	110			61	
3	15	0810	024.327		1.5	3	69	72	118			60	
2	20	0815	027.982		1.5	3	72	72	119			50	
1	25	0820	031.697		1.5	3	74	71	111			49	
B 5	30	0825	035.321		1.5	3	73	71	104			51	
4	35	0830	038.987		1.5	3	74	71	102			51	
3	40	0835	042.667		1.5	3	74	72	110			51	
2	45	0840	046.291		1.5	3	74	72	107			49	
1	50	0845	049.890		1.5	3	74	72	126			50	
C 5	55	0850	053.490		1.5	3	~~75~~	72	118			50	
4	60	0855	057.124		1.5	3	75	74	124			50	
3	65	0900	060.768		1.5	3	76	73	128			50	
2	70	0905	064.452		1.5	3	77	74	135			50	
1	75	0910	068.412		1.6	3	78	75	133			49	
Total/Avg.							72.7						

Sample Train Leak Check

Time	in. Hg	CFM
Initial	15	0.002
Final	5	0.002

Pitot Leak Check

Pressure	
Static	

Gas Analysis

Run	1	2	3	Avg.
CO2				
O2				
CO				
N2				

Moisture Gain

Impinger	Final Vol.	Inital Vol.	Difference
1	115	100	15
2	100	100	0
3	1	0	1
4	240.3	213.6	26.3
5			
		Total Gain	42.7

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EPA METHOD 5
FIELD DATA SHEET

Run No: 2 Date: 3/3/98 Client: TIMKEN Location: # 10,8 COMPARTMENT

Traverse Point No.	Elapsed Time	Clock Time	Gas Meter Reading	Velocity Head	Orifice Pressure	Pump Vacuum	Meter Temp. In	Meter Temp. Out	Stack Temp.	Probe Temp.	Oven Temp.	Impinger Temp	Comments
D ~~6~~ 5	80	0915	072.536		1.7	3	78	75	128	NA	NA	49	
~~5~~ 4	85	0920	076.667		1.8	3	78	74	125			49	
~~4~~ 3	90	0925	080.663		1.8	3	79	75	128			49	
~~3~~ 2	95	0930	084.853		1.8	3	79	74	125			50	
~~2~~ 1	100	0935	088.968		1.8	3	78	74	108			50	
E ~~6~~ 5	105	0940	093.682		1.8	3	79	74	106			51	
E ~~5~~ 4	110	0945	097.162		1.8	3	79	74	98			52	
~~4~~ 3	115	0950	101.314		1.8	3	80	75	94			52	
~~3~~ 2	120	0955	105.311		1.8	3	81	75	92			52	
~~2~~ 1	125	1000	109.382		1.8	3	81	75	85			52	
F ~~6~~ 5	130	1005	113.449		1.8	3	81	74	86			51	
F ~~5~~ 4	135	1010	117.471		1.8	3	80	74	102			51	
~~4~~ 3	140	1015	121.492		1.8	3	79	74	116			51	
~~3~~ 2	145	1020	125.509		1.8	3	79	75	126			51	
~~2~~ 1	150	1025	129.478		1.8	3	80	76	129			52	
G ~~6~~ 5	155	1030	133.455		1.8	3	80	76	126			51	
G ~~5~~ 4	160	1035	137.602		1.8	3	81	77	108			51	
~~4~~ 3	165	1040	141.748		1.8	3	82	77	117			52	
~~3~~ 2	170	1045	145.913		1.8	3	82	78	134			52	
~~2~~ 1	175	1050	149.986		1.8	3	82	78	144			52	
H ~~6~~ 5	180	1055	154.017		1.8	3	81	78	141			52	
H ~~5~~ 4	185	1100	158.049		1.8	3	81	78	136			52	
~~4~~ 3	190	1105	162.128		1.8	3	81	78	129			52	
~~3~~ 2	195	1110	166.181		1.8	3	81	77	135			52	
~~2~~ 1	200	1115	170.251		1.8	3	80	77	139			52	
I ~~6~~ 5	205	1120	174.329		1.8	3	80	77	135			52	
I ~~5~~ 4	210	1125	178.415		1.8	3	80	77	115			~~52~~	
~~4~~ 3	215	1130	182.528		1.8	3	80	77	103			53	
~~3~~ 2	220	1135	186.603		1.8	3	80	77	99			54	
~~2~~ 1	225	1140	190.704		1.8	3	80	77	100			54	
	~~230~~	~~1145~~											
	Total/Avg.												

74.2

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EPA METHOD 5
FIELD DATA SHEET

Run No: 1 Date: 3/3/98 Client: TIMKEN Location: #10, 8 COMPARTMENT

Traverse Point No	Elapsed Time	Clock Time	Gas Meter Reading	Velocity Head	Orifice Pressure	Pump Vacuum	Meter Temp. In	Meter Temp. Out	Stack Temp.	Probe Temp.	Oven Temp.	Impinger Temp	Comments
J 5	230	1145	194 788		1.8	3	79	77	105	NA	NA	54	
4	235	1150	198 837		1.8	3	78	75	113			54	
3	240	1155	202 745		1.8	3	78	75	127			55	
2	245	1200	206 790		1.8	3	78	75	123			55	
1	250	1205	210 899		1.8	3	78	75	132			55	
Total/Avg			197.979		1.715		76.3°F		117.5				

EPA METHOD 5
FIELD DATA SHEET

Run No:	3	Control Box Number:	80872	Nozzle Diameter:	.625
Date:	3/3/98	Pitot Number:	14-1	Meter H@:	1.726
Client:	TIMKEN	Filter Number:	94	Correction Factor:	1.001
Plant:	FAIRCREST	Umbilical Length:	~	Pitot Correction Factor:	
Location:	#6+4 COMPARTMENT	Barometric Pressure:	28.68	Probe Number:	14-1
Project No:		Static Pressure:		Thermocouple No:	14-1
Test Crew:	BSS, JEP, PS, WAS	Assumed Moisture:		Probe Length:	14'
Ambient Temperature:	~40	Calculated Multiplier:	.81	Stack Diameter:	

Traverse Point Number	Elapsed Time	Clock Time	Gas Meter Reading	Velocity Head	Orifice Pressure	Pump Vacuum	Meter Temp. In	Meter Temp. Out	Stack Temp.	Probe Temp.	Oven Temp.	Impinger Temp.	Comments
	0	1230	211.188										
K5	5	1235	215.217		1.8	2	72	74	123	NA	NA	55	
4	10	1240	219.331		1.8	2	74	75	127			55	
3	15	1245	223.390		1.8	2	76	74	114			52	
2	20	1250	227.463		1.8	2	76	74	114			51	
1	25	1255	231.562		1.8	2	77	74	112			52	
L5	30	1300	235.584		1.8	2	76	74	115			52	
4	35	1305	239.591		1.8	2	75	74	120			52	
3	40	1310	243.598		1.8	2	75	73	134			53	
2	45	1315	247.542		1.8	2	75	73	132			54	
1	50	1320	251.716		1.8	2	75	72	127			56	
M5	55	1325	255.810		1.8	2	74	72	127			56	
4	60	1330	259.911		1.8	2	74	72	130			56	
3	65	1335	263.908		1.8	2	73	71	129			56	
2	70	1340	268.043		1.8	2	73	71	136			55	
1	75	1345	271.926		1.8	2	73	70	132			55	
	Total/Avg.												

Sample Train Leak Check

Time	in. Hg	CFM
Initial	15	0.006
Final	5	0.006

Pitot Leak Check

Pressure	
Static	

Gas Analysis

Run	1	2	3	Avg.
CO2				
O2				
CO				
N2				

Moisture Gain

Impinger	Final Vol.	Inital Vol.	Difference
1	129	100	29
2	108	100	8
3	3	0	3
4	249.6	222.9	26.7
5			
		Total Gain	66.7

EPA METHOD 5
FIELD DATA SHEET

Run No: 3 Date: 3/3/98 Client: TIMKEN Location: #6 + #4 COMPARTMENTS

Traverse Point No.	Elapsed Time	Clock Time	Gas Meter Reading	Velocity Head	Orifice Pressure	Pump Vacuum	Meter Temp. In	Meter Temp. Out	Stack Temp.	Probe Temp.	Oven Temp.	Impinger Temp	Comments
N 5	80	1350	275.941		1.8	2	73	71	136	NA	NA	54	
4	85	1355	280.022		1.8	2	73	72	130			55	
3	90	1400	284.039		1.8	2	72	71	119			55	
2	95	1405	288.079		1.8	2	73	71	107			56	
1	100	1410	292.121		1.8	2	73	73	97			58	
O 5	105	1415	296.137		1.8	2	74	72	102			58	
4	110	1420	300.217		1.8	2	74	71	107			57	
3	115	1425	304.326		1.8	2	74	71	115			55	
2	120	1430	308.279		1.8	2	74	71	112			54	
1	125	1435	312.068		1.8	2	74	71	118			52	
P 5	130	1440	315.791		1.8	2	75	71	124			51	
4	135	1445	319.785		1.8	2	75	71	128			51	
3	140	1450	323.443		1.8	2	75	72	133			51	.75
2	145	1455	327.302		1.7	2	75	73	127			50	
1	150	1500	330.987		1.5	2	74	71	136			52	
Q 5	155	1505	334.848		1.5	2	75	71	134			52	
4	160	1510	338.658		1.5	2	75	72	137			52	
3	165	1515	342.236		1.5	2	79	72	136			53	
2	170	1520	346.216		1.5	2	79	72	134			53	
1	175	1525	349.882		1.5	2	79	73	132			53	
R 5	180	1530	353.720		1.5	2	79	74	132			53	
4	185	1535	357.447		1.5	2	80	74	121			54	
3	190	1540	361.007		1.5	2	80	74	109			54	
2	195	1545	364.547		1.5	2	79	74	120			53	
1	200	1550	368.170		1.5	2	78	74	124			53	
S 5	205	1555	372.089		1.5	2	76	75	132			52	
4	210	1600	376.002		1.5	2	77	74	131			52	
3	215	1605	379.920		1.5	2	77	75	127			53	
2	220	1610	383.585		1.5	2	78	75	124			54	
1	225	1615	387.372		1.5	2	78	74	130			54	
Total/Avg.													

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EPA METHOD 5
FIELD DATA SHEET

Run No: 3 Date: 3/3/98 Client: TIMKEN Location: #6 & #4 COMPARTMENT Page 3 of 3

Traverse Point No.	Elapsed Time	Clock Time	Gas Meter Reading	Velocity Head	Orifice Pressure	Pump Vacuum	Meter Temp. In	Meter Temp. Out	Stack Temp.	Probe Temp.	Oven Temp.	Impinger Temp	Comments
T5	230	1620	391.158		1.5	2	74	75	130	NA	NA	54	
4	235	1625	394.973		1.5	2	75	75	132			55	
3	240	1630	398.892		1.5	2	76	75	128			55	
2	245	1635	402.673		1.5	2	76	75	124			55	
1	250	1640	406.452		1.5	2	77	76	129				
	Total/Avg.		15.264		1.67			~~33.4~~ 74.1	124.6				

EPA METHOD 5
FIELD DATA SHEET

Run No:	4	Control Box Number:	30900	Nozzle Diameter:	0.625
Date:	MARCH 4, 1998	Pitot Number:	14-1	Meter H@:	1.943
Client:	TIMKEN	Filter Number:	95	Correction Factor:	0.991
Plant:	FAIRCREST	Umbilical Length:	~25'	Pitot Correction Factor:	0.84
Location:	EAF BAGHOUSE compartment 5+7	Barometric Pressure:	28.78	Probe Number:	14-1
Project No:	1274	Static Pressure:	NA	Thermocouple No:	14-1
Test Crew:	JEP	Assumed Moisture:		Probe Length.	~14'
Ambient Temperature:	~28°	Calculated Multiplier:	NA	Stack Diameter:	

Traverse Point Number	Elapsed Time	Clock Time	Gas Meter Reading	Velocity Head	Orifice Pressure	Pump Vacuum	Meter Temp. In	Meter Temp. Out	Stack Temp.	Probe Temp.	Oven Temp.	Impinger Temp.	Comments
	0	0745	277.120										
5 K-5	5	0750	281.028	NA	2.15	7.5	37	37	115	NA	NA	36	0.79 CFM
4	10	0755	284.959		2.15	7.5	41	38	100			36	
3	15	0800	288.914		2.15	8.0	43	39	101			35	
2	20	0805	292.866		2.15	8.0	46	40	100			34	
1	25	0810	296.799		2.15	8.0	48	41	115			34	
L-5	30	0815	300.741		2.15	8.0	50	43	110			34	
4	35	0820	304.653		2.15	8.0	50	43	128			34	
3	40	0825	308.601		2.15	8.0	51	44	134			34	
2	45	0830	312.563		2.15	8.0	51	45	141			34	
1	50	0835	316.514		2.15	8.0	51	45	140			34	
M-5	55	0840	320.618		2.15	8.0	52	45	131			34	
4	60	0845	324.471		2.15	8.0	52	46	134			34	
3	65	0850	328.413		2.15	8.0	52	46	140			34	
2	70	0855	332.246		2.15	8.0	52	46	140			35	
1	75	0900	336.327		2.15	8.0	53	47	142			35	
	Total/Avg.												

Sample Train Leak Check

Time	in. Hg	CFM
Initial	15	0.007
Final		

Pitot Leak Check

Pressure	OK
Static	OK

Gas Analysis

Run	1	2	3	Avg.
CO2				
O2				
CO				
N2				

Moisture Gain

Impinger	Final Vol.	Inital Vol.	Difference
1	130	100	30
2	100	100	0
3	0	0	0
4	242.6	212.7	29.9
5			
		Total Gain	59.9

EPA METHOD 5
FIELD DATA SHEET

Run No: 4 Date: 3/4/98 Client: Timken-Faircrest Location: [illegible] BAGHOUSE Page 2 of 3

Traverse Point No.	Elapsed Time	Clock Time	Gas Meter Reading	Velocity Head	Orifice Pressure	Pump Vacuum	Meter Temp. In	Meter Temp. Out	Stack Temp.	Probe Temp.	Oven Temp.	Impinger Temp	Comments
5 N-5	80	0905	340.251	NA	2.15	8.0	53	47	128	NA	NA	35	
4	85	0910	344.264		2.15	8.0	52	47	121			34	
3	90	0915	348.252		2.15	8.0	52	47	110			34	
2	95	0920	352.251		2.15	8.0	52	47	106			34	
1	100	0925	356.225		2.15	8.0	51	47	102			34	
O-5	105	0930	360.193		2.15	8.0	52	46	124			34	
4	110	0935	364.140		2.15	8.0	51	47	130			34	
3	115	0940	368.111		2.15	8.0	52	46	128			34	
2	120	0945	372.105		2.15	8.0	51	47	125			34	
1	125	0950	376.097		2.15	8.0	51	46	120			34	
3 P-5	130	0955	380.071		2.15	8.0	51	46	139			34	
4	135	1000	384.084		2.15	8.0	51	46	139			34	
3	140	1005	388.017		2.15	8.0	51	46	142			34	
2	145	1010	391.997		2.15	8.0	51	46	141			35	
1	150	1015	395.827		2.15	8.0	51	46	138			35	
Q-5	155	1020	399.771		2.15	8.0	51	46	139			35	
4	160	1025	403.719		2.15	8.0	51	46	143			35	
3	165	1030	407.680		2.15	8.0	51	46	140			35	
2	170	1035	411.661		2.15	8.0	51	46	121			35	
1	175	1040	415.627		2.15	8.0	51	46	108			35	
R-5	180	1045	419.618		2.15	8.0	51	46	125			35	
4	185	1050	423.541		2.15	8.0	52	46	129			36	
3	190	1055	427.486		2.15	8.0	52	46	141			36	
2	195	1100	431.399		2.15	8.0	51	46	143			36	
1	200	1105	435.331		2.15	8.0	51	46	149			37	
S-5	205	1110	439.224		2.15	8.0	52	46	150			37	
4	210	1115	443.141		2.15	8.0	52	47	143			37	
3	215	1120	447.085		2.15	8.0	52	46	153			36	
2	220	1125	451.102		2.15	8.0	52	47	151			36	
1	225	1130	454.957		2.15	8.0	52	47	134			36	
Total/Avg.													

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EPA METHOD 5
FIELD DATA SHEET

Run No: 4 Date: 3/4/98 Client: Timken - Faircrest Location: EAF Baghouse

3

Traverse Point No.	Elapsed Time	Clock Time	Gas Meter Reading	Velocity Head	Orifice Pressure	Pump Vacuum	Meter Temp. In	Meter Temp. Out	Stack Temp.	Probe Temp.	Oven Temp.	Impinger Temp	Comments
T-5	230	1135	458.938	NA	2.15	8.0	52	47	112	NA	NA	37	
4	235	1140	462.930		2.15	8.0	52	47	138			36	
3	240	1145	466.944		2.15	8.0	52	47	112			36	
2	245	1150	470.964		2.15	8.0	51	47	104			36	
1	250	1155	474.981		2.15	8.0	51	47	94			36	
Total/Avg.			[illegible]		[illegible]		[illegible]	[illegible]	[illegible]				

EPA METHOD 5
FIELD DATA SHEET

Run No: 5
Date: 3/4/98
Client: TIMKEN
Plant: FAIRCREST
Location: # 2 + 8 COMPARTMENTS
Project No:
Test Crew: AJS, JEP, PS, WAS
Ambient Temperature: ~40°

Control Box Number: 808572
Pitot Number: 1
Filter Number: 97
Umbilical Length: ~25'
Barometric Pressure: 28.78
Static Pressure: 28.78
Assumed Moisture:
Calculated Multiplier:

Nozzle Diameter: ~~.642~~ .625
Meter H@: 1.726
Correction Factor: 1.001
Pitot Correction Factor:
Probe Number: 14-1
Thermocouple No: 14-1
Probe Length: 14'
Stack Diameter:

Traverse Point Number	Elapsed Time	Clock Time	Gas Meter Reading	Velocity Head	Orifice Pressure	Pump Vacuum	Meter Temp. In	Meter Temp. Out	Stack Temp.	Probe Temp.	Oven Temp.	Impinger Temp.	Comments
	0	0750	407.162										
U 5	5	0755	411.063		1.8	2	74	72	97	NA	NA	51	
4	10	0800	415.132		1.8	2	75	72	99			49	
3	15	0805	419.055		1.8	2	76	73	108			49	
2	20	0810	423.045		1.8	2	76	73	113			50	
1	25	0815	426.961		1.8	2	77	74	116			52	
V 5	30	0820	430.843		1.8	2	76	73	126			52	
4	35	0825	434.926		1.8	2	76	72	125			54	
3	40	0830	438.752		1.8	2	76	72	141			55	
2	45	0835	442.818		1.8	2	77	72	133			53	
1	50	0840	446.752		1.8	2	78	72	130			53	
W 5	55	0845	450.728		1.8	2	78	73	132			53	
4	60	0850	454.732		1.8	2	78	74	125			54	
3	65	0855	458.678		1.8	2	79	74	132			54	
2	70	0900	462.256		1.8	2	80	74	132			53	
1	75	0905	466.203		1.8	2	80	75	130			52	
Total/Avg.													

Sample Train Leak Check

Time	in. Hg	CFM
Initial	15	0.002
Final	5	0.016

Pitot Leak Check

Pressure	
Static	

Gas Analysis

Run	1	2	3	Avg.
CO2				
O2				
CO				
N2				

Moisture Gain

Impinger	Final Vol.	Inital Vol.	Difference
1	112	100	12
2	105	100	5
3	2	0	2
4	261.7	234.9	26.8
5			
		Total Gain	45.8

EPA METHOD 5
FIELD DATA SHEET

Run No: 5 Date: 3/4/98 Client: TIMKEN Location: #2 + 1 COMPARTMENT

Traverse Point No.	Elapsed Time	Clock Time	Gas Meter Reading	Velocity Head	Orifice Pressure	Pump Vacuum	Meter Temp. In	Meter Temp. Out	Stack Temp.	Probe Temp.	Oven Temp.	Impinger Temp	Comments
X 5	80	0910	470 .085		1.8	2	81	79	116	NA	NA	54	
4	85	0915	474 .181		1.8	2	82	79	100			54	
3	90	0920	478 .172		1.8	2	83	78	97			53	
2	95	0925	482 .176		1.8	2	84	79	108			53	
1	100	0930	486 .174		1.8	2	85	79	123			53	
Y 5	105	0935	490 .125		1.8	2	86	79	117			53	
4	110	0940	494 .142		1.8	2	86	79	118			54	
3	115	0945	498 .049		1.8	2	86	80	117			54	
2	120	0950	501 .809		1.8	2	86	80	112			54	
1	125	0955	505 .825		1.8	2	86	80	109			54	
		1018	506 .660										LEAK CK. 5 INHg 0.008
U 5	130	1023	510 .813		1.8	2	66	74	146			59	LEAK CK 10 INHg 0.008
4	135	1028	514 .821		1.8	2	64	71	140			55	
3	140	1033	518 .732		1.8	2	61	67	121			51	
2	145	1038	522 .761		1.8	2	63	66	113			49	
1	150	1043	526 .743		1.8	2	61	64	112			49	
V 5	155	1048	530 .431		1.8	2	62	63	126			48	
4	160	1053	534 .323		1.8	2	62	61	141			48	
3	165	1058	538 .215		1.8	2	62	60	143			47	
2	170	1103	542 .163		1.8	2	61	58	147			47	
1	175	1108	545 .583		1.8	2	60	57	149			46	
W 5	180	1113	549 .216		1.8	2	60	57	144			46	
4	185	1118	552 .982		1.8	2	58	56	152			46	
3	190	1123	556 .870		1.8	2	57	55	151			46	
2	195	1128	560 .768		1.8	2	56	54	143			45	
1	200	1133	564 .677		1.8	2	55	54	124			45	
X 5	205	1138	568 .740		1.8	2	54	53	112			43	
4	210	1143	572 .814		1.8	2	55	53	113			43	
3	215	1148	576 .588		1.8	2	54	53	112			43	
2	220	1153	580 .237		1.8	2	54	53	98			42	
1	225	1158	584 .248		1.8	2	53	52	91			42	
	Total/Avg.												

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EPA METHOD 5
FIELD DATA SHEET

Run No: 5 Date: 3/4/98 Client: TIMKEN Location: #2+1 COMPARTMENT

Traverse Point No.	Elapsed Time	Clock Time	Gas Meter Reading	Velocity Head	Orifice Pressure	Pump Vacuum	Meter Temp. In	Meter Temp. Out	Stack Temp.	Probe Temp.	Oven Temp.	Impinger Temp	Comments
Y5	230	1203	588.203		1.8	2	54	51	88	NA	NA	42	
4	235	1208	592.072		1.8	2	54	51	87			42	
3	240	1213	595.698		1.8	2	54	50	82			41	
2	245	1218	599.099		1.8	2	55	50	82			40	
1	250	1223	603.510		1.8	2	55	50	81			40	
Total/Avg.					1.80								

TIMKEN
FAIRCREST, OH FACILITY
SULFUR DIOXIDE EMISSIONS
March 3, 1998
Run No. 1

Time	SO2 (ppm)
08:05:17	5
08:06:17	4
08:07:17	3
08:08:17	2
08:09:17	2
08:10:17	2
08:11:17	2
08:12:17	1
08:13:17	1
08:14:17	1
08:15:17	1
08:16:17	1
08:17:17	1
08:18:17	1
08:19:17	1
08:20:17	1
08:21:17	1
08:22:17	1
08:23:17	1
08:24:17	1
08:25:17	1
08:26:17	1
08:27:17	1
08:28:17	1
08:29:17	1
08:30:17	1
08:31:17	1
08:32:17	1
08:33:17	1
08:34:17	1
08:35:17	1
08:36:17	0
08:37:17	0
08:38:17	1
08:39:17	0
08:40:17	0
08:41:17	1
08:42:17	0
08:43:17	0
08:44:17	0
08:45:17	0
08:46:17	0
08:47:17	0
08:48:17	0
08:49:17	0
08:50:17	0
08:51:17	0
08:52:17	0
08:53:17	0
08:54:17	0
08:55:17	0
08:56:17	0
08:57:17	0
08:58:17	0
08:59:17	0
09:00:17	0
09:01:17	0
09:02:17	0
09:03:17	0
09:04:17	0
09:05:17	0
09:06:17	0
09:07:17	0
09:08:17	0
09:09:17	0
09:10:17	0

TIMKEN
FAIRCREST, OH FACILITY
SULFUR DIOXIDE EMISSIONS
March 3, 1998
Run No. 1

Time	SO2 (ppm)
09:11:17	0
09:12:17	0
09:13:17	0
09:14:17	0
09:15:17	0
09:16:17	0
09:17:17	1
09:18:17	1
09:19:17	0
09:20:17	0
09:21:17	0
09:22:17	0
09:23:17	0
09:24:17	0
09:25:17	0
09:26:17	0
09:27:17	-0
09:28:17	0
09:29:17	0
09:30:17	-0
09:31:17	-0
09:32:17	-0
09:33:17	0
09:34:17	-0
09:35:17	-0
09:36:17	0
09:37:17	-0
09:38:17	0
09:39:17	0
09:40:17	0
09:41:17	0
09:42:17	0
09:43:17	-0
09:44:17	0
09:45:17	-0
09:46:17	-0
09:47:17	-0
09:48:17	-0
09:49:17	-0
09:50:17	-0
09:51:17	-0
09:52:17	-0
09:53:17	-0
09:54:17	-0
09:55:17	-0
09:56:17	-0
09:57:17	-0
09:58:17	-0
09:59:17	-0
10:00:17	-0
10:01:17	-0
10:02:17	-0
10:03:17	-0
10:04:17	-0
10:05:17	-0
10:06:17	-0
10:07:17	-0
10:08:17	-0
10:09:17	-0
10:10:17	-0
10:11:17	0
10:12:17	0
10:13:17	0
10:14:17	0
10:15:17	0
10:16:17	0

TIMKEN
FAIRCREST, OH FACILITY
SULFUR DIOXIDE EMISSIONS
March 3, 1998
Run No. 1

Time	SO2 (ppm)
10:17:17	0
10:18:17	-0
10:19:17	-0
10:20:17	-0
10:21:17	-0
10:22:17	-0
10:23:17	-0
10:24:17	-0
10:25:17	-0
10:26:17	-0
10:27:17	-0
10:28:17	-0
10:29:17	-0
10:30:17	-0
10:31:17	0
10:32:17	-0
10:33:17	-0
10:34:17	-0
10:35:17	-0
10:36:17	-0
10:37:17	0
10:38:17	1
10:39:17	1
10:40:17	1
10:41:17	2
10:42:17	2
10:43:17	2
10:44:17	2
10:45:17	2
10:46:17	2
10:47:17	2
10:48:17	2
10:49:17	2
10:50:17	2
10:51:17	2
10:52:17	2
10:53:17	1
10:54:17	1
10:55:17	1
10:56:17	1
10:57:17	1
10:58:17	1
10:59:17	1
11:00:17	1
11:01:17	1
11:02:17	1
11:03:17	1
11:04:17	1
11:05:17	1
11:06:17	1
11:07:17	0
11:08:17	1
11:09:17	1
11:10:17	0
11:11:17	0
11:12:17	0
11:13:17	0
11:14:17	0
11:15:17	0
11:16:17	0
11:17:17	0
11:18:17	-0
11:19:17	0
11:20:17	-0
11:32:42	0
11:33:42	2

TIMKEN
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SULFUR DIOXIDE EMISSIONS
March 3, 1998
Run No. 1

Time	SO2 (ppm)
11:34:42	1
11:35:42	1
11:36:42	1
11:37:42	1
11:38:42	1
11:39:42	1
11:40:42	1
11:41:42	0
11:42:42	0
11:43:42	0
11:44:42	0
11:45:42	0
11:46:42	0
11:47:42	0
11:48:42	0
11:49:42	0
11:50:42	-0
11:51:42	-0
11:52:42	0
11:53:42	-0
11:54:42	-0
11:55:42	4
11:56:42	5
11:57:42	11
11:58:42	5
11:59:42	8
12:00:42	7
12:01:42	6
12:02:42	6
12:03:42	5
12:04:42	5
12:05:42	4
12:06:42	4
12:07:42	5
12:08:42	4
12:09:42	4
12:10:42	5
12:11:42	3
12:12:42	3
12:13:42	3
12:14:42	3
12:15:42	2
AVERAGE	0.8

TIMKEN
FAIRCREST, OH FACILITY
SULFUR DIOXIDE EMISSIONS
March 3, 1998
Run No. 2

Time	SO2 (ppm)
12:54:37	2
12:55:37	2
12:56:37	2
12:57:37	2
12:58:37	1
13:01:52	1
13:02:52	1
13:03:52	1
13:04:52	1
13:05:52	1
13:06:52	3
13:07:52	2
13:08:52	2
13:09:52	2
13:10:52	2
13:11:52	2
13:12:52	1
13:13:52	0
13:14:52	0
13:15:52	-0
13:16:52	-0
13:17:52	-0
13:18:52	-0
13:19:52	-0
13:20:52	-0
13:21:52	0
13:22:52	0
13:23:52	-0
13:24:52	0
13:25:52	0
13:26:52	0
13:27:52	0
13:28:52	-0
13:29:52	0
13:30:52	0
13:31:52	0
13:32:52	0
13:33:52	0
13:34:52	0
13:35:52	0
13:36:52	0
13:37:52	0
13:38:52	0
13:39:52	0
13:40:52	0
13:41:52	0
13:42:52	0
13:43:52	0
13:44:52	0
13:45:52	0
13:46:52	0
13:47:52	0
13:48:52	0
13:49:52	0
13:50:52	0
13:51:52	0
13:52:52	0
13:53:52	0
13:54:52	0
13:55:52	1
13:56:52	0
13:57:52	0
13:58:52	0
13:59:52	0
14:00:52	1
14:01:52	0

TIMKEN
FAIRCREST, OH FACILITY
SULFUR DIOXIDE EMISSIONS
March 3, 1998
Run No. 2

Time	SO2 (ppm)
14:02:52	0
14:03:52	0
14:04:52	1
14:05:52	1
14:06:52	1
14:07:52	1
14:08:52	1
14:09:52	1
14:10:52	1
14:11:52	1
14:12:52	1
14:13:52	1
14:14:52	1
14:15:52	1
14:16:52	1
14:17:52	1
14:18:52	1
14:19:52	1
14:20:52	1
14:21:52	1
14:22:52	1
14:23:52	1
14:24:52	1
14:25:52	1
14:26:52	1
14:27:52	1
14:28:52	1
14:29:52	1
14:30:52	1
14:31:52	1
14:32:52	1
14:33:52	1
14:34:52	1
14:35:52	1
14:36:52	1
14:37:52	1
14:38:52	1
14:39:52	1
14:40:52	1
14:41:52	1
14:42:52	1
14:43:52	1
14:44:52	1
14:45:52	1
14:46:52	1
14:47:52	0
14:48:52	0
14:49:52	-0
14:50:52	0
14:51:52	0
14:52:52	0
14:53:52	0
14:54:52	0
14:55:52	0
14:56:52	0
14:57:52	-0
14:58:52	0
14:59:52	0
15:00:52	0
15:01:52	0
15:02:52	-0
15:03:52	0
15:04:52	0
15:05:52	0
15:06:52	0
15:07:52	0

TIMKEN
FAIRCREST, OH FACILITY
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March 3, 1998
Run No. 2

Time	SO2 (ppm)
15:08:52	0
15:09:52	0
15:10:52	0
15:11:52	0
15:12:52	-0
15:13:52	0
15:14:52	0
15:15:52	0
15:16:52	0
15:17:52	0
15:18:52	0
15:19:52	0
15:20:52	0
15:21:52	0
15:22:52	0
15:23:52	0
15:24:52	0
15:25:52	0
15:26:52	0
15:27:52	-0
15:28:52	0
15:29:52	0
15:30:52	0
15:31:52	0
15:32:52	0
15:33:52	0
15:34:52	0
15:35:52	-0
15:36:52	-0
15:37:52	0
15:38:52	-0
15:39:52	0
15:40:52	0
15:41:52	0
15:42:52	0
15:43:52	-0
15:44:52	0
15:58:25	0
15:59:25	0
16:00:25	0
16:01:25	0
16:02:25	0
16:03:25	0
16:04:25	0
16:05:25	0
16:06:25	0
16:07:25	0
16:08:25	1
16:09:25	1
16:10:25	0
16:11:25	0
16:12:25	0
16:13:25	-0
16:14:25	-0
16:15:25	-0
16:16:25	-0
16:17:25	-0
16:18:25	-0
16:19:25	-0
16:20:25	-0
16:21:25	-0
16:22:25	-0
16:23:25	-0
16:24:25	-0
16:25:25	-0
16:26:25	-0

TIMKEN
FAIRCREST, OH FACILITY
SULFUR DIOXIDE EMISSIONS
March 3, 1998
Run No. 2

Time	SO2 (ppm)
16:27:25	-0
16:28:25	-0
16:29:25	-0
16:30:25	-0
16:31:25	-0
16:32:25	-0
16:33:25	-0
16:34:25	-0
16:35:25	-0
16:36:25	-0
16:37:25	-0
16:38:25	-0
16:39:25	-0
16:40:25	-0
16:41:25	-0
16:42:25	0
16:43:25	0
16:44:25	0
16:45:25	0
16:46:25	0
16:47:25	0
16:48:25	0
16:49:25	0
16:50:25	0
16:51:25	0
16:52:25	0
16:53:25	0
16:54:25	0
16:55:25	0
16:56:25	0
16:57:25	0
16:58:25	0
16:59:25	0
17:00:25	0
17:01:25	0
17:02:25	0
17:03:25	0
17:04:25	0
17:05:25	0
17:06:25	0
17:07:25	0
17:08:25	0
AVERAGE	0.3

TIMKEN
FAIRCREST, OH FACILITY
SULFUR DIOXIDE EMISSIONS
March 4, 1998
Run No. 3

Time	SO2 (ppm)
09:05:11	7
09:06:11	5
09:07:11	3
09:08:11	2
09:09:11	2
09:10:11	1
09:11:11	1
09:12:11	1
09:13:11	1
09:14:11	1
09:15:11	1
09:16:11	1
09:17:11	0
09:18:11	0
09:19:11	0
09:20:11	0
09:21:11	0
09:22:11	-0
09:23:11	-0
09:24:11	-0
09:25:11	-0
09:26:11	-0
09:27:11	0
09:28:11	-0
09:29:11	-0
09:30:11	-0
09:31:11	-0
09:32:11	-0
09:33:11	-0
09:34:11	-0
09:35:11	0
09:36:11	0
09:37:11	0
09:38:11	-0
09:39:11	0
09:40:11	0
09:41:11	-0
09:42:11	0
09:43:11	0
09:44:11	0
09:45:11	0
09:46:11	0
09:47:11	0
09:48:11	0
09:49:11	-0
09:50:11	0
09:51:11	-0
09:52:11	-0
09:53:11	-0
09:54:11	0
09:55:11	0
09:56:11	-0
09:57:11	-0
09:58:11	-0
09:59:11	-0
10:00:11	0
10:01:11	-0
10:02:11	-0
10:03:11	-0
10:04:11	0
10:05:11	0
10:06:11	0
10:07:11	0
10:08:11	0
10:09:11	0
10:10:11	0

TIMKEN
FAIRCREST, OH FACILITY
SULFUR DIOXIDE EMISSIONS
March 4, 1998
Run No. 3

Time	SO2 (ppm)
10:11:11	0
10:12:11	0
10:13:11	0
10:14:11	0
10:15:11	0
10:16:11	0
10:17:11	0
10:18:11	0
10:19:11	0
10:20:11	0
10:21:11	0
10:22:11	0
10:23:11	0
10:24:11	0
10:25:11	0
10:26:11	0
10:27:11	0
10:28:11	0
10:29:11	0
10:30:11	0
10:31:11	-0
10:32:11	0
10:33:11	0
10:34:11	0
10:35:11	0
10:36:11	0
10:37:11	0
10:38:11	0
10:39:11	0
10:40:11	0
11:07:55	0
11:08:55	0
11:09:55	0
11:10:55	1
11:11:55	1
11:12:55	1
11:13:55	1
11:14:55	1
11:15:55	1
11:16:55	1
11:17:55	1
11:18:55	1
11:19:55	1
11:20:55	1
11:21:55	0
11:22:55	0
11:23:55	1
11:24:55	0
11:25:55	0
11:26:55	0
11:27:55	0
11:28:55	0
11:29:55	0
11:30:55	0
11:31:55	0
11:32:55	0
11:33:55	0
11:34:55	0
11:35:55	0
11:36:55	0
11:37:55	0
11:38:55	0
11:39:55	0
11:40:55	0
11:41:55	0
11:42:55	0

TIMKEN
FAIRCREST, OH FACILITY
SULFUR DIOXIDE EMISSIONS
March 4, 1998
Run No. 3

Time	SO2 (ppm)
11:43:55	0
11:44:55	0
11:45:55	0
11:46:55	0
11:47:55	0
11:48:55	0
11:49:55	0
11:50:55	0
11:51:55	1
11:52:55	0
11:53:55	0
11:54:55	0
11:55:55	0
11:56:55	0
11:57:55	0
11:58:55	0
11:59:55	0
12:00:55	0
12:01:55	0
12:02:55	0
12:03:55	0
12:04:55	0
12:05:55	0
12:06:55	0
12:07:55	0
12:08:55	0
12:09:55	0
12:10:55	0
12:11:55	0
12:12:55	0
12:13:55	0
12:14:55	0
12:15:55	0
12:16:55	0
12:17:55	0
12:18:55	0
12:19:55	0
12:20:55	0
12:21:55	0
12:22:55	0
12:23:55	0
12:24:55	0
12:25:55	0
12:26:55	0
12:27:55	0
12:28:55	0
12:29:55	0
12:30:55	0
12:31:55	0
12:32:55	0
12:33:55	0
12:34:55	0
12:35:55	0
12:36:55	0
12:37:55	0
12:38:55	0
12:39:55	0
12:40:55	0
12:41:55	0
12:42:55	0
12:43:55	0
12:44:55	0
12:45:55	[illegible]

TIMKEN
FAIRCREST, OH FACILITY
SULFUR DIOXIDE EMISSIONS
March 4, 1998
Run No. 3

Time	SO2 (ppm)
12:49:55	0
12:50:55	0
12:51:55	0
12:52:55	0
12:53:55	0
12:54:55	0
12:55:55	0
12:56:55	0
12:57:55	0
12:58:55	0
12:59:55	0
13:00:55	0
13:01:55	0
13:02:55	0
13:03:55	0
13:04:55	0
13:05:55	0
13:06:55	0
13:07:55	0
13:08:55	0
13:09:55	0
13:10:55	-0
13:11:55	0
13:12:55	0
13:13:55	0
13:14:55	-0
13:15:55	-0
13:16:55	0
13:17:55	0
13:18:55	0
13:19:55	-0
13:20:55	3
13:21:55	15
13:22:55	23
13:23:55	24
13:24:55	45
13:25:55	45
13:26:55	2
13:27:55	3
13:28:55	2
13:29:55	1
13:30:55	1
AVERAGE	**1.0**

<u>APPENDIX B</u>

Analytical Data

B-1

EPA METHOD
BLANK ANALYTICAL DATA FORM

Client:	Timken	**Sample date:**	1&2/98
Project No:	1274	**Analysis date:**	03/05/98
Location:	All Tests	**Technician:**	JEP

ACETONE BLANK	UNIT	
Acetone rinse container No.		6H
Density of acetone (pa)	g/ml	0.7857
Acetone blank volume (Va)	ml	176
Average gross wt.	mg	107686.00
Average tare wt.	mg	107686.00
Weight of blank (Ma)	mg	0.00
Acetone blank wt. (Ca=Ma/(Va x Pa))	mg	0.0000

Note:
In no case should a blank resdue greater than 0.01 mg/g or 0.001% of the blank weight be subtracted from the sample weight.

EPA METHOD 17
ANALYTICAL PARTICULATE DATA

Client: Timken
Project No: 1274
Location: Faircrest Baghouse

Sample date: 3/3/98
Analysis date: 03/5-11/98
Technician: JEP

	UNIT	RUN 1	RUN 2	RUN 3
ACETONE RINSE				
Acetone rinse container No.		6I	6P	6Q
Density of acetone (pa)	g/ml	0.7857	0.7857	0.7857
Acetone rinse volume (Vaw)	ml	32	42	48
Acetone blank (Ca)	mg/g	0.0000	0.0000	0.0000
Wa =(Ca) (Vaw) (pa)	mg	0.00	0.00	0.00
Average gross wt.	mg	106836.90	109441.00	110522.70
Average tare wt.	mg	106837.65	109439.95	110522.25
Acetone blank wt. (Wa)	mg	0.00	0.00	0.00
Wt. of particulate in acetone rinse (Ma)	mg	-0.75	1.05	0.45
FILTER				
Filter No.		96	93	94
Average gross wt.	mg	128.50	127.90	128.90
Average tare wt.	mg	124.60	124.95	126.50
Wt. of particulate on filter (Mf)	mg	3.90	2.95	2.40
FINAL WEIGHT				
Wt. of particulate in acetone rinse (Ma)	mg	~~-0.75~~ 0.00 PJ 3-7-98	1.05	0.45
Wt. of particulate on filter (Mf)	mg	3.90	2.95	2.40
TOTAL WT OF PARTICULATE (Mn)	**mg**	~~3.15~~ 3.90 3-7-98	**4.00**	**2.85**

EPA METHOD 17
ANALYTICAL PARTICULATE DATA

Client: Timken
Project No: 1274
Location: Faircrest Baghouse

Sample date: 3/04/98
Analysis date: 3/5-11/98
Technician: JEP

	UNIT	RUN 4	RUN 5
ACETONE RINSE			
Acetone rinse container No.		6R	6T
Density of acetone (pa)	g/ml	0.7857	0.7857
Acetone rinse volume (Vaw)	ml	43	43
Acetone blank (Ca)	mg/g	0.0000	0.0000
Wa =(Ca) (Vaw) (pa)	mg	0.00	0.00
Average gross wt.	mg	108661.65	109199.15
Average tare wt.	mg	108661.65	109198.80
Acetone blank wt. (Wa)	mg	0.00	0.00
Wt. of particulate in acetone rinse (Ma)	mg	0.00	0.35
FILTER			
Filter No.		95	97
Average gross wt.	mg	127.95	128.30
Average tare wt.	mg	125.20	125.05
Wt. of particulate on filter (Mf)	mg	2.75	3.25
FINAL WEIGHT			
Wt. of particulate in acetone rinse (Ma)	mg	0.00	0.35
Wt. of particulate on filter (Mf)	mg	2.75	3.25
TOTAL WT OF PARTICULATE (Mn)	**mg**	**2.75**	**3.60**

APPENDIX C

Calculations

TIMKEN
FAIRCREST PLANT
EAF SHOP
MARCH 3 AND 4, 1998

BAGHOUSE INLET GAS FLOWS

DESCRIPTION	Run No. 1	Run No. 2	Run No. 3	Average
Average of square roots of pitot pressure, in. water	1.055	0.965	0.992	1.004
Average stack temperature, deg. F	109.9	113.7	148.9	124.2
CO2 in stack gas, %	0.5	0.5	0.5	0.5
O2 in stack gas, %	20.5	20.5	20.5	20.5
CO and N2 in stack gas, %	79.00	79.00	79.00	79.00
Barometric pressure, in. Hg.	28.64	28.68	28.82	28.71
Static pressure, in. water	-7.6	-7.4	-7.0	-7.3
Stack pressure (absolute), in. Hg.	28.08	28.14	28.31	28.17
Pitot correction factor, dimensionless	0.84	0.84	0.84	0.84
Diameter of stack, in.	212.0	212.0	212.0	212.0
Moisture content of the gas stream, %	1.50	1.70	1.25	1.48
CALCULATED VALUES				
Area of the stack, sq. ft.	245.131	245.131	245.131	245.131
Dry molecular weight of stack gas, dry basis, lb/lb-mole	28.90	28.90	28.90	28.900
Molecular weight of stack gas, wet basis, lb/lb-mole	28.74	28.71	28.76	28.74
GAS FLOW				
Stack velocity, ft/sec	63.66	58.40	61.61	61.22
Stack gas flow, acfm	936304	858941	906153	900466
Stack gas flow, dscfm	801941	730743	734062	755582

TIMKEN
FAIRCREST PLANT
EAF SHOP
MARCH 3 AND 4, 1998

PARTICULATE EMISSIONS

SYMBOL	DESCRIPTION	Run No. 1	Run No. 2	Run No. 3	Run No. 4	Run No. 5
Theta	Duration of test, min.	250	250	250	250	250
Vm	Dry sample volume (meter conditions), in. water	195.905	197.979	195.264	197.866	195.513
dH	Orifice pressure drop, in. water	2.09	1.72	1.67	2.15	1.80
Ts	Average compartment temperature, deg. F	119.4	117.5	124.6	127.9	147.8
Tm	Average dry gas meter temperature, deg. F	47.3	76.3	74.1	48.0	67.7
CO2	CO2 in stack gas, %	0.5	0.5	0.5	0.5	0.5
O2	O2 in stack gas, %	20.5	20.5	20.5	20.5	20.5
CO+N2	CO and N2 in stack gas, %	79.0	79.0	79.0	79.0	79.0
Pbar	Barometric pressure, in. Hg.	28.62	28.62	28.68	28.78	28.78
Y	Dry gas meter correction factor	0.991	1.001	1.001	0.991	1.001
Dn	Diameter of nozzle, in.	0.6250	0.6250	0.6250	0.6250	0.6250
Vlc	Volume of liquid collected in impingers and silica gel, ml	63.2	42.7	66.7	59.9	45.8
Mn	Total particulate catch, mg	3.90	4.00	2.85	2.75	3.60
Qs	Inlet gas flow, acfm	936304	936304	858941	906153	906153
Qsd	Inlet gas flow, dscfm	801941	801941	730743	734062	734062
Ts	Inlet gas temperature, deg. F	109.9	109.9	113.7	148.9	148.9
Ao	Outlet exhaust total area, sq. ft.	2272	2272	2272	2272	2272
Vs(O)	Avg. velocity at outlet measurment site, ft/sec.	6.98	6.96	6.42	6.42	6.64
An	Area of the nozzle, sq. ft.	0.00213	0.00213	0.00213	0.00213	0.00213
Md	Dry molecular weight of stack gas, dry basis, lb/lb-mole	28.90	28.90	28.90	28.90	28.90
Vw(std)	Volume of liquid collected, cu. ft.	2.975	2.010	3.140	2.819	2.156
Ms	Molecular weight of stack gas, wet basis, lb/lb-mole	28.74	28.78	28.71	28.75	28.78
Vm(std)	Dry sample volume (standard conditions), dscf	194.243	187.380	185.937	197.038	189.149
Bws	Moisture content of the gas stream, %	1.5	1.1	1.7	1.4	1.1
I	Isokinetic ratio, %	101.5	97.4	106.5	112.8	108.0
	PARTICULATE EMISSIONS					
C's	Particulate concentration, gr/dscf	3.09E-04	3.29E-04	2.36E-04	2.15E-04	2.93E-04
E	Particulate emission rate, lb/hr	2.125	2.260	1.479	1.352	1.844
Ea	Particulate emission rate, lb/T	0.0157	0.0183	0.0118	0.0096	0.0160

Sample - Run No. 1

$$\frac{2.125 \text{ lb/hr}}{134.97 \text{ T/hr}} =$$

C-3

TIMKEN
FAIRCREST PLANT
EAF SHOP
MARCH 3 AND 4, 1998

SULFUR DIOXIDE EMISSIONS

		Run No. 1	Run No. 2	Run No. 3	Avg.
Stack gas flow, dscfm	=	801941	730743	734062	755582
SO2 concentration, ppm	=	0.8	0.3	1.0	0.7
SO2 Emissions, lb/hr	=	6.4	2.2	7.3	5.3
SO2 Emissions, lb/T		0.0518	0.0155	0.0635	0.0436

Sample - Run No 1

$$\frac{6.4 \text{ lb/hr}}{123.56 \text{ T/hr}} = 0.0518$$

APPENDIX D

Field Equipment Calibrations

D-1

TIMKEN-FAIRCREST EAF BAGHOUSE

NOZZLE CALIBRATION DATA FORM

Date FEBRUARY 27, 1998   Calibrated by JEP

Nozzle identification number	Nozzle Diameter[a]			ΔD,[b] mm (in.)	D_{avg}[c]
	D_1, mm (in.)	D_2, mm (in.)	D_3, mm (in.)		
TRAIN 1	0.625	0.625	0.625	0.000	0.625
TRAIN 2	0.625	0.626	0.624	0.002	0.625

where:

[a] $D_{1,2,3,}$ = three different nozzles diameters, mm (in.); each diameter must be within (0.025 mm) 0.001 in.

[b] ΔD = maximum difference between any two diameters, mm (in.), $\Delta D \leq$ (0.10 mm) 0.004 in.

[c] D_{avg} = average of D_1, D_2, and D_3.

STACK GAS THERMOCOUPLE CALIBRATION

Client: Timken

Location: EAF Baghouse

Date: 3-17-98

Technician: PJ

Inlet Pitot/Thermocouple

TEMPERATURE SOURCE	TEMPERATURE	REFERENCE	% DIFFERENCE
Water Bath	62	60	3.3
"	138	135	2.2
"	214	213	0.5

STACK GAS THERMOCOUPLE CALIBRATION

Client: Timken Faircrest Plant Baghouse

Location: EAF Baghouse

Date: 3-17-98

Technician: PJ

Probe 14-1

TEMPERATURE SOURCE	TEMPERATURE	REFERENCE	% DIFFERENCE
Water Bath	65	66	1.4
"	140	140	0.0
"	215	214	0.5

STACK GAS THERMOCOUPLE CALIBRATION

Client: Timken Faircrest Plant Baghouse

Location: EAF Baghouse

Date: 3-17-98

Technician: PJ

Probe 14-2

TEMPERATURE SOURCE	TEMPERATURE	REFERENCE	% DIFFERENCE
Water Bath	65	66	1.5
"	140	142	1.4
"	213	213	0.0

D-5

DRY GAS METER AND ORIFICE CALIBRATION

02/12/98 OPERATOR: JEP . CONSOLE: 80900

WET TEST METER GAS VOLUMES AND TEMPERATURES

Orifice Manometer Setting (in. H2O)	Initial Reading ft (cf) Vw	Temp. (deg F) Tw	Final Reading ft (cf) Vw	Temp. (deg F) Tw	Net Volume (ft) Vw	Avg. Temp. (F) Tw
1.00	0.000	69.5	5.000	69.5	5.000	69.5
1.50	0.000	69.5	5.001	69.5	5.001	69.5
2.00	0.000	69.5	5.000	69.5	5.000	69.5
3.00	0.000	69.5	5.000	69.5	5.000	69.5

DRY TEST METER VOLUMES AND TEMPERATURES

Orifice Manometer Setting (in. H2O)	Initial Reading (cf) Vd	Final Reading (cf) Vd	Temperature Inlet (deg f) Ti	Outlet (deg f) Td	Net Volume (ft) Vd	Avg. Temp. (deg f) Td
1.00	891.526	896.689	85.0	81.0	5.163	83.0
1.50	897.723	902.865	84.0	81.0	5.142	82.5
2.00	903.880	909.024	85.0	80.0	5.144	82.5
3.00	910.057	915.193	85.0	81.0	5.136	83.0

Orifice Manometer Setting (in. H2O)	Total Test Time (min.)	Barometer Reading Inches ("Hg)
1.00	8.950	28.86
1.50	7.633	28.86
2.00	6.633	28.86
3.00	5.383	28.86

	Gamma	delta H
	0.991	1.817
	0.993	1.984
	0.991	1.998
	0.991	1.972
Average	**0.991**	**1.943**

D-6

DRY GAS METER AND ORIFICE CALIBRATION

12/22/97 OPERATOR: KH CONSOLE: 80872

WET TEST METER GAS VOLUMES AND TEMPERATURES

Orifice Manometer Setting (in. H2O)	Initial Reading ft (cf) Vw	Temp. (deg F) Tw	Final Reading ft (cf) Vw	Temp. (deg F) Tw	Net Volume (ft) Vw	Avg. Temp. (F) Tw
1.00	0.000	68.0	5.000	68.0	5.000	68.0
1.50	0.000	68.0	5.000	68.0	5.000	68.0
2.00	0.000	68.0	5.000	68.0	5.000	68.0
3.00	0.000	68.0	5.000	68.0	5.000	68.0

DRY TEST METER VOLUMES AND TEMPERATURES

Orifice Manometer Setting (in. H2O)	Initial Reading (cf) Vd	Final Reading (cf) Vd	Temperature Inlet (deg f) Ti	Outlet (deg f) Td	Net Volume (ft) Vd	Avg. Temp. (deg f) Td
1.00	699.507	704.595	83.0	78.0	5.088	80.5
1.50	705.453	710.546	83.0	78.0	5.093	80.5
2.00	711.271	716.382	84.0	80.0	5.111	82.0
3.00	717.117	722.199	83.0	80.0	5.082	81.5

Orifice Manometer Setting (in. H2O)	Total Test Time (min.)	Barometer Reading Inches ("Hg)
1.00	8.600	29.05
1.50	7.100	29.05
2.00	6.300	29.04
3.00	5.100	29.03

	Gamma	delta H
	1.003	1.665
	1.001	1.702
	0.999	1.783
	1.001	1.755
Average	**1.001**	**1.726**

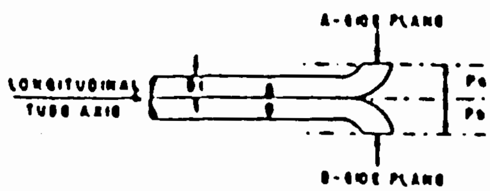
D-7

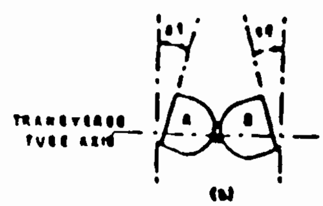
TYPE S PITOT TUBE CONSTRUCTION SPECIFICATIONS

TYPE S PITOT TUBE NO. Special Inlet Probe For Timken Faircrest DATE 3-2-98 TECHNICIAN DJ

CONSTRUCTION STANDARDS:

1. Dt - between 0.48 and 0.95 centimeters
2. $P_a = P_b$ $1.05\ D_t \leq P \leq 1.50\ D_t$
3. $a_1, a_2 < 10°$
4. $B_1, B_2 < 5°$
5. $Z \leq 0.32$ cm
6. $W \leq 0.08$ cm





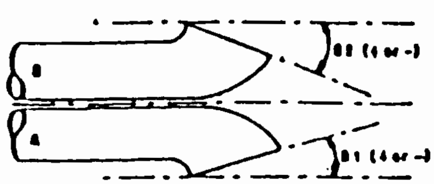
Dt = 0.95

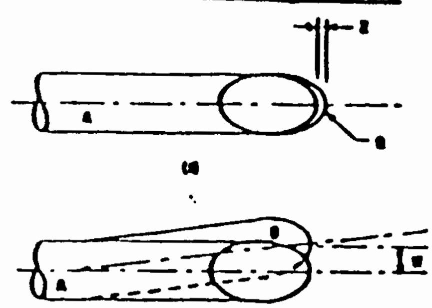
Pa = 1.21

Pb = 1.22

a1 = 0

a2 = 0





B1 = 0

B2 = 0

Z = 0

W = 0

3/3/90 Timken Faircrest

SO_2 - 0 → 100 ppm

Bovar

Gas	Inst	DL
N_2	0.0	0.0
23.2	23.2	23.2
45.9	46.2	46.0
89.9	92.8	92.4

3/3/98 Timken Faircrest D-9

Start @ ~~8:05~~ 8:05 AM DAT 48

Cal Check at 11:20 AM

N_2	-0.1	-0.1
23.2	21.1	21.0 adj to 23.2

Restart @ 11:32

Final Calibration check Run 1

GAS	INST	DL
N_2	-0.5	-0.5
23.2	20.9	20.8
45.9	43.8	43.7 adj to 45.9
23.2	23.4	23.4

Start Run # 2 12:54 still DAT 48

changed filter 12:59 → 13:01

Cal Check @ 15:45

GAS	INST	DL
N_2	-0.5	-0.5
23.2	25.1	25.0

Restart @ 15:57

3/3/98 Timken Faircrest D-10

Final Cal Check

GAS	INST	DL
N_2	-0.~~0~~	-0.2
23.2	21.4	21.5

3/4/98

Faircrest Baghouse

Run # 3

Initial Calibration

GAS	INST	DL
N_2	0.0	0.0
45.9	46.~~0~~	46.0
23.2	23.3	23.3
89.9	90.5	90.3

Run DAT 49 Start. 7:50

Range 0 → 100

Response time = 74 sec

3/4 Removed check Valve - sticking D-11

Re cal Inst

GAS	INST	DL
N_2	0.0	0.0
45.9	45.9	45.8
23.2	23.4	23.4

Restart @ 09:05

Mid point cal check @ 10:40

GAS	INST	DL	
N_2	0.0	-0.1	
23.2	24.0	24.0	adj to 23.2

Restart @ 11:07

Final Cal 13:15

GAS	INST	DL
N_2	-0.1	-0.1
23.2	23.5	23.6
45.9	45.9	45.7

D-12

SPECTRA GASES

277 Coit St • Irvington, NJ 07111 USA Tel.: (973) 372-2060 • (800) 932-0624 • Fax: (973) 372-8551
Shipped From: 80 Industrial Drive • Alpha, N J 08865

CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: Optimal Technologies
SGI ORDER # : 130723
ITEM# : 1
P.O.# : P43637

CYLINDER # : CC85293
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 2/11/98
EXPIRATION DATE: 8/11/98

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Sulfur Dioxide	2/4/98 2/11/98	23.10 ppm 23.21 ppm	23 2 ppm	+/- 1%

BALANCE Nitrogen

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Sulfur Dioxide	NTRM-R81694	CC53331	96.0 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Sulfur Dioxide	Horiba VIA-510	851221093	NDIR	1/13/98

THIS STANDARD WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: Fred Pikula
FRED PIKULA

DATE: 2/11/98

Air Products and Chemicals, Inc.
P.O. BOX 351
R.D. #1
TAMAQUA, PA 18252

Certificate of Analysis - EPA Protocol Gas Standard

PERFORMED ACCORDING TO EPA TRACEABILITY PROTOCOL FOR ASSAY AND CERTIFICATION OF GASEOUS CALIBRATION STANDARDS (PROCEDURE #G1)

Customer:
AIR PRODUCTS AND CHEMICALS
901 WEST 12TH STREET
LONG BEACH CA 90813

PO: Rel:

Notes:
SO2 value is based on NIST corrected SRM concentrations.

Order No: 235-067817-01
Batch No: 255-88266

Cylinder No: SG9132291BAL
Bar Code No: BYT685
Cylinder Pressure*: 2000 psig
Certification Date: 05/28/96
Expiration Date: 05/28/98

*** Certified Concentration ***		********* Reference Standards *********			************** Analytical Instrumentation **************			
Component	Certified Concentration	Cylinder #	Standard Number	Concentration	Instrument Make/Model	Serial Number	Last Calibration	Measurement Principal
SULFUR DIOXIDE	45.9 ±.42 PPM	SG9135091BAL	GMIS R	49.20 PPM	TECO Model 43C	51811288	04/30/96	PULSED FLUORESCEN(

Balance Gas: NITROGEN

* Standard should not be used below 150 psig

Analyst: *Lisa Tarricone* (initials)
Lisa Tarricone

Approved By: *Ken Roubik* (initials)
Ken Roubik

D-13

Air Products and Chemicals, Inc.
P.O. BOX 351
R.D. #1
TAMAQUA, PA 18252

Certificate of Analysis - EPA Protocol Gas Standard

PERFORMED ACCORDING TO EPA TRACEABILITY PROTOCOL FOR ASSAY AND CERTIFICATION OF GASEOUS CALIBRATION STANDARDS (PROCEDURE #G1)

Customer:
AIR PRODUCTS AND CHEMICALS, INC.
HOMETOWN FACILITY
R.R. #1, P.O. BOX 351
TAMAQUA PA 18252-

PO: Rel:

Notes:
SO2 value is based on NIST corrected SRM concentrations.

Order No: 255-060930-04
Batch No: 255-81987

Cylinder No: SG9142066BAL
Bar Code No: DGX543
Cylinder Pressure*; 2000 psig
Certification Date: 02/09/96
Expiration Date: 02/09/98

*** Certified Concentration ***		********* Reference Standards *********			************* Analytical Instrumentation *************			
Component	Certified Concentration	Cylinder #	Standard Number	Concentration	Instrument Make/Model	Serial Number	Last Calibration	Measurement Principal
SULFUR DIOXIDE	89.9±0.86 PPM	SG9151076BAL	GMIS R	94.35 PPM	Horiba V1A-510	56872601	01/11/96	NON DISPERSIVE INFR

Balance Gas: NITROGEN

---

* Standard should not be used below 150 psig

Analyst: Dave Woodward/KR
Dave Woodward

Approved By: K Roubik
Ken Roubik

D-14

APPENDIX E

Process Data

SAMPLING TIME PERIODS

Particulate

Run No 1	March 3, 1998	10:35 AM To 02:15 PM
Run No. 2	March 3, 1998	07:55 AM To 12:05 PM
Run No. 3	March 3, 1998	12:30 AM To 4:40 PM
Run No. 4	March 4, 1998	07:45 AM To 11:55 AM
Run No. 5	March 4, 1998	07:50 AM To 12:23 PM

Sulfur Dioxide

Run No. 1	March 3, 1998	08:05 AM To 12:15 PM
Run No. 2	March 3, 1998	12:55 PM To 05:08 PM
Run No. 3	March 4, 1998	09:05 AM To 01:31 PM

PRODUCTION RATES

HEAT No	TIME	TAP WEIGHT (lb)
J0863	0708 TO 0821	350953
J0864	0822 TO 1002	351053
J0865	1002 TO 1135	350000
J0866	1135 TO 1248	348395
J0867	1248 TO 1418	348910
J0868	1418 TO 1533	350000
J0869	1533 TO 1645	351876
J0870	1645 TO 1810	350000
J0879	0632 TO 0758	349457
J0880	0758 TO 0918	350000
J0881	0918 TO 1033	347498
J0882	1033 TO 1211	368914
J0883	1211 TO 1407	348461

Part. 2 + SO_2 1

Part. 1+3

SO_2 2

Part. 4+5

SO_2 3

Part 1+3	Part 2 + SO_2 1	Part 4+5	SO_2 2	SO_2 3
348395	350953	349457	348910	350000
348910	351053	350000	350000	347498
350000	350000	347498	351876	368914
351876	348395	368914	350000	348461
1399181	1400401	1415869	1400786	1414873
÷ 311 min	÷ 340 min	÷ 339 min	÷ 297 min	÷ 369 min
4499	4119	4176	4716	3834
× 60 min/hr	× 60 min/hr	× 60 min/hr	× 60 min/hr	× 60 min/hr
269940	247130	250896	282960	230060
÷ 2000 lb/T	÷ 2000 lb/T	÷ 2000 lb/T	÷ 2000 lb/T	÷ 2000 lb/T
134.97 T/hr	123.56 T/hr	125.30 T/hr	141.48	115.03 T/hr

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   000 3-MAR-98 07:08:07 MPTRACK_FC1                    Journal Created
MT 001 3-MAR-98 07:08:07 MPTRACK_FC1    MODEL           >>>>>>>>>>>>>>> Start of heat J0863
MT 011 3-MAR-98 07:08:07 MPTRACK_FC1    MODEL           Scrap contents  Charge ID C2185  Bucket 1
MT 012 3-MAR-98 07:08:07 MPTRACK_FC1    MODEL           ---------------------------------------------
MT 013 3-MAR-98 07:08:07 MPTRACK_FC1    MODEL           ZH1DB237    BUSH            42300. LBS
MT 013 3-MAR-98 07:08:07 MPTRACK_FC1    MODEL           ZHBLD905    BLEND           28800. LBS
MT 013 3-MAR-98 07:08:07 MPTRACK_FC1    MODEL           ZHHDS905    HIGH DENSE      14900. LBS
MT 013 3-MAR-98 07:08:07 MPTRACK_FC1    MODEL           #FBRLM62    LIME             3945. LBS
MT 013 3-MAR-98 07:08:07 MPTRACK_FC1    MODEL           #FDOLM69    DOLOLIME         3455. LBS
MT 013 3-MAR-98 07:08:07 MPTRACK_FC1    MODEL           CCREV907    C CROPS         88100. LBS
MT 013 3-MAR-98 07:08:07 MPTRACK_FC1    MODEL           MPREV926    M PIT           15400. LBS
MT 013 3-MAR-98 07:08:07 MPTRACK_FC1    MODEL           ZHCAC201    CRUSH CAST      39300. LBS
MT 013 3-MAR-98 07:08:07 MPTRACK_FC1    MODEL           ZHFRG302    FRAGMENT        23300. LBS
MT 014 3-MAR-98 07:08:07 MPTRACK_FC1    MODEL           Total weight               259500. LBS
MT 015 3-MAR-98 07:08:07 MPTRACK_FC1    MODEL           Total weight metallics     252100. LBS
MT 016 3-MAR-98 07:08:07 MPTRACK_FC1    MODEL           % bucket filled                95. %
MT 017 3-MAR-98 07:08:07 MPTRACK_FC1    MODEL           Stocker name                 SIMON
MT 018 3-MAR-98 07:08:07 MPTRACK_FC1    MODEL           Beg of Period -  33771. KWh remaining in 31.9 Min
CD 006 3-MAR-98 07:08:11 HST__JRNPDO    L4 COMMS        WORKSHEET Created for Heat J0862
CD 006 3-MAR-98 07:08:12 HTC__ONLINE    PROCESS EVENT   CREW                 : D
CD 006 3-MAR-98 07:08:12 HTC__ONLINE    PROCESS EVENT   Oxygen Operator      : CONNER
CD 006 3-MAR-98 07:08:12 HTC__ONLINE    PROCESS EVENT   Furnace Operator     : BREINIG
CD 006 3-MAR-98 07:08:12 HTC__ONLINE    PROCESS EVENT   Coordinator          : NORTH
CD 006 3-MAR-98 07:08:12 HTC__ONLINE    PROCESS EVENT   Mill Type            : 1050V1
CD 006 3-MAR-98 07:08:12 HTC__ONLINE    PROCESS EVENT   Steel Catalog        : 0383AA
CD 006 3-MAR-98 07:08:12 HTC__ONLINE    PROCESS EVENT   Charge ID            : C2185
CD 006 3-MAR-98 07:08:12 HTC__ONLINE    PROCESS EVENT   Hot Heel             :  95000
CD 006 3-MAR-98 07:08:12 HTC__ONLINE    PROCESS EVENT   Heat counts prior to heat
CD 006 3-MAR-98 07:08:12 HTC__ONLINE    PROCESS EVENT   BOTTOM               :   4802
CD 006 3-MAR-98 07:08:12 HTC__ONLINE    PROCESS EVENT   SIDE LINING          :   2356
CD 006 3-MAR-98 07:08:12 HTC__ONLINE    PROCESS EVENT   DELTA SECTION        :    142
CD 006 3-MAR-98 07:08:12 HTC__ONLINE    PROCESS EVENT   RUNNER               :    862
CD 006 3-MAR-98 07:08:12 HTC__ONLINE    PROCESS EVENT   TAP HOLE PIPE        :   2356
CD 006 3-MAR-98 07:08:12 HTC__ONLINE    PROCESS EVENT   Target tap weight is 350000
CD 006 3-MAR-98 07:08:12 HTC__ONLINE    OPER MESSAGE    03-Mar-98 07:08 Please check and correct the data for the previous heat.
CD 006 3-MAR-98 07:08:13 EGC__BURNCNTL  MODEL           Burner Operating Diagram (0)15_5  active.
CD 006 3-MAR-98 07:08:15 HST__JRNPDO    L4 COMMS        PDO Created for Heat J0861
CD 006 3-MAR-98 07:08:16 HST__JRNPDO    L4 COMMS        WORKSHEET Created for Heat J0861
MT 089 3-MAR-98 07:08:36 MPTRACK_FC1    PROCESS EVENT   North BURNER Stand has been switched to HIGH FIRE
MT 089 3-MAR-98 07:08:36 MPTRACK_FC1    PROCESS EVENT   South BURNER Stand has been switched to HIGH FIRE
MT 089 3-MAR-98 07:08:36 MPTRACK_FC1    PROCESS EVENT   West  BURNER Stand has been switched to HIGH FIRE
CD 006 3-MAR-98 07:09:19 EGC__ARCCNTL   MODEL           Desired Taps  12 12 12
CD 006 3-MAR-98 07:10:23 L2C__CHEMRCV   L2C COMMS       CHEM HT:J0862  LOC:TP SEQ:   1 TYPE:F TIME: 3-MAR-98 07:10:23
CD 006 3-MAR-98 07:10:23 L2C__CHEMRCV   L2C COMMS       C :  0.2800 Mn:  0.5100 P :  0.0060 S :  0.0510 Si:  0.1700
CD 006 3-MAR-98 07:10:23 L2C__CHEMRCV   L2C COMMS       Cr:  0.0800 Ni:  0.0950 Mo:  0.0280 Cu:  0.1800 Al:  0.0250
CD 006 3-MAR-98 07:10:23 L2C__CHEMRCV   L2C COMMS       V :  0.0010 Pb:  0.0005 Sn:  0.0100 B :  0.0002 Cb:  0.0010
CD 006 3-MAR-98 07:10:23 L2C__CHEMRCV   L2C COMMS       Ti:  0.0010 Ca:  0.0001 Co: -1.0000 W :  0.0020 Ta: -1.0000
CD 006 3-MAR-98 07:10:23 L2C__CHEMRCV   L2C COMMS       Zr:  0.0010 As:  0.0040 Sb:  0.0010 Bi: -1.0000 Se: -1.0000
CD 006 3-MAR-98 07:10:23 L2C__CHEMRCV   L2C COMMS       Zn: -1.0000 O : -1.0000 N :  0.0097 H : -1.0000 Te:  0.0002
MT 061 3-MAR-98 07:10:26 MPTRACK_FC1    PROCESS EVENT   Actual  Taps   12 12 12
CD 006 3-MAR-98 07:11:09 EGC__ARCCNTL   MODEL           Desired Taps  13 13 13
CD 006 3-MAR-98 07:11:16 L2C__RMHMON    DIAGNOSTIC      Bin status. Bin 43, Material #FBRLM62, Status AV, Wgt  38125, Dest
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CD 006  3-MAR-98 07:11:20 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin 40, Material #FDOLM69, Status AV, Wgt      0, Dest
CD 006  3-MAR-98 07:11:53 L2C__RMHMON     L2C COMMS          999 pounds of #FCOALNT requested to XF.    Request 330101
MT 061  3-MAR-98 07:11:56 MPTRACK_FC1     PROCESS EVENT   Actual  Taps   13 13 13
CD 006  3-MAR-98 07:13:01 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin  7, Material #FCOALNT, Status AV, Wgt  81088, Dest
CD 006  3-MAR-98 07:13:01 L2C__RMHMON     L2C COMMS         1002 pounds of #FCOALNT delivered to XF for request 330101
CD 006  3-MAR-98 07:14:15 L2C__RMHMON     L2C COMMS          999 pounds of #FCOALNT requested to XF.    Request 330201
CD 006  3-MAR-98 07:15:11 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin  6, Material #FCOALNT, Status AV, Wgt 107574, Dest
CD 006  3-MAR-98 07:15:11 L2C__RMHMON     L2C COMMS         1005 pounds of #FCOALNT delivered to XF for request 330201
CD 006  3-MAR-98 07:15:29 EGC__ARCCNTL    MODEL           Desired Taps  15 15 15
MT 061  3-MAR-98 07:16:26 MPTRACK_FC1     PROCESS EVENT   Actual  Taps   15 15 15
CD 006  3-MAR-98 07:17:42 WDL__FOAMYSLAG  OPER DECISION       980 lbs of #FDOLM69 requested.
CD 006  3-MAR-98 07:17:42 L2C__RMHMON     L2C COMMS          980 pounds of #FDOLM69 requested to XF.    Request 310101
CD 006  3-MAR-98 07:18:43 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin  5, Material #FDOLM69, Status AV, Wgt 165908, Dest
CD 006  3-MAR-98 07:18:44 L2C__RMHMON     L2C COMMS          987 pounds of #FDOLM69 delivered to XF for request 310101
CD 006  3-MAR-98 07:19:34 WDL__FOAMYSLAG  OPER DECISION       980 lbs of #FDOLM69 requested.
CD 006  3-MAR-98 07:19:35 L2C__RMHMON     L2C COMMS          980 pounds of #FDOLM69 requested to XF.    Request 310201
CD 006  3-MAR-98 07:20:25 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin  9, Material #FDOLM69, Status AV, Wgt 130180, Dest
CD 006  3-MAR-98 07:20:26 L2C__RMHMON     L2C COMMS          984 pounds of #FDOLM69 delivered to XF for request 310201
CD 006  3-MAR-98 07:22:10 WDL__FOAMYSLAG  OPER DECISION       980 lbs of #FDOLM69 requested.
CD 006  3-MAR-98 07:22:11 L2C__RMHMON     L2C COMMS          980 pounds of #FDOLM69 requested to XF.    Request 310301
CD 006  3-MAR-98 07:23:09 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin  5, Material #FDOLM69, Status AV, Wgt 164924, Dest
CD 006  3-MAR-98 07:23:09 L2C__RMHMON     L2C COMMS          984 pounds of #FDOLM69 delivered to XF for request 310301
MT 092  3-MAR-98 07:25:05 MPTRACK_FC1     PROCESS EVENT   North BURNER Stand no longer on HIGH FIRE
MT 092  3-MAR-98 07:25:05 MPTRACK_FC1     PROCESS EVENT   South BURNER Stand no longer on HIGH FIRE
MT 092  3-MAR-98 07:25:05 MPTRACK_FC1     PROCESS EVENT   West  BURNER Stand no longer on HIGH FIRE
CD 006  3-MAR-98 07:28:29 L2C__RMHMON     L2C COMMS          400 pounds of #AALBULK requested to XT.    Request 330301
MT 009  3-MAR-98 07:28:35 MPTRACK_FC1     MODEL           Aim Tapping Temperature                 3013. degF
MT 010  3-MAR-98 07:28:35 MPTRACK_FC1     MODEL           Expected Temperature Drop during Tapping  113. degF
MT 086  3-MAR-98 07:29:15 MPTRACK_FC1     PROCESS EVENT   Power OFF:  23420. (23420.) KWH/heat (period) - 186. KWh/Ton
MT 052  3-MAR-98 07:29:35 MPTRACK_FC1     PROCESS EVENT   Roof lifted
MT 058  3-MAR-98 07:29:35 MPTRACK_FC1     PROCESS EVENT   Electrode #1 lifted
MT 058  3-MAR-98 07:29:35 MPTRACK_FC1     PROCESS EVENT   Electrode #2 lifted
MT 058  3-MAR-98 07:29:35 MPTRACK_FC1     PROCESS EVENT   Electrode #3 lifted
CD 006  3-MAR-98 07:29:39 EGC__ARCCNTL    MODEL           Desired Taps   7  7  7
MT 054  3-MAR-98 07:29:55 MPTRACK_FC1     PROCESS EVENT   Roof swung OUT
CD 006  3-MAR-98 07:29:58 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin 31, Material #AALBULK, Status AV, Wgt   7042, Dest
CD 006  3-MAR-98 07:29:58 L2C__RMHMON     DIAGNOSTIC      Hopper 81, Position  1, Total  1, Material #AALBULK, Req    400, Dlv    3
CD 006  3-MAR-98 07:29:59 L2C__RMHMON     L2C COMMS          386 pounds of #AALBULK delivered to XT for request 330301
MT 009  3-MAR-98 07:30:05 MPTRACK_FC1     MODEL           Aim Tapping Temperature                 3013. degF
MT 010  3-MAR-98 07:30:05 MPTRACK_FC1     MODEL           Expected Temperature Drop during Tapping  113. degF
MT 055  3-MAR-98 07:30:35 MPTRACK_FC1     PROCESS EVENT   Roof swung IN
MT 053  3-MAR-98 07:30:55 MPTRACK_FC1     PROCESS EVENT   Roof lowered
MT 059  3-MAR-98 07:30:55 MPTRACK_FC1     PROCESS EVENT   Electrode #1 lowered
MT 059  3-MAR-98 07:30:55 MPTRACK_FC1     PROCESS EVENT   Electrode #2 lowered
MT 059  3-MAR-98 07:30:55 MPTRACK_FC1     PROCESS EVENT   Electrode #3 lowered
MT 089  3-MAR-98 07:30:55 MPTRACK_FC1     PROCESS EVENT   North BURNER Stand has been switched to HIGH FIRE
MT 089  3-MAR-98 07:30:55 MPTRACK_FC1     PROCESS EVENT   South BURNER Stand has been switched to HIGH FIRE
MT 089  3-MAR-98 07:30:55 MPTRACK_FC1     PROCESS EVENT   West  BURNER Stand has been switched to HIGH FIRE
MT 002  3-MAR-98 07:30:55 MPTRACK_FC1     MODEL           >>>>>>>>>>>>>>> Start of period Bucket 2
MT 011  3-MAR-98 07:30:55 MPTRACK_FC1     MODEL           Scrap contents  Charge ID C2185  Bucket 2 LAST
MT 012  3-MAR-98 07:30:55 MPTRACK_FC1     MODEL           ---------------------------------------------
MT 013  3-MAR-98 07:30:55 MPTRACK_FC1     MODEL           ZHFRG106    FRAG-SHRED    71700. LBS
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MT 013  3-MAR-98 07:30:55 MPTRACK_FC1     MODEL           ZH1DB237    BUSH          29200. LBS
MT 013  3-MAR-98 07:30:55 MPTRACK_FC1     MODEL           #FDOLM69    DOLOLIME       1350. LBS
MT 013  3-MAR-98 07:30:55 MPTRACK_FC1     MODEL           ZHFRG106    FRAG-SHRED    25650. LBS
MT 014  3-MAR-98 07:30:55 MPTRACK_FC1     MODEL           Total weight             127900. LBS
MT 015  3-MAR-98 07:30:55 MPTRACK_FC1     MODEL           Total weight metallics   126550. LBS
MT 016  3-MAR-98 07:30:55 MPTRACK_FC1     MODEL           % bucket filled              75. %
MT 017  3-MAR-98 07:30:55 MPTRACK_FC1     MODEL           Stocker name              SIMON
MT 018  3-MAR-98 07:30:55 MPTRACK_FC1     MODEL           Beg of Period -  37816. KWh remaining in 35.8 Min
MT 061  3-MAR-98 07:31:05 MPTRACK_FC1     PROCESS EVENT   Actual  Taps    7  7  7
MT 020  3-MAR-98 07:31:05 MPTRACK_FC1     MODEL                          C   Mn    P     S     Si   Cr   Ni   Mo   Cu
MT 021  3-MAR-98 07:31:05 MPTRACK_FC1     MODEL           Melt Down   0.48 0.07 0.015 0.046 0.343 0.11 0.10 0.04 0.20
CD 006  3-MAR-98 07:31:39 EGC__ARCCNTL    MODEL           Desired Taps  12 12 12
CD 006  3-MAR-98 07:32:38 L2C__RMHMON     L2C COMMS          999 pounds of #FCOALNT requested to XF.    Request 330401
MT 061  3-MAR-98 07:32:45 MPTRACK_FC1     PROCESS EVENT   Actual  Taps   12 12 12
CD 006  3-MAR-98 07:32:50 L2C__RMHMON     L2C COMMS          190 pounds of #FDOLM69 requested to XF.    Request 330501
CD 006  3-MAR-98 07:33:26 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin  9, Material #FDOLM69, Status AV, Wgt 129987, Dest
CD 006  3-MAR-98 07:33:26 L2C__RMHMON     L2C COMMS          193 pounds of #FDOLM69 delivered to XF for request 330501
CD 006  3-MAR-98 07:33:34 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin  7, Material #FCOALNT, Status AV, Wgt  80085, Dest
CD 006  3-MAR-98 07:33:35 L2C__RMHMON     L2C COMMS         1003 pounds of #FCOALNT delivered to XF for request 330401
MT 067  3-MAR-98 07:34:05 MPTRACK_FC1     PROCESS EVENT   Carbon Injection unit ON
CD 006  3-MAR-98 07:34:19 EGC__ARCCNTL    MODEL           Desired Taps  13 13 13
MT 061  3-MAR-98 07:35:05 MPTRACK_FC1     PROCESS EVENT   Actual  Taps   13 13 13
CD 006  3-MAR-98 07:35:51 L2C__SCRAPRCV   OPER MESSAGE    03-Mar-98 07:35 RECEIVED BUCKET 1    J0864   95.0% FULL (CASTINGS) (C2186
CD 006  3-MAR-98 07:35:51 L2C__CHEMRCV    L2C COMMS       CHEM HT:J0862  LOC:R1 SEQ:   1 TYPE:F TIME: 3-MAR-98 07:35:51
CD 006  3-MAR-98 07:35:51 L2C__CHEMRCV    L2C COMMS       C :  0.4000 Mn:  0.7200 P :  0.0070 S :  0.0310 Si:  0.2300
CD 006  3-MAR-98 07:35:51 L2C__CHEMRCV    L2C COMMS       Cr:  0.0900 Ni:  0.0960 Mo:  0.0280 Cu:  0.1900 Al:  0.0170
CD 006  3-MAR-98 07:35:51 L2C__CHEMRCV    L2C COMMS       V :  0.0210 Pb:  0.0003 Sn:  0.0100 B :  0.0001 Cb:  0.0010
CD 006  3-MAR-98 07:35:51 L2C__CHEMRCV    L2C COMMS       Ti:  0.0020 Ca:  0.0001 Co: -1.0000 W :  0.0010 Ta: -1.0000
CD 006  3-MAR-98 07:35:51 L2C__CHEMRCV    L2C COMMS       Zr:  0.0010 As:  0.0050 Sb:  0.0010 Bi: -1.0000 Se: -1.0000
CD 006  3-MAR-98 07:35:51 L2C__CHEMRCV    L2C COMMS       Zn: -1.0000 O : -1.0000 N :  0.0089 H : -1.0000 Te:  0.0002
CD 006  3-MAR-98 07:36:38 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin  7, Material #FCOALNT, Status AV, Wgt  79780, Dest
CD 006  3-MAR-98 07:36:39 L2C__RMHMON     L2C COMMS          305 pounds of #FCOALNT delivered to XF for request 042273
CD 006  3-MAR-98 07:37:24 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin 40, Material #FDOLM69, Status AV, Wgt      0, Dest
CD 006  3-MAR-98 07:38:17 sms1465_CRE     OPER DECISION    - Furnace crew edited as follows;
CD 006  3-MAR-98 07:38:17 sms1465_CRE     OPER DECISION   C is now the current crew.
CD 006  3-MAR-98 07:38:17 sms1465_CRE     OPER DECISION   NOVELLI     is the Oxygen Operator     .
CD 006  3-MAR-98 07:38:17 sms1465_CRE     OPER DECISION   HUFSTEDLER is the Furnace Operator    .
CD 006  3-MAR-98 07:38:17 sms1465_CRE     OPER DECISION   BARTA       is the Coordinator         .
CD 006  3-MAR-98 07:41:29 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin  3, Material #FSCLE68, Status AV, Wgt 113691, Dest
CD 006  3-MAR-98 07:41:29 L2C__RMHMON     L2C COMMS          501 pounds of #FSCLE68 delivered to XF for request 041075
CD 006  3-MAR-98 07:44:50 EGC__ARCCNTL    MODEL           Desired Taps  15 15 15
MT 061  3-MAR-98 07:45:46 MPTRACK_FC1     PROCESS EVENT   Actual  Taps   15 15 15
MT 092  3-MAR-98 07:46:06 MPTRACK_FC1     PROCESS EVENT   North BURNER Stand no longer on HIGH FIRE
MT 092  3-MAR-98 07:46:06 MPTRACK_FC1     PROCESS EVENT   South BURNER Stand no longer on HIGH FIRE
MT 092  3-MAR-98 07:46:06 MPTRACK_FC1     PROCESS EVENT   West  BURNER Stand no longer on HIGH FIRE
MT 089  3-MAR-98 07:54:16 MPTRACK_FC1     PROCESS EVENT   North BURNER Stand has been switched to HIGH FIRE
MT 089  3-MAR-98 07:54:16 MPTRACK_FC1     PROCESS EVENT   South BURNER Stand has been switched to HIGH FIRE
MT 089  3-MAR-98 07:54:16 MPTRACK_FC1     PROCESS EVENT   West  BURNER Stand has been switched to HIGH FIRE
MT 078  3-MAR-98 07:57:36 MPTRACK_FC1     PROCESS EVENT   Oxygen lance OFF: 122600.( 122600.) SCF/heat (last On-Off)
CD 006  3-MAR-98 07:57:49 DVM__BATHTEMP   DEVICE MEAS     Received a bath temperature of 2968.0¯F.
CD 006  3-MAR-98 07:57:49 DVM__BATHTEMP   DEVICE MEAS     Calculated Bath Temperature = 2617.5 ¯F.
MT 077  3-MAR-98 07:57:56 MPTRACK_FC1     PROCESS EVENT   Oxygen lance ON
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MT 003  3-MAR-98 07:57:56 MPTRACK_FC1     MODEL           >>>>>>>>>>>>>>>> Start of period Finishing
MT 018  3-MAR-98 07:57:56 MPTRACK_FC1     MODEL           Beg of Period -   1299. KWh remaining in  1.2 Min
CD 006  3-MAR-98 07:57:59 EGC__ARCCNTL    MODEL           Desired Taps  14 14 14
MT 078  3-MAR-98 07:58:26 MPTRACK_FC1     PROCESS EVENT   Oxygen lance OFF: 123800.(   1200.) SCF/heat (last On-Off)
MT 061  3-MAR-98 07:58:46 MPTRACK_FC1     PROCESS EVENT   Actual  Taps   14 14 14
MT 077  3-MAR-98 07:58:46 MPTRACK_FC1     PROCESS EVENT   Oxygen lance ON
MT 092  3-MAR-98 07:59:16 MPTRACK_FC1     PROCESS EVENT   North BURNER Stand no longer on HIGH FIRE
MT 092  3-MAR-98 07:59:16 MPTRACK_FC1     PROCESS EVENT   South BURNER Stand no longer on HIGH FIRE
MT 092  3-MAR-98 07:59:16 MPTRACK_FC1     PROCESS EVENT   West  BURNER Stand no longer on HIGH FIRE
CD 006  3-MAR-98 07:59:27 L2C__CHEMRCV    L2C COMMS       FURNACE SAMPLE  1 FOR HEAT J0863 ENROUTE TO CHEMLAB
MT 089  3-MAR-98 07:59:46 MPTRACK_FC1     PROCESS EVENT   North BURNER Stand has been switched to HIGH FIRE
MT 089  3-MAR-98 07:59:46 MPTRACK_FC1     PROCESS EVENT   South BURNER Stand has been switched to HIGH FIRE
MT 089  3-MAR-98 07:59:46 MPTRACK_FC1     PROCESS EVENT   West  BURNER Stand has been switched to HIGH FIRE
CD 006  3-MAR-98 08:00:00 HTC__ONLINE     OPER MESSAGE    03-Mar-98 08:00 Shift change has occurred, check that crew data is correc
CD 006  3-MAR-98 08:00:09 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin  7, Material #FCOALNT, Status AV, Wgt  79474, Dest
CD 006  3-MAR-98 08:00:10 L2C__RMHMON     L2C COMMS          306 pounds of #FCOALNT delivered to XF for request 042274
CD 006  3-MAR-98 08:03:41 L2C__CHEMRCV    L2C COMMS       CHEM HT:J0862  LOC:R1 SEQ:   2 TYPE:F TIME: 3-MAR-98 08:03:40
CD 006  3-MAR-98 08:03:41 L2C__CHEMRCV    L2C COMMS       C :  0.4500 Mn:  0.8200 P :  0.0070 S :  0.0100 Si:  0.2500
CD 006  3-MAR-98 08:03:41 L2C__CHEMRCV    L2C COMMS       Cr:  0.0900 Ni:  0.0960 Mo:  0.0280 Cu:  0.1900 Al:  0.0230
CD 006  3-MAR-98 08:03:41 L2C__CHEMRCV    L2C COMMS       V :  0.0250 Pb:  0.0003 Sn:  0.0100 B :  0.0001 Cb:  0.0010
CD 006  3-MAR-98 08:03:41 L2C__CHEMRCV    L2C COMMS       Ti:  0.0020 Ca:  0.0001 Co: -1.0000 W :  0.0020 Ta: -1.0000
CD 006  3-MAR-98 08:03:41 L2C__CHEMRCV    L2C COMMS       Zr:  0.0010 As:  0.0040 Sb:  0.0010 Bi: -1.0000 Se: -1.0000
CD 006  3-MAR-98 08:03:41 L2C__CHEMRCV    L2C COMMS       Zn: -1.0000 O : -1.0000 N :  0.0075 H : -1.0000 Te:  0.0002
CD 006  3-MAR-98 08:03:42 L2C__CHEMRCV    L2C COMMS       CHEM HT:J0863  LOC:F1 SEQ:   1 TYPE:F TIME: 3-MAR-98 08:03:41
CD 006  3-MAR-98 08:03:42 L2C__CHEMRCV    L2C COMMS       C :  0.0600 Mn:  0.0700 P :  0.0050 S :  0.0370 Si:  0.0100
CD 006  3-MAR-98 08:03:42 L2C__CHEMRCV    L2C COMMS       Cr:  0.0700 Ni:  0.0820 Mo:  0.0280 Cu:  0.1800 Al: -1.0000
CD 006  3-MAR-98 08:03:42 L2C__CHEMRCV    L2C COMMS       V :  0.0010 Pb:  0.0007 Sn:  0.0070 B :  0.0001 Cb:  0.0020
CD 006  3-MAR-98 08:03:42 L2C__CHEMRCV    L2C COMMS       Ti:  0.0010 Ca:  0.0001 Co: -1.0000 W :  0.0010 Ta: -1.0000
CD 006  3-MAR-98 08:03:42 L2C__CHEMRCV    L2C COMMS       Zr: -1.0000 As:  0.0050 Sb:  0.0100 Bi: -1.0000 Se: -1.0000
CD 006  3-MAR-98 08:03:42 L2C__CHEMRCV    L2C COMMS       Zn: -1.0000 O : -1.0000 N :  0.0083 H : -1.0000 Te: -1.0000
CD 006  3-MAR-98 08:03:42 AAM__ONLINE     MODEL             1288 pounds of #ACOKE14-PET COKE   recommended.
CD 006  3-MAR-98 08:03:42 AAM__ONLINE     MODEL             3506 pounds of #AFMSIA2-M66.0S17.0 recommended.
CD 006  3-MAR-98 08:03:42 AAM__ONLINE     MODEL              320 pounds of #AFS7502-FESI 75    recommended.
CD 006  3-MAR-98 08:03:42 AAM__ONLINE     MODEL           LRS predicted: C: .430, Mn: .73, P: .005, S: .036, Si: .250, Cr: .07, Ni:
CD 006  3-MAR-98 08:03:42 AAM__ONLINE     MODEL           LRS predicted: Mo: .028, Cu: .18, V: .001, Pb: .0007, Sn: .007
CD 006  3-MAR-98 08:03:42 AAM__ONLINE     MODEL           Target tap weight is 350000
MT 020  3-MAR-98 08:03:46 MPTRACK_FC1     MODEL                        C   Mn    P     S    Si   Cr   Ni   Mo   Cu
MT 023  3-MAR-98 08:03:46 MPTRACK_FC1     MODEL           LabResult   0.06 0.07 .005 .037 .010 0.07 0.08 0.03 0.18
MT 022  3-MAR-98 08:03:46 MPTRACK_FC1     MODEL           MeltRec      13. 101.  34.  80.   3.  63.  79.  73.  89.
MT 021  3-MAR-98 08:03:46 MPTRACK_FC1     MODEL           Estimated   0.08 0.07 0.006 0.047 0.010 0.11 0.10 0.04 0.21
CD 006  3-MAR-98 08:03:56 L2C__RMHMON     L2C COMMS         1288 pounds of #ACOKE14 requested to XT.    Request 320101
CD 006  3-MAR-98 08:03:56 L2C__RMHMON     L2C COMMS         3506 pounds of #AFMSIA2 requested to XT.    Request 320102
CD 006  3-MAR-98 08:03:56 L2C__RMHMON     L2C COMMS          320 pounds of #AFS7502 requested to XT.    Request 320103
MT 009  3-MAR-98 08:04:06 MPTRACK_FC1     MODEL           Aim Tapping Temperature                3081. degF
MT 010  3-MAR-98 08:04:06 MPTRACK_FC1     MODEL           Expected Temperature Drop during Tapping  181. degF
MT 078  3-MAR-98 08:04:36 MPTRACK_FC1     PROCESS EVENT   Oxygen lance OFF: 135700.(  11900.) SCF/heat (last On-Off)
CD 006  3-MAR-98 08:04:37 DVM__BATHTEMP   DEVICE MEAS     Received a bath temperature of 2995.0 F.
CD 006  3-MAR-98 08:04:37 DVM__BATHTEMP   DEVICE MEAS     Calculated Bath Temperature = 3180.0  F.
MT 092  3-MAR-98 08:04:46 MPTRACK_FC1     PROCESS EVENT   North BURNER Stand no longer on HIGH FIRE
MT 092  3-MAR-98 08:04:46 MPTRACK_FC1     PROCESS EVENT   South BURNER Stand no longer on HIGH FIRE
MT 092  3-MAR-98 08:04:46 MPTRACK_FC1     PROCESS EVENT   West  BURNER Stand no longer on HIGH FIRE
MT 077  3-MAR-98 08:04:46 MPTRACK_FC1     PROCESS EVENT   Oxygen lance ON
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CD 006  3-MAR-98 08:04:53 L2C__RMHMON     L2C COMMS        1000 pounds of #FDOLM69 requested to XT.    Request 330601
CD 006  3-MAR-98 08:04:53 L2C__RMHMON     L2C COMMS        1100 pounds of #FBRLM62 requested to XT.    Request 330602
MT 009  3-MAR-98 08:04:56 MPTRACK_FC1     MODEL           Aim Tapping Temperature                    3097. degF
MT 010  3-MAR-98 08:04:56 MPTRACK_FC1     MODEL           Expected Temperature Drop during Tapping  197. degF
CD 006  3-MAR-98 08:04:56 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin 34, Material #AFS7502, Status AV, Wgt  20710, Dest
CD 006  3-MAR-98 08:04:57 L2C__RMHMON     DIAGNOSTIC      Hopper 82, Position  1, Total  1, Material #AFS7502, Req    320, Dlv    3
CD 006  3-MAR-98 08:04:57 L2C__RMHMON     L2C COMMS         336 pounds of #AFS7502 delivered to XT for request 320103
MT 009  3-MAR-98 08:05:06 MPTRACK_FC1     MODEL           Aim Tapping Temperature                    3097. degF
MT 010  3-MAR-98 08:05:06 MPTRACK_FC1     MODEL           Expected Temperature Drop during Tapping  197. degF
CD 006  3-MAR-98 08:05:10 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin  7, Material #FCOALNT, Status AV, Wgt  79174, Dest
CD 006  3-MAR-98 08:05:11 L2C__RMHMON     L2C COMMS         300 pounds of #FCOALNT delivered to XF for request 042275
MT 089  3-MAR-98 08:05:16 MPTRACK_FC1     PROCESS EVENT   North BURNER Stand has been switched to HIGH FIRE
MT 089  3-MAR-98 08:05:16 MPTRACK_FC1     PROCESS EVENT   South BURNER Stand has been switched to HIGH FIRE
MT 089  3-MAR-98 08:05:16 MPTRACK_FC1     PROCESS EVENT   West  BURNER Stand has been switched to HIGH FIRE
CD 006  3-MAR-98 08:05:48 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin 13, Material #FBRLM62, Status AV, Wgt 259552, Dest
CD 006  3-MAR-98 08:05:49 L2C__RMHMON     DIAGNOSTIC      Hopper 80, Position  1, Total  1, Material #FBRLM62, Req   1100, Dlv   11
CD 006  3-MAR-98 08:05:49 L2C__RMHMON     L2C COMMS        1103 pounds of #FBRLM62 delivered to XT for request 330602
MT 009  3-MAR-98 08:05:56 MPTRACK_FC1     MODEL           Aim Tapping Temperature                    3097. degF
MT 010  3-MAR-98 08:05:56 MPTRACK_FC1     MODEL           Expected Temperature Drop during Tapping  197. degF
CD 006  3-MAR-98 08:06:10 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin 15, Material #FDOLM69, Status AV, Wgt  37982, Dest
CD 006  3-MAR-98 08:06:11 L2C__RMHMON     DIAGNOSTIC      Hopper 80, Position  2, Total  2, Material #FDOLM69, Req   1000, Dlv   10
CD 006  3-MAR-98 08:06:11 L2C__RMHMON     L2C COMMS        1001 pounds of #FDOLM69 delivered to XT for request 330601
MT 009  3-MAR-98 08:06:16 MPTRACK_FC1     MODEL           Aim Tapping Temperature                    3097. degF
MT 010  3-MAR-98 08:06:16 MPTRACK_FC1     MODEL           Expected Temperature Drop during Tapping  197. degF
CD 006  3-MAR-98 08:06:23 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin 28, Material #AFMSIA2, Status AV, Wgt  52994, Dest
CD 006  3-MAR-98 08:06:23 L2C__RMHMON     DIAGNOSTIC      Hopper 82, Position  2, Total  2, Material #AFMSIA2, Req   3506, Dlv   35
CD 006  3-MAR-98 08:06:24 L2C__RMHMON     L2C COMMS        3598 pounds of #AFMSIA2 delivered to XT for request 320102
MT 009  3-MAR-98 08:06:26 MPTRACK_FC1     MODEL           Aim Tapping Temperature                    3097. degF
MT 010  3-MAR-98 08:06:26 MPTRACK_FC1     MODEL           Expected Temperature Drop during Tapping  197. degF
CD 006  3-MAR-98 08:06:40 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin  7, Material #FCOALNT, Status AV, Wgt  78872, Dest
CD 006  3-MAR-98 08:06:40 L2C__RMHMON     L2C COMMS         302 pounds of #FCOALNT delivered to XF for request 042276
CD 006  3-MAR-98 08:06:49 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin 26, Material #ACOKE14, Status AV, Wgt   8530, Dest
CD 006  3-MAR-98 08:06:49 L2C__RMHMON     DIAGNOSTIC      Hopper 82, Position  3, Total  3, Material #ACOKE14, Req   1288, Dlv    9
MT 078  3-MAR-98 08:07:36 MPTRACK_FC1     PROCESS EVENT   Oxygen lance OFF: 141600.(   5900.) SCF/heat (last On-Off)
CD 006  3-MAR-98 08:07:42 DVM__BATHTEMP   DEVICE MEAS     Received a bath temperature of 3038.0¯F.
CD 006  3-MAR-98 08:07:42 DVM__BATHTEMP   DEVICE MEAS     Calculated Bath Temperature = 3115.5 ¯F.
MT 068  3-MAR-98 08:07:46 MPTRACK_FC1     PROCESS EVENT   Carbon Injection unit OFF
CD 006  3-MAR-98 08:07:46 L2C__SCRAPRCV   OPER MESSAGE    03-Mar-98 08:07 RECEIVED BUCKET 2 LA J0864   65.0% FULL           (C2186
MT 077  3-MAR-98 08:07:56 MPTRACK_FC1     PROCESS EVENT   Oxygen lance ON
MT 092  3-MAR-98 08:08:06 MPTRACK_FC1     PROCESS EVENT   North BURNER Stand no longer on HIGH FIRE
MT 092  3-MAR-98 08:08:06 MPTRACK_FC1     PROCESS EVENT   South BURNER Stand no longer on HIGH FIRE
MT 092  3-MAR-98 08:08:06 MPTRACK_FC1     PROCESS EVENT   West  BURNER Stand no longer on HIGH FIRE
MT 078  3-MAR-98 08:08:06 MPTRACK_FC1     PROCESS EVENT   Oxygen lance OFF: 141800.(    200.) SCF/heat (last On-Off)
MT 079  3-MAR-98 08:08:06 MPTRACK_FC1     PROCESS EVENT   North BURNERS OFF: 22100. SCF of O2 /     100. SCF of Nitrogen
MT 080  3-MAR-98 08:08:06 MPTRACK_FC1     PROCESS EVENT                       7300. SCF of Natural Gas
MT 079  3-MAR-98 08:08:06 MPTRACK_FC1     PROCESS EVENT   South BURNERS OFF: 22200. SCF of O2 /     100. SCF of Nitrogen
MT 080  3-MAR-98 08:08:06 MPTRACK_FC1     PROCESS EVENT                       7500. SCF of Natural Gas
MT 079  3-MAR-98 08:08:06 MPTRACK_FC1     PROCESS EVENT   West  BURNERS OFF: 22200. SCF of O2 /     100. SCF of Nitrogen
MT 080  3-MAR-98 08:08:06 MPTRACK_FC1     PROCESS EVENT                       7500. SCF of Natural Gas
MT 081  3-MAR-98 08:08:06 MPTRACK_FC1     PROCESS EVENT    ALL Burners OFF: 22300. SCF gas/ 66500. SCF O2 per heat
MT 082  3-MAR-98 08:08:06 MPTRACK_FC1     PROCESS EVENT                    (  4400.        / 13200.) per period
CD 006  3-MAR-98 08:08:13 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin 25, Material #ACOKE14, Status AV, Wgt  17140, Dest
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E-7

E-8

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CD 006  3-MAR-98 08:08:14 L2C__RMHMON    DIAGNOSTIC      Hopper 82, Position  4, Total  4, Material #ACOKE14, Req    342, Dlv    3
CD 006  3-MAR-98 08:08:14 L2C__RMHMON    L2C COMMS         1306 pounds of #ACOKE14 delivered to XT for request 320101
MT 086  3-MAR-98 08:08:16 MPTRACK_FC1    PROCESS EVENT   Power OFF:  65940. (13000.) KWH/heat (period) - 348. KWh/Ton
MT 009  3-MAR-98 08:08:16 MPTRACK_FC1    MODEL           Aim Tapping Temperature                  3098. degF
MT 010  3-MAR-98 08:08:16 MPTRACK_FC1    MODEL           Expected Temperature Drop during Tapping  198. degF
CD 006  3-MAR-98 08:08:27 DVM__CELOX     DEVICE MEAS     Received a Celox Oxygen value of  671. PPM
CD 006  3-MAR-98 08:08:27 DVM__CELOX     DEVICE MEAS     Received a Celox Temperature of 3041. degF
CD 006  3-MAR-98 08:08:27 AAM__DEOX      MODEL           Deoxidation model recommended    224 of #AALBULK,          27 of #ACOKE1
CD 006  3-MAR-98 08:08:27 L2C__DMQSEND   L2C COMMS        Carbon Measurement Sent to Refiner for Heat # "J0863 "
CD 006  3-MAR-98 08:08:27 DVM__CELOX     DEVICE MEAS     Received a Celox Millivolt value of 178. mV
CD 006  3-MAR-98 08:08:27 DVM__CELOX     DEVICE MEAS     Received a Celox Carbon value of 0.046 %
CD 006  3-MAR-98 08:08:39 L2C__RMHMON    L2C COMMS          224 pounds of #AALBULK requested to XT.    Request 330701
MT 009  3-MAR-98 08:08:46 MPTRACK_FC1    MODEL           Aim Tapping Temperature                  3100. degF
MT 010  3-MAR-98 08:08:46 MPTRACK_FC1    MODEL           Expected Temperature Drop during Tapping  200. degF
CD 006  3-MAR-98 08:09:06 WDL__HANDADD   OPER DECISION   Operator hand added     75 pounds of #AFERV89 to the ladle.
CD 006  3-MAR-98 08:09:51 L2C__RMHMON    DIAGNOSTIC      Bin status. Bin 31, Material #AALBULK, Status AV, Wgt   6828, Dest
CD 006  3-MAR-98 08:09:52 L2C__RMHMON    DIAGNOSTIC      Hopper 81, Position  2, Total  2, Material #AALBULK, Req    224, Dlv    2
CD 006  3-MAR-98 08:09:52 L2C__RMHMON    L2C COMMS          214 pounds of #AALBULK delivered to XT for request 330701
MT 009  3-MAR-98 08:09:55 MPTRACK_FC1    MODEL           Aim Tapping Temperature                  3100. degF
MT 010  3-MAR-98 08:09:55 MPTRACK_FC1    MODEL           Expected Temperature Drop during Tapping  200. degF
CD 006  3-MAR-98 08:11:29 EGC__ARCCNTL   MODEL           Desired Taps   7  7  7
MT 098  3-MAR-98 08:11:35 MPTRACK_FC1    PROCESS EVENT   >>>>>>>>>>>>>>> TAP
MT 025  3-MAR-98 08:11:35 MPTRACK_FC1    MODEL           SlagCum  EstCur  Basicity  SiO2 CaO MgO FeOx Cr2O3 P2O5 Al2O3
MT 026  3-MAR-98 08:11:35 MPTRACK_FC1    MODEL            23625.  23625.    3.61     14. 35. 14.   37.  0.0  0.4   0.0
CD 006  3-MAR-98 08:11:47 L2C__RMHMON    DIAGNOSTIC      Bin status. Bin 40, Material #FDOLM69, Status AV, Wgt  47960, Dest
CD 006  3-MAR-98 08:12:30 L2C__RMHMON    DIAGNOSTIC      Hopper 81 empty
CD 006  3-MAR-98 08:12:45 L2C__RMHMON    DIAGNOSTIC      Bin status. Bin 21, Material #AFCHCB1, Status AV, Wgt  48955, Dest
MT 061  3-MAR-98 08:12:45 MPTRACK_FC1    PROCESS EVENT   Actual  Taps    7  7  7
CD 006  3-MAR-98 08:13:01 L2C__RMHMON    DIAGNOSTIC      Bin status. Bin 21, Material #AFCHCB1, Status AV, Wgt  68955, Dest
CD 006  3-MAR-98 08:13:51 L2C__RMHMON    DIAGNOSTIC      Bin status. Bin 29, Material #AFMSIA2, Status AV, Wgt  72710, Dest
CD 006  3-MAR-98 08:14:25 L2C__RMHMON    DIAGNOSTIC      Hopper 82 empty
CD 006  3-MAR-98 08:14:48 L2C__RMHMON    DIAGNOSTIC      Hopper 80 empty
CD 006  3-MAR-98 08:18:24 DVM__TAPWGT    DEVICE MEAS     Received a net ladle weight of  353057.2 Lbs
CD 006  3-MAR-98 08:18:30 L2C__DMQSEND   L2C COMMS        Tapping Signal Sent to Lab. for Heat # "J0863 "
MT 099  3-MAR-98 08:18:35 MPTRACK_FC1    PROCESS EVENT   >>>>>>>>>>>>>>> END of TAP
MT 005  3-MAR-98 08:18:35 MPTRACK_FC1    MODEL           Estimated Steel in Tap Ladle now 350953. lbs
MT 020  3-MAR-98 08:18:35 MPTRACK_FC1    MODEL                          C   Mn    P     S    Si   Cr   Ni   Mo   Cu
MT 021  3-MAR-98 08:18:35 MPTRACK_FC1    MODEL           Est Ladle   0.42 0.75 0.005 0.038 0.258 0.07 0.08 0.03 0.18
MT 070  3-MAR-98 08:18:35 MPTRACK_FC1    MODEL            70.3 min from first power on to tap end -  348. KWh/Ton
MT 071  3-MAR-98 08:18:35 MPTRACK_FC1    MODEL            58.3 min total duration POWER ON during Heat
MT 052  3-MAR-98 08:18:55 MPTRACK_FC1    PROCESS EVENT   Roof lifted
MT 058  3-MAR-98 08:18:55 MPTRACK_FC1    PROCESS EVENT   Electrode #1 lifted
MT 058  3-MAR-98 08:18:55 MPTRACK_FC1    PROCESS EVENT   Electrode #2 lifted
MT 058  3-MAR-98 08:18:55 MPTRACK_FC1    PROCESS EVENT   Electrode #3 lifted
MT 054  3-MAR-98 08:19:05 MPTRACK_FC1    PROCESS EVENT   Roof swung OUT
CD 006  3-MAR-98 08:19:13 DVM__TAPTEMP   DEVICE MEAS     Received a tap temperature of 2958.0¯F.
CD 006  3-MAR-98 08:19:13 DVM__TAPTEMP   DEVICE MEAS     Calculated Tap Temperature =    0.0 ¯F.
CD 006  3-MAR-98 08:19:13 L2C__DMQSEND   L2C COMMS        Melt Data Sent to Refiner for Heat # "J0863 "
MT 059  3-MAR-98 08:19:15 MPTRACK_FC1    PROCESS EVENT   Electrode #1 lowered
MT 059  3-MAR-98 08:19:15 MPTRACK_FC1    PROCESS EVENT   Electrode #2 lowered
MT 059  3-MAR-98 08:19:15 MPTRACK_FC1    PROCESS EVENT   Electrode #3 lowered
MT 058  3-MAR-98 08:19:45 MPTRACK_FC1    PROCESS EVENT   Electrode #1 lifted
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MT 058	3-MAR-98	08:19:45	MPTRACK_FC1	PROCESS EVENT	Electrode #2 lifted
MT 058	3-MAR-98	08:19:45	MPTRACK_FC1	PROCESS EVENT	Electrode #3 lifted
CD 006	3-MAR-98	08:20:16	L2C__CHEMRCV	L2C COMMS	TAP SAMPLE 1 FOR HEAT J0863 ENROUTE TO CHEMLAB
MT 065	3-MAR-98	08:20:25	MPTRACK_FC1	PROCESS EVENT	North BURNER Stand has been turned ON
MT 065	3-MAR-98	08:20:25	MPTRACK_FC1	PROCESS EVENT	South BURNER Stand has been turned ON
MT 065	3-MAR-98	08:20:25	MPTRACK_FC1	PROCESS EVENT	West BURNER Stand has been turned ON
MT 055	3-MAR-98	08:21:15	MPTRACK_FC1	PROCESS EVENT	Roof swung IN
MT 053	3-MAR-98	08:21:25	MPTRACK_FC1	PROCESS EVENT	Roof lowered
MT 059	3-MAR-98	08:21:35	MPTRACK_FC1	PROCESS EVENT	Electrode #1 lowered
MT 059	3-MAR-98	08:21:35	MPTRACK_FC1	PROCESS EVENT	Electrode #2 lowered
MT 059	3-MAR-98	08:21:35	MPTRACK_FC1	PROCESS EVENT	Electrode #3 lowered
MT 089	3-MAR-98	08:21:35	MPTRACK_FC1	PROCESS EVENT	North BURNER Stand has been switched to HIGH FIRE
MT 089	3-MAR-98	08:21:35	MPTRACK_FC1	PROCESS EVENT	South BURNER Stand has been switched to HIGH FIRE
MT 089	3-MAR-98	08:21:35	MPTRACK_FC1	PROCESS EVENT	West BURNER Stand has been switched to HIGH FIRE
MT 056	3-MAR-98	08:21:35	MPTRACK_FC1	MODEL	Power ON - 0. KWh remaining in 0.0 Min
000	3-MAR-98	08:21:47	MPTRACK_FC1		Journal Closed

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   000 3-MAR-98 08:21:47 MPTRACK_FC1                   Journal Created
MT 001 3-MAR-98 08:21:47 MPTRACK_FC1   MODEL           >>>>>>>>>>>>>>> Start of heat J0864
MT 011 3-MAR-98 08:21:47 MPTRACK_FC1   MODEL           Scrap contents  Charge ID C2186  Bucket 1
MT 012 3-MAR-98 08:21:47 MPTRACK_FC1   MODEL           ---------------------------------------------
MT 013 3-MAR-98 08:21:47 MPTRACK_FC1   MODEL           ZHFRG114    FRAGMENT      16600. LBS
MT 013 3-MAR-98 08:21:47 MPTRACK_FC1   MODEL           ZHHDS370    HIGH DENSE    95900. LBS
MT 013 3-MAR-98 08:21:47 MPTRACK_FC1   MODEL           #FBRLM62    LIME           3786. LBS
MT 013 3-MAR-98 08:21:47 MPTRACK_FC1   MODEL           #FDOLM69    DOLOLIME       3314. LBS
MT 013 3-MAR-98 08:21:47 MPTRACK_FC1   MODEL           CCREV907    C CROPS       81100. LBS
MT 013 3-MAR-98 08:21:47 MPTRACK_FC1   MODEL           ZHCIR637    CAST FE       20400. LBS
MT 013 3-MAR-98 08:21:47 MPTRACK_FC1   MODEL           ZHFRG114    FRAGMENT      24600. LBS
MT 014 3-MAR-98 08:21:47 MPTRACK_FC1   MODEL           Total weight             245700. LBS
MT 015 3-MAR-98 08:21:47 MPTRACK_FC1   MODEL           Total weight metallics   238600. LBS
MT 016 3-MAR-98 08:21:47 MPTRACK_FC1   MODEL           % bucket filled              95. %
MT 017 3-MAR-98 08:21:47 MPTRACK_FC1   MODEL           Stocker name             SIMON
MT 018 3-MAR-98 08:21:47 MPTRACK_FC1   MODEL           Beg of Period -  31158. KWh remaining in 27.9 Min
CD 006 3-MAR-98 08:21:50 HST__JRNPDO   L4 COMMS        WORKSHEET Created for Heat J0863
CD 006 3-MAR-98 08:21:51 HTC__ONLINE   PROCESS EVENT   CREW                : C
CD 006 3-MAR-98 08:21:51 HTC__ONLINE   PROCESS EVENT   Oxygen Operator     : NOVELLI
CD 006 3-MAR-98 08:21:51 HTC__ONLINE   PROCESS EVENT   Furnace Operator    : HUFSTEDLER
CD 006 3-MAR-98 08:21:51 HTC__ONLINE   PROCESS EVENT   Coordinator         : BARTA
CD 006 3-MAR-98 08:21:51 HTC__ONLINE   PROCESS EVENT   Mill Type           : 10B41
CD 006 3-MAR-98 08:21:51 HTC__ONLINE   PROCESS EVENT   Steel Catalog       : 0310AA
CD 006 3-MAR-98 08:21:51 HTC__ONLINE   PROCESS EVENT   Charge ID           : C2186
CD 006 3-MAR-98 08:21:51 HTC__ONLINE   PROCESS EVENT   Hot Heel            :  95000
CD 006 3-MAR-98 08:21:51 HTC__ONLINE   PROCESS EVENT   Heat counts prior to heat
CD 006 3-MAR-98 08:21:51 HTC__ONLINE   PROCESS EVENT   BOTTOM              :   4803
CD 006 3-MAR-98 08:21:51 HTC__ONLINE   PROCESS EVENT   SIDE LINING         :   2357
CD 006 3-MAR-98 08:21:51 HTC__ONLINE   PROCESS EVENT   DELTA SECTION       :    143
CD 006 3-MAR-98 08:21:51 HTC__ONLINE   PROCESS EVENT   RUNNER              :    863
CD 006 3-MAR-98 08:21:51 HTC__ONLINE   PROCESS EVENT   TAP HOLE PIPE       :   2357
CD 006 3-MAR-98 08:21:51 HTC__ONLINE   PROCESS EVENT   Target tap weight is 351000
CD 006 3-MAR-98 08:21:51 HTC__ONLINE   OPER MESSAGE    03-Mar-98 08:21 Please check and correct the data for the previous heat.
CD 006 3-MAR-98 08:21:52 EGC__BURNCNTL MODEL           Burner Operating Diagram (0)15_5  active.
CD 006 3-MAR-98 08:21:54 HST__JRNPDO   L4 COMMS        PDO Created for Heat J0862
CD 006 3-MAR-98 08:21:54 HST__JRNPDO   L4 COMMS        WORKSHEET Created for Heat J0862
MT 077 3-MAR-98 08:22:16 MPTRACK_FC1   PROCESS EVENT   Oxygen lance ON
CD 006 3-MAR-98 08:22:59 EGC__ARCCNTL  MODEL           Desired Taps  12 12 12
CD 006 3-MAR-98 08:23:41 L2C__CHEMRCV  L2C COMMS       CHEM HT:J0863  LOC:TP SEQ:   1 TYPE:F TIME: 3-MAR-98 08:23:41
CD 006 3-MAR-98 08:23:41 L2C__CHEMRCV  L2C COMMS       C :  0.3750 Mn:  0.7300 P :  0.0060 S :  0.0410 Si:  0.2400
CD 006 3-MAR-98 08:23:41 L2C__CHEMRCV  L2C COMMS       Cr:  0.0900 Ni:  0.0870 Mo:  0.0240 Cu:  0.1800 Al:  0.0190
CD 006 3-MAR-98 08:23:41 L2C__CHEMRCV  L2C COMMS       V :  0.0180 Pb:  0.0003 Sn:  0.0090 B :  0.0001 Cb:  0.0010
CD 006 3-MAR-98 08:23:41 L2C__CHEMRCV  L2C COMMS       Ti:  0.0020 Ca:  0.0001 Co: -1.0000 W :  0.0010 Ta: -1.0000
CD 006 3-MAR-98 08:23:41 L2C__CHEMRCV  L2C COMMS       Zr:  0.0010 As:  0.0050 Sb:  0.0010 Bi: -1.0000 Se: -1.0000
CD 006 3-MAR-98 08:23:41 L2C__CHEMRCV  L2C COMMS       Zn: -1.0000 O : -1.0000 N :  0.0106 H : -1.0000 Te:  0.0002
MT 061 3-MAR-98 08:24:06 MPTRACK_FC1   PROCESS EVENT   Actual  Taps   12 12 12
CD 006 3-MAR-98 08:24:54 L2C__RMHMON   DIAGNOSTIC      Bin status. Bin 43, Material #FBRLM62, Status AV, Wgt  34125, Dest
CD 006 3-MAR-98 08:24:59 EGC__ARCCNTL  MODEL           Desired Taps  13 13 13
CD 006 3-MAR-98 08:25:13 L2C__RMHMON   DIAGNOSTIC      Bin status. Bin 40, Material #FDOLM69, Status AV, Wgt  44459, Dest
MT 061 3-MAR-98 08:25:46 MPTRACK_FC1   PROCESS EVENT   Actual  Taps   13 13 13
CD 006 3-MAR-98 08:29:30 EGC__ARCCNTL  MODEL           Desired Taps  15 15 15
MT 061 3-MAR-98 08:30:17 MPTRACK_FC1   PROCESS EVENT   Actual  Taps   15 15 15
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CD 006  3-MAR-98 08:32:04 L2C__RMHMON     L2C COMMS         2000 pounds of #FCOALNT requested to XF.    Request 430101
CD 006  3-MAR-98 08:33:18 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin  6, Material #FCOALNT, Status AV, Wgt 105573, Dest
CD 006  3-MAR-98 08:33:19 L2C__RMHMON     L2C COMMS         2001 pounds of #FCOALNT delivered to XF for request 430101
CD 006  3-MAR-98 08:34:32 WDL__FOAMYSLAG  OPER DECISION       850 lbs of #FDOLM69 requested every  90 seconds.  2 batches.
CD 006  3-MAR-98 08:34:32 WDL__FOAMYSLAG  OPER DECISION       850 lbs of #FDOLM69 requested every  90 seconds.  2 batches.
CD 006  3-MAR-98 08:34:32 WDL__FOAMYSLAG  OPER DECISION       300 lbs of #FCOALNT requested every  90 seconds.  2 batches.
CD 006  3-MAR-98 08:34:33 L2C__RMHMON     L2C COMMS          850 pounds of #FDOLM69 requested to XF.    Request 410101
CD 006  3-MAR-98 08:34:33 L2C__RMHMON     L2C COMMS          300 pounds of #FCOALNT requested to XF.    Request 410102
CD 006  3-MAR-98 08:35:13 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin  7, Material #FCOALNT, Status AV, Wgt  78571, Dest
CD 006  3-MAR-98 08:35:14 L2C__RMHMON     L2C COMMS          301 pounds of #FCOALNT delivered to XF for request 410102
CD 006  3-MAR-98 08:35:20 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin  9, Material #FDOLM69, Status AV, Wgt 129131, Dest
CD 006  3-MAR-98 08:35:20 L2C__RMHMON     L2C COMMS          856 pounds of #FDOLM69 delivered to XF for request 410101
CD 006  3-MAR-98 08:35:52 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin  3, Material #FSCLE68, Status AV, Wgt 113189, Dest
CD 006  3-MAR-98 08:35:52 L2C__RMHMON     L2C COMMS          502 pounds of #FSCLE68 delivered to XF for request 041076
CD 006  3-MAR-98 08:36:03 L2C__RMHMON     L2C COMMS          850 pounds of #FDOLM69 requested to XF.    Request 410201
CD 006  3-MAR-98 08:36:03 L2C__RMHMON     L2C COMMS          300 pounds of #FCOALNT requested to XF.    Request 410202
CD 006  3-MAR-98 08:36:46 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin  6, Material #FCOALNT, Status AV, Wgt 105266, Dest
CD 006  3-MAR-98 08:36:46 L2C__RMHMON     L2C COMMS          307 pounds of #FCOALNT delivered to XF for request 410202
CD 006  3-MAR-98 08:36:51 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin  9, Material #FDOLM69, Status AV, Wgt 128277, Dest
CD 006  3-MAR-98 08:36:52 L2C__RMHMON     L2C COMMS          854 pounds of #FDOLM69 delivered to XF for request 410201
MT 092  3-MAR-98 08:39:16 MPTRACK_FC1     PROCESS EVENT   North BURNER Stand no longer on HIGH FIRE
MT 092  3-MAR-98 08:39:16 MPTRACK_FC1     PROCESS EVENT   South BURNER Stand no longer on HIGH FIRE
MT 092  3-MAR-98 08:39:16 MPTRACK_FC1     PROCESS EVENT   West  BURNER Stand no longer on HIGH FIRE
CD 006  3-MAR-98 08:42:10 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin  7, Material #FCOALNT, Status AV, Wgt  78265, Dest
CD 006  3-MAR-98 08:42:10 L2C__RMHMON     L2C COMMS          306 pounds of #FCOALNT delivered to XF for request 042277
CD 006  3-MAR-98 08:43:09 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin  7, Material #FCOALNT, Status AV, Wgt  77961, Dest
CD 006  3-MAR-98 08:43:10 L2C__RMHMON     L2C COMMS          304 pounds of #FCOALNT delivered to XF for request 042278
MT 086  3-MAR-98 08:44:26 MPTRACK_FC1     PROCESS EVENT   Power OFF:  24540. (24540.) KWH/heat (period) - 206. KWh/Ton
MT 052  3-MAR-98 08:44:36 MPTRACK_FC1     PROCESS EVENT   Roof lifted
MT 058  3-MAR-98 08:44:36 MPTRACK_FC1     PROCESS EVENT   Electrode #3 lifted
MT 058  3-MAR-98 08:44:46 MPTRACK_FC1     PROCESS EVENT   Electrode #1 lifted
MT 058  3-MAR-98 08:44:46 MPTRACK_FC1     PROCESS EVENT   Electrode #2 lifted
CD 006  3-MAR-98 08:44:49 EGC__ARCCNTL    MODEL           Desired Taps   7  7  7
MT 054  3-MAR-98 08:44:56 MPTRACK_FC1     PROCESS EVENT   Roof swung OUT
MT 055  3-MAR-98 08:45:56 MPTRACK_FC1     PROCESS EVENT   Roof swung IN
MT 053  3-MAR-98 08:46:16 MPTRACK_FC1     PROCESS EVENT   Roof lowered
MT 059  3-MAR-98 08:46:16 MPTRACK_FC1     PROCESS EVENT   Electrode #1 lowered
MT 059  3-MAR-98 08:46:16 MPTRACK_FC1     PROCESS EVENT   Electrode #2 lowered
MT 059  3-MAR-98 08:46:16 MPTRACK_FC1     PROCESS EVENT   Electrode #3 lowered
MT 061  3-MAR-98 08:46:16 MPTRACK_FC1     PROCESS EVENT   Actual  Taps    7  7  7
MT 002  3-MAR-98 08:46:16 MPTRACK_FC1     MODEL           >>>>>>>>>>>>>>> Start of period Bucket 2
MT 011  3-MAR-98 08:46:16 MPTRACK_FC1     MODEL           Scrap contents  Charge ID C2186  Bucket 2 LAST
MT 012  3-MAR-98 08:46:16 MPTRACK_FC1     MODEL           ---------------------------------------------
MT 013  3-MAR-98 08:46:16 MPTRACK_FC1     MODEL           ZHFRG114    FRAGMENT       8800. LBS
MT 013  3-MAR-98 08:46:16.MPTRACK_FC1     MODEL           ZHFRG106    FRAG-SHRED     7400. LBS
MT 013  3-MAR-98 08:46:16 MPTRACK_FC1     MODEL           ZHHDS370    HIGH DENSE    34200. LBS
MT 013  3-MAR-98 08:46:16 MPTRACK_FC1     MODEL           ZMCTG709    C PUR TURN    17200. LBS
MT 013  3-MAR-98 08:46:16 MPTRACK_FC1     MODEL           #FDOLM69    DOLOLIME       2900. LBS
MT 013  3-MAR-98 08:46:16 MPTRACK_FC1     MODEL           ZHCAC201    CRUSH CAST    41250. LBS
MT 013  3-MAR-98 08:46:16 MPTRACK_FC1     MODEL           ZHFRG106    FRAG-SHRED    28450. LBS
MT 014  3-MAR-98 08:46:16 MPTRACK_FC1     MODEL           Total weight             140200. LBS
MT 015  3-MAR-98 08:46:16 MPTRACK_FC1     MODEL           Total weight metallics   137300. LBS
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MT 016  3-MAR-98 08:46:16 MPTRACK_FC1     MODEL           % bucket filled            65. %
MT 017  3-MAR-98 08:46:16 MPTRACK_FC1     MODEL           Stocker name           PIATT
MT 018  3-MAR-98 08:46:16 MPTRACK_FC1     MODEL           Beg of Period -  38543. KWh remaining in 34.6 Min
MT 020  3-MAR-98 08:46:26 MPTRACK_FC1     MODEL                            C   Mn    P     S     Si   Cr   Ni   Mo   Cu
MT 021  3-MAR-98 08:46:26 MPTRACK_FC1     MODEL           Melt Down   0.58 0.24 0.012 0.038 0.334 0.08 0.07 0.03 0.16
CD 006  3-MAR-98 08:46:44 sms1B7C_TARGWGT PRIV DECISION   Target tap weights changed.
CD 006  3-MAR-98 08:47:29 EGC__ARCCNTL    MODEL           Desired Taps  12 12 12
MT 089  3-MAR-98 08:48:16 MPTRACK_FC1     PROCESS EVENT   North BURNER Stand has been switched to HIGH FIRE
MT 089  3-MAR-98 08:48:16 MPTRACK_FC1     PROCESS EVENT   South BURNER Stand has been switched to HIGH FIRE
MT 089  3-MAR-98 08:48:16 MPTRACK_FC1     PROCESS EVENT   West  BURNER Stand has been switched to HIGH FIRE
MT 061  3-MAR-98 08:48:36 MPTRACK_FC1     PROCESS EVENT   Actual  Taps   12 12 12
CD 006  3-MAR-98 08:48:46 L2C__CHEMRCV    L2C COMMS       CHEM HT:J0863  LOC:R1 SEQ:   1 TYPE:F TIME: 3-MAR-98 08:48:46
CD 006  3-MAR-98 08:48:46 L2C__CHEMRCV    L2C COMMS       C :  0.4050 Mn:  0.7400 P :  0.0060 S :  0.0280 Si:  0.2300
CD 006  3-MAR-98 08:48:46 L2C__CHEMRCV    L2C COMMS       Cr:  0.0900 Ni:  0.0880 Mo:  0.0240 Cu:  0.1800 Al:  0.0220
CD 006  3-MAR-98 08:48:46 L2C__CHEMRCV    L2C COMMS       V :  0.0180 Pb:  0.0003 Sn:  0.0090 B :  0.0001 Cb:  0.0010
CD 006  3-MAR-98 08:48:46 L2C__CHEMRCV    L2C COMMS       Ti:  0.0020 Ca:  0.0001 Co: -1.0000 W :  0.0010 Ta: -1.0000
CD 006  3-MAR-98 08:48:46 L2C__CHEMRCV    L2C COMMS       Zr:  0.0010 As:  0.0050 Sb:  0.0020 Bi: -1.0000 Se: -1.0000
CD 006  3-MAR-98 08:48:46 L2C__CHEMRCV    L2C COMMS       Zn: -1.0000 O : -1.0000 N :  0.0088 H : -1.0000 Te:  0.0002
MT 067  3-MAR-98 08:49:16 MPTRACK_FC1     PROCESS EVENT   Carbon Injection unit ON
CD 006  3-MAR-98 08:49:29 EGC__ARCCNTL    MODEL           Desired Taps  13 13 13
MT 061  3-MAR-98 08:50:16 MPTRACK_FC1     PROCESS EVENT   Actual  Taps   13 13 13
CD 006  3-MAR-98 08:51:31 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin 40, Material #FDOLM69, Status AV, Wgt  41638, Dest
CD 006  3-MAR-98 08:52:49 L2C__SCRAPRCV   OPER MESSAGE    03-Mar-98 08:52 RECEIVED BUCKET 1    J0865   79.8% FULL (CASTINGS) (C2187
CD 006  3-MAR-98 08:53:29 L2C__RMHMON     L2C COMMS         1000 pounds of #FCOALNT requested to XF.    Request 430201
CD 006  3-MAR-98 08:54:26 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin  7, Material #FCOALNT, Status AV, Wgt  76958, Dest
CD 006  3-MAR-98 08:54:27 L2C__RMHMON     L2C COMMS         1003 pounds of #FCOALNT delivered to XF for request 430201
CD 006  3-MAR-98 08:59:59 EGC__ARCCNTL    MODEL           Desired Taps  15 15 15
CD 006  3-MAR-98 09:00:04 L2C__RMHMON     DIAGNOSTIC      Bin status. Bin  7, Material #FCOALNT, Status AV, Wgt  76653, Dest
CD 006  3-MAR-98 09:00:05 L2C__RMHMON     L2C COMMS          305 pounds of #FCOALNT delivered to XF for request 042279
MT 061  3-MAR-98 09:00:46 MPTRACK_FC1     PROCESS EVENT   Actual  Taps   15 15 15
MT 092  3-MAR-98 09:01:36 MPTRACK_FC1     PROCESS EVENT   North BURNER Stand no longer on HIGH FIRE
MT 092  3-MAR-98 09:01:36 MPTRACK_FC1     PROCESS EVENT   South BURNER Stand no longer on HIGH FIRE
MT 092  3-MAR-98 09:01:36 MPTRACK_FC1     PROCESS EVENT   West  BURNER Stand no longer on HIGH FIRE
MT 089  3-MAR-98 09:10:26 MPTRACK_FC1     PROCESS EVENT   North BURNER Stand has been switched to HIGH FIRE
MT 089  3-MAR-98 09:10:26 MPTRACK_FC1     PROCESS EVENT   South BURNER Stand has been switched to HIGH FIRE
MT 089  3-MAR-98 09:10:26 MPTRACK_FC1     PROCESS EVENT   West  BURNER Stand has been switched to HIGH FIRE
MT 078  3-MAR-98 09:10:26 MPTRACK_FC1     PROCESS EVENT   Oxygen lance OFF: 119400.( 119400.) SCF/heat (last On-Off)
CD 006  3-MAR-98 09:10:53 DVM__BATHTEMP   DEVICE MEAS     Received a bath temperature of 2910.0¯F.
CD 006  3-MAR-98 09:10:53 DVM__BATHTEMP   DEVICE MEAS     Calculated Bath Temperature = 2505.4 ¯F.
MT 003  3-MAR-98 09:10:56 MPTRACK_FC1     MODEL           >>>>>>>>>>>>>>> Start of period Finishing
MT 018  3-MAR-98 09:10:56 MPTRACK_FC1     MODEL           Beg of Period -   3341. KWh remaining in  3.0 Min
CD 006  3-MAR-98 09:10:59 EGC__ARCCNTL    MODEL           Desired Taps  14 14 14
MT 061  3-MAR-98 09:11:47 MPTRACK_FC1     PROCESS EVENT   Actual  Taps   14 14 14
MT 077  3-MAR-98 09:12:07 MPTRACK_FC1     PROCESS EVENT   Oxygen lance ON
CD 006  3-MAR-98 09:12:08 L2C__CHEMRCV    L2C COMMS       FURNACE SAMPLE  1 FOR HEAT J0864 ENROUTE TO CHEMLAB
CD 006  3-MAR-98 09:13:26 L2C__CHEMRCV    L2C COMMS       CHEM HT:J0863  LOC:R1 SEQ:   2 TYPE:F TIME: 3-MAR-98 09:13:25
CD 006  3-MAR-98 09:13:26 L2C__CHEMRCV    L2C COMMS       C :  0.4850 Mn:  0.8300 P :  0.0070 S :  0.0180 Si:  0.2600
CD 006  3-MAR-98 09:13:26 L2C__CHEMRCV    L2C COMMS       Cr:  0.0900 Ni:  0.0870 Mo:  0.0240 Cu:  0.1800 Al:  0.0320
CD 006  3-MAR-98 09:13:26 L2C__CHEMRCV    L2C COMMS       V :  0.0250 Pb:  0.0003 Sn:  0.0090 B :  0.0001 Cb:  0.0010
CD 006  3-MAR-98 09:13:26 L2C__CHEMRCV    L2C COMMS       Ti:  0.0020 Ca:  0.0001 Co: -1.0000 W :  0.0020 Ta: -1.0000
CD 006  3-MAR-98 09:13:26 L2C__CHEMRCV    L2C COMMS       Zr:  0.0010 As:  0.0050 Sb:  0.0030 Bi: -1.0000 Se: -1.0000
CD 006  3-MAR-98 09:13:26 L2C__CHEMRCV    L2C COMMS       Zn: -1.0000 O : -1.0000 N :  0.0083 H : -1.0000 Te:  0.0002
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CD 006  3-MAR-98 09:14:05 L2C__SCRAPRCV   OPER MESSAGE    03-Mar-98 09:14 RECEIVED BUCKET 2 LA J0865   50.7% FULL          (C2187
MT 092  3-MAR-98 09:15:36 MPTRACK_FC1     PROCESS EVENT   North BURNER Stand no longer on HIGH FIRE
MT 092  3-MAR-98 09:15:36 MPTRACK_FC1     PROCESS EVENT   South BURNER Stand no longer on HIGH FIRE
MT 092  3-MAR-98 09:15:36 MPTRACK_FC1     PROCESS EVENT   West  BURNER Stand no longer on HIGH FIRE
CD 006  3-MAR-98 09:16:01 L2C__CHEMRCV    L2C COMMS       CHEM HT:J0864  LOC:F1 SEQ:   1 TYPE:F TIME: 3-MAR-98 09:16:01
CD 006  3-MAR-98 09:16:01 L2C__CHEMRCV    L2C COMMS       C :  0.1600 Mn:  0.1500 P :  0.0120 S :  0.0610 Si:  0.0100
CD 006  3-MAR-98 09:16:01 L2C__CHEMRCV    L2C COMMS       Cr:  0.1400 Ni:  0.0960 Mo:  0.0240 Cu:  0.2500 Al: -1.0000
CD 006  3-MAR-98 09:16:01 L2C__CHEMRCV    L2C COMMS       V : -1.0000 Pb:  0.0012 Sn:  0.0110 B :  0.0001 Cb:  0.0010
CD 006  3-MAR-98 09:16:01 L2C__CHEMRCV    L2C COMMS       Ti:  0.0010 Ca:  0.0004 Co: -1.0000 W :  0.0020 Ta: -1.0000
CD 006  3-MAR-98 09:16:01 L2C__CHEMRCV    L2C COMMS       Zr:  0.0010 As:  0.0050 Sb:  0.0030 Bi: -1.0000 Se: -1.0000
CD 006  3-MAR-98 09:16:01 L2C__CHEMRCV    L2C COMMS       Zn: -1.0000 O : -1.0000 N :  0.0058 H : -1.0000 Te:  0.0002
CD 006  3-MAR-98 09:16:01 AAM__ONLINE     MODEL              612 pounds of #ACOKE14-PET COKE   recommended.
CD 006  3-MAR-98 09:16:01 AAM__ONLINE     MODEL             3200 pounds of #AFMSIA2-M66.0S17.0 recommended.
CD 006  3-MAR-98 09:16:01 AAM__ONLINE     MODEL              162 pounds of #AFS7502-FESI 75    recommended.
CD 006  3-MAR-98 09:16:01 AAM__ONLINE     MODEL           LRS predicted: C: .340, Mn: .75, P: .012, S: .060, Si: .200, Cr: .14, Ni:
CD 006  3-MAR-98 09:16:01 L2C__CHEMRCV    OPER MESSAGE    03-Mar-98 09:16  WARNING! Ni MELT DOWN EXPECTED IS  0.073  (LAB REPORTED
CD 006  3-MAR-98 09:16:01 AAM__ONLINE     MODEL           LRS predicted: Mo: .024, Cu: .25, Pb: .0012, Sn: .011
CD 006  3-MAR-98 09:16:01 AAM__ONLINE     MODEL           Target tap weight is 351000
MT 020  3-MAR-98 09:16:06 MPTRACK_FC1     MODEL                        C   Mn    P     S     Si   Cr   Ni   Mo   Cu
MT 023  3-MAR-98 09:16:07 MPTRACK_FC1     MODEL           LabResult   0.16 0.15 .012 .061 .010 0.14 0.10 0.02 0.25
MT 022  3-MAR-98 09:16:07 MPTRACK_FC1     MODEL           MeltRec      28.  62.  97. 162.   3. 175. 132.  86. 160.
MT 021  3-MAR-98 09:16:07 MPTRACK_FC1     MODEL           Estimated   0.26 0.24 0.006 0.038 0.012 0.08 0.07 0.03 0.16
MT 089  3-MAR-98 09:16:26 MPTRACK_FC1     PROCESS EVENT   North BURNER Stand has been switched to HIGH FIRE
MT 089  3-MAR-98 09:16:27 MPTRACK_FC1     PROCESS EVENT   South BURNER Stand has been switched to HIGH FIRE
MT 089  3-MAR-98 09:16:27 MPTRACK_FC1     PROCESS EVENT   West  BURNER Stand has been switched to HIGH FIRE
MT 078  3-MAR-98 09:16:46 MPTRACK_FC1     PROCESS EVENT   Oxygen lance OFF: 129200.(   9800.) SCF/heat (last On-Off)
CD 006  3-MAR-98 09:16:55 DVM__BATHTEMP   DEVICE MEAS     Received a bath temperature of 3036.0¯F.
CD 006  3-MAR-98 09:16:55 DVM__BATHTEMP   DEVICE MEAS     Calculated Bath Temperature = 3159.4 ¯F.
MT 077  3-MAR-98 09:17:06 MPTRACK_FC1     PROCESS EVENT   Oxygen lance ON
MT 092  3-MAR-98 09:17:16 MPTRACK_FC1     PROCESS EVENT   North BURNER Stand no longer on HIGH FIRE
MT 092  3-MAR-98 09:17:16 MPTRACK_FC1     PROCESS EVENT   South BURNER Stand no longer on HIGH FIRE
MT 092  3-MAR-98 09:17:17 MPTRACK_FC1     PROCESS EVENT   West  BURNER Stand no longer on HIGH FIRE
MT 079  3-MAR-98 09:17:17 MPTRACK_FC1     PROCESS EVENT   North BURNERS OFF: 18900. SCF of O2 /    100. SCF of Nitrogen
MT 080  3-MAR-98 09:17:17 MPTRACK_FC1     PROCESS EVENT                       6300. SCF of Natural Gas
MT 079  3-MAR-98 09:17:17 MPTRACK_FC1     PROCESS EVENT   South BURNERS OFF: 19000. SCF of O2 /    100. SCF of Nitrogen
MT 080  3-MAR-98 09:17:17 MPTRACK_FC1     PROCESS EVENT                       6400. SCF of Natural Gas
MT 079  3-MAR-98 09:17:17 MPTRACK_FC1     PROCESS EVENT   West  BURNERS OFF: 18900. SCF of O2 /    200. SCF of Nitrogen
MT 080  3-MAR-98 09:17:17 MPTRACK_FC1     PROCESS EVENT                       6500. SCF of Natural Gas
MT 081  3-MAR-98 09:17:17 MPTRACK_FC1     PROCESS EVENT    ALL Burners OFF: 19200. SCF gas/ 56800. SCF O2 per heat
MT 082  3-MAR-98 09:17:17 MPTRACK_FC1     PROCESS EVENT                  (  2700.        /  8100.) per period
MT 078  3-MAR-98 09:17:26 MPTRACK_FC1     PROCESS EVENT   Oxygen lance OFF: 130000.(    800.) SCF/heat (last On-Off)
CD 006  3-MAR-98 09:17:27 L2G__RMHMON     DIAGNOSTIC      Bin status. Bin  3, Material #FSCLE68, Status AV, Wgt 112686, Dest
CD 006  3-MAR-98 09:17:28 L2C__RMHMON     L2C COMMS         503 pounds of #FSCLE68 delivered to XF for request 041077
MT 065  3-MAR-98 09:17:36 MPTRACK_FC1     PROCESS EVENT   North BURNER Stand has been turned ON
MT 065  3-MAR-98 09:17:36 MPTRACK_FC1     PROCESS EVENT   South BURNER Stand has been turned ON
MT 065  3-MAR-98 09:17:46 MPTRACK_FC1     PROCESS EVENT   West  BURNER Stand has been turned ON
CD 006  3-MAR-98 09:18:09 L2C__CHEMRCV    L2C COMMS       FURNACE SAMPLE  2 FOR HEAT J0864 ENROUTE TO CHEMLAB
MT 077  3-MAR-98 09:18:26 MPTRACK_FC1     PROCESS EVENT   Oxygen lance ON
MT 089  3-MAR-98 09:18:36 MPTRACK_FC1     PROCESS EVENT   North BURNER Stand has been switched to HIGH FIRE
MT 089  3-MAR-98 09:18:36 MPTRACK_FC1     PROCESS EVENT   South BURNER Stand has been switched to HIGH FIRE
MT 089  3-MAR-98 09:18:36 MPTRACK_FC1     PROCESS EVENT   West  BURNER Stand has been switched to HIGH FIRE
MT 068  3-MAR-98 09:18:36 MPTRACK_FC1     PROCESS EVENT   Carbon Injection unit OFF
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MT 078  3-MAR-98 09:19:06 MPTRACK_FC1    PROCESS EVENT   Oxygen lance OFF: 131200.(   1200.) SCF/heat (last On-Off)
MT 086  3-MAR-98 09:19:36 MPTRACK_FC1    PROCESS EVENT   Power OFF:  62560. (10860.) KWH/heat (period) - 333. KWh/Ton
MT 092  3-MAR-98 09:19:56 MPTRACK_FC1    PROCESS EVENT   North BURNER Stand no longer on HIGH FIRE
MT 092  3-MAR-98 09:19:56 MPTRACK_FC1    PROCESS EVENT   South BURNER Stand no longer on HIGH FIRE
MT 092  3-MAR-98 09:19:56 MPTRACK_FC1    PROCESS EVENT   West  BURNER Stand no longer on HIGH FIRE
MT 079  3-MAR-98 09:19:56 MPTRACK_FC1    PROCESS EVENT   North BURNERS OFF: 19600. SCF of O2 /    100. SCF of Nitrogen
MT 080  3-MAR-98 09:19:56 MPTRACK_FC1    PROCESS EVENT                       6500. SCF of Natural Gas
MT 079  3-MAR-98 09:19:56 MPTRACK_FC1    PROCESS EVENT   South BURNERS OFF: 19700. SCF of O2 /    200. SCF of Nitrogen
MT 080  3-MAR-98 09:19:56 MPTRACK_FC1    PROCESS EVENT                       6700. SCF of Natural Gas
MT 079  3-MAR-98 09:19:56 MPTRACK_FC1    PROCESS EVENT   West  BURNERS OFF: 19500. SCF of O2 /    400. SCF of Nitrogen
MT 080  3-MAR-98 09:19:56 MPTRACK_FC1    PROCESS EVENT                       6800. SCF of Natural Gas
MT 081  3-MAR-98 09:19:56 MPTRACK_FC1    PROCESS EVENT    ALL Burners OFF: 20000. SCF gas/ 58800. SCF O2 per heat
MT 082  3-MAR-98 09:19:56 MPTRACK_FC1    PROCESS EVENT                    (  3500.       / 10100.) per period
CD 006  3-MAR-98 09:19:59 DVM__CELOX     DEVICE MEAS     Received a Celox Oxygen value of  257. PPM
CD 006  3-MAR-98 09:19:59 DVM__CELOX     DEVICE MEAS     Received a Celox Temperature of 3054. degF
CD 006  3-MAR-98 09:19:59 AAM__DEOX      MODEL           WARNING: Alloys not ordered yet. No carbon calculated.
CD 006  3-MAR-98 09:19:59 L2C__DMQSEND   L2C COMMS        Carbon Measurement Sent to Refiner for Heat # "J0864 "
CD 006  3-MAR-98 09:19:59 DVM__CELOX     DEVICE MEAS     Received a Celox Millivolt value of 106. mV
CD 006  3-MAR-98 09:19:59 AAM__DEOX      MODEL           Deoxidation model recommended    394 of #AALBULK,          0 of #ACOKE1
CD 006  3-MAR-98 09:19:59 DVM__CELOX     DEVICE MEAS     Received a Celox Carbon value of 0.123 %
CD 006  3-MAR-98 09:20:05 L2C__RMHMON    L2C COMMS          394 pounds of #AALBULK requested to XT.    Request 430301
MT 009  3-MAR-98 09:20:06 MPTRACK_FC1    MODEL           Aim Tapping Temperature                    3013. degF
MT 010  3-MAR-98 09:20:06 MPTRACK_FC1    MODEL           Expected Temperature Drop during Tapping  113. degF
CD 006  3-MAR-98 09:21:34 L2C__CHEMRCV   L2C COMMS       CHEM HT:J0864  LOC:F1 SEQ:   2 TYPE:F TIME: 3-MAR-98 09:21:34
CD 006  3-MAR-98 09:21:34 L2C__CHEMRCV   L2C COMMS       C :  0.1350 Mn:  0.1900 P :  0.0130 S :  0.0520 Si:  0.0100
CD 006  3-MAR-98 09:21:34 L2C__CHEMRCV   L2C COMMS       Cr:  0.1500 Ni:  0.0930 Mo:  0.0250 Cu:  0.2400 Al: -1.0000
CD 006  3-MAR-98 09:21:34 L2C__CHEMRCV   L2C COMMS       V : -1.0000 Pb:  0.0008 Sn:  0.0100 B :  0.0001 Cb:  0.0010
CD 006  3-MAR-98 09:21:34 L2C__CHEMRCV   L2C COMMS       Ti:  0.0010 Ca:  0.0004 Co: -1.0000 W :  0.0020 Ta: -1.0000
CD 006  3-MAR-98 09:21:34 L2C__CHEMRCV   L2C COMMS       Zr:  0.0010 As:  0.0050 Sb:  0.0040 Bi: -1.0000 Se: -1.0000
CD 006  3-MAR-98 09:21:34 L2C__CHEMRCV   L2C COMMS       Zn: -1.0000 O : -1.0000 N :  0.0057 H : -1.0000 Te:  0.0002
CD 006  3-MAR-98 09:21:34 AAM__ONLINE    MODEL              705 pounds of #ACOKE14-PET COKE   recommended.
CD 006  3-MAR-98 09:21:34 AAM__ONLINE    MODEL             2991 pounds of #AFMSIA2-M66.0S17.0 recommended.
CD 006  3-MAR-98 09:21:34 AAM__ONLINE    MODEL              208 pounds of #AFS7502-FESI 75    recommended.
CD 006  3-MAR-98 09:21:35 AAM__ONLINE    MODEL           LRS predicted: C: .340, Mn: .75, P: .013, S: .051, Si: .200, Cr: .15, Ni:
CD 006  3-MAR-98 09:21:35 AAM__ONLINE    MODEL           LRS predicted: Mo: .025, Cu: .24, Pb: .0008, Sn: .010
CD 006  3-MAR-98 09:21:35 AAM__ONLINE    MODEL           Target tap weight is 351000
CD 006  3-MAR-98 09:21:35 L2C__RMHMON    DIAGNOSTIC      Bin status. Bin 31, Material #AALBULK, Status AV, Wgt   6440, Dest
CD 006  3-MAR-98 09:21:36 L2C__RMHMON    DIAGNOSTIC      Hopper 81, Position  1, Total  1, Material #AALBULK, Req    394, Dlv    3
MT 020  3-MAR-98 09:21:36 MPTRACK_FC1    MODEL                          C    Mn    P     S     Si    Cr   Ni   Mo   Cu
MT 023  3-MAR-98 09:21:36 MPTRACK_FC1    MODEL           LabResult   0.14 0.19 .013 .052 .010 0.15 0.09 0.03 0.24
MT 022  3-MAR-98 09:21:36 MPTRACK_FC1    MODEL           MeltRec      23.  79. 105. 138.   3. 187. 128.  89. 153.
MT 021  3-MAR-98 09:21:36 MPTRACK_FC1    MODEL           Estimated   0.12 0.15 0.010 0.061 0.010 0.14 0.10 0.02 0.25
CD 006  3-MAR-98 09:21:36 L2C__RMHMON    L2C COMMS          388 pounds of #AALBULK delivered to XT for request 430301
MT 009  3-MAR-98 09:21:46 MPTRACK_FC1    MODEL           Aim Tapping Temperature                    3013. degF
MT 010  3-MAR-98 09:21:46 MPTRACK_FC1    MODEL           Expected Temperature Drop during Tapping  113. degF
CD 006  3-MAR-98 09:23:15 L2C__RMHMON    L2C COMMS          705 pounds of #ACOKE14 requested to XT.    Request 420101
CD 006  3-MAR-98 09:23:15 L2C__RMHMON    L2C COMMS         2991 pounds of #AFMSIA2 requested to XT.    Request 420102
CD 006  3-MAR-98 09:23:15 L2C__RMHMON    L2C COMMS          208 pounds of #AFS7502 requested to XT.    Request 420103
MT 009  3-MAR-98 09:23:16 MPTRACK_FC1    MODEL           Aim Tapping Temperature                    3058. degF
MT 010  3-MAR-98 09:23:16 MPTRACK_FC1    MODEL           Expected Temperature Drop during Tapping  158. degF
CD 006  3-MAR-98 09:23:20 L2C__RMHMON    L2C COMMS         1000 pounds of #FDOLM69 requested to XT.    Request 430401
CD 006  3-MAR-98 09:23:20 L2C__RMHMON    L2C COMMS         1000 pounds of #FBRLM62 requested to XT.    Request 430402
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FINAL REPORT

PARTICULATE, PM10, VISIBLE, LEAD, FLUORIDES, CARBON MONOXIDE, NITROGEN OXIDES, SULFUR DIOXIDE AND VOLATILE ORGANIC COMPOUNDS EMISSIONS EVALUATION

OF

FAIRCREST PLANT
EAF SHOP

THE TIMKEN COMPANY
CANTON, OHIO

BLUE MOUNTAIN PROJECT 516

MARCH 17, 2002

PREPARED BY
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1.0 EXECUTIVE SUMMARY

The Timken Company (Timken) located in Canton, Ohio contracted Blue Mountain Environmental Management Corporation (Blue Mountain) to conduct an emission evaluation at the Electric Arc Furnace (EAF) Melt Shop located at the Faircrest Plant. The EAF Shop is exhausted to a baghouse. The baghouse controls particulate emissions from the EAF and other ancillary operations in the Melt Shop including fugitive emissions. Emission testing was performed to demonstrate compliance with certain Ohio EPA Permit To Install No. 15-01339 permit (Permit) conditions. Testing was conducted to determine the following emissions:

- Particulate
- PM10
- Visible
- Lead
- Fluorides
- Carbon Monoxide (CO)
- Nitrogen Oxides (NO_X)
- Sulfur Dioxide (SO_2)
- Volatile Organic Compounds (VOC)

Table 1 summarizes the measured emissions and compliance limits in terms of the concentrations and/or emission rates provided in the Permit. The measured emissions are reported in Table 1 using the same significant figures provided in the Permit compliance limits. All measured emission rates were at or below the allowable limits with the exception of fluorides and SO_2. Visible emissions did not exceed zero percent opacity during the observation periods.

TABLE 1

TIMKEN
FAIRCREST EAF SHOP

EMISSIONS AND COMPLIANCE LIMIT SUMMARY

Pollutant	Compliance Limits			Measured Emissions		
	gr/dscf	lb/hr	lb/ton	gr/dscf	lb/hr	lb/ton
Particulate	0.0032	25	0.125	0.0015	11	0.069
PM10		19	0.1		18	0.1
Sulfur Dioxide		8	0.04		21	0.14
Nitrogen Oxide		43.8	0.2		20.1	0.1
Carbon Monoxide		960	4.8		454	3.0
VOC		20	0.1		10	0.1
Lead		0.26			0.16	
Fluoride		1.4			13.7	

2.0 SCOPE AND OBJECTIVES

The scope of this project was to an emission evaluation at the Faircrest Plant Melt Shop using approved reference-sampling methods and the submitted Ohio EPA Intent To Test Notification. The EAF Shop is exhausted to a baghouse. The baghouse controls particulate emissions from the EAF and other ancillary operations in the Melt Shop including fugitive emissions. Emission testing was performed to demonstrate compliance with certain Permit conditions. Testing was conducted to determine the following emissions:

- Particulate
- PM10
- Visible
- Lead
- Fluorides
- CO
- NO_X
- SO_2
- VOC

Three sample runs were conducted for each pollutant with the exception of fluorides where five sample runs were conducted. The first fluoride run (Run 1) was invalid due to sample contamination and non-isokinetic sampling conditions. The second fluoride sample run (Run 2) appeared to be contaminated, but at the request of the Ohio EPA, the results are included in the report. Fluoride Runs 3 through 5 that were considered valid sample runs were averaged to determine the measured emissions.

Sampling was conducted on January 22, 23, 24, 25, 28, 29 and 30, 2002. The Blue Mountain test personnel consisted of Messrs. Paul Jadlowiec, Joseph Stanger, Richard Eboli, Donald Landon and Jaimes Contreras. Mr. Rick Miller represented the Ohio EPA. Mr. Jeff Marshal served as company liaison.

Due to the number of emission parameters to be determined (nine), the complexity of the methods and the somewhat unusual sampling locations, this sampling program was completed in two phases. The gaseous emission sampling that includes VOC, NO_X, CO and SO_2 was conducted simultaneously during one sampling day. Each gaseous emission sampling run was conducted over a period of two complete furnace heats that lasted from 130 to 138 minutes.

For the second phase of the project, particulate, PM10, lead and fluorides were conducted over six days using the sampling strategy procedures described in EPA Method 5D in conjunction with the specific emission methodology. Each sampling run was conducted over a period of 250 minutes to ensure a sample size of at least160 dry standard cubic feet and representative sampling by sampling during approximately four furnace heats.

Based on the previous particulate emission tests conducted at the facility, the particulate catch was expected to be very low. The amount of particulate collected in this test ranged from 10.2 to 36.7 milligrams with a sample size of approximately 220 dry standard cubic feet. Therefore, all particulate collected using EPA Method 5 was added to the condensable particulate using EPA Method 202 for each sample run yielding a PM10 emission rate. The condensable particulate was analyzed for the organic and inorganic fractions.

The opacity of the EAF Shop was observed over three one-hour periods. The opacity of the baghouse outlet and baghouse dust handling system was simultaneously observed by one observer and also observed for three one-hour periods.

3.0 PROCEDURES

3.1 FIELD WORK

3.1.1 Field Data Sheets

Copies of all field data sheets including the continuous analyzer printouts of the one-minute emission concentrations are contained in Appendix A.

31.2 Emission Testing Station and Traverse Locations

As specified in EPA Method 5D-Determination of Particulate Emissions from Positive Pressure Fabric Filters, an inlet to a positive pressure baghouse can be used as a location to determine the gas flow exhausting from the baghouse when the velocity of the exhaust gases exiting the baghouse compartments are too low to measure accurately (Section 4.3). The velocity at the baghouse outlet was approximately 7.8 feet per second calculated from the velocity measured at the baghouse inlet duct.

The inlet duct to the EAF Baghouse has an internal diameter of 212 inches at the test location for measuring the exhaust gas flow. The nearest upstream and downstream disturbances are less than two diameters from the test location but is the best and only location for the measurement of exhaust gas flow. EPA Method 1-Sample and Velocity Traverses From Stationary Sources was used to determine the number and location of the traverse points. Twenty-four points were used to collect the velocity traverse data, six points at each of four test ports. The six traverse points were located at the following distances from the inner duct wall: 4.5, 14.2, 25.0, 37.0, 53.0 and 75.4 inches.

Sampling for particulate, lead and fluorides were conducted by sampling in the compartments directly above the bags. The baghouse exhaust has two roof vents with each internal dimension being 94 feet, 8 inches X 12 feet. The baghouse contains ten compartments. One half of the compartments exhaust to one of the two roof vents, the remaining five compartments to the other roof vent. There are 25 sampling ports for each roof vent, five for each compartment. Fifteen sampling points were selected above the bags in each compartment, constituting a 5X3 matrix. The five traverse points for each test port were located at the following distances from the inner vent wall: 24, 72 and 120 inches. The 72-inch distance had to be adjusted to approximately 60 inches in order to avoid the placement of the sampling nozzle directly above a structural member. Three and one-third compartments were sampled for each sampling run resulting in 50 sampling points sampled for each test run.

Gaseous emission sampling was conducted at the main inlet plenum immediately prior to the split that divides the gas stream into the two sections of the baghouse. The sampling probes were positioned approximately 7 feet into the gas stream. This sampling location is on the positive side of the exhaust fans and provides the best location for gaseous sampling based on the assurance that the gasses are well mixed and not stratified at that point.

3.1.3 Determination of Gas Flow and Gas Temperature

The gas flow rate and temperature profiles for the gas stream were measured by conducting a velocity and temperature traverse for each emission sampling run. Gas velocity head was measured with a calibrated "S"-type Pitot tube that was connected to an inclined manometer. A chrome-alumel thermocouple attached to a digital indicator was used to measure the gas temperature at each of the traverse points. The gas flow and gas temperature measurements followed the principles of EPA Method 2-Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube).

3.1.4 Determination of Dry Molecular Weight

A Fyrite analyzer was used to determine the molecular weight of the exhaust gas using the principles of EPA Method 3-Gas Analysis for the Determination of Dry Molecular Weight. The average of three grab samples was used to calculate the molecular weight of the exhaust gas for each sample run. Percent carbon dioxide (CO_2) and oxygen (O_2) by volume were measured. Percent nitrogen (N_2) by volume was determined by difference.

3.1.5 Determination of Moisture Content

Moisture sampling was conducted using the principles presented in EPA Method 4-Determination of Moisture Content In Stack Gases concurrently with the emission sampling. Parameters evaluated in order to determine the gas stream moisture content were: sample gas volume, sample gas temperature, sample gas pressure, impinger moisture gain, and silica gel moisture gain.

3.1.6 Determination of Particulate, Condensable Particulate and PM10 Emissions

Particulate and condensable particulate emission sampling was conducted concurrently using the same sampling train of EPA Method 5-Determination of Particulate Matter From Stationary Sources and EPA Method 202-Dermination of Condensable Particulate From Stationary Sources. Particulate matter was withdrawn isokinetically from the gas stream and collected in a probe, nozzle and filter. This portion of the sample is called the front-half. A series of glass impingers containing distilled water and silica gel collected water vapor and condensed particulate. This portion of the sample train is called the back-half. A calibrated dry gas meter measured the gas sample volume that exceeded 214 dry standard cubic feet for each sample run.

Due to power voltage problems at the site it was impossible to maintain the probe temperature above 223 degrees F. However, condensation was not observed in the front-half of the sampling train at any time and the average probe temperature exceeded the stack temperature for Runs 2 and 3 and was only 4 degrees lower for Run 1. EPA Method 5D allows for the probe temperature to be maintained at or above the exhaust gas temperature. The filter temperature was maintained at or above 248+/-25 degrees F.

Particulate collected using EPA Method 5 (Front-half) was added to the collected condensable particulate (Back-half) using EPA Method 202 for each sample run yielding PM10 emissions.

3.1.7 Determination of Visible Emissions

EPA Method 9-Visual Determination of the Opacity of Emissions from Stationary Sources was used in this test program. A certified visible emission observer observed the opacity of emissions for three 60-minute periods at the EAF Melt Shop and three 60-minute periods at the baghouse simultaneously observing the baghouse vents and dust handling system.

3.1.8 Determination of Lead Emissions

Lead emissions sampling was conducted using EPA Method 12-Determination of Lead Emissions from Stationary Sources. Particulate matter was withdrawn isokinetically from the gas stream and collected in a probe, nozzle, filter and impingers containing a 0.1 normal solution of nitric acid. The sample was collected in the same manner as particulate matter. The average probe temperature exceeded the average exhaust gas temperature for each sample run. Condensation was not observed at any time in the front-half of the sampling train.

3.1.9 Determination of Fluoride Emissions

Fluoride emissions sampling was conducted using EPA Method 13B-Determination of Fluoride Emissions from Stationary Sources (Ion specific probe analysis). Particulate matter was withdrawn isokinetically from the gas stream and collected in a probe, nozzle, filter and impingers containing distilled water. The sample was collected in the same manner as particulate matter. The average probe temperature exceeded the average exhaust gas temperature for each sample run. Condensation was not observed at any time in the front-half of the sampling train.

3.1.10 Determination of Carbon Monoxide Emissions

The principles of EPA Method 10- Determination of Carbon Monoxide Emissions from Stationary Sources were used for this test program to determine CO emissions. A gas sample was continuously extracted from the gas streams and a portion of the sample was conveyed to an analyzer. The analyzer measured the CO concentration using the principles of gas filter correlation. The CO data was recorded on a data logger. The data logger recorded a CO concentration once each minute. Sampling was conducted simultaneously with NO_X, SO_2 and VOC emission sampling.

3.1.11 Determination of Nitrogen Oxides Emissions

The principles of EPA Method 7E-Determination of Nitrogen Oxides Emissions from Stationary Sources (Instrumental Analyzer Procedure) were used for this test program to determine NOx emissions. A gas sample was continuously extracted from the exhaust stacks and a portion of the sample was conveyed to an analyzer. The analyzer measured the NO_X concentration using the principles of chemiluminescence. The NOx data was recorded on a data logger. The data logger recorded a NOx concentration once each minute. The emission rate data in terms of lb/hr and lb/t was reported as nitrogen dioxide (NO_2). Sampling was conducted simultaneously with CO, SO_2 and VOC emission sampling.

3.1.12 Determination of Sulfur Dioxide Emissions

SO_2 was measured using the principles of EPA Method 6-Determination of Sulfur Dioxide Emissions From Stationary Sources. The midget impingers were replaced with 500-milliliter impingers. The sampling rate ranged from 0.77 to 0.82 cubic feet per minute. The analysis was conducted using ion chromatography to provide a better detection limit than titration. A plug of glass wool was used in place of a filter between the first and second impingers to inhibit liquid carryover. Portions of this methodology conformed to EPA Method 8 for the collection of sulfuric acid mist and SO_2. The moisture pickup collected in this sampling train was used to determine the moisture content of the exhaust gas. Sampling was conducted simultaneously with CO, NO_X and VOC emission sampling.

3.1.13 Determination of Volatile Organic Compound Emissions

The principles of EPA Method 25A- Determination of Total Gaseous Organic Concentration Using A Flame Ionization Analyzer and EPA Method 18-Determination of Organic Concentrations were used for this test program to determine VOC emissions. EPA Method 25A was used to measured total VOC emissions and EPA Method 18 was used to measure the methane and ethane concentration. The VOC emissions are reported as total non-methane and ethane VOC as carbon

Using EPA Method 25A a gas sample was continuously extracted from the gas stream and a portion of the sample was conveyed to an analyzer without the removal of water vapor. The analyzer measured the VOC concentration using the principles of flame ionization detection. The VOC data was recorded on a data logger. The data logger recorded a VOC concentration once each minute. Sampling was conducted simultaneously with CO, NO_X and SO_2 emission sampling. Propane calibration gas standards were used to calibrate the instrument.

Using EPA Method 18 10-liter Tedlar gas-sampling bags were used to collect gas samples for the analysis of methane and ethane with the use of an evacuated "suitcase type" device.

The VOC emission rate data is reported on a dry basis as carbon using a molecular weight of 12. The VOC concentration (ppm) is reported on a wet basis as measured. The average total VOC concentration was multiplied by three to correct the concentration of total VOC for the relationship of carbon atoms in propane to a single carbon atom for carbon. The concentration of methane was subtracted (methane has one carbon atom). The concentration of ethane was non-detectable and a value of zero was used to subtract the ethane concentration.

3.2 CALCULATIONS

Emission calculations were completed using a computer spreadsheet format. The results of each pertinent parameter are detailed on the spreadsheet for each sampling run and are contained in Appendix B.

3.3 ANALYTICAL

Copies of all analytical reports are contained in Appendix C.

3.4 FIELD EQUIPMENT CALIBRATIONS

The following field equipment calibration data are contained in Appendix D.

- Pitot tube;
- Thermocouples;
- Dry Gas Meters and Orifices (Pre and Post Test);
- Visible Emission Observer Certificate;
- Calibration Gas Certificates
- Analyzer Drift;
- Analyzer System Bias;
- Analyzer Interference, and
- NOx Analyzer NO to NO_2 conversation.

EPA Method 205-Verification of Gas Dilution Systems For Field Instrument Calibration was used to dilute calibration gases for the proper ranges of concentrations measured during the test. The Method 205 analyzer flow controller calibration data is contained in Appendix C.

3.5 Electric Arc Furnace Operation Data

Copies of pertinent portions of the Melt Shop Log Reports are contained in Appendix E. The pertinent data includes the charges and additions made, start and stop times of charges and taps, and steel produced for each heat. A summary table used to calculate the production during each sampling period is included.

4.0 SUMMARY OF RESULTS

5.1 Particulate Emissions

Table 2 summarizes the particulate emission data.

The particulate emission concentration ranged from 0.0006 to 0.0026 grains per dry standard cubic feet (gr/dscf). The average was 0.0015 gr/dscf. The compliance limit is 0.0032 gr/dscf.

The particulate emission rates ranged from 6 to 20 pounds per hour (lb/hr) and 0.041 to 0.113 pounds per ton (lb/ton). The average emission rates were 11 lb/hr and 0.069 lb/ton. The compliance limits are 25 lb/hr and 0.125 lb/ton.

4.2 PM10 Emissions

Table 2 also summarizes the PM10 emission data that includes the front-half and condensable back-half catch results.

The PM10 emission rates ranged from 11 to 27 lb/hr and 0.08 to 0.15 lb/ton. The average emission rates were 18 lb/hr and 0.1 lb/ton. The compliance limits are 21 lb/hr and 0.1 lb/ton.

4.3 Visible Emissions

All observations of visible emissions did not exceed zero percent opacity. The emission opacity limits are 6 percent opacity from the Melt Shop, 3 percent at baghouse exit and 10 percent from the baghouse dust handling.

4.4 Lead Emissions

Table 3 summarizes the lead emission data.

The lead emission rate ranged from 0.15 to 0.17 lb/hr. The average emission rate was 0.16 lb/hr. The compliance limit is 0.26 lb/hr.

4.5 Fluoride Emissions

Table 4 summarizes the fluoride emission data.

The fluoride emission rate for Runs 3, 4 and 5 ranged from 12.4 to 15.6 lb/hr. The average emission rate was 13.7 lb/hr. The compliance limit is 1.4 lb/hr.

The fluoride emission rate for Run 2 was 36.4 lb/hr and was not considered valid due to contaminating the sample with dust from the baghouse support structure during sampling.

4.6 Carbon Monoxide Emissions

Table 5 summarizes the CO emission data.

The CO emission rates ranged from 420 to 479 lb/hr and 2.8 to 3.2 lb/ton. The average emission rates were 454 lb/hr and 3.0 lb/ton. The compliance limits are 960 lb/hr and 4.8 lb/ton.

4.7 Nitrogen Oxides Emissions

Table 5 also summarizes the NOx emission data as nitrogen dioxide.

The NOx emission rates ranged from 16.4 to 25.8 lb/hr and 0.11 to 0.16 lb/ton. The average emission rates were 20.1 lb/hr and 0.1 lb/ton. The compliance limits are 43.8 lb/hr and 0.2 lb/ton.

4.8 Sulfur Dioxide Emissions

Table 5 also summarizes the SO_2 emission data.

The SO_2 emission rates ranged from 12 to 31 lb/hr and 0.07 to 0.21 lb/ton. The average emission rates were 21 lb/hr and 0.14 lb/ton. The compliance limits are 8 lb/hr and 0.04 lb/ton.

4. 9 Volatile Organic Compound Emissions

Table 5 also summarizes the VOC emission data as non-methane and ethane VOC as carbon.

The VOC emission rates ranged from 9 to 11 lb/hr and 0.06 to 0.08 lb/ton. The average emission rates were 10 lb/hr and 0.066 lb/ton. The compliance limits are 20 lb/hr and 0.1 lb/ton.

The average methane concentration was 0.37 parts per million (ppm) and ethane was not detectable.

TABLES

TABLE 1

TIMKEN
FAIRCREST EAF SHOP

EMISSIONS AND COMPLIANCE LIMIT SUMMARY

Pollutant	Compliance Limits			Measured Emissions		
	gr/dscf	lb/hr	lb/ton	gr/dscf	lb/hr	lb/ton
Particulate	0.0032	25	0.125	0.0015	11	0.069
PM10		19	0.1		18	0.1
Sulfur Dioxide		8	0.04		21	0.14
Nitrogen Oxide		43.8	0.2		20.1	0.1
Carbon Monoxide		960	4.8		454	3.0
VOC		20	0.1		10	0.1
Lead		0.26			0.16	
Fluoride		1.4			13.7	

TABLE 2

TIMKEN
FAIRCREST EAF SHOP

PARTICULATE, CONDENSIBLE PARTICULATE AND PM10 EMISSIONS SUMMARY

Parameter	Run 1	Run 2	Run 3	Average
Gas Flow (acfm)	1048820	1060586	1058086	**1060586**
Gas Flow (dscfm)	914425	908543	869564	**908543**
Sample Volume (dscf)	220.575	222.410	214.684	**219.223**
Isokinetic Ratio (%)	100.6	101.7	102.2	**100.7**
Production Rate (ton/hr)	136.08	143.96	174.01	**151.35**
Particulate Emissions:				
gr/dscf	0.0006	0.0010	0.0026	**0.0015**
lb/hr	6	8	20	**11**
lb/ton	0.041	0.055	0.113	**0.069**
Condensible Particulate Emissions:				
gr/dscf	0.0007	0.0010	0.0010	**0.0009**
lb/hr	6	8	7	**7**
lb/ton	0.04	0.05	0.04	**0.04**
PM10 Emissions:				
gr/dscf	0.0014	0.0020	0.0036	**0.0023**
lb/hr	11	16	27	**18**
lb/ton	0.08	0.11	0.15	**0.11**

TABLE 3

TIMKEN
FAIRCREST EAF SHOP

LEAD EMISSION SUMMARY

Parameter	Run 1	Run 2	Run 3	Average
Gas Flow (acfm)	1041319	1048673	1060586	**1050193**
Gas Flow (dscfm)	892743	915225	908543	**905504**
Sample Volume (dscf)	225.195	222.306	217.790	**221.764**
Isokinetic Ratio (%)	104.9	102.8	100.9	**102.9**
Production Rate (ton/hr)	126.83	118.02	143.96	**129.6**
Lead Emissions:				
gr/dscf	0.0000217	0.0000193	0.0000208	**0.0000206**
lb/hr	0.17	0.15	0.16	**0.16**
lb/ton	0.0013	0.0013	0.0011	**0.0012**

TABLE 4

TIMKEN
FAIRCREST EAF SHOP

FLUORIDE EMISSION SUMMARY

Parameter	Run 3	Run 4	Run 5	Avg. 3, 4 & 5	Run 2
Gas Flow (acfm)	1058086	1067204	1047055	**1060586**	1041319
Gas Flow (dscfm)	869564	925929	884190	**908543**	892743
Sample Volume (dscf)	211.513	220.100	221.241	**217.618**	224.295
Isokinetic Ratio (%)	99.9	99.9	105.2	**101.7**	105.7
Production Rate (ton/hr)	140.11	162.94	138.59	**147.21**	126.83
Fluoride Emissions:					
gr/dscf	0.0018	0.0016	0.0021	**0.0018**	0.0048
lb/hr	13.1	12.4	15.6	**13.7**	36.4
lb/ton	0.09	0.08	0.11	**0.09**	0.29

TABLE 5

TIMKEN
FAIRCREST EAF SHOP

SULFUR DIOXIDE, NITROGEN OXIDES, AND CARBON MONOXIDE AND VOC EMISSIONS SUMMARY

Parameter	Run 1	Run 2	Run 3	Average
Gas Flow (acfm)	1054262	1057644	1061910	**1057939**
Gas Flow (dscfm)	883055	871851	856742	**870543**
Production Rate (ton/hr)	150.33	150.62	159.53	**153.49**
Sulfur Dioxide Emissions:				
ppmv	3.51	2.28	1.39	**2.395**
lb/hr	31	20	12	**21**
lb/ton	0.21	0.13	0.07	**0.14**
Nitrogen Oxides Emissions:				
ppmv	2.6	2.9	4.4	**3.2**
lb/hr as nitrogen dioxide	16.4	18.1	25.8	**20.1**
lb/ton as nitrogen dioxide	0.11	0.12	0.16	**0.13**
Carbon Monoxide Emissions:				
ppmv	109.2	126.0	124.1	**119.8**
lb/hr	420	479	464	**454**
lb/ton	2.8	3.2	2.9	**3.0**
Non Methane and Ethane VOC Emissions:				
ppmv	6.8	5.9	5.6	**6.1**
lb/hr as carbon	11	10	9	**10**
lb/ton as carbon	0.08	0.07	0.06	**0.066**

APPENDIX A

FIELD DATA SHEETS
AND
1-MINUTE EMISSION CONCENTRATIONS

FLUORIDE - RUN 1

A1

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENTCORPORATION

Q_s = 1,036,612
Q_{sd} = 960,843

VELOCITY TRAVERSE DATA SHEET

Client: Tarkett
Project No:
Source: Baghouse Inlet
Date: 1-22-02
Techs.: PJ & DL

Stack Diameter: 212"
Baro. Press: 29.22
Static Pressure: -8.0
Moisture Content: 1.6
CO_2 Content: 0.0

O_2 Content: 21.0
Mole. Wt.: —
Leak Check: OK
Pitot ID: 8-1
Thermo. ID: 8-1

TRAVERSE POINT	DELTA P in. H_2O	STACK TEMP °F
E 1	.40	78
2	1.0	78
3	1.0	78
4	1.4	78
5	1.4	78
6	1.6	78
S 1	1.0	79
2	1.3	81
3	1.7	81
4	1.7	80
5	1.6	80
6	1.6	79
W 1	1.3	74
2	1.7	74
3	1.7	74
4	1.7	74
5	1.6	74
6	1.7	74
N 1	1.5	74
2	1.7	75
3	1.7	75
4	1.7	75
5	1.7	74
6	1.6	73

Run No. 1
Start Time: 0815
End Time: 0830

Avg. Delta P:
Avg. Sqrt. Delta P: 1.214
Avg Stack Temp: 76.5

$\dot{V} = \frac{15,180}{2272} \times \frac{540}{540}$

$= 6.68$

$R_m = 0.33 \times \frac{520}{540} \times 6.68 \times \frac{29.22}{29.24} =$

$N_2 = 0.623^2 - 0.388$

$N_2 - 0.628^2 - 0.394$

.822 .623
.83 .628

TRAVERSE POINT	DELTA P in. H_2O	STACK TEMP °F	
			.894
			1.0
			1.0
			1.183
			1.183
			1.265
			1.0
			1.140
			1.304
			1.304
			1.265
			1.265
			1.140
			1.304
			1.304
			1.304
			1.265
			1.304
			1.225
			1.304
			1.304
			1.304
			1.304
			1.265

$V_s = 85.49 \times 1.214 \times 0.84 \sqrt{\frac{536.5}{28.63 \times 27.63}} = 70.56$ ft/sec

245.13

$Q_s = 70.56 \times \cancel{245.13} = \cancel{15,180}$ ft³/sec

Q_s - 1035288
Q_{sd} - 966242

FLUORIDE-RUN 2
LEAD -RUN 1

A2

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENTCORPORATION

Q_s = 1,041,519
Q_{sd} = 892743

VELOCITY TRAVERSE DATA SHEET

Client: Timken
Project No:
Source: Baghouse Inlet
Date: 1-23-04

Techs.: DJ

Stack Diameter: 212"
Baro. Press: 28.95
Static Pressure: -7.3
Moisture Content: 1.5/1.7 $\boxed{1.6}$
CO_2 Content: 0.0

O_2 Content: 21.0
Mole. Wt.:
Leak Check: OK
Pitot ID: 8-1
Thermo. ID: 8-1

TRAVERSE POINT	DELTA P in. H_2O	STACK TEMP °F
N 1	1.4	126
2	1.7	126
3	1.7	127
4	1.7	127
5	1.7	127
6	1.7	127
W 1	1.4	107
2	1.7	107
3	1.7	108
4	1.8	108
5	1.7	109
6	1.7	111
S 1	1.0	127
2	1.3	118
3	1.5	117
4	1.5	115
5	1.6	114
6	1.5	110
E 1	.69	114
2	.93	112
3	.83	108
4	.90	108
5	.95	108
6	1.0	110

Run No. 2
Start Time: 0815
End Time: 0835

Avg. Delta P:
Avg. Sqrt. Delta P: 1.173
Avg Stack Temp: 115.5

$\bar{V} = \frac{\cancel{15,246}\ 17374.8}{2272} \times \frac{575}{575}$

$= \cancel{6.71}\ 7.64$

$Rm = 0.33 \times \cancel{6.71}\ 7.64 \times \frac{550}{575} \times \frac{29.95}{29.10} \times .388 = \cancel{.82}\ .93$

$\bar{V} = \frac{17375}{2272} \times \frac{593}{575}$

$= 7.88$

$Rm = 0.33 \times 7.88 \times \frac{530}{590} \times \frac{28.95}{29.10} \times .3942 = .92$

TRAVERSE POINT	DELTA P in. H_2O	STACK TEMP °F	
			1.183
			1.304
			1.304
			1.304
			1.304
			1.304
			1.183
			1.304
			1.304
			1.342
			1.304
			1.304
			1.000
			1.140
			1.225
			1.225
			1.265
			1.225
			.831
			.964
			.911
			.949
			.975
			1.00

.841

$V_s = 85.49 \times 1.173 \times 0.84 \sqrt{\frac{575.5}{28.63 \times 28.41}} = 70.878$ ft/sec

$Q_s = 70.88 \times 245.13 = \cancel{15,248}\ 17374.8$

Q_s 1040289
891298

LEAD - RUN 2
ARS+ - RUN 1

A3

Qs = 1048673
Qstd = 915225

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENTCORPORATION

VELOCITY TRAVERSE DATA SHEET

Client: Timken	Stack Diameter: 212	O_2 Content: 20.9
Project No:	Baro. Press: 28.78	Mole. Wt.:
Source: Baghouse Inlet	Static Pressure: -6.2	Leak Check: OK
Date: 1-21-01	Moisture Content: 1.5	Pitot ID: 8-1
Techs.: PJ	CO_2 Content: 0.0	Thermo. ID: 8-1

TRAVERSE POINT	DELTA P in. H_2O	STACK TEMP °F
E 1	.70	93
2	.88	93
3	.96	94
4	.95	96
5	.95	95
6	1.1	97
S 1	1.2	97
2	1.5	97
3	1.5	97
4	1.6	98
5	1.7	98
6	1.7	100
W 1	1.5	119
2	1.8	120
3	1.8	119
4	1.8	118
5	1.8	117
6	1.8	115
N 1	1.4	100
2	1.7	105
3	1.7	108
4	1.5	108
5	1.6	108
6	1.5	109

Run No. 3
Start Time: 1430
End Time: 1445

Avg. Delta P:
Avg. Sqrt. Delta P: 1.191
Avg Stack Temp: 104.7

$V = \frac{17440}{2272} \times \frac{564}{564}$

$= 7.68$

$R_M = 0.33 \times$ ——— $\times 7.68$

$\times \frac{28.78}{28.96}$

TRAVERSE POINT	DELTA P in. H_2O	STACK TEMP °F

.837
.938
.990
.975
.975
1.049

1.095
1.225
1.225
1.265
1.304
1.304

1.225
1.342
1.342
1.342
1.342
1.342

1.183
1.304
1.304
1.225
1.265
1.225

.832

$V_S = 85.49 \times 1.191 \times 0.84 \sqrt{\frac{564.7}{28.83 \times 28.32}} = 71.15 \text{ ft/sec}$

$Q_S = 71.15 \times 245.13 = 17,440$

LEAD - RUN 3
PART - RUN 2

A4

Qs = 1060586
Qsd = 908543

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENTCORPORATION

VELOCITY TRAVERSE DATA SHEET

Client: Timken
Project No:
Source: Furnace East
Date: 1-25-
Techs.: PT

Stack Diameter:
Baro. Press: 29.07
Static Pressure: -7.2
Moisture Content: 11.3 / 11.3 / 11.3
CO_2 Content: 0.0

O_2 Content: 21.0
Mole. Wt.:
Leak Check: OK
Pitot ID: 8-1
Thermo. ID: 8-1

TRAVERSE POINT	DELTA P in. H_2O	STACK TEMP °F
N 1	1.5	108
2	1.7	110
3	1.7	110
4	1.7	110
5	1.8	110
6	1.7	110
W 1	1.5	112
2	1.8	111
3	1.8	110
4	1.8	110
5	1.8	110
6	1.8	109
S 1	1.0	122
2	1.4	123
3	1.6	127
4	1.6	133
5	1.7	137
6	1.7	147
E 1	.65	130
2	.75	130
3	.80	120
4	.85	130
5	.95	130
6	1.3	129

Run No. 4
Start Time: 0835
End Time: 0850

Avg. Delta P:
Avg. Sqrt. Delta P: 1.193
Avg Stack Temp: 120.3

$V = \frac{17,695}{2272} \times \frac{580}{580}$

$= 7.79$

$R_{A} = 0.33 \times \frac{540}{580} \times 7.79$

$\times \frac{29.07}{29.25}$

TRAVERSE POINT	DELTA P in. H_2O	STACK TEMP °F

1.225
1.304
1.304
1.304
1.342
1.304

1.225
1.342
1.342
1.342
1.342
1.342

1.000
1.183
1.265
1.265
1.304
1.304

.806
.866
.894
.922
.975
1.140

$V_S = 85.49 \times 1.193 \times 0.84 \sqrt{\frac{580.3}{28.63 \times 28.54}} = 72.188$ (.843)

$Q = 72.188 \times 245.13 = 17,695$

FLUORIDE RUN 3
PART RUN 3

Qs = [illegible]
Qsd 56,564

A5

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

VELOCITY TRAVERSE DATA SHEET

Client: Timken
Project No:
Source: Faircrest EAF
Date: 1-28-02
Techs.: PJ

Stack Diameter: 212
Baro. Press: 29.04
Static Pressure: -9.3
Moisture Content: $\boxed{1.6}$
CO_2 Content: 0.0

O_2 Content: 21.0
Mole. Wt.:
Leak Check: OK
Pitot ID: 8-1
Thermo. ID: #8-1

TRAVERSE POINT	DELTA P in. H_2O	STACK TEMP °F	
E 1	.60	145	.775
2	.75	145	.866
3	.75	145	.866
4	.85	139	.922
5	.90	135	.945
6	1.0	138	1.000
S 1	1.1	148	1.049
2	1.4	149	1.183
3	1.5	150	1.225
4	1.5	150	1.225
5	1.5	145	1.225
6	1.6	138	1.265
W 1	1.5	145	1.225
2	1.7	142	1.304
3	1.7	142	1.304
4	1.6	149	1.265
5	1.7	146	1.304
6	1.7	138	1.304
N 1	1.5	104	1.225
2	1.7	107	1.304
3	1.7	107	1.304
4	1.7	107	1.304
5	1.7	107	1.304
6	1.7	107	1.304

Run No. 5
Start Time: 1050
End Time: 1105

Avg. Delta P:
Avg. Sqrt. Delta P: 1.167
Avg Stack Temp: 134.5

$V = \frac{17{,}576}{2272} \times \frac{528\ 595}{528\ 595}$

$= 7.74$

$R_m = 0.33 \times \frac{555}{595} \times 7.74$

$\times \frac{29.04}{29.11} \times 0.391$

TRAVERSE POINT	DELTA P in. H_2O	STACK TEMP °F

$V_s = 85.49 \times 1.167 \times 0.84 \sqrt{\frac{594.5}{28.63 \times 28.36}} = 71.7$ ft/sec (.856)

$Q_s = 71.7 \times 245.13 = 17{,}576$

Gas-Run 1

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENTCORPORATION

VELOCITY TRAVERSE DATA SHEET

Client: Timken
Project No:
Source: Timken EAF
Date: 1-29-02
Techs.: PT

Stack Diameter: 212
Baro. Press: 28.92
Static Pressure: -7.0
Moisture Content:
CO_2 Content: 0.0

O_2 Content: 21.0
Mole. Wt.:
Leak Check:
Pitot ID: 8-1
Thermo. ID: 8-1

TRAVERSE POINT	DELTA P in. H_2O	STACK TEMP °F
N 1	1.4	115
2	1.7	115
3	1.7	114
4	1.7	114
5	1.7	113
6	1.6	113
W 1	1.4	134
2	1.7	134
3	1.7	133
4	1.7	132
5	1.7	131
6	1.8	130
S 1	1.1	135
2	1.4	135
3	1.5	135
4	1.5	135
5	1.6	134
6	1.5	133
E 1	.65	133
2	.80	133
3	.85	132
4	.92	131
5	.90	130
6	1.1	129

Run No. 6
Start Time: 0830
End Time: 0845

Avg. Delta P:
Avg. Sqrt. Delta P: 1.173
Avg Stack Temp: 128.0

TRAVERSE POINT	DELTA P in. H_2O	STACK TEMP °F

Gas - Run 2

A7

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENTCORPORATION

VELOCITY TRAVERSE DATA SHEET

Client: Timken
Project No:
Source: Timken EAF
Date: 1-29-02
Techs.: PJ

Stack Diameter: 212
Baro. Press: 29.02
Static Pressure: -7.7
Moisture Content:
CO_2 Content: 0.0

O_2 Content: 21.0
Mole. Wt.:
Leak Check: OK
Pitot ID: 8-1
Thermo. ID: 8-1

TRAVERSE POINT	DELTA P in. H_2O	STACK TEMP °F
E 1	.70	134
2	.80	135
3	.85	135
4	.85	138
5	.85	136
6	1.0	138
S 1	1.3	142
2	1.5	142
3	1.3	142
4	1.5	142
5	1.5	142
6	1.3	142
W 1	1.2	137
2	1.6	137
3	1.8	139
4	1.8	141
5	1.8	143
6	1.8	145
N 1	1.4	127
2	1.6	129
3	1.6	130
4	1.7	131
5	1.6	133
6	1.7	134

Run No. ~~8~~ 7
Start Time: 1230
End Time: 1245

Avg. Delta P:
Avg. Sqrt. Delta P: 1.168
Avg Stack Temp: 137.3

TRAVERSE POINT	DELTA P in. H_2O	STACK TEMP °F

Gas - Run 3

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENTCORPORATION

VELOCITY TRAVERSE DATA SHEET

Client: Timken
Project No:
Source: Timken EAF
Date: 1-29-02
Techs.: PT

Stack Diameter: 212
Baro. Press: 29.05
Static Pressure: -7.8
Moisture Content:
CO_2 Content: 0.0

O_2 Content: 21.0
Mole. Wt.:
Leak Check: OK
Pitot ID: 8-1
Thermo. ID: 8-1

TRAVERSE POINT	DELTA P in. H_2O	STACK TEMP °F
N 1	1.4	150
2	1.7	151
3	1.7	150
4	1.7	148
5	1.6	145
6	1.7	143
W 1	1.5	137
2	1.7	138
3	1.7	140
4	1.8	151
5	1.8	150
6	1.8	149
Q 1	1.0	138
2	1.4	138
3	[illegible]	138
4	1.5	134
5	1.7	151
6	1.6	151
E 1	.65	135
2	.75	144
3	.85	147
4	.80	151
5	.80	147
6	1.1	151

Run No. 8
Start Time: 1730
End Time: 1745

Avg. Delta P:
Avg. Sqrt. Delta P: 1.173
Avg Stack Temp: 145.5

TRAVERSE POINT	DELTA P in. H_2O	STACK TEMP °F

FLUORIDE Run 4

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENTCORPORATION

VELOCITY TRAVERSE DATA SHEET

Client: Timken
Project No:
Source: [illegible]
Date: 1-30-02
Techs.: PJ

Stack Diameter:
Baro. Press: 29.01
Static Pressure: -7.4
Moisture Content: 1.8
CO_2 Content: 0.0

O_2 Content: 21.0
Mole. Wt.:
Leak Check: OK
Pitot ID: 8-1
Thermo. ID: 8-1

TRAVERSE POINT	DELTA P in. H_2O	STACK TEMP °F	
E 1	.80	89	.894
2	.85	89	.922
3	.85	90	.922
4	.90	86	.949
5	.95	86	.975
6	1.2	87	1.095
S 1	1.3	92	1.140
2	1.5	93	1.225
3	1.7	93	1.304
4	1.8	93	1.304
5	1.8	93	1.304
6	1.8	93	1.304
W 1	1.6	133	1.265
2	1.8	133	1.342
3	1.8	134	1.342
4	1.8	138	1.342
5	1.8	145	1.342
6	1.8	147	1.342
N 1	1.4	122	1.183
2	1.7	122	1.304
3	1.7	122	1.304
4	1.7	122	1.304
5	1.7	122	1.304
6	1.7	123	1.304

Run No. 9
Start Time: 0810
End Time: 0825

Avg. Delta P:
Avg. Sqrt. Delta P: 1.209
Avg Stack Temp: 110.3

$\overline{V} = \frac{17,806}{2272} \times \frac{580}{570}$

$= 7.98$

$R_M = 0.33 \times \frac{580}{535} \times 7.98 \times .388 \times \frac{29.01}{29.16}$

TRAVERSE POINT	DELTA P in. H_2O	STACK TEMP °F

$V_S = 85.49 \times 1.209 \times 0.84 \sqrt{\frac{570.3}{28.59 \times 28.47}} = 72.639$ (.837)

$Q_S = 72.639 \times 245.13 = 17,806$

A10

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENTCORPORATION

VELOCITY TRAVERSE DATA SHEET

Client: Timken	Stack Diameter: 212	O_2 Content: 21.0
Project No:	Baro. Press: 29.19	Mole. Wt.:
Source: Faircrest EHF	Static Pressure: -7.7	Leak Check: OK
Date: 1/30/02	Moisture Content: 1.7	Pitot ID: 8-1
Techs.: PF	CO_2 Content: 0.0	Thermo. ID: 8-1

Run No. 10
Start Time: 515
End Time: 530

Avg. Delta P:
Avg. Sqrt. Delta P: 1.171
Avg Stack Temp: 128.0

TRAVERSE POINT	DELTA P in. H_2O	STACK TEMP °F	
N/1	1.4	128	1.183
2	1.6	130	1.265
3	1.6	129	1.265
4	1.6	135	1.265
5	1.6	124	1.265
6	1.7	114	1.304
W 1	1.5	130	1.225
2	1.6	130	1.265
3	1.6	130	1.265
4	1.7	131	1.304
5	1.7	132	1.304
6	1.7	132	1.304
S 1	1.4	130	1.183
2	1.5	131	1.225
3	1.5	130	1.225
4	1.6	130	1.265
5	1.6	129	1.265
6	1.6	128	1.265
E 1	.65	125	0.806
2	.70	125	.837
3	.80	125	.894
4	.85	125	.922
5	.90	125	.949
6	1.1	124	1.049

TRAVERSE POINT	DELTA P in. H_2O	STACK TEMP °F

Partic State 1/3/5/7 compartment

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 5 DATA SHEET

Client: Timken	Run No.: 1	Meter delta H@: 1.77	Filter No.: 153
Project No.:	Noz. Dia.: 0.628	Meter Corr.: 0.989	Stack Dia.:
Source: Faircrest EAF	Baro. Press.: 28.71	Pitot Corr.: —	Ambient Temp.:
Date: 1-24-02	Static Press.:	Control Box ID: 1	Start Time: 8:48
Techs: RE & JS	Moisture:	Probe ID: 12-2	Stop Time: 1520

1401-9

Point	Elapsed Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp. °F	Filter Temp °F	Imp. Temp. °F	Comments
		8:46	12.093									
1		8:53	17.5		2.5	5	166	128	84	254	62	168
2		1401	21.4		2.5	5	159	84	85	254	59	181
3		1406	26.4		2.5	5	124	96	40	241	35	202
4		1414	30.6		2.5	5	132	97	41	250	37	250
5		1419	35.1		2.5	5	100	97	42	245	37	257
6		1424	39.6		2.5	5	95	96	42	252	37	247
7		1431	44.1		2.5	5	[illegible]	96	43	251	37	278
8		1436	48.6		2.5	5	101	102	43	251	40	252
9		1441	53.2		2.5	5	102	104	44	255	38	251
10		1448	57.6		2.5	5	100	109	45	251	37	272
11		1453	62.1		2.5	5	100	99	45	256	40	218
12		1458	66.5		2.5	5	95	108	45	255	37	252
13		1506	71.0		2.5	5	[illegible]	116	48	251	41	270
14		1511	75.5		2.5	5	101	117	46	251	40	224
15		1516	79.9		2.5	5	101	101	46	251	41	251
Tot/Avg	230		224.872		2.5		105.1	109.8	53.9			

Sample Train Leak Check

	Vacuum	Leak Rate
Pre	15 in. Hg	0.005 CFM
Post	7 in. Hg	0.00 CFM

Pitot Leak Check

Pos.	
Neg.	

Moisture Train Analysis

Impinger	Final Wt.	Initial Wt.	Difference
1	685.4 gm	697.7 gm	-12.3 gm
2	745.8 gm	717.7 gm	28.1 gm
3	758.4 gm	750.9 gm	7.5 gm
4	863.4 gm	820.0 gm	43.4 gm
5	gm	gm	gm
Total	gm	gm	66.7 gm

Fyrite Analysis

Gas	Run 1	Run 2	Run 3	Average
O_2				
CO_2				

Box 2

A11

PARTICULATE

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 5 DATA SHEET

Client: TIMKEN Source: Run No.: 1

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
1		1525	84.4		2.5	5	108	97	49	251	40	250
2		1530	88.9		2.5	5	94	97	50	255	41	256
3		1535	93.4		2.5	5	96	109	51	251	42	252
4		1543	97.8		2.5	5	94	104	50	252	41	252
5		1548	102.3		2.5	5	96	111	51	252	42	251
6		1553	106.7		2.5	5	100	113	51	254	43	252
7		1600	111.2		2.5	5	104	111	53	251	45	251
8		1605	115.7		2.5	5	107	101	53	253	43	252
9		1610	120.2		2.5	5	113	88	53	255	42	254
10		1617	124.7		2.5	5	107	88	55	252	40	256
11		1622	129.2		2.5	5	91	102	55	250	43	254
12		1627	133.7		2.5	5	104	101	55	256	42	257
13		1630	138.3		2.5	5	105	110	55	256	43	260
14		1635	142.6		2.5	5	105	111	54	257	43	260
15		1640	147.1		2.5	5	103	110	61	247	45	254

A12

PARTICULATE 3 of 3

A13

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 5 DATA SHEET

Client: TIMKEN Source: Run No.: 1

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
1	[illegible]	1650	151.5		2.5	5	108	110	62	252	46	255
2	[illegible]	1655	156.0		2.5	5	107	111	63	252	44	254
3	[illegible]	1700	160.4		2.5	5	110	96	63	250	44	256
4	[illegible]	1707	164.9		2.5	5	108	130	63	253	45	255
5	[illegible]	1712	169.4		2.5	5	103	131	62	252	47	254
6	[illegible]	1717	173.7		2.5	5	104	123	62	252	47	253
7	[illegible]	1725	179.2		2.5	5	107	122	61	252	47	253
8	[illegible]	1730	182.7		2.5	5	101	116	60	251	47	251
9	315	1735	187.1		2.5	5	97	118	59	251	47	250
10	320	1742	191.6		2.5	5	100	120	58	251	48	249
11	[illegible]	1747	196.1		2.5	5	102	122	57	251	47	250
12	330	1752	200.5		2.5	5	100	126	56	251	48	249
13	335	1800	205.0		2.5	5	101	127	56	250	48	[illegible]
14	340	1805	209.5		2.5	5	99	129	55	250	49	248
15	345	1810	214.1		2.5	5	99	128	55	250	49	248
1	350	1818	217.6		2.5	5	99	113	55	251	49	249
2	355	1823	223.1		2.5	5	101	120	54	250	49	251
3	400	1828	227.7		2.5	5	100	122	55	250	50	251
4	405	1835	232.3		2.5	5	101	119	54	251	50	250
5	410	1840	236.965		2.5	5	105	119	55	251	50	249

Particulate 3/1/2/4

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 5 DATA SHEET

Client: Timken	Run No.: 2	Meter delta H@: 1.77	Filter No.: 152
Project No.:	Noz. Dia.: 0.628	Meter Corr.: 0.989	Stack Dia.:
Source: Faircrest EAF	Baro. Press.: 29.07	Pitot Corr.:	Ambient Temp.:
Date: 1-25-02	Static Press.:	Control Box ID: 1	Start Time: 0745
Techs: [illegible]	Moisture:	Probe ID: 12-2	Stop Time: 1308

Point	Elapsed Time	Time	Meter Volume	Velocity Press.	Orifice Pessure Drop	Vacuum	Probe Temp.	Stack Temp.	Meter Temp.	Filter Temp	Imp. Temp.	Comments
				in. water	in. water	in. Hg	°F	°F	°F	°F	°F	
	0	0745	237.474									
1	5	0750	241.9		2.5	5	117	128	37	246	42	267
2	10	0759	246.4		2.5	5	110	128	39	249	39	250
3	15	0804	250.9		2.5	5	110	129	40	249	41	240
4	20	0809	255.3		2.5	5	114	125	41	247	41	232
5	25	0816	259.8		2.5	5	121	99	43	251	40	256
6	30	0821	264.5		2.5	5	114	110	43	244	40	252
7	35	0826	267.9		2.5	5	113	146	48	250	39	235
8	40	0833	273.3		2.5	5	112	117	49	250	40	240
9	45	0838	271.8		2.5	5	110	119	49	248	40	231
10	50	0843	282.4		2.5	5	112	121	49	249	40	233
11	55	0853	286.9		2.5	5	114	123	49	248	39	234
12	60	0855	291.3		2.5	5	107	124	49	248	39	229
13	105	0900	295.4		2.5	5	108	125	51	247	39	[illegible]
14	110	0907	300.3		2.5	5	108	117	48	248	37	245
15	115	0912	304.9		2.5	5	110	124	48	250	38	250
Tot/Avg	250		224.030		2.5		136.5	121.4	55.5			

116.251
108.399

Sample Train Leak Check

	Vacuum	Leak Rate
Pre	15 in. Hg	0.01 CFM
Post	9 in. Hg	0.005 CFM

Pitot Leak Check

Pos.	
Neg.	

Moisture Train Analysis

Impinger	Final Wt.	Initial Wt.	Difference
1	681.4 gm	695.5 gm	-14.1 gm
2	721.6 gm	693.9 gm	27.7 gm
3	708.1 gm	701.3 gm	6.8 gm
4	849.2 gm	807.7 gm	41.5 gm
5	gm	gm	gm
Total	gm	gm	61.9 gm

Fyrite Analysis

Gas	Run 1	Run 2	Run 3	Average
O_2				
CO_2				

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PARTICULATE

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 5 DATA SHEET

Client: Timken   Source: Faircrest EAF   Run No.: 2

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
1	120	0917	309.3	[illegible]	2.5	5	102	126	47	244	39	252
2	125	0925	313.9		2.5	5	105	109	46	248	38	251
3	130	0930	318.4		2.5	5	100	99	46	248	37	253
4	135	0935	322.9		2.5	5	100	108	46	244	38	254
5	140	0942	327.3		2.5	5	101	107	45	240	38	241
6	145	0947	331.7		2.5	5	100	105	45	245	37	250
7	150	0952	336.1		2.5	5	100	119	45	243	37	248
8	155	0958	340.5		2.5	5	89	122	45	246	37	250
9	200	1003	344.9		2.5	5	92	121	45	247	37	252
10	205	1008	349.3		2.5	5	88	121	45	245	38	248
11	210	1013	353.725		2.5	5	83	127	45	233	38	240
12	215	1057	353.940 358.3		2.5	4	119	110	50	259	36	238 353.540 MOVE
13	220	1102	362.8		2.5	4	135	111	51	251	36	268
14	225	1107	367.3		2.5	4	154	111	54	254	39	273
15	230	1114	371.7		2.5	4	162	123	58	266	39	278
					2.5	4						

Pre Move leak check   6" Hg   0.005 CFM
After Move leak check   7" Hg   0.005 CFM

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PARTICULATE

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 5 DATA SHEET

Client: Timken   Source: Faircrest EAF   Run No.: 2

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
1	235	1120	376.2		2.5	4	170	124	63	[illegible]	47	[illegible]
2	240	1125	380.7		2.5	4	176	126	62	261	47	[illegible]
3	245	1134	385.1		2.5	4	184	133	65	264	52	273
4	[illegible]	1139	389.6		2.5	4	190	124	67	267	54	271
5	[illegible]	1144	394.1		2.5	4	192	126	67	265	54	270
6	[illegible]	1151	398.7		2.5	4	[illegible]	117	70	[illegible]	62	[illegible]
7	[illegible]	1156	403.2		2.5	4	174	[illegible]	71	[illegible]	56	[illegible]
8	[illegible]	1201	407.8		2.5	4	177	107	72	265	53	[illegible]
9	[illegible]	1206	412.3		2.5	4	167	126	73	270	53	242
10	[illegible]	1211	416.9		2.5	4	175	123	73	268	49	239
11	[illegible]	1216	421.4		2.5	4	172	123	72	268	49	237
12	[illegible]	1221	426.0		2.5	4	183	127	70	274	52	234
13	[illegible]	1226	430.5		2.5	4	193	[illegible]	72	267	49	[illegible]
14	[illegible]	[illegible]	435.1		2.5	4	189	[illegible]	70	268	49	230
15	[illegible]	[illegible]	439.6		2.5	4	150	174	69	270	51	229
1	[illegible]	1247	[illegible]		2.5	4	164	138	69	[illegible]	49	[illegible]
2	[illegible]	1252	448.7		2.5	4	162	134	69	268	49	[illegible]
3	[illegible]	1259	453.2		2.5	4	170	118	68	[illegible]	50	[illegible]
4	[illegible]	1304	457.8		2.5	4	171	115	68	268	49	231
5	[illegible]	1309	462.39		2.5	4	151	124	69	266	49	230

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PARI·CULATE 1 of 3

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 5 DATA SHEET

Client:	Timken	Run No.:	3	Meter delta H@:	1.81	Filter No.:	149
Project No.:		Noz. Dia.:	0.623	Meter Corr.:	0.997	Stack Dia.:	
Source:	Baghouse	Baro. Press.:	29.04	Pitot Corr.:	—	Ambient Temp.:	
Date:	1/28/02	Static Press.:		Control Box ID:	1	Start Time:	1022
Techs:	RE/JS/PJ	Moisture:	1.4	Probe ID:	12-1	Stop Time:	1545

Point	Elapsed Time	Time	Meter Volume	Velocity Press.	Orifice Pessure Drop	Vacuum	Probe Temp.	Stack Temp.	Meter Temp.	Filter Temp	Imp. Temp.	Comments
				in. water	in. water	in. Hg	°F	°F	°F	°F	°F	Aux Power Delay 10
	0	1022	324.862									
1			329.4		2.5	.5	207	101	78	236	57	274
2	10	1022	333.9		2.5	5	206	110	78	235	51	258
3	[illegible]	28	338.4		2.5	5.5	208	119	79	236	56	227
4	[illegible]	33	342.9		2.5	6	207	126	80	235	58	226
5	* [illegible] 52	38	247.4		2.5	6	208	129	81	236	59	231 skipped comp. 6
6		57	351.8		2.5	5.5	205	117	88	236	66	239 will return
7	[illegible]	02	356.2		2.5	5.5	204	116	87	235	64	238 Furnace Down 20 min
8	[illegible]	07	361.1		2.5	5.5	206	120	96	230	66	239
9	[illegible]	29	365.5		2.5	5.5	200	115	95	236	66	249
10	[illegible]	44	369.9		2.5	5.5	233	131	92	240	59	260
11	[illegible]	49	374.2		2.5	5.5	243	157	89	240	61	265
12	[illegible]		378.7		2.5	5.5	249	122	86	240	68	254
13	[illegible]		383.1		2.5	5.5	255	140	86	240	63	252
14	[illegible]		387.5		2.5	5.5	199	133	86	240	66	251
15	75		392.0		2.5	5.5	239	123	85	240	66	247
			3									
Tot/Avg	250		223.775		2.56		241.6	124.8	82.4			

Sample Train Leak Check

	Vacuum	Leak Rate
Pre	10 in. Hg	0.00/CFM
Post	11 in. Hg	0.001 CFM

Pitot Leak Check

Pos.	—
Neg.	—

Moisture Train Analysis

Impinger	Final Wt.	Initial Wt.	Difference
1	658.7 gm	695.7 gm	-37.0 gm
2	726.5 gm	691.2 gm	35.3 gm
3	722.8 gm	709.8 gm	13.0 gm
4	877.6 gm	826.0 gm	51.6 gm
5	gm	gm	gm
Total	gm	gm	62.9 gm

Fyrite Analysis

Gas	Run 1	Run 2	Run 3	Average
O_2				
CO_2				

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BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 5 DATA SHEET

Client: TIMKEN **Source:** TIMKEN BAGHOUSE FAIRCREST **Run No.:** 3 PARTICULATE

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments	
16	120		396.2		2.5	5	249	139	85	240	65	246	
17	125		400.6		2.5	5	256	138	85	240	65	246	
18	130		405.0		2.5	5	265	129	83	241	66	246	
19	135		409.3		2.5	5	260	137	83	240	63	240	
20	140		413.9		2.5	5	225	137	84	240	63	240 Furnace down	30 min
21	145		418.4		2.6	5	224	145	84	244	61	252	
22	150		422.9		2.6	5	227	108	80	240	60	258	
23	155		427.3		2.6	5	229	116	81	240	60	256	
24	200		431.9		2.6	5	230	117	78	229	60	238	
25	205	218	436.5		2.6	5	259	121	79	237	58	241 Furnace down	45 min
26	210		440.9		2.6	5	252	120	75	241	57	254	
27	215		445.3		2.6	5	258	109	74	241	63	244	
28	220		449.8		2.6	5	252	114	74	239	58	246	
29	225		454.2		2.6	5	250	126	75	240	58	246	
30	230		458.7		2.6	5	261	130	76	239	58	246	
31	235		463.2		2.6	5	257	133	76	240	59	246	
32	240		467.8		2.6	5	262	121	77	240	59	247	
33	245		472.2		2.6	5	251	144	80	240	61	246	
34	250		476.6		2.6	5	246	121	80	239	61	247	
35	255		481.0		2.6	5	231	136	81	239	61	246	

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PARTICULATE

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 5 DATA SHEET

Client: TIMKEN   Source: BAGHOUSE   Run No.: 3 PARTICULATE

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
			481.0									
36	300		485.6		2.6	5	254	136	82	242	60	244
37	305		490.2		2.6	5	255	131	84	240	62	245
38	310		494.6		2.6	5	260	121	85	240	61	245
39	315		499.0		2.6	5	261	120	84	240	62	245
40	320		503.5		2.6	5	260	131	85	240	62	245
41	325		508.0		2.6	5	259	124	85	240	62	245
42	330		512.4		2.6	5	261	117	84	240	62	244
43	335		516.9		2.6	5	260	109	84	240	61	244
44	340		521.7		2.6	5	249	119	84	241	61	244
45	345		526.1		2.6	5	261	118	82	240	62	243 FURNACE DOWN 10 MIN
46	350		530.5		2.6	5	260	108	82	241	63	243
47	355		535.0		2.6	5	258	117	81	237	60	245
48	400		539.5		2.6	5	255	121	80	239	62	236
49	405		544.1		2.6	5	257	134	81	240	62	237
50	410		548.637		2.6	5	257	133	80	239	62	239

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BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD ~~5~~ 12 DATA SHEET

Client: Timken
Project No.:
Source: Faircrest EAF
Date: 1-23-01
Techs: PJ

Run No.: 1 Lead
Noz. Dia.: 0.628
Baro. Press.: 28.95
Static Press.: —
Moisture:

Meter delta H@: 1.77
Meter Corr.: 0.989
Pitot Corr.: —
Control Box ID: 1
Probe ID: ACC I 12-2

Filter No.: —
Stack Dia.: —
Ambient Temp.:
Start Time: 1115
Stop Time: 1714

Point	Elapsed Time	Time	Meter Volume	Velocity Press.	Orifice Pessure Drop	Vacuum	Probe Temp.	Stack Temp.	Meter Temp.	Filter Temp	Imp. Temp.	Comments
		1118	777.065	in. water	in. water	in. Hg	°F	°F	°F	°F	°F	Heated Floy Line
1		1120	781.8		2.9	4	129	124	54	237	47	262
2		1125	786.6		2.9	4	123	123	60	242	46	224
3		1130	791.4		2.9	4	136	131	60	239	51	219
4		1133	796.4		2.9	4	137	137	62	251	50	232
5			801.1		2.8	4	126	135	63	248	54	236
6			805.8		2.8	4	135	132	64	251	57	238
7		1151	810.8		2.8	4	141	107	67	248	53	248
8			815.7		2.8	4	138	109	68	252	53	242
9			820.3		2.5	4	137	127	69	254	55	240
10		1209	825.1		2.8	4	146	121	69	258	53	244
11			830.8		2.8	4	142	125	71	252	53	241
12			834.7		2.8	4	144	131	72	256	53	238
13		1228	839.6		2.8	4	144	119	73	254	52	243
14			844.2		2.7	4	147	131	74	255	52	240
15			848.9		2.7	4	145	130	75	254	52	241
Tot/Avg	230		235.513		2.61		160.3	125.7	71.1			

Sample Train Leak Check

	Vacuum	Leak Rate
Pre	15 in. Hg	0.004 CFM
Post	5 in. Hg	0.001 CFM

Pitot Leak Check

Pos.	
Neg.	

Moisture Train Analysis

Impinger	Final Wt.	Initial Wt.	Difference
1	711.9 gm	722.0 gm	-10.1 gm
2	733.4 gm	693.4 gm	40.0 gm
3	620.8 gm	612.0 gm	8.8 gm
4	873.7 gm	825.5 gm	48.2 gm
5	gm	gm	gm
Total	gm	gm	86.9 gm

Fyrite Analysis

Gas	Run 1	Run 2	Run 3	Average
O_2				
CO_2				

Probe Wash 144 ml
Impinger Wash 100 ml

H20

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BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD ~~5~~ DATA SHEET

Client: Timken   Source: Faircrest EAF   Run No.: 1

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
		1246										
1			853.8		2.7	4	145	145	74	256	51	224
2			858.6		2.7	4	140	148	74	256	52	226
3			863.4		2.7	4	160	141	74	252	53	234
4		1303	868.0		2.7	4	152	129	73	253	54	268
5			872.8		2.7	4	161	116	74	256	49	266
6			877.6		2.7	4	161	116	74	254	49	261
7		1321	882.3		2.7	4	162	134	74	257	50	260
8			887.1		2.7	4	166	134	74	257	46	243
9			891.0		2.7	4	134	136	73	219	47	233
10		1338	896.9		2.7	4	150	150	72	250	46	235
11			901.6		2.7	4	154	144	71	252	46	235
12					2.7	4	145	140	70	253	46	240
13		1356	911.4		2.7	4	148	136	68	253	46	244
14			916.0		2.5	4	158	137	67	251	46	243
15			920.6		2.5	4	155	118	67	252	46	245

Furnace Down – 1420 TO 1520

143.54

150

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BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 5 DATA SHEET

Client: Timken　　Source: Faircrest EMF　　Run No.: 1

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
	1415											
1	1420		925.2		2.5	4	166	105	65	254	44	248
2	1520		929.5		2.4	3	166	117	60	256	42	253
3			937.0		2.4	3	172	115	60	255	42	249
4	1533		938.5		2.4	3	173	115	62	258	46	252
5			943.0		2.4	3	172	117	64	254	45	249
6			947.4		2.4	3	182	108	66	254	46	250
7	1551	1551	952.1		2.4	3	187	101	69	258	47	254
8			956.6		2.4	3	190	104	70	255	47	253
9			961.2		2.4	3	184	117	72	255	48	254
10	1604		965.8		2.4	3	183	119	73	255	47	253
11			970.8		2.4	3	184	120	73	254	47	252
12			~~975.0~~		2.4	3	196	124	74	254	48	251
13	1628		980.5		2.4	3	199	135	75	257	50	254
14			985.0		2.4	3	183	133	77	255	49	250
15			989.5		2.4	3	181	130	80	257	48	246
1	1648		994.2		2.4	3	167	132	83	255	48	242
2			—		2.4	3	178	123	84	253	48	225
3			1003.0		2.4	3	181	126	86	252	49	225
4	1704		1007.5		2.4	3	179	128	87	252	49	234
5	1714		1012.578		2.4	3	181	116	89	252	49	251

A22

LEAF 7/9/2/4

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 5 DATA SHEET

Client: Timken	Run No.: 2	Meter delta H@: 1.81	Filter No.: —
Project No.:	Noz. Dia.: 0.623	Meter Corr.: 0.997	Stack Dia.:
Source: EAF Baghouse	Baro. Press.: 28.71	Pitot Corr.: —	Ambient Temp.:
Date: 1-24-02	Static Press.:	Control Box ID: 2	Start Time: 1359
Techs: PS	Moisture:	Probe ID: 12-1	Stop Time: 1935

Point	Elapsed Time	Time	Meter Volume	Velocity Press. In. water	Orifice Pessure Drop In. water	Vacuum In. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp. °F	Filter Temp °F	Imp. Temp. °F	Comments HEATED FLEX TEMP
	0	1359	860.576									
1			864.700		2.5	4.5	223	86	41	227	36	226
2			869.100			4.5	226	93	41	237	36	240
3			873.4			4.5	225	96	42	[illegible]	[illegible]	253
4			877.4			4.5	226	100	43	246	37	260
5			882.3			4.5	224	110	43	257	38	257
6			887.0			4.5	223	96	44	234	37	234
7			891.4			4.5	224	99	44	236	40	237
8			895.4			4.5	222	99	44	240	37	262
9			899.9			4.5	227	111	45	237	41	272
10			904.4			4.5	226	110	45	238	42	265
11			908.7			4.5	226	108	46	236	41	253
12			913.1			4.5	225	117	46	237	42	250
13			917.5			4.5	225	121	46	238	41	251
14			922.0			4.5	220	119	46	237	41	246
15			926.6			4.5	210	111	47	238	43	247
Tot/Avg	250		226.380		2.63		198.1	108.7	58.1			

112.499
11-1.086

Sample Train Leak Check

	Vacuum	Leak Rate
Pre	15 in. Hg	0.003 CFM
Post	15 in. Hg	0.002 CFM

Pitot Leak Check

Pos.	/
Neg.	/

Moisture Train Analysis

Impinger	Final Wt.	Initial Wt.	Difference
1	701.3 gm	726.1 gm	-24.8 gm
2	737.9 gm	696.7 gm	41.2 gm
3	617.2 gm	607.7 gm	9.5 gm
4	872.7 gm	827.4 gm	45.3 gm
5	gm	gm	gm
Total	gm	gm	71.2 gm

Fyrite Analysis

Gas	Run 1	Run 2	Run 3	Average
O_2				
CO_2				

Probe wash 306 ml
Impinger wash 104 ml

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BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 5 DATA SHEET

Client: Timken   Source: Faircrest EAF   Run No.: 2

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
1			931.1		2.6	4.5	201	99	47	237	45	248
2			935.9		2.7	4.5	190	89	49	238	44	252
3			940.0		2.7	4.5	189	98	50	239	45	258
4			945.2		2.7	4.5	186	110	51	239	44	259
5			949.8		2.7	4.5	187	106	51	239	46	258
6			954.4		2.7	4.5	186	106	52	239	47	257
7			959.1		2.7	4.5	181	108	52	239	46	253
8			963.8		2.7	4.5	X wire	95	52	240	47	259 Probe temp
9			968.3		2.7	4.5	X	90	53	238	50	255 Out
10			973.075		2.7	4.5	X	88	54	240	50	253 Bad wire
~~10~~		522	974.111									X assume
11			978.6		2.7	4.5	191	120	57	230	45	261 85°F
12			983.5		2.7	4.5	190	120	58	231	45	236
13		537	987.0		2.7	4.5	195	119	58	240	48	243
14			991.5		2.7	4.5	206	124	60	236	51	241
15			996.1		2.7	4.5	205	120	63	234	56	240

30'
47
53
switch sides
34

LEAK check .002 4:21 pm before switch
" " .001 5:20 pm before testing on other side (after fixed probe wire)

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BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 5 DATA SHEET

Client: Timken Source: Faircrest EAF Run No.: 2

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments Aux
1		53	000.6		2.7	5	199	127	66	237	46	242
2		59	005.2		2.7	5	199	129	66	238	44	240
3		04	009.7		2.7	5	199	124	67	239	44	240
4		09	014.2		2.7	5	200	112	67	242	44	239
5		14	018.8		2.7	5	200	109	68	237	43	242
6		[illegible]	23.7		2.7	5	197	119	69	236	44	242
7		[illegible]	28.3		2.7	5	195	122	70	239	45	241
8		31	33.1		2.7	5	197	121	71	237	44	244
9		36	37.7		2.7	5	198	122	71	238	43	246
10		41	42.3		2.7	5	198	121	72	238	43	245
11		47	46.9		2.7	5	199	116	73	238	43	241
12		52	51.5		2.7	5	200	110	73	239	43	242
13		57	56.1		2.7	5	200	110	73	239	42	242
14		03	60.7		2.7	5	200	118	74	237	42	243
15		08	65.3		2.7	5	200	119	75	237	43	241
1		13	69.7		2.7	5	201	107	75	237	43	240
2		19	74.4		2.7	5	200	111	75	238	42	240
3		24	79.1		2.7	5	199	123	76	239	41	240
4		29	83.8		2.7	5	199	124	76	239	41	241
5		35	88.197		2.7	5	199	120	76	239	40	242

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LEAL

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 5 DATA SHEET

Client: TIMKEN
Project No.:
Source: BAGHOUSE
Date: 1-25-02
Techs: JS/RE/PJ

Run No.: 3
Noz. Dia.: 0.623
Baro. Press.: 29.07
Static Press.:
Moisture:

Meter delta H@: 1.81
Meter Corr.: 0.997
Pitot Corr.: 0.84
Control Box ID: 2
Probe ID: 12'-1

Filter No.: –
Stack Dia.:
Ambient Temp.: 30°
Start Time: 735
Stop Time: 1228

Point	Elapsed Time	Time	Meter Volume	Velocity Press.	Orifice Pessure Drop	Vacuum	Probe Temp.	Stack Temp.	Meter Temp.	Filter Temp	Imp. Temp.	Comments
		753	96.255	in. water	in. water	in. Hg	°F	°F	°F	°F	°F	Aux
1		58	100.8		.26	7	165	124	59	244	52	245
2		03	105.3		.26	7	180	126	60	237	48	238
3		09	109.8		.26	7	202	110	63	240	46	240
4		14	114.5		.26	7	242	103	65	242	48	244
5	21	19	119.0		.26	7	213	98	67	242	47	246
6		[illegible]	123.5		.26	7	213	124	68	240	49	241
7		31	128.1		.26	7	210	119	71	243	51	238
8	37	36	132.6		.26	7	210	120	73	243	55	224
9		42	137.2		.26	7	213	114	76	244	59	~~234~~ 224
10		47	141.7		.26	7	213	128	78	244	60	226
11	53	[illegible]	146.2		.26	7	210	128	79	244	61	229
12		58	150.7		.26	7	204	128	80	244	61	223
13		03	155.2		.26	7	202	131	82	248	61	224
14	[illegible]	08	159.9		.26	7	200	133	83	248	61	224
15		14	164.6		.26	7	200	128	84	250	58	224
Tot/Avg	250		228.16		2.57		203.0	120.9	79.0			

Sample Train Leak Check

	Vacuum	Leak Rate
Pre	10 in. Hg	0.001 CFM
Post	7 in. Hg	0.002 CFM

Pitot Leak Check

Pos.	
Neg.	

Moisture Train Analysis

Impinger	Final Wt.	Initial Wt.	Difference
1	685.2 gm	721.7 gm	-36.5 gm
2	740.7 gm	699.6 gm	41.1 gm
3	619.8 gm	609.6 gm	10.2 gm
4	857.8 gm	812.2 gm	45.6 gm
5	gm	gm	gm
Total	gm	gm	60.4 gm

Fyrite Analysis

Gas	Run 1	Run 2	Run 3	Average
O_2				
CO_2				

Probe Wash 338 ml
Impinger Wash 140 ml

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BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 5 DATA SHEET

Client: TIMKEN Source: BAGHOUSE (FAIRCREST) Run No.: LEAD #3

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments Aux
16		19	169.3		2.6	7	200	121	85	248	58	224
17	925	24	173.9		2.6	7	201	115	86	250	59	224
18		30	178.4		2.6	7	201	101	85	250	57	227
19		35	182.9		2.6	7	201	103	86	250	57	228
20	941	40	187.9		2.6	7	200	110	86	250	57	226
21		46	192.5		2.6	7	201	120	85	249	54	224
22		51	197.2		2.6	7	200	121	84	250	53	224
23	[illegible]	56	201.8		2.6	7	205	124	84	250	52	225
24		02	206.3		2.6	7	204	129	82	249	52	224
25		07	210.8		2.6	7	205	131	82	247	52	223
26	13	12	215.5		2.6	7	204	130	81	247	52	223
27		18	219.8		2.6	7	199	132	81	~~248~~	52	223
28		23	224.4		2.6	7	202	132	82	248	51	224
29	1029	28	229.0		2.6	7	201	127	82	~~248~~	52	223
30		34	233.7		2.6	7	204	121	82	247	52	223
31		39	238.3		2.6	7	207	108	83	248	51	223
32	1:15	44	242.8		2.6	7	206	103	83	249	51	223
33		51	248.3		2.6	7	205	117	83	249	50	223
34		56	252.8		2.6	7	206	128	82	249	51	224
35		01	257.5		2.6	7	206	129	81	247	52	225

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Lead

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BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 5 DATA SHEET

Client: Timken | Source: Faircrest EMF | Run No.: 3

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
		1102	257.5									
36		07	262.3		2.6	7	203	120	81	249	50	223
37		12	266.6		2.5	7	204	123	81	250	51	223
38	25	17	270.9		2.5	7	204	123	81	250	51	223 Lost power
39		30	275.8		2.5	7	205	121	81	250	51	223 6 minutes down
40		35	280.3		2.5	7	204	132	82	249	52	224
41	41	40	284.8		2.5	7	200	130	82	249	52	224
42		46	289.2		2.5	7	201	123	83	249	52	224
43		51	293.6		2.5	7	203	121	82	250	51	224
44		56	298.1		2.5	7	205	111	83	250	50	225
45		02	302.6		2.5	7	201	114	77	249	49	224
46		07	307.2		2.5	7	201	116	77	251	48	224
47	13	12	311.6		2.5	7	202	121	79	250	48	224
48		18	315.9		2.5	7	204	123	76	249	46	224
49		23	320.3		2.5	7	204	123	76	247	47	224
50		28	324.381		2.5	7	204	123	75	247	47	224

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FLUORI 2

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD ~~5~~ 13B DATA SHEET

Client:	Timken	Run No.:	1 F1	Meter delta H@:	1.81	Filter No.:	—
Project No.:		Noz. Dia.:	0.623	Meter Corr.:	0.997	Stack Dia.:	—
Source:	Fairfcrest EAF	Baro. Press.:	29.22	Pitot Corr.:	—	Ambient Temp.:	
Date:	1-22-02	Static Press.:	—	Control Box ID:	1	Start Time:	13:37
Techs:	DS + RE + DL	Moisture:		Probe ID:	ACC I ~~12-2~~ 12-1	Stop Time:	18:08

Point	Elapsed Time	Time	Meter Volume	Velocity Press.	Orifice Pessure Drop	Vacuum	Probe Temp.	Stack Temp.	Meter Temp.	Filter Temp	Imp. Temp.	Comments
	0	13:27	431.212	in. water	in. water	in. Hg	°F	°F	°F	°F	°F	
1	5	13:32	435.0		2.2	2	231	112	56	233	50	223
2	↓	13:37	439.3		2.2	2	233	111	56	234	47	220
3		13:42	443.416		2.2	2	234	110	57	223	47	241
4		13:50	448.1		2.2	3	180	119	65	233	50	256
5		1355	452.4		2.2	3	219	119	68	234	53	260
6		1400	456.6		2.2	3	233	115	71	221	56	255
7		1406	460.9		2.2	3	243	118	72	234	59	256
8		1411	465.2		2.2	3	243	119	74	234	61	253
9		1416	467.4		2.2	3	251	121	76	243	59	257
10		1423	473.3		2.2	3	249	125	76	231	62	258
11		1428	477.1		1.9	3	250	113	78	234	61	257
12		1433	481.0		1.9	3	256	108	80	234	64	260
13		1439	484.6		1.7	3	256	102	82	235	63	259
14		1444	488.2		1.7	3	249	120	84	236	62	260
15		1451	492.0		1.7	3	259	109	85	236	63	260
1		1456	495.5		1.7	3	259	109	85	237	62	259
Tot/Avg	250min		190.367					113.1	80.1			

Sample Train Leak Check

	Vacuum	Leak Rate
Pre	15 in. Hg	0.005 CFM
Post	5 in. Hg	0.002 CFM

Pitot Leak Check

Pos.	/
Neg.	/

Moisture Train Analysis

Impinger	Final Wt.	Initial Wt.	Difference
1	656.8 gm	703.0 gm	-46.2 gm
2	723.7 gm	692.2 gm	31.5 gm
3	621.5 gm	612.2 gm	9.3 gm
4	850.5 gm	810.7 gm	39.8 gm
5	gm	gm	gm
Total	gm	gm	34.4 gm

Fyrite Analysis

Gas	Run 1	Run 2	Run 3	Average
O_2				
CO_2				

FLUORIDE

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330 [illegible] - [illegible]

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD ~~5~~ 13 B DATA SHEET

Client: Timken　　Source: Faircrest EAF　　Run No.: 1

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
2		1501	499.1		1.7	3	259	101	86	237	62	259
3		1506	502.8		1.7	3	260	101	86	236	63	264
4	1500	1513	506.5		1.7	3	261	98	85	237	62	262
5		1519	510.3		1.7	3	257	97	84	236	57	262
6	1523	1523	514.0		1.7	3	255	97	83	236	56	262
7		1530	517.7		1.7	3	252	116	81	236	54	262
8		1535	521.4		1.7	3	255	118	78	236	52	259
9		1540	525.1		1.7	3	258	118	78	235	52	261
10	1544	1546	528.7		1.7	3	251	124	77	238	52	262
11		1551	532.4		1.7	3	250	130	76	236	52	263
12		1556	536.1		1.7	3	255	133	76	235	51	262
13	1558	1603	539.7		1.7	3	264	136	78	237	53	262
14		1608	543.4		1.7	3	254	135	81	236	53	263
15		1613	547.1		1.7	3	250	117	82	236	51	261
1	1617	1622	550.8		1.7	3	255	121	83	238	55	260
					1.7	3						260

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BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 5 DATA SHEET

Client: Timken   Source: Faircrest EAF   Run No.: 1

Point	Elap. Time	Time	Meter Volume	Velocity Press.	Orifice Pessure Drop	Vacuum	Probe Temp.	Stack Temp.	Meter Temp	Filter Temp.	Imp. Temp.	Comments
			550.8	in. water	in. water	in. Hg	°F	°F	°F	°F	°F	
2		16:27	554.5		1.7	3	256	134	83	235	52	260
3		16:32	558.1		1.7	3	263	133	86	235	53	261
4	1634	16:39	561.8		1.7	3	272	132	88	237	54	262
5		16:44	565.6		1.7	3	264	115	90	236	53	263
6	1651	16:49	569.4		1.7	3	270	115	92	237	53	265
7		16:56	573.2		1.7	3	249	99	92	240	56	262
8		17:01	577.0		1.7	3	249	101	91	237	53	262
9		17:06	580.8		1.7	3	249	101	90	238	53	264
10	1724	17:14	584.6		1.7	3	241	99	89	239	53	264
11		17:19	588.4		1.7	3	265	95	86	237	52	265
12		17:24	592.2		1.7	3	270	95	84	237	51	265
13		17:30	596.0		1.7	3	238	91	82	241	53	266
14		17:35	599.8		1.7	3	261	90	82	237	51	267
15		17:40	603.6		1.7	3	255	93	82	237	52	268
16	1742	17:47	607.2		1.7	3	258	118	81	238	52	266
2		17:52	611.0		1.7	3	260	120	81	236	52	267
3		17:57	614.8		1.7	3	256	123	81	236	53	264
4	1758	18:03	618.5		1.7	3	227	127	83	225	53	266
5		18:08	621.57		1.7	3	227	127	83	225	53	266

Probe wash very dirty – Filter unusually dirty for this source. Point 2 is directly above internal structural member where dust was picked up [illegible] hit the board.

Flouride

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD ~~5~~ 13B DATA SHEET

Client: Timken
Project No.:
Source: Faircrest EAF
Date: 1-23-02
Techs: AE+JS

Run No.: 2
Noz. Dia.: 0.623
Baro. Press.: 28.95
Static Press.: —
Moisture: 1.6

Meter delta H@: 1.81
Meter Corr.: 0.997
Pitot Corr.: —
Control Box ID: 1
Probe ID: 12-1

Filter No.: —
Stack Dia.: —
Ambient Temp.:
Start Time: 11:00A
Stop Time: 4:34P

Point	Elapsed Time	Time	Meter Volume	Velocity Press. (in. water)	Orifice Pessure Drop (in. water)	Vacuum (in. Hg)	Probe Temp. °F	Stack Temp. °F	Meter Temp. °F	Filter Temp °F	Imp. Temp. °F	Comments
		11:00	629.872									
1		11:05	634.0		2.2	4	224	111	52	244	52	226
2		11:10	638.1		2.2	4	228	120	54	241	43	241
3		11:16	641.5		2.2	4	239	123	55	245	48	259
4		11:21	646.6		2.8	4.5	239	125	57	242	49	268
5		11:26	650.9		2.8	4.5	244	132	60	243	55	273
6		11:33	655.3		2.8	4.5	242	137	61	243	54	268
7		11:38	659.6		2.8	4.5	243	140	61	242	55	253
8		11:43	663.9		2.8	4.5	246	141	63	242	56	247
9		11:49	668.2		2.8	4.5	246	135	[illegible]	242	57	244
10		11:54	672.6		2.8	4.5	252	117	66	243	56	245
11		11:59	676.9		2.8	4.5	252	116	67	242	56	245
12		12:05	681.3		2.8	4.5	[illegible]	[illegible]	67	243	55	241
13		1210	[illegible]		2.8	4.5	242	128	67	242	55	238
14		1215	[illegible]		[illegible]	4.5	249	127	69	236	54	239
15		1222	694.215		[illegible]	4.5	[illegible]	130	69	243	54	233
Tot/Avg			230.343		2.73		248.2	122.9	66.5			

Sample Train Leak Check

	Vacuum	Leak Rate
Pre	10 in. Hg	.005 CFM
Post	5 in. Hg	.002 CFM

Pitot Leak Check

Pos.	
Neg.	

Moisture Train Analysis

Impinger	Final Wt.	Initial Wt.	Difference
1	[illegible] gm	[illegible] gm	-33.0 gm
2	733.4 gm	689.5 gm	43.9 gm
3	616.8 gm	603.2 gm	13.6 gm
4	866.6 gm	814.8 gm	51.8 gm
5	gm	gm	gm
Total	gm	gm	76.3 gm

Fyrite Analysis

Gas	Run 1	Run 2	Run 3	Average
O_2				
CO_2				

FLUORIDES

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 5 DATA SHEET

Client: Timkin   Source: Run No.: 2

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum In. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
1		1227	698.9		8.9	4.5	245	135	70	245	54	230
2		1232	704.3		2.9	4.5	248	134	70	249	55	232
3		1241	709.7		3.0	5.0	252	136	70	243	54	238
4		1246	714.6		3.0	5.0	245	138	71	246	54	237
5		1251	719.5		3.0	5.0	241	147	72	245	55	242
6		1259	724.5		3.0	5.0	247	146	72	248	55	233
7		1304	728.2		3.0	5.0	242	144	71	245	55	232
8		1309	734.0		3.0	5.0	241	142	71	243	56	232
9		1315	739.0		3.0	5.0	244	151	71	244	53	241
10		1320	743.8		3.0	5.0	244	115	72	242	58	239
11		1325	748.8		3.0	5.0	245	113	72	243	57	242
12		1332	753.7		3.0	5.0	243	152	72	245	57	238
13		1337	758.5		3.0	5.0	242	135	73	248	57	241
14		1342	763.4		3.0	5.0	240	138	72	242	59	240
15		1348	768.2		3.0	5.0	237	151	71	245	58	239

FLUORIDES 6/8/10

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 5 DATA SHEET

Client: Timken **Source:** Fairchild EAF **Run No.:** 2

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
1		1353	773.2		3.0	5.0	251	136	64	243	52	238
2		1358	778.0		3.0	5.0	241	133	67	242	56	223
3	[illegible]	1405	782.9		3.0	5.0	246	122	67	243	56	243
4		1410	787.9		2.5	5.0	244	117	67	245	57	241
5		1415	792.0		2.5	5.0	253	107	67	244	54	236
6	1417	1422	796.5		2.5	5.0	253	106	67	242	56	240
7		1427	801.0		2.5	5.0	260	84	57	245	53	255
8	[illegible]	1528	807.6		2.5	5.0	265	109	59	245	51	248
9	[illegible]	1534	812.1		2.5	5.0	268	111	61	244	54	248
10		1539	816.6		2.5	5.0	270	114	62	246	57	246
11		1544	821.0		2.5	5.0	270	101	63	244	58	246
12	1546	1551	825.4		2.5	5.0	275	103	64	247	58	251
13		1556	829.9		2.5	5.0	273	102	64	246	58	252
14		1601	834.3		2.5	5.0	265	103	66	245	59	252
15	1601	1608	838.6		2.5	5.0	252	103	67	247	59	241
1		1613	842.4		2.5	5.0	257	112	68	245	59	247
2		1618	846.7		2.5	5.0	238	114	69	245	60	247
3	[illegible]	1624	851.2		2.5	5.0	241	116	70	246	59	245
4		1629	855.7		2.5	5.0	252	117	72	244	62	243
5		1634	860.217		2.5	5.0	262	129	73	244	64	242

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FLUORIDE

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 5 DATA SHEET

Client:	Timken	**Run No.:**	3	**Meter delta H@:**	1.77	**Filter No.:**	—
Project No.:		**Noz. Dia.:**	0.628	**Meter Corr.:**	0.989	**Stack Dia.:**	
Source:	Faircrest EAF	**Baro. Press.:**	29.041	**Pitot Corr.:**		**Ambient Temp.:**	
Date:	1-28-02	**Static Press.:**		**Control Box ID:**	2	**Start Time:**	1009
Techs:	RE	**Moisture:**	~~1.9~~ 1.3	**Probe ID:**	12-2	**Stop Time:**	1613

Point	Elapsed Time	Time	Meter Volume	Velocity Press.	Orifice Pessure Drop	Vacuum	Probe Temp.	Stack Temp.	Meter Temp.	Filter Temp	Imp. Temp.	Comments
	0	1009	465.398	in. water	in. water	in. Hg	°F	°F	°F	°F	°F	
1	5	1014	469.7		2.5	9	123	129	74	241	56	250
2	10	1019	474.2		2.5	9	120	126	74	237	57	254
3	15	1024	478.8		2.5	9	139	126	76	245	52	252
4	20	1031	483.2		2.5	9	140	111	77	239	45	266
5	25	1036	487.7		2.5	9	101	123	78	231	45	261
6	[illegible]	1041	492.2		2.5	9	133	126	78	232	47	259
7	[illegible]	1048	496.7		2.5	9	163	134	79	241	48	259
8	[illegible]	1053	501.2		2.5	9	187	135	80	240	48	268
9	[illegible]	1058	505.7		2.5	9	191	[illegible]	81	239	49	270
10	[illegible]	1105	510.2		2.5	9	195	127	82	248	53	270
11	[illegible]	1110	514.7		2.5	9	198	[illegible]	84	243	55	263
12	[illegible]	1115	519.2		2.5	9	198	137	85	243	65	255
13	105	1123	523.8		2.5	9	202	136	84	244	66	251
14	110	1128	528.3		2.5	9	209	136	85	244	57	251
15	115	1133	532.9		2.6	9	203	140	86	244	61	254
Tot/Avg	230		224.656		2.56		180.1	129.6	81.6			

Sample Train Leak Check

	Vacuum	Leak Rate
Pre	10 in. Hg	0.003 CFM
Post	10 in. Hg	0.002 CFM

Pitot Leak Check

Pos.	
Neg.	

Moisture Train Analysis

Impinger	Final Wt.	Initial Wt.	Difference
1	693.7 gm	716.2 gm	-22.5 gm
2	732.2 gm	695.8 gm	36.4 gm
3	609.2 gm	598.6 gm	10.6 gm
4	876.1 gm	814.4 gm	61.7 gm
5	gm	gm	gm
Total	gm	gm	86.2 gm

Fyrite Analysis

Gas	Run 1	Run 2	Run 3	Average
O_2				
CO_2				

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FLUORIDE

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION
EPA METHOD ~~5~~ 13B DATA SHEET

Client: Timken　　Source: Faircrest EAF　　Run No.: 5

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
1	120		537.5		2.6	9	201	142	87	245	67	251 down
2	125	1215	542.0		2.6	9	197	110	84	246	53	250
3	130	1220	546.6		2.6	9	198	136	82	244	54	246
4	135	1227	551.2		2.6	9	199	136	82	244	51	246
5	140	125?	555.9		2.6	9	205	133	82	243	48	244
6	145	1232	560.5		2.6	9	200	121	82	343	47	251
7	150	1329	565.2		2.6	9	198	110	81	244	66	250
8	155	1334	569.9		2.6	9	202	120	75	244	41	249
9	[illegible]	1337	574.5		2.6	9	192	130	76	243	46	248
10	[illegible]	1340	579.1		2.6	9	195	130	76	243	46	248
11	210		583.7		2.6	9	195	136	78	243	47	251
12	[illegible]		588.4		2.5	9	194	136	78	244	48	252
13	220	1355	593.0		2.5	9	187	136	79	245	49	253
14	225		597.6		2.5	9	192	142	80	244	48	254
15	240		602.2		2.5	9	192	146	80	245	49	254

FLUORIDE

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION
EPA METHOD ~~5~~ 13B DATA SHEET

Client: Timken   Source: Faircrest EAF   Run No.: 3

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
1	235	1420	606.8		2.6	9	161	132	81	246	54	255
2	240	1425	611.3		2.6	9	174	137	82	244	49	254
3	245	1430	615.9		2.6	9	182	128	83	244	50	254
4	250	1437	620.5		2.6	9	180	119	84	244	51	249
5	255	1442	625.1		2.6	9	183	120	84	243	50	249
6	300	1447	629.8		2.6	9	187	123	85	243	51	250
7	305	1454	634.4		2.6	9	181	117	85	244	54	248
8	310	1459	639.0		2.6	9	174	116	86	244	50	248
9	315	1504	643.7		2.6	9	183	116	86	243	51	249
10	320	1509	648.2		2.6	9	186	113	85	244	52	246
11	325	1514	652.9		2.6	9	183	112	85	244	55	254
12	330	1523	657.4		2.6	9	180	112	84	244	57	248
13	335	1535	662.0		2.6	9	176	119	82	245	52	247
14	340	1540	666.5		2.6	9	176	125	82	245	54	246
15	345	1546	671.1		2.6	9	174	147	83	244	56	245
1	350	1551	675.7		2.6	9	176	147	83	244	53	246
2	355	1556	680.3		2.6	4	173	141	83	244	53	251
3	400	1601	684.9		2.6	9	172	145	84	244	54	251
4	405	1608	689.4		2.6	9	180	145	84	244	60	253
5	410	1613	693.054		2.6	9	174	150	80	243	55	252

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FLUORIDE

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD ~~5~~ 13B DATA SHEET

Client:	Timken	Run No.:	4	Meter delta H@:	1.77	Filter No.:	
Project No.:		Noz. Dia.:	0.628	Meter Corr.:	0.9??	Stack Dia.:	
Source:	FAIRCREST EAF	Baro. Press.:	29.04	Pitot Corr.:		Ambient Temp.:	
Date:	1/30/02	Static Press.:		Control Box ID:	2	Start Time:	0726
Techs:	RE/JS/PT	Moisture:	1.5	Probe ID:	12-2	Stop Time:	1230

Point	Elapsed Time	Time	Meter Volume	Velocity Press.	Orifice Pessure Drop	Vacuum	Probe Temp.	Stack Temp.	Meter Temp.	Filter Temp	Imp. Temp.	Comments
				in. water	in. water	In. Hg	°F	°F	°F	°F	°F	
	0	0726	694.687									
1	5	0731	699.0		2.5	7	119	136	75	266	68	200
2	10	0738	703.4		2.5	7	120	185	74	266	64	223
3	15	0743	707.6		2.5	7	119	142	74	268	60	240
4	20	0748	712.2		2.5	7	141	141	74	266	61	236
5	25	0755	716.8		2.5	7	133	135	73	267	60	250
6	30	0800	721.4		2.5	7	143	134	74	268	61	260
7	35	0805	725.9		2.5	7	156	117	74	267	69	261
8	40	0812	730.5		2.5	7	150	108	74	266	64	263
9	45	0817	735.1		2.5	7	147	107	74	267	59	264
10	50	0822	739.7		2.5	7	110	130	75	269	57	265
11	55	0828	744.3		2.5	7	107	121	74	267	55	268
12	100	0833	748.9		2.5	7	99	122	74	266	54	278
13	105	0838	753.5		2.5	7	99	123	75	268	54	262
14	110	0845	758.1		2.5	7	92	159	75	268	51	264
15	115	0850	762.7		2.5	7	97	140	75	267	54	266
Tot/Avg	260		229.69		2.56		130.1	121.2	74.9			

Sample Train Leak Check

	Vacuum	Leak Rate
Pre	15 in. Hg	.002 CFM
Post	7 in. Hg	.007 CFM

Pitot Leak Check

Pos.	
Neg.	

Moisture Train Analysis

Impinger	Final Wt.	Initial Wt.	Difference
1	663.7 gm	695.5 gm	-31.8 gm
2	736.8 gm	696.4 gm	40.4 gm
3	618.1 gm	603.5 gm	14.6 gm
4	951.7 gm	902.9 gm	48.8 gm
5	gm	gm	gm
Total	gm	gm	72.0 gm

Fyrite Analysis

Gas	Run 1	Run 2	Run 3	Average
O_2				
CO_2				

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FLUORIDES

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 5 DATA SHEET

Client: Timken   Source: Faircrest EAF   Run No.: 4

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
1	[illegible]	0855	767.5		2.5	7	106	139	75	264	55	264
2	[illegible]	0902	772.0		2.5	7	95	134	74	269	54	266
3	[illegible]	0907	776.4		2.5	7	101	135	73	268	53	268
4	[illegible]	0912	781.0		2.5	7	100	134	73	267	53	[illegible]
5	[illegible]	0919	785.6		2.6	7	91	136	72	270	53	269
6	[illegible]	0924	790.2		2.6	7	99	127	71	268	52	[illegible]
7	[illegible]	0929	794.9		2.6	7	108	114	71	262	52	266
8	[illegible]	0935	799.5		2.6	7	131	133	71	260	52	264
9	[illegible]	0940	804.1		2.4	7	119	123	72	263	52	260
10	[illegible]	0945	808.9	[illegible]	2.6	7	137	121	72	265	53	260 move
11	[illegible]	1000	813.7		2.6	7	94	124	65	255	41	264
12	[illegible]	1005	818.3		2.6	7	101	125	66	258	44	260
13	[illegible]	1010	822.8		2.4	7	101	125	66	260	45	264
14	[illegible]	1017	827.4		2.6	7	107	132	67	245	46	265
15	[illegible]	1022	832.0		2.6	7	124	132	63	247	49	253

809.197

Pressure leak check — 0.002 [illegible]
Post run leak check — 0.002 [illegible]

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FLUORIDES

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 5 DATA SHEET

Client: Timken   Source: FAIRCREST EAF   Run No.: 4

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp. °F	Filter Temp. °F	Imp. Temp. °F	Comments
1	235	1027	836.7		2.6	7	126	119	71	241	50	251
2	240	1034	841.3		2.6	7	133	114	68	247	52	252
3	245	1039	845.9		2.6	7	138	110	69	246	53	253
4	250	1044	850.6		2.6	7	149	139	67	245	55	254
5	255	1051	855.1		2.6	7	154	134	64	243	56	243
6	300	1056	859.7		2.6	7	152	132	70	246	55	247
7	305	1101	864.2		2.6	7	159	113	72	245	58	250 [illegible]
8	310	1122	868.7		2.6	7	162	113	72	248	56	263
9	315	1127	873.2		2.6	7	155	121	71	246	57	262
10	320	1132	877.9		2.6	7	158	123	71	246	59	261
11	325	1139	882.5		2.6	7	155	124	70	247	55	259
12	330	1141	887.1		2.6	7	153	131	71	246	51	262
13	335	1149	891.7		2.6	7	150	131	71	246	49	262
14	340	1156	896.3		2.6	7	160	117	72	247	50	261
15	345	1201	901.0		2.6	7	162	112	73	246	49	263
1	350	1206	905.7		2.6	7	177	113	74	248	49	267
2	355	1213	910.3		2.6	7	163	121	73	238	41	260
3	400	1218	914.9		2.6	7	160	125	74	246	49	265
4	405	1223	919.4		2.6	7	164	128	75	246	50	266
5	410	1230	924.277		2.6	7	126	124	75	246	49	258

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FLUORIDE

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 5 DATA SHEET

Client: Timken		Run No.: 5		Meter delta H@: 1.77		Filter No.: —	
Project No.:		Noz. Dia.: 0.623		Meter Corr.: 0.989		Stack Dia.: —	
Source: FAIRCREST EAF		Baro. Press.: 29.19		Pitot Corr.:		Ambient Temp.:	
Date: 1-30-02		Static Press.:		Control Box ID: unit 2		Start Time: 1333	
Techs: REIFT		Moisture: 1.7		Probe ID: 12-1		Stop Time: 1757	

Point	Elapsed Time	Time	Meter Volume	Velocity Press.	Orifice Pessure Drop	Vacuum	Probe Temp.	Stack Temp.	Meter Temp.	Filter Temp	Imp. Temp.	Comments
		1333	928.324	in. water	in. water	in. Hg	°F	°F	°F	°F	°F	
1	[illegible]	1338	932.8		2.6	4	187	131	65	260	38	228
2	[illegible]	1343	937.4		2.6	4	184	113	66	248	34	229
3	[illegible]	1348	942.1		2.6	4	174	109	68	249	38	224
4	[illegible]	1353	946.2		2.6	4	171	116	70	252	37	225
5	[illegible]	1355	950.2		2.6	3	152	126	73	256	38	234
6	[illegible]	1400	954.4		2.6	3	161	121	74	248	34	251
7	[illegible]	1406	958.6		2.6	3	157	134	75	251	45	261
8	[illegible]	1411	963.1		2.6	3	152	137	77	252	47	264
9	45	1416	967.8		2.6	4	157	134	77	251	48	264
10	50	1422	972.4		2.6	4	161	138	77	252	50	[illegible]
11	55	1428	977.0		2.6	4	152	118	77	252	51	264
12	100	1433	981.7		2.6	4	154	116	77	252	53	264
13	105	1439	986.3		2.6	4	149	115	77	252	52	265
14	110	1444	991.0		2.6	4	139	115	80	252	53	267
15	115	1449	995.6		2.6	4	140	121	77	252	54	266
Tot/Avg	250		230.140		2.6		158.4	126.4	73.2			

Sample Train Leak Check

	Vacuum	Leak Rate
Pre	18 in. Hg	0.003 CFM
Post	6 in. Hg	0.002 CFM

Pitot Leak Check

Pos.	
Neg.	

Moisture Train Analysis

Impinger	Final Wt.	Initial Wt.	Difference
1	699.3 gm	721.2 gm	-21.9 gm
2	733.3 gm	695.2 gm	38.1 gm
3	621.7 gm	609.5 gm	12.2 gm
4	887.0 gm	834.6 gm	52.4 gm
5	gm	gm	gm
Total	gm	gm	80.8 gm

Fyrite Analysis

Gas	Run 1	Run 2	Run 3	Average
O_2				
CO_2				

A41

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 5 DATA SHEET

Client: Timken Source: FAIRCREST EAF Run No.: 5

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
1	120	1955	000.3		2.6	4	154	122	77	252	56	266
2	125	1500	004.8		2.6	4	152	126	77	252	54	266
3	130	1505	009.1		2.6	4	160	133	76	252	54	265
4	135	1511	014.1		2.6	4	160	130	76	253	56	264
5	140	1516	018.7		2.6	4	151	118	76	252	56	266
6	145	1521	023.3		2.6	4	149	122	76	252	57	266
7	150	1527	028.0		2.6	4	150	124	76	253	56	268
8	155	1532	032.5		2.6	4	150	135	76	252	57	268
9	200	1537	037.1		2.6	4	156	134	76	252	58	268
10	205	1543	041.8		2.6	4	152	131	78	252	58	271
11	210	1548	046.4		2.6	4	164	130	78	253	60	272
12	215	1553	051.1		2.6	4	160	118	78	253	60	270
13	220	1559	055.8		2.6	4	152	110	78	253	58	269
14	225	1604	060.5		2.6	4	159	124	75	253	57	262
15	230	1609	065.1		2.6	4	157	121	75	254	55	257

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 5 DATA SHEET

Client: Timken | Source: FAIRCREST EAF | Run No.: 5

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
1	235	1615	069.8		2.6	4	170	122	75	253	55	257
2	240	1620	074.4		2.6	4	162	122	75	253	55	257
3	245	1625	079.0		2.6	4	149	120	75	253	55	257
4	250	1631	083.6		2.6	4	151	158	74	251	55	254
5	255	1636	088.3		2.6	4	151	142	71	251	55	254
6	300	1641	093.0		2.6	4	162	136	72	253	54	253
7	305	1647	097.7		2.6	4	163	136	71	253	54	252
8	310	1652	102.4		2.6	4	161	136	70	252	54	251
9	315	1657	107.1		2.6	4	159	131	71	252	53	252
10	320	1703	111.8		2.6	4	162	112	68	252	52	256
11	325	1708	116.5		2.6	4	162	110	69	253	50	256
12	330	1713	121.2		2.6	4	160	110	68	252	50	256
13	335	1719	125.8		2.6	4	159	127	68	252	48	257
14	340	1724	130.5		2.6	4	142	129	67	252	49	254
15	345	1729	135.2		2.6	4	170	128	67	252	50	252
1	350	1735	139.9		2.6	4	159	126	67	251	51	251
2	355	1740	144.5		2.6	4	162	131	68	253	54	257
3	400	1748	149.1		2.6	4	162	129	68	252	54	257
4	405	1752	153.7		2.6	4	166	128	69	252	54	257
5	410	1757	158.464		2.6	4	162	124	69	252	55	256

A43

SC

1of1

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD ~~5~~ 6 DATA SHEET

Client: TIMKEN	Run No.: 1	Meter delta H@: 1.81	Filter No.: –
Project No.: BAGHOUSE - FAIRCREST	Noz. Dia.:	Meter Corr.: .997	Stack Dia.:
Source: BAGHOUSE INLET	Baro. Press.: 28.92	Pitot Corr.: –	Ambient Temp.:
Date: 1/29/01	Static Press.:	Control Box ID: 1	Start Time: 0821
Techs: JS	Moisture: 1.4	Probe ID:	Stop Time: 1159

Point	Elapsed Time	Time	Meter Volume	Velocity Press.	Orifice Pessure Drop	Vacuum	Probe Temp.	Stack Temp.	Meter Temp.	Filter Temp	Imp. Temp.	Comments
				in. water	in. water	in. Hg	°F	°F	°F	°F	°F	AUX
	0	821	550.180									
	5	926	554.3		2.5	3	226		67	230	50	226
	10	831	558.8		2.5	3	227		66	231	50	226
	15	836	563.0		2.4	3	230		65	238	51	233
	20	841	567.1		2.2	3	225		69	238	55	249
	25	846	571.3		2.2	3	229		70	239	59	247
	30	851	575.6		2.2	3	236		71	239	57	247
	31	852	576.0		2.3	3	230		72	240	60	247 END 1ST HEAT
		911	576.0									2?
	36	916	579.8		2.3	4	231		73	242	61	255
	41	921	584.0		2.4	5	236		72	237	54	247
	46	926	588.5		2.4	5	237		72	239	57	243
	51	931	592.6		2.3	5	229		73	247	58	241
	56	936	596.7		2.3	5	229		73	246	59	243
	61	941	601.0		2.3	5	231		74	245	59	244
	66	946	604.8		2.3	6	232		74	247	58	240
	71	951	609.0		2.3	6	233		74	246	58	243
Tot/Avg	139		113.587		~~2.46~~ 2.30				73.9			

Sample Train Leak Check

	Vacuum	Leak Rate
Pre	10 in. Hg	0.002 CFM
Post	15 in. Hg	0.001 CFM

Pitot Leak Check

Pos.	
Neg.	

Moisture Train Analysis

Impinger	Final Wt.	Initial Wt.	Difference
1	639.5 gm	703.0 gm	-63.5 gm
2	726.8 gm	700.8 gm	26.0 gm
3	728.1 gm	706.2 gm	21.9 gm
4	861.5 gm	813.2 gm	48.3 gm
5	gm	gm	gm
Total	gm	gm	32.7 gm

Fyrite Analysis

Gas	Run 1	Run 2	Run 3	Average
O_2				
CO_2				

A44

SO2 2.f.

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD ~~5~~ 6 DATA SHEET

Client: TIMKEN FAIRCREST	Run No.: 1	Meter delta H@:	Filter No.:
Project No.:	Noz. Dia.:	Meter Corr.:	Stack Dia.:
Source: Sandhouse	Baro. Press.:	Pitot Corr.:	Ambient Temp.:
Date: 1/29/01	Static Press.:	Control Box ID:	Start Time:
Techs:	Moisture:	Probe ID:	Stop Time:

Point	Elapsed Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp. °F	Filter Temp °F	Imp. Temp. °F	Comments
	76	956	613.2	[illegible]	2.3	6	229		76	237	63	240
	81	1001	617.4		2.3	6	229		77	240	62	241
	86	1006	621.5		2.3	6	230		77	240	63	242
	[illegible]	1011	625.4		2.3	7	231		76	241	63	242
	96	1016	629.5		2.3	7	232		77	239	61	240
	101	1021	633.7		2.3	8	232		77	237	62	241
	106	1026	637.9		2.3	8	235		78	239	63	243
	111	1031	642.0		2.3	8	235		77	239	62	243
	116	1036	646.4		2.3	8	236		77	239	62	242
	121	1041	650.1		2.3	8	237		77	237	61	241
	126	1046	654.1		2.3	9	237		77	236	61	243
	131	1051	658.0		2.2	9	236		78	238	60	241
	136	1056	661.6		2.2	9	237		78	237	60	240
	139	1059	663.767		2.2	9	237		77	240	60	240 1101 Purge
												1116 STOP

Tot/Avg

Sample Train Leak Check

	Vacuum	Leak Rate
Pre	in. Hg	CFM
Post	in. Hg	CFM

Pitot Leak Check

Pos.	
Neg.	

Moisture Train Analysis

Impinger	Final Wt.	Initial Wt.	Difference
1	gm	gm	gm
2	gm	gm	gm
3	gm	gm	gm
4	gm	gm	gm
5	gm	gm	gm
Total	gm	gm	gm

Fyrite Analysis

Gas	Run 1	Run 2	Run 3	Average
O_2				
CO_2				

A45

SO2

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD ~~5~~ 6 DATA SHEET

Client: TIMKEN
Project No.:
Source: BAGHOUSE INLET
Date: 1/29/01
Techs: JR

Run No.: 2
Noz. Dia.: –
Baro. Press.: 29.02
Static Press.: +
Moisture: 1.3

Meter delta H@: 1.81
Meter Corr.: .997
Pitot Corr.: –
Control Box ID: 1
Probe ID:

Filter No.: –
Stack Dia.: –
Ambient Temp.: 60°F
Start Time: 1222
Stop Time: 1446

Point	Elapsed Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp. °F	Filter Temp °F	Imp. Temp. °F	Comments
7ft	0	12:22	671.325									Aux
	5	1227	675.0		1.9	3	237		75	237	56	250
	10	1232	678.9		2.0	3	238		76	240	55	251
	15	1237	683.0		2.0	3	238		75	241	56	247
	20	1242	686.6		2.0	4	238		75	239	55	248
	25	1247	690.5		2.0	4	238		76	238	56	240
	30	1252	694.4		2.0	5	238		75	238	57	237
	35	1257	698.4		2.0	5	238		76	238	58	237
	40	1302	702.3		2.0	5	237		76	238	58	236
	45	1307	706.3		2.0	6	236		76	237	57	237
	50	1312	709.7		2.0	6	238		77	239	59	241
	55	1317	713.8		2.0	6	237		77	240	59	240
	60	1322	717.8		2.0	7	238		78	241	60	241
	65	1327	721.4		2.0	7	237		80	239	60	244
	70	1332	725.2		2.0	7	235		81	239	60	241
	75	1337	729.2		2.0	7	238		81	239	60	242
	80	1342	733.1		2.0	8	237		81	240	61	241
Tot/Avg	144		111.782		2.01				80.2			

Sample Train Leak Check

	Vacuum	Leak Rate
Pre	15 in. Hg	0.001 CFM
Post	16 in. Hg	0.000 CFM

Pitot Leak Check

Pos.	
Neg.	

Moisture Train Analysis

Impinger	Final Wt.	Initial Wt.	Difference
1	632.4 gm	687.6 gm	-55.2 gm
2	719.0 gm	699.7 gm	19.3 gm
3	718.0 gm	699.9 gm	18.1 gm
4	846.2 gm	798.3 gm	47.9 gm
5	gm	gm	gm
Total	gm	gm	30.1 gm

Fyrite Analysis

Gas	Run 1	Run 2	Run 3	Average
O_2				
CO_2				

A47

2 of 2

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD ~~5~~ 6 DATA SHEET
SO2

1/29/02

Client: TIMKEN

Source: BAGHOUSE INLET

Run No.: 2

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
	85	1347	737.0		2.1	8	237		83	240	62	247
	90	1352	739.9		2.1	8	238		83	241	62	250
	95	1357	744.7		2.1	9	238		84	241	61	249
	100	1402	748.6		2.1	9	237		84	240	61	249
	105	1407	752.5		2.0	10	236		84	239	60	240
	110	1412	756.5		2.0	10	237		85	240	60	241
	115	1417	760.5		2.0	10	236		84	240	58	242
	120	1422	764.5		2.0	10	238		84	240	56	245
	125	1427	768.4		2.0	10	237		84	241	56	243
	130	1432	772.4		2.0	11	238		84	240	55	247
	135	1437	776.2		2.0	12	238		84	241	56	244
	140	1442	780.0		2.0	12	237		84	240	55	246
	144	1446	783.107		2.0	12	237		84	241	54	240 15 min. Purge

SO_2

1 of 2

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD ~~5~~ 6 DATA SHEET

Client:	TIMKEN	Run No.:	3	Meter delta H@:	1.81	Filter No.:	—
Project No.:		Noz. Dia.:	—	Meter Corr.:	.997	Stack Dia.:	—
Source:		Baro. Press.:	29.04	Pitot Corr.:	.84	Ambient Temp.:	60°F
Date:	1-29-01	Static Press.:		Control Box ID:	1	Start Time:	1639
Techs:		Moisture:	3.1	Probe ID:	7 ft	Stop Time:	1910

Point	Elapsed Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp. °F	Filter Temp °F	Imp. Temp. °F	Comments AUX
	0	1639	797.095									
	5	1644	800.8		2.0	3	235		75	241	60	262
	10	1649	804.8		2.0	3	236		75	241	55	257
	15	1654	808.7		2.0	3	237		75	241	51	258
	20	1659	812.2		2.0	4	238		75	241	50	257
	25	1704	816.3		2.0	4	237		74	241	51	257
	30	1709	820.1		2.0	4	237		74	240	52	257 DOWN
	35	1727	823.9		2.0	5	238		74	241	51	250 1722
	40	1732	827.7		2.0	5	239		74	240	51	252
	45	1737	831.5		2.0	5	240		77	237	54	254
	50	1742	835.6		2.0	6	238		78	238	53	252
	55	1747	839.4		2.0	6	238		77	239	52	252
	60	1752	843.3		2.0	6	238		77	238	52	251
	65	1757	847.3		2.0	7	238		76	238	54	256
	70	1802	851.1		2.0	7	237		76	238	51	255
	75	1807	854.9		2.0	7	237		76	237	51	257
	80	1812	858.7		2.0	8	236		76	237	60	250
Tot/Avg	138		106.387		2.0				77.6			

Sample Train Leak Check

	Vacuum	Leak Rate
Pre	15 in. Hg	0.003 CFM
Post	13 in. Hg	0.003 CFM

Pitot Leak Check

Pos.	
Neg.	

Moisture Train Analysis

Impinger	Final Wt.	Initial Wt.	Difference
1	636.2 gm	693.7 gm	-57.5 gm
2	718.4 gm	697.5 gm	20.9 gm
3	708.7 gm	644.1 gm	64.6 gm
4	848.4 gm	800.5 gm	47.9 gm
5	gm	gm	gm
Total	gm	gm	75.9 gm

Fyrite Analysis

Gas	Run 1	Run 2	Run 3	Average
O_2				
CO_2				

A48

SO_2

BLUE MOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EPA METHOD 5 DATA SHEET

Client: TIMKEN FAIRCREST Source: Baghouse Run No.: 3

Point	Elap. Time	Time	Meter Volume	Velocity Press. in. water	Orifice Pessure Drop in. water	Vacuum in. Hg	Probe Temp. °F	Stack Temp. °F	Meter Temp °F	Filter Temp. °F	Imp. Temp. °F	Comments
	85	1817	862.6		2.0	8	238		79	241	61	242
	90	1822	866.7		2.0	8	237		80	240	62	240
	95	1827	870.5		2.0	9	237		80	241	61	239
	100	1832	874.4		2.0	9	237		80	241	62	240
	105	1837	878.3		2.0	9	238		80	241	61	241
	110	1842	882.0		2.0	9	238		81	242	61	242
	115	1847	886.0		2.0	9	238		81	241	60	243
	120	1852	889.6		2.0	9	237		81	241	60	242
	125	1857	893.6		2.0	10	236		81	240	60	241
	130	1902	897.0		2.0	10	237		81	240	60	243
	135	1907	900.7		2.0	10	236		80	241	61	247
	138	1910	903492		2.0	10	237		80	241	61	248
		10 min Purge										

1-29-02 TESTING

Run 1

CHARGE	TAP	CHARGE	TAP	DOWN
0820	0944	0952	1059	0850 0910
HEAT # 1168		HEAT # 1169		

Run 2

CHARGE	TAP	CHARGE	TAP	DOWN
1220	1328	1338	1443	
HEAT # 1171		HEAT # 1172		

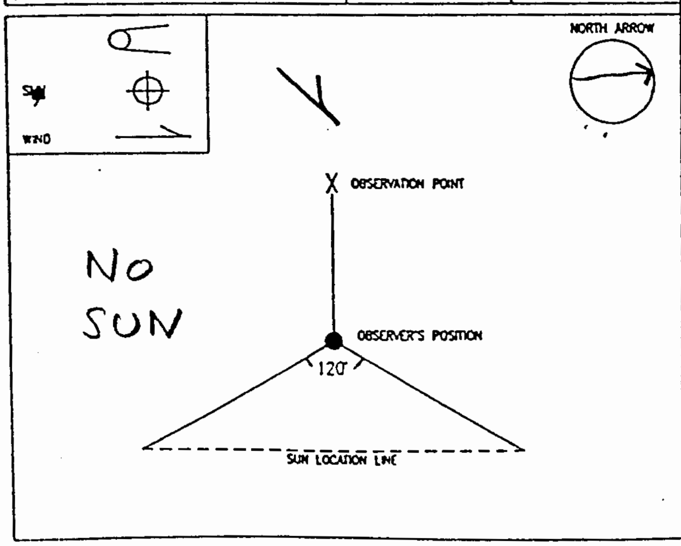
CHARGE	TAP	CHARGE	TAP	DOWN
1637	1759	1801	1909	1702 down 1722 up
HEAT # 1174		HEAT # 1175		1829 down 1831 up

BAGHOUSE ROOF VENTS

VISIBLE EMISSION OBSERVATION FORM

A51

COMPANY NAME	Timken
LOCATION	Faircrest Plant
LOCATION	EAF Baghouse Vent
CITY	Canton
STATE	OH
ZIP	
PROCESS EQUIPMENT	EAF Shop
OPERATING MODE	Normal
CONTROL EQUIPMENT	Baghouse
OPERATING MODE	Normal
DESCRIBE EMISSION POINT	Positive Pressure 10 Compartment Baghouse - Two Monitor Vents
HEIGHT ABOVE GROUND LEVEL	START ~125' END ~125'
HEIGHT RELATIVE TO OBSERVER	START ~125 END ~125
DISTANCE FROM OBSERVER	START ~450' END ~450'
DIRECTION FROM OBSERVER	START West END West
VERTICAL ANGLE TO OBS. POINT	START ~20° END ~20°
DIRECTION TO OBSERVATION POINT	START East END East
DESCRIBE EMISSIONS	START No Emissions END No Emissons
EMISSION COLOR	START None END None
IF WATER DROPLET PLUME	ATTACHED ☐ DETACHED ☐ N/A ☒
DISTANCE OF OBSERVATION POINT FROM EMISSION OUTLET	START ~450' END ~450'
DESCRIBE PLUME BACKGROUND	START Gray Sky END Gray Sky
BACKGROUND COLOR	START Gray END Gray
SKY CONDITIONS	START 100% Clouds END 100% Clouds
WIND SPEED	START ~10mph END ~10mph
WIND DIRECTION	START SW END SW
AMBIENT TEMP	START ~50°F END ~50°F
WET BULB TEMP	—
HUMIDITY PERCENT	—



START TIME 0927 STOP TIME 1027

	0	15	30	45		0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

OBSERVER'S NAME	Paul Jadlowiec
OBSERVER'S SIGNATURE	Paul Jadlowiec
DATE	1-29-02
ORGANIZATION	Blue Mountain Environmental
CERTIFIED BY	The Pennsylvania State University
DATE	10/01
CONTINUED ON VEO FORM NUMBER	

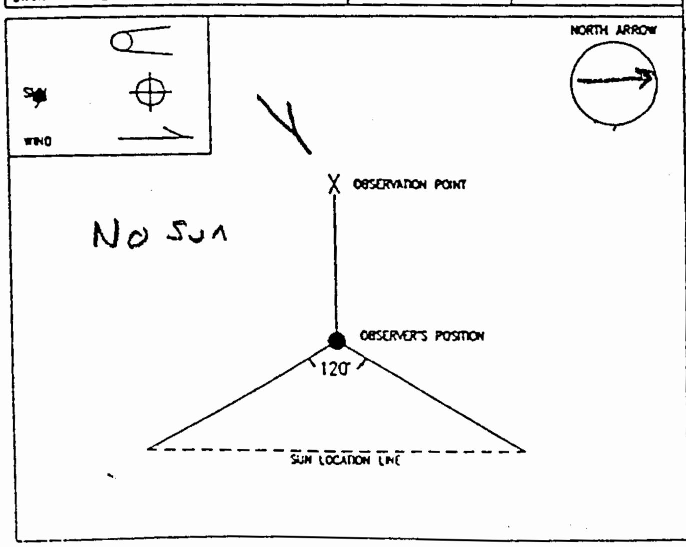
BLUEMOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

BAGHOUSE ROOF VENTS

VISIBLE EMISSION OBSERVATION FORM

A52

COMPANY NAME	Timken
LOCATION	Faircrest Plant
LOCATION	EAF Baghouse
CITY	Canton
STATE	OH
ZIP	
PROCESS EQUIPMENT	EAF Shop
OPERATING MODE	Normal
CONTROL EQUIPMENT	Baghouse
OPERATING MODE	Normal
DESCRIBE EMISSION POINT	Positive Pressure 10 Compartments Baghouse - Two Monitor Vents
HEIGHT ABOVE GROUND LEVEL	START ~125' END ~125'
HEIGHT RELATIVE TO OBSERVER	START ~125' END ~125'
DISTANCE FROM OBSERVER	START ~450' END ~450'
DIRECTION FROM OBSERVER	START West END West
VERTICAL ANGLE TO OBS. POINT	START ~20° END ~20°
DIRECTION TO OBSERVATION POINT	START East END East
DESCRIBE EMISSIONS	START No Emissions END No Emissions
EMISSION COLOR	START None END None
IF WATER DROPLET PLUME	ATTACHED ☐ DETACHED ☐ N/A ☐
DISTANCE OF OBSERVATION POINT FROM EMISSION OUTLET	START ~450' END ~450'
DESCRIBE PLUME BACKGROUND	START Gray Sky END Gray Sky
BACKGROUND COLOR	START Gray END Gray
SKY CONDITIONS	START 100% Clouds END 100% Clouds
WIND SPEED	START ~10 mph END ~5 mph
WIND DIRECTION	START SW END SW
AMBIENT TEMP	START ~50°F END ~50°F
WET BULB TEMP	—
HUMIDITY PERCENT	—



START TIME 1027 STOP TIME 1127

	0	15	30	45		0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

OBSERVER'S NAME	Paul Jadlowiec
OBSERVER'S SIGNATURE	Paul Jadlowiec
DATE	1-29-02
ORGANIZATION	Blue Mountain Environmental
CERTIFIED BY	The Pennsylvania State University
DATE	10/01
CONTINUED ON VEO FORM NUMBER	

BLUEMOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

BAGHOUSE ROOF VENTS

A53

VISIBLE EMISSION OBSERVATION FORM

COMPANY NAME: Timken

STATION: Faircrest Plant

LOCATION: EAF Baghouse Vent

CITY: Canton | STATE: OH | ZIP:

PROCESS EQUIPMENT: EAF Shop | OPERATING MODE: Normal

CONTROL EQUIPMENT: Baghouse | OPERATING MODE: Normal

DESCRIBE EMISSION POINT: Positive Pressure - 10 Compartment Baghouse - Two Monitor Vents

HEIGHT ABOVE GROUND LEVEL: START ~125' END ~125'

HEIGHT RELATIVE TO OBSERVER: START ~125' END ~125'

DISTANCE FROM OBSERVER: START ~450' END ~450'

DIRECTION FROM OBSERVER: START West END West

VERTICAL ANGLE TO OBS. POINT: START ~20° END ~20°

DIRECTION TO OBSERVATION POINT: START East END East

DESCRIBE EMISSIONS: START No Emissions END No Emissions

EMISSION COLOR: START None END None

IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐ N/A ☐

DISTANCE OF OBSERVATION POINT FROM EMISSION OUTLET: START ~450' END ~450'

DESCRIBE PLUME BACKGROUND: START Gray Sky END Gray Sky

BACKGROUND COLOR: START Gray END Gray

SKY CONDITIONS: START % 100 Clouds END % 100 clouds

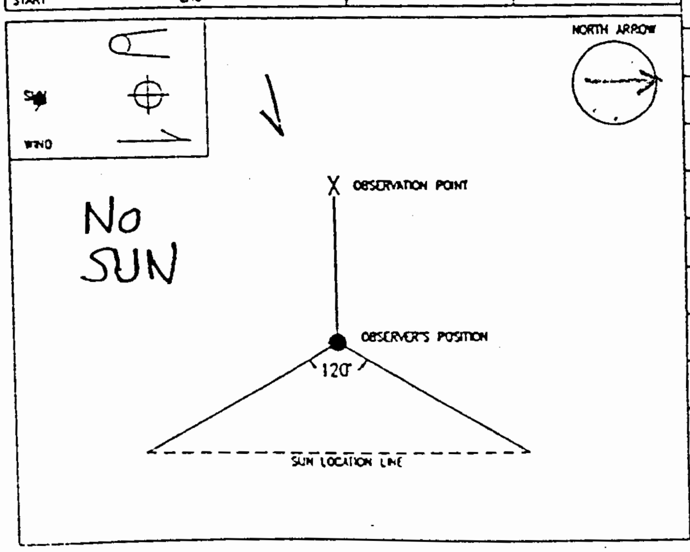
WIND SPEED: START ~10mph END ~20mph

WIND DIRECTION: START West END West

AMBIENT TEMP: START ~55°F END ~50°F

WET BULB TEMP: —

HUMIDITY PERCENT: —



START TIME 1300 STOP TIME 1400

	0	15	30	45		0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

OBSERVER'S NAME: Paul Judlowier

OBSERVER'S SIGNATURE: Paul Judlowier | DATE: 1-29-92

ORGANIZATION: Blue Mountain Environmental

CERTIFIED BY: the Pennsylvania State University | DATE: 10/01

CONTINUED ON VEO FORM NUMBER

BLUEMOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

DUST HANDLING

VISIBLE EMISSION OBSERVATION FORM

A54

COMPANY NAME: Timkun

LOCATION: Faircrest Plant

LOCATION: EAF Baghouse Dust Handling

CITY: Canton STATE: OH ZIP:

PROCESS EQUIPMENT: EAF Shop OPERATING MODE:

CONTROL EQUIPMENT: Baghouse OPERATING MODE:

DESCRIBE EMISSION POINT: Positive Pressure 10 Compartment Baghouse - lower enclosed system

HEIGHT ABOVE GROUND LEVEL: START 0' END 0'

HEIGHT RELATIVE TO OBSERVER: START 0' END 0'

DISTANCE FROM OBSERVER: START ~450' END ~450'

DIRECTION FROM OBSERVER: START West END West

VERTICAL ANGLE TO OBS. POINT: START 0° END 0°

DIRECTION TO OBSERVATION POINT: START East END East

DESCRIBE EMISSIONS: START No Emissions END No Emissions

EMISSION COLOR: START None END None

IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐ N/A ☑

DISTANCE OF OBSERVATION POINT FROM EMISSION OUTLET: START ~450' END ~450'

DESCRIBE PLUME BACKGROUND: START Gray Sky END Gray Sky

BACKGROUND COLOR: START Yellow Grass Gray Sky END Yellow Grass Gray Sky

SKY CONDITIONS: START 60% Clouds END 100% Clouds

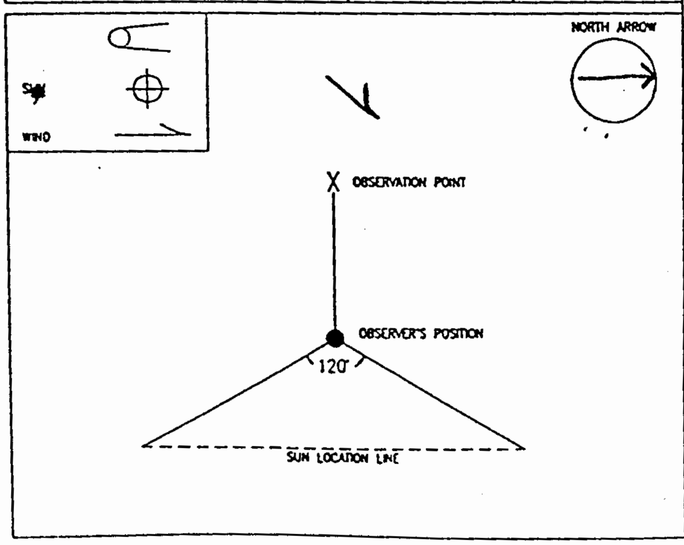
WIND SPEED: START ~10 mph END ~10 mph

WIND DIRECTION: START SW END SW

AMBIENT TEMP: START ~50°F END ~50°F

WET BULB TEMP: -

HUMIDITY PERCENT:



START TIME 0927 STOP TIME 1027

	0	15	30	45		0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

OBSERVER'S NAME: Paul Jadlowiec

OBSERVER'S SIGNATURE: Paul Jadlowiec DATE 1-29-02

ORGANIZATION: Blue Mountain Environmental

CERTIFIED BY: The Pennsylvania State University DATE

CONTINUED ON VEO FORM NUMBER

BLUEMOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

DUST HANDLING

A55

VISIBLE EMISSION OBSERVATION FORM

COMPANY NAME: Timken

LOCATION: Faircrest Plant

LOCATION: EAF Baghouse

CITY: Canton | STATE: OH | ZIP:

PROCESS EQUIPMENT: EAF Shop | OPERATING MODE: Normal

CONTROL EQUIPMENT: Baghouse | OPERATING MODE: Normal

DESCRIBE EMISSION POINT: Positive Pressure 10 Compartment Baghouse - lower enclosed system

HEIGHT ABOVE GROUND LEVEL: START 0' END 0' | HEIGHT RELATIVE TO OBSERVER: START 0' END 0'

DISTANCE FROM OBSERVER: START ~450' END ~450' | DIRECTION FROM OBSERVER: START West END West

VERTICAL ANGLE TO OBS. POINT: START 0° END 0° | DIRECTION TO OBSERVATION POINT: START East END East

DESCRIBE EMISSIONS: START No Emissions END No Emissions

EMISSION COLOR: START None END None | IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐ N/A ☒

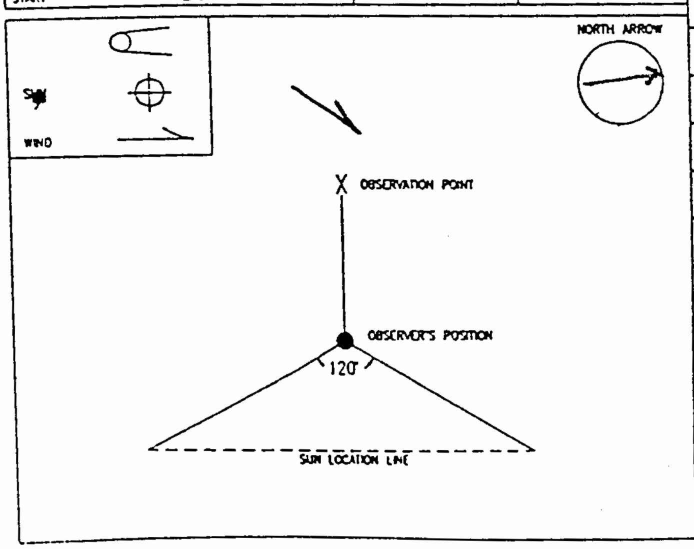
DISTANCE OF OBSERVATION POINT FROM EMISSION OUTLET: START ~450' END ~450'

DESCRIBE PLUME BACKGROUND: START Gray Sky END Gray Sky

BACKGROUND COLOR: Yellow/Gray START Grey Sky END | SKY CONDITIONS: START 100% Clouds END 100% Clouds

WIND SPEED: START ~10 mph END | WIND DIRECTION: START SW END SW

AMBIENT TEMP: START ~50°F END ~50°F | WET BULB TEMP: — | HUMIDITY PERCENT: —



START TIME 1027 STOP TIME 1127

	0	15	30	45		0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

OBSERVER'S NAME: Paul Jadlowiec

OBSERVER'S SIGNATURE: Paul Jadlowiec | DATE: 1-29-02

ORGANIZATION: Blue Mountain Environmental

CERTIFIED BY: The Pennsylvania State Univ | DATE: 10/01

CONTINUED ON VEO FORM NUMBER

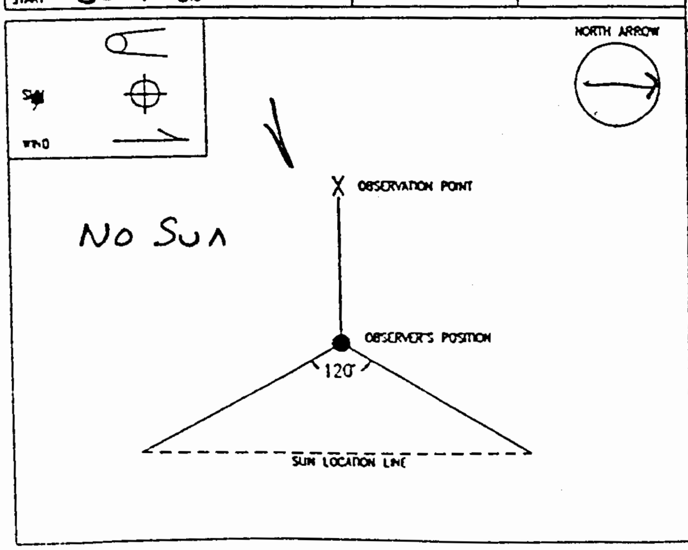
BLUEMOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

DUST HANDLING

VISIBLE EMISSION OBSERVATION FORM

A56

COMPANY NAME	TIMKEN
STATION	Faircrest Plant
LOCATION	EAF Baghouse Vent
CITY	Canton
STATE	OH
ZIP	
PROCESS EQUIPMENT	EAF Shop
OPERATING MODE	Normal
CONTROL EQUIPMENT	Baghouse
OPERATING MODE	Normal
DESCRIBE EMISSION POINT	Positive Pressure - 10 Compartments Baghouse louvers enclosed system
HEIGHT ABOVE GROUND LEVEL	START ~125' END ~125'
HEIGHT RELATIVE TO OBSERVER	START +125' END -125'
DISTANCE FROM OBSERVER	START ~450' END ~450'
DIRECTION FROM OBSERVER	START West END West
VERTICAL ANGLE TO OBS. POINT	START ~20° END ~20°
DIRECTION TO OBSERVATION POINT	START East END East
DESCRIBE EMISSIONS	START No Emissions END No Emissions
EMISSION COLOR	START None END None
IF WATER DROPLET PLUME	ATTACHED ☐ DETACHED ☐ N/A ☒
DISTANCE OF OBSERVATION POINT FROM EMISSION OUTLET	START ~450' END ~450'
DESCRIBE PLUME BACKGROUND	START Gray Sky END Gray Sky
BACKGROUND COLOR	START Gray END Gray
SKY CONDITIONS	START %100 Clouds END %100 Clouds
WIND SPEED	START 5/10 mph END ~20 mph
WIND DIRECTION	START West END West
AMBIENT TEMP	START ~55°F END ~50°F
WET BULB TEMP	—
HUMIDITY PERCENT	—



START TIME 1300 STOP TIME 1400

	0	15	30	45		0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

OBSERVER'S NAME	Paul Jadlowiec
OBSERVER'S SIGNATURE	Paul Jadlowiec
DATE	1-29-02
ORGANIZATION	Blue Mountain Environmental Management
CERTIFIED BY	The Pennsylvania State University
DATE	10/01
CONTINUED ON VEO FORM NUMBER	

BLUEMOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EAF SHOP ROOF

VISIBLE EMISSION OBSERVATION FORM

A 57

COMPANY NAME: Timken

STATION: Faircrest EAF

LOCATION:

CITY: Canton | STATE: OH | ZIP:

PROCESS EQUIPMENT: EAF | OPERATING MODE: Normal

CONTROL EQUIPMENT: — | OPERATING MODE: Normal

DESCRIBE EMISSION POINT: Shop Roof and openings

HEIGHT ABOVE GROUND LEVEL	HEIGHT RELATIVE TO OBSERVER
START ~0 to 200' END 0 to 200'	START 0 to 200' END 0 to 200'

DISTANCE FROM OBSERVER	DIRECTION FROM OBSERVER
START 600 ft END 600 ft	START SW END SW

VERTICAL ANGLE TO OBS. POINT	DIRECTION TO OBSERVATION POINT
START 0 to 25° END 0 to 25°	START NE END NE

DESCRIBE EMISSIONS: START No Emissions END No Emissions

EMISSION COLOR: START None END None | IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐ N/A ☒

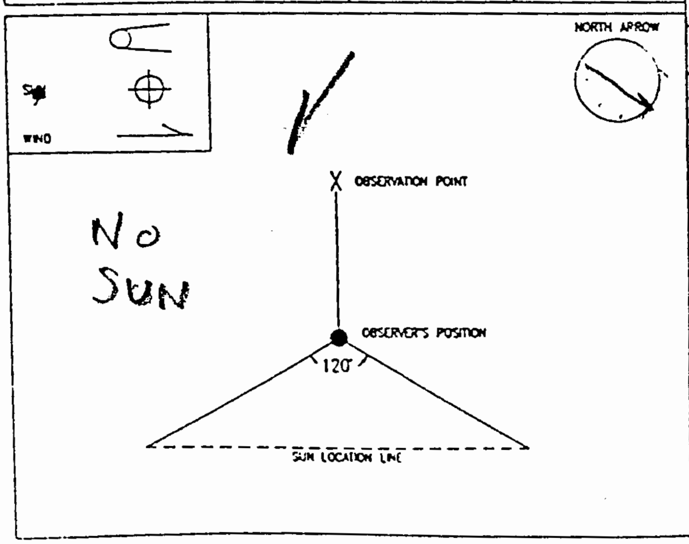
DISTANCE OF OBSERVATION POINT FROM EMISSION OUTLET: START ~600 ft END ~600 ft

DESCRIBE PLUME BACKGROUND: START Gray sky + building END Gray sky + building

BACKGROUND COLOR	SKY CONDITIONS
START Gray END Gray	START 100% Clouds END 100% Clouds

WIND SPEED	WIND DIRECTION
START ~20 mph END	START West END

AMBIENT TEMP	WET BULB TEMP	HUMIDITY PERCENT
START ~50°F END	—	—



START TIME 1405 STOP TIME 1505

	0	15	30	45		0	15	30	45
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2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

OBSERVER'S NAME: Paul Jadlowiec

OBSERVER'S SIGNATURE: Paul Jadlowiec | DATE: 1-29-02

ORGANIZATION: Blue Mountain Environmental Management

CERTIFIED BY: The Pennsylvania State Univ | DATE: 10/01

CONTINUED ON VEO FORM NUMBER

BLUEMOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

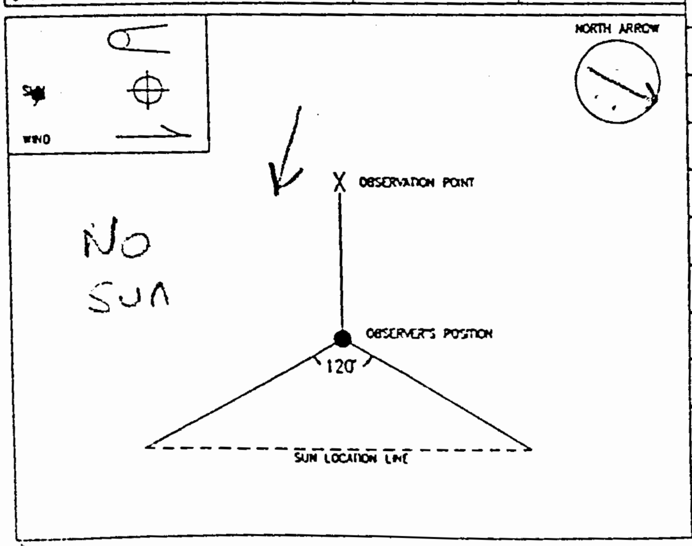
EAF Shop Roof

VISIBLE EMISSION OBSERVATION FORM

STOP - 1545
START - 1605
Stop - 1610
Start - 1620
458 Furnace Down

COMPANY NAME: Timken
IN: Faircrest EAF
LOCATION:
CITY: Canton **STATE:** OH **ZIP:**
PROCESS EQUIPMENT: EAF **OPERATING MODE:** Normal
CONTROL EQUIPMENT: **OPERATING MODE:** Normal
DESCRIBE EMISSION POINT: Shop Roof and Openings

HEIGHT ABOVE GROUND LEVEL: START 0 to 200' END 0 to 200'
HEIGHT RELATIVE TO OBSERVER: START 0 to 200' END 0 to 200'
DISTANCE FROM OBSERVER: START 600 ft END 600 ft
DIRECTION FROM OBSERVER: START SW END SW
VERTICAL ANGLE TO OBS. POINT: START 0 to 25° END 0 to 25°
DIRECTION TO OBSERVATION POINT: START NE END NE
DESCRIBE EMISSIONS: START No Emissions END No Emissions
EMISSION COLOR: START None END None
IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐ N/A ☑
DISTANCE OF OBSERVATION POINT FROM EMISSION OUTLET: START ~600 ft END ~600 ft
DESCRIBE PLUME BACKGROUND: START Gray Sky + buildings END Gray Sky + Building
BACKGROUND COLOR: START Gray END Gray
SKY CONDITIONS: START Gray END Gray
WIND SPEED: START ~20 mph END ~15 mph
WIND DIRECTION: START West END West
AMBIENT TEMP: START ~50°F END ~50°F
WET BULB TEMP: —
HUMIDITY PERCENT: —



START TIME 1505 STOP TIME 1635

	0	15	30	45		0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

OBSERVER'S NAME: Paul Judlowiec
OBSERVER'S SIGNATURE: Paul Judlowiec **DATE:** 1-29-02
ORGANIZATION: Blue Mountain Environmental Management
CERTIFIED BY: The Pennsylvania State University **DATE:** 10/01
CONTINUED ON VEO FORM NUMBER:

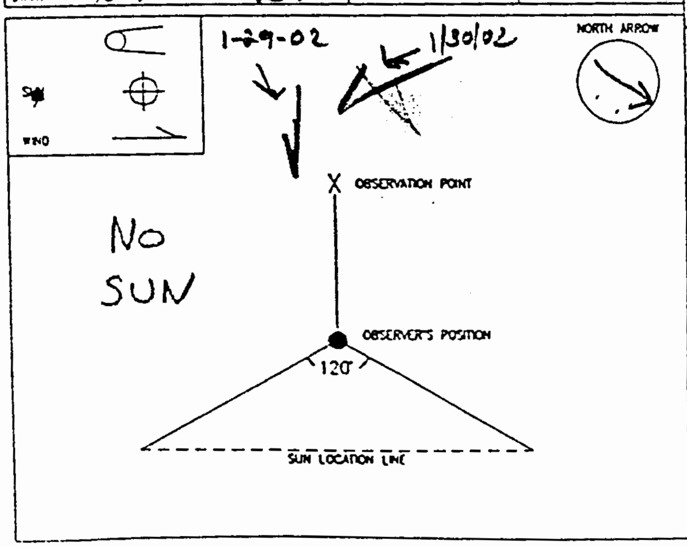
BLUEMOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

EAF Shop Roof

VISIBLE EMISSION OBSERVATION FORM

Down 1700 A59
Start 1005 on 1/30/02 next Day

	Start	End
COMPANY NAME	TIMKEN	
SITE	Faircrest EAF	
LOCATION		
CITY / STATE / ZIP	Canton / OH /	
PROCESS EQUIPMENT / OPERATING MODE	EAF / Normal	
CONTROL EQUIPMENT / OPERATING MODE	Baghouse / Normal	
DESCRIBE EMISSION POINT	Shop Roof + Openings	
HEIGHT ABOVE GROUND LEVEL	0-200'	0-200'
HEIGHT RELATIVE TO OBSERVER	0-200'	0-200'
DISTANCE FROM OBSERVER	0-200'	0-200'
DIRECTION FROM OBSERVER	West	West
VERTICAL ANGLE TO OBS. POINT	0 to 25°	0 to 25°
DIRECTION TO OBSERVATION POINT	East	East
DESCRIBE EMISSIONS	No Emissions	No Emissions
EMISSION COLOR	No Emissions	No Emissions
IF WATER DROPLET PLUME	ATTACHED ☐ DETACHED ☐ N/A ☑	
DISTANCE OF OBSERVATION POINT FROM EMISSION OUTLET	~600 ft +	~600 ft
DESCRIBE PLUME BACKGROUND	Gray Sky + Building	Gray Sky + Building
BACKGROUND COLOR	Gray	Gray
SKY CONDITIONS	Gray	Gray
WIND SPEED	~20 mph	~10 mph
WIND DIRECTION	West	North
AMBIENT TEMP	~50°F	~45°F
WET BULB TEMP	—	
HUMIDITY PERCENT	—	



START TIME 1635 STOP TIME 1046

	0	15	30	45		0	15	30	45
1	0	0	0	0	31	0	0	0	0
2		0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

OBSERVER'S NAME: Paul Jadlowiec

OBSERVER'S SIGNATURE: Paul Jadlowiec DATE: 1-29-02

ORGANIZATION: Blue Mountain Environmental Mgmt

CERTIFIED BY: The Pennsylvania State University DATE: 10/01

CONTINUED ON VEO FORM NUMBER

BLUEMOUNTAIN
ENVIRONMENTAL MANAGEMENT CORPORATION

A60

TIMKEN
FAIRCREST EAF

January 29, 2002

CO, NOX, AND THC
ONE MINUTE AVERAGES

Time		**CO 1-MINUTE AVERAGE (PPM)**	**NOX 1-MINUTE AVERAGE (PPM)**	**THC 1-MINUTE AVERAGE (PPM)**			
	8:18:42	6.1	2.6	1.6			
	8:19:42	6.6	2.7	1.7			
Run 1							
	8:20:42	8.1	2.6	1.7			
	8:21:42	8.2	2.5	1.8			
	8:22:42	27.8	8.2	2.1			
	8:23:42	61.3	6.4	2.1			
	8:24:42	22.6	4.6	1.8			
	8:25:42	19.4	4	2.2			
	8:26:42	31.4	3.1	1.8			
	8:27:42	18.5	3.1	1.8			
	8:28:42	30.5	3.9	2.3			
	8:29:42	42.3	4.1	2.2			
	8:30:42	52.5	4.1	2.3			
	8:31:42	84.1	3.8	2.5			
	8:32:42	95.5	3.7	2.4			
	8:33:42	91.7	3.3	2.5			
	8:34:42	92.8	3.2	2.5			
	8:35:42	131.5	2.6	2.8			
	8:36:42	219.2	2.5	2.5			
	8:37:42	197.2	2	2.4			
	8:38:42	184.4	2.2	2.2			
	8:39:42	165.5	1.8	2.1			
	8:40:42	249	1.6	2.3			
	8:41:42	169.6	1.7	2.3			
	8:42:42	191.8	1.7	2.5			
	8:43:42	211.3	1.7	2.9			
	8:44:42	230	1.9	2.3			
	8:45:42	154.8	1.7	1.8			
	8:46:42	162	1.8	1.8			
	8:47:42	250.6	2.6	1.9			
	8:48:42	175.3	3.2	2.4			
	8:49:42	38.7	20.3	1.8			
	8:50:42 EAF HOLDING				35.8	7.3	1.9
	8:51:42 EAF HOLDING				36.6	6.1	1.9
	8:52:42 EAF HOLDING				17.9	4.5	1.7
	8:53:42 EAF HOLDING				14	2.9	1.6
	8:54:42 EAF HOLDING				10.5	2.6	1.6
	8:55:42 EAF HOLDING				9.1	2.5	1.5
	8:56:42 EAF HOLDING				9.2	2.3	1.6
	8:57:42 EAF HOLDING				9.2	2.1	1.6
	8:58:42 EAF HOLDING				10.1	2	1.6
	8:59:42 EAF HOLDING				10.2	1.9	1.6

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9:00:42	EAF HOLDING			12.1	1.9	1.6
9:01:42	EAF HOLDING			13.2	1.9	1.6
9:02:42	EAF HOLDING			14.1	1.8	1.7
9:03:42	EAF HOLDING			15.2	1.7	1.7
9:04:42	EAF HOLDING			16.1	1.7	1.8
9:05:42	EAF HOLDING			17.2	1.6	1.8
9:06:42	EAF HOLDING			19.9	1.6	2.6
9:07:42	EAF HOLDING			40.6	1.6	3.1
9:08:42	EAF HOLDING			64	2	6.1
9:09:42	EAF HOLDING			103	2.6	3.6
9:10:42	143.4	1.9	3.4			
9:11:42	134.2	5	2.2			
9:12:42	62	3	2.1			
9:13:42	26.3	4.3	2.2			
9:14:42	103.9	4.3	3.1			
9:15:42	222.4	4	4.1			
9:16:42	226.2	2.6	3.5			
9:17:42	159.4	2.1	2.8			
9:18:42	145.9	2.4	2.3			
9:19:42	167.1	2.2	2.2			
9:20:42	184.7	1.8	2.1			
9:21:42	197.7	2	2.3			
9:22:42	209.8	2	2.1			
9:23:42	186.9	2.1	2			
9:24:42	142.3	2.3	1.9			
9:25:42	108.8	2.5	1.8			
9:26:42	96.2	2.5	1.7			
9:27:42	178.3	2.5	2			
9:28:42	260.1	2.6	2.1			
9:29:42	212.1	2.5	2.1			
9:30:42	214.2	2.5	2.1			
9:31:42	260.1	2.8	2.1			
9:32:42	245.3	2.8	1.9			
9:33:42	228.8	2.8	2.1			
9:34:42	153.2	3	2.2			
9:35:42	136.8	2.9	2.3			
9:36:42	120.9	2.7	2.1			
9:37:42	149.1	2.7	2.2			
9:38:42	98.8	4.1	2			
9:39:42	48.9	5.7	2			
9:40:42	23.2	3.6	2			
9:41:42	12.5	3.1	1.9			
9:42:42	9.5	2.2	1.8			
9:43:42	8.7	2.4	1.8			
9:44:42	8.3	2.6	1.8			
9:45:42	8.1	2.5	1.8			
9:46:42	8.1	2.5	1.8			
9:47:42	7.5	2.4	1.8			
9:48:42	7.2	2.3	1.8			
9:49:42	7.2	2.2	1.9			
9:50:42	8.2	2.3	1.9			
9:51:42	13.7	5.3	2.4			
9:52:42	38.4	6.3	5.3			
9:53:42	70.7	5.4	2.4			
9:54:42	18.8	4.4	2.8			
9:55:42	13.4	3.2	2.4			
9:56:42	13.1	1.7	2.5			

AC2

9:57:42	12	1.4	2.5
9:58:42	28	1.4	2.5
9:59:42	40.8	1.4	2.9
10:00:42	63.4	0.8	3.3
10:01:42	71.4	0.2	3
10:02:42	81.2	0.1	3
10:03:42	92.5	0	3
10:04:42	117.7	0	3
10:05:42	107.2	-0.1	2.7
10:06:42	117.3	0.1	3.4
10:07:42	153.6	0	3.3
10:08:42	127.9	0.3	3.1
10:09:42	155.6	0	3.1
10:10:42	128.8	0	3.1
10:11:42	113.2	0	2.8
10:12:42	98.5	0.1	2.9
10:13:42	102.1	0.2	3
10:14:42	92.7	0	3.4
10:15:42	93.5	0.1	3.4
10:16:42	71	10.8	2.7
10:17:42	15.7	10.9	2.8
10:18:42	33.4	3	3
10:19:42	47.6	3.8	3.2
10:20:42	25.6	3	3.7
10:21:42	23.9	2.5	3.1
10:22:42	44.1	2.9	3.1
10:23:42	47.9	2.5	3.8
10:24:42	110	2.6	4
10:25:42	124.5	2.4	3.6
10:26:42	116.6	1.7	3
10:27:42	148.1	1.1	2.7
10:28:42	137.5	0.3	2.2
10:29:42	141.9	0.2	2
10:30:42	73.9	0.5	2.2
10:31:42	91.2	0.6	2.1
10:32:42	89	0.1	2
10:33:42	155.2	0.6	2
10:34:42	228.1	0.2	2
10:35:42	246.8	0.1	2
10:36:42	211	0.2	2
10:37:42	251.3	0	1.9
10:38:42	223.2	0.1	2
10:39:42	204.9	0.2	1.9
10:40:42	214	0.4	2
10:41:42	185.3	0.2	2.1
10:42:42	180.5	0.4	2
10:43:42	193.4	0.4	2
10:44:42	212.2	0.5	2.1
10:45:42	298.8	0.8	2.1
10:46:42	213.4	0.9	2.1
10:47:42	192.4	0.6	2.2
10:48:42	122.9	1	2.1
10:49:42	66.2	1.7	2.1
10:50:42	20.9	1	1.9
10:51:42	14.1	0.6	1.8
10:52:42	11	0.3	1.7
10:53:42	9.8	0.6	1.7

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	10:54:42	12.2	0.8	1.6
	10:55:42	8.2	0.5	1.6
	10:56:42	7.2	0.7	1.6
	10:57:42	7.2	0.5	1.6
Run 1 Avg		**109.8**	**2.3**	**2.4**
	12:18:46	9.1	0.9	1.7
	12:19:46	9.1	0.7	1.7
	12:20:46	9.1	0.7	1.8
Run 2				
	12:21:46	9.1	0.9	1.9
	12:22:46	10	2.2	2.2
	12:23:46	42.3	6.1	3.1
	12:24:46	207.2	5.2	2.7
	12:25:46	45.9	3.4	2.9
	12:26:46	44.4	2.9	2.6
	12:27:46	49.3	2.4	2.6
	12:28:46	32.9	2.4	2.5
	12:29:46	63.4	1.9	2.9
	12:30:46	355.3	2.1	3.7
	12:31:46	284.6	6.5	2.6
	12:32:46	145	0.9	2.1
	12:33:46	153.5	0.8	2
	12:34:46	196	0.8	2.1
	12:35:46	196	0.6	2.1
	12:36:46	187.7	0.4	2
	12:37:46	223.6	0.4	2
	12:38:46	199.2	0.3	2
	12:39:46	180	0.6	2
	12:40:46	226.3	0.9	1.8
	12:41:46	147.5	0.3	1.8
	12:42:46	145.5	0.3	1.9
	12:43:46	135	0.4	1.9
	12:44:46	86.9	1.1	1.8
	12:45:46	42.8	13.7	1.9
	12:46:46	21.5	8.2	2
	12:47:46	135.3	5.8	2.1
	12:48:46	70.9	3.4	2.1
	12:49:46	119.8	3	2.4
	12:50:46	89.5	3.2	3
	12:51:46	76.5	2.9	3.2
	12:52:46	101.7	2.4	2.9
	12:53:46	66.5	2.3	2.3
	12:54:46	35.2	1.3	2.3
	12:55:46	63.9	1.8	2.3
	12:56:46	119.1	2.2	2.3
	12:57:46	78.6	2.3	2.3
	12:58:46	68.4	1.6	2.4
	12:59:46	90.9	1.9	2.7
	13:00:46	119	1.7	2.5
	13:01:46	120.3	1.1	2.2
	13:02:46	156.1	1.1	2.1
	13:03:46	189	1.5	2
	13:04:46	186.8	1.4	2
	13:05:46	247.5	1.3	2.1
	13:06:46	330.9	2.3	2.1

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13:07:46	304.4	2	2
13:08:46	307.1	1.9	2
13:09:46	353.4	1.7	2
13:10:46	333.4	1.9	2.1
13:11:46	280.4	1.7	1.9
13:12:46	267.1	2	2
13:13:46	237.1	2.3	1.7
13:14:46	428.2	3.2	1.7
13:15:46	389.3	2	1.7
13:16:46	229.1	2	1.7
13:17:46	294.2	2.2	1.8
13:18:46	239	2	1.8
13:19:46	250.4	1.7	2.3
13:20:46	312.7	2.8	2
13:21:46	329	2.2	2.6
13:22:46	407.1	2.8	2.6
13:23:46	323.1	2.6	2.4
13:24:46	282.5	3.2	2.1
13:25:46	93.3	3.5	1.8
13:26:46	277.4	1.9	1.7
13:27:46	216.5	6.7	1.7
13:28:46	39.7	12.8	1.6
13:29:46	25.8	1.5	1.6
13:30:46	18.3	1.6	1.6
13:31:46	17.3	1.8	1.7
13:32:46	16.1	1.7	1.6
13:33:46	14.3	1.4	1.6
13:34:46	14.1	1.5	1.7
13:35:46	14.1	1.4	1.6
13:36:46	13.1	1.2	1.6
13:37:46	13.1	1.1	1.6
13:38:46	14.1	1.2	1.7
13:39:46	16.6	6.3	7
13:40:46	31.2	4.7	4.7
13:41:46	48.3	4.6	2.6
13:42:46	23.1	4.3	2.3
13:43:46	21.6	3.7	2.1
13:44:46	20.9	3.3	2.1
13:45:46	26.6	2.8	2.1
13:46:46	33.8	2.5	2.1
13:47:46	41.9	2	2
13:48:46	55.5	1.5	2
13:49:46	47.4	0.9	2.1
13:50:46	45	0.7	2
13:51:46	63.4	0.6	2
13:52:46	63.2	0.5	2
13:53:46	41.9	2	2
13:54:46	55.5	1.5	2
13:55:46	47.4	0.9	2.1
13:56:46	45	0.7	2
13:57:46	41.9	2	2
13:58:46	55.5	1.5	2
13:59:46	47.4	0.9	2.1
14:00:46	45	0.7	2
14:01:46	63.4	0.6	2
14:02:46	63.2	0.5	2
14:03:36	45.1	2.5	2.3

	14:04:36	80	2.3	2.2
	14:05:36	95.5	2.2	2.1
	14:06:36	196.8	1	2.1
	14:07:36	226.6	1.2	1.9
	14:08:36	149	2	1.9
	14:09:36	51.3	1.6	1.8
	14:10:36	107.4	0.5	1.9
	14:11:36	128.8	0.5	1.9
	14:12:36	175.8	0.4	1.9
	14:13:36	128.3	0.3	1.9
	14:14:36	106.9	0.5	1.9
	14:15:36	153.5	0.8	1.9
	14:16:36	146.7	1.3	2
	14:17:36	251.1	0.9	2.1
	14:18:36	277.2	0.9	2.2
	14:19:36	296	0.6	2.1
	14:20:36	256.7	0.8	1.8
	14:21:36	209.3	0.4	1.8
	14:22:36	159.7	0.8	1.6
	14:23:36	210.7	0.6	1.6
	14:24:36	149.3	0.6	1.8
	14:25:36	154.6	0.5	1.9
	14:26:36	176.6	1.8	2.3
	14:27:36	188.7	0.8	2
	14:28:36	156.7	2.7	2.1
	14:29:36	214.2	2.4	2
	14:30:36	66.7	1	1.8
	14:31:36	97.6	1	1.9
	14:32:36	150.4	1.3	2.2
	14:33:36	137.9	0.8	2
	14:34:36	77.9	1.1	2.2
	14:35:36	26.4	11.2	2.1
	14:36:36	13.4	1.4	1.9
	14:37:36	11.4	1.4	1.8
	14:38:36	11.1	1.8	1.8
	14:39:36	10.4	1.3	1.7
	14:40:36	9.2	1.6	1.7
	14:41:36	9.1	1.5	1.7
	14:42:36	9.1	1.4	1.6
	14:43:36	8.2	1.1	1.6
	14:44:36	8.1	1.3	1.6
Run 2 Avg		**128.0**	**2.1**	**2.1**
	16:35:52	5.1	0.9	1.4
	16:36:52	5.5	1	1.4
	16:37:52	5.2	0.9	1.4
Run 3				
	16:38:52	5.2	0.8	1.4
	16:39:52	12.5	5.5	1.7
	16:40:52	211.9	4.2	1.9
	16:41:52	36.1	2.7	1.9
	16:42:52	44.8	2.1	1.9
	16:43:52	24.2	1.7	1.9
	16:44:52	25.7	1.8	2
	16:45:52	33	1.4	1.9

A66

16:46:52	30.5	1.1	1.8			
16:47:52	38.8	1.1	1.8			
16:48:52	39.6	0.7	1.8			
16:49:52	58.9	0.6	1.7			
16:50:52	98.2	0.5	1.8			
16:51:52	122.7	1.2	1.9			
16:52:52	139.7	0.5	1.9			
16:53:52	143.4	0.6	2			
16:54:52	153	0.5	2.1			
16:55:52	248.6	2.2	2.1			
16:56:52	299.8	0.9	1.8			
16:57:52	201.8	0.8	1.6			
16:58:52	143	0.8	1.6			
16:59:52	128.2	1.1	1.6			
17:00:52	61.3	1.1	1.6			
17:01:52	EAF HOLDING			56.6	3.4	1.6
17:02:52	EAF HOLDING			25	10.4	1.7
17:03:52	EAF HOLDING			420.5	6.6	2.2
17:04:52	EAF HOLDING			45.5	3.7	1.8
17:05:52	EAF HOLDING			23.6	2	1.7
17:06:52	EAF HOLDING			16.9	1.4	1.6
17:07:52	EAF HOLDING			11.7	1.1	1.6
17:08:52	EAF HOLDING			9.1	0.8	1.6
17:09:52	EAF HOLDING			9.2	0.6	1.6
17:10:52	EAF HOLDING			9.2	0.5	1.8
17:11:52	EAF HOLDING			9.2	0.6	1.8
17:12:52	EAF HOLDING			9.2	0.6	1.8
17:13:52	EAF HOLDING			8.4	0.6	1.8
17:14:52	EAF HOLDING			7.4	0.8	1.7
17:15:52	EAF HOLDING			7.2	0.8	1.7
17:16:52	EAF HOLDING			7.2	0.8	1.7
17:17:52	EAF HOLDING			7.2	0.9	1.7
17:18:52	EAF HOLDING			7	1.1	1.7
17:19:52	EAF HOLDING			7.1	1.3	1.7
17:20:52	7.2	1.6	1.7			
17:21:52	18.9	6.6	2.3			
17:22:52	127	2.5	2.3			
17:23:52	135.9	3.1	2.4			
17:24:52	207	3.5	2.4			
17:25:52	156.6	3.6	2.5			
17:26:52	268.2	2.9	2.2			
17:27:52	207.8	2.8	2			
17:28:52	186.6	2.5	2.2			
17:29:52	202.5	2.4	2			
17:30:52	166.9	2.7	1.9			
17:31:52	184.3	2.7	1.9			
17:32:52	159.6	3.1	1.8			
17:33:52	171.2	3.1	1.8			
17:34:52	155	3	1.8			
17:35:52	152.2	3.5	1.8			
17:36:52	250.1	3.3	2			
17:37:52	320.9	3.1	2			
17:38:52	295	3.1	1.9			
17:39:52	300.6	3.2	2			
17:40:52	261.2	3	1.9			
17:41:52	309.2	3	1.9			
17:42:52	185.9	3.3	1.9			

AG7

17:43:52	110.4	3.1	1.9			
17:44:52	86.1	3.2	1.8			
17:45:52	163.3	3.1	1.9			
17:46:52	89.9	3.8	1.8			
17:47:52	64.1	4	1.9			
17:48:52	93.2	3.1	1.9			
17:49:52	177.4	3.5	1.9			
17:50:52	186	4.5	1.9			
17:51:52	80.6	5	1.8			
17:52:52	26.2	10.7	1.8			
17:53:52	16.7	33.2	1.8			
17:54:52	13	6.1	1.7			
17:55:52	11.3	3.8	1.7			
17:56:52	11.1	3.2	1.7			
17:57:52	10.5	3.3	1.7			
17:58:52	10.2	3	1.7			
17:59:52	8.6	3.1	1.7			
18:00:52	7.9	2.5	1.7			
18:01:52	7.2	2.2	1.6			
18:02:52	13.9	6.4	2			
18:03:52	18.8	5.6	2			
18:04:52	18.7	4.3	1.9			
18:05:52	15.2	3.4	1.9			
18:06:52	12.2	4	2.2			
18:07:52	12.6	5.5	2.3			
18:08:52	25.5	4.6	2.5			
18:09:52	71.2	4.6	2.7			
18:10:52	117.3	4.5	2.6			
18:11:52	138.4	4.2	2.6			
18:12:52	107.6	4.2	2.5			
18:13:52	132.4	3.4	2.5			
18:14:52	121.5	3	2.2			
18:15:52	91.6	2.9	2.2			
18:16:52	92.3	2.8	2.2			
18:17:52	98.8	3.1	2.3			
18:18:52	113.7	5	2.3			
18:19:52	75.5	8.1	2.2			
18:20:52	46.8	3.6	1.9			
18:21:52	51.6	2.9	1.8			
18:22:52	63	2.9	1.8			
18:23:52	49.8	3.1	1.8			
18:24:52	42.5	3	1.8			
18:25:52	78.5	4.6	1.8			
18:26:52	93.2	17.4	1.8			
18:27:52				49.2	8.1	2
18:28:52				39.5	6.1	2.1
18:29:52				38.6	5.5	2
18:30:52	16.6	3.7	2.2			
18:31:52	18.5	3.5	2.4			
18:32:52	24.7	4	2.4			
18:33:52	27.9	3.6	2.3			
18:34:52	31.2	3.9	2.4			
18:35:52	55.3	3.4	2.5			
18:36:52	97.9	2	2.3			
18:37:52	137.4	2.2	2.2			
18:38:52	209.5	2.1	2.2			
18:39:52	221.7	2.2	2.2			

AC8

	18:40:52	237.5	2.2	2.2
	18:41:52	238.5	2.3	2.1
	18:42:52	217.4	2.6	2.1
	18:43:52	223.7	2.9	2.3
	18:44:52	210.3	2.9	2.3
	18:45:52	312	2.9	2.4
	18:46:52	419.5	2.7	2.5
	18:47:52	427.8	3.1	2.4
	18:48:52	420.8	3	2.4
	18:49:52	339.9	3.2	2
	18:50:52	291.8	3.3	1.9
	18:51:52	246.9	2.7	1.9
	18:52:52	221.4	2.7	1.9
	18:53:52	134	2.6	1.8
	18:54:52	276.6	3.6	1.9
	18:55:52	515.4	3	2.4
	18:56:52	335.2	3.9	2
	18:57:52	228.4	3	1.9
	18:58:52	149.4	3.5	1.8
	18:59:52	209.7	2.9	1.8
	19:00:52	130.8	2.7	1.8
	19:01:52	69.9	4	1.8
	19:02:52	17.8	2.5	1.7
	19:03:52	13.6	2.8	1.7
	19:04:52	13.1	3.1	1.6
	19:05:52	12.2	2.5	1.7
	19:06:52	11.4	2.6	1.6
	19:07:52	11.1	2.5	1.6
	19:08:52	10.1	2.3	1.6
	19:09:52	10.1	2.3	1.6
Run 3 Avg		**126.2**	**3.4**	**2.0**
	19:10:52	10.9	-0.5	15
	19:11:52	0.7	7.2	2.6
	19:12:52	0.4	43.4	0
	19:13:52	-1.9	-0.3	0.1
	19:14:52	4.5	-0.3	0.2
	19:15:52	257.3	-0.7	0
	19:16:52	297.4	-0.6	0
	19:17:52	9	-0.7	0

APPENDIX B

Analytical Reports

EPA METHOD 5
ANALYTICAL PARTICULATE DATA

Client: Timken
Project No: 516
Location: Faircrest EAF Baghouse

Sample Date: 2/22-28/02
Analysis Date: 2/7/02
Technician: PJ

	UNIT	RUN 1	RUN 2	RUN 3
ACETONE RINSE				
Acetone rinse container No.		132	124	134
Density of acetone (pa)	g/ml	0.7857	0.7857	0.7857
Acetone rinse volume (Vaw)	ml	100	100	100
Acetone blank (Ca)	mg/g	0.003	0.003	0.003
Wa =(Ca) (Vaw) (pa)	mg	0.24	0.24	0.24
Average gross wt.	mg	105211.6	102008.9	113042.5
Average tare wt.	mg	105201.4	101994.2	113006.0
Acetone blank wt. (Wa)	mg	0.2	0.2	0.2
Wt. of particulate in acetone rinse (Ma)	mg	10.0	14.5	36.3
FILTER				
Filter No.		153	152	149
Average gross wt.	mg	333.2	330.7	334.2
Average tare wt.	mg	333.0	330.6	333.8
Wt. of particulate on filter (Mf)	mg	0.2	0.1	0.4
FINAL WEIGHT				
Wt. of particulate in acetone rinse (Ma)	mg	10.0	14.5	36.3
Wt. of particulate on filter (Mf)	mg	0.2	0.1	0.4
TOTAL WT OF PARTICULATE (Mn)	**mg**	**10.2**	**14.6**	**36.7**

EPA METHOD 5
BLANK ANALYTICAL DATA FORM

Client: Timken
Project No: 516
Location: Faircrest EAF Baghouse

Sample Date: 1/23-28/02
Analysis Date: 2/7/02
Technician: PJ

ACETONE BLANK	UNIT	
Acetone rinse container No.	.	133
Density of acetone (pa)	g/ml	0.7857
Acetone blank volume (Va)	ml	200
Average gross wt.	mg	109049.2
Average tare wt.	mg	109048.8
Weight of blank (Ma)	mg	0.4
Acetone blank wt. (Ca=Ma/(Va x Pa))	mg	0.003

Note:
In no case should a blank resdue greater than 0.01 mg/g or 0.001% of the blank weight be subtracted from the sample weight.

Summary of Lead Analysis

Element	Run 1 Total µg	Run 2 Total µg	Run 3 Total µg	Blank Total µg	Run 3 Spike Recovery
Lead, Average	317.3	279.0	294.3	0.249	91%
Analysis, RSD	0.4%	1.1%	0.5%	0.8%	

Summary of Total Fluoride Analysis

Sample	Fluoride Total mg	Spike Recovery
Run 2	69.3	97%
Run 3	24.2	108%
Run 4	22.4	102%
Run 5	29.6	94%
Blank	< 0.1	99%

Summary of Condensible Particulate Analysis

Fraction	Run 1 Catch, mg*	Run 2 Catch, mg*	Run 3 Catch, mg*	Water Blank mg/ml	$MeCl_2$ Blank mg/ml
Inorganic	8.4	8.7	10.7	0.001	
Organic	1.8	5.7	2.6		0.036
Total	10.2	14.4	13.3		

* Results corrected for water and methylene chloride blanks

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AIR QUALITY SERVICES, INC.

4527 Clairton Boulevard
Pittsburgh, PA 15236
(412) 881-5630

TABLE II
ANALYSIS OF SAMPLES FOR SULFUR DIOXIDE CONTENT
BLUE MOUNTAIN ENVIRONMENTAL MANAGEMENT, INC.
1191 PITTSBURGH ROAD
VALENCIA, PA 16059
SAMPLES RECEIVED: FEBRUARY 01, 2002

BMEM SAMPLE ID	AQS LABORATORY NUMBER	SAMPLE VOLUME MILLILITERS	SULFUR DIOXIDE MG/ML	SULFUR DIOXIDE TOTAL MG
RUN #1	AQS 86378	320	0.0902	28.9
RUN #2	AQS 86379	270	0.0676	18.3
RUN #3	AQS 86380	285	0.0377	10.7
H_2O_2 BLANK	86385	52	0.0006	
AUDIT C-8537	86381			289 MG/DSCM

THE DATA HAS BEEN CORRECTED FOR THE BLANK.
THE SAMPLES WERE ANALYZED BY ION CHROMATOGRAPHY

Nancy M Kodska
AIR QUALITY SERVICES, INC.

JOB 7183
REPORTED: FEBRUARY 08, 2002

The presented data has been analyzed according to approved protocol and is certified to be complete and accurate.

B 5

AIR QUALITY SERVICES, INC.

4527 Clairton Boulevard
Pittsburgh, PA 15236
(412) 881-5630

TABLE I
ANALYSIS OF AIR BAG SAMPLES FOR METHANE AND ETHANE CONTENT
BLUE MOUNTAIN ENVIRONMENTAL MANAGEMENT, INC.
1191 PITTSBURGH ROAD
VALENCIA, PA 16059
SAMPLE RECEIVED: FEBRUARY 01, 2002

BMEM SAMPLE ID	AQS LABORATORY NUMBER	METHANE PPM	ETHANE PPM
RUN #1	AQS 86382	0.37	<0.1
RUN #2	AQS 86383	0.36	<0.1
RUN #3	AQS 86384	0.38	<0.1

THE SAMPLES WERE ANALYZED BY GAS CHROMATOGRAPHY USING A FLAME IONIZATION DETECTOR AS DESCRIBED IN EPA METHOD 18.

Nancy M. Kodsko
AIR QUALITY SERVICES, INC.

JOB 7183
REPORTED: FEBRUARY 08, 2002

The presented data has been analyzed according to approved protocol and is certified to be complete and accurate.

APPENDIX C

CALCULATIONS

TIMKEN
FAIRCREST PLANT
EAF SHOP BAGHOUSE
JANUARY 22, 23, 24, 25, 28, 29 AND 30, 2002

BAGHOUSE INLET GAS FLOWS

SYMBOL	DESCRIPTION	Run No. 1	Run No. 2	Run No. 3	Run No. 4	Run No. 5	Run No. 6	Run No. 7	Run No. 8	Run No. 9	Run No. 10	Average
SQRT(dP)	Average of square roots of pitot pressure, in. water	1.214	1.173	1.191	1.193	1.167	1.173	1.167	1.167	1.209	1.171	1.183
Ts	Average stack temperature, deg. F	76.5	115.5	104.7	120.3	134.5	128.0	134.5	134.5	110.3	128.0	118.7
CO_2	CO_2 in stack gas, %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
O_2	O_2 in stack gas, %	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
$CO+N_2$	CO and N_2 in stack gas, %	79.00	79.00	79.00	79.00	79.00	79.00	79.00	79.00	79.00	79.00	79.00
Pbar	Barometric pressure, in. Hg.	29.22	28.95	28.78	29.07	28.82	28.82	28.82	28.82	29.01	29.19	28.95
Pa	Static pressure, in. water	-8.0	-7.3	-6.2	-7.2	-9.3	-7.0	-9.3	-9.3	-7.4	-7.7	-7.9
Ps	Stack pressure (absolute), in. Hg.	28.63	28.41	28.32	28.54	28.14	28.31	28.14	28.14	28.47	28.62	28.37
Cp	Pitot correction factor, dimensionless	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Ds	Diameter of stack, in.	212.0	212.0	212.0	212.0	212.0	212.0	212.0	212.0	212.0	212.0	212.0
Bws	Moisture content of the gas stream, %	1.6	1.6	1.4	1.3	1.6	1.4	1.3	3.4	1.5	1.7	1.7
	CALCULATED VALUES											
As	Area of the stack, sq. ft.	245.131	245.131	245.131	245.131	245.131	245.131	245.131	245.131	245.131	245.131	245.131
Md	Dry molecular weight of stack gas, dry basis, lb/lb-mole	28.84	28.84	28.84	28.84	28.84	28.84	28.84	28.84	28.84	28.84	28.840
Ms	Molecular weight of stack gas, wet basis, lb/lb-mole	28.67	28.67	28.69	28.70	28.67	28.69	28.70	28.47	28.68	28.66	28.66
	GAS FLOW											
Vs	Stack velocity, ft/sec	70.48	70.80	71.30	72.11	71.94	71.68	71.91	72.20	72.56	71.19	71.62
Qs	Stack gas flow, acfm	1036612	1041319	1048673	1060586	1058086	1054262	1057644	1061910	1067204	1047055	1053335
Qsd	Stack gas flow, dscfm	960643	892743	915225	908543	869564	883055	871851	856742	925929	884190	896849
	Corresponding Emission Test	Run 1-Fl	Run 2-Fl Run 1-Pb	Run 1-PM Run 2-Pb	Run 2-PM Run 3-Pb	Run 3-PM Run 3-Fl	Run 1-Gas	Run 2-Gas	Run 3-Gas	Run 4-Fl	Run 5-Fl	

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TIMKEN
FAIRCREST PLANT
EAF SHOP BAGHOUSE
JANUARY 24, 25 AND 28, 2002

PARTICULATE/CONDENSIBLE/PM10 EMISSIONS

SYMBOL	DESCRIPTION	Run No. 1	Run No. 2	Run No. 3	Average
Theta	Duration of test, min.	250	250	250	250
Vm	Dry sample volume (meter conditions), in. water	224.872	224.650	224.872	224.798
dH	Orifice pressure drop, in. water	2.50	2.50	2.57	2.52
Ts	Average compartment temperature, deg. F	109.8	121.4	120.9	117.4
Tm	Average dry gas meter temperature, deg. F	53.9	55.5	79.0	62.8
CO_2	CO_2 in stack gas, %	0.0	0.0	0.0	0.0
O_2	O_2 in stack gas, %	21.0	21.0	21.0	21.0
$CO+N_2$	CO and N_2 in stack gas, %	79.0	79.0	79.0	79.0
Pbar	Barometric pressure, in. Hg.	28.71	29.07	29.07	28.95
Y	Dry gas meter correction factor	0.989	0.989	0.997	0.992
Dn	Diameter of nozzle, in.	0.6280	0.6280	0.6230	0.6263
Vlc	Volume of liquid collected in impingers and silica gel, ml	66.7	61.9	60.4	63.0
Mn	Total particulate catch (fronthalf), mg	10.2	14.6	36.7	20.50
Cpin	Inorganic condensible particulate catch, mg	8.4	8.7	10.7	9.27
Cpor	Organic condensible particulate catch, mg	1.8	5.7	2.6	3.37
Cptot	Total condensible particulate catch (backhalf), mg	10.2	14.4	13.3	12.63
Qs	Inlet gas flow, acfm	1048820	1060586	1058086	1060586
Qsd	Inlet gas flow, dscfm	914425	908543	869564	908543
Ts	Inlet gas temperature, deg. F	104.7	120.3	134.5	119.8
Ao	Outlet exhaust total area, sq. ft.	2272	2272	2272	2272
Vs(O)	Avg. velocity at outlet measurment site, ft/sec.	7.76	7.79	7.58	7.71
PR	Production rate, tons/hr	136.08	143.96	174.01	151.35
An	Area of the nozzle, sq. ft.	0.00215	0.00215	0.00212	0.00214
Md	Dry molecular weight of stack gas, dry basis, lb/lb-mole	28.84	28.84	28.84	28.84
Vw(std)	Volume of liquid collected, cu. ft.	3.140	2.914	2.843	2.97
Ms	Molecular weight of stack gas, wet basis, lb/lb-mole	28.69	28.70	28.70	28.70
Vm(std)	Dry sample volume (standard conditions), dscf	220.575	222.410	214.684	219.223
Bws	Moisture content of the gas stream, %	1.4	1.3	1.3	1.3
I	Isokinetic ratio, %	100.6	101.7	102.2	101.5
	PARTICULATE EMISSIONS (Total Fronthalf)				
C's	Particulate concentration, gr/dscf	0.0007	0.0010	0.0026	0.0015
E (a)	Particulate emission rate, lb/hr	6	8	20	11
E (b)	Particulate emission rate, lb/ton	0.041	0.055	0.113	0.069
	INORGANIC CONDENSIBLE PARTICULATE EMISSIONS				
C's	Inorganic condensible particulate concentration, gr/dscf	0.0006	0.0006	0.0008	0.0007
E (a)	Inorganic condensible particulate emission rate, lb/hr	5	5	6	5
E (b)	Inorganic condensible particulate emission rate, lb/ton	0.03	0.03	0.03	0.03
	ORGANIC CONDENSIBLE PARTICULATE EMISSIONS				
C's	Organic condensible particulate concentration, gr/dscf	0.0001	0.0004	0.0002	0.0002
E (a)	Organic condensible particulate emission rate, lb/hr	1	3	1	2
E (b)	Organic condensible particulate emission rate, lb/ton	0.01	0.02	0.01	0.01
	TOTAL CONDENSIBLE PARTICULATE EMISSIONS (Total Backhalf)				
C's	Total condensible particulate concentration, gr/dscf	0.0007	0.0010	0.0010	0.0009
E (a)	Total condensible particulate emission rate, lb/hr	6	8	7	7
E (b)	Total condensible particulate emission rate, lb/ton	0.04	0.05	0.04	0.04
	TOTAL PM10 EMISSIONS (Total Fronthalf and Backhalf)				
C's	PM10 concentration, gr/dscf	0.0014	0.0020	0.0036	0.0023
E (a)	PM10 emission rate, lb/hr	11	16	27	18
E (b)	PM10 emission rate, lb/ton	0.08	0.11	0.15	0.11

C3

TIMKEN
FAIRCREST PLANT
EAF SHOP BAGHOUSE
JANUARY 23, 24 AND 25, 2002

LEAD EMISSIONS

SYMBOL	DESCRIPTION	Run No. 1	Run No.2	Run No. 3	Average
Theta	Duration of test, min.	250	250	250	250
Vm	Dry sample volume (meter conditions), in. water	235.513	226.580	228.126	230.073
dH	Orifice pressure drop, in. water	2.16	2.63	2.57	2.45
Ts	Average compartment temperature, deg. F	125.7	108.7	120.9	118.4
Tm	Average dry gas meter temperature, deg. F	71.1	58.1	79.0	69.4
CO_2	CO_2 in stack gas, %	0.0	0.0	0.0	0.0
O_2	O_2 in stack gas, %	21.0	21.0	21.0	21.0
$CO+N_2$	CO and N_2 in stack gas, %	79.0	79.0	79.0	79.0
Pbar	Barometric pressure, in. Hg.	28.95	28.71	29.07	28.91
Y	Dry gas meter correction factor	0.989	0.997	0.997	0.994
Dn	Diameter of nozzle, in.	0.6280	0.6230	0.6230	0.6247
Vlc	Volume of liquid collected in impingers and silica gel, ml	86.9	71.2	60.4	72.8
Mn	Total lead catch, ug	317.3	279.0	294.3	296.9
Qs	Inlet gas flow, acfm	1041319	1048673	1060586	1050193
Qsd	Inlet gas flow, dscfm	892743	915225	908543	905504
Ts	Inlet gas temperature, deg. F	115.5	104.7	120.3	113.5
Ao	Outlet exhaust total area, sq. ft.	2272	2272	2272	2272
Vs(O)	Avg. velocity at outlet measurment site, ft/sec.	7.77	7.75	7.79	7.77
PR	Production rate, tons/hr	126.83	118.02	143.96	129.60
An	Area of the nozzle, sq. ft.	0.00215	0.00212	0.00212	0.00213
Md	Dry molecular weight of stack gas, dry basis, lb/lb-mole	28.84	28.84	28.84	28.84
Vw(std)	Volume of liquid collected, cu. ft.	4.090	3.351	2.843	3.43
Ms	Molecular weight of stack gas, wet basis, lb/lb-mole	28.64	28.68	28.70	28.67
Vm(std)	Dry sample volume (standard conditions), dscf	225.195	222.306	217.790	221.764
Bws	Moisture content of the gas stream, %	1.8	1.5	1.3	1.5
I	Isokinetic ratio, %	104.9	102.8	100.9	102.9

LEAD EMISSIONS

SYMBOL	DESCRIPTION	Run No. 1	Run No.2	Run No. 3	Average
C's	Lead concentration, gr/dscf	2.17E-05	1.93E-05	2.08E-05	2.06E-05
E (a)	Lead emission rate, lb/hr	0.17	0.15	0.16	0.16
E (b)	Lead emission rate, lb/ton	0.0013	0.0013	0.0011	0.0012

C4

TIMKEN
FAIRCREST PLANT
EAF SHOP BAGHOUSE
JANUARY 24, 25 AND 28, 2002

FLUORIDE EMISSIONS

SYMBOL	DESCRIPTION	Run No. 3	Run No.4	Run No. 5	Average Runs 3, 4 &5	Run No. 2
Theta	Duration of test, min.	250	250	250	250	250
Vm	Dry sample volume (meter conditions), in. water	224.656	229.590	230.140	228.129	230.343
dH	Orifice pressure drop, in. water	2.56	2.56	2.60	2.57	2.73
Ts	Average compartment temperature, deg. F	129.6	121.2	154.4	135.1	122.9
Tm	Average dry gas meter temperature, deg. F	81.6	71.9	73.2	75.6	66.5
CO_2	CO_2 in stack gas, %	0.0	0.0	0.0	0.0	0.0
O_2	O_2 in stack gas, %	21.0	21.0	21.0	21.0	21.0
$CO+N_2$	CO and N_2 in stack gas, %	79.0	79.0	79.0	79.0	79.0
Pbar	Barometric pressure, in. Hg.	29.04	29.04	29.19	29.09	28.95
Y	Dry gas meter correction factor	0.989	0.989	0.989	0.989	0.997
Dn	Diameter of nozzle, in.	0.6280	0.6230	0.6230	0.6247	0.6230
Vlc	Volume of liquid collected in impingers and silica gel, ml	86.2	72.0	80.8	79.7	76.3
Mn	Total fluoride catch, mg	24.2	22.4	29.6	25.4	69.3
Qs	Inlet gas flow, acfm	1058086	1067204	1047055	1060586	1041319
Qsd	Inlet gas flow, dscfm	869564	925929	884190	908543	892743
Ts	Inlet gas temperature, deg. F	134.5	110.3	128.0	124.3	115.5
Ao	Outlet exhaust total area, sq. ft.	2272	2272	2272	2272	2272
Vs(O)	Avg. velocity at outlet measurment site, ft/sec.	7.70	7.98	8.03	7.90	7.74
PR	Production rate, tons/hr	140.11	162.94	138.59	147.21	126.83
An	Area of the nozzle, sq. ft.	0.00215	0.00212	0.00212	0.00213	0.00212
Md	Dry molecular weight of stack gas, dry basis, lb/lb-mole	28.84	28.84	28.84	28.84	28.84
Vw(std)	Volume of liquid collected, cu. ft.	4.057	3.389	3.803	3.75	3.591
Ms	Molecular weight of stack gas, wet basis, lb/lb-mole	28.63	28.68	28.66	28.66	28.67
Vm(std)	Dry sample volume (standard conditions), dscf	211.513	220.100	221.241	217.618	224.295
Bws	Moisture content of the gas stream, %	1.9	1.5	1.7	1.7	1.6
I	Isokinetic ratio, %	99.9	99.9	105.2	101.7	105.7
	FLUORIDE EMISSIONS					
C's	Fluoride concentration, gr/dscf	0.0018	0.0016	0.0021	0.0018	0.0048
E(a)	Fluoride emission rate, lb/hr	13.1	12.4	15.6	13.7	36.4
E(b)	Fluoride emission rate, lb/ton	0.09	0.08	0.11	0.09	0.29

TIMKEN
FAIRCREST PLANT
EAF SHOP BAGHOUSE
January 29, 2002

SULFUR DIOXIDE EMISSIONS

SYMBOL	DESCRIPTION	Run No. 1	Run No. 2	Run No. 3	Average
Theta	Duration of test, min.	139	144	138	140
Vm	Dry sample volume (meter conditions), in. water	113.587	111.782	106.387	110.585
dH	Orifice pressure drop, in. water	2.3	2.0	2.0	2.1
Tm	Average dry gas meter temperature, deg. F	73.9	80.2	77.6	77.2
Pbar	Barometric pressure, in. Hg.	28.92	29.02	29.04	28.99
Y	Dry gas meter correction factor	0.997	0.997	0.997	0.997
Vlc	Volume of liquid collected in impingers and silica gel, ml	32.7	30.1	75.9	46.2
Mn	Total sulfur dioxide catch, mg	28.9	18.3	10.7	19.3
Qs	Inlet gas flow, acfm	1054262	1057644	1061910	1060586
Qsd	Inlet gas flow, dscfm	883055	871851	856742	908543
PR	Production rate, tons/hr	150.33	150.62	159.53	153.49
Vw(std)	Volume of liquid collected, cu. ft.	1.539	1.417	3.573	2.18
Vm(std)	Dry sample volume (standard conditions), dscf	108.841	106.149	101.581	105.524
Bws	Moisture content of the gas stream, %	1.4	1.3	3.4	2.0
	SULFUR DIOXIDE EMISSIONS				
C's	Sulfur dioxide concentration, mg/dscf	0.0041	0.0027	0.0016	0.0028
E(a)	Sulfur dioxide emission rate, lb/hr	31	20	12	21
E(b)	Sulfur dioxide emission rate, lb/ton	0.21	0.13	0.07	0.14
PPMv	Sulfur dioxide concentration, ppmv	3.5	2.3	1.4	2.4

C 6

TIMKEN
FAIRCREST PLANT
EAF SHOP BAGHOUSE
January 29, 2002

NITROGEN OXIDES, CARBON DIOXIDE, VOC EMISSIONS

SYMBOL	DESCRIPTION	Run No. 1	Run No. 2	Run No. 3	Average
Bws	Moisture content of the gas stream, %	1.4	1.3	3.4	2.0
Qsd	Inlet gas flow, dscfm	883055	871851	856742	908543
PR	Production rate, tons/hr	150.33	150.62	159.53	153.49
	NITOGEN OXIDES EMISSIONS				
C's	Nitrogen oxides concentration, ppm	2.6	2.9	4.2	3.2
E(a)	Nitrogen oxides emission rate (as NO_2), lb/hr	16.4	18.1	25.8	20.1
E(b)	Nitrogen oxides emission rate (as NO_2), lb/ton	0.11	0.12	0.16	0.13
	CARBON MONOXIDE EMISSIONS				
C's	Carbon monoxide concentration, ppm	109.2	126.0	124.1	119.8
E(a)	Carbon monoxide emission rate, lb/hr	420	479	464	454
E(b)	Carbon monoxide emission rate, lb/ton	2.80	3.18	2.91	2.96
	VOC EMISSIONS				
C's tot	Total VOC concentration , ppm	2.4	2.1	2.0	2.2
C's meth	Methane VOC concentration, ppm	0.37	0.36	0.38	0.37
C's eth	Ethane VOC concentration, ppm	0.00	0.00	0.00	0.00
C's	Total non methane and ethane concentration (as carbon), ppm	6.8	5.9	5.6	6.1
E(a)	VOC emission rate (as carbon), lb/hr	11	10	9	10
E(b)	VOC emission rate (as carbon), lb/ton	0.08	0.07	0.06	0.066

APPENDIX D

FIELD EQUIPMENT CALIBRATIONS

APPENDIX D

FIELD EQUIPMENT CALIBRATIONS

TEMPERATURE SENSOR CALIBRATION DATA SHEET

DATE 8-10-00
THERMOCOUPLE NO. 8-1

PERSONNEL Paul Judlowiec
REFERENCE:

AMBIENT TEMPERATURE 82°F
ASTM MERCURY-IN-GLASS ID # 1A

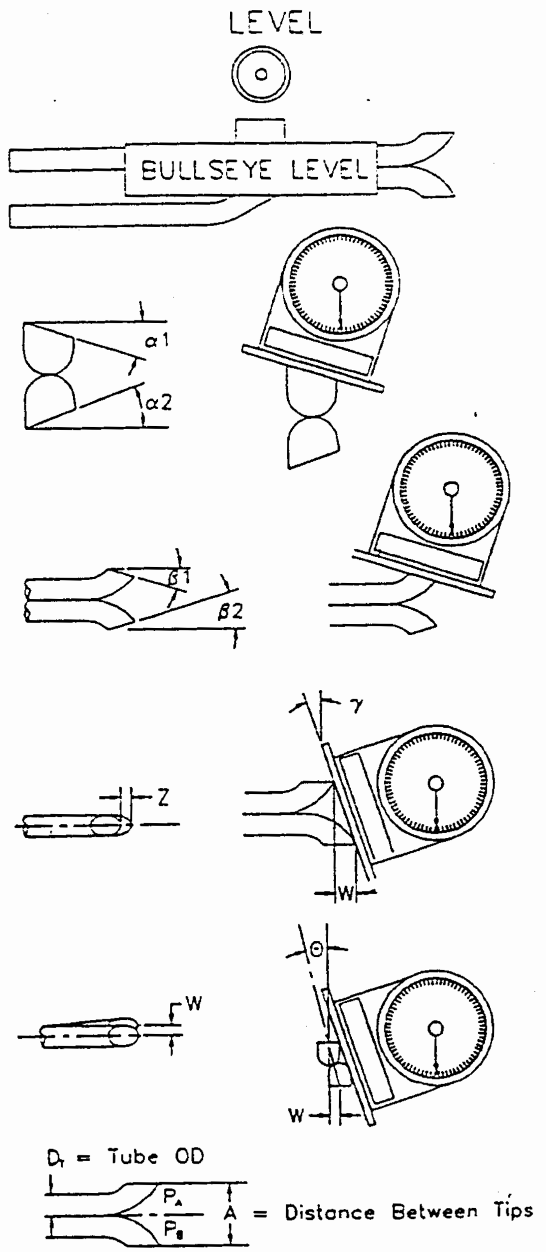
NIST REFERENCE TC ID #

Date	Reference Point Number	Source (Specify)	Reference Thermometer Temperature	Thermocouple Display Temperature	Absolute Temperature Difference %
8-10-00		Water	40	40	0.0
			83	81	2.4
			130	131	0.8
			214	214	0.0
		oil	303	303	0.0
			390	391	0.2
3-30-01		oil	325	323	0.6
		water	55	56	1.8
			140	141	0.7
			214	214	0.0
2-8-02		Water	52	52	0.0
			137	136	0.7
			214	213	0.5

Checked By: Paul Judlowiec 8/10/00

Personnel (Signature/Date)

TYPE S PITOT TUBE INSPECTION DATA SHEET



Parameter	Value	Allowable Range
Assembly Level?	Yes	Yes
Holes Damaged?	No	No
Obstructed?	No	No
$\alpha 1$	0°	$-10° < \alpha 1 < +10°$
$\alpha 2$	0°	$-10° < \alpha 2 < +10°$
$\beta 1$	0°	$-5° < \beta 1 < +5°$
$\beta 2$	0°	$-5° < \beta 2 < +5°$
γ	0°	[redacted]
θ	0°	
A	0.940	for 1/4" OD, 0.526 to 0.750 for 3/8" OD, 0.788 to 1.125
$Z = A \sin \gamma$	0.000	$Z = \leq 0.125"$
$W = A \sin \theta$	0.000	$W = \leq 0.031"$
P_A	0.470	for 1/4" OD, 0.263 to 0.375 for 3/8" OD, 0.394 to 0.563
P_B	0.470	for 1/4" OD, 0.263 to 0.375 for 3/8" OD, 0.394 to 0.563
$P_A - P_B$	0.000	-0.063 to 0.063"
D_T	0.375	0.188 to 0.375"

Certification

I certify that the Type S pitot tube/probe ID # 8-1 meets or exceeds all specifications, criteria and/or applicable design features and is hereby assigned a pitot tube calibration factor C_p of 0.84

Certified By: Paul [signature]
Personnel (Signature/Date)

TEMPERATURE SENSOR CALIBRATION DATA SHEET

DATE 2-8-02

PERSONNEL Paul Judlowicz

AMBIENT TEMPERATURE ______

THERMOCOUPLE NO. ACCI 12-1

REFERENCE:

ASTM MERCURY-IN-GLASS ID # ✓

NIST REFERENCE TC ID # ______

Date	Reference Point Number	Source (Specify)	Reference Thermometer Temperature	Thermocouple Display Temperature	Absolute Temperature Difference %
2-8-02		Water	52	52	0.0
			137	136	0.7
			214	214	0.0

Checked By: ______________________

Personnel (Signature/Date)

TEMPERATURE SENSOR CALIBRATION DATA SHEET

DATE 2- -0

THERMOCOUPLE NO. ACCI 12-2

PERSONNEL Paul Jadlowiec

REFERENCE:

AMBIENT TEMPERATURE

ASTM MERCURY-IN-GLASS ID # ✓

NIST REFERENCE TC ID #

Date	Reference Point Number	Source (Specify)	Reference Thermometer Temperature	Thermocouple Display Temperature	Absolute Temperature Difference %
2-8-02	4	Water	51	50	1.9
		↓	135	136	0.7
			213	213	0.0

Checked By:

Personnel (Signature/Date)

BLUE MOUNTAIN ENVIRONMENTAL MANAGEMENT
Dry Gas Meter Calibration
December 28, 2001

Barometric Pressure:	**28.47**	**Console:**	**Unit 1**
Theoretical Critical Vacuum:	**13.43**	**Analyist:**	**P. Jadlowiec**

DRY GAS METER READINGS

Delta H (in H_2O)	Time (min)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	Initial Temperature Inlet (deg F)	Initial Temperature Outlet (deg F)	Final Temperature Inlet (deg F)	Final Temperature Outlet (deg F)
0.29	17.00	384.128	389.410	5.282	67	67	69	69
0.63	13.00	389.410	395.329	5.919	69	69	71	71
1.10	18.00	395.329	406.050	10.721	73	73	74	74
1.80	13.00	417.774	427.805	10.031	77	77	79	79
3.40	11.00	406.050	417.774	11.724	74	74	77	77

CRITICAL ORIFICE READINGS

Orifice Serial No.	K Orifice Coefficient	Actual Vacuum (in Hg)	Ambient Temperature Initial (deg F)	Ambient Temperature Final (deg F)	Ambient Temperature Average (deg F)	Average Temperatures DGM Outlet	Average Temperatures DGM Overall	Average Temperatures Ambient Temp
JO40	0.2376	18	68	70	69.0	528.0	528.0	529.0
JO48	0.3458	18	70	70	70.0	530.0	530.0	530.0
JO55	0.4560	18	70	70	70.0	533.5	533.5	530.0
JO63	0.5852	18	71	71	71.0	538.0	538.0	531.0
JO73	0.8132	18	70	70	70.0	535.5	535.5	530.0

DRY GAS METER

VOLUME CORRECTED Vm(std) (cu ft)	VOLUME CORRECTED Vm(std) (liters)
5.028	142.4
5.618	159.1
10.121	286.6
9.407	266.4
11.092	314.1

DRY GAS METER CALIBRATION FACTOR Value	Variation
0.994	-0.002
0.990	-0.007
1.003	0.006
0.999	0.002
0.997	0.001

Average Y **0.997**

ORIFICE

VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME CORRECTED Vcr(std) (liters)	NOMINAL Vcr (cu ft)
5.000	141.6	5.267
5.559	157.4	5.867
10.150	287.5	10.712
9.399	266.2	9.938
11.062	313.3	11.674

ORIFICE CALIBRATION FACTOR Value	Value	Variation
1.794	45.58	-0.015
1.837	46.66	0.028
1.832	46.54	0.023
1.809	45.94	-0.001
1.774	45.06	-0.035

Average Delta H@ **1.809**

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.

For Orifice Calibration Factor Delta H@, the orifice differential pressure in inches of H_20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +-0.2.

SIGNED: Paul Jadlowiec

Date: 12-28-01

BLUE MOUNTAIN ENVIRONMENTAL MANAGEMENT
Dry Gas Meter Calibration
March 17, 2002

Barometric Pressure:	**29.01**	**Console:**	**Unit 1**
Theoretical Critical Vacuum:	**13.68**	**Analyist:**	**P. Jadlowiec**

DRY GAS METER READINGS

Delta H (in H_2O)	Time (min)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	Initial Temperature Inlet (deg F)	Initial Temperature Outlet (deg F)	Final Temperature Inlet (deg F)	Final Temperature Outlet (deg F)
0.28	26.00	441.036	449.007	7.971	71	71	73	73
0.61	34.00	449.007	464.342	15.335	73	73	76	76
1.10	21.00	464.420	476.943	12.523	77	77	78	78
1.80	28.00	490.788	512.378	21.590	81	81	81	81
3.30	13.00	476.943	490.788	13.845	78	78	81	81

CRITICAL ORIFICE READINGS

Orifice Serial No.	K Orifice Coefficient	Actual Vacuum (in Hg)	Ambient Temperature Initial (deg F)	Ambient Temperature Final (deg F)	Ambient Temperature Average (deg F)	Average Temperatures DGM Outlet	Average Temperatures DGM Overall	Average Temperatures Ambient Temp
JO40	0.2376	18	70	72	71.0	532.0	532.0	531.0
JO48	0.3458	18	71	72	71.5	534.5	534.5	531.5
JO55	0.4560	18	72	71	71.5	537.5	537.5	531.5
JO63	0.5852	18	71	72	71.5	541.0	541.0	531.5
JO73	0.8132	18	72	72	72.0	539.5	539.5	532.0

DRY GAS METER

VOLUME CORRECTED Vm(std) (cu ft)	VOLUME CORRECTED Vm(std) (liters)
7.673	217.3
14.705	416.4
11.956	338.6
20.515	581.0
13.242	375.0

DRY GAS METER CALIBRATION FACTOR Value	Variation
1.014	0.006
1.006	-0.001
1.008	0.001
1.005	-0.002
1.004	-0.003

Average Y **1.007**

ORIFICE

VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME CORRECTED Vcr(std) (liters)	NOMINAL Vcr (cu ft)
7.777	220.2	8.070
14.794	419.0	15.366
12.050	341.3	12.515
20.619	583.9	21.415
13.296	376.6	13.823

ORIFICE CALIBRATION FACTOR Value	Value	Variation
1.694	43.03	-0.040
1.736	44.09	0.002
1.790	45.46	0.056
1.767	44.88	0.033
1.684	42.77	-0.050

Average Delta H@ **1.734**

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.

For Orifice Calibration Factor Delta H@, the orifice differential pressure in inches of $H_2 0$ that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +-0.2.

SIGNED: Paul Jadlowiec

Date: 3-17-02

BLUE MOUNTAIN ENVIRONMENTAL MANAGEMENT
Dry Gas Meter Calibration
March 17, 2002

Barometric Pressure:	**29.01**	**Console:**	**Unit 2**
Theoretical Critical Vacuum:	**13.68**	**Analyist:**	**P. Jadlowiec**

DRY GAS METER READINGS

Delta H (in H_2O)	Time (min)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	Initial Temperature Inlet (deg F)	Initial Temperature Outlet (deg F)	Final Temperature Inlet (deg F)	Final Temperature Outlet (deg F)
0.28	20.00	258.006	264.174	6.168	80	80	81	81
0.62	26.00	226.900	238.531	11.631	74	74	76	76
1.10	33.00	238.531	258.006	19.475	76	76	81	81
1.80	14.00	264.174	274.843	10.669	81	81	83	83
3.50	12.00	283.282	296.085	12.803	83	83	83	83

CRITICAL ORIFICE READINGS

Orifice Serial No.	K Orifice Coefficient	Actual Vacuum (in Hg)	Ambient Temperature Initial (deg F)	Ambient Temperature Final (deg F)	Ambient Temperature Average (deg F)	Average Temperatures DGM Outlet	Average Temperatures DGM Overall	Average Temperatures Ambient Temp
JO40	0.2376	18	72	71	71.5	540.5	540.5	531.5
JO48	0.3458	18	70	70	70.0	535.0	535.0	530.0
JO55	0.4560	18	71	72	71.5	538.5	538.5	531.5
JO63	0.5852	18	71	72	71.5	542.0	542.0	531.5
JO73	0.8132	18	72	75	73.5	543.0	543.0	533.5

DRY GAS METER

VOLUME CORRECTED Vm(std) (cu ft)	VOLUME CORRECTED Vm(std) (liters)
5.844	165.5
11.143	315.6
18.559	525.6
10.119	286.6
12.173	344.7

DRY GAS METER CALIBRATION FACTOR Value	Variation
1.023	0.006
1.017	0.000
1.020	0.003
1.019	0.002
1.007	-0.010

Average Y **1.017**

ORIFICE

VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME CORRECTED Vcr(std) (liters)	VOLUME NOMINAL Vcr (cu ft)
5.980	169.3	6.211
11.329	320.8	11.734
18.935	536.3	19.667
10.309	292.0	10.707
12.256	347.1	12.778

ORIFICE CALIBRATION FACTOR Value	Value	Variation
1.669	42.39	-0.082
1.758	44.64	0.006
1.787	45.38	0.035
1.764	44.80	0.012
1.779	45.19	0.028

Average Delta H@ **1.751**

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.

For Orifice Calibration Factor Delta H@, the orifice differential pressure in inches of H_20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +-0.2.

SIGNED: Paul Jadlowiec

Date: 3-17-02

BLUE MOUNTAIN ENVIRONMENTAL MANAGEMENT
Dry Gas Meter Calibration
December 28, 2001

Barometric Pressure:	28.47	**Console:**	Unit 2
Theoretical Critical Vacuum:	13.43	**Analyist:**	P. Jadlowiec

DRY GAS METER READINGS

Delta H (in H_2O)	Time (min)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	Initial Temperature Inlet (deg F)	Initial Temperature Outlet (deg F)	Final Temperature Inlet (deg F)	Final Temperature Outlet (deg F)
0.27	21.00	531.277	537.780	6.503	68	68	71	71
0.59	13.00	525.410	531.277	5.867	65	65	67	67
1.10	17.00	551.737	562.034	10.297	74	74	75	75
1.80	18.00	537.780	551.737	13.957	71	71	74	74
3.40	12.00	562.034	575.038	13.004	75	75	77	77

CRITICAL ORIFICE READINGS

Orifice Serial No.	K Orifice Coefficient	Actual Vacuum (in Hg)	Ambient Temperature Initial (deg F)	Ambient Temperature Final (deg F)	Ambient Temperature Average (deg F)	Average Temperatures DGM Outlet	Average Temperatures DGM Overall	Average Temperatures Ambient Temp
JO40	0.2376	18	70	70	70.0	529.5	529.5	530.0
JO48	0.3458	18	68	70	69.0	526.0	526.0	529.0
JO55	0.4560	18	71	71	71.0	534.5	534.5	531.0
JO63	0.5852	18	71	70	70.5	532.5	532.5	530.5
JO73	0.8132	18	71	70	70.5	536.0	536.0	530.5

DRY GAS METER

VOLUME CORRECTED Vm(std) (cu ft)	VOLUME CORRECTED Vm(std) (liters)
6.172	174.8
5.610	158.9
9.702	274.8
13.224	374.5
12.291	348.1

DRY GAS METER CALIBRATION FACTOR Value	Variation
1.000	0.011
0.992	0.003
0.987	-0.002
0.985	-0.004
0.981	-0.008

Average Y 0.989

ORIFICE

VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME CORRECTED Vcr(std) (liters)	NOMINAL Vcr (cu ft)
6.170	174.7	6.512
5.565	157.6	5.861
9.578	271.2	10.127
13.020	368.7	13.754
12.062	341.6	12.742

ORIFICE CALIBRATION FACTOR Value	Value	Variation
1.669	42.40	-0.097
1.730	43.94	-0.036
1.832	46.54	0.066
1.826	46.37	0.059
1.774	45.07	0.008

Average Delta H@ 1.766

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.

For Orifice Calibration Factor Delta H@, the orifice differential pressure in inches of H_20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +-0.2.

SIGNED: Paul Jadlowiec

Date: 12-28-01

PENNSTATE

1855

Continuing Education

Visible Emissions Evaluation Program

This certifies that

PAUL JADLOWIEC

has met the specifications of Federal Register Method 9 and qualified as a visible emissions evaluator. Maximum deviation on white and black smoke did not exceed 7.5% opacity and no single error exceeding 15% opacity was incurred during the certification test conducted by The Pennsylvania State University.

Certification valid

From: ***September 18, 2001*** To: ***March 18, 2002***

Vice President and Dean for
Continuing and Distance Education

Project Director of Emissions
Training Program
Environmental Resources Research Institute

NOX Analyzer Converter Efficiency Test,

Trailer:	TECO NO_X Analyzer Model 10S
Date:	28-Jan-02
Analyzer Range:	0 to 100 ppm_v
Serial #:	10S-28952-233

	Date	Time	NO_X Analyzer Response (ppm_v)	Response % Difference (ppm_v)	LIMIT 2.00% Evaluation
1	1/28/2002	15:22:00	53.6	0.2%	**PASS**
2	1/28/2002	15:23:00	53.7	0.0%	**PASS**
3	1/28/2002	15:24:00	53.4	0.6%	**PASS**
4	1/28/2002	15:25:00	53.2	0.9%	**PASS**
5	1/28/2002	15:26:00	53.2	0.9%	**PASS**
6	1/28/2002	15:27:00	53.1	1.1%	**PASS**
7	1/28/2002	15:28:00	53.3	0.8%	**PASS**
8	1/28/2002	15:29:00	53.2	0.9%	**PASS**
9	1/28/2002	15:30:00	53.5	0.4%	**PASS**
10	1/28/2002	15:31:00	53.4	0.6%	**PASS**
11	1/28/2002	15:32:00	53.4	0.6%	**PASS**
12	1/28/2002	15:33:00	53.3	0.8%	**PASS**
13	1/28/2002	15:34:00	53.2	0.9%	**PASS**
14	1/28/2002	15:35:00	53.2	0.9%	**PASS**
15	1/28/2002	15:36:00	53	1.3%	**PASS**
16	1/28/2002	15:37:00	53.2	0.9%	**PASS**
17	1/28/2002	15:38:00	53.1	1.1%	**PASS**
18	1/28/2002	15:39:00	53.4	0.6%	**PASS**
19	1/28/2002	15:40:00	53.4	0.6%	**PASS**
20	1/28/2002	15:41:00	53.3	0.8%	**PASS**
21	1/28/2002	15:42:00	53.4	0.6%	**PASS**
22	1/28/2002	15:43:00	53.4	0.6%	**PASS**
23	1/28/2002	15:44:00	53.3	0.8%	**PASS**
24	1/28/2002	15:45:00	53.6	0.2%	**PASS**
25	1/28/2002	15:46:00	53.6	0.2%	**PASS**
26	1/28/2002	15:47:00	53.4	0.6%	**PASS**
27	1/28/2002	15:48:00	53.5	0.4%	**PASS**
28	1/28/2002	15:49:00	53.5	0.4%	**PASS**
29	1/28/2002	15:50:00	53.4	0.6%	**PASS**
30	1/28/2002	15:51:00	53.3	0.8%	**PASS**

Mid-level NO_X Used:	122
High-level O_2 Used:	22.6 ppm

Note: Peak value = 53.7

Acceptable criteria is 2 percent of the utilized range (0 to 250 ppm).

Performed in accordance with 40 CFR, Part 60, USEPA Method 7E, Section 6.2 and Method 20, Section 5.4.

NO_X Interference Test for Oxides of Nitrogen Analyzer,

Trailer:	TECO NO_X Analyzer Model 10S
Date:	9-Jun-01
Analyzer Range:	0 to 1,000 ppm_v
Serial #:	10S-28952-233

Test Gas	Gas Cylinder Concentration (ppm_v)	NO_X Analyzer Response (ppm_v)	Difference Percent of Span	Suggested Concentration (ppm_v)
Carbon Monoxide	608	0	0.00%	500 +/- 50 ppm
Sulfur Dioxide	246	0	0.00%	200 +/- 20 ppm
Carbon Dioxide	10.1	0	0.00%	10.0 +/- 1%
Oxygen	22.3	0	0.00%	20.9 +/- 1%
	Total Difference Response		0.0%	

Notes: Acceptance criteria is the sum of analyzer response must be less than 2 percent. Performed in accordance with 40 CFR, Part 60, USEPA Method 7E, Section 6.2 and Method 20, Section 5.4

NO_X Oxides of nitrogen.
ppm_v Parts per million by volume.
USEPA U.S. Environmental Protection Agency.

O_2 Interference Test.

Trailer:	California Analytical
Date:	12-Nov-01
Analyzer Range:	0 to 25 percent
Serial #:	1K0600K

Test Gas	Gas Cylinder Concentration (ppm_v)	O_2 Analyzer Response (%)	Difference Percent of Span
Nitric Oxide	450	0.00	0.00%
Sulfur Dioxide	241	0	0.00%
Carbon Monoxide	600	0	0.00%
Carbon Dioxide			
	Total Difference Response		0.00%

Notes: CO_2 interference is not evaluated due to O_2 / CO_2 cylinder mixture.
California Analytical instrument specifications indicate no interferences with paramagnetic analysis.
Summit instrument specifications indicate no interference with an electrochemical cells.
Acceptance criteria is the sum of analyzer response must be less than 2 percent.
Performed in accordance with 40 CFR, Part 60, Appendix A, USEPA Method 3A,Section 6.2 and Method 20, Section 5.4

O_2	Oxygen.
%	Percent.
ppm_v	Parts per million by volume.
USEPA	U.S. Environmental Protection Agency.

Carbon Monoxide Interference Test.

Trailer	TECO Model 48 Gas Filter Correlation CO Analyzer
Date	13-Sep-01
Analyzer Range	0-1000 ppm
	new

Test Gas	Concentration (%)	Allowable Interference (ppm)	CO Analyzer Response (ppm)
Carbon dioxide	18.00	10	-4
Carbon dioxide	10.1	10	-2.2
Carbon dioxide	0	10	0

Allowable Interference is indicated if the CO analyzer response to each of the gases is less than 1 percent of the applicable measurement range of the analyzer.

CO	Carbon monoxide.
ppmv	Parts per million by volume.
ppm	Parts per million.
USEPA	U.S. Environmental Protection Agency.

USEPA METHOD 205 DATA SHEET

timken faircrest
1/28/2002

Last Calibration:	2001		
Next Calibration Due:	2002		
	PPM Nox		
Protocol Calibration Gas Used:	259		
Sections 3.2.3, 3.2.4, and 3.2.5		**3.2.4** Difference From Single Injection and the Average Instrumental Response Must be + or - 2%	**3.2.5** Difference From Average Concentration Output and the Predicted Concentration Must be + or - 2%
Predicted Concentration 1	122		
Instrument response 1	122.5	0.16%	
Instrument response 2	122.2	-0.08%	0.25%
Instrument response 3	122.2	-0.08%	
Average Instrument response	122.3		
		3.2.4 Difference From Single Injection and the Average Instrumental Response Must be + or - 2%	**3.2.5** Difference From Average Concentration Output and the Predicted Concentration Must be + or - 2%
Predicted Concentration 2	80		
Instrument response 1	81.2	0.45%	
Instrument response 2	80.9	0.08%	1.04%
Instrument response 3	80.4	-0.54%	
Average Instrument response	80.8		
Section 3.2.6		Difference between Protocol Concentration and Average Instrumental Response Must be + or - 2%	
Mid-Level Gas Concentration	122		
Instrument response 1	120.5		
Instrument response 2	121.2	-1.01%	
Instrument response 3	120.6		
Average Analyzer Output Concentration	120.7667		

ACCI
CEM Data Sheet

Firm	timken
Location	faircrest
Tester	jcc, pj
Test No.	1
Sample Loc.	baghouse inlet
Date	29-Jan-02
Start Time	08:20
End Time	10:57

	Calibration Gases					
	Low Cal	Mid Cal	High Cal	Tank ID Low	Tank ID Mid	Tank ID High
O2	N/A	12.6	22.3	N/A		
CO2	N/A	10.1	18	N/A		
				N/A		
CO	300	600	842	N/A		
Nox	N/A	45	80	N/A		

		(Rack) Analyzer Cal. Response	Initial Values System Cal. Response	Initial Values System Cal. Bias % of Span	Final Values System Cal. Response	Final Values System Cal. Bias % of Span	Drift % of Span	Recorder Span	Average Bias Check	Average Raw Gas Conc Dry	Average Corrected Gas Conc. Dry	Units
O2	Zero	0.03	0.06	0.12	0.05	0.08	-0.04		0.055	#REF!	#REF!	%
	Mid	12.51	12.48	-0.12	12.57	0.24	0.36	25	12.525			
CO2	Zero	0.01	-0.03	-0.20	0.13	0.48	0.64		0.05	#REF!	#REF!	%
	High	17.99	18.06	0.35	18.10	0.44	0.16	20	18.08			
CO	Zero	0.20	0.20	0.00	-0.80	-0.10	-0.10		-0.3	109.8	109.2	ppm
	High	299.60	300.60	0.10	303.60	0.40	0.30	1000	302.1			
Nox	Zero	0.40	0.30	-0.10	-0.80	-1.20	-1.10		-0.25	2.3	2.6	ppm
	Mid	45.30	45.20	-0.10	43.00	-2.30	-2.20	100	44.1			
				+/- 5%		+/- 5%	+/- 3%					

	ZERO Cal. Gas Analyzer Response	Analyzer Calib. Error	LOW Cal. Gas Analyzer Response	Analyzer Calib. Error	MID Cal. Gas Analyzer Response	Analyzer Calib. Error	HIGH Cal. Gas Analyzer Response	Analyzer Calib. Error
O2	0.03	0.12			12.51	-0.36	22.29	-0.04
CO2	0.01	0.05			10.04	-0.30	17.99	-0.05
CO	0.2	0.02	299.6	-0.04	598.0	-0.20	833.6	-0.84
Nox	0.4	0.40			45.3	0.30	80.2	0.20
	LIMITS	+/- 2%		+/- 2%		+/- 2%		+/- 2%

Analyzer Span Values	
O2	25
CO2	20
CO	1000
Nox	100

40 CFR Part 60, Appendix A, Method 6C, subpart 4.1

04:16 PM
22-Feb-02

ACCI
CEM Data Sheet

Firm	timken
Location	faircrest
Tester	jcc, pj
Test No.	2
Sample Loc.	baghouse inlet
Date	29-Jan-02
Start Time	12:21
End Time	14:44

	Calibration Gases					
	Low Cal	Mid Cal	High Cal	Tank ID Low	Tank ID Mid	Tank ID High
O2	N/A	12.6	22.3	N/A		
CO2	N/A	10.1	18	N/A		
				N/A		
CO	300	600	842	N/A		
Nox	N/A	45	80	N/A		

		(Rack) Analyzer Cal. Response	Initial Values: System Cal. Response	Initial Values: System Cal. Bias % of Span	Final Values: System Cal. Response	Final Values: System Cal. Bias % of Span	Drift % of Span	Recorder Span	Average Bias Check	Average Raw Gas Conc Dry	Average Corrected Gas Conc. Dry	Units
O2	**Zero**	0.03	0.05	0.08	0.00	-0.12	-0.20		0.025	#REF!	#REF!	%
	Mid	12.51	12.57	0.24	12.54	0.12	-0.12	25	12.555			
CO2	**Zero**	0.01	0.13	0.60	0.15	0.56	0.08		0.14	#REF!	#REF!	%
	High	17.99	18.10	0.55	17.97	-0.08	-0.52	20	18.035			
CO	**Zero**	0.20	-0.80	-0.10	1.10	0.09	0.19		0.15	128.0	126.0	ppm
	High	299.60	303.60	0.40	305.50	0.59	0.19	1000	304.55			
Nox	**Zero**	0.40	-0.80	-1.20	-0.70	-1.10	0.10		-0.75	2.1	2.9	ppm
	Mid	45.30	43.00	-2.30	43.50	-1.80	0.50	100	43.25			
				+/- 5%		+/- 5%	+/- 3%					

	ZERO Cal. Gas Analyzer Response	Analyzer Calib. Error	LOW Cal. Gas Analyzer Response	Analyzer Calib. Error	MID Cal. Gas Analyzer Response	Analyzer Calib. Error	HIGH Cal. Gas Analyzer Response	Analyzer Calib. Error
O2	0.03	0.12			12.51	-0.36	22.29	-0.04
CO2	0.01	0.05			10.04	-0.30	17.99	-0.05
CO	0.2	0.02	299.6	-0.04	598.0	-0.20	833.6	-0.84
Nox	0.4	0.40			45.3	0.30	80.2	0.20
	LIMITS	**+/- 2%**		**+/- 2%**		**+/- 2%**		**+/- 2%**

Analyzer Span Values	
O2	25
CO2	20
CO	1000
Nox	100

40 CFR Part 60, Appendix A, Method 6C, subpart 4.1

04:19 PM
22-Feb-02

ACCI
CEM Data Sheet

Firm	timken
Location	faircrest
Tester	jcc, pj
Test No.	3
Sample Loc.	baghouse inlet
Date	29-Jan-02
Start Time	16:38
End Time	19:09

	Calibration Gases					
	Low Cal	Mid Cal	High Cal	Tank ID Low	Tank ID Mid	Tank ID High
O2	N/A	12.6	22.3	N/A		
CO2	N/A	10.1	18	N/A		
				N/A		
CO	300	600	842	N/A		
Nox	N/A	45	80	N/A		

		(Rack) Analyzer Cal. Response	Initial Values: System Cal. Response	Initial Values: System Cal. Bias % of Span	Final Values: System Cal. Response	Final Values: System Cal. Bias % of Span	Drift % of Span	Recorder Span	Average Bias Check	Average Raw Gas Conc Dry	Average Corrected Gas Conc. Dry	Units
O2	Zero	0.03	0.00	-0.12	-0.03	-0.24	-0.12		-0.015	#REF!	#REF!	%
	Mid	12.51	12.54	0.12	12.50	-0.04	-0.16	25	12.52			
CO2	Zero	0.01	0.15	0.70	0.15	0.56	0.00		0.15	#REF!	#REF!	%
	High	17.99	17.97	-0.10	18.06	0.28	0.36	20	18.015			
CO	Zero	0.20	1.10	0.09	1.10	0.09	0.00		1.1	126.2	124.1	ppm
	High	299.60	305.50	0.59	301.50	0.19	-0.40	1000	303.5			
Nox	Zero	0.40	-0.70	-1.10	-0.70	-1.10	0.00		-0.7	3.4	4.2	ppm
	Mid	45.30	43.50	-1.80	43.50	-1.80	0.00	100	43.5			
				+/- 5%		+/- 5%	+/- 3%					

	ZERO Cal. Gas Analyzer Response	Analyzer Calib. Error	LOW Cal. Gas Analyzer Response	Analyzer Calib. Error	MID Cal. Gas Analyzer Response	Analyzer Calib. Error	HIGH Cal. Gas Analyzer Response	Analyzer Calib. Error
O2	0.03	0.12			12.51	-0.36	22.29	-0.04
CO2	0.01	0.05			10.04	-0.30	17.99	-0.05
CO	0.2	0.02	299.6	-0.04	598.0	-0.20	833.6	-0.84
Nox	0.4	0.40			45.3	0.30	80.2	0.20
	LIMITS	+/- 2%		+/- 2%		+/- 2%		+/- 2%

Analyzer Span Values	
O2	25
CO2	20
CO	1000
Nox	100

40 CFR Part 60, Appendix A, Method 6C, subpart 4.1

04:20 PM
22-Feb-02

THC Bias And Drift Sheet
#REF!
#REF!

Test Run:	1	Scale:	10	Start:	8:20
Date:	########			Stop:	10:57

Pre-test calibration | Post-Run 1 Calibration Check

Calib. gas	Tag value	Adjusted response	Actual response	Calibration error (5%)	Final response	Calibration drift
zero	0		0	0.00%	0	0.0%
low	3		3	0.00%	3	0.0%
mid	5		5	0.00%	na	#VALUE!
high	8		8	0.00%	na	#VALUE!

Test Run:	2	Scale:	10	Start:	12:21
Date:	########			Stop:	14:44

Post-Run 1 Calibration Check | Post-Run 2 Calibration Check

Calib. gas	Tag value	Adjusted response	Actual response	Calibration error (5%)	Final response	Calibration drift
zero	0		0	0.00%	0	0.0%
low	3		3	0.00%	3	0.0%
mid	5		NA	#VALUE!	na	#VALUE!
high	8		NA	#VALUE!	na	#VALUE!

Test Run:	3	Scale:	10	Start:	16:38
Date:	########			Stop:	19:09

Post-Run 2 Calibration Check | Post- Run 3 Calibration Check

Calib. gas	Tag value	Adjusted response	Actual response	Calibration error (5%)	Final response	Calibration drift
zero	0		0	0.00%	0	0.0%
low	3		3	0.00%	3	0.0%
mid	5		na	#VALUE!	na	#VALUE!
high	8		na	#VALUE!	na	#VALUE!

THC Bias And Drift Sheet
#REF!
#REF!

Test Run:	1	Scale:	50	Start:	8:20
Date:	########			Stop:	10:57

Pre-test calibration — Post-Run 1 Calibration Check

Calib. gas	Tag value	Adjusted response	Actual response	Calibration error (5%)	Final response	Calibration drift
zero	0		0	0.00%	0	0.0%
low	15		15.1	0.20%	14.9	-0.4%
mid	25		25	0.00%	na	#VALUE!
high	40		40	0.00%	na	#VALUE!

Test Run:	2	Scale:	50	Start:	12:21
Date:	########			Stop:	14:44

Post-Run 1 Calibration Check — Post-Run 2 Calibration Check

Calib. gas	Tag value	Adjusted response	Actual response	Calibration error (5%)	Final response	Calibration drift
zero	0		0	0.00%	0	0.0%
low	15		14.9	-0.20%	15	0.2%
mid	25		NA	#VALUE!	na	#VALUE!
high	40		NA	#VALUE!	na	#VALUE!

Test Run:	3	Scale:	50	Start:	16:38
Date:	########			Stop:	19:09

Post-Run 2 Calibration Check — Post- Run 3 Calibration Check

Calib. gas	Tag value	Adjusted response	Actual response	Calibration error (5%)	Final response	Calibration drift
zero	0		0	0.00%	0	0.0%
low	15		15	0.00%	15	0.0%
mid	25		na	#VALUE!	na	#VALUE!
high	40		na	#VALUE!	na	#VALUE!

For Technical Information Call
1-800-752-1597

AIR PRODUCTS

ISO CERTIFICATION: 9002

Air Products and Chemicals, Inc. * 12722 S. Wentworth Avenue, Chicago, IL 60628

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS STANDARD

PERFORMED ACCORDING TO EPA TRACEABILITY PROTOCOL FOR ASSAY AND CERTIFICATION OF GASEOUS CALIBRATION STANDARDS (PROCEDURE #G2)

Customer:
APCI- CP
FREEPORT RD, ROUTE 28
CREIGHTON PA 15030-

Order No: CSS-503160-01
Batch No: 861-71802
PO:
Release:

Cylinder No: SG9136151BAL
Bar Code No: FDJ132
Cylinder Pressure*: 2000 psig
Certification Date: 07/25/2000
Expiration Date: 07/25/2003

CERTIFIED CONCENTRATION		REFERENCE STANDARDS			ANALYTICAL INSTRUMENTATION			
Component	Certified Concentration	Cylinder Number	Standard Type	Standard Concentration	Instrument Make/Model	Serial Number	Last Calibration	Measurement Principal
PROPANE	53.9±.07 PPM	SG9160454BAL	GMIS	9.800 PPM	Gow-Mac 750	59405U	07/15/00	GC-FID
NITROGEN	Balance Gas							

* STANDARD SHOULD NOT BE USED BELOW 150 PSIG

Analyst: Richard VanDyke

Approved By: James Laas

Pub. No. 320-9703

(16921)

For Technical Information Call
1-800-752-1597

AIR PRODUCTS

Air Products and Chemicals, Inc. * 12722 S. Wentworth Avenue, Chicago, IL 60628

ISO CERTIFICATION: 9002

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS STANDARD

PERFORMED ACCORDING TO EPA TRACEABILITY PROTOCOL FOR ASSAY AND CERTIFICATION OF GASEOUS CALIBRATION STANDARDS (PROCEDURE #G1)

Customer:
APCI- CP
FREEPORT RD, ROUTE 28
CREIGHTON PA 15030-

Order No: SRP-508207-01
Batch No: 861-71816
PO:
Release:

Cylinder No: SG9150559BAL
Bar Code No: FDR622
Cylinder Pressure*: 2000 psig
Certification Date: 08/04/2000
Expiration Date: 08/04/2002

CERTIFIED CONCENTRATION		REFERENCE STANDARDS			ANALYTICAL INSTRUMENTATION			
Component	Certified Concentration	Cylinder Number	Standard Type	Standard Concentration	Instrument Make/Model	Serial Number	Last Calibration	Measurement Principal
NITRIC OXIDE	122±0.70 PPM	SG9168825BAL	NTRM	88.10 PPM	ROSEMOUNT		07/10/00	CHEMILUMINESCENCE

NO2 (Reference Value Only): .100 PPM
NITROGEN Balance Gas

* STANDARD SHOULD NOT BE USED BELOW 150 PSIG

Analyst: Holly Hattendorf
HOLLY HATTENDORF

Approved By:
JAMES LAAS

(16921)

Pub. No. 320 970?

For Technical Information Call
1-800-752-1597

AIR PRODUCTS

Air Products and Chemicals, Inc. * 12722 S. Wentworth Avenue, Chicago, IL 60628

ISO CERTIFICATION: 9002

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS STANDARD

PERFORMED ACCORDING TO EPA TRACEABILITY PROTOCOL FOR ASSAY AND CERTIFICATION OF GASEOUS CALIBRATION STANDARDS (PROCEDURE #G1)

Customer:
APCI- CP
FREEPORT RD, ROUTE 28
CREIGHTON PA 15030-

Order No: SRP-483260-03
Batch No: 861-70777
PO:
Release:

Cylinder No: SG9120158BAL
Bar Code No: DQQ994
Cylinder Pressure*: 2000 psig
Certification Date: 06/27/2000
Expiration Date: 06/27/2002

CERTIFIED CONCENTRATION		REFERENCE STANDARDS			ANALYTICAL INSTRUMENTATION			
Component	Certified Concentration	Cylinder Number	Standard Type	Standard Concentration	Instrument Make/Model	Serial Number	Last Calibration	Measurement Principal
NITRIC OXIDE	259±1.51 PPM	SG9148852	GMIS	247.7 PPM	ROSEMOUNT		06/10/00	CHEMILUMINESCENCE

NO2 (Reference Value Only): 1.50 PPM
NITROGEN Balance Gas
* STANDARD SHOULD NOT BE USED BELOW 150 PSIG

Analyst: Holly Hattendorf
HOLLY HATTENDORF

Approved By:
JAMES LAAS

(16921)

Pub. No. 320-9702

For Technical Information Call
1-800-752-1597

AIR PRODUCTS

Air Products and Chemicals, Inc. * 12722 S. Wentworth Avenue, Chicago, IL 60628

ISO CERTIFICATION: 9002

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS STANDARD

PERFORMED ACCORDING TO EPA TRACEABILITY PROTOCOL FOR ASSAY AND CERTIFICATION OF GASEOUS CALIBRATION STANDARDS (PROCEDURE #G1)

Customer:
AIR PRODUCTS & CHEMICALS
901 WEST 12TH STREET
LONG BEACH CA 90813-

Order No: SRP-378354-20
Batch No: 861-66319
PO:
Release:

Cylinder No: SG9165019BAL
Bar Code No: DDR087
Cylinder Pressure*: 2000 psig
Certification Date: 02/14/2000
Expiration Date: 02/14/2003

CERTIFIED CONCENTRATION		REFERENCE STANDARDS			ANALYTICAL INSTRUMENTATION			
Component	Certified Concentration	Cylinder Number	Standard Type	Standard Concentration	Instrument Make/Model	Serial Number	Last Calibration	Measurement Principal
CARBON MONOXIDE	842 ±5.9 PPM	SG9147186BAL	GMIS	964.3 PPM	HORIBA VIA-510	405079	01/15/00	NON DISPERSIVE INFRARED
NITROGEN	Balance Gas							

* STANDARD SHOULD NOT BE USED BELOW 150 PSIG

Analyst: James Laas

Approved By: Richard Fry

For Technical Information Call
1-800-752-1597

AIR PRODUCTS

ISO CERTIFICATION: 9002

Air Products and Chemicals, Inc. * Rural Route #1, Tamaqua, PA 18252

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS STANDARD

PERFORMED ACCORDING TO EPA TRACEABILITY PROTOCOL FOR ASSAY AND CERTIFICATION OF GASEOUS CALIBRATION STANDARDS (PROCEDURE #G1)

Customer:
APCI- CP
FREEPORT RD, ROUTE 28
CREIGHTON PA 15030-

Order No: SRP-314826-73
Batch No: 255-8576E
PO:
Release:

Cylinder No: SG9174868B
Bar Code No: DNX759
Cylinder Pressure*: 2000 psig
Certification Date: 11/09/1999
Expiration Date: 11/09/2002

CERTIFIED CONCENTRATION		REFERENCE STANDARDS			ANALYTICAL INSTRUMENTATION			
Component	Certified Concentration	Cylinder Number	Standard Type	Standard Concentration	Instrument Make/Model	Serial Number	Last Calibration	Measurement Principal
CARBON DIOXIDE	18.0±0.05 %	SG9169557BAL	NTRM 81675X	10.82 %	Shimadzu Model	C1049300	11/07/99	GC-TCD
OXYGEN	12.6±0.06 %	SG9168291BAL	NTRM 82658X	16.04 %	SHIMADZU GC-8A	59405U	11/07/99	GC-TCD

NITROGEN Balance Gas

* STANDARD SHOULD NOT BE USED BELOW 150 PSIG

Analyst: Patricia J. Williams
Patricia J. Williams

Approved By: Bruce Andersen
Bruce Andersen

(1692 I)

Pub. No. 320 9702

For Technical Information Call
1-800-752-1597

AIR PRODUCTS

ISO CERTIFICATION: 9002

Air Products and Chemicals, Inc. * 12722 S. Wentworth Avenue, Chicago, IL 60628

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS STANDARD

PERFORMED ACCORDING TO EPA TRACEABILITY PROTOCOL FOR ASSAY AND CERTIFICATION OF GASEOUS CALIBRATION STANDARDS (PROCEDURE #G1)

Customer:
APCI- CP
FREEPORT RD, ROUTE 28
CREIGHTON PA 15030-

Order No: SRP-503067-06
Batch No: 861-72132
PO:
Release:

Cylinder No: SG9103446BAL
Bar Code No: BUU781
Cylinder Pressure*: 2000 psig
Certification Date: 08/02/2000
Expiration Date: 08/02/2003

CERTIFIED CONCENTRATION		REFERENCE STANDARDS			ANALYTICAL INSTRUMENTATION			
Component	Certified Concentration	Cylinder Number	Standard Type	Standard Concentration	Instrument Make/Model	Serial Number	Last Calibration	Measurement Principal
CARBON DIOXIDE	10.1±0.06 %	SG9166432BAL	NTRM 81675	13.84 %	Horiba VIA-510	51135063	07/10/00	NON DISPERSIVE INFRARED
OXYGEN	22.3±0.09 %	SG9159552BAL	NTRM	23.85 %	SERVOMEX 1100	2974C	07/12/00	PARAMAGNETIC
NITROGEN	Balance Gas							

* STANDARD SHOULD NOT BE USED BELOW 150 PSIG

Analyst: HOLLY HATTENDORF

Approved By: JAMES LAAS

(16921)

Pub. No. 320-9707

APPENDIX E

EAF OPERATION DATA

TIMKEN
FAIRCREST EAF

JANUARY 2002 EMISSION TESTING

PRODUCTION DATA

Test	Run No.	Date	Sampling Time		First Charge and Last Tap Time of Heats During Sampling		Total EAF Time	Total EAF Delays Time	Furnace Running Time	Heat Nos. And Process Weights					Total Steel Tapped	Production Rate
			Start	End	Start	End	Min.	Min.	Min.	No./pounds					tons	tons/hr
Fluoride	2	01/23/02	11:00 AM	4:34 PM	10:49 AM	5:16 PM	387	60	327	W1072 345966	W1073 351809	W1074 347649	W1075 337023		691	126.83
Fluoride	3	01/28/02	10:09 AM	4:13 PM	10:00 AM	4:33 PM	393	85	308	W1155 336591	W1156 385314	W1157 389557	W1158 326982		719	140.11
Fluoride	4	01/30/02	7:26 AM	12:30 PM	6:55 AM	1:28 PM	273	15	258	W1185 335012	W1186 34083	W1187 347882	W1188 345683	W1189 338598	701	162.94
Fluoride	5	01/30/02	1:33 PM	5:57 PM	1:32 PM	6:27 PM	295	0	295	W1190 341264	W1191 342128	W1192 339871	W1193 339560		681	138.59
Lead	1	01/23/02	11:15 AM	5:14 PM	10:49 AM	5:16 PM	387	60	327	W1072 345966	W1073 351809	W1074 347649	W1075 337023		691	126.83
Lead	2	01/24/02	1:59 PM	7:35 PM	1:47 PM	7:34 PM	347	0	347	W1088 341739	W1089 342164	W1090 340456	W1091 340779		683	118.02
Lead	3	01/25/02	7:35 AM	12:28 PM	7:05 AM	12:59 PM	354	0	354	W1100 342009	W1101 341122	W1102 341366	W1103 337009	W1104 337184	849	143.96
Patriculate	1	01/24/02	8:48 AM	6:40 PM	8:17 AM	7:34 PM	677	308	369	W1087 308600	W1088 341739	W1089 342164	W1090 340456	W1091 340779	837	136.08
Patriculate	2	01/25/02	7:45 AM	1:08 PM	7:05 AM	12:59 PM	354	0	354	W1100 342009	W1101 341122	W1102 341366	W1103 337009	W1104 337184	849	143.96
Patriculate	3	01/28/02	10:22 AM	3:45 PM	10:00 AM	4:33 PM	333	85	248	W1155 336591	W1156 385314	W1157 389557	W1158 326982		719	174.01
Gaseous	1	01/29/02	8:21 AM	10:59 AM	8:22 AM	10:57 AM	153	15	138	W1168 342854	W1169 348682				346	150.33
Gaseous	2	01/29/02	12:22 PM	2:46 PM	12:23 PM	2:48 PM	135	0	135	W1171 339223	W1172 338568				339	150.62
Gaseous	3	01/29/02	4:39 PM	7:10 PM	4:39 PM	7:09 PM	150	20	130	W1174 344794	W1175 346522				346	159.53

E2

HEATNO	START OF HEAT	START OF TAP	END OF TAP	STEEL IN LADLE	STEEL CATALOG
W1058	01/22/2002 13:13	01/22/2002 14:27	01/22/2002 14:34	341866.44	0787AB
W1059	01/22/2002 14:38	01/22/2002 16:35	01/22/2002 16:43	336608.28	0787AB
W1060	01/22/2002 17:35	01/22/2002 18:38	01/22/2002 18:46	335249.16	5400AA

E 3

MILL_TYPE	POWERONTIME
15R32V1	56.7
15R32V1	56.4
4817	53.5

E 4

HEATNO	TIMMATADD	MATCOD	MATADD	LOC
W1058	01/22/2002 13:29	#FCOAL63	300	F1
W1058	01/22/2002 13:32	#FCOAL63	311	F1
W1058	01/22/2002 13:58	#FBRLM62	1	F1
W1058	01/22/2002 13:58	#FMGOO69	17	F1
W1058	01/22/2002 13:59	#FMGOO69	3	F1
W1058	01/22/2002 13:59	#FBRLM62	58	F1
W1058	01/22/2002 14:13	#FCOAL63	302	F1
W1059	01/22/2002 15:26	#FCOAL63	309	F1
W1059	01/22/2002 15:28	#FCOAL63	306	F1
W1059	01/22/2002 15:34	#FCOAL63	307	F1
W1059	01/22/2002 15:53	#FCOAL63	309	F1
W1059	01/22/2002 15:55	#FCOAL63	306	F1
W1059	01/22/2002 16:09	#FCOAL63	308	F1
W1059	01/22/2002 16:14	#FBRLM62	1	F1
W1059	01/22/2002 16:14	#FCOAL63	201	F1
W1059	01/22/2002 16:15	#FBRLM62	61	F1
W1059	01/22/2002 16:27	#FCOAL63	207	F1
W1060	01/22/2002 17:46	#FCOAL63	307	F1
W1060	01/22/2002 17:48	#FCOAL63	310	F1
W1060	01/22/2002 18:30	#FCOAL63	202	F1

05

HEATNO	BUCKET	START OF PERIOD	METALLICWGT	NONMETALLICWGT
W1058	B_1	1/22/02 1:13 PM	222700	9266
W1058	B_2	1/22/02 1:39 PM	97650	4329
W1058	BL3	1/22/02 1:53 PM	66150	79
W1059	B_1	1/22/02 2:38 PM	158950	8649
W1059	B_2	1/22/02 3:42 PM	163200	5092
W1059	BL3	1/22/02 4:02 PM	66250	571
W1060	B_1	1/22/02 5:35 PM	277855	9528
W1060	BL2	1/22/02 5:56 PM	101700	4159

B C

HEATNO	TIMMATADD	MATCOD	MATADD	LOC
W1072	01/23/2002 11:06	#FCOAL63	311	F1
W1072	01/23/2002 11:07	#FCOAL63	400	F1
W1072	01/23/2002 11:08	#FBRLM62	1401	F1
W1072	01/23/2002 11:14	#FMGOO69	105	F1
W1072	01/23/2002 11:15	#FBRLM62	697	F1
W1073	01/23/2002 12:16	#FCOAL63	309	F1
W1073	01/23/2002 12:28	#FMGOO69	59	F1
W1073	01/23/2002 12:28	#FBRLM62	1	F1
W1073	01/23/2002 12:31	#FBRLM62	202	F1
W1074	01/23/2002 13:30	#FCOAL63	301	F1
W1074	01/23/2002 13:34	#FCOAL63	306	F1
W1074	01/23/2002 13:51	#FCOAL63	307	F1
W1074	01/23/2002 13:53	#FCOAL63	311	F1
W1074	01/23/2002 15:01	#FMGOO69	288	F1
W1074	01/23/2002 15:02	#FBRLM62	990	F1
W1074	01/23/2002 15:08	#FCOAL63	305	F1
W1074	01/23/2002 15:30	#FCOAL63	309	F1
W1074	01/23/2002 15:35	#FCOAL63	307	F1
W1075	01/23/2002 16:14	#FDOLM69	2003	F1
W1075	01/23/2002 16:18	#FDOLM69	2004	F1
W1075	01/23/2002 16:29	#FCOAL63	307	F1
W1075	01/23/2002 16:41	#FDOLM69	2004	F1

B7

HEATNO	BUCKET	START OF PERIOD	METALLICWGT	NONMETALLICWGT
W1072	B_1	01/23/2002 10:49	271200	9394
W1072	BL2	01/23/2002 11:14	109100	4750
W1073	B_1	01/23/2002 12:02	251100	8778
W1073	BL2	01/23/2002 12:28	133250	4495
W1074	B_1	01/23/2002 13:20	161400	9380
W1074	B_2	01/23/2002 13:43	160700	5007
W1074	BL3	01/23/2002 14:00	105550	1583
W1075	B_1	01/23/2002 16:01	218750	12700
W1075	B_2	01/23/2002 16:25	128950	4656
W1075	BL3	01/23/2002 16:36	30150	2004

E 8

HEATNO	START OF HEAT	START OF TAP	END OF TAP	STEEL IN LADLE	STEEL CATALOG	MILL_TYPE	POWERONTIME
W1072	01/23/2002 10:49	01/23/2002 11:46	01/23/2002 11:57	345966.44	6821AB	8019	51.3
W1073	01/23/2002 12:02	01/23/2002 13:09	01/23/2002 13:16	351809.28	6030AA	5120MNCR	56.0
W1074	01/23/2002 13:20	01/23/2002 15:51	01/23/2002 15:57	347649.16	0787AB	15R32V1	64.0
W1075	01/23/2002 16:01	01/23/2002 17:10	01/23/2002 17:16	337023.56	0787AB	15R32V1	50.8

HEATNO	START OF HEAT	START OF TAP	END OF TAP	STEEL IN LADLE	STEEL CATALOG	MILL_TYPE	POWERONTIME
W1087	01/24/2002 8:17	01/24/2002 12:18	01/24/2002 12:36	308600	6040LV	5120	60.2
W1088	01/24/2002 13:47	01/24/2002 15:20	01/24/2002 15:27	341739.16	6160AA	5135	75.0
W1089	01/24/2002 15:33	01/24/2002 17:01	01/24/2002 17:09	342164.44	6830AA	8119	63.8
W1090	01/24/2002 17:12	01/24/2002 18:09	01/24/2002 18:16	340456.16	2581BC	4140CA1	53.0
W1091	01/24/2002 18:19	01/24/2002 19:26	01/24/2002 19:34	340778.72	2445AC	4129M7CB1CA4	56.8

E9

HEATNO	TIMMATADD	MATCOD	MATADD	LOC
W1087	01/24/2002 8:23	#FCOAL63	309	F1
W1087	01/24/2002 8:26	#FCOAL63	307	F1
W1087	01/24/2002 8:30	#FBRLM62	934	F1
W1087	01/24/2002 8:31	#FMGOO69	86	F1
W1087	01/24/2002 8:33	#FCOAL63	308	F1
W1087	01/24/2002 8:38	#FCOAL63	312	F1
W1087	01/24/2002 8:39	#FCOAL63	308	F1
W1087	01/24/2002 9:54	#FCOAL63	308	F1
W1087	01/24/2002 11:10	#FCOAL63	309	F1
W1087	01/24/2002 11:10	#FCOAL63	313	F1
W1087	01/24/2002 11:58	#FCOAL63	311	F1
W1087	01/24/2002 12:00	#FCOAL63	311	F1
W1087	01/24/2002 12:02	#FCOAL63	303	F1
W1087	01/24/2002 12:03	#FCOAL63	302	F1
W1087	01/24/2002 12:05	#FCOALNT	405	F1
W1087	01/24/2002 12:05	#FDOLM69	1203	F1
W1088	01/24/2002 14:05	#FCOAL63	310	F1
W1088	01/24/2002 14:07	#FCOAL63	305	F1
W1088	01/24/2002 14:18	#FCOAL63	312	F1
W1088	01/24/2002 14:38	#FCOAL63	309	F1
W1088	01/24/2002 14:51	#FCOAL63	308	F1
W1088	01/24/2002 14:52	#FCOAL63	313	F1
W1088	01/24/2002 14:53	#FMGOO69	561	F1
W1088	01/24/2002 14:53	#FCOAL63	205	F1
W1088	01/24/2002 14:53	#FBRLM62	1004	F1
W1088	01/24/2002 14:55	#FCOAL63	203	F1
W1088	01/24/2002 14:55	#FBRLM62	1002	F1
W1088	01/24/2002 15:06	#FCOAL63	305	F1
W1088	01/24/2002 15:08	#FCOAL63	308	F1
W1088	01/24/2002 15:09	#FCOALNT	305	F1
W1088	01/24/2002 15:09	#FDOLM69	1005	F1
W1089	01/24/2002 15:41	#FCOAL63	300	F1
W1089	01/24/2002 15:42	#FDOLM69	2002	F1

B 10

W1089	01/24/2002 15:43	#FCOAL63	310	F1
W1089	01/24/2002 15:44	#FDOLM69	2004	F1
W1089	01/24/2002 15:50	#FCOAL63	305	F1
W1089	01/24/2002 15:52	#FCOAL63	307	F1
W1089	01/24/2002 16:29	#FCOAL63	311	F1
W1089	01/24/2002 16:40	#FDOLM69	2005	F1
W1089	01/24/2002 16:43	#FDOLM69	2005	F1
W1089	01/24/2002 16:52	#FCOAL63	307	F1
W1089	01/24/2002 16:53	#FCOAL63	309	F1
W1089	01/24/2002 16:55	#FCOAL63	309	F1
W1090	01/24/2002 17:21	#FDOLM69	2003	F1
W1090	01/24/2002 17:29	#FCOAL63	301	F1
W1090	01/24/2002 17:29	#FDOLM69	2006	F1
W1090	01/24/2002 18:04	#FCOAL63	309	F1
W1091	01/24/2002 18:30	#FDOLM69	2003	F1
W1091	01/24/2002 18:50	#FDOLM69	2006	F1
W1091	01/24/2002 18:52	#FCOAL63	206	F1
W1091	01/24/2002 18:53	#FCOAL63	201	F1
W1091	01/24/2002 19:10	#FCOAL63	305	F1
W1091	01/24/2002 19:17	#FCOAL63	310	F1

E 11

HEATNO	BUCKET	START OF PERIOD	METALLICWGT	NONMETALLICWGT
W1087	BL1	01/24/2002 8:17	271200	9269
W1088	B_1	01/24/2002 13:47	237450	4280
W1088	B_2	01/24/2002 14:26	160750	6809
W1088	BL3	01/24/2002 14:46	31250	3596
W1089	B_1	01/24/2002 15:33	263850	13662
W1089	B_2	01/24/2002 16:18	140350	4529
W1089	BL3	01/24/2002 16:35	36750	4010
W1090	B_1	01/24/2002 17:12	268750	12441
W1090	BL2	01/24/2002 17:36	116950	4064
W1091	B_1	01/24/2002 18:19	269800	14085
W1091	BL2	01/24/2002 18:43	113850	7308

E12

E 13

HEATNO	START OF HEAT	START OF TAP	END OF TAP	STEEL IN LADLE	STEEL CATALOG	MILL_TYPE	POWERONTIME
W1100	01/25/2002 7:05	01/25/2002 8:04	01/25/2002 8:12	342009.28	3700AA	4317CR15	53.2
W1101	01/25/2002 8:16	01/25/2002 9:16	01/25/2002 9:23	341121.56	3720AB	43B17	48.2
W1102	01/25/2002 9:28	01/25/2002 10:31	01/25/2002 10:37	341366	7041BB	8620CA1	54.7
W1103	01/25/2002 10:44	01/25/2002 11:47	01/25/2002 11:54	337009.28	6821AB	8019	53.2
W1104	01/25/2002 11:57	01/25/2002 12:53	01/25/2002 12:59	337184	6130AA	51R32V1	47.7
W1105	01/25/2002 13:02	01/25/2002 14:11	01/25/2002 14:17	345355.72	3120AD	4145	49.4

E 14

HEATNO	TIMMATADD	MATCOD	MATADD	LOC
W1100	01/25/2002 7:13	#FMGOO69	358	F1
W1100	01/25/2002 7:13	#FCOAL63	205	F1
W1100	01/25/2002 7:14	#FBRLM62	1252	F1
W1100	01/25/2002 7:16	#FMGOO69	350	F1
W1100	01/25/2002 7:16	#FCOAL63	203	F1
W1100	01/25/2002 7:17	#FBRLM62	1253	F1
W1100	01/25/2002 7:29	#FMGOO69	262	F1
W1100	01/25/2002 7:30	#FCOAL63	205	F1
W1100	01/25/2002 7:30	#FBRLM62	833	F1
W1100	01/25/2002 7:52	#FCOAL63	309	F1
W1100	01/25/2002 7:53	#FCOAL63	308	F1
W1100	01/25/2002 7:55	#FCOAL63	307	F1
W1100	01/25/2002 7:56	#FDOLM69	1004	F1
W1101	01/25/2002 8:34	#FCOAL63	301	F1
W1101	01/25/2002 8:43	#FCOAL63	308	F1
W1101	01/25/2002 8:44	#FCOAL63	308	F1
W1101	01/25/2002 8:47	#FMGOO69	23	F1
W1101	01/25/2002 8:47	#FBRLM62	83	F1
W1101	01/25/2002 9:05	#FCOAL63	307	F1
W1102	01/25/2002 9:38	#FCOAL63	301	F1
W1102	01/25/2002 9:40	#FMGOO69	174	F1
W1102	01/25/2002 9:40	#FBRLM62	597	F1
W1102	01/25/2002 9:41	#FCOAL63	308	F1
W1102	01/25/2002 9:44	#FCOAL63	312	F1
W1102	01/25/2002 9:51	#FCOAL63	313	F1
W1102	01/25/2002 10:03	#FCOAL63	307	F1
W1102	01/25/2002 10:18	#FCOAL63	303	F1
W1102	01/25/2002 10:22	#FDOLM69	1005	F1
W1103	01/25/2002 10:58	#FMGOO69	653	F1
W1103	01/25/2002 10:58	#FCOAL63	202	F1
W1103	01/25/2002 10:58	#FBRLM62	1003	F1
W1103	01/25/2002 10:59	#FCOAL63	200	F1
W1103	01/25/2002 10:59	#FBRLM62	1004	F1

E: 15

W1103	01/25/2002 11:09	#FMGOO69	282	F1
W1103	01/25/2002 11:10	#FBRLM62	1209	F1
W1104	01/25/2002 12:08	#FCOAL63	313	F1
W1104	01/25/2002 12:12	#FCOAL63	310	F1
W1104	01/25/2002 12:14	#FCOAL63	310	F1
W1104	01/25/2002 12:43	#FCOAL63	303	F1
W1105	01/25/2002 13:20	#FCOAL63	311	F1
W1105	01/25/2002 13:37	#FCOAL63	307	F1
W1105	01/25/2002 13:39	#FCOAL63	302	F1
W1105	01/25/2002 13:41	#FCOALNT	404	F1
W1105	01/25/2002 13:41	#FDOLM69	1201	F1
W1105	01/25/2002 13:59	#FCOALNT	407	F1
W1105	01/25/2002 13:59	#FDOLM69	1205	F1
W1105	01/25/2002 14:02	#FCOAL63	310	F1

E 16

HEATNO	BUCKET	START OF PERIOD	METALLICWGT	NONMETALLICWGT
W1100	B_1	01/25/2002 7:05	265050	11464
W1100	BL2	01/25/2002 7:26	118700	5223
W1101	B_1	01/25/2002 8:16	272250	8223
W1101	BL2	01/25/2002 8:41	107800	4683
W1102	B_1	01/25/2002 9:28	283650	10141
W1102	BL2	01/25/2002 9:49	102500	4844
W1103	B_1	01/25/2002 10:44	257850	12183
W1103	BL2	01/25/2002 11:05	123750	6053
W1104	B_1	01/25/2002 11:57	186850	9174
W1104	BL2	01/25/2002 12:21	155350	4123
W1105	B_1	01/25/2002 13:02	262350	8668
W1105	BL2	01/25/2002 13:34	112000	6395

HEATNO	START OF HEAT	START OF TAP	END OF TAP	STEEL IN LADLE	STEEL CATALOG	MILL_TYPE	POWERONTIME
W1155	01/28/2002 10:00	01/28/2002 11:04	01/28/2002 11:11	336591	6560AE	52100	51.3
W1156	01/28/2002 11:15	01/28/2002 12:27	01/28/2002 12:32	385314.28	3800AC	4320	41.7
W1157	01/28/2002 13:22	01/28/2002 14:31	01/28/2002 14:47	389557.16	7661AA	8719M	57.1
W1158	01/28/2002 15:20	01/28/2002 16:27	01/28/2002 16:33	326981.72	3882AB	4330M4V1CA2	61.7

E 17

HEATNO	BUCKET	START OF PERIOD	METALLICWGT	NONMETALLICWGT
W1155	B_1	01/28/2002 10:00	245350	9305
W1155	BL2	01/28/2002 10:21	132900	4650
W1156	BL1	01/28/2002 11:15	255405	11589
W1157	B_1	01/28/2002 13:22	217550	11275
W1157	BL2	01/28/2002 13:43	129050	4288
W1158	B_1	01/28/2002 15:20	267330	13664
W1158	BL2	01/28/2002 15:48	152650	8688

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HEATNO	TIMMATADD	MATCOD	MATADD	LOC
W1155	01/28/2002 10:08	#FDOLM69	704	F1
W1155	01/28/2002 10:10	#FCOAL63	311	F1
W1155	01/28/2002 10:32	#FDOLM69	504	F1
W1155	01/28/2002 10:52	#FCOAL63	309	F1
W1155	01/28/2002 10:54	#FCOAL63	310	F1
W1155	01/28/2002 10:56	#FCOAL63	306	F1
W1156	01/28/2002 11:19	#FBRLM62	264	F1
W1156	01/28/2002 11:23	#FDOLM69	506	F1
W1156	01/28/2002 11:24	#FCOAL63	308	F1
W1156	01/28/2002 11:26	#FCOAL63	312	F1
W1156	01/28/2002 11:29	#FCOAL63	314	F1
W1156	01/28/2002 11:30	#FDOLM69	506	F1
W1156	01/28/2002 11:37	#FCOAL63	312	F1
W1156	01/28/2002 12:09	#FCOAL63	300	F1
W1156	01/28/2002 12:10	#FCOAL63	313	F1
W1156	01/28/2002 12:12	#FCOAL63	314	F1
W1156	01/28/2002 12:12	#FDOLM69	503	F1
W1156	01/28/2002 12:13	#FCOAL63	300	F1
W1156	01/28/2002 12:15	#FCOAL63	306	F1
W1156	01/28/2002 12:16	#FCOAL63	302	F1
W1156	01/28/2002 12:20	#FCOAL63	312	F1
W1157	01/28/2002 13:32	#FBRLM62	1021	F1
W1157	01/28/2002 13:33	#FDOLM69	504	F1
W1157	01/28/2002 13:34	#FCOAL63	308	F1
W1157	01/28/2002 13:36	#FCOAL63	307	F1
W1157	01/28/2002 13:49	#FBRLM62	1188	F1
W1157	01/28/2002 13:51	#FDOLM69	600	F1
W1158	01/28/2002 15:33	#FDOLM69	2005	F1
W1158	01/28/2002 15:34	#FCOAL63	305	F1
W1158	01/28/2002 15:36	#FDOLM69	2006	F1
W1158	01/28/2002 15:37	#FCOAL63	303	F1
W1158	01/28/2002 15:38	#FCOAL63	302	F1
W1158	01/28/2002 15:39	#FCOAL63	304	F1

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W1158	01/28/2002 15:42	#FCOAL63	302	F1
W1158	01/28/2002 16:01	#FDOLM69	2007	F1
W1158	01/28/2002 16:04	#FCOAL63	302	F1
W1158	01/28/2002 16:05	#FDOLM69	2002	F1
W1158	01/28/2002 16:06	#FCOAL63	308	F1
W1158	01/28/2002 16:18	#FSCLE68	502	F1
W1158	01/28/2002 16:19	#FCOAL63	304	F1

HEATNO	START OF HEAT	START OF TAP	END OF TAP	STEEL IN LADLE	STEEL CATALOG	MILL_TYPE	POWERONTIME
W1168	01/29/2002 8:22	01/29/2002 9:42	01/29/2002 9:48	342854.16	6040LV	5120	50.4
W1169	01/29/2002 9:52	01/29/2002 10:51	01/29/2002 10:57	348681.72	0600AE	11R41	52.9
W1170	01/29/2002 11:02	01/29/2002 12:03	01/29/2002 12:08	328841.84	3882AB	4330M4V1CA2	55.0
W1171	01/29/2002 12:23	01/29/2002 13:29	01/29/2002 13:35	339222.56	1390AB	3311	52.0
W1172	01/29/2002 13:39	01/29/2002 14:42	01/29/2002 14:48	338568.44	7040EF	8620	48.8
W1173	01/29/2002 14:57	01/29/2002 16:29	01/29/2002 16:36	335434.84	6830AA	8119	56.0
W1174	01/29/2002 16:39	01/29/2002 17:53	01/29/2002 17:59	344794	6830AA	8119	52.2
W1175	01/29/2002 18:02	01/29/2002 19:02	01/29/2002 19:09	346521.56	6821AB	8019	52.7
W1176	01/29/2002 19:12	01/29/2002 20:36	01/29/2002 20:44	344948	0787AB	15R32V1	54.2

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HEATNO	TIMMATADD	MATCOD	MATADD	LOC
W1168	01/29/2002 8:40	#FDOLM69	506	F1
W1168	01/29/2002 8:43	#FCOAL63	302	F1
W1168	01/29/2002 9:12	#FDOLM69	505	F1
W1169	01/29/2002 10:00	#FDOLM69	503	F1
W1169	01/29/2002 10:03	#FCOAL63	307	F1
W1169	01/29/2002 10:05	#FCOAL63	303	F1
W1169	01/29/2002 10:41	#FCOAL63	310	F1
W1170	01/29/2002 11:10	#FBRLM62	1903	F1
W1170	01/29/2002 11:14	#FBRLM62	1038	F1
W1170	01/29/2002 11:19	#FMGOO69	854	F1
W1170	01/29/2002 11:38	#FBRLM62	2001	F1
W1170	01/29/2002 11:39	#FSCLE68	3002	F1
W1170	01/29/2002 11:50	#FCOAL63	312	F1
W1170	01/29/2002 11:52	#FCOAL63	310	F1
W1170	01/29/2002 11:55	#FCOAL63	301	F1
W1171	01/29/2002 12:31	#FBRLM62	1763	F1
W1171	01/29/2002 12:32	#FDOLM69	605	F1
W1171	01/29/2002 13:03	#FBRLM62	353	F1
W1171	01/29/2002 13:03	#FMGOO69	466	F1
W1171	01/29/2002 13:16	#FCOAL63	305	F1
W1171	01/29/2002 13:18	#FCOAL63	300	F1
W1171	01/29/2002 13:20	#FCOAL63	302	F1
W1171	01/29/2002 13:22	#FCOAL63	303	F1
W1172	01/29/2002 13:43	#FBRLM62	862	F1
W1172	01/29/2002 13:48	#FBRLM62	1994	F1
W1172	01/29/2002 13:50	#FCOAL63	305	F1
W1172	01/29/2002 13:50	#FMGOO69	834	F1
W1172	01/29/2002 13:52	#FCOAL63	308	F1
W1172	01/29/2002 14:08	#FBRLM62	216	F1
W1172	01/29/2002 14:08	#FMGOO69	60	F1
W1172	01/29/2002 14:29	#FCOAL63	308	F1
W1173	01/29/2002 15:03	#FBRLM62	1001	F1
W1173	01/29/2002 15:06	#FBRLM62	1223	F1

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W1173	01/29/2002 15:08	#FMGOO69	652	F1
W1173	01/29/2002 15:09	#FCOAL63	312	F1
W1173	01/29/2002 15:13	#FCOAL63	301	F1
W1173	01/29/2002 15:31	#FDOLM69	2005	F1
W1173	01/29/2002 15:46	#FDOLM69	2005	F1
W1173	01/29/2002 16:04	#FCOAL63	304	F1
W1173	01/29/2002 16:18	#FCOAL63	307	F1
W1173	01/29/2002 16:20	#FCOAL63	313	F1
W1174	01/29/2002 16:51	#FCOAL63	308	F1
W1174	01/29/2002 16:52	#FDOLM69	2004	F1
W1174	01/29/2002 16:55	#FDOLM69	2005	F1
W1174	01/29/2002 17:21	#FCOAL63	304	F1
W1174	01/29/2002 17:22	#FDOLM69	2004	F1
W1175	01/29/2002 18:13	#FDOLM69	2006	F1
W1175	01/29/2002 18:22	#FCOAL63	307	F1
W1175	01/29/2002 18:35	#FDOLM69	2003	F1
W1175	01/29/2002 18:37	#FDOLM69	2005	F1
W1175	01/29/2002 18:44	#FDOLM69	2004	F1
W1175	01/29/2002 18:55	#FCOAL63	306	F1
W1176	01/29/2002 19:21	#FDOLM69	2003	F1
W1176	01/29/2002 19:22	#FCOAL63	312	F1
W1176	01/29/2002 19:23	#FDOLM69	2000	F1
W1176	01/29/2002 19:25	#FCOAL63	310	F1
W1176	01/29/2002 19:31	#FCOAL63	310	F1

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HEATNO	BUCKET	START OF PERIOD	METALLICWGT	NONMETALLICWGT
W1168	B_1	01/29/2002 8:22	201100	9561
W1168	BL2	01/29/2002 8:50	183600	4881
W1169	B_1	01/29/2002 9:52	240600	9569
W1169	BL2	01/29/2002 10:17	140550	4229
W1170	B_1	01/29/2002 11:02	276425	12889
W1170	BL2	01/29/2002 11:26	93650	9552
W1171	B_1	01/29/2002 12:23	243350	11009
W1171	BL2	01/29/2002 12:45	116100	5141
W1172	B_1	01/29/2002 13:39	278290	12834
W1172	BL2	01/29/2002 13:58	99850	4544
W1173	B_1	01/29/2002 14:57	257200	12160
W1173	BL2	01/29/2002 15:21	123300	8347
W1174	B_1	01/29/2002 16:39	253000	12861
W1174	BL2	01/29/2002 17:02	126900	6579
W1175	B_1	01/29/2002 18:02	247350	10728
W1175	BL2	01/29/2002 18:27	129950	10222
W1176	B_1	01/29/2002 19:12	249600	13818
W1176	BL2	01/29/2002 19:38	144300	4441

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HEATNO	START OF HEAT	START OF TAP	END OF TAP	STEEL IN LADLE	STEEL CATALOG	MILL_TYPE	POWERONTIME
W1185	01/30/2002 6:55	01/30/2002 7:58	01/30/2002 8:05	335012.28	6830AA	8119	53.2
W1186	01/30/2002 8:09	01/30/2002 9:08	01/30/2002 9:14	343082.72	6900AA	8219	52.5
W1187	01/30/2002 9:18	01/30/2002 10:25	01/30/2002 10:34	347881.72	0360BC	1045	49.8
W1188	01/30/2002 10:38	01/30/2002 11:49	01/30/2002 11:56	345682.72	5890AA	5046V1	49.1
W1189	01/30/2002 12:02	01/30/2002 13:19	01/30/2002 13:28	338598	5890AA	5046V1	50.5
W1190	01/30/2002 13:32	01/30/2002 14:30	01/30/2002 14:37	341264.44	0360CF	1045	53.0
W1191	01/30/2002 14:44	01/30/2002 15:46	01/30/2002 15:51	342127.84	0520AA	11R17	52.2
W1192	01/30/2002 15:58	01/30/2002 16:57	01/30/2002 17:06	339871.44	0607BB	11R46	52.7
W1193	01/30/2002 17:11	01/30/2002 18:21	01/30/2002 18:27	339559.66	1380BF	3310	60.2

HEATNO	TIMMATADD	MATCOD	MATADD	LOC
W1185	01/30/2002 6:59	#FMGOO69	854	F1
W1185	01/30/2002 7:02	#FCOAL63	152	F1
W1185	01/30/2002 7:03	#FBRLM62	2002	F1
W1185	01/30/2002 7:05	#FCOAL63	159	F1
W1185	01/30/2002 7:06	#FBRLM62	2006	F1
W1185	01/30/2002 7:07	#FCOAL63	153	F1
W1185	01/30/2002 7:07	#FBRLM62	2251	F1
W1185	01/30/2002 7:09	#FCOAL63	155	F1
W1185	01/30/2002 7:09	#FBRLM62	2305	F1
W1185	01/30/2002 7:20	#FCOAL63	150	F1
W1185	01/30/2002 7:20	#FBRLM62	1600	F1
W1185	01/30/2002 7:21	#FCOAL63	153	F1
W1185	01/30/2002 7:22	#FBRLM62	1604	F1
W1185	01/30/2002 7:45	#FCOAL63	300	F1
W1186	01/30/2002 8:20	#FBRLM62	2000	F1
W1186	01/30/2002 8:22	#FBRLM62	2003	F1
W1186	01/30/2002 8:24	#FBRLM62	1502	F1
W1186	01/30/2002 8:36	#FBRLM62	1503	F1
W1186	01/30/2002 8:38	#FDOLM69	502	F1
W1186	01/30/2002 8:38	#FBRLM62	2001	F1
W1186	01/30/2002 8:57	#FCOAL63	305	F1
W1186	01/30/2002 8:59	#FCOAL63	307	F1
W1186	01/30/2002 9:01	#FCOAL63	304	F1
W1187	01/30/2002 9:25	#FDOLM69	805	F1
W1187	01/30/2002 9:30	#FCOAL63	303	F1
W1187	01/30/2002 9:33	#FCOAL63	307	F1
W1187	01/30/2002 9:53	#FDOLM69	804	F1
W1187	01/30/2002 9:59	#FCOAL63	308	F1
W1187	01/30/2002 10:11	#FCOAL63	308	F1
W1187	01/30/2002 10:15	#FCOAL63	307	F1
W1187	01/30/2002 10:18	#FCOAL63	312	F1
W1188	01/30/2002 10:42	#FDOLM69	505	F1
W1188	01/30/2002 11:18	#FDOLM69	504	F1

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W1189	01/30/2002 12:09	#FDOLM69	500	F1
W1189	01/30/2002 12:13	#FCOAL63	311	F1
W1189	01/30/2002 12:24	#FCOAL63	310	F1
W1189	01/30/2002 12:35	#FCOAL63	308	F1
W1189	01/30/2002 13:03	#FCOAL63	311	F1
W1189	01/30/2002 13:06	#FCOAL63	311	F1
W1190	01/30/2002 13:37	#FDOLM69	505	F1
W1190	01/30/2002 14:19	#FCOAL63	309	F1
W1190	01/30/2002 14:23	#FCOAL63	312	F1
W1191	01/30/2002 14:50	#FCOAL63	306	F1
W1191	01/30/2002 14:53	#FCOAL63	306	F1
W1191	01/30/2002 14:54	#FDOLM69	604	F1
W1191	01/30/2002 14:56	#FCOAL63	310	F1
W1191	01/30/2002 14:58	#FDOLM69	505	F1
W1191	01/30/2002 14:59	#FCOAL63	302	F1
W1193	01/30/2002 17:31	#FBRLM62	2015	F1
W1193	01/30/2002 17:43	#FMGOO69	915	F1
W1193	01/30/2002 17:43	#FBRLM62	1135	F1
W1193	01/30/2002 17:52	#FSCLE68	3016	F1
W1193	01/30/2002 17:53	#FBRLM62	2	F1
W1193	01/30/2002 17:53	#FMGOO69	1	F1
W1193	01/30/2002 17:55	#FBRLM62	1	F1
W1193	01/30/2002 17:55	#FMGOO69	2	F1
W1193	01/30/2002 17:55	#FSCLE68	3016	F1
W1193	01/30/2002 18:01	#FSCLE68	5016	F1
W1193	01/30/2002 18:11	#FCOAL63	305	F1

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HEATNO	BUCKET	START OF PERIOD	METALLICWGT	NONMETALLICWGT
W1185	B_1	01/30/2002 6:55	277100	12774
W1185	BL2	01/30/2002 7:15	102850	4875
W1186	B_1	01/30/2002 8:09	234150	7981
W1186	BL2	01/30/2002 8:31	151000	8102
W1187	B_1	01/30/2002 9:18	198850	9572
W1187	BL2	01/30/2002 9:40	172250	5500
W1188	B_1	01/30/2002 10:38	243600	8966
W1188	BL2	01/30/2002 10:56	132250	4736
W1189	B_1	01/30/2002 12:02	232850	9651
W1189	BL2	01/30/2002 12:29	133300	4575
W1190	B_1	01/30/2002 13:32	234950	9265
W1190	BL2	01/30/2002 13:52	143950	4383
W1191	B_1	01/30/2002 14:44	256050	11122
W1191	BL2	01/30/2002 15:05	136950	4395
W1192	B_1	01/30/2002 15:58	215050	9488
W1192	BL2	01/30/2002 16:24	164250	4743
W1193	B_1	01/30/2002 17:11	257800	11141
W1193	BL2	01/30/2002 17:36	113400	12651