EMISSIONS TEST REPORT

IPSCO STEEL, INC.
Muscatine, Iowa

November 17-19, 1998

IDNR Permit Number(s)	
94-A-564-S1	Tundish Dryers (EP 17)
94-A-563-S1	Ladle Preheater Stations (EP 16)
94-A-562-S1	Ladle Dryer (EP 15)
94-A-561-S1	Two Coiling Reheat Furnaces (EP 14)
94-A-560-S1	Reheat Furnace (EP 13)
94-A-553-S1	Oxy Fuel Caster Torch (EP 6)
94-A-551-S1	Carbon Storage Silos (EP 4)
94-A-550-S1	Lime and Dolomite Storage Silos (EP 3)
94-A-548-S2	EAF/LMF Meltshop Stack (EP 1)

Prepared By:

Ambient Air Services, Inc.
106 Ambient Air Way
Starke, FL 32091

EXECUTIVE SUMMARY:

(Revised 1-6-99)
On November 17, 1998 through November 19, 1998 Ambient Air Services, Inc performed the IDNR required stack test at IPSCO Steel's Montpelier Works facility. Table 1 summarizes the results of the test.

TABLE 1

IPSCO STEEL Montpelier Works Facility November 17-19, 1998			
SOURCE	PARAMETER	PERMITTED LIMITS	TEST RESULTS
EAF/LMF Baghouse Exhaust Stack	Particulate Matter (PM/PM-10) Condensable Particulate Matter Oxides of Nitrogen (as NO2) Sulfur Dioxide Carbon Monoxide Volatile Organic Compounds Lead Beryllium Fluoride Opacity	0.0025 gr/dscf To be established 45 lbs/hr. 10 lbs/hr. 150 lbs/hr. 22.0 lbs/hr. 0.09 lbs/hr. $9.1x10^{-5}$ lbs/hr. 0.68 lbs/hr. 3%	0.0008 gr/dscf 0.0025 gr/dscf 79.92 lbs/hr. 139.28 lbs/hr. 148.88 lbs/hr. 17.26 lbs/hr. 0.06 lbs/hr. BDL 0.53 lbs/hr. 0%
Melt Shop Building	Opacity	6%	1.0%
Dust Handling System	Opacity	10%	0%
Lime Storage Silo	Opacity	3%	0%
Carbon Storage Silo	Opacity	3%	0%
Continuous Slab Torches	Opacity	10%	0%
Walking Beam Reheat Furnace	Oxides of Nitrogen (as NO_2)	39.36 lbs/hr. 0.230 lbs/mmBTU	39.76 lbs/hr. 0.200 lbs/mmBTU
	Carbon Monoxide (CO)	5.80 lbs/hr. 50 ppm v.v	0 lbs/hr. 0 ppm v.v
Coiling Furnaces	Opacity	10%	0%
Ladle Drying Station	Opacity	10%	0%
Tundish Dryer	Opacity	10%	0%
Tundish Preheaters	Opacity	10%	0%

BDL - Below Detectable Limits

Ambient Air Services, Inc. of Starke, Florida, has completed the testing described in this report for IPSCO Steel, Inc., Muscatine, Iowa facility. To the best of our knowledge and abilities we certify that all information, facts and test data are true and correc Information supplied to AASI for use in this report from IPSCO Steel, Inc. is perceived to be accurate and is used as such where necessary.

This report was prepared and certified by:

Earl Coggins
Test Team Leader

Joseph L. Cooksey
Project Manager

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EMISSIONS TEST REPORT

IPSCO STEEL, INC.
Muscatine, Iowa

November 17-19, 1998

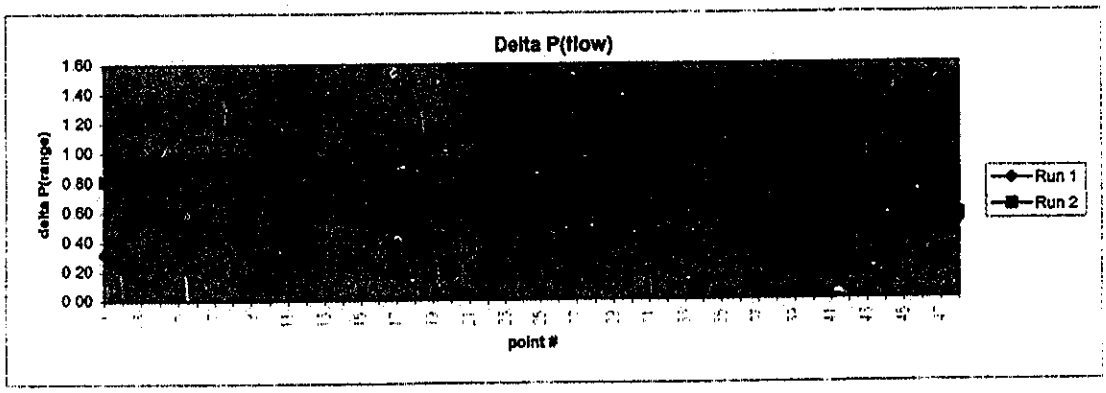
IDNR Permit Number(s)	
94-A-564-S1	Tundish Dryers (EP 17)
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94-A-550-S1	Lime and Dolomite Storage Silos (EP 3)
94-A-548-S2	EAF/LMF Meltshop Stack (EP 1)

Prepared By:

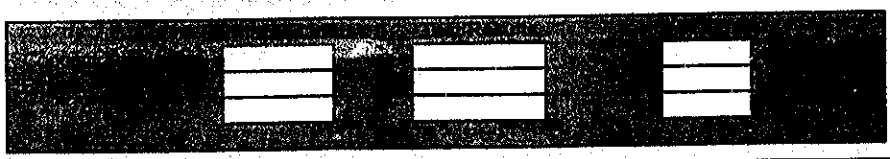
Ambient Air Services, Inc.
106 Ambient Air Way
Starke, FL 32091

Facility: IPSCO Steel
Location: Montpellier
Source: EAF/LMF Meltshop Stack Pb, Be, F
Permit Number: 94-A-548-S2
Test Date: 11/17-18/98
Reviewer: MS
Review Date: 2/4/99
Permit Limit: 0.09 lb/hr 0.000010 gr/dscf Pb, 9.1e-5 lb/hr Be, 0.68 lb/hr F
Permitted Stack Flow: 635000 dscfm

Run	ts (deg F)	Moisture (%)	Fan Flow (acfm)	Fan Flow (dscfm)	Vmstd (dscf)	Mass Catch (mg)	c (gr/dscf)	c (gr/scf)	e (lb/hr)	Run IKR%
Pb	143.3	2%	910219	766978	174	0.1	0.000009	0.0000	0.06	99%
Be	165.1	1%	872498	710951	161	0.0	0.0000	0.0000	0.00029	99%
F	165.1	1%	872498	710951	161	0.9	0.0001	0.0001	0.53	99%



	164	164	164	164
	126	136.4	136.4	133
	76.8	83.2	83.2	81.1
	635000	635000	635000	635000
	766978	710951	710951	729626
	120.8	112.0	112.0	114.9



Control Equipment Data During Compliance Test

IPSCO Steel - Montpellier
EAF/LMF Meltshop Stack

Data	Pb		Be		F	
Run:	1		1		1	
Pts:	48		48		48	
Min/Pt:	5.0		5.0		5.0	
Stack Diameter (in):	228.0		228.0		228.0	
Nozzle Diameter (in):	0.223		0.223		0.223	
Dry Gas Calibration Factor:	0.990		0.990		0.990	
Pitot Coefficient:	0.84		0.84		0.84	
Barometric Pressure (in Hg):	29.32		29.32		29.32	
Static Pressure (in H20):	-1.00		-1.00		-1.00	
CO%:	0.0	%	0.0	%	0.0	%
CO2%:	0.0	%	0.0	%	0.0	%
O2%:	20.9	%	20.9	%	20.9	%
Impinger Catch (ml):	30.0		19.0		19.0	
Silica Gel Catch (g)	26.3		26.5		26.5	
Metered Volume (dacf):	185.272		168.995		168.995	
Leak Correction (acf):	0.005		0.010		0.010	
Particulate Catch (mg, front-half):	0.1		0.0005		0.9	
Particulate Catch (mg, back-half):						

Avg Stack Temp (deg F):	143.3	165.1	165.1
Avg Meter Temp (deg F):	88.6	78.3	78.3
Avg Delta H (in H20):	1.62	1.32	1.32
Avg Sqrt Delta P (in H20)^{5}	0.8785	0.8276	0.8276
Total Particulate Catch (mg)	0.1	0.0	0.9

Calculations			
Tstd (deg R):	528.0	528.0	528.0
Pstd (in Hg):	29.92	29.92	29.92
Vm (dacf):	183.419	167.305	167.305
Tm (deg R):	548.6	538.3	538.3
Pm (in Hg):	29.44	29.42	29.42
Vmstd (dscf):	173.681	161.336	161.336
Vw_imp (std)	1.41	0.89	0.89
Vwsg (std)	1.24	1.25	1.25
Vliquid (scf):	2.652	2.144	2.144
Vtotal (scf):	176.334	163.480	163.480
Moisture (%):	1.5%	1.3%	1.3%
N2(%):	79.1%	79.1%	79.1%
Md (lb/lb-mole):	28.84	28.84	28.84
Ms (lb/lb-mole):	28.68	28.70	28.70
Ts (deg R)	603.3	625.1	625.1
Ps (in Hg):	29.25	29.25	29.25
vs (ft/sec):	53.5	51.3	51.3
As (sq ft):	283.53	283.53	283.53
Q (acfm):	910219	872498	872498
Q (scfm):	778690	720398	720398
Q (dscfm):	766978	710951	710951
An (sq ft):	0.00027	0.00027	0.00027
Run Length (min):	240.0	240.0	240.0
vn (ft/s):	52.8	50.7	50.7
IKR (%):	98.6%	98.8%	98.8%
Front-Half			
c (gr/scf):	0.0000	0.0000	0.0001
c (gr/dscf):	0.0000	0.0000	0.0001
e (lb/hr):	0.058	0.000	0.532
Total			
c (gr/scf):	0.0000	0.0000	0.00009
c (gr/dscf):	0.000009	4.8E-08	0.00009
e (lb/hr):	0.06	2.9E-04	0.53

Permit Limit: 0.09 lb/hr 0.000010 gr/dscf Pb, 9.1e-5 lb/hr Be, 0.68 lb/hr F
Permitted Stack Flow: 635000 dscfm

EPSCO Condensibles (Beakers)

Beaker ID	Description	Final WT	TARE WT	Initials	Sample Vol. (mL)
8E3	organic Run 1	103.2312	103.2005	DS	~~200~~ 25
8U2	Inorganic Run 1	79.9443	79.9269	DS	~~220~~
8E2	Inorganic Run 1	105.4579	105.4268	DS	
8R1	Meth. Chl. Blank	97.4662	97.4515	DS	200
8EB	organic Run 2	97.6391	97.6124	DS	250
8X1	Inorganic Run 2	100.7770	100.7674	DS	~~218~~
8UB	Inorganic Run 2	64.9680	64.9587	DS	
8R3	H_2O Blank	99.0420	99.0395	DS	200
8RB	organic Run 3	100.8738	100.8412	DS	250
8U3	Inorganic Run 3	81.0781	81.0570	DS	~~220~~ 222
8R2	Inorganic Run 3	103.4693	103.4443	DS	

Blanks

		max allowed
CH_2Cl_2	0.0735 mg/ml	0.013 mg/ml
H_2O	0.0125 mg/ml	0.01 mg/ml

	org.	inorg.
run 1	27.5	46.3
run 2	23.5	16.7
run 3	29.4	43.9

↑ using max. blank correction allowed

AMBIENT AIR SERVICES, INC.
LABORATORY DATA SHEET

PARTICULATE WEIGHT DETERMINATION

PLANT & LOCATION: IPSCO STEEL, Inc

STACK: EAF Method 12 Lead DATE 12-1-98

	RUN 1	RUN 2	RUN 3	RUN 4	INITIALS
FILTERS:					
Sample No.					
Filter No.		875			NB
Beaker & Filter Wt.					
Beaker Tare Wt.		.4218			DB
Gross Gain		.4180			NB
Filter Tare Wt.		0.0038			DB
Net Gain (gm)					
PREFILTER:					
Sample No.					
Sample Volume					
Aliquot					
Factor					
Final Wt.					
Tare Wt.					
Net Gain					
Net Gain x Factor = Total (gm)					
Blank Correction Factor					
Particulate Wt. (grams)					
SOLVENT BLANK:					
Solvent					
Solvent Volume, ml					
Beaker Final Wt., grams					
Beaker Tare Wt., grams					
Net Gain, grams					
Net Gain/100 ml solvent (gram)					
SILCA GEL:					
Sample No.					
Final Wt., grams		493.9			DB
Tare Wt., grams		467.6			NB
Net Gain, grams		26.3			DB
EXTRACTABLE MATTER:					
Sample No.					
Final Wt., grams					
Tare Wt., grams					
Net Gain, grams					

AASI.02

Balance Checks

0.500 gm	0.5001	10.000 gm	9.9999
2.000 gm	2.0001	50.000 gm	50.0000
5.000 gm	5.0001	100.000 gm	100.0001

AMBIENT AIR SERVICES, INC
LABORATORY DATA SHEET

PARTICULATE WEIGHT DETERMINATION

PLANT & LOCATION: IPSCO STEEL Inc

STACK: EAF Method 13B and 104 DATE 12-1-98

	RUN 1	RUN 2	RUN 3	RUN 4	INITIALS
FILTERS:					
Sample No.					
Filter No.	787				DB
Beaker & Filter Wt.					
Beaker Tare Wt.					
Gross Gain	.4211				DB
Filter Tare Wt.	.4177				DB
Net Gain (gm)	0.0034				DB
PREFILTER:					
Sample No.					
Sample Volume					
Aliquot					
Factor					
Final Wt.					
Tare Wt.					
Net Gain					
Net Gain x Factor = Total (gm)					
Blank Correction Factor					
Particulate Wt. (grams)					
SOLVENT BLANK:					
Solvent					
Solvent Volume, ml					
Beaker Final Wt., grams					
Beaker Tare Wt., grams					
Net Gain, grams					
Net Gain/100 ml solvent (gram)					
SILCA GEL:					
Sample No. 2 combined					
Final Wt., grams	466.7				DB
Tare Wt., grams	440.2				DB
Net Gain, grams	26.5				DB
EXTRACTABLE MATTER:					
Sample No.					
Final Wt., grams					
Tare Wt., grams					
Net Gain, grams					

AASI.02

Balance Checks

0.500 gm	0.5001	10.000 gm	9.9999
2.000 gm	2.0001	50.000 gm	50.0000
5.000 gm	5.0001	100.000 gm	100.0001

AMBIENT AIR SERVICES, INC.
LABORATORY DATA SHEET
PARTICULATE WEIGHT DETERMINATION

PLANT & LOCATION: IPSCO STEEL, Inc

STACK: EAF method 5/202 DATE 12-1-98

	RUN 1	RUN 2	RUN 3	RUN 4	INITIALS
FILTERS:					
Sample No.	551	892	891		DB
Filter No.					
Beaker & Filter Wt.					
Beaker Tare Wt.	0.4208	.4344	.4281		DB
Gross Gain	0.4107	.4292	.4226		DB
Filter Tare Wt.	0.0101 ✓	.0052 ✓	.0055 ✓		DB
Net Gain (gm)					
PREFILTER:	BQ1	BQ2	BQ3		DB
Sample No.					
Sample Volume					
Aliquot					
Factor	100.0467	100.6078	~~100.0~~ 104.8863		DB
Final Wt.	100.0404	100.5975	104.8766		DB
Tare Wt.	0.0063 ✓	0.0103 ✓	0.0097		DB
Net Gain					
Net Gain x Factor = Total (gm)					
Blank Correction Factor					
Particulate Wt. (grams)					
SOLVENT BLANK:	BQB				DB
Solvent	Acetone				DB
Solvent Volume, ml	100				DB
Beaker Final Wt., grams	100.4912				DB
Beaker Tare Wt., grams	100.4912				DB
Net Gain, grams	0.0000				DB
Net Gain/100 ml solvent (gram)					
SILCA GEL:					DB
Sample No.	4 Total combined				DB
Final Wt., grams	987.1	987.8	949.7		DB
Tare Wt., grams	938.3	934.1	895.3		DB
Net Gain, grams	48.8	53.7	54.4		DB
EXTRACTABLE MATTER:	See Attached Sheet				DB
Sample No.					
Final Wt., grams					
Tare Wt., grams					
Net Gain, grams					

AASI.02

Balance Checks

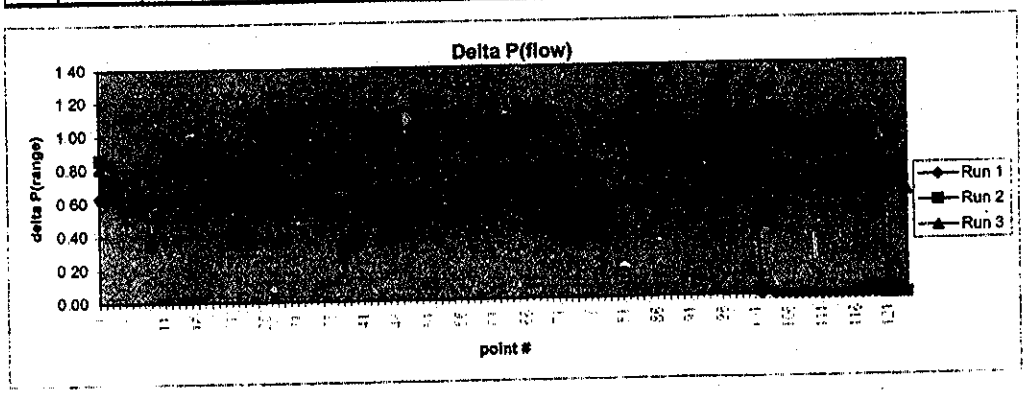
0.500 gm	0.5001	10.000 gm	9.9999
2.000 gm	2.0001	50.000 gm	50.0000
5.000 gm	5.0001	100.000 gm	100.0001

IPSCO Condensibles (Beakers)

Beaker ID	Description	Final WT	Initials
8E3	organic Run 1	103.2312	DB
8U2	Inorganic Run 1	79.9443	DB
8E2	Inorganic Run 1	105.4579	DB
8R1	methyl Blank	97.4662	DB
8EB	organic Run 2	97.6391	DB
8K1	Inorganic Run 2	100.7770	DB
8UB	Inorganic Run 2	64.9680	DB
8R3	H_2O Blank	99.0420	DB
8RB	organic Run 3	100.8738	DB
8U3	Inorganic Run 3	81.0781	DB
8R2	Inorganic Run 3	103.4693	DB

Facility: IPSCO
Location: Montpellier
Source: EAF/LMF Meltshop Stack
Permit Number: 94-A-548-S2
Test Date: 11/17-19/98
Reviewer: MS
Review Date: 1/14/99
Permit Limit: 0.0025 gr/scf, 17.9 lb/hr
Permitted Stack Flow: 635000 dscfm

Run	ts (deg F)	Moisture (%)	Fan Flow (acfm)	Fan Flow (dscfm)	Vmstd (dscf)	Mass Catch (mg)	c (gr/dscf)	c (gr/scf)	e (lb/hr)	Run IKR%
1	165.8	1%	878055	715458	267	90.1	0.0052	0.0051	31.92	96%
2	153.6	1%	899943	747652	326	55.7	0.0026	0.0026	16.90	96%
3	143.0	32%	937174	542280	348	88.5	0.0039	0.0027	18.24	139%
avg	154.1	11%	905057	668463	313.7	78.1	0.0039	0.0035	22.35	110.4%
cc	21.0	33%	54910	202923	77	35.7	0.002	0.003	15.27	46%



	164	164	164	164
	162.1	128.3	187.3	159
	98.8	78.2	114.2	97.1
	635000	635000	635000	635000
	715458	747652	542280	668463
	112.7	117.7	85.4	105.3

	0.0025	0.004	157%
	17.9	22.35	125%
	78.4	97.91	125%

Control Equipment Data During Compliance Test

Calculations

IPSCO - Montpellier
EAF/LMF Meltshop Stack

Data						
Run:	1		2		3	
Pts:	101		120		124	
Min/Pt:	var.		var.		var.	
Stack Diameter (in):	228.0		228.0		228.0	
Nozzle Diameter (in):	0.223		0.223		0.223	
Dry Gas Calibration Factor:	0.970		0.970		0.990	
Pitot Coefficient:	0.84		0.84		0.84	
Barometric Pressure (in Hg):	29.32		29.26		29.20	
Static Pressure (in H20):	-1.00		-1.00		-1.00	
CO%:	0.0	%	0.0	%	0.0	%
CO2%:	0.0	%	0.0	%	0.0	%
O2%:	20.9	%	20.9	%	20.9	%
Impinger Catch (ml):	20.0		18.0		22.0	
Silica Gel Catch (g)	48.8		53.7		54.4	
Metered Volume (dacf):	287.828		353.252		368.103	
Leak Correction (acf):	0.008		0.008		0.002	
Particulate Catch (mg, front-half):	16.3		15.5		15.2	
Particulate Catch (mg, back-half):	73.8		40.2		73.3	

Avg Stack Temp (deg F):	165.8	153.6	143.0
Avg Meter Temp (deg F):	83.0	85.2	81.6
Avg Delta H (in H20):	1.60	1.83	1.49
Avg Sqrt Delta P (in H20)^{5}	0.8326	0.8612	0.8490
Total Particulate Catch (mg)	90.1	55.7	88.5

Calculations			
Tstd (deg R):	528.0	528.0	528.0
Pstd (in Hg):	29.92	29.92	29.92
Vm (dacf):	279.193	342.654	364.422
Tm (deg R):	543.0	545.2	541.6
Pm (in Hg):	29.44	29.39	29.31
Vmstd (dscf):	267.121	326.026	348.009
Vw_lmp (std)	0.94	0.85	162.10
Vwsg (std)	2.30	2.53	2.56
Vliquid (scf):	3.242	3.379	164.665
Vtotal (scf):	270.363	329.405	512.674
Moisture (%):	1.2%	1.0%	32.1%
N2(%):	79.1%	79.1%	79.1%
Md (lb/lb-mole):	28.84	28.84	28.84
Ms (lb/lb-mole):	28.71	28.73	25.36
Ts (deg R)	625.8	613.6	603.0
Ps (in Hg):	29.25	29.19	29.13
vs (ft/sec):	51.6	52.9	55.1
As (sq ft):	283.53	283.53	283.53
Q (acfm):	878055	899943	937174
Q (scfm):	724142	755401	798967
Q (dscfm):	715458	747652	542260
An (sq ft):	0.00027	0.00027	0.00027
Run Length (min):	408.0	474.0	481.0
vn (ft/s):	49.4	50.9	76.8
IKR (%):	95.7%	96.2%	139.5%
Front-Half			
c (gr/scf):	0.0009	0.0007	0.0005
c (gr/dscf):	0.0009	0.0007	0.0007
e (lb/hr):	5.775	4.702	3.133
Total			
c (gr/scf):	0.0051	0.0026	0.0027
c (gr/dscf):	0.0052	0.0026	0.0039
e (lb/hr):	31.922	16.896	18.242

Permit Limit: 0.0025 gr/scf, 17.9 lb/hr
Permitted Stack Flow: 635000 dscfm

IPSCO - Montpellier
EAF/LMF Meltshop Stack

Data						
Run:	1		2		3	
Pts:	101		120		124	
Min/Pt:	var.		var.		var.	
Stack Diameter (in):	228.0		228.0		228.0	
Nozzle Diameter (in):	0.223		0.223		0.223	
Dry Gas Calibration Factor:	0.970		0.970		0.990	
Pitot Coefficient:	0.84		0.84		0.84	
Barometric Pressure (in Hg):	29.32		29.26		29.20	
Static Pressure (in H20):	-1.00		-1.00		-1.00	
CO%:	0.0	%	0.0	%	0.0	%
CO2%:	0.0	%	0.0	%	0.0	%
O2%:	20.9	%	20.9	%	20.9	%
Impinger Catch (ml):	20.0		18.0		22.0	
Silica Gel Catch (g)	48.8		53.7		54.4	
Metered Volume (dacf):	287.828		353.252		368.103	
Leak Correction (acf):	0.008		0.008		0.002	
Particulate Catch (mg, front-half):	16.3		15.5		15.2	
Particulate Catch (mg, back-half):	73.8		40.2		73.3	

Avg Stack Temp (deg F):	165.8	153.6	143.0
Avg Meter Temp (deg F):	83.0	85.2	81.6
Avg Delta H (in H20):	1.60	1.83	1.49
Avg Sqrt Delta P (in H20)^{5}	0.8326	0.8612	0.8490
Total Particulate Catch (mg)	90.1	55.7	88.5

Calculations			
Tstd (deg R):	528.0	528.0	528.0
Pstd (in Hg):	29.92	29.92	29.92
Vm (dacf):	279.193	342.654	364.422
Tm (deg R):	543.0	545.2	541.6
Pm (in Hg):	29.44	29.39	29.31
Vmstd (dscf):	267.121	326.026	348.009
Vw_imp (std)	0.94	0.85	162.10
Vwsg (std)	2.30	2.53	2.56
Vliquid (scf):	3.242	3.379	164.665
Vtotal (scf):	270.363	329.405	512.674
Moisture (%):	1.2%	1.0%	32.1%
N2(%):	79.1%	79.1%	79.1%
Md (lb/lb-mole):	28.84	28.84	28.84
Ms (lb/lb-mole):	28.71	28.73	25.36
Ts (deg R)	625.8	613.6	603.0
Ps (in Hg):	29.25	29.19	29.13
vs (ft/sec):	51.6	52.9	55.1
As (sq ft):	283.53	283.53	283.53
Q (acfm):	878055	899943	937174
Q (scfm):	724142	755401	798367
Q (dscfm):	715458	747652	542280
An (sq ft):	0.00027	0.00027	0.00027
Run Length (min):	408.0	474.0	481.0
vn (ft/s):	49.4	50.9	76.8
IKR (%):	95.7%	96.2%	139.5%
Front-Half			
c (gr/scf):	0.0009	0.0007	0.0005
c (gr/dscf):	0.0009	0.0007	0.0007
e (lb/hr):	5.775	4.702	3.133
Total			
c (gr/scf):	0.0051	0.0026	0.0027
c (gr/dscf):	0.0052	0.0026	0.0039
e (lb/hr):	31.922	16.896	18.242

Permit Limit: 0.0025 gr/scf, 17.9 lb/hr
Permitted Stack Flow: 635000 dscfm

Iowa Department of Natural Resources
Stack Test Observation Form

Tim'n

Facility Name: Ipsco Steel
Source: EAF Stack
ER Standards: 179 lb/hr - 0.0025 gr/scf

Location: Montpellier
Permit #: 94-A-548-S2
Test Method: IA 5 + 202

Control Equipment: Baghouse
Operating Capacity:
Permitted Stack Flow: 835 000 dscfm
Dimensions of the stack: 19 feet

Pressure Drop: 4-6" H2O
Rated Capacity:
Is the stack round? (Y) / N)

Consultants: AAS
Address: Ambient Air Services
Test Equipment Used: AAS

Crew Chief:
No. in Crew: 7

Calibration Data

Cp: 0.84 Y: 0.97 ΔH@: 1.91 Dn: 0.223

Run Data

Min./point: See Comments

swapped sm. boxes with Pb train ~1.61 min

Total Points: 24

Run	One	Two	Three	Four
Date	11/17/98	11/18/98	11/19/98	
Est. Bws	3.5%	2.5%	2.5%	
Bp	29.32	29.26	29.98	
Static Pressure	-1.8	-1.0"	-1.0"	
Pre Leak Check	0.008 @ 15"	0.010 @ 15"	0.01 @ 16"	
Start Time	4:04	7:13	7:36	
Initial DGM Reading	~~33.943~~ 30471	118.910	289.752	
Approx. Ts	165	155	135	
Approx. Tm	80	82	78	
Approx. Δp	0.70	0.79	0.63	
Approx. ΔH	1.60	1.85	1.32	
Highest Vacuum	9"	9"	?	
Post Leak Check	0.008 @ 15"	0.005 @ 10"	0.005 @ 7"	
Pitot Leak Check	OK	OK	OK	
Stop Time	4:50	6:44	5:31	
Final DGM Reading	11.16299	472.162	657.855	
Vmstd	264.586	327.978		
Stack Velocity	51.9	54.802		
Isokinnetics	96.7	95.0		
Flow				

267.826 353.252

Sample Recovery

Run	One	Two	Three
Probe Wash Color	Some particles	Small amount of particles	Same
Probe Wash Deposits	(L) M H	(L) M H	(L) M H
Filter Color	Rust Brown	Brown	Same
Filter Deposits	L (M) H	L (M) H	(L) M H
Impinger Color	Clear	Clear	Clear
Impinger Deposits	(L) M H	(L) M H	(L) M H

L = Light M = Medium H = Heavy

Run 1 Comments Run time is set for the end of the heat after 6.85 hrs. From previous production data, it will be about 7.5 hrs although shorter is possible. Condensibles are to be counted and permit limit adjusted if test over due to backhalf until when end of the sample points, they will start going back through the stack at end of heat. TPSCG had to replace electrode Run was stopped until fixed. ~~Probably~~ stopped TSP run too soon. They were supposed to end on integral # of heats (were going by energy input to furnace). Joe would signal when that was reached. When talking to meter operator, he was totally clueless if he received notice or not. Was watching final cuts for gas runs. Not happy with meter box operation

Down Time: ~30 min.

Run 2 Comments One of the shells in the EAF is down so production will be lower today. Also having a few troubles with furnace loading. Had to stop run about 10:15 to work on remaining shell refractory. Should only be about a 30 minute delay. 12:12 - scrap bucket went down. Back up 12:41 Due to rolling mill problems had to cut run about 10 minutes short. The stack had been traversed and we were just going back through the stack to reach the end of the heat.

Down Time: _____

Run 3 Comments 10:25 - Broken electrode Back up 11:18 This will only be for about 15 minutes

Down Time: _____

Equipment Set Up Satisfactory?	(Yes)	No
Equipment Dissembled Satisfactory?	(Yes)	No
Meter Box Operation Satisfactory?	(Yes)	No
Sample Preparation Satisfactory?	(Yes)	No
Equipment Calibrated?	(Yes)	No

Signature of Observer: Mark Stone Date: 11/19/98

Iowa Department of Natural Resources
Stack Test Observation Form

Facility Name: IPSCO Steel
Source: EAF
ER Standards: 0.00055 lb/ton 0.09 lb/hr Pb

Location: Montpelier
Permit #: 94-A-548-S2
Test Method: EPA 12

Control Equipment: _____
Operating Capacity: _____
Permitted Stack Flow: _____
Dimensions of the stack: 19'

Pressure Drop: _____
Rated Capacity: _____
Is the stack round? (Y) / N)

Consultants: _____
Address: _____
Test Equipment Used: _____

Crew Chief: _____
No. in Crew: _____

Calibration Data

Cp: 0.84 Y: 0.97 ΔH@: 1.6 Dn: 0.229

Run Data

Min./point: 10 Total Points: 24

Run	One	Two	Three	Four
Date	11/18/98			
Est. Bws	25%			
Bp				
Static Pressure	-1.0			
Pre Leak Check	0.018 @ 5"			
Start Time	10:41			
Final ~~Initial~~ DGM Reading	~~281.498~~ 289.198			
Approx. Ts	150			
Approx. Tm	88			
Approx. Δp	0.77			
Approx. ΔH	1.57			
Highest Vacuum	6"			
Post Leak Check	<0.005 @ 6"			
Pitot Leak Check	OK			
Stop Time	4:15			
Init. ~~Final~~ DGM Reading	103.926			
Vmstd	170.351			
Stack Velocity	53.79			
Isokinnetics	98.2%			
Flow				

185.272

Sample Recovery

Run	One			Two			Three		
Probe Wash Color									
Probe Wash Deposits	L	M	H	L	M	H	L	M	H
Filter Color									
Filter Deposits	L	M	H	L	M	H	L	M	H
Impinger Color									
Impinger Deposits	L	M	H	L	M	H	L	M	H

L = Light M = Medium H = Heavy

Run 1 Comments Only one run as required by permit.

Down Time: _____

Run 2 Comments

Down Time: _____

Run 3 Comments

Down Time: _____

Equipment Set Up Satisfactory?	Yes	No
Equipment Dissembled Satisfactory?	Yes	No
Meter Box Operation Satisfactory?	Yes	No
Sample Preparation Satisfactory?	Yes	No
Equipment Calibrated?	Yes	No

Signature of Observer: Mark Stone Date: 11/18/98

Iowa Department of Natural Resources

Stack Test Observation Form

Train 2

Facility Name: IPSCO Steel
Source: EAF (Fluoride Beryllium)
ER Standards: 0.68 lb/hr F 9.1x10⁻⁴ lb/hr Be

Location: Montpelier
Permit #: 94-A-548S2
Test Method:

Control Equipment: See MS-202 Sheet
Operating Capacity:
Permitted Stack Flow:
Dimensions of the stack:

Pressure Drop:
Rated Capacity:
Is the stack round? (Y / N)

Consultants:
Address:
Test Equipment Used:

Crew Chief:
No. in Crew:

Calibration Data

Cp: 0.84 Y: 0.97 ΔH@: 1.6 Dn: 0.223

Run Data

Min./point: 3 10

Total Points: 24

Run	One	Two	Three	Four
Date	11/17/98			
Est. Bws	28			
Bp	29.32			
Static Pressure				
Pre Leak Check	0.009 @ 15"			
Start Time	8:05			
Initial DGM Reading	936.5			
Approx. Ts	155			
Approx. Tm	73			
Approx. Δp	0.67			
Approx. ΔH	1.25			
Highest Vacuum	5"			
Post Leak Check	0.01 @ 5"			
Pitot Leak Check	OK			
Stop Time	1:30 pm			
Final DGM Reading	1102.160			
Vmstd				
Stack Velocity				
Isokinnetics				
Flow				

Sample Recovery

Run	One			Two			Three		
Probe Wash Color	Clear / small chunks								
Probe Wash Deposits	(L)	M	H	L	M	H	L	M	H
Filter Color	Rust Brown								
Filter Deposits	(L)	M	H	L	M	H	L	M	H
Impinger Color	clear								
Impinger Deposits	(L)	M	H	L	M	H	L	M	H

L = Light M = Medium H = Heavy

Run 1 Comments Only ~~one~~ one run per the permit

Down Time: _____

Run 2 Comments

Down Time: _____

Run 3 Comments

Down Time: _____

Equipment Set Up Satisfactory?	(Yes)	No
Equipment Dissembled Satisfactory?	(Yes)	No
Meter Box Operation Satisfactory?	(Yes)	No
Sample Preparation Satisfactory?	(Yes)	No
Equipment Calibrated?	(Yes)	No

Signature of Observer: Mark Stone Date: 11/17/98

Facility: IPSCO steel

Location: EA Montpelier

Source: EAF

Permit: 94-A-548-S2

Limit: (0.274 lb/ton, 45 lb/hr NO_x) (0.061 lb/ton, 10 lb/hr SO_2) (0.915 lb/ton 150 lb/hr CO)

Consultants: AAS

	Cal gas value	Run 1	2	3	4	5	6	7	8	9
Emissions start time										
NOx(ppm)										
pre zero cal	0	0.11	0.25	0.05	0.02					
post zero cal		0.25	0.05	0.02	0.02					
pre mid gas	39.4	40.3	41.24	42.07	41.64					
post mid gas		41.24	42.07	41.64	41.45					
pre span gas	80	40.2								
post span gas										
CEM avg.										
SO2(ppm)										
pre zero cal		0.075	0.8	0.5	0.6					
pre mid gas		25.3	24.8	24.2	24.2					
post mid gas		24.8	0.5 24.2	0.6	0.8					
post zero cal	24.7	0.6	0.5	24.2	25.4					
pre span gas	49.9	49.4								
post span gas										
CEM avg.										
O2(%)										
pre zero cal										
post zero cal										
pre mid gas										
post mid gas										
pre span gas										
post span gas										
CEM avg.										
CO(%)										
pre zero cal	0	1.2	1.2	1.2	1.4					
post zero cal		1.2	1.2	1.4						
pre mid gas	318	320	321	320	318					
post mid gas		321	320	318	318					
pre span gas	504	504								
post span gas					504					
CEM avg.										
finish time										
Moisture(%)										

Notes: May have real problem with SO_2. Back calculating a concentration from the rated stack flow, they are only allowed 1.2 or so ppm. The SO_2 level was at 29 ppm last I checked. NO_x was at 12 ppm. Using 835000 scfm this is over the 45 lb/hr limit as well

Facility: _____

Location: _____

Source: EAT

Permit: _____

Limit: <50 VOC (0.134 lb/ton 22 lb/hr)

Consultants: _____

	Cal gas value	Run 1	2	3	4	5	6	7	8	9
Emissions										
start time										
Pollutant	VOC									
pre zero cal		0.0	0.0	0.1	0.4					
post zero cal		0.0	0.1	0.4	0.4					
pre mid gas	15.7	299/13	25.0	24.6	24.8					
post mid gas	25.0	25.0	24.8	24.6						
pre span gas		24.9								
post span gas	49.9	50.2								
CEM avg.										
SO2(ppm)										
pre zero cal										
pre mid gas										
post mid gas										
post zero cal										
pre span gas										
post span gas										
CEM avg.										
O2(%)										
pre zero cal										
post zero cal										
pre mid gas										
post mid gas										
pre span gas										
post span gas										
CEM avg.										
CO2(%)										
pre zero cal										
post zero cal										
pre mid gas										
post mid gas										
pre span gas										
post span gas										
CEM avg.										
finish time										
Moisture(%)										

Notes: Propane

Facility: Frito

Location: Montpelier

Source: EP #13 Reheat furnace

Permit: 94-A-560-S1

Limit: 39.36 lb/hr, 0.230 lb/MMBtu NO_x, 5.8 lb/hr 50 ppm CO

Consultants:

	Cal gas value	Run 1	2	3	4	5	6	7	8	9
Emissions start time		N/A	11:19							
Nox(ppm)		0.18	~~0.06~~							
pre zero cal		[illegible]	0.06	0.38						
post zero cal			0.38	~~0.32~~						
pre mid gas	39.36	40.94	39.82	39.4						
post mid gas			39.25							
pre span gas	125.8	130.8	126.2	124.8						
post span gas			124.6							
CEM avg.										
SO2(ppm)										
pre zero cal										
pre mid gas										
post mid gas										
post zero cal										
pre span gas										
post span gas										
CEM avg.										
CO(%)										
pre zero cal		0.0	1.2	1.1						
post zero cal			1.1	~~0.0~~						
pre mid gas	19.1	19.2	19.2	19.0						
post mid gas			19.0	19.2						
pre span gas		31.22	31.3							
post span gas	29.99									
CEM avg.		0								
CO2(%)		0								
pre zero cal		*								
post zero cal		V								
pre mid gas		^								
post mid gas										
pre span gas										
post span gas										
CEM avg.										
finish time										
Moisture(%)										

Notes: Pull a bag sample for O_2/CO_2

Facility: IPSCO Steel
Location: Montpellier
Source: EAF/LMF stack
Permit Number: 94-A-548-S2
Test Date: 11/19/98
Reviewer: MS
Review Date: 1/15/99

	SO2 lb/hr	Limit (lb/hr)
Run 1	123.36	10
Run 2	118.08	10
Run 3	176.19	10

average 139.2

Flow used for all runs was the average from run 1 of the particulate test.
715458 dscfm

	NOx lb/hr	Limit (lb/hr)
Run 1	91.58	45
Run 2	77.13	45
Run 3	70.93	45

average 79.9

Production Averaged: 118.3 tph

Phase 1 Production Limit: 164 tph

This 72% of phase 1 production limit.

	CO lb/hr	Limit (lb/hr)
Run 1	141.32	150
Run 2	209.79	150
Run 3	95.30	150

average 148.8

	VOC lb/hr	Limit (lb/hr)
Run 1	20.16	22.0
Run 2	16.64	22.0
Run 3	14.86	22.0

average 17.2

IPSCO Steel-Montpellier
EAF/LMF stack

Data	
Run:	1
Pts:	
Min/Pt:	
Stack Diameter (in):	
Nozzle Diameter (in):	
Dry Gas Calibration Factor:	
Pitot Coefficient:	
Barometric Pressure (in Hg):	
Static Pressure (in H20):	
CO%:	%
CO2%:	%
O2%:	%
Moisture Collected (ml):	
Metered Volume (dacf):	
Leak Correction (acf):	
Avg Stack Temp (deg F):	
Avg Meter Temp (deg F):	
Avg Delta H (in H20):	
Avg Sqrt Delta P (in H20)^{5}	
Particulate Catch (mg):	

	NOx	SO2	CO	VOC (propane)
ppm(avg)	17.87	17.3	45.31	
Proticol 1 gas conc.	39.8	24.7	308	25
Cal. Initial	40.3	25 3	320	
Cal. Final	41.24	24.8	321	
Zero cal initial	0 11	-0.27	1 2	
Zero cal final	0.25	0 4	1 2	
Bws	1.2	1.2	1.2	1.2
Q(dscfm)	715458	715458	715458	715458
MW	46	64	28	45
Total hours				
Percentage CO2	0.03			
Conc. Corrected for drift (ppmdv)	17.9	17 3	45.3	4.1
Conc. (ppmwv)	17.7	17.1	44.8	4 0
E(lb/hr)	91.58	123.36	141.32	20.16
E(tons/yr)	0.000	0.000	0.000	0.000

Calculations	
Tstd (deg R):	528
Pstd (in Hg):	29 92
Vm (dacf):	0.00
Tm (deg R):	#VALUE!
Pm (in Hg):	#VALUE!
Vmstd (dscf):	#VALUE!
Vliquid (scf):	#VALUE!
Vtotal (scf):	#VALUE!
Moisture (%):	#VALUE!
N2(%):	#VALUE!
Md (lb/lb-mole):	#VALUE!
Ms (lb/lb-mole):	#VALUE!
Ts (deg R)	#VALUE!
Ps (in Hg):	0 00
vs (ft/sec):	#VALUE!
As (sq ft):	0.00
Q (acfm):	#VALUE!
Q (scfm):	#VALUE!
Q (dscfm):	#VALUE!
An (sq ft):	0
Run Length (min):	0
vn (ft/s):	#VALUE!
IKR (%):	#VALUE!
c (gr/scf):	#VALUE!
c (gr/dscf):	#VALUE!
e (lb/hr):	#VALUE!

IPSCO Steel-Montpellier
EAF/LMF stack

Data	
Run:	2
Pts:	
Min/Pt:	
Stack Diameter (in):	
Nozzle Diameter (in):	
Dry Gas Calibration Factor:	
Pitot Coefficient:	
Barometric Pressure (in Hg):	
Static Pressure (in H20):	
CO%:	%
CO2%:	%
O2%:	%
Moisture Collected (ml):	
Metered Volume (dacf):	
Leak Correction (acf):	
Avg Stack Temp (deg F):	
Avg Meter Temp (deg F):	
Avg Delta H (in H20):	
Avg Sqrt Delta P (in H20)$^{.5}$:	
Particulate Catch (mg):	

	NOx	SO2	CO	VOC (propane)
ppm(avg)		17.3	45.31	
Protocol 1 gas conc		**24.7**	**308**	**25**
Cal. Initial		25.3	320	
Cal Final		24.8	321	
Zero cal Initial		-0.27	1.2	
Zero cal final		0.4	1.2	
Bws		1.2	1.2	1.2
Q(dscfm)	715458	715458	715458	715458
MW	46	64	28	45
Total hours				
Percentage CO2				
Conc. Corrected for drift (ppmdv)	15.1	16.6	67.3	3.4
Conc. (ppmwv)	15.1	16.4	66.4	3.3
E(lb/hr)	77.13	118.08	209.79	16.64
E(tons/yr)	0.000	0.000	0.000	0.000

Calculations	
Tstd (deg R):	528
Pstd (in Hg):	29.92
Vm (dacf):	0.00
Tm (deg R):	#VALUE!
Pm (in Hg):	#VALUE!
Vmstd (dscf):	#VALUE!
Vliquid (scf):	#VALUE!
Vtotal (scf):	#VALUE!
Moisture (%):	#VALUE!
N2(%):	#VALUE!
Md (lb/lb-mole):	#VALUE!
Ms (lb/lb-mole):	#VALUE!
Ts (deg R)	#VALUE!
Ps (in Hg):	0.00
vs (ft/sec):	#VALUE!
As (sq ft):	0.00
Q (acfm):	#VALUE!
Q (scfm):	#VALUE!
Q (dscfm):	#VALUE!
An (sq ft):	0
Run Length (min):	0
vn (ft/s):	#VALUE!
IKR (%):	#VALUE!
c (gr/scf):	#VALUE!
c (gr/dscf):	#VALUE!
e (lb/hr):	#VALUE!

IPSCO - Montpellier
EAF/LMF Meltshop Stack

Data

Run:	1		2		3	
Pts:	101		120		124	
Min/Pt:	var.		var.		var.	
Stack Diameter (in):	228.0		228.0		228.0	
Nozzle Diameter (in):	0.223		0.223		0.223	
Dry Gas Calibration Factor:	0.970		0.970		0.990	
Pitot Coefficient:	0.84		0.84		0.84	
Barometric Pressure (in Hg):	29.32		29.26		29.20	
Static Pressure (in H20):	-1.00		-1.00		-1.00	
CO%:	0.0	%	0.0	%	0.0	%
CO2%:	0.0	%	0.0	%	0.0	%
O2%:	20.9	%	20.9	%	20.9	%
Impinger Catch (ml):	20.0		18.0		22.0	
Silica Gel Catch (g)	48.8		53.7		54.4	
Metered Volume (dacf):	287.828		353.252		368.103	
Leak Correction (acf):	0.008		0.008		0.002	
Particulate Catch (mg, front-half):	16.3		15.5		15.2	
Particulate Catch (mg, back-half):	73.8		40.2		73.3	

Avg Stack Temp (deg F):	165.8	153.6	143.0
Avg Meter Temp (deg F):	83.0	85.2	81.6
Avg Delta H (in H20):	1.60	1.83	1.49
Avg Sqrt Delta P (in H20)$^{.5}$	0.8326	0.8612	0.8490
Total Particulate Catch (mg)	90.1	55.7	88.5

Calculations

Tstd (deg R):	528.0	528.0	528.0
Pstd (in Hg):	29.92	29.92	29.92
Vm (dacf):	279.193	342.654	364.422
Tm (deg R):	543.0	545.2	541.6
Pm (in Hg):	29.44	29.39	29.31
Vmstd (dscf):	267.121	326.026	348.009
Vw_imp (std)	0.94	0.85	1.04
Vwsg (std)	2.30	2.53	2.56
Vliquid (scf):	3.242	3.379	3.601
Vtotal (scf):	270.363	329.405	351.610
Moisture (%):	1.2%	1.0%	1.0%
N2(%):	79.1%	79.1%	79.1%
Md (lb/lb-mole):	28.84	28.84	28.84
Ms (lb/lb-mole):	28.71	28.73	28.73
Ts (deg R)	625.8	613.6	603.0
Ps (in Hg):	29.25	29.19	29.13
vs (ft/sec):	51.6	52.9	51.8
As (sq ft):	283.53	283.53	283.53
Q (acfm):	878055	899943	880478
Q (scfm):	724142	755401	750539
Q (dscfm):	715458	747652	742853
An (sq ft):	0.00027	0.00027	0.00027
Run Length (min):	408.0	474.0	481.0
vn (ft/s):	49.4	50.9	52.7
IKR (%):	95.7%	96.2%	101.8%

Front-Half

c (gr/scf):	0.0009	0.0007	0.0007
c (gr/dscf):	0.0009	0.0007	0.0007
e (lb/hr):	5.775	4.702	4.292

Total

c (gr/scf):	0.0051	0.0026	0.0039
c (gr/dscf):	0.0052	0.0026	0.0039
e (lb/hr):	31.922	16.896	24.989

Permit Limit: 0.0025 gr/scf, 17.9 lb/hr
Permitted Stack Flow: 635000 dscfm

IPSCO Steel-Montpellier
EAF/LMF stack

Data	
Run:	3
Pts:	
Min/Pt:	
Stack Diameter (in):	
Nozzle Diameter (in):	
Dry Gas Calibration Factor:	
Pitot Coefficient:	
Barometric Pressure (in Hg):	
Static Pressure (in H20):	
CO%:	%
CO2%:	%
O2%:	%
Moisture Collected (ml):	
Metered Volume (dacf):	
Leak Correction (acf):	
Avg Stack Temp (deg F):	
Avg Meter Temp (deg F):	
Avg Delta H (in H20):	
Avg Sqrt Delta P (in H20)$^{.5}$:	
Particulate Catch (mg):	

	NOx	SO2	CO	VOC (propane)
ppm(avg)		17.3	45.31	
Proticol 1 gas conc		**24.7**	**308**	**25**
Cal. Initial		25 3	320	
Cal Final		24.8	321	
Zero cal initial		-0.27	1 2	
Zero cal final		0.4	1.2	
Bws		1 2	1 2	1 2
Q(dscfm)	715458	715458	715458	715458
MW	46	64	28	45
Total hours				
Percnetage CO2				
Conc. Corrected for drift (ppmdv)	13.8	24 7	30 6	3 0
Conc. (ppmwv)	13.8	24.4	30.2	3.0
E(lb/hr)	70.93	176.19	95.30	14.86
E(tons/yr)	0.000	0.000	0.000	0.000

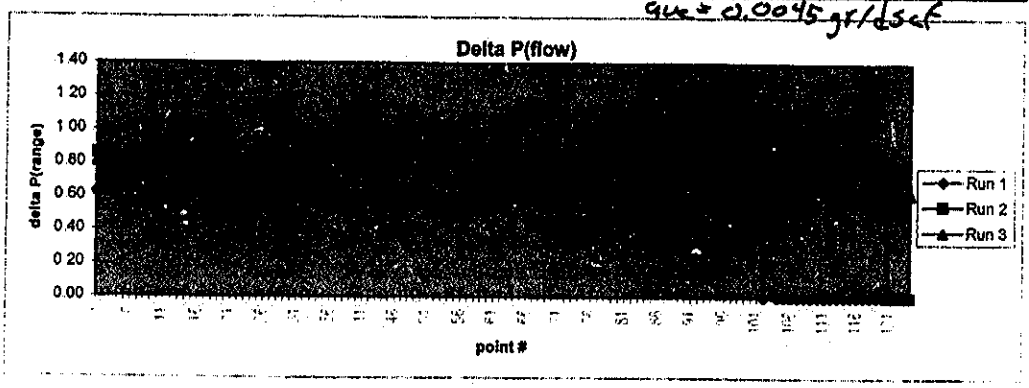
Calculations	
Tstd (deg R):	528
Pstd (in Hg):	29.92
Vm (dacf):	0.00
Tm (deg R):	#VALUE!
Pm (in Hg):	#VALUE!
Vmstd (dscf):	#VALUE!
Vliquid (scf):	#VALUE!
Vtotal (scf):	#VALUE!
Moisture (%):	#VALUE!
N2(%):	#VALUE!
Md (lb/lb-mole):	#VALUE!
Ms (lb/lb-mole):	#VALUE!
Ts (deg R)	#VALUE!
Ps (in Hg):	0.00
vs (ft/sec):	#VALUE!
As (sq ft):	0 00
Q (acfm):	#VALUE!
Q (scfm):	#VALUE!
Q (dscfm):	#VALUE!
An (sq ft):	0
Run Length (min):	0
vn (ft/s):	#VALUE!
IKR (%):	#VALUE!
c (gr/scf):	#VALUE!
c (gr/dscf):	#VALUE!
e (lb/hr):	#VALUE!

Facility: IPSCO
Location: Montpellier
Source: EAF/LMF Meltshop Stack
Permit Number: 94-A-548-S2
Test Date: 11/17-19/98
Reviewer: MS
Review Date: 1/14/99
Permit Limit: 0.0025 gr/scf, 17.9 lb/hr
Permitted Stack Flow: 635000 dscfm

Run	ts (deg F)	Moisture (%)	Fan Flow (acfm)	Fan Flow (dscfm)	Vmstd (dscf)	Mass Catch (mg)	c (gr/dscf)	c (gr/scf)	e (lb/hr)	Run IKR%
1	165.8	1%	878055	715458	267	90.1	0.0052	0.0051	31.92	96%
2	153.6	1%	899943	747652	326	55.7	~~0.0026~~	0.0026	~~16.90~~	96%
3	143.0	1%	880478	742853	348	88.5	0.0039	0.0039	24.99	102%
avg	154.1	1%	886159	735321	313.7	78.1	~~0.0039~~	0.0039	~~24.60~~	97.9%
cc	21.0	0%	22043	31908	77	35.7	0.002	0.002	13.82	6%

28.46 #/hr

Ave = 0.0045 gr/dscf



	Run 1	Run 2	Run 3	Run 4
	164	164	164	164
	162.1	128.3	187.3	159
	98.8	78.2	114.2	97.1
	635000	635000	635000	635000
	715458	747652	742853	735321
	112.7	117.7	117.0	115.8

	Permitted Limit	Test Results	% of Limit
	0.0025	0.004	157%
	17.9	24.60	137%
	78.4	107.76	137%

Control Equipment Data During Compliance Test

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APPENDICES

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1.0 INTRODUCTION:

IPSCO Steel, Inc. contracted with Ambient Air Services, Inc. of Starke, Florida to perform the initial compliance testing at their facility located in Muscatine, Iowa.

This testing was conducted in order to satisfy specific testing requirements of a group of permits for emission sources associated with the IPSCO Steel facility. For the testing prospective the requirements of the permits associated with this facility were grouped together and tested under one mobilization effort.

The testing was to demonstrate compliance with the requirements of the following permits:

94-A-564-S1	Tundish Dryers (EP 17)
94-A-563-S1	Ladle Preheater Stations (EP 16)
94-A-562-S1	Ladle Dryer (EP 15)
94-A-561-S1	Two Coiling Reheat Furnaces (EP 14)
94-A-560-S1	Reheat Furnace (EP 13)
94-A-553-S1	Oxy Fuel Caster Torch (EP 6)
94-A-551-S1	Carbon Storage Silos (EP 4)
94-A-550-S1	Lime and Dolomite Storage Silos (EP 3)
94-A-548-S2	EAF/LMF Meltshop Stack (EP 1)

A summary of the testing required by these permits is summarized in Table 1-1. Please note that variances were allowed regarding the requirements of testing on several sources. The testing actually performed is summarized in Table 1-2.

The testing was conducted November 17 - 19, 1998. IDNR was notified of the test dates, provided a detailed test protocol and a pre-test conference held. Mr. Mark Stone of IDNR was present during the pre-test conference and also for the compliance test.

TABLE 1-1

IPSCO STEEL, INC.
Montpelier Mill
Summary of Permit Required

Performance Emission Testing

Source #	Source Description	Approx. Stack Flow	Tests	EPA Method	# of Runs	Min. hrs/test or Min.vol.
1	EAF/LMF (BH Exhaust Stack)	835,000 dscfm	PM	40CFR60 AppA, Meth 5	3	9.6 hr or 429 actual CF
			PM10	40CFR51 AppM, 201A w 202	3	9.6 hr or 429 actual CF
			NOx	40CFR60 AppA, Meth 7E	3	3 hr (1 hr run)
			SO2	40CFR60 AppA, Meth 6C	3	3 hr (1 hr run)
			CO	40CFR60 AppA, Meth 10	3	3 hr (1 hr run)
			VOC	40CFR60 AppA, Meth 25A	3	3 hr (1 hr run)
			Pb	40CFR60 AppA, Meth 12	1	3.2 hr or 143 actual CF
			Be	40CFR61 AppB, Meth 104	1	3.2 hr or 143 actual CF
			Opacity	40CFR60 AppA, Meth 9	3	3 hr (aggregate total)
	(Shop Roof Vent)		Opacity	40CFR60 AppA, Meth 9	3	3 hr (aggregate total)
	(Dust Handling System)		Opacity	40CFR60 AppA, Meth 9	3	3 hr (aggregate total)
3	Lime/Dolomite Silo Baghouse	2000 dscfm	PM10	40CFR51 AppM, 201A w 202	3	8.0 DSCF
			Opacity	40CFR60 AppA, Meth 9	3	3 hr (aggregate total)
4	Carbon Storage Silo Baghouse	250 dscfm	PM10	40CFR51 AppM, 201A w 202	3	10.0 DSCF
			Opacity	40CFR60 AppA, Meth 9	3	3 hr (aggregate total)
6	Continuous Slab Caster Torches	Roof Monitor	Opacity	40CFR60 AppA, Meth 9	3	3 hr (aggregate total)
13	Walking Beam Reheat Furnace	12500 scfm	NOx	40CFR60 AppA, Meth 7E	3	3 hr (1 hr run)
			CO	40CFR60 AppA, Meth 10	3	3 hr (1 hr run)
14	Two Coiling Furnaces	1600 scfm (2) & Roof Monitor	NOx	40CFR60 AppA, Meth 7E	3	3 hr (1 hr run)
			CO	40CFR60 AppA, Meth 10	3	3 hr (1 hr run)
			Opacity	40CFR60 AppA, Meth 9	3	3 hr (aggregate total)
15	Ladle Drying Station	Roof Monitor	Opacity	40CFR60 AppA, Meth 9	3	3 hr (aggregate total)
16	Three Ladle Preheater Stations	Roof Monitor	Opacity	40CFR60 AppA, Meth 9	3	3 hr (aggregate total)
17	Tundish Dryer	Roof Monitor	Opacity	40CFR60 AppA, Meth 9	3	3 hr (aggregate total)
18	Tundish Preheaters	Roof Monitor	Opacity	40CFR60 AppA, Meth 9	3	3 hr (aggregate total)

TABLE 1-2

IPSCO STEEL, INC.
Montpelier Mill
Summary of Emission Testing Conducted
November 17 - 19, 1998

Source #	Source Description	Approx. Stack Flow	Tests	EPA Method	# of Runs	Min. hrs/test or Min.vol.
1	EAF/LMF (BH Exhaust Stack)	835,000 dscfm	PM	40CFR60 AppA, Meth 5	3	6.85 hr or 308 actual CF
			NOx	40CFR60 AppA, Meth 7E	3	6 heats total (minimum)
			SO2	40CFR60 AppA, Meth 6C	3	6 heats total (minimum)
			CO	40CFR60 AppA, Meth 10	3	6 heats total (minimum)
			VOC	40CFR60 AppA, Meth 25A	3	6 heats total (minimum)
			Pb	40CFR60 AppA, Meth 12	1	3.2 hr or 143 actual CF
			Be	40CFR61 AppB, Meth 104	1	3.2 hr or 143 actual CF
			F	40CFR60 AppA, Meth 13B	1	3.2 hr or 143 actual CF
	(Shop Roof Vent)		Opacity	40CFR60 AppA, Meth 9	3	3 hr (aggregate total)
	(Dust Handling System)		Opacity	40CFR60 AppA, Meth 9	3	3 hr (aggregate total)
			Opacity	40CFR60 AppA, Meth 9	3	3 hr (aggregate total)
			Condensables	40CFR51, AppM, Meth 202	3	6.85 hr or 308 actual CF
3	Lime/Dolomite Silo Baghouse	2000 dscfm	Opacity	40CFR60 AppA, Meth 9	1	1 hour (aggregate total)
4	Carbon Storage Silo Baghouse	250 dscfm	Opacity	40CFR60 AppA, Meth 9	1	1 hour (aggregate total)
6	Continuous Slab Caster Torches	Roof Monitor	Opacity	40CFR60 AppA, Meth 9	3	3 hr (aggregate total)
13	Walking Beam Reheat Furnace	12500 scfm	NOx	40CFR50 AppA, Meth 7E	3	3 hr (1 hr run)
			CO	40CFR60 AppA, Meth 10	3	3 hr (1 hr run)
14	Two Coiling Furnaces	1600 scfm (2) & Roof Monitor	Opacity	40CFR60 AppA, Meth 9	3	3 hr (aggregate total) CO, NOx, Flow requirement dropped by Mark Stone after observing operation of furnaces.
15	Ladle Drying Station	Roof Monitor	Opacity	40CFR60 AppA, Meth 9	3	3 hr (aggregate total)
16	Three Ladle Preheater Stations	Roof Monitor	Opacity	40CFR60 AppA, Meth 9	3	3 hr (aggregate total)
17	Tundish Dryer	Roof Monitor	Opacity	40CFR60 AppA, Meth 9	3	3 hr (aggregate total)
18	Tundish Preheaters	Roof Monitor	Opacity	40CFR60 AppA, Meth 9	3	3 hr (aggregate total)

2.0 EAF/LMF MELTSHOP PROPOSED TESTING

2.1 Testing Methodology and Procedures

The following table identifies the testing which was conducted on the EAF/LMF Baghouse Stack and its associated systems at IPSCO.

SOURCE	PARAMETER	TEST METHOD(S)	COMMENTS
Baghouse Stack	Particulate (PM and PM-10)	1-5	3 test runs, each test run a minimum of 6.85 hours in duration. To the extent possible an integral number of heats was sampled. Minimum sample volume 308 acf. Permit Limit 0.0025 gr/dscf
Baghouse Stack	Lead	12	1 test run, test run 3.2 hours in duration or 143 actual cubic feet sampled (whichever is longer). Permit Limit 0.09 lbs/hour.
Baghouse Stack	Beryllium	104	1 test run, test run 3.2 hours in duration or 143 actual cubic feet sampled (whichever is longer). Permit Limit 9.1×10^{-5} lbs/hour.
Baghouse Stack	SO_2 NO_x CO VOC	6C 7E 10 25A	6 heats sampled (minimum) 6 heats sampled (minimum) 6 heats sampled (minimum) 6 heats sampled (minimum)
Baghouse Stack	Visible Emissions	9	An aggregate total of 180 minutes will be tested in accordance with Method 9. Limit 3% opacity, six minute average.
Baghouse Stack	Condensable Particulate Matter	202	Per the pretest agreement between IDNR and IPSCO the limit will be established based on these test results. This method was combined with the EPA Method 5 testing.

2.1 Testing Methodology and Procedures (continued)

SOURCE	PARAMETER	TEST METHOD(S)	COMMENTS
Meltshop Building	Visible Emissions	9	An aggregate total of 180 minutes was tested in accordance with Method 9. Limit 6% opacity, six minute average. Only the portion of the meltshop building housing the EAF was observed.
Dust Loading System	Visible Emissions	9	An aggregate total of 180 minutes was tested in accordance with Method 9. Limit 10%, six minute average. At least one period of truck loading was included in the observations.

2.2 EAF/LMF Baghouse Emission Limitations

The permitted emission limitations for the EAF/LMF baghouse stack at a steel production of 164 tons per hour are as follows:

IPSCO STEEL Montpelier, Iowa Facility EAF/LMF Baghouse Stack Emission Limitations at 164 Tons Per Hour				
Pollutant	**Lbs/Hr.**	**Tons/year**	**Concentration**	**Designation**
PM	17.9	78.4	0.0025 gr/dscft	BACT
PM10	17.9	78.4	0.0025 gr/dscft	BACT
Opacity	N/A	N/A	3%	NSPS
SO2	10	43.8	1.22 ppm	BACT
NOx	45	197.1	7.66 ppm	BACT
VOC	22.0	96.2	2.81 ppm	BACT
CO	150	657	40.18 ppm	BACT
Lead (Pb)	0.09	0.38	0.000010 gr/dscft	BACT
Beryllium (Be)	9.1×10^{-5}	0.0004	N/A	BACT
Fluoride (F)	0.68	3	N/A	BACT
CPM	To be determined			

2.3 Particulate Testing:

USEPA Method 5 and 202 sampling was conducted on the EAF baghouse stack. The following is a listing of parameters and equipment specifications:

Number of traverse points per run	:	24 points
Number of minutes per traverse point	:	17 minutes
Data recorded	:	each 5 minutes (minimum)
Total sampling time per run	:	6.85 hours
Total number of runs	:	3 runs
Stack inside diameter	:	19 feet, 0 inches
Number of ports utilized	:	4
Number of points per port	:	6 per port

Point number	Distance from inside wall
1	4.8 inches
2	15.3 inches
3	26.9 inches
4	40.4 inches
5	57.0 inches
6	81.2 inches

Length of probe : 8 feet

Sampling Apparatus

1) Nozzle - Glass with sharp, tapered leading edge.

2) Probe - Stainless steel sheath with a ⅝ inch O.D. pyrex glass insert wrapped with insulated nichrome wire heating element. Probe temperature will be controlled and capable of maintaining a temperature of 250°F.

3) Pitot tube - Standard "type S", attached to the probe.

4) Filter Holder - Pyrex glass with fritted glass filter support.

5) Impingers - Four (4) glass impingers connected in series with glass ball joint fittings. The first, third and fourth are the modified Greenburg-Smith design. The second is the Greenburg-Smith design with a standard tip. All will be submerged in an ice bath during sampling runs.

6) Heated Filter Box - Insulated container with a controlled heating system capable of maintaining filter temperature not to exceed 273°F.

7) Meter Box/ Control Box - Module containing a vacuum gauge, leak free pump, dry gas meter with a minimum of one percent accuracy, valves and related equipment to maintain isokinetic sampling rate and determine sample volume.

8) Barometer - Aneroid type to measure atmospheric on-site pressure to ±0.05 inches of mercury.

9) Thermocouples - Type K thermocouples are utilized to monitor temperatures for stack gas, filter box, last impinger and dry gas meter.

Test Procedure

Prior to performing the actual particulate matter sample runs, certain stack gas and stack gas parameters were determined. The preliminary data included the average temperature, velocity head, and moisture content, the stack dimensions at the point where the tests were being performed, as well as a check for cyclonic flow. Cyclonic flow was not found.

The stack gas temperature was determined by using a Type K thermocouple with a real time readout. Velocity head measurements were determined across the stack using a type "S" pitot tube with an oil filled inclined manometer.

The sampling traverse points were selected so that a representative sample was extracted from the gas stream. The traverse points were located in the center of equal areas, which are dependent upon equivalent duct diameters downstream from flow disturbances. The specific points selected followed the requirements of EPA Method 1

One particulate test run consisted of sampling for a specified time at each traverse point. The type "S" pitot tube was connected adjacent to the sample probe so that an instantaneous velocity head measurement were determined at each traverse point while making the test run. The stack gas temperature was measured throughout each test. Isokinetic sampling rates for each traverse point during each test run were used.

The impinger condensor system was set up with 100 ml of distilled water in the first three impingers, the fourth impinger was left empty and the fifth and sixth impingers contained 400 grams each of silica gel. The use of silicone grease in train assembly was avoided due to its solubility in $MeCl_2$ which may result in sample contamination. Teflon O-rings were used to provide leak-free connections between glassware.

The liquid in the first three impingers was measured to within 1 ml using a clean graduated cylinder. The volume of liquid present was recorded and used to calculate the moisture content of the effluent gas. This liquid was quantitatively transferred into a clean glass sample bottle. Each impinger, the connecting glassware and the probe extension was rinsed twice with water. The rinse water was recovered and added to the same sample bottle. The liquid level was marked on the bottle. This

bottle was labeled Container No. 4.

The water rinses of each impinger and the connecting glassware, including the probe extension were followed by two rinses of $MeCl_2$. These rinse products were saved in a clean, glass sample jar. The liquid level was marked on the jar and labeled Container No. 5.

During the field test, 500 ml of distilled water was placed in a separate sample container and labeled Container No. 6.

During the field test, a 200 ml volume of $MeCl_2$ was placed in a separate sample container and labeled Container No. 7.

After noting the level of liquid in the containers and confirming whether leakage occurred during transport, the liquid in Container No. 4 was measured to ±1 ml.

The organic fraction of the sample was separated by adding the contents of Container No. 5 ($MeCl_2$) to the contents of Container No. 4 in a 1000-ml separatory funnel. After mixing, the aqueous and organic phases were allowed to fully separate. Most of the organic/$MeCl_2$ phase was drained off. 75 ml of $MeCl_2$ was then added to the funnel, mixed well, and the lower organic phase drained off. This was repeated with another 75 ml of $MeCl_2$. The organic extract was placed in a tared 500-ml weighing beaker.

The organic extract was evaporated at room temperature and pressure in a laboratory hood. Following evaporation, the organic fraction was desiccated for 24 hours in a desiccator containing anhydrous calcium sulfate and weighed to a constant weight to the nearest 0.1 mg.

The inorganic fraction was taken to near dryness (less than 1 ml liquid) in the oven and then allowed to air dry at ambient temperature. Following evaporation, the inorganic fraction was desiccated for 24 hours and weighed to a constant weight.

The sample blanks were analyzed along with the field samples using the same procedures for processing and evaporation.

Data

All field data sheets, calculation sheets and nomenclature definitions are included in Appendix A of this report. An example calculation is also included in Appendix A.

Note: IPSCO Steel will use the grain loading determined from the Method 5 particulate test to demonstrate compliance with the PM-10 particulate limit. It is commonly known that the PM-10 portion of the TSP is approximately 80 percent. This method of demonstrating compliance with PM-10 limitations has been utilized by other steel facilities.

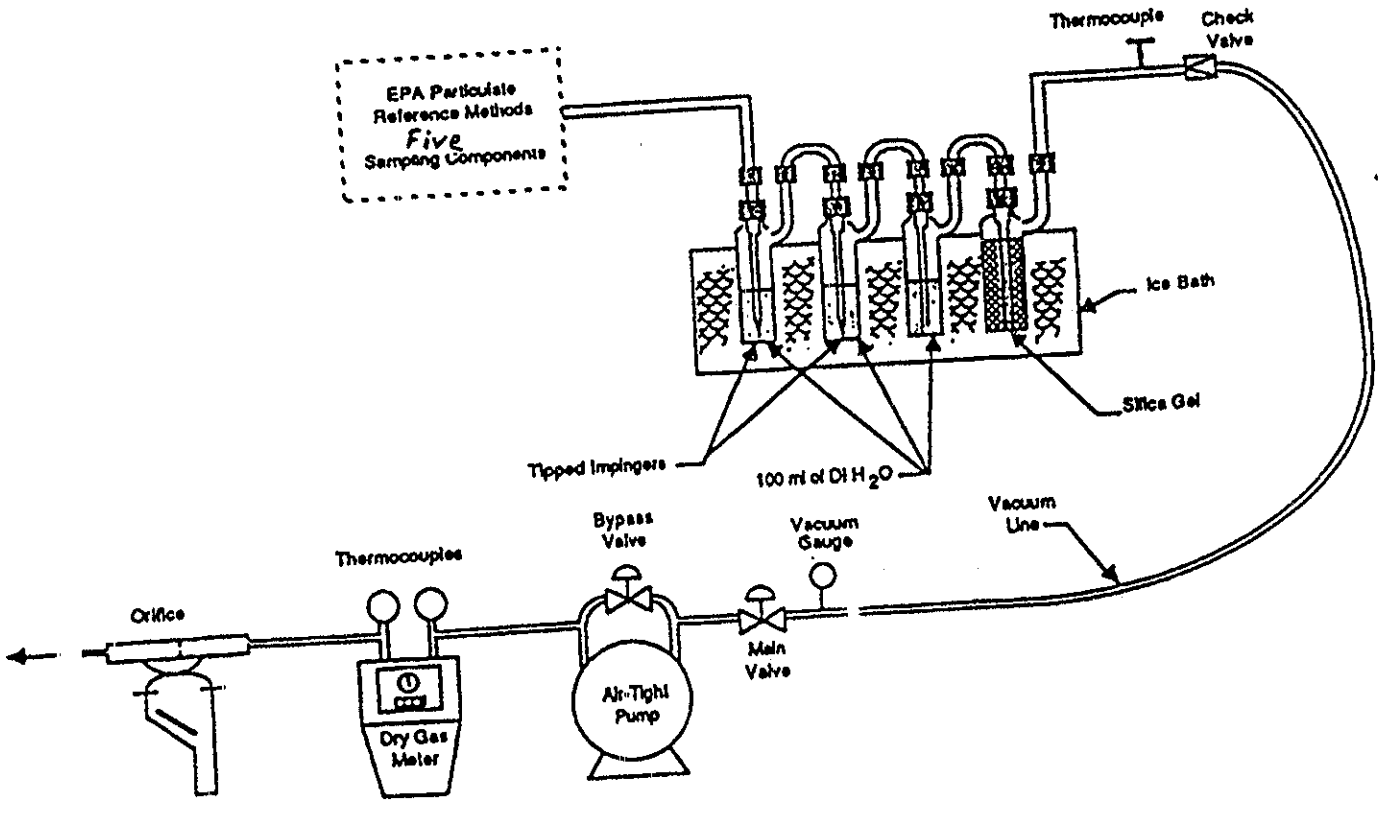


FIGURE 4-2

SCHEMATIC OF CONDENSABLE PARTICULATE SAMPLING TRAIN

2.4 Visible Emission Testing:

Visible emission observations were made on the baghouse exhaust stack, the EAF portion of the meltshop building and the dust handling system.

As required by 40CFR Part 60 Section 60.11(b) and the IDNR permit, the aforementioned sources were observed for a total of 30, six minute periods (180 total minutes). All visible observations were performed concurrently with the EAF baghouse particulate testing. The visible emission field data sheets are included in Appendix B of this report.

2.5 Source Operating Parameters:

In accordance with NSPS AAa Section 60.274a(c), (f), (g), and (h) the following information was recorded during the compliance testing:

1) Control system fan amperes and all damper positions
2) Furnace pressure in the free space inside the EAF.
3) Charge weights and materials
4) Tap weights and material
5) Heat times, including start and stop times, and a log of process operation including periods of down time.

These items were recorded approximately every 15 minutes and included in Appendix G of this report.

2.6 Calculation of Production Rate:

It was the intent of IPSCO and AASI to suspend testing at any time when the facility is not charging, melting, tapping or otherwise processing steel in a normal fashion. Delays of less than 10 minutes in duration are considered part of normal operation, however, delays expected to be in excess of 10 minutes are considered abnormal operation.

Since the testing was suspended during periods the mill experienced a non-normal delay, the process weight was adjusted to reflect only the time in which both the mill was producing steel and the particulate test was being conducted

During this testing, the facility experienced minimal delays

2.7 Other Issues:

Run Duration - Integral Number Heat(s)

As this facility operates a twin shell furnace in which only one furnace shell will be melting steel at a time, an attempt was made to sample an integral number of heat cycles (charge to tap). Since integral number of heats and 6.85 hours very rarely coincide with each other, the run time was extended. The sampling will begin when an arc is struck in one shell of the furnace. The run will continue for an aggregate of 6 85 hours (or 308 actual CF whichever is longer). At that point, a decision was made as to how much longer the run needed to be extended in order to test through the next tap of the furnace. The test points were repeated in reverse order until the end of current heat is reached.

It is noted that this method potentially biases the results in favor of the fourth port tested but to comply with the requirement set forth in 40CFR60 60.275a(e)(1) it was done.

2.8 Gaseous Emission Sampling

2.8.1 Methodology

Continuous instruments were used to measure CO, NO_x, SO_2 and VOC emissions. For the arc furnace shop a sample was obtained from the baghouse stack. A single sample withdrawal system was utilized. A fully extractive withdrawal system for VOC, carbon monoxide, sulfur dioxide and oxides of nitrogen analysis was utilized. Flow was determined on the stack in accordance with Methods 1-4 (flows were obtained from Method 5 testing data (Run 1) which was conducted concurrently).

Gaseous emission sampling consisted of three runs, each run covering a minimum of two furnace "heats". The sampling probe was positioned at a randomly selected location in the gaseous test port located at the particulate test port elevation. The test covered a minimum of 2 heats per run. Utilizing the flow rates (SCFM) measured for the particulate sampling, mass emissions were calculated in lbs/hr.

As stated earlier, a fully extractive heated probe system was used. This equipment provides a controlled temperature Teflon coated path wherein the sample is conveyed to the analytical instrument. Temperature is controlled to 250°F ±10°F to prevent moisture and hydrocarbon condensation problems.

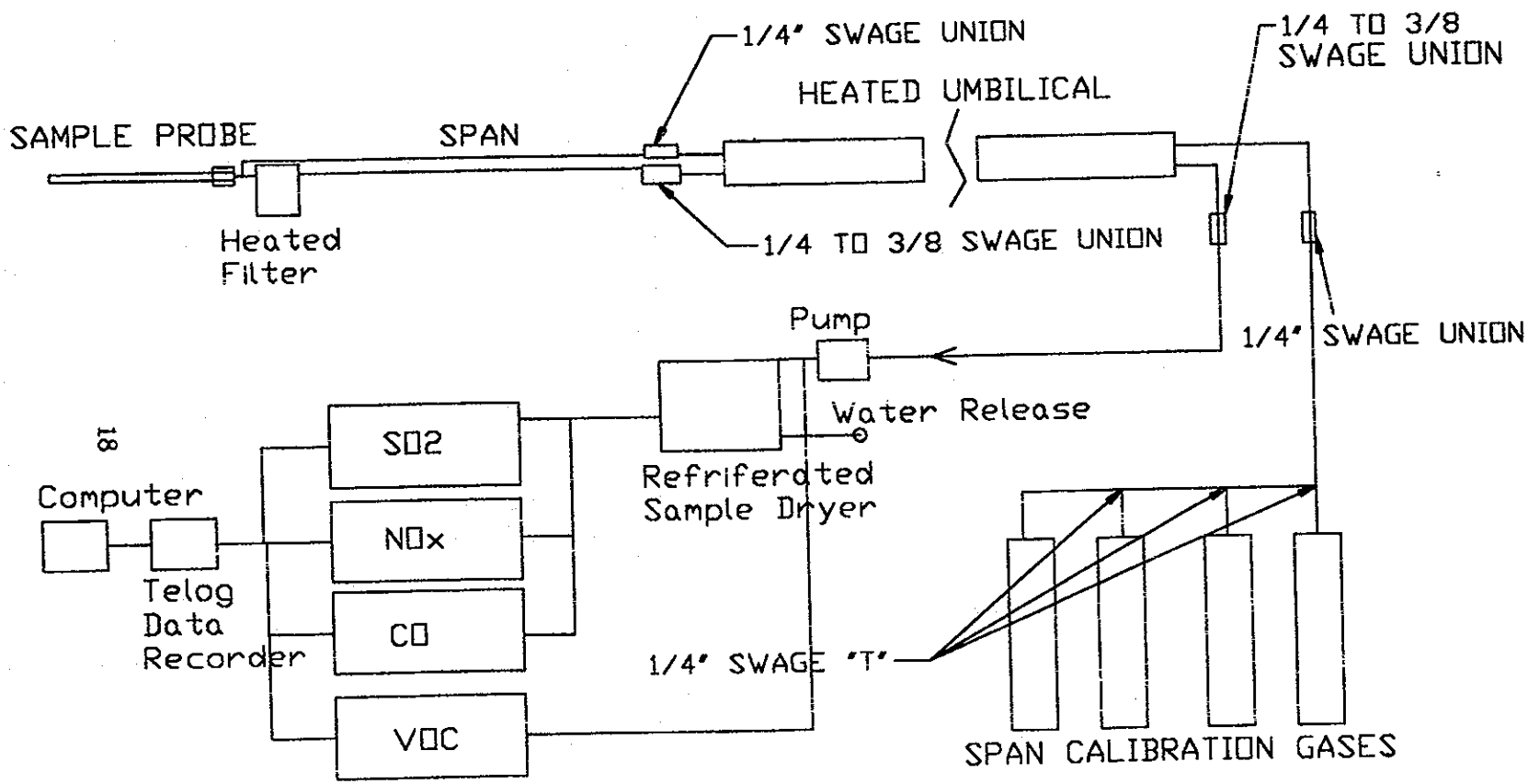
Data Recording

The primary apparatus was a Telog Model 2400 electronic data recorder which is based on micro-processor technology. This recorder interrogates each analytical instrument signal on a once-every-one-second basis and for this work was instructed to accumulate 60 of these one-second readings and store the average into recorder memory. The data bank consists of a series of one minute averages. In retrieving the data from the computerized database, scaling factors were entered to reflect the appropriate calibrations which occurred immediately before and after collecting the data set of current interest. The analysis of NO_x, CO, SO_2 and VOC gaseous species was carried out as follows:

Oxides of Nitrogen - Oxides of Nitrogen from this facility was measured using EPA Method 7E. Table 2.8.1 relates the required performance specifications of Method 7E to those presented by the manufacturer of the TEI Model 42 used in these tests. The instrument was calibrated over a nominal range of 0-100 ppm

Results from the test are expressed in mass per unit time with all NO_x converted to the species NO_2 as required by IDNR. (It should be noted that 99.9% of the NO_x emissions were in the form NO which is significantly lighter. The conversion of NO to NO_2 in the atmosphere is a slow and incomplete process. The assumption that 100% of the NO will convert to NO_2 is very conservative.) At the beginning and end of each test series zero gas plus two calibration gases were used to perform calibration checks. At intermediate periods during the three runs, zero gas plus one calibration gas was used as a calibration check.

FIGURE 2.8-1



EAF/BAGHOUSE TESTING SAMPLE SYSTEM

TABLE 2.8.1

OXIDES OF NITROGEN SYSTEM PERFORMANCE SPECIFICATIONS METHOD 7E VS THERMO ENVIRONMENTAL INSTRUMENTS MODEL 42		
	METHOD 7E	TECO 42
Calibration error zero, mid and high gases	Less than ±2% span	±1% of full scale
Sampling system bias for zero, mid and high gases	Less than ±5% span	±1% of full scale
Zero Drift	Less than ±3% of span over the run period	Negligible
Calibration Drift	Less than ±3% of span over the run period	±1% of full scale

Carbon Monoxide - Carbon monoxide was measured using an adaptation of EPA Method 10. Analyses will be on a continuous basis using a TECO Model 48 gas filter correlation type instrument. The instrument was operated on a nominal 1000 parts per million range and obtained its sample from the sample withdrawal system previously described. The required instrumental specifications from Method 10 and the specifications of the TECO Model 48 are displayed in Table 2.8.2 as an indication that this instrument is at least equivalent to the NDIR instrumentation described in EPA Method 10.

At the beginning and end of the test series calibrations were performed using zero and three calibration gases. At intermediate points during each of three runs a zero and single point calibration check performed.

TABLE 2.8.2

PERFORMANCE SPECIFICATIONS CARBON MONOXIDE ANALYZERS		
	METHOD 10 SPECIFICATION	TECO 48
Range (minimum)	0 - 1000 ppm	0 - 1000 ppm
Output (minimum)	0 - 10 mv	0 - 1 volt
Minimum Detectable Sensitivity	20 ppm	0.10 ppm
Rise Time (90%)	30 seconds max	(95%) 60 seconds
Fall Time (90%)	30 seconds max	(95%) 60 seconds
Zero Drift (maximum)	10% in 8 hours	±0.2 ppm in 24 hours
Span Drift (maximum)	10% in 8 hours	±1% in 24 hours
Precision (minimum)	±2% of full scale	±0.1 1 ppm
Noise (maximum)	±1% of full scale	0.05 ppm
Linearity (max dev.)	2% of full scale	±1%
Interference Rejection Ratio	CO_2 - 1000 to 1 H_2O - 500 to 1	Negligible for CO_2, H_2O, SO_2 and NO_x

Volatile Organic Compounds - VOC emissions from this facility were measured using an adaptation of EPA Method 25A. A fully extractive sample system previously described was employed.

The instrument used for this testing, a TEI Model 51, measures total hydrocarbon concentrations through a flame ionization detector and associated electronics. As is commonly practiced, the instrument was calibrated on a range of 0-50 ppm with EPA protocol gases of propane in nitrogen (nominal concentrations 0, 12, 25, 40 ppm) and thus the results will be expressed as being equivalent to propane. Table 2.8.3 reviews the specifications of this instrument relative to the requirements of EPA Method 25A.

At the beginning and end of each test, a zero and 3 propane based calibration gases were used for calibrations. At intermediate points during each the three runs, zero plus one propane based calibration gas was injected as an internal check of the system.

TABLE 2.8.3

TOTAL HYDROCARBONS SYSTEM PERFORMANCE SPECIFICATIONS METHOD 25A VS THERMO ENVIRONMENTAL INSTRUMENTS MODEL 51		
	METHOD 25A	TECO 51
Calibration error zero, mid and high gases	Less than ±5% calibration gas value	2% of reading plus span gas accuracy
Zero Drift	Less than ±3% of span	Less than ±1% of full scale in 24 hours
Calibration Drift	Less than ±3% of span	Less than ±1% of full scale in 24 hours

Sulfur Dioxide

Sulfur Dioxide concentrations were determined by EPA Method 6C. A Thermo Environmental Instruments (TEI) Model 43-C was used EPA protocol calibration gases of SO_2 in nitrogen were used at nominal levels of 0, 12, and 25 ppm (instrument range 0-30 ppm). Calibrations were performed before and after each test run. EPA Method 6C required correction factors were applied to the data based on the results of the calibrations.

Table 2.8.4 summarizes the TEI Model 43C versus those required by Method 6C.

TABLE 2.8.4

SULFUR DIOXIDE SYSTEM PERFORMANCE SPECIFICATIONS METHOD 6C VS THERMO ENVIRONMENTAL INSTRUMENTS MODEL 43C		
	METHOD 6C	TECO 43C
Calibration error zero, mid and high gases	Less than ±2% span	±1% of full scale
Sampling system bias for zero, mid and high gases	Less than ±5% span	±1% of full scale
Interference Check	Less than ±7% of Method 6 result	NO < 3 ppb M-Xylene <2 ppb H2O < 2% of reading
Calibration Drift	Less than ±3% of span over the run period	±1% of full scale

2.9 Beryllium Testing

EPA Method 104 was utilized to sample for beryllium.

One test run was performed, the test run was a minimum of 3.2 hours in duration and sampled a minimum of 143 actual cubic feet. The test parameters itemized under particulate testing were followed with the exception of the probe liner and nozzle were glass as specified in Method 104.

2.10 Lead Testing

EPA Method 12 was utilized to sample for lead.

One test run was performed, the test run was a minimum of 3.2 hours in duration and sampled a minimum of 143 actual cubic feet.

The stack parameters and sampling conditions are outlined in the particulate test section The distilled water in the impingers was replaced with 0 1N HNO_3 as specified in Method 12

2.11 Results

2.11a Particulate Testing

Tables 2-1 and 2-2 summarize the results of the total particulate matter and condensable particulate matter results.

The average particulate matter emissions were 0 00076 grains per dry standard cubic feet and 4.45 pounds per hour. This compares very favorably with both the PM and PM-10 permitted limit of 0.0025 grains per dry standard cubic foot and 17 9 pounds per hour.

CPM Results

The limit for condensable particulate matter (CPM) has yet to be established. The measured CPM was 0.0025 grains per dry standard cubic foot and 15.78 pounds per hour

TABLE 2-1

PARTICULATE EMISSION SUMMARY

IPSCO STEEL, INC.
MUSCATINE, IOWA

EAF/LMF BAGHOUSE STACK
November 17-19, 1998

DATE	RUN NUMBER	TIME	VOLUMETRIC FLOW ACFM[1]	VOLUMETRIC FLOW SCFMD[2]	% H_2O	STACK TEMP °F	% ISOKINETIC	PARTICULATE EMISSION GR/ SCFD[3]	PARTICULATE EMISSION LBS/ HR[4]
11-17-98	1	0804-1631	877692	715257	1.2	165.8	95.9	0.0009	5.52
11-18-98	2	0713-1744	899070	747222	1.0	153.6	98.2	0.0007	4.48
11-19-98	3	0736-1731	879564	742332	1.0	143.0	101.2	0.0007	4.45
Average			885442	734937	1.1	154.1	98.4	0.00076	4.82

1 ACFM - Actual Cubic Feet per Minute at Stack Conditions

2 SCFMD - Cubic Feet per Minute at Standard Conditions, dry.
Standard conditions are 68°F and 29.92 in Hg.

3 GR/SCFD - Grains per Standard Cubic Foot, dry.

4 LBS/HR - Pounds particulate emissions per hour

TABLE 2-2

CONDENSABLE PARTICULATE MATTER

EMISSIONS SUMMARY

IPSCO STEEL, INC.
MUSCATINE, IOWA

EAF/LMF BAGHOUSE STACK
November 17-19, 1998

DATE	RUN NUMBER	TIME	VOLUMETRIC FLOW ACFM[1]	VOLUMETRIC FLOW SCFMD[2]	% H_2O	STACK TEMP °F	% ISOKINETIC	CONDENSABLE PARTICULATE MATTER gr/dscf	CONDENSABLE PARTICULATE MATTER LBS/HR.
11-17-98	1	0804-1631	877692	715257	1.2	165.8	95.9	0.0035	21.50
11-18-98	2	0713-1744	899070	747222	1.0	153.6	98.2	0.0013	8.45
11-19-98	3	0736-1731	879564	742332	1.0	143.0	101.2	0.0027	17.40
Average			885442	734937	1.1	154.1	98.4	0.0025	15.78

1 ACFM - Actual Cubic Feet per Minute at Stack Conditions

2 SCFMD - Cubic Feet per Minute at Standard Conditions, dry.
Standard conditions are 68°F and 29.92 in Hg.

3 GR/SCFD - Grains per Standard Cubic Foot, dry.

4 LBS/HR - Pounds particulate emissions per hour

2.11b Visible Emission Observations

Table 2-3 summarizes the results of the visible emission observations.

No visible emissions were observed from the baghouse stack or the dust handling system. The maximum 6 minute observation from the meltshop was 1.0% with no additional visible emissions observed for the remainder of the 6 minute average opacity periods. All visible emission observations demonstrate compliance with the permitted limitations.

TABLE 2-3

VISIBLE EMISSION OBSERVATIONS

IPSCO STEEL, INC.
Muscatine, Iowa

EAF/LMF Baghouse Stack
Dust Handling System
Meltshop Roof

November 17-19,1998

	PERMITTED LIMIT	MAXIMUM OBSERVED OPACITY
Baghouse Stack	3% 6 minute average	0.0% 6 minute average
Dust Handling System	10% 6 minute average	0.0% 6 minute average
Meltshop Roof	6% 6 minute average	1.0% 6 minute average

2.11c Gaseous Emissions Testing Results

The results of the gaseous emission testing are summarized in Table 2-4 Supporting documentation, calculations and raw data are included in Appendix C.

TABLE 2-4

GASEOUS EMISSION TESTING

IPSCO STEEL, INC.
Muscatine, Iowa

November 17-19, 1998

Parameter	Stack Concentration(ppm)	Stack Flow	Emission Rates Pounds/hr.
Carbon Monoxide (CO)	47.7	715257 SCFMD	148.88
Oxides of Nitrogen (as NO_2)	15.59	715257 SCFMD	79.92
Sulfur Dioxide ($SO_{2)}$	19.52	715257 SCFMD	139.28
Volatile Organic Compounds (VOC)	3.48	723840 SCFMW	17.26

2.11d Lead, Fluoride and Beryllium Testing

The results of the lead, fluoride and beryllium test are presented in Table 2-5

TABLE 2-5

EMISSION SUMMARY

LEAD, FLUORIDE, BERYLLIUM

IPSCO STEEL
Muscatine, Iowa
(Revised 5-6-99)
November 17-18, 1998

PARAMETER	VOLUMETRIC FLOW SAMPLE SCFMD[1]	VOLUMETRIC FLOW TOTAL SCFMD	% H_2O	STACK TEMP °F	SAMPLE CONCENTRATION TOTAL	EMISSION RATES LBS/HR
Lead	173.662	766393	1.5	143.3	99.2 µg	0.06
Fluoride	161.373	711254	1.5	165.1	0.913 mg	0.53
Beryllium	161.373	711254	1.5	165.1	<0.5 µg	BDL

BDL = Below Detectable Limits

1 SCFMD - Cubic Feet per Minute at Standard Conditions, dry.
Standard conditions are 68°F and 29.92 in Hg.

EXAMPLE CALCULATION: 1) 99.2 µg ÷ 173.662 x 0.000001 = 57.1 x 10^{-6} grams/ft.^{3};
57.1 x 10^{-6} grams/ft.^{3} x 0.002205 = 12.6 x 10^{-8} x 766393 SCFMD = 0.001 lbs/min. x 60 = 0.06 lbs/hr.
2) lbs/hr. x 8000 hrs/year ÷ 2000 lbs/ton = tons/year

2.12 Test Compromises

A variation to the test protocol was made with regard to testing on integral number of heat cycles. Run 1 of the Method 5/202 test was ended inadvertently by the test team approximately 15 minutes prior to the end of a heat cycle. Run 2 of the Method 5/202 test included an integral number of heats. Run 3 of the Method 5/202 ended with the approval of Mr. Mark Stone of IDNR. The required number of cubic feet were sampled and the minimum run time achieved however with about 10% of a heat remaining the caster went down. This was going to result in substantial down time and, therefore, circumstances dictated the run ending prior to the tap.

Also with the approval of Mr. Mark Stone, the lead, beryllium and fluoride runs sampled on the required time and volume and an attempt was not made to continue for an integral number of heat cycles.

3.0 LIME/DOLOMITE AND CARBON STORAGE SILOS

IPSCO Steel's IDNR issued permits 94-A-550-S1 and 94-A-551-S1 both required testing for PM-10 and visible emissions from the silo vents. The test method specified is 40CFR51, Appendix M, 201A with 202 or approved alternate and Method 9.

Testing either of these silo discharge vents in accordance with 201A presents a problem. The silo vents discharge a relatively small amount of air (2000 dscfm lime silo and 250 dscfm carbon silo) The silos do not currently have a stack, they discharge through a small vent on the side of the filter housing.

A temporary stack extension could be fabricated to attach to the silo, however, the extension would need to be approximately 24 inches in diameter to allow testing in accordance with Method 201A. The 24 inch diameter results in the following velocities:

$$\text{Area or Circle} = \frac{\Pi d^2}{4} = \frac{(3.14)(2)^2}{4} = 3.14 \text{ SQ FT}$$

Conversion of CFM → FPM to estimate stack velocity

$$\frac{250 \text{ CFM}}{3.14 \text{ SQ FT}} = 79.6 \text{ ft per minute} = 1.33 \text{ ft/sec}$$

$$\frac{2000 \text{ CFM}}{3.14 \text{ SQ FT}} = 636.6 \text{ ft per minute} = 10.61 \text{ ft/sec}$$

These are at or below the velocities in which 201A (or 201) can be utilized, with the standard set of EPA approved nozzles.

If a smaller stack extension is fabricated then the cross sectional area of the 201A sampling device will be too large in proportion to the total stack area. This will result in a potentially large bias of the test data. Method 201A references the ratio of areas should be less than 3 percent.

It was proposed that only visible emission observations be performed on the silo. This was approved by IDNR in the pre-test conference.

Each silo was observed for a period of one hour during truck loadout. Multiple trucks were required to accumulate the one hour requirement.

The permit limit for these sources is 3% visible emissions. The observations summarized in Table 3-1 indicate compliance with the permit. No visible emissions were observed from the silos.

It should be noted that the dimensions detailed in the silo permit Section 10 Source Characteristics are silo dimensions not stack dimensions. The silos currently have no stack only a standard vent filter located on top of the silo, approximately 80 feet above ground level.

TABLE 3-1

LIME/DOLOMITE AND CARBON STORAGE SILOS
Visible Emission Observations

IPSCO STEEL, INC.
Muscatine, Iowa

November 17-19, 1998

Source	Permitted Opacity Limits	Observed Opacity	
		Highest 6 minute average	Highest Single Observation
Lime/Dolomite Silo	3% highest 6 min. average	0.0	0
Carbon Storage Silo	3% highest 6 min. average	0.0	0

4.0 WALKING BEAM REHEAT FURNACE

Permit 94-A-560-S1

The permit requires testing of the reheat furnace, Emission Point Number 13, for Oxides of Nitrogen and Carbon Monoxide emissions.

The Oxides of Nitrogen (NO_x) testing was conducted in accordance with EPA Method 7E. The Carbon Monoxide (CO) testing was conducted in accordance with EPA Method 10

The permitted emission limits for this source are as follows:

	Lbs/Hr.	Tons/year	Concentration
NO_x	39.36	172.38	0.230 lb/MMBTU
CO	5.80	25.4	50 ppm v.v

Permit No. 94-A-560-S1, Item 8 states that the furnace must operate with a preheat temperature of 790°F or lower. The final manufacturer recommendation for this value is 845°F. Therefore, the furnace must operate at a temperature higher than listed to be within the equipment manufacturer specifications.

NO_x and CO were measured utilizing instrumentation described for the EAF baghouse testing. Three test runs were conducted, each test run was 1 hour in duration

The instruments were set up on a 0-250 ppm range for NO_x and a 0-100 ppm range for CO. The appropriate calibration gases were utilized as specified in the EPA methods.

It should be noted that the test location did not meet EPA Method 1 criteria. The stack has a continuous taper prior to an air injection system and three, non-equally spaced test ports. To compensate for this, 24 points were measured for flow, eight per port. NO_x, CO, CO_2 and Q concentrations were measured across the stack.

O_2 and CO_2 readings were made in accordance with Method 3. Moisture was determined in accordance with Method 4.

WALKING BEAM REHEAT FURNACE Summary of Testing IPSCO STEEL			
PARAMETER	**METHOD**	**# OF RUNS**	**TYPE OF SAMPLES**
O2/CO2	3	3	Grab
Moisture	4	1	1 hour continuous
Flow	1-2	3	3 traverses (1 traverse per run)
CO	10	3	1 hour continuous per run
NOx	7E	3	1 hour continuous per run

4.1 Results

The results are summarized in Table 4-1 The results demonstrate compliance with the permit limitations.

TABLE 4-1

WALKING BEAM REHEAT FURNACE

IPSCO STEEL
Montpelier, Iowa

November 17-19, 1998

SUMMARY OF TESTING RESULTS

	RUN 1	RUN 2	RUN 3	AVERAGE
Oxygen	8.4%	7.6%	7.5%	7.8%
Carbon Dioxide	6.7%	7.6%	6.7%	7.0%
Moisture	13.8%	16.2%	14.9%	15.0%
Flow	46304 SCFMD	50325 SCFMD	49816 SCFMD	48815 SCFMD
Carbon Monoxide	0 ppm 0 lbs/hour 0 lbs/mmbtu	0 ppm 0 lbs/hour 0 lbs/mmbtu	0 ppm 0 lbs/hour 0 lbs/mmbtu	0 ppm 0 lbs/hour 0 lbs/mmbtu
Oxides of Nitrogen	115.7 ppm 38.41 lbs/hour 0.23 lbs/mmbtu	108.17 ppm 39.02 lbs/hour 0.17 lbs/mmbtu.	117.20 ppm 41.86 lbs/hour 0.21 lbs/mmbtu	113.69 ppm 39.76 lbs/hour 0.20 lbs/mmbtu

5.0 TWO COILING FURNACES
Permit 94-A-561-S1 (EP #14)

The permit requires testing of these two furnaces for CO, NO_x, Flow and Visible Emissions. However, after observing the operation of this source and the location of the stacks, it was determined unsafe to attempt these measurements. Mr. Mark Stone of IDNR was consulted with and it was determined that this source would be tested for visible emissions only.

The two stacks for these furnaces exhaust inside the building. Above the furnaces is a roof vent. This vent was observed for a 3 hour period in accordance with Method 9.

No visible emissions were observed.

6.0 LADLE DRYING SYSTEM

THREE LADLE PREHEATER STATIONS

TUNDISH DRYER

TUNDISH PREHEATERS

These four sources are covered in permits 94-A-561-S1, 94-A-562-S1 and 94-A-563-S1. Each of these permits contains a visible emission testing requirement. All of these sources exhaust through a common roof vent. As it is nearly impossible to observe the emissions from each individual source, the ridge vent was observed to cover the requirements for all four sources.

Visible emission observations was conducted for an aggregate total of three hours. Observations were made during periods of normal steelmaking. During these periods all of the sources were operating at least for a significant portion of the test time.

The emission limit for these sources is 10% opacity six minute average.

No visible emissions were observed from these sources.

7.0 CONTINUOUS SLAB CASTER TORCHES

Permit 94-A-553-S1 (EP #6)

The permit for this source requires visible emission observations in order to demonstrate compli ance. There is a roof ridge vent over the area housing these torches. This ridge vent was observed for an aggregate period of three hours in accordance with EPA Method 9. The observations were conducted when the caster torches are operating in a normal fashion.

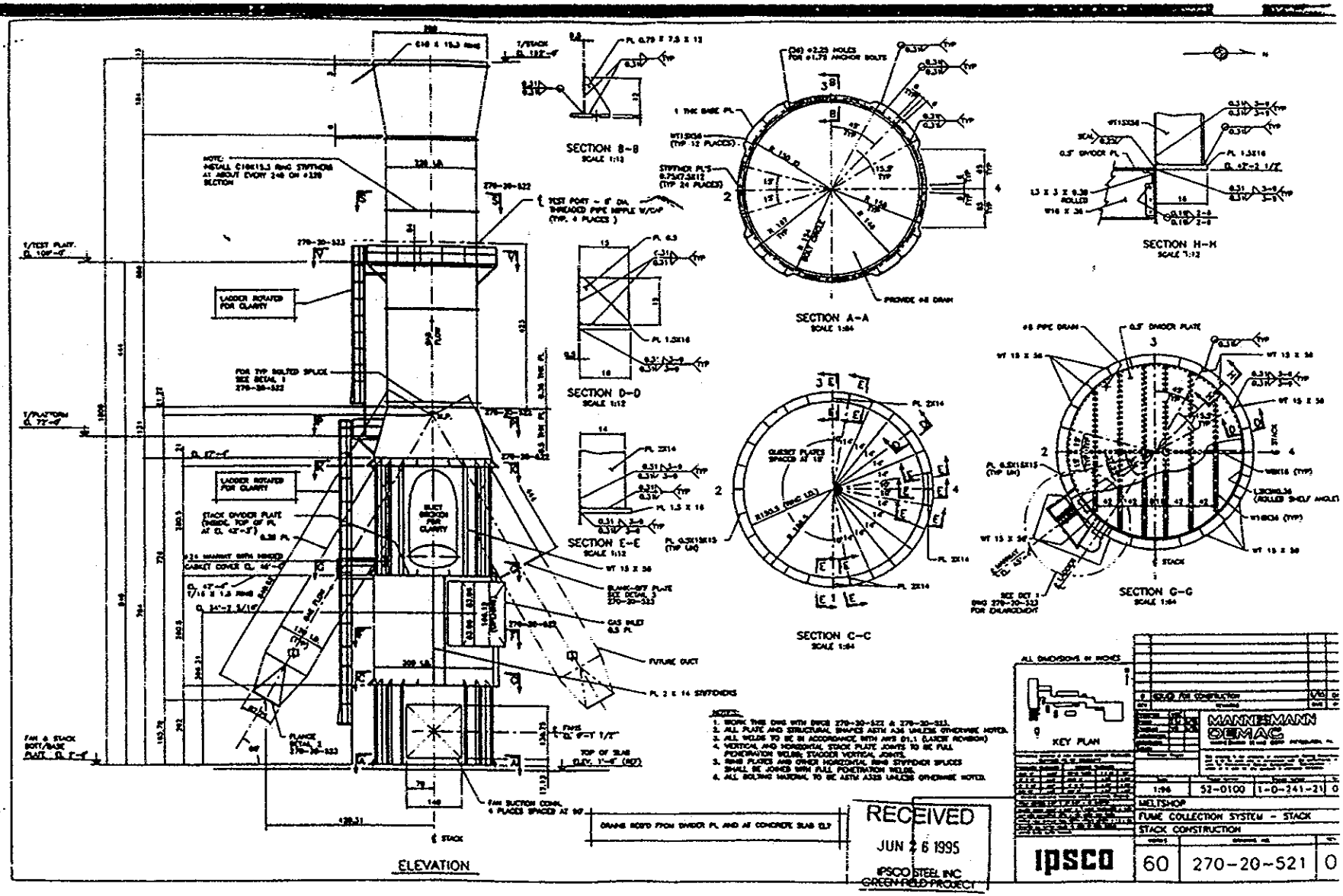
Visible emissions from this source are limited to 10% opacity 6 minute average.

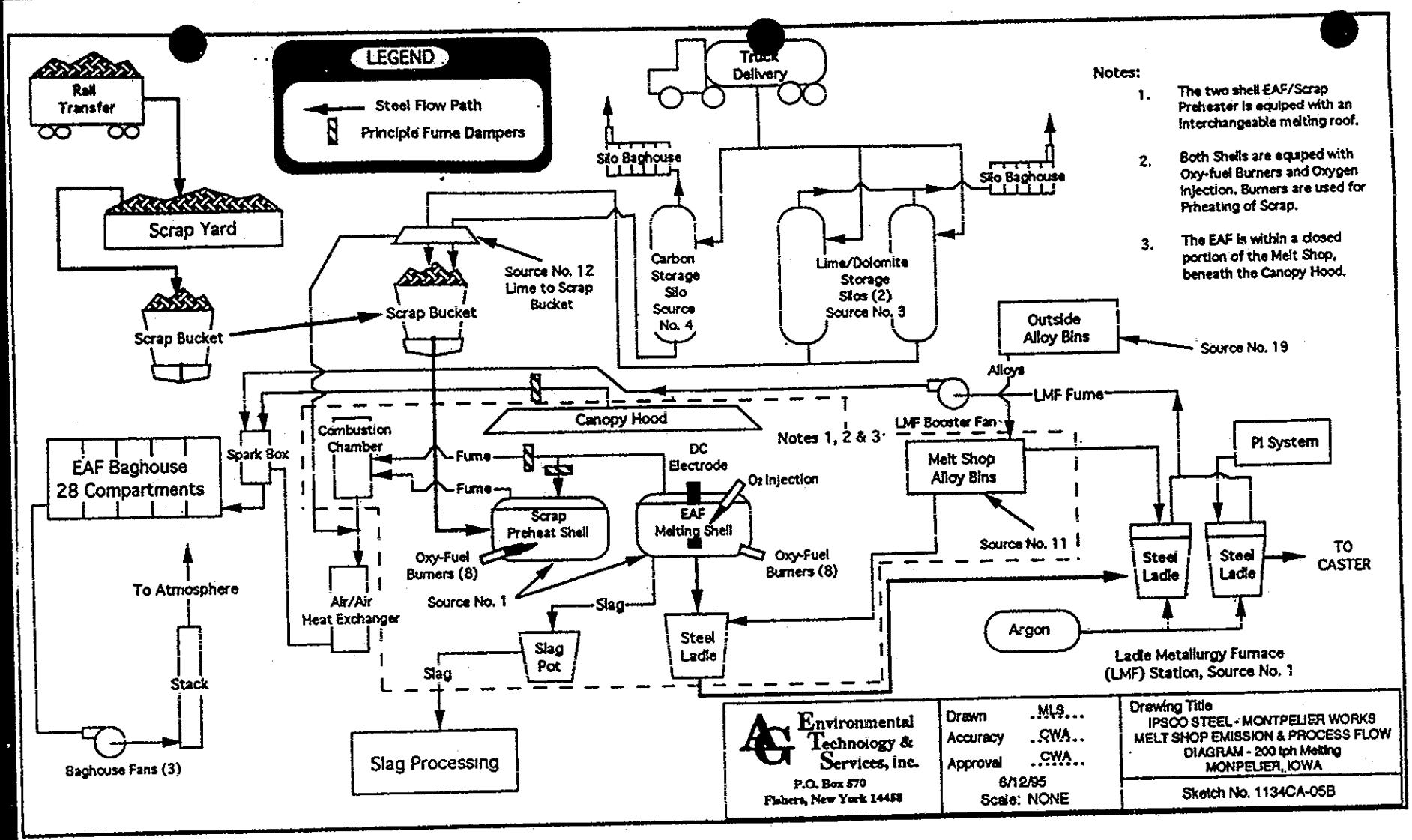
No visible emissions were observed from this source.

APPENDIX A

EAF/LMF Baghouse Particulate Test Data

1. Stack Diagram, Process Diagram
2. Results
3. Nomenclature/Example Calculations
4. Field Data Sheets
5. Laboratory Data Sheets
6. Method 202 Condensable Particulate Matter Computer Printouts
7. Equipment Calibrations Post Test


SECTION B-B
SCALE 1:12
SECTION A-A
SCALE 1:64
SECTION H-H
SCALE 1:12
SECTION D-D
SCALE 1:12
SECTION E-E
SCALE 1:12
SECTION C-C
SCALE 1:64
SECTION G-G
SCALE 1:64
ELEVATION
KEY PLAN
NOTES:
1. WORK THIS DWG WITH DWGS 270-20-522 & 270-20-523.
2. ALL PLATE AND STRUCTURAL SHAPES ASTM A36 UNLESS OTHERWISE NOTED.
3. ALL WELDS TO BE IN ACCORDANCE WITH AWS D1.1 (LATEST REVISION)
4. VERTICAL AND HORIZONTAL STACK PLATE JOINTS TO BE FULL PENETRATION WELDS. STAGGER VERTICAL JOINTS.
5. RING PLATES AND OTHER HORIZONTAL RING STIFFENER SPLICES SHALL BE JOINED WITH FULL PENETRATION WELDS.
6. ALL BOLTING MATERIAL TO BE ASTM A325 UNLESS OTHERWISE NOTED.
RECEIVED
JUN 26 1995
IPSCO STEEL INC
GREEN FIELD PROJECT
MANNESMANN DEMAG
MELTSHOP
FUME COLLECTION SYSTEM - STACK
STACK CONSTRUCTION
ipsco
60
270-20-521
0


LEGEND
Steel Flow Path
Principle Fume Dampers
Rail Transfer
Truck Delivery
Scrap Yard
Scrap Bucket
Scrap Bucket
Source No. 12 Lime to Scrap Bucket
Silo Baghouse
Silo Baghouse
Carbon Storage Silo Source No. 4
Lime/Dolomite Storage Silos (2) Source No. 3
Outside Alloy Bins
Source No. 19
Alloys
LMF Fume
LMF Booster Fan
Canopy Hood
Notes 1, 2 & 3
Combustion Chamber
Spark Box
EAF Baghouse 28 Compartments
Fume
Fume
DC Electrode
O2 Injection
Melt Shop Alloy Bins
PI System
Scrap Preheat Shell
EAF Melting Shell
Source No. 11
Steel Ladle
Steel Ladle
TO CASTER
To Atmosphere
Air/Air Heat Exchanger
Oxy-Fuel Burners (8)
Source No. 1
Slag
Oxy-Fuel Burners (8)
Argon
Slag Pot
Steel Ladle
Stack
Slag
Ladle Metallurgy Furnace (LMF) Station, Source No. 1
Baghouse Fans (3)
Slag Processing
Notes:
1. The two shell EAF/Scrap Preheater is equiped with an interchangeable melting roof.
2. Both Shells are equiped with Oxy-fuel Burners and Oxygen injection. Burners are used for Preheating of Scrap.
3. The EAF is within a closed portion of the Melt Shop, beneath the Canopy Hood.
Environmental Technology & Services, Inc.
P.O. Box 570
Fishers, New York 14453
Drawn MLS
Accuracy CWA
Approval CWA
6/12/95
Scale: NONE
Drawing Title
IPSCO STEEL - MONTPELIER WORKS
MELT SHOP EMISSION & PROCESS FLOW DIAGRAM - 200 tph Melting
MONPELIER, IOWA
Sketch No. 1134CA-05B

Ambient Air Services, Inc.
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EXAMPLE CALCULATIONS

Plant	Ipsco Steel Inc.
Location	Muscatine, Iowa
Stack	EAF Baghouse
Run Date	11-17-98
Run Number	1

1. Stack Pressure, PS

$$PS = PB + (PG \div 13.6)$$

PB= 29.32
PG= -1

PS= 29.25

Where:
PB = Barometric Pressure, inches Hg
PG = Static Pressure, stack, inches H2O

2. Meter Pressure, PM

$$PM = PB + (DH \div 13.6)$$

DH= 1.599

PM= 29.43757

Where:
DH = Average meter orifice pressure differential, inches H2O

3. Volume Water Vapor, VWV

$$VWV = 0.04707 \times VC$$

VWV= 3.238

Where:
VC = Volume condensate, liquid volume plus gain in silica gel weight, grams

4. Metered Volume corrected to standard condition, Vstpd

$$Vstpd = \frac{17.65 \times VM \times PM \times Y}{TM}$$

Vstpd = 272.656

Where:
VM = Metered volume, meter conditions
PM = See equation 2
TM = Temperature of meter, degrees Rankin
Y = Meter correction factor

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EXAMPLE CALCULATIONS - CONTINUED

Plant	Ipsco Steel Inc.
Location	Muscatine, Iowa
Stack	EAF Baghouse
Run Date	11-17-98
Run Number	1

5. Total Volume of sample, VT

Where: VWV = See equation 3
Vstpd = See equation 4

VT = VWV + Vstpd

VT = 275.894

6. Fraction water vapor in gas stream, W

Where: VWV = See equation 3
VT = See equation 5

W = VWV ÷ VT

W= 0.012

7. Fraction Dry Air, FDA

Where: W = See equation 6

FDA= 1.0 - W

FDA= 0.988

8. Molecular Weight of stack gas, dry, MD

MD=(0.44 × %CO2) + (0.32 × %O2) + (0.28 × %N2) + (0.28 × %CO)

CO2=	0.0
O2=	21.0
N2=	79.0
CO=	0.0

MD= 28.84

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EXAMPLE CALCULATIONS - CONTINUED

Plant	Ipsco Steel Inc.
Location	Muscatine, Iowa
Stack	EAF Baghouse
Run Date	11-17-98
Run Number	1

9. Molecular weight of stack gas, stack conditions, MS

Where: MD = See equation 8
W = See equation 6
FDA = See equation 7

$$MS = (MD \times FDA) + (18 \times W)$$

MD= 28.84

FDA= 0.988

W= 0.012

MS= 28.71

10. Specific Gravity of Gas, relative to air, GS

Where: MS = See equation 9

$$GS = MS \div 28.99$$

GS= 0.990

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EXAMPLE CALCULATIONS - CONTINUED

Plant	Ipsco Steel Inc.
Location	Muscatine, Iowa
Stack	EAF Baghouse
Run Date	11-17-98
Run Number	1

11. Velocity of stack gas, feet per minute, U

$$U = 174 \times CP \times \sqrt{H} \times \sqrt{\frac{TS \times 29.92}{GS \times PS}}$$

U= 3095.6 FPM

Where:
CP = Pitot Coefficient
$\sqrt{H}$ = Average of the square roots of the velocity heads, in. H2O
TS = Temperature of the stack, degrees Rankin
PS = See equation 1
GS = See equation 10

12. Stack Gas Flow Rate, Stack conditions, cfm, QS

$$QS = U \times AS$$

QS= 877692 ACFM

Where:
AS = Cross sectional area of stack at sampling location, sq.ft.
U = See equation 11

13. Stack Gas Flow Rate, dry, QD

$$QD = QS \times FDA$$

QD= 867160 ACFMD

Where:
QS = See equation 12
FDA = See equation 7

14. Stack Gas Flow Rate, STP, dry, Qstpd

$$Qstpd = \frac{528 \times QD \times PS}{TS \times 29.92}$$

Qstpd= 715257 SCFMD

Where:
QD = See equation 13
PS = See equation 1
TS = Temperature of stack, degrees Rankin

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EXAMPLE CALCULATIONS - CONTINUED

Plant	Ipsco Steel Inc.
Location	Muscatine, Iowa
Stack	EAF Baghouse
Run Date	11-17-98
Run Number	1

15. Percent Isokinetic volume sampled, PISO

Where:
VT = See equation 5
AN = Area of nozzle, sq.ft.
AS = Area of stack, sq.ft.
Time = Run time, min
Qstpd = See equation 14
TS = Temperature of stack, degrees Rankin
528 = Standard Temperature, degrees Rankin

$$PISO = \left[\frac{VT \times TS \div 528}{AN \times Time \times Qstpd \div AS} \right] \times 100$$

PISO= 93.8 %

16. Particulate concentration, grains per standard cubic foot, ESTP

Where:
mg = Weight of particulate catch, milligrams
Vstpd = See equation 4

$$ESTP = (0.01543 \times mg) \div Vstpd$$

ESTP= 0.0009 GR/DSCF

17. Mass emission rate, Lbs/Hr., EM

Where:
ESTP = See equation 16
Qstpd = See equation 14
7000 = Grains per pound

$$EM = \frac{ESTP \times Qstpd \times 60 \text{ min/hr} \times}{7000}$$

EM= 5.52 Lbs/Hr

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, Florida 32091

(904) 964 - 8440
(904) 964 - 6675 fax

Volumetric Flow Rates and Mass Emissions

Plant	Ipsco Steel Inc
Location	Muscatine, Iowa
Stack	EAF Baghouse
Run Date	11-17-98
Run Number	1
Start Time	0804
Finish Time	1631
Weather	Broken
Total Time (min.)	408
Barometric Pressure	29.32
Stack Diameter (in.)	228
Stack Area sq. ft.	283.529
Nozzle Area sq. ft.	0.0002761
Number of Points	101
Avg of SQRT of V.H.	0.8329
Meter Correction (Y)	0.99
Nozzle Diameter	0.225
Pitot Correction Factor	0.84

Volume Metered	287.828
Meter Temp (Deg R)	543.0
Orsat CO2 %	0
Orsat O2 %	21
Orsat CO %	0
Orsat N %	79
Condensate Volume	68.8
Delta H (inches H2O)	1.599
Stack Pressure	29.25
Stack Temp (Deg R)	625.8
Filter Weight (gm)	0.0101
Prefilter Weight (gm)	0.0063
Total Particulate (gm)	0.0164

Volume Water Vapor, SCF	**3.238**
Gas Volume Sampled, STPD	**272.656**
Total Volume, STP	**275.894**
Moisture in stack gas, volume fraction	**0.012**
Dry Stack Gas, volume fraction	**0.988**
Molecular Weight of Stack Gas (Dry Basis)	**28.84**
Molecular Weight of Stack Gas (Stack conditions)	**28.71**
Specific gravity of Stack Gas Relative to Air	**0.990**
Excess Air (%)	
Average Stack Velocity, FPM	**3095.6**
Actual Stack Gas Flow Rate, ACFM	**877692**
Actual Stack Gas Flow Rate, (Dry) ACFMD	**867160**
Stack Gas Flow Rate, SCFMD	**715257**
Percent Isokinetic	**95.9**
Stack Emissions:	
Grains/DSCF	**0.0009**
Lbs/Hr	**5.52**

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Volumetric Flow Rates and Mass Emissions

Plant	Ipsco Steel Inc.		
Location	Muscatine, Iowa		
Stack	EAF Baghouse		
Run Date	11-18-98		
Run Number	2		
Start Time	0713	**Volume Metered**	353 252
Finish Time	1744	**Meter Temp (Deg R)**	545 2
Weather	Broken	**Orsat CO2 %**	0
Total Time (min.)	474	**Orsat O2 %**	21
Barometric Pressure	29.26	**Orsat CO %**	0
Stack Diameter (in.)	228	**Orsat N %**	79
Stack Area sq. ft.	283 529	**Condensate Volume**	71 7
Nozzle Area sq. ft.	0 0002712	**Delta H (inches H2O)**	1 829
Number of Points	120	**Stack Pressure**	29.19
Avg of SQRT of V.H.	0.8612	**Stack Temp (Deg R)**	613.6
Meter Correction (Y)	0.99	**Filter Weight (gm)**	0 0052
Nozzle Diameter	0 223	**Prefilter Weight (gm)**	0.0103
Pitot Correction Factor	0.84	**Total Particulate (gm)**	0.0155

==========

Volume Water Vapor, SCF	**3.375**
Gas Volume Sampled, STPD	**332.793**
Total Volume, STP	**336.168**
Moisture in stack gas, volume fraction	**0.010**
Dry Stack Gas, volume fraction	**0.99**
Molecular Weight of Stack Gas (Dry Basis)	**28.84**
Molecular Weight of Stack Gas (Stack conditions)	**28.73**
Specific gravity of Stack Gas Relative to Air	**0.991**
Excess Air (%)	
Average Stack Velocity, FPM	**3171.0**
Actual Stack Gas Flow Rate, ACFM	**899070**
Actual Stack Gas Flow Rate, (Dry) ACFMD	**890079**
Stack Gas Flow Rate, SCFMD	**747222**
Percent Isokinetic	**98.2**
Stack Emissions:	
Grains/DSCF	**0.0007**
Lbs/Hr	**4.48**

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Volumetric Flow Rates and Mass Emissions

Plant	Ipsco Steel Inc
Location	Muscatine, Iowa
Stack	EAF Baghouse
Run Date	11-19-98
Run Number	3
Start Time	0736
Finish Time	1731
Weather	Broken
Total Time (min.)	481
Barometric Pressure	29.2
Stack Diameter (in.)	228
Stack Area sq. ft.	283.529
Nozzle Area sq. ft.	0.0002712
Number of Points	124
Avg of SQRT of V.H.	0.8490
Meter Correction (Y)	0.99
Nozzle Diameter	0.223
Pitot Correction Factor	0.84

Volume Metered	368.103
Meter Temp (Deg R)	541.6
Orsat CO2 %	0
Orsat O2 %	21
Orsat CO %	0
Orsat N %	79
Condensate Volume	76.4
Delta H (inches H2O)	1.494
Stack Pressure	29.13
Stack Temp (Deg R)	603
Filter Weight (gm)	0.0055
Prefilter Weight (gm)	0.0097
Total Particulate (gm)	0.0152

Volume Water Vapor, SCF	**3.596**
Gas Volume Sampled, STPD	**348.084**
Total Volume, STP	**351.680**
Moisture in stack gas, volume fraction	**0.010**
Dry Stack Gas, volume fraction	**0.99**
Molecular Weight of Stack Gas (Dry Basis)	**28.84**
Molecular Weight of Stack Gas (Stack conditions)	**28.73**
Specific gravity of Stack Gas Relative to Air	**0.991**
Excess Air (%)	
Average Stack Velocity, FPM	**3102.2**
Actual Stack Gas Flow Rate, ACFM	**879564**
Actual Stack Gas Flow Rate, (Dry) ACFMD	**870768**
Stack Gas Flow Rate, SCFMD	**742332**
Percent Isokinetic	**101.9**
Stack Emissions:	
Grains/DSCF	**0.0007**
Lbs/Hr	**4.45**

Method 202 Condensible Particulate Matter
Concentration and Emission Rate Calculations

****

Date:Nov 17, 1998
Plant:IPSCO Steel
Run No:1

	DATA
Units, Metric(1) or English(2):	2
Barometric Pressure(mm Hg, in. Hg):	29.32
Stack Static Pressure(mm H2O, in. H2O):	-1
Stack Area(m^2, ft^2):	283.529
Nozzle Diameter(mm, in.):	0.225
Pitot Tube Coefficient, Cp:	0.84
DGM Calibration Factor, Y:	0.99
Initial DGM Reading(liters, dscf):	830.471
Final DGM Reading(liters, dscf):	1118.299
Total Run Time(min):	408
Leak Rate Correction Factor Used? Yes(1) No(2):	2

FILTER, NOZZLE RINSE, AND MOISTURE DATA

	DATA
Dry Molecular Weight of Stack Gas:	28.84
Particulate Mass in Probe Rinse(mg):	6.3
Particulate Mass in Filter Catch(mg):	10.1
Water Vapor Condensed in Impingers(ml):	20
Water Vapor Collected in Silica Gel(g):	48.8

		DATA
CPM DATA	Weight of CPM in MeCl2 Blank(mg):	14.7
	Weight of CPM in Water Blank(mg):	2.5
	Weight of Organic CPM(mg):	30.7
	Weight of Dried Inorganic Fraction(mg):	48.5
	Volume of Impinger Contents Sample(ml):	320
IC RESULTS	Volume of Aliquot taken from Sample(ml):	
	Sulfate Concentration in Sample(mg/ml):	
	Chloride Concentration in Sample(mg/ml):	
NH3 TITRATION (optional)	Normality of NH4OH:	
	Volume of Sample Titrated(ml):	
	Volume of Titrant(ml):	
	Correction Needed for Cl-? Yes(1) No(2):	2
	Correction for NH4 only (1) or NH4 and H2O (2)?	
	NH3 Titration Used? Yes(1) No(2):	2

Run Time	Pitot Delta P (mm H2O, in. H2O)	Orifice Delta H (mm H2O, in. H2O)	Average DGM Temp (C, F)	Stack Pressure (mm H2O, in. H2O)	Stack Temp (C, F)	Vacuum (mm Hg, in. Hg)	Filter Temp (C, F)
408	0.~~6937~~ 0.7021	1.599	83	-1	165.8	9	245

RESULTS

Average DGM Temperature(K, R):	543
Average Orifice Press. Drop(mm H2O, in. H2O):	1.6
Standard Dry Gas Volume, Vm(std)(dscm, dscf):	2.73E+02
Stack Gas Velocity(m/s, f/s):	5.16E+01
Standard Volumetric Flow Rate(dscmm, dscfm):	7.16E+05
Standard Volumetric Flow Rate(dscmh,dscfh):	4.30E+07
Volume of Water Vapor(scm, scf):	3.24E+00
Moisture Content(%):	1.2
Isokinetics:	95.9
Particulate Concentration(g/m^3, gr/ft^3):	9.29E-04
Particulate Mass Emission Rate(kg/h, lbs/h):	5.70E+00

CPM CONCENTRATION AND EMISSION RATE RESULTS

Correction for Chloride:	0
Calculated Correction Factor:	0.00E+00
Weight of Corrected Total Inorganic CPM(mg):	4.85E+01
Weight of Organic CPM(mg):	3.07E+01
Weight of Total CPM(mg):	7.92E+01
Corrected Concentration of CPM(mg/dscm, mg/dscf):	2.28E-01
CPM Emission Rate(kg/hr, lbs/hr):	2.15E+01
Concentration of CPM(grains/dscf)	0.0035

Method 202 Condensible Particulate Matter
Concentration and Emission Rate Calculations

****

Date:Nov 17, 1998
Plant:IPSCO Steel
Run No: 2

	DATA
Units, Metric(1) or English(2):	2
Barometric Pressure(mm Hg, in. Hg):	29.26
Stack Static Pressure(mm H2O, in. H2O):	-1
Stack Area(m^2, ft^2):	283.529
Nozzle Diameter(mm, in.):	0.223
Pitot Tube Coefficient, Cp:	0.84
DGM Calibration Factor, Y:	0.99
Initial DGM Reading(liters, dscf):	118.91
Final DGM Reading(liters, dscf):	472.162
Total Run Time(min):	474
Leak Rate Correction Factor Used? Yes(1) No(2):	2

FILTER, NOZZLE RINSE, AND MOISTURE DATA

	DATA
Dry Molecular Weight of Stack Gas:	28.84
Particulate Mass in Probe Rinse(mg):	10.3
Particulate Mass in Filter Catch(mg):	5.2
Water Vapor Condensed in Impingers(ml):	18
Water Vapor Collected in Silica Gel(g):	53.7

		DATA
CPM DATA	Weight of CPM in MeCl2 Blank(mg):	14.7
	Weight of CPM in Water Blank(mg):	2.5
	Weight of Organic CPM(mg):	26.7
	Weight of Dried Inorganic Fraction(mg):	18.9
	Volume of Impinger Contents Sample(ml):	324
IC RESULTS	Volume of Aliquot taken from Sample(ml):	
	Sulfate Concentration in Sample(mg/ml):	
	Chloride Concentration in Sample(mg/ml):	
NH3 TITRATION (optional)	Normality of NH4OH:	
	Volume of Sample Titrated(ml):	
	Volume of Titrant(ml):	

Correction Needed for Cl-? Yes(1) No(2): 2

Correction for NH4 only (1) or NH4 and H2O (2)?

NH3 Titration Used? Yes(1) No(2): 2

Run Time	Pitot Delta P (mm H2O, in. H2O)	Orifice Delta H (mm H2O, in. H2O)	Average DGM Temp (C, F)	Stack Pressure (mm H2O, in. H2O)	Stack Temp (C, F)	Vacuum (mm Hg, in. Hg)	Filter Temp (C, F)
474	0.~~7417~~ 0.7587	1.829✓	85.2✓	-1	153.6✓	10	247

RESULTS

Average DGM Temperature(K, R):	545
Average Orifice Press. Drop(mm H2O, in. H2O):	1.8
Standard Dry Gas Volume, Vm(std)(dscm, dscf):	3.33E+02
Stack Gas Velocity(m/s, f/s):	5.29E+01
Standard Volumetric Flow Rate(dscmm, dscfm):	7.48E+05
Standard Volumetric Flow Rate(dscmh,dscfh):	4.49E+07
Volume of Water Vapor(scm, scf):	3.38E+00
Moisture Content(%):	1.0
Isokinetics:	98.2
Particulate Concentration(g/m^3, gr/ft^3):	7.19E-04
Particulate Mass Emission Rate(kg/h, lbs/h):	4.61E+00

CPM CONCENTRATION AND EMISSION RATE RESULTS

Correction for Chloride:	0
Calculated Correction Factor:	0.00E+00
Weight of Corrected Total Inorganic CPM(mg):	1.89E+01
Weight of Organic CPM(mg):	2.67E+01
Weight of Total CPM(mg):	4.56E+01
Corrected Concentration of CPM(mg/dscm, mg/dscf):	8.54E-02
CPM Emission Rate(kg/hr, lbs/hr):	8.45E+00
Concentration of CPM(grains/dscf)	0.0013

Method 202 Condensible Particulate Matter
Concentration and Emission Rate Calculations

****

Date:Nov 17, 1998
Plant:IPSCO Steel
Run No: 3

	DATA
Units, Metric(1) or English(2):	2
Barometric Pressure(mm Hg, in. Hg):	29.2
Stack Static Pressure(mm H2O, in. H2O):	-1
Stack Area(m^2, ft^2):	283.529
Nozzle Diameter(mm, in.):	0.223
Pitot Tube Coefficient, Cp:	0.84
DGM Calibration Factor, Y:	0.99
Initial DGM Reading(liters, dscf):	289.752
Final DGM Reading(liters, dscf):	657.855
Total Run Time(min):	481
Leak Rate Correction Factor Used? Yes(1) No(2):	2

FILTER, NOZZLE RINSE, AND MOISTURE DATA

	DATA
Dry Molecular Weight of Stack Gas:	28.84
Particulate Mass in Probe Rinse(mg):	9.7
Particulate Mass in Filter Catch(mg):	5.5
Water Vapor Condensed in Impingers(ml):	22
Water Vapor Collected in Silica Gel(g):	54.4

		DATA
CPM DATA	Weight of CPM in MeCl2 Blank(mg):	14.7
	Weight of CPM in Water Blank(mg):	2.5
	Weight of Organic CPM(mg):	32.6
	Weight of Dried Inorganic Fraction(mg):	46.1

IC RESULTS

NH3 TITRATION (optional)

Volume of Impinger Contents Sample(ml): 322
Volume of Aliquot taken from Sample(ml):
Sulfate Concentration in Sample(mg/ml):
Chloride Concentration in Sample(mg/ml):
Normality of NH4OH:
Volume of Sample Titrated(ml):
Volume of Titrant(ml):

Correction Needed for Cl-? Yes(1) No(2): 2
Correction for NH4 only (1) or NH4 and H2O (2)?
NH3 Titration Used? Yes(1) No(2): 2

Run Time	Pitot Delta P (mm H2O, in. H2O)	Orifice Delta H (mm H2O, in. H2O)	Average DGM Temp (C, F)	Stack Pressure (mm H2O, in. H2O)	Stack Temp (C, F)	Vacuum (mm Hg, in. Hg)	Filter Temp (C, F)
481	0.7208	1.494	81.6 ✓	-1	143 ✓	7	244

RESULTS

Average DGM Temperature(K, R):	542
Average Orifice Press. Drop(mm H2O, in. H2O):	1.5
Standard Dry Gas Volume, Vm(std)(dscm, dscf):	3.48E+02
Stack Gas Velocity(m/s, f/s):	5.18E+01
Standard Volumetric Flow Rate(dscmm, dscfm):	7.43E+05
Standard Volumetric Flow Rate(dscmh,dscfh):	4.46E+07
Volume of Water Vapor(scm, scf):	3.60E+00
Moisture Content(%):	1.0
Isokinetics:	101.9
Particulate Concentration(g/m^3, gr/ft^3):	6.74E-04
Particulate Mass Emission Rate(kg/h, lbs/h):	4.29E+00

CPM CONCENTRATION AND EMISSION RATE RESULTS

Correction for Chloride:	0
Calculated Correction Factor:	0.00E+00
Weight of Corrected Total Inorganic CPM(mg):	4.61E+01
Weight of Organic CPM(mg):	3.26E+01
Weight of Total CPM(mg):	7.87E+01
Corrected Concentration of CPM(mg/dscm, mg/dscf):	1.77E-01
CPM Emission Rate(kg/hr, lbs/hr):	1.74E+01
Concentration of CPM(grains/dscf)	0.0027

CALIBRATION DATA

All Ambient Air Services, Inc. pitot tubes have been modified to comply with specifications as presented in the July 1, 1991 Federal Register. A pitot correction factor of 0.84 has been assigned

Our thermometers, pyrometers and thermocouples are calibrated against a standard mercury thermometer in a hot oven in our laboratory. (Data on following page.)

Our field barometer is checked before every test against that of our laboratory mercury barometer

All probe nozzles are calibrated each test run or if damaged to assure isokinetic sampling.

Nozzle Diameter in Inches: MEAN

Particulate

Measurement	0.223	0.223	0.223	0.223

CALIBRATION DATA

All Ambient Air Services, Inc. pitot tubes have been modified to comply with specifications as presented in the July 1, 1991 Federal Register. A pitot correction factor of 0.84 has been assigned.

Our thermometers, pyrometers and thermocouples are calibrated against a standard mercury thermometer in a hot oven in our laboratory. (Data on following page.)

Our field barometer is checked before every test against that of our laboratory mercury barometer.

All probe nozzles are calibrated each test run or if damaged to assure isokinetic sampling.

Nozzle Diameter in Inches:				MEAN
Lead Flouride Beryllium				
Measurement	0.223	0.223	0.223	0.223

POSTTEST DRY GAS METER CALIBRATION DATA (ENGLISH UNITS)

Test numbers: all Date: 12-17-98 Meter Box number: 2

Barometric Pressure: 29.98 inches Hg. Dry Gas Meter Number: 2 Pretest Y: 1.01

Plant: 0.00 Location: 0.00

Orifice manomtr setting (DH), inches H20	Gas volume		Temperature				Time in minutes	Vacuum setting inches Hg	Yi
	Wet test meter (Vw), cu.ft.	Dry gas meter (Vd), cu.ft.	Wet test meter (Tw), deg F	Dry gas meter					
				Inlet (Tdi), deg F	Outlet (Tdo), deg F	Average (Td), deg F			
1.50	10.340	10.400	68.75	95.5	71.5	83.50	14.06	5.0	1.0182
1.50	10.340	10.486	70.25	104.5	72.5	88.50	14.22	5.0	1.0163
1.50	10.340	10.560	70.75	105.0	73.5	89.25	14.28	5.0	1.0096
									1.01

If there is only one thermometer on the dry gas meter, record the temperature under Td

Vw= Gas volume passing through the wet test meter, in cubic feet
Vd= Gas volume passing through the dry gas meter, in cubic feet
Tw= Temperature of the gas in the wet test meter, degrees farenheit
Tdi= Temperature of the inlet gas of the dry gas meter, degrees farenheit
Tdo= Temperature of the outlet gas of the dry gas meter, degrees farenheit
Td= Average temperature of the gas in the dry gs meter, obtained by the average of Tdi and Tdo, degrees farenheit
DH= Pressure differential across orifice, inches H2O
Yi= Ratio of accuracy of wet test meter to dry gas meter for each run.
Y= Average ratio of accuracy of wet test meter to dry gas meter for all three runs; tolerance = pretest Y plus/minus 0.05Y
Pb= Barometric pressure, inches Mercury
Time= Time of calibration run, in minutes.

POSTTEST DRY GAS METER CALIBRATION DATA (ENGLISH UNITS)

Test numbers: all Date: 12-18-98 Meter Box number: 3

Barometric Pressure: 30.07 inches Hg. Dry Gas Meter Number: 3 Pretest Y: 0.97

Plant: First Miss Steel Location: Hollesopple, PA

Orifice manomtr setting (DH), inches H20	Gas volume		Temperature				Time in minutes	Vacuum setting inches Hg	Yi
	Wet test meter (Vw), cu.ft.	Dry gas meter (Vd), cu.ft.	Wet test meter (Tw), deg F	Dry gas meter					
				Inlet (Tdi), deg F	Outlet (Tdo), deg F	Average (Td), deg F			
1.60	13.746	14.553	65.75	97.5	70.5	84.00	18.37	5.0	0.9735
1.60	10.551	11.124	66.25	95.5	70.5	83.00	14.19	5.0	0.9749
1.60	10.443	11.119	66.50	96.0	71.0	83.50	14.01	5.0	0.9658
									0.971

If there is only one thermometer on the dry gas meter, record the temperature under Td

Vw= Gas volume passing through the wet test meter, in cubic feet
Vd= Gas volume passing through the dry gas meter, in cubic feet
Tw= Temperature of the gas in the wet test meter, degrees farenheit
Tdi= Temperature of the inlet gas of the dry gas meter, degrees farenheit
Tdo= Temperature of the outlet gas of the dry gas meter, degrees farenheit
Td= Average temperature of the gas in the dry gs meter, obtained by the average of Tdi and Tdo, degrees farenheit
DH= Pressure differential across orifice, inches H2O
Yi= Ratio of accuracy of wet test meter to dry gas meter for each run.
Y= Average ratio of accuracy of wet test meter to dry gas meter for all three runs; tolerance = pretest Y plus/minus 0.05Y
Pb= Barometric pressure, inches Mercury
Time= Time of calibration run, in minutes.

POSTTEST DRY GAS METER CALIBRATION DATA (ENGLISH UNITS)

Test numbers: all Date: 12-18-98 Meter Box number: 4

Barometric Pressure: 30.07 inches Hg. Dry Gas Meter Number: 4 Pretest Y: 0.99

Plant: First Miss Steel Location: Hollesopple, PA

Orifice manomtr setting (DH), inches H20	Gas volume		Temperature				Time in minutes	Vacuum setting inches Hg	Yi
	Wet test meter (Vw), cu.ft.	Dry gas meter (Vd), cu.ft.	Wet test meter (Tw), deg F	Dry gas meter					
				Inlet (Tdi), deg F	Outlet (Tdo), deg F	Average (Td), deg F			
2.00	19.230	19.785	76.00	103.0	72.0	87.50	25.55	5.0	0.9880
2.00	10.340	10.638	79.25	105.0	76.0	90.50	13.75	5.0	0.9874
2.00	10.340	10.685	80.00	108.5	78.5	93.50	13.76	5.0	0.9871
									0.99

If there is only one thermometer on the dry gas meter, record the temperature under Td

Vw= Gas volume passing through the wet test meter, in cubic feet
Vd= Gas volume passing through the dry gas meter, in cubic feet
Tw= Temperature of the gas in the wet test meter, degrees farenheit
Tdi= Temperature of the inlet gas of the dry gas meter, degrees farenheit
Tdo= Temperature of the outlet gas of the dry gas meter, degrees farenheit
Td= Average temperature of the gas in the dry gs meter, obtained by the average of Tdi and Tdo, degrees farenheit
DH= Pressure differential across orifice, inches H2O
Yi= Ratio of accuracy of wet test meter to dry gas meter for each run.
Y= Average ratio of accuracy of wet test meter to dry gas meter for all three runs; tolerance = pretest Y plus/minus 0.05Y
Pb= Barometric pressure, inches Mercury
Time= Time of calibration run, in minutes.

IPSCO STEEL INC.

EAF/Baghouse Emissions CO,NOx,SO2,VOC

Baghouse Stack Concentrations

Run #	co	nox	so2	voc	Time Period	Date
1	45.3	17 87	17.3	4 07	7:55-11:10	11/17/98
2	67.25	15.05	16 56	3 36	11:11-13:27	11/17/98
3	30.55	13.84	24.71	3	13:28-16:28	11/17/98
Average	47.70	15.59	19.62	3.48		

Stack Flow Rate Based on Particulate Run

SCFMD	SCFMW
715257	723840

Baghouse Stack Emission Rates (lb/hr)

Run #	co	nox	so2	voc	Time Period	Date
1	141 3868019	91 62943779	123.4180598	20.20134034	7:55-11:10	11/17/98
2	209.8954178	77 16972796	118.1389058	16.6772736	11:11-13:27	11/17/98
3	95.35026044	70.96538439	176.2809398	14.89042286	13:28-16:28	11/17/98
Average	148.88	79.92	139.28	17.26		

EAF Production Rate (tons/hr)

Run #	Time Period	Heats	Total Time min	Production tons	Delay Periods	Production Rate tons/hr
1	7:20-11:04	A8k049,b8k053,a8k050	224	450	N/A	120 54
2	11:02-13:26	b8k054,a8k051	144	300	N/A	125 00
3	13:15-16:27	b8k055,a8k052	192	310	14:00-14:22	109.41
Average						118.32

Baghouse Stack Emission Rates (lb/ton)

Run #	co(lb/ton)	nox(lb/ton)	so2(lb/ton)	voc(lb/ton)
1	1 17	0 76	1 02	0 17
2	1 68	0 62	0 95	0 13
3	0.87	0.65	1.61	0.14
Average	1.24	0.68	1.19	0.15

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106 Ambient Air Way
Starke, Florida 32091

(904) 964 - 8440
(904) 964 - 6675 fax

Volumetric Flow Rates and Mass Emissions

Plant	Ipsco Steel Inc		
Location	Muscatine, Iowa		
Stack	EAF Baghouse		
Run Date	11-17-98		
Run Number	1		
Start Time	0804	**Volume Metered**	287.828
Finish Time	1631	**Meter Temp (Deg R)**	543.0
Weather	Broken	**Orsat CO2 %**	0
Total Time (min.)	408	**Orsat O2 %**	21
Barometric Pressure	29.32	**Orsat CO %**	0
Stack Diameter (in.)	228	**Orsat N %**	79
Stack Area sq. ft.	283.529	**Condensate Volume**	68.8
Nozzle Area sq. ft.	0.0002761	**Delta H (inches H2O)**	1.599
Number of Points	101	**Stack Pressure**	29.25
Avg of SQRT of V.H.	0.8329	**Stack Temp (Deg R)**	625.8
Meter Correction (Y)	0.99	**Filter Weight (gm)**	0.0101
Nozzle Diameter	0.225	**Prefilter Weight (gm)**	0.0063
Pitot Correction Factor	0.84	**Total Particulate (gm)**	0.0164

Volume Water Vapor, SCF	**3.238**
Gas Volume Sampled, STPD	**272.656**
Total Volume, STP	**275.894**
Moisture in stack gas, volume fraction	**0.012**
Dry Stack Gas, volume fraction	**0.988**
Molecular Weight of Stack Gas (Dry Basis)	**28.84**
Molecular Weight of Stack Gas (Stack conditions)	**28.71**
Specific gravity of Stack Gas Relative to Air	**0.990**
Excess Air (%)	
Average Stack Velocity, FPM	**3095.6**
Actual Stack Gas Flow Rate, ACFM	**877692**
Actual Stack Gas Flow Rate, (Dry) ACFMD	**867160**
Stack Gas Flow Rate, SCFMD	**715257**
Percent Isokinetic	**95.9**
Stack Emissions:	
Grains/DSCF	**0.0009**
Lbs/Hr	**5.52**

319 - 381 - 5338

EAF PRODUCTION FOR PSD PEREFORMANCE TEST 11/17/98			
HEAT #	POWER ON	TAP	TAP WEIGHT
A8K049	07:20	08:43	150
B8K053	08:41	09:55	150
A8K050	09:40	11:04	150
B8K054	11:02	12:11	150
A8K051	12:12	13:26	150
B8K055	13:15	14:58	155
A8K052	15:13	16:27	155
B8K056	16:20	17:29	155
A8K053	17:32	18:44	155

I VOC Analyzer Calibration Data

	VOC Cylinder Value	Analyzer/System Calibration Response	Absolute Difference	Difference % of Span
	ppm	ppm	ppm	%
Zero	0	0.2	0.2	0.40
Low Range	11.7	11.38	0.32	0.64
Mid Range	25	25.11	0.11	0.22
High-Range gas	49.9	50.22	0.32	0.64

Sampling System Bias Check

Run 1

	Initial Analyzer Calibration Response	Initial System Calibration Response	System Cal. Bias % of Span	Final System Calibration Response	System Cal. Bias % of Span	Drift % of Span
Zero	0.2	0.2	0	0.2	0	0
Midscale	25.11	25.11	0	25.11	0	0

Run 2

	Initial Analyzer Calibration Response	Initial System Calibration Response	System Cal. Bias % of Span	Final System Calibration Response	System Cal. Bias % of Span	Drift % of Span
Zero	0.2	0.2	0	0.2	0	0
Midscale	25.11	25.11	0	24.8	0	0.62

Run 3

	Initial Analyzer Calibration Response	Initial System Calibration Response	System Cal. Bias % of Span	Final System Calibration Response	System Cal. Bias % of Span	Drift % of Span
Zero	0.2	0.2	0	0.4	0	-0.4
Midscale	24.8	24.8	0	24.95	0	-0.3

I CO Analyzer Calibration Data

	CO Cylinder Value	Analyzer/System Calibration Response	Absolute Difference	Difference % of Span
	ppm	ppm	ppm	%
Zero	0	-6.96	6 96	1.16
Low Range	153.7	160.12	6.42	1 07
Mid Range	308	315.2	7 2	1.20
High-Range gas	508	501.29	6.71	1.12

Sampling System Bias Check

Run 1

	Initial Analyzer Calibration Response	Initial System Calibration Response	System Cal. Bias % of Span	Final System Calibration Response	System Cal. Bias % of Span	Drift % of Span
Zero	-6.96	-6.96	0	-5.96	0	-0 16667
Midscale	315.2	315.2	0	316.2	0	-0.16667

Run 2

	Initial Analyzer Calibration Response	Initial System Calibration Response	System Cal. Bias % of Span	Final System Calibration Response	System Cal. Bias % of Span	Drift % of Span
Zero	-5.96	-5.96	0	-5.96	0	0
Midscale	316.2	316.2	0	312.2	0	0.666667

Run 3

	Initial Analyzer Calibration Response	Initial System Calibration Response	System Cal. Bias % of Span	Final System Calibration Response	System Cal. Bias % of Span	Drift % of Span
Zero	-5.96	-5.96	0	-4.96	0	-0 16667
Midscale	312.2	312.2	0	312.2	0	0

I NOx Analyzer Calibration Data

	NOx Cylinder Value	Analyzer/System Calibration Response	Absolute Difference	Difference % of Span
	ppm	ppm	ppm	%
Zero	0	-0 08	0.08	0.16
Mid Range	39.8	40.17	0 37	0.74
High-Range gas	80.2	80.02	0.18	0.36

Sampling System Bias Check

Run 1

	Initial Analyzer Calibration Response	Initial System Calibration Response	System Cal. Bias % of Span	Final System Calibration Response	System Cal. Bias % of Span	Drift % of Span
Zero	-0.08	-0 08	0	0.12	0	-0.4
Midscale	40.17	40.17	0	41.18	0	-2.02

Run 2

	Initial Analyzer Calibration Response	Initial System Calibration Response	System Cal. Bias % of Span	Final System Calibration Response	System Cal. Bias % of Span	Drift % of Span
Zero	0.12	0.12	0	-0.28	0	0.8
Midscale	41.18	41.18	0	41.58	0	-0.8

Run 3

	Initial Analyzer Calibration Response	Initial System Calibration Response	System Cal Bias % of Span	Final System Calibration Response	System Cal. Bias % of Span	Drift % of Span
Zero	-0.28	-0.28	0	-0 28	0	0
Midscale	41.58	41.58	0	41.78	0	-0.4

I SO2 Analyzer Calibration Data

	SO2 Cylinder Value	Analyzer/System Calibration Response	Absolute Difference	Difference % of Span
	ppm	ppm	ppm	%
Zero	0	-0 27	0.27	0 45
Mid Range	24.7	25.25	0 55	0 92
High-Range gas	49.9	49.62	0.28	0.47

Sampling System Bias Check

Run 1

	Initial Analyzer Calibration Response	Initial System Calibration Response	System Cal. Bias % of Span	Final System Calibration Response	System Cal. Bias % of Span	Drift % of Span
Zero	-0 27	-0 27	0	0.4	0	-1.11667
Midscale	25.25	25.25	0	24.77	0	0.8

Run 2

	Initial Analyzer Calibration Response	Initial System Calibration Response	System Cal. Bias % of Span	Final System Calibration Response	System Cal. Bias % of Span	Drift % of Span
Zero	0.4	0.4	0	0.28	0	0 2
Midscale	24.77	24.77	0	24.16	0	1.016667

Run 3

	Initial Analyzer Calibration Response	Initial System Calibration Response	System Cal. Bias % of Span	Final System Calibration Response	System Cal. Bias % of Span	Drift % of Span
Zero	0 28	0.28	0	-0.09	0	0.616667
Midscale	24.16	24.16	0	25.55	0	-2.31667

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 AND CHEMICALS
901 WEST 12TH STREET
LONG BEACH CA 90813

Order No: 235-069537-01
Batch No: 861-36392
PO:
Release:

Cylinder No: SG9165350BAL
Bar Code No: DDK304
Cylinder Pressure*: 2000 psig
Certification Date: 12/28/96
Expiration Date: 12/28/98

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	80.2 ±0.19 PPM	SG9151704BAL	GMIS	95.90 PPM	Rosemount 951a	0101877	12/11/96	CHEMILUMINESCENCE
SULFUR DIOXIDE	76.0 ±0.47 PPM	SG9133796BAL	GMIS R	153.2 PPM	Horiba VIA-510	85079208	12/11/96	NON DISPERSIVE INFRARED

NO2 (Reference Value Only): .400 PPM
NITROGEN Balance Gas

* STANDARD SHOULD NOT BE USED BELOW 150 PSIG

Notes:

Analyst: James Laas

Approved By: Richard Fry

IPSCO STEEL INC.

Reheat Furnace Emissions CO, NOx

Reheat Stack Concentrations

Run #	CO	NOx	Stack Flow SCFMD
1	0	115.7	46304
2	0	108.17	50325
3	0	117.2037	49816
Average	0	113.69	48815.00

Reheat Stack Emissions (lb/hr)

Run #	CO	NOx
1	0	38.41
2	0	39.02
3	0	41.86
Average	0	39.76

Reheat Furnace Gas Consumption

Run #	Initial Gas Meter Reading 1000 cuft	Final Gas Meter Reading 1000 cuft	Gas Line Pressure psig	Gas Consumed @ Line P 1000 cuft	Gas Consumed @ atm 1000 cuft	Initial Time	Final Time	Gas Cons. Rate @ atm 1000cuft/hr	Gas Cons. Rate @ atm mmbtu/hr
1	220836.9	220868.2	79	31.3	199.51	7:51	9:03	166.26	169.58
2	220949.4	220990.6	78	41.2	259.81	13:11	14:20	225.92	230.44
3	221073.4	221106.9	79	33.5	213.53	17:40	18:46	194.12	198.00
Avg	220953.23	220988.57	78.67	35.33	224.29	0.54	0.59	195.43	199.34

Reheat Stack Emissions (lb/mmbtu)

Run #	CO	NOx
1	0	0.23
2	0	0.17
3	0	0.21
Average	0	0.20

Reheat Furnace
I NOx Analyzer Calibration Data

	NOx Cylinder Value	Analyzer/System Calibration Response	Absolute Difference	Difference % of Span
	ppm	ppm	ppm	%
Zero	0	-0.08	0.08	0.04
Mid Range	39.8	39.62	0.18	0.09
High-Range gas	125.8	125.85	0.05	0.02

Sampling System Bias Check

Run 1

	Initial Analyzer Calibration Response	Initial System Calibration Response	System Cal. Bias % of Span	Final System Calibration Response	System Cal. Bias % of Span	Drift % of Span
Zero	-0.08	-0.08	0	0.52	0	-0.3
Midscale	39.62	39.62	0	39.22	0	0.2

Run 2

	Initial Analyzer Calibration Response	Initial System Calibration Response	System Cal. Bias % of Span	Final System Calibration Response	System Cal. Bias % of Span	Drift % of Span
Zero	0.52	0.52	0	0.12	0	0.2
Midscale	39.22	39.22	0	39.22	0	0

Run 3

	Initial Analyzer Calibration Response	Initial System Calibration Response	System Cal. Bias % of Span	Final System Calibration Response	System Cal. Bias % of Span	Drift % of Span
Zero	0.32	0.32	0	0.12	0	0.1
Midscale	39.02	39.02	0	39.22	0	-0.1

I CO Analyzer Calibration Data

	CO Cylinder Value	Analyzer/System Calibration Response	Absolute Difference	Difference % of Span
	ppm	ppm	ppm	%
Zero	0	0.05	0 05	0 05
Low Range	18.1	18.05	0 05	0 05
Mid Range	29.87	29 85	0 02	0 02
High-Range gas	80.3	80.32	0.02	0.02

Sampling System Bias Check

Run 1

	Initial Analyzer Calibration Response	Initial System Calibration Response	System Cal. Bias % of Span	Final System Calibration Response	System Cal. Bias % of Span	Drift % of Span
Zero	0.05	0.05	0	0.05	0	0
Midscale	18.05	18.05	0	17.66	0	0.39

Run 2

	Initial Analyzer Calibration Response	Initial System Calibration Response	System Cal. Bias % of Span	Final System Calibration Response	System Cal. Bias % of Span	Drift % of Span
Zero	0.05	0.05	0	-0 05	0	0.1
Midscale	17.66	17.66	0	17.85	0	-0.19

Run 3

	Initial Analyzer Calibration Response	Initial System Calibration Response	System Cal. Bias % of Span	Final System Calibration Response	System Cal. Bias % of Span	Drift % of Span
Zero	0.05	0.05	0	0.05	0	0
Midscale	17.95	17.95	0	18.44	0	-0.49

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, Florida 32091

(904) 964 - 8440
(904) 964 - 6675 fax

Volumetric Air-Flow Rates

Plant	IPSCO STEEL INC		
Location	Reheat Furnace		
Stack	ERR		
Run Date	36118		
Run Number	1	**Volume Metered**	47.601
Start Time	1744	**Meter Temp (Deg R)**	555.1
Finish Time	1844	**Orsat CO2 %**	6.7
Barometric Pressure	29.2	**Orsat O2 %**	8.4
Stack Diameter (in.)	98	**Orsat CO %**	0
Stack Area sq. ft.	52.382	**Orsat N %**	84.9
Number of Points	24	**Condensate Volume**	147.8
Avg of SQRT of V.H.	~~0.5246~~ 0.5274	**Delta H (inches H2O)**	1.64
Meter Correction (Y)	0.98	**Stack Pressure**	29.16
Pitot Correction Factor	0.84	**Stack Temp (Deg R)**	~~1582.0~~ 1629.3

Moisture in stack gas, volume fraction	**0.138**
Dry Stack Gas, volume fraction	**0.862**
Molecular Weight of Stack Gas (Dry Basis)	**29.41**
Molecular Weight of Stack Gas (Stack conditions)	**27.83**
Specific gravity of Stack Gas Relative to Air	**0.960**
Excess Air (%)	
Average Stack Velocity, FPM	**3153.5**
Actual Stack Gas Flow Rate, ACFM	**165187**
Actual Stack Gas Flow Rate, (Dry) ACFMD	**142407**
Stack Gas Flow Rate (Standard conditions), SCFMD	**46304**
Stack Gas Flow Rate (Standard conditions), SCFMW	**53711**

Ambient Air Services, Inc.
Environmental Consultants

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Volumetric Air-Flow Rates

Plant	IPSCO STEEL INC.
Location	Reheat Furnace
Stack	ERR
Run Date	36118
Run Number	2
Start Time	1744
Finish Time	1844
Barometric Pressure	29.2
Stack Diameter (in.)	98
Stack Area sq. ft.	52.382
Number of Points	24
Avg of SQRT of V.H.	0.5828
Meter Correction (Y)	0.98
Pitot Correction Factor	0.84

Volume Metered	48.062
Meter Temp (Deg R)	559.5
Orsat CO2 %	4.9
Orsat O2 %	7.6
Orsat CO %	0
Orsat N %	87.5
Condensate Volume	179.1
Delta H (inches H2O)	1.64
Stack Pressure	29.16
Stack Temp (Deg R)	~~1593.5~~ 1639

Moisture in stack gas, volume fraction	**0.162**
Dry Stack Gas, volume fraction	**0.838**
Molecular Weight of Stack Gas (Dry Basis)	**29.09**
Molecular Weight of Stack Gas (Stack conditions)	**27.29**
Specific gravity of Stack Gas Relative to Air	**0.941**
Excess Air (%)	
Average Stack Velocity, FPM	**3550.7**
Actual Stack Gas Flow Rate, ACFM	**185993**
Actual Stack Gas Flow Rate, (Dry) ACFMD	**155838**
Stack Gas Flow Rate (Standard conditions), SCFMD	**50325**
Stack Gas Flow Rate (Standard conditions), SCFMW	**60063**

Ambient Air Services, Inc.
Environmental Consultants

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Volumetric Air-Flow Rates

Plant	IPSCO STEEL INC
Location	Reheat Furnace
Stack	ERR
Run Date	36118
Run Number	3
Start Time	0
Finish Time	0
Barometric Pressure	29.2
Stack Diameter (in.)	98
Stack Area sq. ft.	52.382
Number of Points	24
Avg of SQRT of V.H.	0.5690
Meter Correction (Y)	0.98
Pitot Correction Factor	0.84

Volume Metered	47.766
Meter Temp (Deg R)	556.6
Orsat CO2 %	6.7
Orsat O2 %	7.5
Orsat CO %	0
Orsat N %	85.8
Condensate Volume	161.7
Delta H (inches H2O)	1.64
Stack Pressure	29.16
Stack Temp (Deg R)	~~1576.2~~ ~~1629.3~~

Moisture in stack gas, volume fraction	**0.149**
Dry Stack Gas, volume fraction	**0.851**
Molecular Weight of Stack Gas (Dry Basis)	**29.37**
Molecular Weight of Stack Gas (Stack conditions)	**27.68**
Specific gravity of Stack Gas Relative to Air	**0.955**
Excess Air (%)	
Average Stack Velocity, FPM	**3422.4**
Actual Stack Gas Flow Rate, ACFM	**179272**
Actual Stack Gas Flow Rate, (Dry) ACFMD	**152588**
Stack Gas Flow Rate (Standard conditions), SCFMD	**49816**
Stack Gas Flow Rate (Standard conditions), SCFMW	**58527**

APPENDIX E

Fluoride/Beryllium Testing

ppb
ENVIRONMENTAL LABORATORIES, INC

REPORT OF ANALYSES

Mr. David Sholtes
Ambient Air Services
106 Ambient Air Way
Starke, FL 32091

Project No.: 98-028
Date: December 29, 1998
Revision Date: January 6, 1999
REF: IPSCO Steel

Table 2. IPSCO Steel Samples Received December 3, 1998

Sample ID: PPB #:	FBC 1-3 163625	FBC 4-5 163626
Fluoride, total mg	0.958	0.045
Beryllium, total µg	<0.5	<0.5

M Kelly Braddock
Project Manager

6821 SW ARCHER ROAD, GAINESVILLE, FL 32608 (352) 377-2349 Fax (352) 395-6639 ppb@atlantic.net

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, Florida 32091

(904) 964 - 8440
(904) 964 - 6675 fax

Volumetric Flow Rates and Mass Emissions

Plant	Ipsco Steel
Location	Muscatine, Iowa
Stack	EAF Baghouse
Run Date	11-17-98
Run Number	1-Flouride/Berylium
Start Time	0805
Finish Time	1333
Weather	Broken
Total Time (min.)	240
Barometric Pressure	29 32
Stack Diameter (in.)	228
Stack Area sq. ft.	283 529
Nozzle Area sq. ft.	0 0002712
Number of Points	48
Avg of SQRT of V.H.	0 8299
Meter Correction (Y)	0 99
Nozzle Diameter	0 223
Pitot Correction Factor	0 84

Volume Metered	168 995
Meter Temp (Deg R)	538 3
Orsat CO2 %	0
Orsat O2 %	21
Orsat CO %	0
Orsat N %	79
Condensate Volume	50 5
Delta H (inches H2O)	1 323
Stack Pressure	29 25
Stack Temp (Deg R)	625 1
Filter Weight (gm)	0
Prefilter Weight (gm)	0
Total Particulate (gm)	0

Volume Water Vapor, SCF	**2.377**
Gas Volume Sampled, STPD	**161.373**
Total Volume, STP	**163.750**
Moisture in stack gas, volume fraction	**0.015**
Dry Stack Gas, volume fraction	**0.985**
Molecular Weight of Stack Gas (Dry Basis)	**28.84**
Molecular Weight of Stack Gas (Stack conditions)	**28.68**
Specific gravity of Stack Gas Relative to Air	**0.989**
Excess Air (%)	
Average Stack Velocity, FPM	**3084.2**
Actual Stack Gas Flow Rate, ACFM	**874460**
Actual Stack Gas Flow Rate, (Dry) ACFMD	**861343**
Stack Gas Flow Rate, SCFMD	**711254**
Percent Isokinetic	**98.8**

Stack Emissions:

APPENDIX F

Lead Testing

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, Florida 32091

(904) 964 - 8440
(904) 964 - 6675 fax

Volumetric Flow Rates and Mass Emissions

Plant	Ipsco Steel Inc.		
Location	Muscatine, Iowa		
Stack	EAF Baghouse		
Run Date	11-17-98		
Run Number	Lead		
Start Time	1041	**Volume Metered**	185.272
Finish Time	1617	**Meter Temp (Deg R)**	548.8
Weather	Broken	**Orsat CO2 %**	0
Total Time (min.)	240	**Orsat O2 %**	21
Barometric Pressure	29.32	**Orsat CO %**	0
Stack Diameter (in.)	228	**Orsat N %**	79
Stack Area sq. ft.	283.529	**Condensate Volume**	56.3
Nozzle Area sq. ft.	0.0002712	**Delta H (inches H2O)**	1.623
Number of Points	48	**Stack Pressure**	29.25
Avg of SQRT of V.H.	0.8785	**Stack Temp (Deg R)**	603.3
Meter Correction (Y)	0.99	**Filter Weight (gm)**	0
Nozzle Diameter	0.223	**Prefilter Weight (gm)**	0
Pitot Correction Factor	0.84	**Total Particulate (gm)**	0

Volume Water Vapor, SCF	**2.650**
Gas Volume Sampled, STPD	**173.662**
Total Volume, STP	**176.312**
Moisture in stack gas, volume fraction	**0.015**
Dry Stack Gas, volume fraction	**0.985**
Molecular Weight of Stack Gas (Dry Basis)	**28.84**
Molecular Weight of Stack Gas (Stack conditions)	**28.68**
Specific gravity of Stack Gas Relative to Air	**0.989**
Excess Air (%)	
Average Stack Velocity, FPM	**3207.4**
Actual Stack Gas Flow Rate, ACFM	**909391**
Actual Stack Gas Flow Rate, (Dry) ACFMD	**895750**
Stack Gas Flow Rate, SCFMD	**766393**
Percent Isokinetic	**98.7**

ENVIRONMENTAL LABORATORIES, INC.

REPORT OF ANALYSES

Mr. David Sholtes
Ambient Air Services
106 Ambient Air Way
Starke, FL 32091

Project No.: 98-028
Date: December 29, 1998

REF: IPSCO Steel

Table 3. IPSCO Steel Samples Received December 3, 1998

Sample ID: / PPB #:	LC 1-3 163627	LC 4-5 163628
Lead, total µg	105	5 8

Project Manager

6621 SW ARCHER ROAD, GAINESVILLE, FL 32608 (352) 377-2349 Fax (352) 395-5639 ppb@atlantic.net

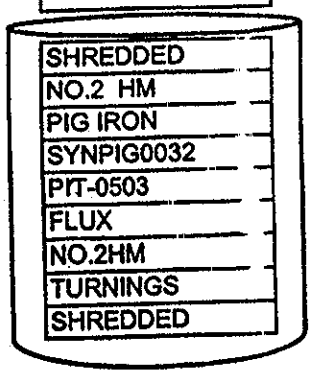
HEAT SHEET

MS PRACTICE
75091-703

HEAT NO. A8K048
DATE:11/16/98

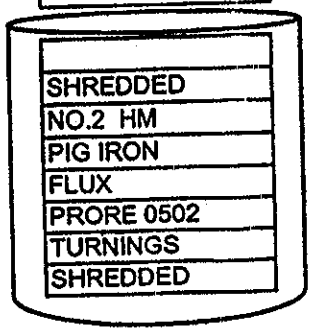
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 3
SCALE LOC. B



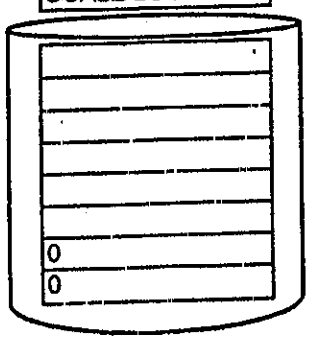
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	21450
#2	TURNINGS	44000	42950
#3	NO.2HM	40000	40150
#4	FLUX	6500	7500
#5	PIT-0503	10000	10500
#6	SYNPIG0032	14000	13300
#7	PIG IRON	24000	25600
#8	NO.2 HM	38000	34250
#9	SHREDDED	20000	21550
	TOTAL	210000	209750

BUCKET NO.: 3
SCALE LOC. A



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	14150
#2	TURNINGS	42000	41750
#3	PRORE 0502	10000	9050
#4	FLUX	6500	7000
#5	PIG IRON	20000	19500
#6	NO.2 HM	28000	28450
#7	SHREDDED	26000	27300
	TOTAL	140000	140200

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
	GRAND TOTAL	350000	349950

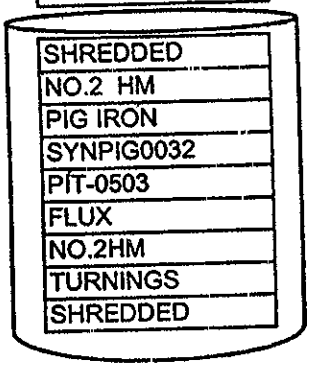
HEAT SHEET

MS PRACTICE
14201-702

HEAT NO. A8K049
DATE:11/17/98

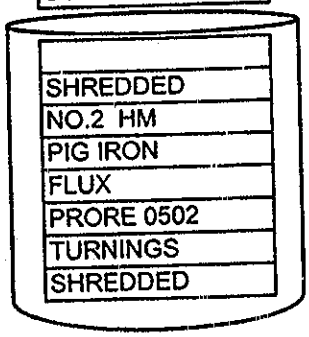
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 3
SCALE LOC. B



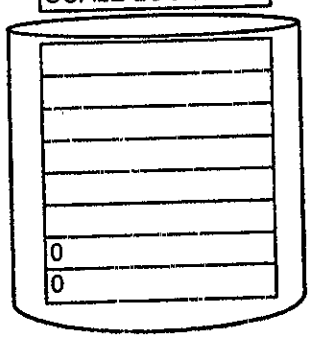
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	20300
#2	TURNINGS	44000	43250
#3	NO.2HM	40000	41050
#4	FLUX	6500	7000
#5	PIT-0503	10000	8750
#6	SYNPIG0032	14000	15300
#7	PIG IRON	24000	22500
#8	NO.2 HM	38000	38150
#9	SHREDDED	20000	20100
	TOTAL	210000	209400

BUCKET NO.: 3
SCALE LOC. A



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	13900
#2	TURNINGS	42000	42400
#3	PRORE 0502	10000	9350
#4	FLUX	6500	6950
#5	PIG IRON	20000	19700
#6	NO.2 HM	28000	27050
#7	SHREDDED	41000	41950
	TOTAL	155000	154350

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
GRAND	TOTAL	365000	363750

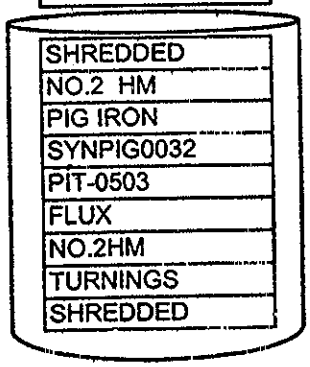
HEAT SHEET

MS PRACTICE
14201-702

HEAT NO. A8K050
DATE:11/17/98

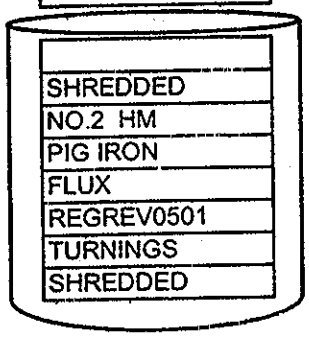
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 3
SCALE LOC. B



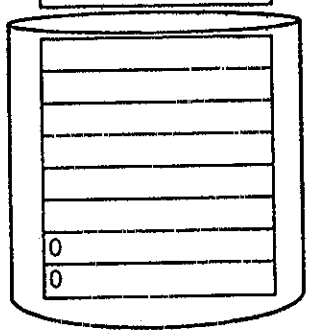
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	20300
#2	TURNINGS	44000	45500
#3	NO.2HM	40000	38400
#4	FLUX	6500	6900
#5	PIT-0503	10000	11400
#6	SYNPIG0032	14000	13350
#7	PIG IRON	24000	24050
#8	NO.2 HM	38000	38000
#9	SHREDDED	20000	17600
	TOTAL	210000	208600

BUCKET NO.: 3
SCALE LOC. A



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	14450
#2	TURNINGS	42000	43100
#3	REGREV0501	10000	12100
#4	FLUX	6500	7000
#5	PIG IRON	20000	21100
#6	NO.2 HM	28000	27000
#7	SHREDDED	26000	23000
	TOTAL	140000	140750

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
GRAND	TOTAL	350000	349350

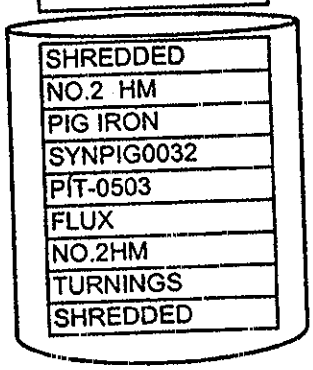
HEAT SHEET

MS PRACTICE
14201-702

HEAT NO. A8K051
DATE:11/17/98

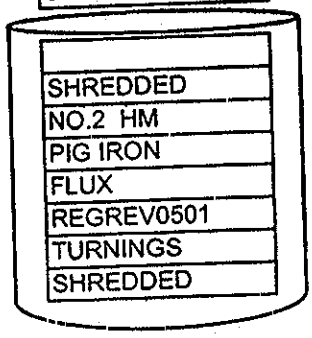
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 3
SCALE LOC. B



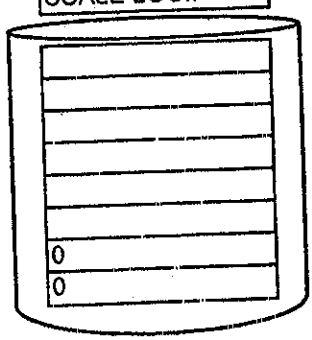
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	22400
#2	TURNINGS	44000	45800
#3	NO.2HM	40000	39300
#4	FLUX	6500	7100
#5	PIT-0503	10000	11450
#6	SYNPIG0032	14000	13700
#7	PIG IRON	24000	23750
#8	NO.2 HM	38000	38000
#9	SHREDDED	20000	15000
	TOTAL	210000	209400

BUCKET NO.: 3
SCALE LOC. A



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	14850
#2	TURNINGS	42000	41200
#3	REGREV0501	10000	6900
#4	FLUX	6500	6950
#5	PIG IRON	20000	19300
#6	NO.2 HM	28000	28900
#7	SHREDDED	21000	23300
	TOTAL	135000	134450

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
	GRAND TOTAL	345000	343850

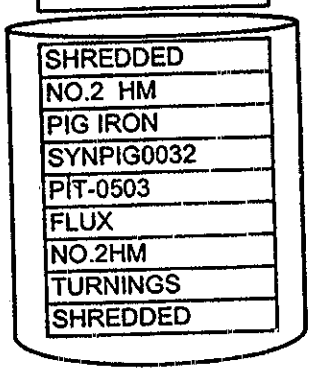
HEAT SHEET

MS PRACTICE
14201-702

HEAT NO. A8K052
DATE:11/17/98

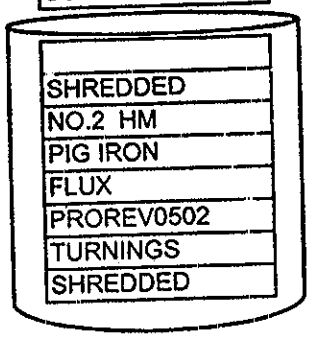
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 3
SCALE LOC. B



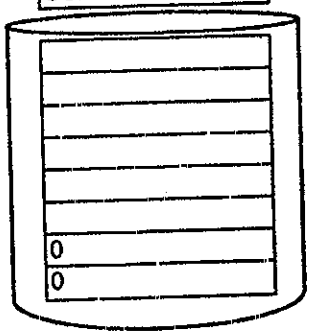
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	19350
#2	TURNINGS	44000	46200
#3	NO.2HM	40000	40500
#4	FLUX	6500	7000
#5	PIT-0503	10000	9100
#6	SYNPIG0032	14000	14100
#7	PIG IRON	24000	23100
#8	NO.2 HM	38000	36950
#9	SHREDDED	20000	19300
	TOTAL	210000	208600

BUCKET NO.: 3
SCALE LOC. A



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	13900
#2	TURNINGS	42000	41950
#3	PROREV0502	10000	9200
#4	FLUX	6500	6900
#5	PIG IRON	20000	20750
#6	NO.2 HM	28000	26150
#7	SHREDDED	21000	26400
	TOTAL	135000	138350

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
GRAND	TOTAL	345000	346950

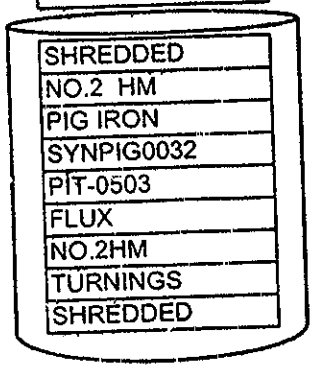
HEAT SHEET

MS PRACTICE
14201-702

HEAT NO. A8K053
DATE:11/17/98

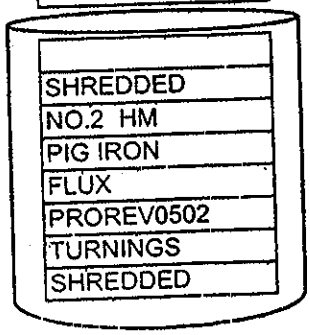
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 3
SCALE LOC. B



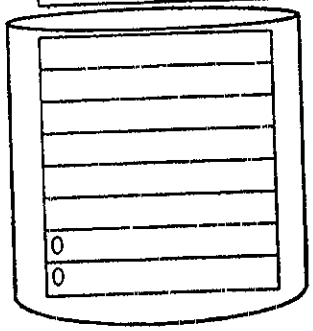
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	20500
#2	TURNINGS	44000	43350
#3	NO.2HM	40000	40200
#4	FLUX	6500	6750
#5	PIT-0503	10000	6200
#6	SYNPIG0032	14000	14050
#7	PIG IRON	24000	22450
#8	NO.2 HM	38000	36800
#9	SHREDDED	20000	24700
	TOTAL	210000	208250

BUCKET NO.: 3
SCALE LOC. A



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	14000
#2	TURNINGS	42000	41750
#3	PROREV0502	10000	8900
#4	FLUX	6500	8050
#5	PIG IRON	20000	20600
#6	NO.2 HM	28000	28600
#7	SHREDDED	6000	5250
	TOTAL	120000	119100

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
GRAND	TOTAL	330000	327350

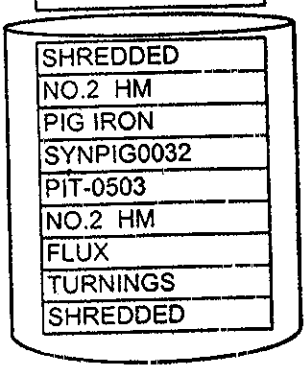
HEAT SHEET

MS PRACTICE
14201-702

HEAT NO. A8K054
DATE:11/17/98

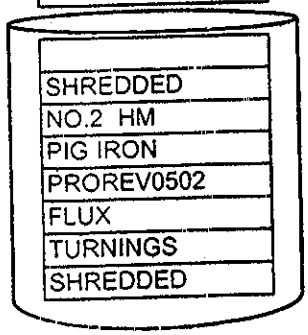
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 3
SCALE LOC. B



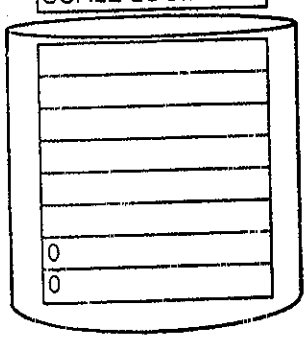
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	21050
#2	TURNINGS	44000	44000
#3	FLUX	6500	13300
#4	NO.2 HM	40000	39200
#5	PIT-0503	10000	8750
#6	SYNPIG0032	14000	13200
#7	PIG IRON	24000	23600
#8	NO.2 HM	38000	37950
#9	SHREDDED	20000	19650
	TOTAL	210000	207400

BUCKET NO.: 3
SCALE LOC. A



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	13500
#2	TURNINGS	42000	41800
#3	FLUX	0	0
#4	PROREV0502	10000	9550
#5	PIG IRON	20000	18750
#6	NO.2 HM	28000	30100
#7	SHREDDED	11000	13700
	TOTAL	125000	127400

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
GRAND	TOTAL	335000	334800

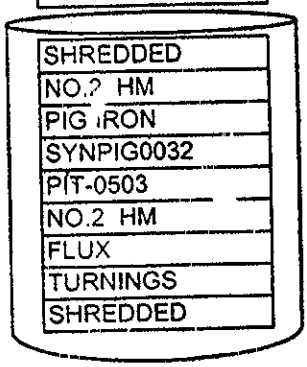
HEAT SHEET

MS PRACTICE
14201-702

HEAT NO. A8K055
DATE:11/17/98

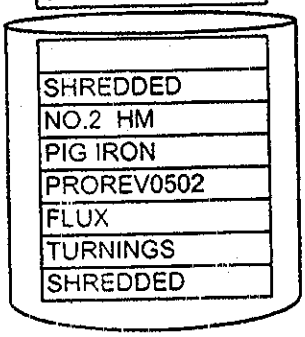
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 3
SCALE LOC. B



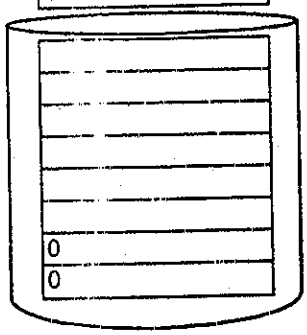
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	20650
#2	TURNINGS	44000	46500
#3	FLUX	6500	7900
#4	NO.2 HM	40000	41150
#5	PIT-0503	10000	8900
#6	SYNPIG0032	14000	14350
#7	PIG IRON	24000	28600
#8	NO.2 HM	38000	35400
#9	SHREDDED	20000	12800
	TOTAL	210000	208350

BUCKET NO.: 3
SCALE LOC. A



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	14550
#2	TURNINGS	42000	41200
#3	FLUX	6500	7950
#4	PROREV0502	10000	9500
#5	PIG IRON	20000	21300
#6	NO.2 HM	28000	29700
#7	SHREDDED	41000	35450
	TOTAL	155000	151700

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
	GRAND TOTAL	365000	360050

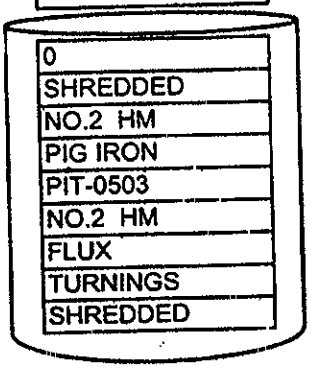
HEAT SHEET

MS PRACTICE
22203-702

HEAT NO. A8K056
DATE:11/18/98

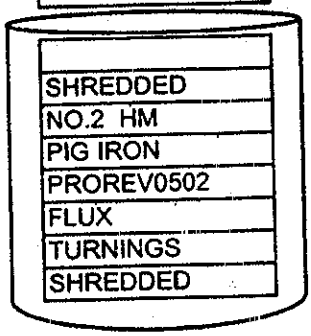
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 3
SCALE LOC. A



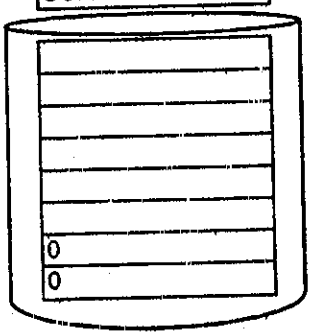
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	21400
#2	TURNINGS	44000	43850
#3	FLUX	6500	6950
#4	NO.2 HM	40000	38850
#5	PIT-0503	10000	9300
#6	PIG IRON	38000	38850
#7	NO.2 HM	38000	39450
#8	SHREDDED	20000	18950
#9	0	0	0
	TOTAL	210000	210650

BUCKET NO.: 3
SCALE LOC. A



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	14150
#2	TURNINGS	42000	41600
#3	FLUX	6500	7000
#4	PROREV0502	10000	8000
#5	PIG IRON	20000	19750
#6	NO.2 HM	28000	28900
#7	SHREDDED	16000	17800
	TOTAL	130000	130200

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
GRAND	TOTAL	340000	340850

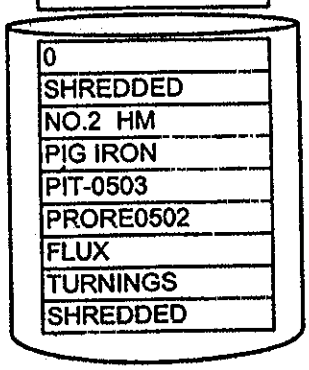
HEAT SHEET

MS PRACTICE
22203-702

HEAT NO. A8K057
DATE:11/18/98

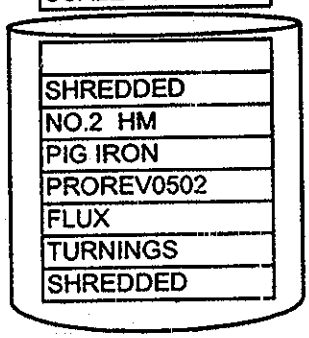
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 3
SCALE LOC. A



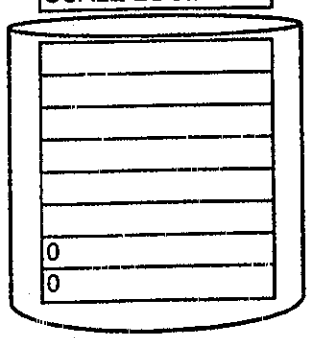
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	21550
#2	TURNINGS	44000	44950
#3	FLUX	6500	5950
#4	PRORE0502	50000	48850
#5	PIT-0503	10000	10750
#6	PIG IRON	38000	39450
#7	NO.2 HM	28000	27300
#8	SHREDDED	20000	17150
#9	0	0	0
	TOTAL	210000	210000

BUCKET NO.: 3
SCALE LOC. A



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	13800
#2	TURNINGS	42000	41650
#3	FLUX	6500	6900
#4	PROREV0502	10000	10950
#5	PIG IRON	20000	20500
#6	NO.2 HM	28000	27600
#7	SHREDDED	6000	6450
	TOTAL	120000	120950

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
GRAND	TOTAL	330000	330950

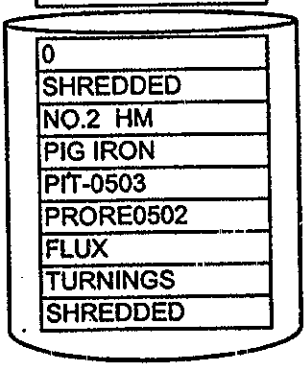
HEAT SHEET

MS PRACTICE
22203-702

HEAT NO. A8K058
DATE:11/18/98

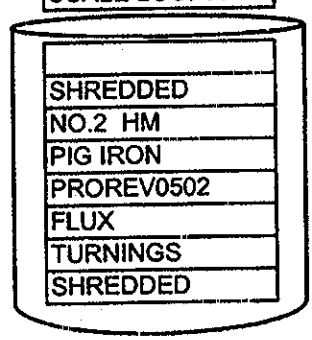
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 3
SCALE LOC. A



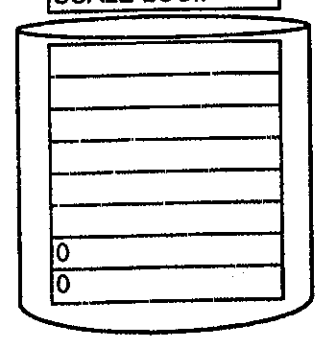
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	21000
#2	TURNINGS	44000	44200
#3	FLUX	6500	6800
#4	PRORE0502	50000	49350
#5	PIT-0503	10000	11150
#6	PIG IRON	38000	38700
#7	NO.2 HM	28000	31550
#8	SHREDDED	20000	13650
#9	0	0	0
	TOTAL	210000	209600

BUCKET NO.: 3
SCALE LOC. A



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	13750
#2	TURNINGS	42000	43550
#3	FLUX	6500	7050
#4	PROREV0502	10000	8950
#5	PIG IRON	20000	20000
#6	NO.2 HM	28000	27700
#7	SHREDDED	6000	5400
	TOTAL	120000	119350

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
	GRAND TOTAL	330000	328950

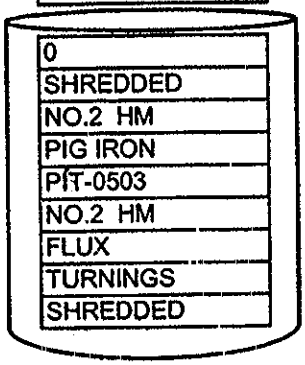
HEAT SHEET

MS PRACTICE
22203-702

HEAT NO. A8K059
DATE:11/19/98

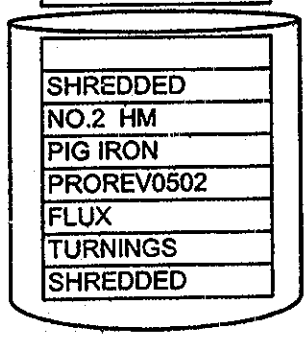
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 3
SCALE LOC. A



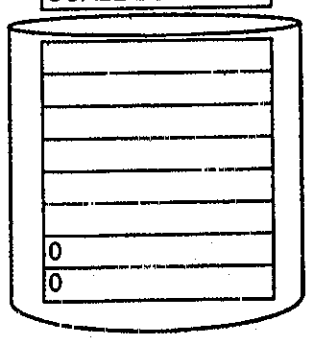
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	20100
#2	TURNINGS	44000	45850
#3	FLUX	6500	8400
#4	NO.2 HM	40000	44400
#5	PIT-0503	10000	9850
#6	PIG IRON	38000	39600
#7	NO.2 HM	38000	38400
#8	SHREDDED	20000	9300
#9	0	0	0
	TOTAL	210000	207500

BUCKET NO.: 3
SCALE LOC. A



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	15700
#2	TURNINGS	42000	40450
#3	FLUX	6500	6850
#4	PROREV0502	10000	10800
#5	PIG IRON	20000	18450
#6	NO.2 HM	28000	28050
#7	SHREDDED	31000	31700
	TOTAL	145000	145150

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
GRAND	TOTAL	355000	352650

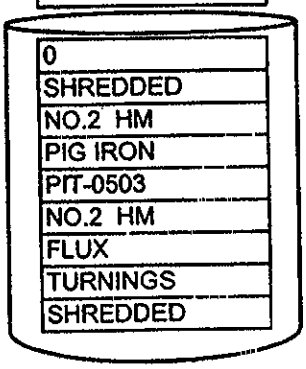
HEAT SHEET

MS PRACTICE
22203-702

HEAT NO. A8K060
DATE:11/19/98

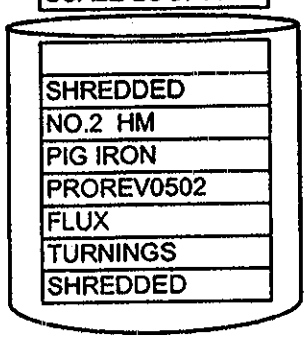
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 3
SCALE LOC. A



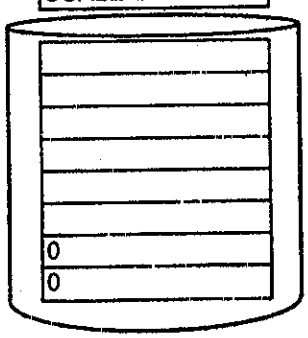
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	20550
#2	TURNINGS	44000	43250
#3	FLUX	6500	7350
#4	NO.2 HM	40000	39700
#5	PIT-0503	10000	9200
#6	PIG IRON	38000	42150
#7	NO.2 HM	38000	35550
#8	SHREDDED	20000	20050
#9	0	0	0
	TOTAL	210000	210450

BUCKET NO.: 3
SCALE LOC. A



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	14350
#2	TURNINGS	42000	42800
#3	FLUX	6500	6800
#4	PROREV0502	10000	11550
#5	PIG IRON	20000	22100
#6	NO.2 HM	28000	28000
#7	SHREDDED	16000	11400
	TOTAL	130000	130200

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
	GRAND TOTAL	340000	340650

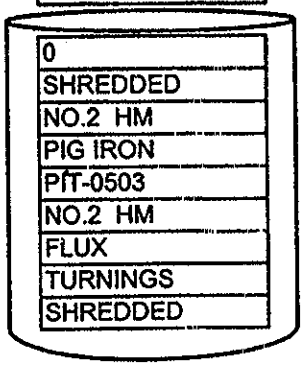
HEAT SHEET

MS PRACTICE
75091-703

HEAT NO. A8K061
DATE:11/19/98

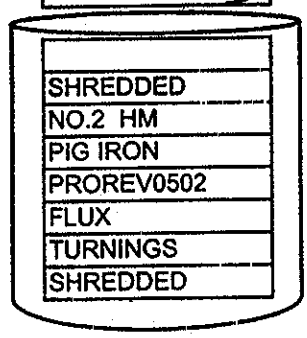
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 3
SCALE LOC. A



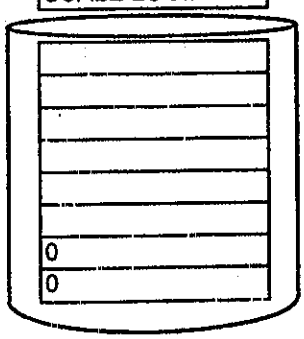
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	19800
#2	TURNINGS	44000	43650
#3	FLUX	6500	6700
#4	NO.2 HM	40000	41900
#5	PIT-0503	10000	8800
#6	PIG IRON	38000	39750
#7	NO.2 HM	38000	37800
#8	SHREDDED	20000	17650
#9	0	0	0
	TOTAL	210000	209350

BUCKET NO.: 4
SCALE LOC. B



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	15450
#2	TURNINGS	42000	40750
#3	FLUX	6500	6800
#4	PROREV0502	10000	14900
#5	PIG IRON	20000	22300
#6	NO.2 HM	28000	26950
#7	SHREDDED	6000	0
	TOTAL	120000	120350

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
GRAND	TOTAL	330000	329700

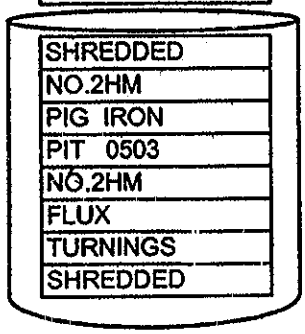
HEAT SHEET

MS PRACTICE
75091-703

HEAT NO. A8K062
DATE:11/19/98

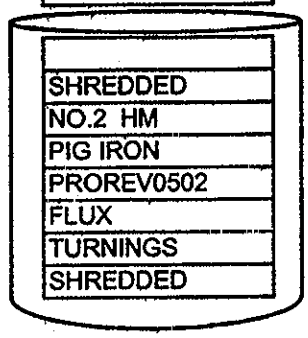
STANDARD
2 BUCKET CHARGE

BUCKET NO.: 3
SCALE LOC.: A



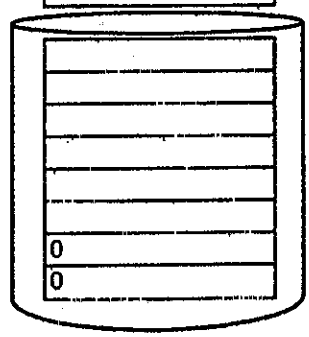
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	20400
#2	TURNINGS	44000	43900
#3	FLUX	6500	7050
#4	NO.2HM	40000	41150
#5	PIT 0503	10000	12450
#6	PIG IRON	38000	40400
#7	NO.2HM	38000	42900
#8	SHREDDED	20000	6750
	TOTAL	210000	207950

BUCKET NO.: 3
SCALE LOC.: A



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	14100
#2	TURNINGS	42000	41900
#3	FLUX	6500	6950
#4	PROREV0502	10000	13300
#5	PIG IRON	20000	19600
#6	NO.2 HM	28000	27050
#7	SHREDDED	26000	23600
	TOTAL	140000	139550

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
GRAND	TOTAL	350000	347500

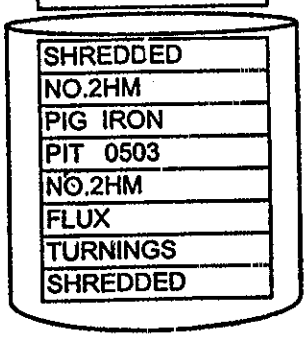
HEAT SHEET

MS PRACTICE
75091-703

HEAT NO. A8K063
DATE:11/19/98

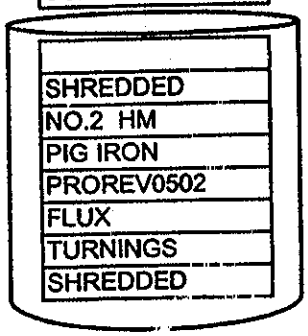
STANDARD
2 BUCKET CHARGE

BUCKET NO.: 3
SCALE LOC.: A



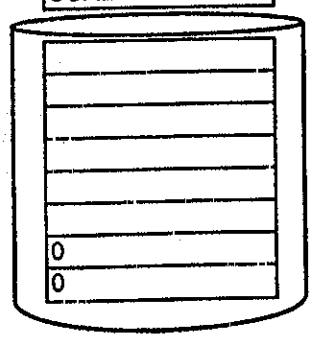
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	19350
#2	TURNINGS	44000	44300
#3	FLUX	6500	6900
#4	NO.2HM	40000	40600
#5	PIT 0503	10000	10200
#6	PIG IRON	38000	40100
#7	NO.2HM	38000	38850
#8	SHREDDED	20000	15200
	TOTAL	210000	208600

BUCKET NO.: 3
SCALE LOC.: A



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	15400
#2	TURNINGS	42000	40950
#3	FLUX	6500	6500
#4	PROREV0502	10000	10700
#5	PIG IRON	20000	20450
#6	NO.2 HM	28000	31000
#7	SHREDDED	16000	13300
	TOTAL	130000	131800

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
	GRAND TOTAL	340000	340400

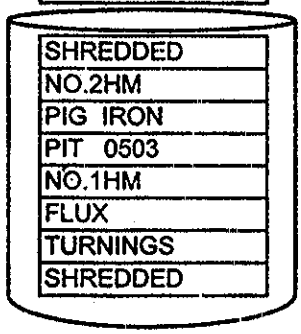
HEAT SHEET

MS PRACTICE
75091-703

HEAT NO. A8K064
DATE:11/19/98

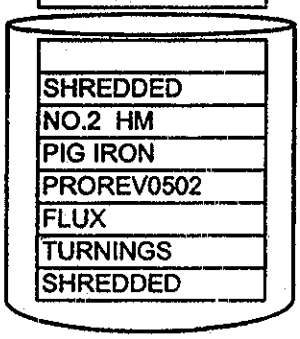
STANDARD
2 BUCKET CHARGE

BUCKET NO.: 2
SCALE LOC.: A



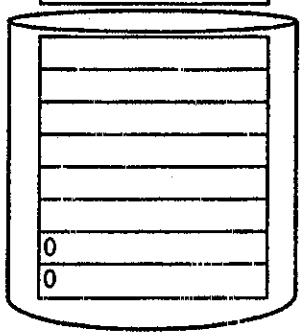
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	20550
#2	TURNINGS	44000	43400
#3	FLUX	6500	6400
#4	NO.1HM	40000	42700
#5	PIT 0503	10000	10950
#6	PIG IRON	38000	40000
#7	NO.2HM	38000	36600
#8	SHREDDED	20000	16350
	TOTAL	210000	210550

BUCKET NO.: 2
SCALE LOC.: A



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	14100
#2	TURNINGS	42000	40650
#3	FLUX	6500	6250
#4	PROREV0502	10000	10250
#5	PIG IRON	20000	22250
#6	NO.2 HM	24000	22300
#7	SHREDDED	0	0
	TOTAL	110000	109550

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
GRAND	TOTAL	320000	320100

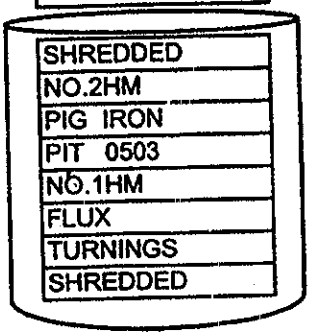
HEAT SHEET

MS PRACTICE
24203-702

HEAT NO. A8K065
DATE:11/19/98

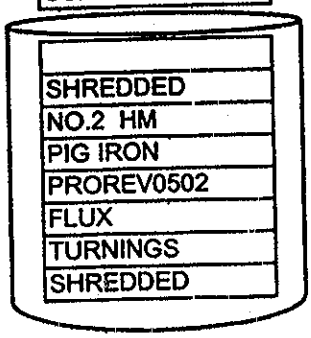
STANDARD
2 BUCKET CHARGE

BUCKET NO.: 2
SCALE LOC.: A



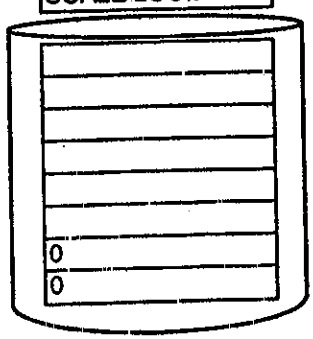
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	20350
#2	TURNINGS	44000	42450
#3	FLUX	6500	6950
#4	NO.1HM	40000	41000
#5	PIT 0503	10000	10650
#6	PIG IRON	38000	35750
#7	NO.2HM	38000	38100
#8	SHREDDED	20000	21450
	TOTAL	210000	209750

BUCKET NO.: 2
SCALE LOC.: A



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	15450
#2	TURNINGS	42000	40850
#3	FLUX	6500	6950
#4	PROREV0502	10000	10950
#5	PIG IRON	20000	21100
#6	NO.2 HM	28000	27800
#7	SHREDDED	6000	4050
	TOTAL	120000	120200

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
GRAND	TOTAL	330000	329950

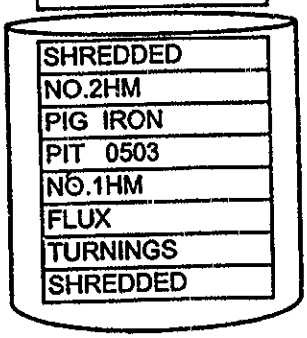
HEAT SHEET

MS PRACTICE
24203-702

HEAT NO. A8K066
DATE:11/19/98

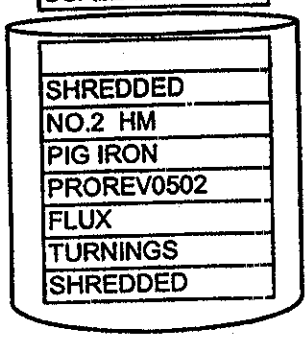
STANDARD
2 BUCKET CHARGE

BUCKET NO.: 2
SCALE LOC.: A



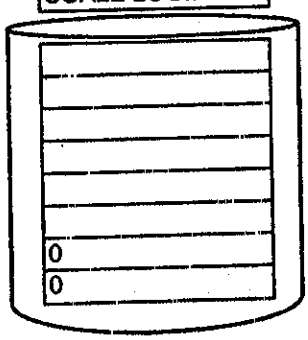
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	19350
#2	TURNINGS	44000	43750
#3	FLUX	6500	6900
#4	NO.1HM	40000	41150
#5	PIT 0503	10000	7400
#6	PIG IRON	38000	35500
#7	NO.2HM	38000	37550
#8	SHREDDED	20000	21850
	TOTAL	210000	206550

BUCKET NO.: 2
SCALE LOC.: A



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	13850
#2	TURNINGS	42000	42000
#3	FLUX	6500	5300
#4	PROREV0502	10000	12900
#5	PIG IRON	20000	20000
#6	NO.2 HM	28000	26500
#7	SHREDDED	6000	6850
	TOTAL	120000	122100

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
GRAND	TOTAL	330000	328650

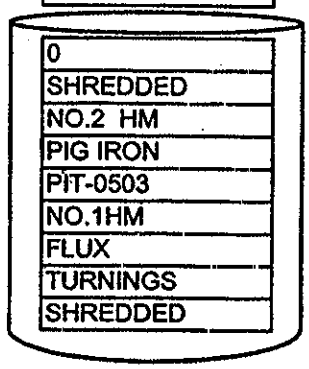
HEAT SHEET

MS PRACTICE
75091-703

HEAT NO. A8K067
DATE:11/19/98

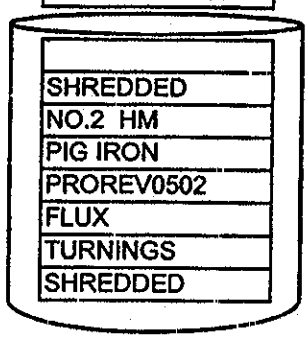
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 3
SCALE LOC. A



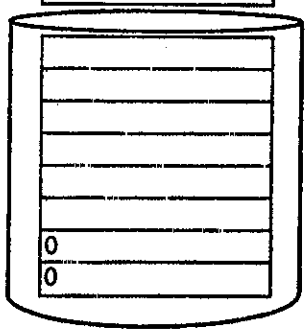
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	21750
#2	TURNINGS	44000	43400
#3	FLUX	6500	6750
#4	NO.1HM	40000	38300
#5	PIT-0503	10000	11300
#6	PIG IRON	38000	39650
#7	NO.2 HM	38000	38450
#8	SHREDDED	20000	17000
#9	0	0	0
	TOTAL	210000	209850

BUCKET NO.: 3
SCALE LOC. A



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	14900
#2	TURNINGS	42000	42100
#3	FLUX	6500	6800
#4	PROREV0502	10000	8450
#5	PIG IRON	20000	25800
#6	NO.2 HM	28000	22450
#7	SHREDDED	6000	4500
	TOTAL	120000	118200

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
	GRAND TOTAL	330000	328050

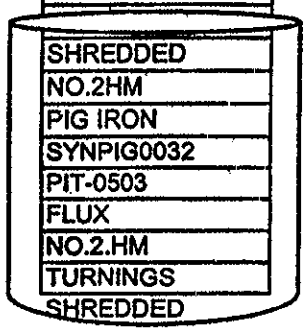
HEAT SHEET

MS PRACTICE
75091-703

HEAT NO. B8K051
DATE:11/16/98

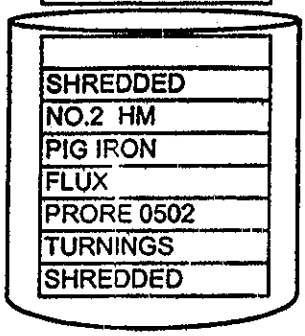
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 5
SCALE LOC.: B



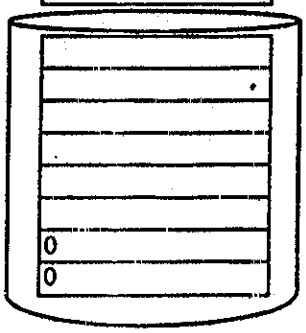
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	19750
#2	TURNINGS	44000	47950
#3	NO.2.HM	40000	40650
#4	FLUX	6500	6800
#5	PIT-0503	10000	10350
#6	SYNPIG0032	14000	15350
#7	PIG IRON	24000	26250
#8	NO.2HM	20000	33400
#9	SHREDDED	20000	16050
	TOTAL	210000	209750

BUCKET NO.: 5
SCALE LOC.: B



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	13900
#2	TURNINGS	42000	45250
#3	PRORE 0502	10000	8750
#4	FLUX	6500	6500
#5	PIG IRON	20000	22450
#6	NO.2 HM	28000	26800
#7	SHREDDED	46000	42150
	TOTAL	160000	159300

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
	GRAND TOTAL	370000	369050

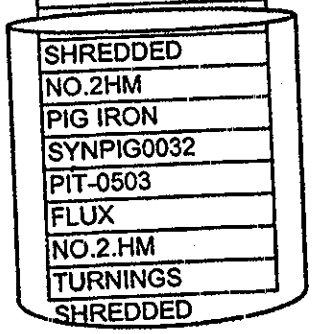
HEAT SHEET

MS PRACTICE
75091-703

HEAT NO. B8K0540
DATE:11/17/98

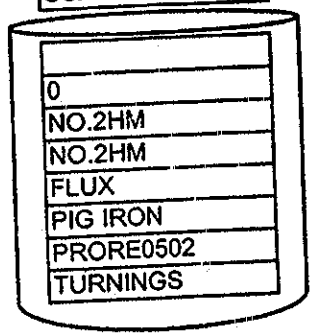
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 5
SCALE LOC.: B



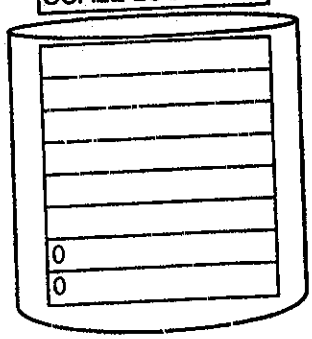
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	19950
#2	TURNINGS	44000	43550
#3	NO.2.HM	40000	39450
#4	FLUX	6500	6150
#5	PIT-0503	10000	10050
#6	SYNPIG0032	14000	13600
#7	PIG IRON	24000	23300
#8	NO.2HM	20000	39650
#9	SHREDDED	20000	19100
	TOTAL	210000	208650

BUCKET NO.: 4
SCALE LOC.: B



LAYER #	MATERIAL	PLAN	ACTUAL
#1	TURNINGS	34000	34300
#2	PRORE0502	24000	24950
#3	PIG IRON	24000	24050
#4	FLUX	6500	6200
#5	NO.2HM	28000	28000
#6	NO.2HM	50000	52250
#7	0	0	0
	TOTAL	160000	163550

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
	GRAND TOTAL	370000	372200

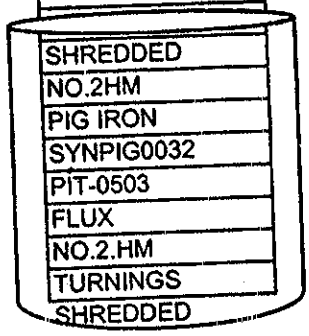
HEAT SHEET

MS PRACTICE
14201-702

HEAT NO. B8K05[illegible]
DATE:11/17/98

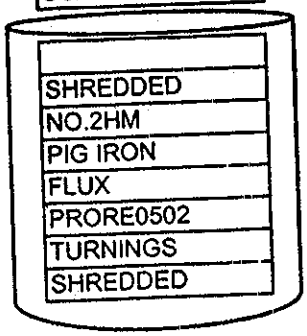
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 4
SCALE LOC.: B



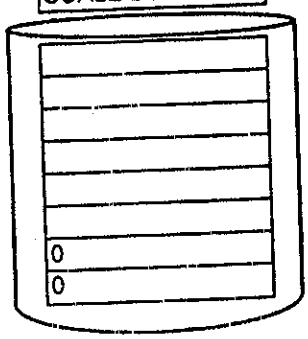
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	21000
#2	TURNINGS	44000	42800
#3	NO.2.HM	40000	39550
#4	FLUX	6500	6400
#5	PIT-0503	10000	10600
#6	SYNPIG0032	14000	14400
#7	PIG IRON	24000	24500
#8	NO.2HM	20000	37550
#9	SHREDDED	20000	18250
	TOTAL	210000	208650

BUCKET NO.: 4
SCALE LOC.: B



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	15900
#2	TURNINGS	42000	40350
#3	PRORE0502	10000	8050
#4	FLUX	6500	6100
#5	PIG IRON	20000	20850
#6	NO.2HM	28000	26400
#7	SHREDDED	41000	42150
	TOTAL	155000	153700

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
	GRAND TOTAL	365000	362350

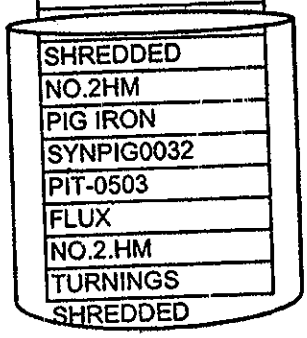
HEAT SHEET

MS PRACTICE
14201-702

HEAT NO. B8K05[illegible]
DATE:11/17/98

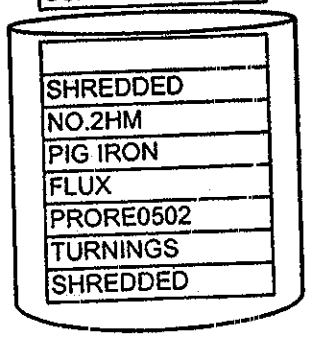
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 4
SCALE LOC.: B



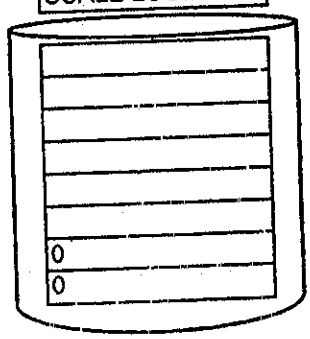
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	21000
#2	TURNINGS	44000	42800
#3	NO.2.HM	40000	39550
#4	FLUX	6500	6400
#5	PIT-0503	10000	10600
#6	SYNPIG0032	14000	14400
#7	PIG IRON	24000	24500
#8	NO.2HM	20000	37550
#9	SHREDDED	20000	18250
	TOTAL	210000	208650

BUCKET NO.: 4
SCALE LOC.: B



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	15900
#2	TURNINGS	42000	40350
#3	PRORE0502	10000	8050
#4	FLUX	6500	6100
#5	PIG IRON	20000	20850
#6	NO.2HM	28000	26400
#7	SHREDDED	41000	42150
	TOTAL	155000	153700

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
	GRAND TOTAL	365000	362350

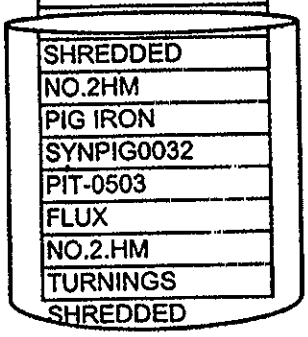
HEAT SHEET

MS PRACTICE
14201-702

HEAT NO. B8K054
DATE:11/17/98

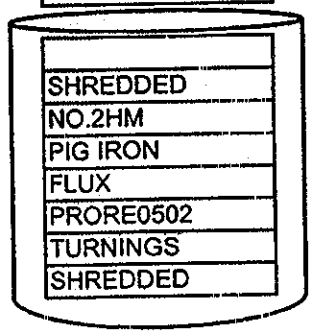
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 4
SCALE LOC.: B



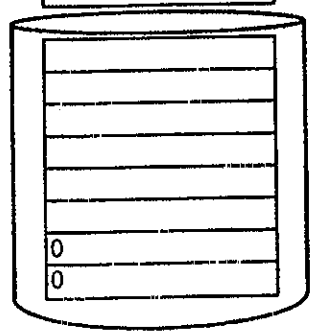
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	19750
#2	TURNINGS	44000	43800
#3	NO.2.HM	40000	40050
#4	FLUX	6500	6200
#5	PIT-0503	10000	9300
#6	SYNPIG0032	14000	14800
#7	PIG IRON	24000	22950
#8	NO.2HM	20000	37750
#9	SHREDDED	20000	21700
	TOTAL	210000	210100

BUCKET NO.: 4
SCALE LOC.: B



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	14900
#2	TURNINGS	42000	41350
#3	PRORE0502	10000	10050
#4	FLUX	6500	6050
#5	PIG IRON	20000	19900
#6	NO.2HM	28000	28800
#7	SHREDDED	36000	34050
	TOTAL	150000	149050

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
	GRAND TOTAL	360000	359150

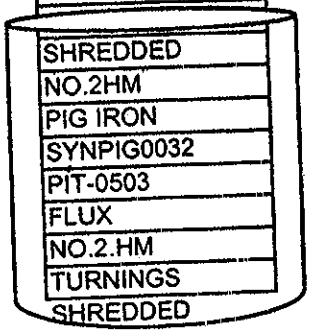
HEAT SHEET

MS PRACTICE
14201-702

HEAT NO. B8K055
DATE:11/17/98

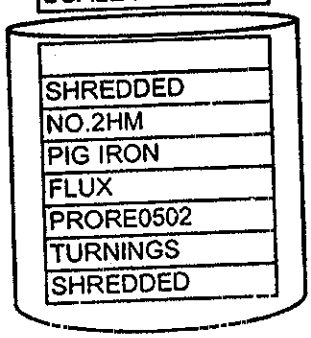
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 4
SCALE LOC.: B



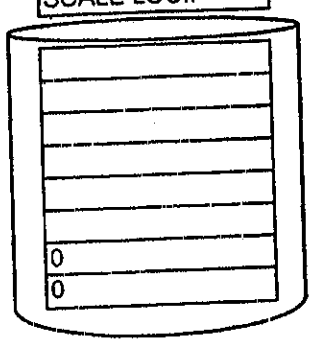
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	20250
#2	TURNINGS	44000	42750
#3	NO.2.HM	40000	39550
#4	FLUX	6500	6650
#5	PIT-0503	10000	10100
#6	SYNPIG0032	14000	13200
#7	PIG IRON	24000	23550
#8	NO.2HM	20000	37450
#9	SHREDDED	20000	22100
	TOTAL	210000	208950

BUCKET NO.: 4
SCALE LOC.: B



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	15100
#2	TURNINGS	42000	42850
#3	PRORE0502	10000	9600
#4	FLUX	6500	6650
#5	PIG IRON	20000	20600
#6	NO.2HM	28000	26550
#7	SHREDDED	46000	45700
	TOTAL	160000	160400

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
	GRAND TOTAL	370000	369350

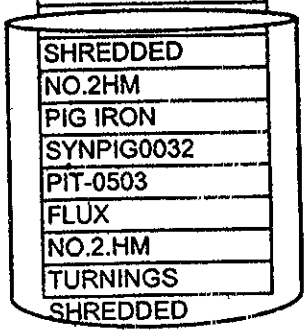
HEAT SHEET

MS PRACTICE
14201-702

HEAT NO. B8K056
DATE:11/17/98

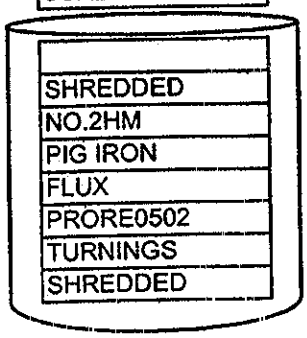
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 4
SCALE LOC.: B



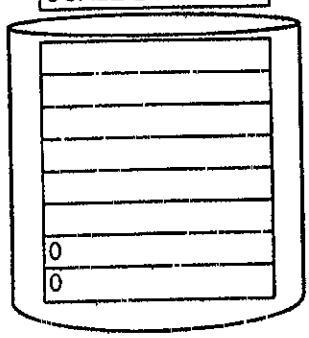
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	19950
#2	TURNINGS	44000	44000
#3	NO.2.HM	40000	40400
#4	FLUX	6500	6000
#5	PIT-0503	10000	10050
#6	SYNPIG0032	14000	14750
#7	PIG IRON	24000	23750
#8	NO.2HM	20000	36900
#9	SHREDDED	20000	20750
	TOTAL	210000	210550

BUCKET NO.: 4
SCALE LOC.: B



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	14050
#2	TURNINGS	42000	42650
#3	PRORE0502	10000	10250
#4	FLUX	6500	8100
#5	PIG IRON	20000	21250
#6	NO.2HM	28000	25950
#7	SHREDDED	36000	34400
	TOTAL	150000	148550

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
GRAND	TOTAL	360000	359100

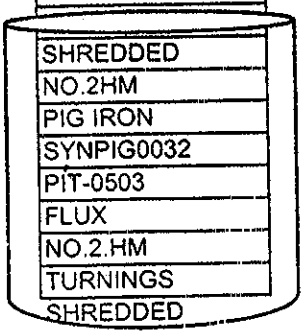
HEAT SHEET

MS PRACTICE
14201-702

HEAT NO. B8K057
DATE:11/17/98

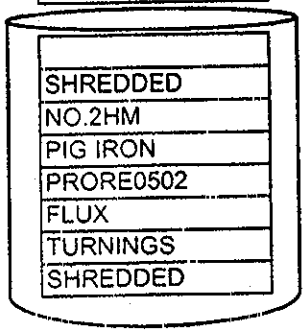
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 4
SCALE LOC.: B



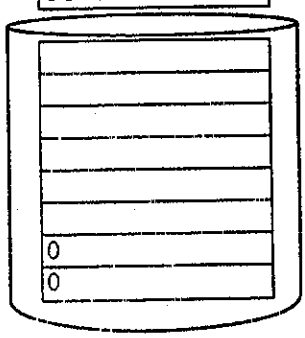
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	24300
#2	TURNINGS	44000	42300
#3	NO.2.HM	40000	40400
#4	FLUX	6500	7700
#5	PIT-0503	10000	7450
#6	SYNPIG0032	14000	12750
#7	PIG IRON	24000	24550
#8	NO.2HM	20000	37100
#9	SHREDDED	20000	20700
	TOTAL	210000	209550

BUCKET NO.: 4
SCALE LOC.: B



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	14050
#2	TURNINGS	42000	43000
#3	FLUX	6500	6700
#4	PRORE0502	10000	8150
#5	PIG IRON	20000	21800
#6	NO.2HM	28000	26700
#7	SHREDDED	41000	43150
	TOTAL	155000	156850

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
GRAND	TOTAL	365000	366400

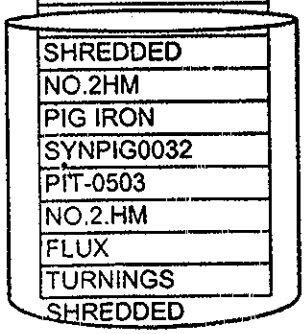
HEAT SHEET

MS PRACTICE
14201-702

HEAT NO. B8K058
DATE:11/17/98

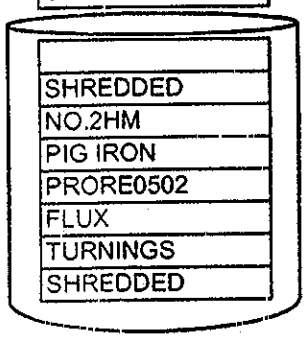
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 4
SCALE LOC.: B



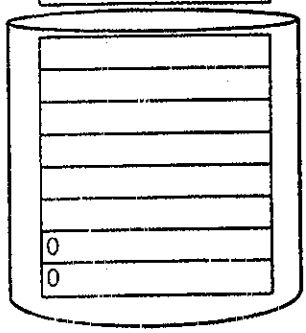
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	21850
#2	TURNINGS	44000	41100
#3	FLUX	6500	6750
#4	NO.2.HM	40000	42150
#5	PIT-0503	10000	9100
#6	SYNPIG0032	14000	13500
#7	PIG IRON	24000	24250
#8	NO.2HM	20000	39150
#9	SHREDDED	20000	18900
	TOTAL	210000	210000

BUCKET NO.: 4
SCALE LOC.: B



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	15000
#2	TURNINGS	42000	41400
#3	FLUX	6500	6700
#4	PRORE0502	10000	7200
#5	PIG IRON	20000	19450
#6	NO.2HM	28000	27850
#7	SHREDDED	41000	43550
	TOTAL	155000	154450

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
	GRAND TOTAL	365000	364450

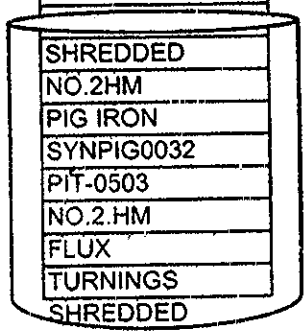
HEAT SHEET

MS PRACTICE
14201-702

HEAT NO. B8K059
DATE:11/18/98

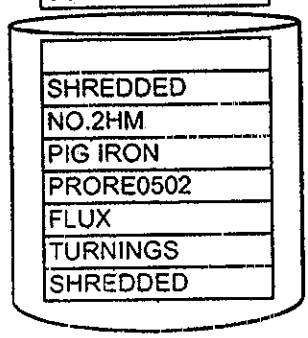
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 4
SCALE LOC.: B



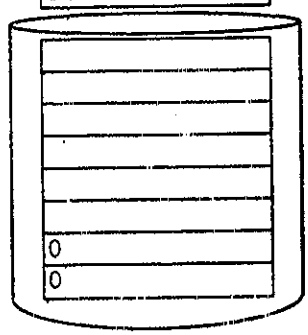
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	21750
#2	TURNINGS	44000	44950
#3	FLUX	6500	6750
#4	NO.2.HM	40000	38300
#5	PIT-0503	10000	11900
#6	SYNPIG0032	14000	15450
#7	PIG IRON	24000	23250
#8	NO.2HM	38000	40350
#9	SHREDDED	20000	14700
	TOTAL	210000	210650

BUCKET NO.: 4
SCALE LOC.: B



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	16550
#2	TURNINGS	42000	39950
#3	FLUX	6500	6500
#4	PRORE0502	10000	10700
#5	PIG IRON	20000	21200
#6	NO.2HM	28000	27100
#7	SHREDDED	26000	25050
	TOTAL	140000	140550

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
GRAND	TOTAL	350000	351200

APPENDIX G

IPSCO Steel Plant Operating Data

Fan Amp
Damper Position
Heat Logs

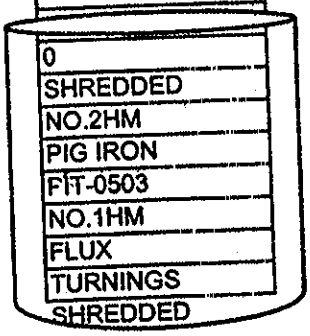
HEAT SHEET

MS PRACTICE
75091-703

HEAT NO. B8K079
DATE:11/19/98

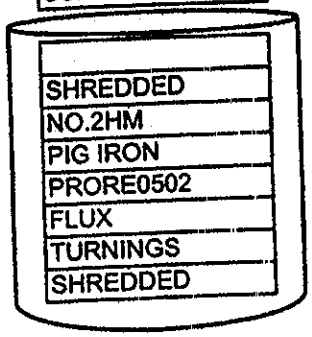
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 3
SCALE LOC.: B



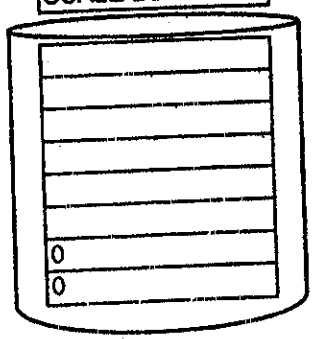
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	20050
#2	TURNINGS	44000	43950
#3	FLUX	6500	6750
#4	NO.1HM	40000	40700
#5	PIT-0503	10000	8950
#6	PIG IRON	38000	38100
#7	NO.2HM	38000	37650
#8	SHREDDED	20000	18800
#9	0	0	0
	TOTAL	210000	208200

BUCKET NO.: 3
SCALE LOC.: B



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	14100
#2	TURNINGS	42000	42900
#3	FLUX	6500	6850
#4	PRORE0502	10000	11050
#5	PIG IRON	20000	19450
#6	NO.2HM	28000	29100
#7	SHREDDED	26000	21750
	TOTAL	140000	138350

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
	GRAND TOTAL	350000	346550

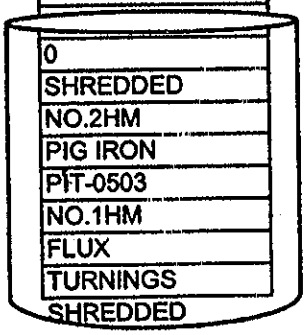
HEAT SHEET

MS PRACTICE
75091-703

HEAT NO. B8K078
DATE:11/19/98

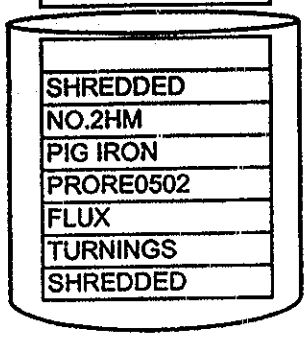
40% MAX
2 BUCKET CHARGE

BUCKET NO.: 3
SCALE LOC.: B



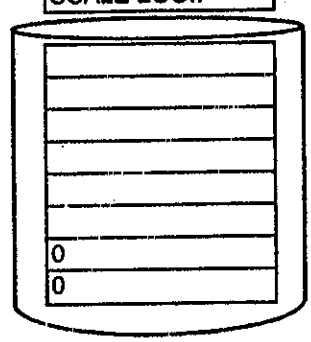
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	20450
#2	TURNINGS	44000	45850
#3	FLUX	6500	7000
#4	NO.1HM	40000	40050
#5	PIT-0503	10000	8300
#6	PIG IRON	38000	38000
#7	NO.2HM	38000	37700
#8	SHREDDED	20000	18150
#9	0	0	0
	TOTAL	210000	208500

BUCKET NO.: 3
SCALE LOC.: B



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	12350
#2	TURNINGS	42000	43150
#3	FLUX	6500	6900
#4	PRORE0502	10000	11900
#5	PIG IRON	20000	22650
#6	NO.2HM	28000	26450
#7	SHREDDED	16000	13850
	TOTAL	130000	130350

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
GRAND	TOTAL	340000	338850

HEAT SHEET

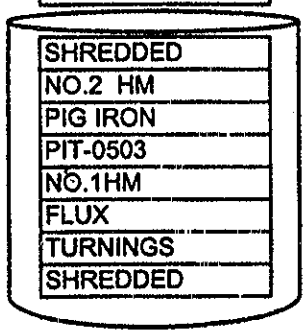
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MS PRACTICE
75091-703

DATE: 11/19/98

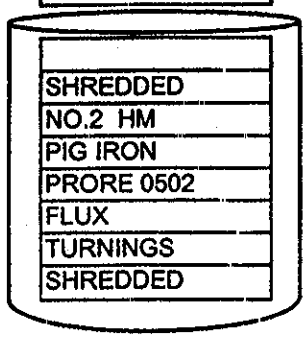
STANDARD
2 BUCKET CHARGE

BUCKET NO.: 3
SCALE LOC.: B



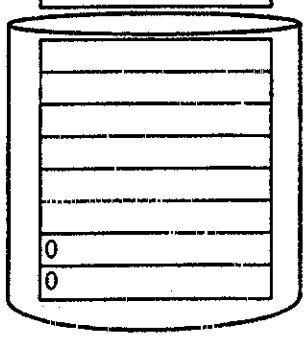
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	18950
#2	TURNINGS	44000	44400
#3	FLUX	6500	6800
#4	NO.1HM	40000	40400
#5	PIT-0503	10000	10050
#6	PIG IRON	38000	39450
#7	NO.2 HM	38000	39450
#8	SHREDDED	20000	16200
	TOTAL	210000	208900

BUCKET NO.: 3
SCALE LOC.: B



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	13150
#2	TURNINGS	42000	44300
#3	FLUX	6500	6900
#4	PRORE 0502	10000	9950
#5	PIG IRON	20000	19500
#6	NO.2 HM	28000	28550
#7	SHREDDED	11000	8850
	TOTAL	125000	124300

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
	GRAND TOTAL	335000	333200

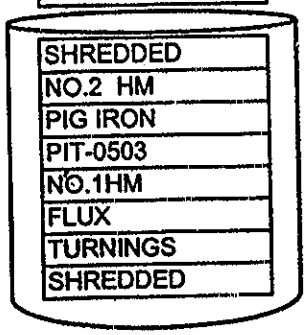
HEAT SHEET

MS PRACTICE
75091-703

HEAT NO. B8K076
DATE: 11/19/98

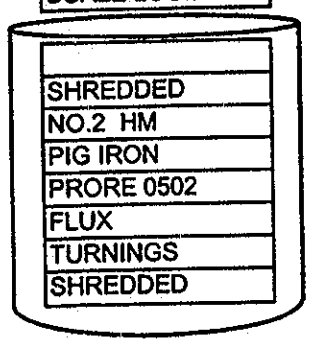
STANDARD
2 BUCKET CHARGE

BUCKET NO.: 3
SCALE LOC.: B



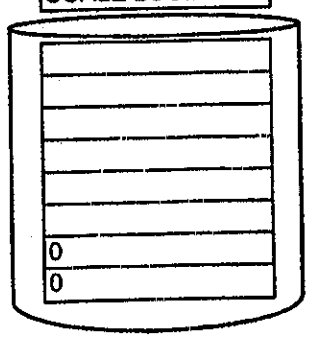
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	21650
#2	TURNINGS	44000	41850
#3	FLUX	6500	7000
#4	NO.1HM	40000	38300
#5	PIT-0503	10000	10400
#6	PIG IRON	38000	36900
#7	NO.2 HM	38000	40100
#8	SHREDDED	20000	19200
	TOTAL	210000	208400

BUCKET NO.: 3
SCALE LOC.: B



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	13500
#2	TURNINGS	42000	42000
#3	FLUX	6500	7700
#4	PRORE 0502	10000	8600
#5	PIG IRON	20000	21000
#6	NO.2 HM	28000	27500
#7	SHREDDED	6000	7800
	TOTAL	120000	120400

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
	GRAND TOTAL	330000	328800

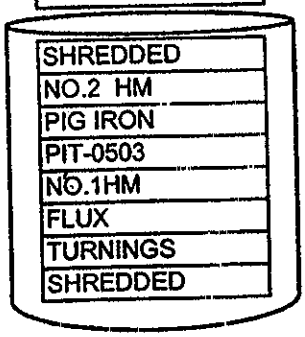
HEAT SHEET

MS PRACTICE
75091-703

HEAT NO. B8K075
DATE: 11/19/98

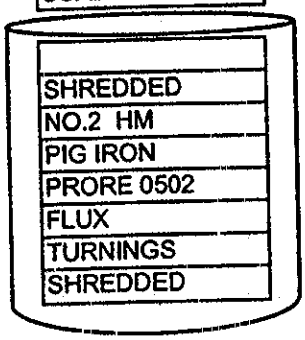
STANDARD
2 BUCKET CHARGE

BUCKET NO.: 3
SCALE LOC.: B



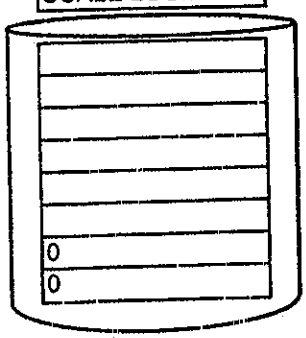
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	19600
#2	TURNINGS	44000	41800
#3	FLUX	6500	9950
#4	NO.1HM	40000	41100
#5	PIT-0503	10000	11150
#6	PIG IRON	38000	39200
#7	NO.2 HM	38000	40200
#8	SHREDDED	20000	12400
	TOTAL	210000	205450

BUCKET NO.: 3
SCALE LOC.: B



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	15800
#2	TURNINGS	42000	41500
#3	FLUX	6500	6900
#4	PRORE 0502	10000	11000
#5	PIG IRON	20000	20000
#6	NO.2 HM	28000	27800
#7	SHREDDED	6000	5700
	TOTAL	120000	121800

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
GRAND	TOTAL	330000	327250

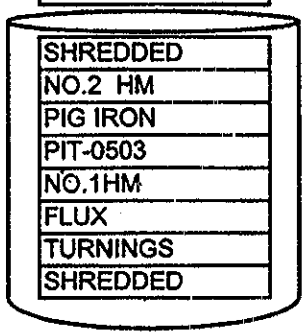
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MS PRACTICE
75091-703

HEAT NO. B8K074
DATE: 11/19/98

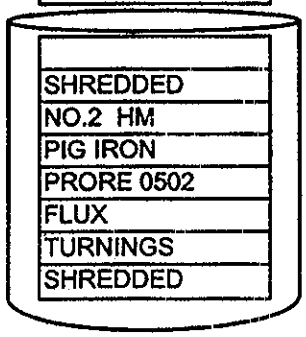
STANDARD
2 BUCKET CHARGE

BUCKET NO.: 4
SCALE LOC.: B



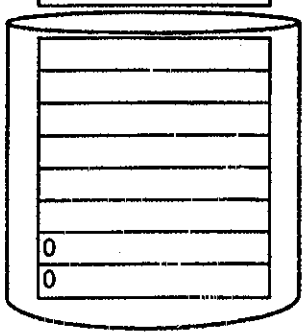
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	19600
#2	TURNINGS	44000	44900
#3	FLUX	6500	7850
#4	NO.1HM	40000	40650
#5	PIT-0503	10000	10650
#6	PIG IRON	38000	38650
#7	NO.2 HM	38000	38100
#8	SHREDDED	20000	16450
	TOTAL	210000	209000

BUCKET NO.: 4
SCALE LOC.: B



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	14450
#2	TURNINGS	42000	41200
#3	FLUX	6500	6800
#4	PRORE 0502	10000	11550
#5	PIG IRON	20000	21250
#6	NO.2 HM	28000	26950
#7	SHREDDED	6000	4150
	TOTAL	120000	119550

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
	GRAND TOTAL	330000	328550

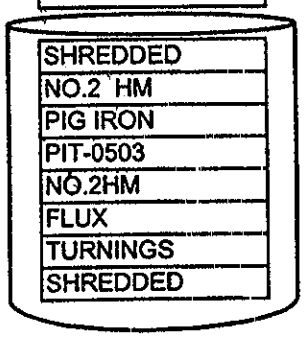
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MS PRACTICE
75091-703

HEAT NO. B8K073
DATE: 11/19/98

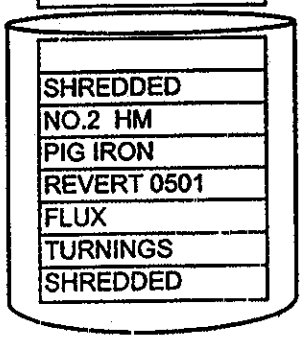
STANDARD
2 BUCKET CHARGE

BUCKET NO.: 4
SCALE LOC.: B



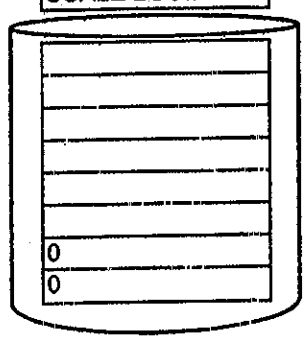
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	19700
#2	TURNINGS	44000	44400
#3	FLUX	6500	7400
#4	NO.2HM	40000	38600
#5	PIT-0503	10000	9450
#6	PIG IRON	38000	38450
#7	NO.2 HM	38000	38850
#8	SHREDDED	20000	19350
	TOTAL	210000	208800

BUCKET NO.: 4
SCALE LOC.: B



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	13100
#2	TURNINGS	42000	43400
#3	FLUX	6500	6700
#4	REVERT 0501	10000	6900
#5	PIG IRON	20000	22500
#6	NO.2 HM	28000	27300
#7	SHREDDED	26000	26600
	TOTAL	140000	139800

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
GRAND	TOTAL	350000	348600

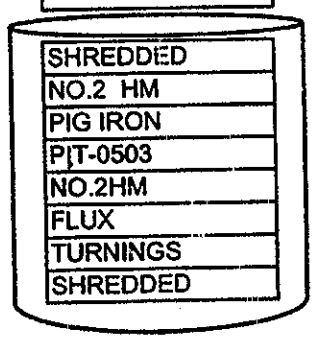
HEAT SHEET

MS PRACTICE
74191-702

HEAT NO. B8K072
DATE: 11/19/98

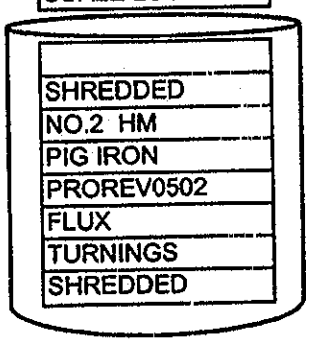
STANDARD
2 BUCKET CHARGE

BUCKET NO.: 4
SCALE LOC.: B



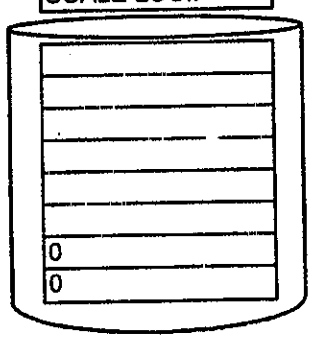
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	20450
#2	TURNINGS	44000	43500
#3	FLUX	6500	5250
#4	NO.2HM	40000	41200
#5	PIT-0503	10000	10950
#6	PIG IRON	38000	37950
#7	NO.2 HM	38000	38950
#8	SHREDDED	20000	16900
	TOTAL	210000	209900

BUCKET NO.: 4
SCALE LOC.: B



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	14750
#2	TURNINGS	42000	41250
#3	FLUX	6500	6800
#4	PROREV0502	10000	9650
#5	PIG IRON	20000	20100
#6	NO.2 HM	28000	26500
#7	SHREDDED	16000	17200
	TOTAL	130000	129450

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
GRAND	TOTAL	340000	339350

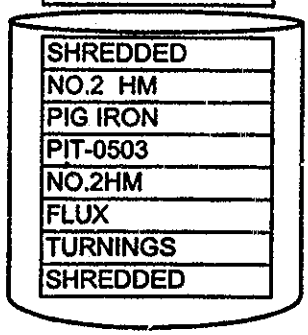
HEAT SHEET

MS PRACTICE
74191-702

HEAT NO. B8K071
DATE: 11/19/98

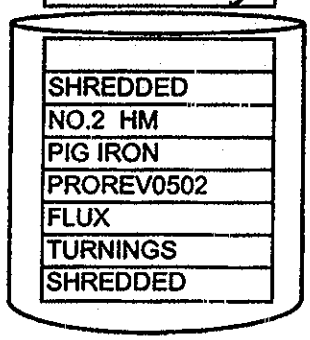
STANDARD
2 BUCKET CHARGE

BUCKET NO.: 4
SCALE LOC.: B



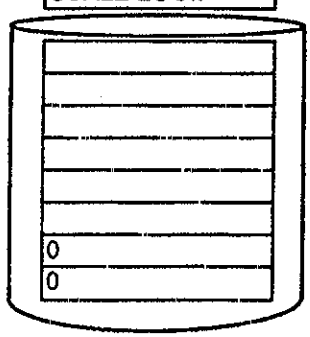
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	21500
#2	TURNINGS	44000	44200
#3	FLUX	6500	6800
#4	NO.2HM	40000	41550
#5	PIT-0503	10000	13550
#6	PIG IRON	38000	39200
#7	NO.2 HM	38000	38500
#8	SHREDDED	20000	10550
	TOTAL	210000	209050

BUCKET NO.: 4
SCALE LOC.: 6?



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	14850
#2	TURNINGS	42000	41300
#3	FLUX	6500	6200
#4	PROREV0502	10000	11200
#5	PIG IRON	20000	19650
#6	NO.2 HM	28000	27500
#7	SHREDDED	16000	14800
	TOTAL	130000	129300

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
	GRAND TOTAL	340000	338350

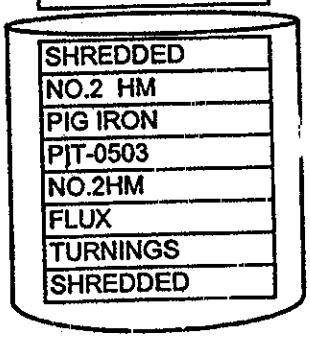
HEAT SHEET

MS PRACTICE
74191-702

HEAT NO. B8K070
DATE: 11/19/98

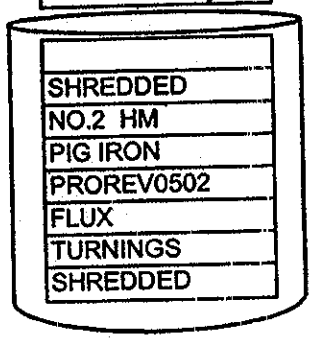
STANDARD
2 BUCKET CHARGE

BUCKET NO.: 4
SCALE LOC.: B



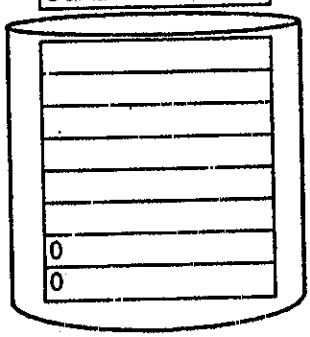
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	20250
#2	TURNINGS	44000	42950
#3	FLUX	6500	6450
#4	NO.2HM	40000	41050
#5	PIT-0503	10000	9650
#6	PIG IRON	38000	38000
#7	NO.2 HM	38000	37750
#8	SHREDDED	20000	20900
	TOTAL	210000	210550

BUCKET NO.: 3 & 4
SCALE LOC.: A & B



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	14350
#2	TURNINGS	42000	44050
#3	FLUX	6500	6150
#4	PROREV0502	10000	12150
#5	PIG IRON	20000	19550
#6	NO.2 HM	28000	28700
#7	SHREDDED	26000	20900
	TOTAL	140000	139700

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
	GRAND TOTAL	350000	350250

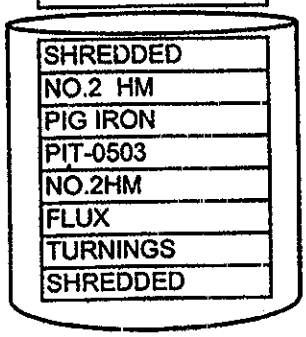
HEAT SHEET

MS PRACTICE
22203-702

HEAT NO. B8K069
DATE: 11/18/98

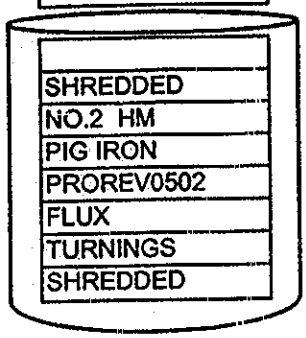
STANDARD
2 BUCKET CHARGE

BUCKET NO.: 4
SCALE LOC.: B



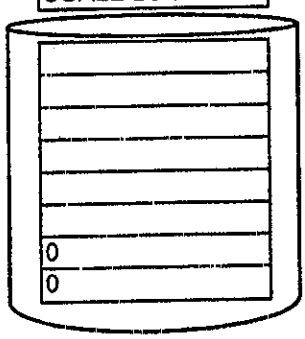
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	20000
#2	TURNINGS	44000	45000
#3	FLUX	6500	6650
#4	NO.2HM	40000	37950
#5	PIT-0503	10000	9300
#6	PIG IRON	38000	36050
#7	NO.2 HM	38000	39150
#8	SHREDDED	20000	22200
	TOTAL	210000	209650

BUCKET NO.: 3
SCALE LOC.: A



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	13700
#2	TURNINGS	42000	43650
#3	FLUX	6500	6650
#4	PROREV0502	10000	10500
#5	PIG IRON	20000	18850
#6	NO.2 HM	28000	28400
#7	SHREDDED	16000	15450
	TOTAL	130000	130550

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
	GRAND TOTAL	340000	340200

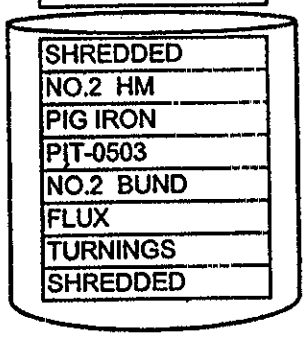
HEAT SHEET

MS PRACTICE
22203-702

HEAT NO. B8K068
DATE: 11/18/98

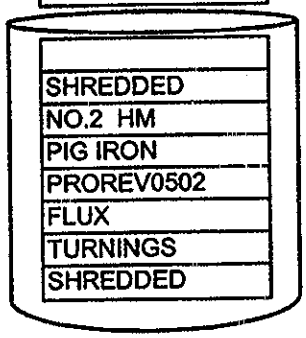
STANDARD
2 BUCKET CHARGE

BUCKET NO.: 4
SCALE LOC.: B



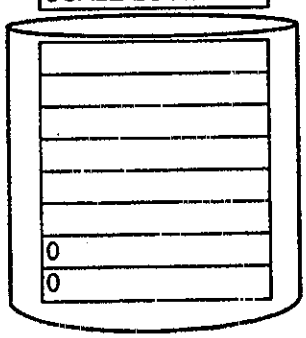
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	20100
#2	TURNINGS	44000	43350
#3	FLUX	6500	6900
#4	NO.2 BUND	50000	40850
#5	PIT-0503	10000	11150
#6	PIG IRON	38000	37500
#7	NO.2 HM	28000	33050
#8	SHREDDED	20000	23150
	TOTAL	210000	209150

BUCKET NO.: 3
SCALE LOC.: A



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	14300
#2	TURNINGS	42000	40050
#3	FLUX	6500	6650
#4	PROREV0502	10000	7150
#5	PIG IRON	20000	20050
#6	NO.2 HM	28000	26700
#7	SHREDDED	16000	23400
	TOTAL	130000	131650

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
	GRAND TOTAL	340000	340800

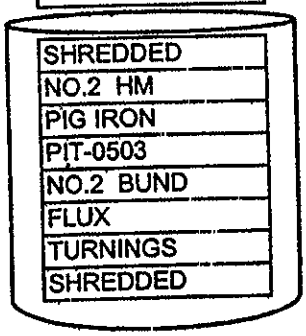
HEAT SHEET

MS PRACTICE
22203-702

HEAT NO. B8K067
DATE: 11/18/98

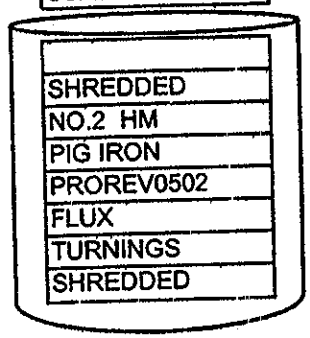
STANDARD
2 BUCKET CHARGE

BUCKET NO.: 4
SCALE LOC.: B



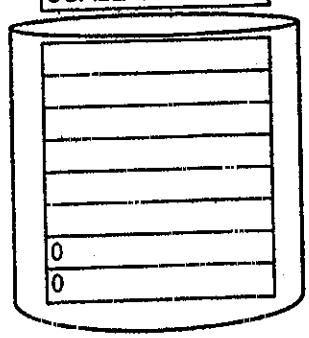
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	18950
#2	TURNINGS	44000	42100
#3	FLUX	6500	9700
#4	NO.2 BUND	50000	52400
#5	PIT-0503	10000	7750
#6	PIG IRON	38000	34400
#7	NO.2 HM	28000	31750
#8	SHREDDED	20000	20250
	TOTAL	210000	207600

BUCKET NO.: 3
SCALE LOC.: A



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	14750
#2	TURNINGS	42000	42750
#3	FLUX	6500	7050
#4	PROREV0502	10000	13850
#5	PIG IRON	20000	20900
#6	NO.2 HM	28000	27050
#7	SHREDDED	16000	11150
	TOTAL	130000	130450

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
	GRAND TOTAL	340000	338050

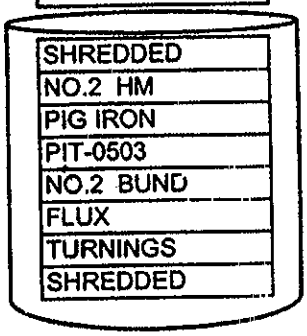
HEAT SHEET

MS PRACTICE
22203-702

HEAT NO. B8K066
DATE: 11/18/98

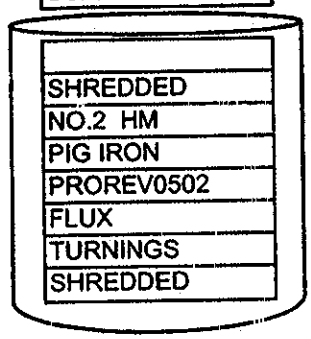
STANDARD
2 BUCKET CHARGE

BUCKET NO.: 3
SCALE LOC.: A



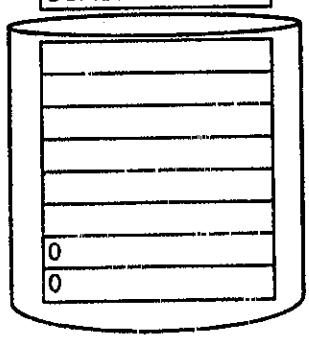
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	20450
#2	TURNINGS	44000	43700
#3	FLUX	6500	5950
#4	NO.2 BUND	50000	49750
#5	PIT-0503	10000	9250
#6	PIG IRON	38000	36900
#7	NO.2 HM	28000	31200
#8	SHREDDED	0	0
	TOTAL	190000	191250

BUCKET NO.: 3
SCALE LOC.: A



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	16050
#2	TURNINGS	42000	42400
#3	FLUX	6500	6100
#4	PROREV0502	10000	10550
#5	PIG IRON	20000	21700
#6	NO.2 HM	28000	27300
#7	SHREDDED	26000	21850
	TOTAL	140000	139850

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
GRAND	TOTAL	330000	331100

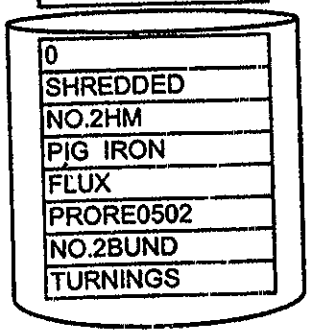
HEAT SHEET

MS PRACTICE
22203-702

HEAT NO. B8K063
DATE: 11/18/98

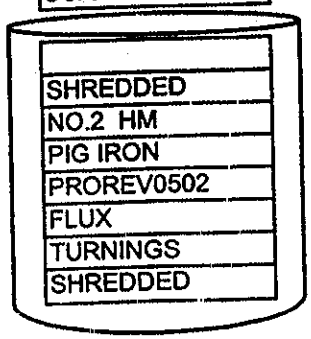
STANDARD
2 BUCKET CHARGE

BUCKET NO.: 4
SCALE LOC.: B



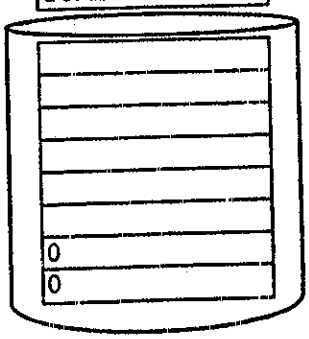
LAYER #	MATERIAL	PLAN	ACTUAL
#1	TURNINGS	50000	49850
#2	NO.2BUND	50000	51500
#3	PRORE0502	24000	27300
#4	FLUX	6500	5950
#5	PIG IRON	36000	36400
#6	NO.2HM	50000	45450
#7	SHREDDED	0	0
#8	0	0	0
	TOTAL	210000	210500

BUCKET NO.: 3
SCALE LOC.: A



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	13250
#2	TURNINGS	42000	43500
#3	FLUX	6500	7050
#4	PROREV0502	10000	11300
#5	PIG IRON	20000	18600
#6	NO.2 HM	28000	29350
#7	SHREDDED	16000	12150
	TOTAL	130000	128150

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
	GRAND TOTAL	340000	338650

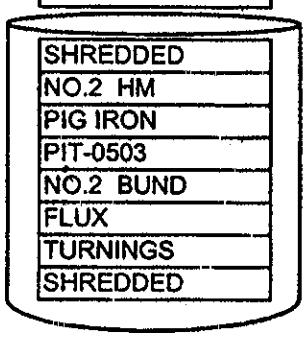
HEAT SHEET

MS PRACTICE
22203-702

HEAT NO. B8K064
DATE: 11/18/98

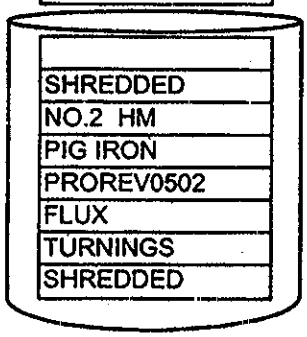
STANDARD
2 BUCKET CHARGE

BUCKET NO.: 4
SCALE LOC.: B



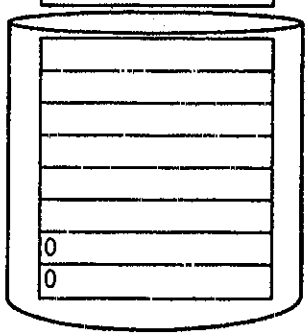
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	20100
#2	TURNINGS	44000	44200
#3	FLUX	6500	6900
#4	NO.2 BUND	50000	48800
#5	PIT-0503	10000	11250
#6	PIG IRON	38000	37000
#7	NO.2 HM	28000	28550
#8	SHREDDED	20000	19950
	TOTAL	210000	209850

BUCKET NO.: 3
SCALE LOC.: A



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	15400
#2	TURNINGS	42000	41000
#3	FLUX	6500	7300
#4	PROREV0502	10000	10800
#5	PIG IRON	20000	19350
#6	NO.2 HM	28000	28100
#7	SHREDDED	16000	14800
	TOTAL	130000	129450

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
	GRAND TOTAL	~~130000~~ 340,000	~~129450~~ 339,300

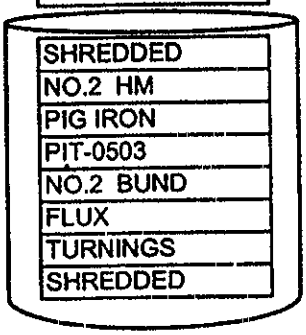
HEAT SHEET

MS PRACTICE
22203-702

HEAT NO. B8K065
DATE: 11/18/98

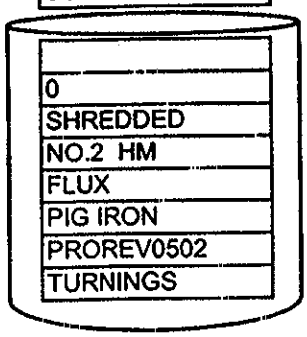
STANDARD
2 BUCKET CHARGE

BUCKET NO.: 4
SCALE LOC.: B



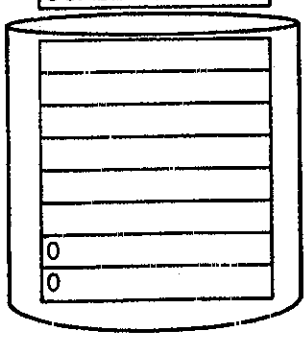
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	21400
#2	TURNINGS	44000	42600
#3	FLUX	6500	6700
#4	NO.2 BUND	50000	50100
#5	PIT-0503	10000	8700
#6	PIG IRON	38000	39100
#7	NO.2 HM	28000	28650
#8	SHREDDED	20000	18650
	TOTAL	210000	209200

BUCKET NO.: 5
SCALE LOC.: B



LAYER #	MATERIAL	PLAN	ACTUAL
#1	TURNINGS	34000	33650
#2	PROREV0502	24000	22700
#3	PIG IRON	24000	25100
#4	FLUX	6500	6350
#5	NO.2 HM	28000	28750
#6	SHREDDED	20000	19100
#7	0	0	0
	TOTAL	130000	129300

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
GRAND	TOTAL	340000	338500

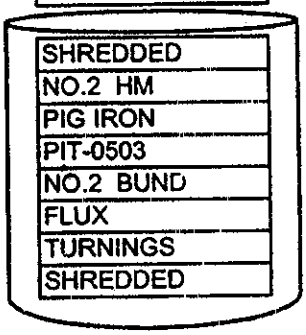
HEAT SHEET

MS PRACTICE
22203-702

HEAT NO. B8K066
DATE: 11/18/98

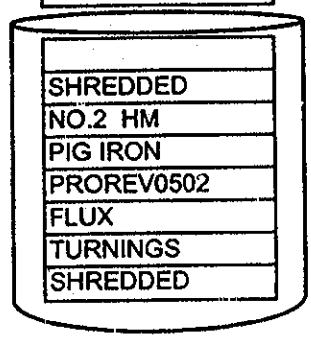
STANDARD
2 BUCKET CHARGE

BUCKET NO.: 3
SCALE LOC.: A



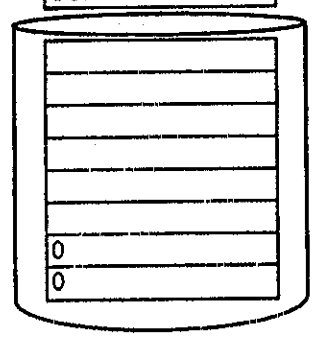
LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	20000	20450
#2	TURNINGS	44000	43700
#3	FLUX	6500	5950
#4	NO.2 BUND	50000	49750
#5	PIT-0503	10000	9250
#6	PIG IRON	38000	36900
#7	NO.2 HM	28000	31200
#8	SHREDDED	0	0
	TOTAL	190000	191250

BUCKET NO.: 3
SCALE LOC.: A



LAYER #	MATERIAL	PLAN	ACTUAL
#1	SHREDDED	14000	16050
#2	TURNINGS	42000	42400
#3	FLUX	6500	6100
#4	PROREV0502	10000	10550
#5	PIG IRON	20000	21700
#6	NO.2 HM	28000	27300
#7	SHREDDED	26000	21850
	TOTAL	140000	139850

BUCKET NO.:
SCALE LOC.:



LAYER #	MATERIAL	PLAN	ACTUAL
#1	0	0	0
#2	0	0	0
#3			
#4			
#5			
#6			
#7			
	TOTAL	0	0
GRAND	TOTAL	330000	331100

APPENDIX H

Test Participants

TEST PARTICIPANTS:

IPSCO Steel

Project Director	Joseph C. Wesselman, Environmental Manager

Ambient Air Services, Inc.

Project Manager	Joseph L. Cooksey, President
Team Leader	Earl D. Coggins
Team Member	Thomas Edwards
Team Member	David Larocca
Team Member	David Sholtes
Team Member	Donnie Leeper

IDNR

State Observer	Mark Stone

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EMISSION TEST REPORT

IPSCO STEEL, INC.
Muscatine, Iowa

TEST

July 13-15, 2004

IDNR Permit Number

EAF/LMF Meltshop Stack 94-A-548-S3

Prepared By:

AAS Inc.

Ambient Air Services, Inc.

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LELAP Accredited Laboratory Certification Number 04064

LELAP Agency Interest Number 100329

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AASI Ambient Air Services, Inc.

CERTIFICATION

Ambient Air Services, Inc. of Starke, Florida, has completed the testing described in this report for IPSCO Steel, Inc., Muscatine, Iowa facility. To the best knowledge and abilities all information, facts and test data are true and correct. Information supplied to AASI for use in this report from IPSCO Steel, Inc. is perceived to be accurate and is used as such where necessary.

This report contains pages i through iii, and pages 1 through 278.

This report was prepared and reviewed by:

Randy L. Weston, Project Manager — Date 8/18/04

Joseph L. Cooksey, Report Review — Date 8/18/04

Questions and or comments regarding this report or process conditions should be directed to:

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EXECUTIVE SUMMARY

On July 13-15, 2004 Ambient Air Services, Inc. conducted performance testing at the IPSCO Steel (Iowa) Facility located in Montpelier, Iowa. Table 1-1 summarizes the results of the testing. All results demonstrate compliance with the permit limitations.

TABLE 1-1

EMISSION TEST RESULTS
EXECUTIVE SUMMARY
IPSCO STEEL, INC.
MONTPELIER, IOWA

JULY 13-15, 2004

SOURCE	PARAMETER	ALLOWABLE	TEST RESULTS
EAF Baghouse Stack	Particulate Matter	0.0052 gr/dscf	0.0012 gr/dscf
	Particulate Matter plus Condensable Particulate Matter (PM & CPM) (Iowa Compliance Sampling Manual)	0.335 lbs/ton 293.5 tons/year	0.189 lbs/ton 121.4 tons/year
	PM-10 Particulate plus Condensable Particulate Matter (PM-10 & CPM)	0.335 lbs/ton 293.5 tons/year	0.154 lbs/ton 98.2 tons/year
	Sulfur Dioxide (SO_2)	0.70 lbs/ton 613.2 tons/year	0.23 lbs/ton 153.0 tons/year
	Oxides of Nitrogen (as NO_2)	0.80 lbs/ton 700.8 tons/year	0.54 lbs/ton 348.2 tons/year
	Volatile Organic Compounds (VOC)	0.18 lbs/ton 157.7 tons/year	0.13 lbs/ton 81.0 tons/year
	Carbon Monoxide (CO)	1.93 lbs/ton 1690.7 tons/year	1.74 lbs/ton 1106.9 tons/year
	Lead (Pb)	0.00055 lbs/ton 0.49 tons/year	0.00047 lbs/ton 0.29 tons/year

1.0 INTRODUCTION

1.1 General

IPSCO Steel, Inc. contracted with Ambient Air Services, Inc. to perform compliance testing at their facility located in Muscatine, Iowa.

This testing was conducted in order to demonstrate the facility could demonstrate compliance with emission limitations while the facility was using tires for a carbon source.

A summary of the testing conducted is summarized in Table 1-1-1.

The testing was conducted the week of July 13-15, 2004.

TABLE 1-1-1

IPSCO STEEL, INC.
Montpelier Mill
Summary of
Performance Emission Testing Specifications

IDNR Permits 94-A-548-S3

Test Date July 13-15, 2004

Source Description	Approximate Stack Flow	Tests	EPA Method	Number of Runs	Time Duration
EAF/LMF (BH Exhaust Stack)	835,000 dscfm	PM10	40CFR51 AppM, 201A with 202	3	4.0 hr or 160 actual CF
		PM/Pb	40CFR60 AppA, Meth 5/12	3	4.0 hr or 160 actual CF[A]
		NOx	40CFR60 AppA. Meth 7E	3	2 heats per run (approx 1.5 hrs)
		SO2	40CFR60 AppA. Meth 6C	3	2 heats per run (approx 1.5 hrs)
		CO	40CFR60 AppA. Meth 10	3	2 heats per run (approx 1.5 hrs)
		VOC	40CFR60 AppA. Meth 25A	3	2 heats per run (approx 1.5 hrs)

A) Integral number of 60 furnace heats.

1.2 Test Participants

The personnel indicated in Table 1-2-1 participated in this project:

Table 1-2-1

Name	Affiliation	Responsibility
Joseph L. Cooksey	Ambient Air Services, Inc.	Project Manager
Randy L. Weston	Ambient Air Services, Inc.	Test Team Leader
Joe Elliott	Ambient Air Services, Inc.	Field Testing
David Pate	Ambient Air Services, Inc.	Field Testing
Joseph L. Cooksey	Ambient Air Services, Inc.	Report Review
Stephanie Kreiter	IPSCO Steel	Environmental Coordinator
Mark Stone	IDNR	State of Iowa Observer

2.0 TEST METHODOLOGIES

2.1 Total Particulate and Lead Testing:

USEPA Method 5 and 12 sampling was conducted on the EAF baghouse stack. The following is a listing of parameters and equipment specifications:

Number of traverse points per run	:	24 points
Number of minutes per traverse point	:	10 minutes
Data recorded	:	each 5 minutes (minimum)
Total sampling time per run	:	240 minutes
Total number of runs	:	3 runs
Stack inside diameter	:	19 feet, 0 inches
Number of ports utilized	:	4
Number of points per port	:	6 per port

Point number	Distance from inside wall
1	4.8 inches
2	15.3 inches
3	26.9 inches
4	40.4 inches
5	57.0 inches
6	81.2 inches

Length of probe : 8 feet

Sampling Apparatus

1) Nozzle - Stainless Steel with sharp, tapered leading edge.

2) Probe - Stainless steel sheath with a ⅝ inch O.D. stainless steel insert wrapped with insulated nichrome wire heating element. Probe temperature will be

controlled and capable of maintaining a temperature of 250°F.

3) Pitot tube - Standard "type S", attached to the probe.

4) Filter Holder - Pyrex glass with fritted glass filter support.

5) Impingers - Four (4) glass impingers connected in series with glass ball joint fittings. The first, third and fourth are the modified Greenburg-Smith design. The second is the Greenburg-Smith design with a standard tip. All will be submerged in an ice bath during sampling runs.

6) Heated Filter Box - Insulated container with a controlled heating system capable of maintaining filter temperature not to exceed 273°F.

7) Meter Box/ Control Box - Module containing a vacuum gauge, leak free pump, dry gas meter with a minimum of one percent accuracy, valves and related equipment to maintain isokinetic sampling rate and determine sample volume.

8) Barometer - Aneroid type to measure atmospheric on-site pressure to ±0.05 inches of mercury.

9) Thermocouples - Type K thermocouples are utilized to monitor temperatures for stack gas, filter box, last impinger and dry gas meter.

Test Procedure

Prior to performing the actual particulate matter sample runs, certain stack gas and stack gas parameters were determined. The preliminary data includes the average temperature, velocity head, and moisture content, the stack dimensions at the point where the tests were performed, as well as a check for cyclonic flow.

The stack gas temperature was determined by using a Type K thermocouple with a real time readout. Velocity head measurements were determined across the stack using a type "S" pitot tube with an oil filled inclined manometer.

The sampling traverse points are selected so that a representative sample can be extracted from the gas stream. The traverse points are located in the center of equal areas, which are dependent upon equivalent duct diameters downstream from flow disturbances. The specific points selected followed the requirements of EPA Method 1.

One particulate test run consist of sampling for a specified time at each traverse point. The type "S" pitot tube was connected adjacent to the sample probe so that an instantaneous velocity head measurement can be determined at each traverse point during the test run. The stack gas temperature was measured throughout each test. Isokinetic sampling rates for each traverse point during each test run were used.

The gases sampled passed through the following components: a stainless steel nozzle and probe; a glass fiber filter; two impingers with 100 ml of 0.1N Nitric Solution; one impinger dry; one impinger with a minimum of 400 grams of silica gel (the second impinger had a standard tip, while the first, third, and fourth impingers had modified tips with ½-inch I.D. openings); a flexible sample line; an air-tight pump; a dry test meter; and finally a calibrated orifice.

Sample recovery was accomplished by the following procedures in accordance with Method 5:

1. The pre-tared filter was removed from its holder and placed in Container 1 and sealed.
2. All sample exposed surfaces prior to the filter were washed with acetone 1st and placed in Container 2, and then washed with 0. 1N Nitric and saved for lead analysis (Container 3).
3. The volume of 0.1N Nitric Solution from the first three impingers are measured for the purpose of calculating the moisture in the stack gas.
4. All impinger catches from first three impingers are collected in brown glass storage containers for analysis.
5 The used silica gel from the fourth impinger was transferred to the original tared container and sealed.

Laboratory Analysis

The sample containers from each sample run were analyzed according to the following procedures:

1. The filter of Container 1 was transferred to a tared glass weighting dish, dried and desiccated (desiccation environment 20-25° C, 40 ±5% RH) to a constant weight (constant weight is defined as two repeat weighings at 6 hour intervals with a difference in weights not more than 0.5 mg).

2. The solvent from Container 2 was transferred to a tared breaker and evaporated to dryness at a temperature below its boiling point. It will then be desiccated to a constant weight (see desiccation and constant weight specification in 1).

3. All impinger catches (0.1N Nitric solutions) are processed by approved lab along with filter from Container 1 for determination of total lead concentration.

The used silica gel in its tared container was weighted to the nearest one-half (0.5) gram.

Data

All field data sheets, calculation sheets and nomenclature definitions are included in the Appendices of the test report. An example calculation from a similar compliance test is included in Appendix A of this report.

2.2 Source Operating Parameters:

In accordance with NSPS AAa Section 60.274a(c), (f), (g), and (h) the following information was recorded during the compliance testing:

1) Control system fan amperes and damper positions.
2) Furnace pressure in the free space inside the EAF.
3) Charge weights and materials.
4) Tap weights and materials.
5) Heat times, including start and stop times, and a log of process operation including periods of down time.
6) Control device operation log.

These items were recorded by IPSCO personnel and included in appendices of this report.

2.3 Calculation of Production Rate:

It was the intent of IPSCO and AASI to suspend testing at any time when the facility was not charging, melting, tapping or otherwise processing steel in a normal fashion. Delays of less than 10 minutes in duration were considered part of normal operation, however, delays in excess of 10 minutes were considered abnormal operation.

Since the testing was suspended during periods the mill experienced a non-normal delay, the process weight was adjusted to reflect only the time in which both the mill was producing steel and the particulate test was being conducted. To the extent possible all test runs include an integral number of heats in each test run.

2.4 Other Issues:

Run Duration - Integral Number Heat(s) - USEPA Method 5

As this facility operates a twin shell furnace in which only one furnace shell melted steel at a time, an attempt was made to sample an integral number of heat cycles (charge to tap) for each parameter tested. Since integral number of heats and 4.0 hours very rarely coincide with each other, the run time was extended as necessary to achieve an intregral number of heat cycles. The sampling began when an arc was struck in one shell of the furnace. The run continued until the prescribed time for the run expired. At that point, a decision was made as to how much longer the run needed to be extended in order to test through the next tap of the furnace (or charge of opposite shell whichever occurs first). The test points were repeated in reverse order until the end of current heat was reached.

It is noted that this method potentially biased the results in favor of the fourth port tested but to comply with the requirement set forth in 40CFR60 60.275a(e)(1) it was done.

2.5 Gaseous Emission Sampling

2.5.1 Methodology

Continuous instruments were used to measure CO, NO_x, SO_2 and VOC emissions. For the arc furnace shop the sample was obtained from the baghouse stack. A fully extractive sample withdrawal system was used. The VOC was sampled on a wet basis and carbon monoxide, sulfur dioxide and oxides of nitrogen on a dry basis. Flow was determined on the stack in accordance with Methods 1-4 (flows obtained from Method 5 testing data which was conducted concurrently).

Gaseous emission sampling consisted of three runs, each run covering two furnace heats. The sampling probe was positioned in the center 10% of the stack using the gaseous test port located at the particulate test port elevation. The test covered 2 heats per run. These tests were performed concurrent with the particulate testing to the extent possible. Utilizing the flow rates (SCFM) measured for the particulate sampling and production data from the gaseous testing periods, mass emissions were calculated in lbs/hr and lbs/ton of liquid (tapped) steel produced. Run 3 of the gaseous testing was completed after the completion of the PM test for the day. For Run 3 a flow traverse was conducted for each furnace heat.

As stated earlier, for VOC a fully extractive heated probe system was used. This equipment provides a controlled temperature, Teflon coated path wherein the sample is conveyed to the analytical instrument. Temperature was controlled to 250°F ±10°F to prevent hydrocarbon and moisture condensation problems.

All calibration gases were introduced to the system at a 3 way valve located at the sample probe.

Data Recording

An electronic data recorder which is based on micro-processor technology was used to record all instrument data. The recorder interrogates each analytical instrument signal on a once-every-one-second basis and for this work was instructed to accumulate 60 of these one-second readings and store the average into recorder memory. The data bank consists of a series of one minute averages. In retrieving the data from the computerized database, scaling factors were entered to reflect the appropriate calibrations which occurred immediately before collecting the data set of current interest. The analysis of NO_x, CO, SO_2 and VOC gaseous species was carried out as follows:

Oxides of Nitrogen - Oxides of Nitrogen from this facility was measured using EPA Method 7E. Table 2-5-1 relates the required performance specifications of Method 7E to those presented by the manufacturer of the TEI Model 42 to be used in these tests. The instrument was calibrated over a nominal range of 0-100 ppm. It is noted that normal practice is to have the instrument calibrated and operated at a full scale range two times the permitted limit. In this case, that range would be 58 ppm.

However in the process of making steel, it is very common to have short duration peaks well above this level. To accommodate the peaks normally present, a 0-50 ppm range was deemed necessary.

Results from the test are reported in mass per unit time with all NO_x converted to the species NO_2 as required by IDNR. At the beginning of each test series zero gas plus two calibration gases were used to perform calibration checks. At the completion of each of the three runs, zero gas plus one calibration gas was used as a calibration check.

TABLE 2-5-1

OXIDES OF NITROGEN SYSTEM PERFORMANCE SPECIFICATIONS METHOD 7E VS THERMO ENVIRONMENTAL INSTRUMENTS MODEL 42		
	METHOD 7E	**TECO 42**
Calibration error zero, mid and high gases	Less than ±2% span	±1% of full scale
Sampling system bias for zero, mid and high gases	Less than ±5% span	±1% of full scale
Zero Drift	Less than ±3% of span over the run period	Negligible
Calibration Drift	Less than ±3% of span over the run period	±1% of full scale

Carbon Monoxide - Carbon monoxide was measured using an adaptation of EPA Method 10. Analyses was on a continuous basis using a TEI Model 48 gas filter correlation type instrument. The instrument was operated on a nominal 500 parts per million range and obtain its sample from the sample withdrawal system. The required instrumental specifications from Method 10 and the specifications of the TECO Model 48 are displayed in Table 2-6-2 as an indication that this instrument is at least equivalent to the NDIR instrumentation described in EPA Method 10.

It is noted that normal practice is to calibrate and operate the instrument on a full scale range two to three times the permitted concentration limit. In this case, that range would be 220-330 ppm. However in the steel making process, it is not uncommon to routinely have concentration peaks of 300-400 ppm for brief periods of time. In order to have the peaks remain within the calibrated range of the instrument, a range of 0-500 ppm was selected.

At the beginning of the test series, calibrations were performed using zero and three calibration gases. Following the completion of each run a zero and single point calibration check was performed.

TABLE 2-5-2

PERFORMANCE SPECIFICATIONS CARBON MONOXIDE ANALYZERS		
	METHOD 10 SPECIFICATION	**TEI 48**
Range (minimum)	0 - 1000 ppm	0 - 1000 ppm
Output (minimum)	0 - 10 mv	0 - 1 volt
Minimum Detectable Sensitivity	20 ppm	0.10 ppm
Rise Time (90%)	30 seconds max	(95%) 60 seconds
Fall Time (90%)	30 seconds max	(95%) 60 seconds
Zero Drift (maximum)	10% in 8 hours	±0.2 ppm in 24 hours
Span Drift (maximum)	10% in 8 hours	±1% in 24 hours
Precision (minimum)	±2% of full scale	±0.1 ppm
Noise (maximum)	±1% of full scale	0.05 ppm
Linearity (max dev.)	2% of full scale	±1%
Interference Rejection Ratio	CO_2 - 1000 to 1 H_2O - 500 to 1	Negligible for CO_2, H_2O, SO_2 and NO_x

Volatile Organic Compounds - VOC emissions from this facility was measured using an adaptation of EPA Method 25A.

The instrument used for this testing, a TEI Model 51, measures total hydrocarbon concentrations through a flame ionization detector and associated electronics. As is commonly practiced, the instrument was calibrated on a range of 0-50 ppm with EPA protocol gases of propane, and thus the results are expressed as being equivalent to propane. Table 2-6-3 reviews the specifications of this instrument relative to the requirements of EPA Method 25A.

At the beginning of each test, a zero and 3 propane based calibration gases were used for calibrations. At the completion of each test run, zero plus one propane based calibration gas were injected.

It is recognized that the full scale range is normally selected to be no more than three times the permitted concentration. However, in the normal process of making steel, it is very common to have short duration VOC peaks well above the average. A range of 50 ppm was selected based on experience with other similar facilities.

TABLE 2-5-3

TOTAL HYDROCARBONS SYSTEM PERFORMANCE SPECIFICATIONS METHOD 25A VS THERMO ENVIRONMENTAL INSTRUMENTS MODEL 51		
	METHOD 25A	**TEI 51**
Calibration error zero, mid and high gases	Less than ±5% calibration gas value	2% of reading plus span gas accuracy
Zero Drift	Less than ±3% of span	Less than ±1% of full scale in 24 hours
Calibration Drift	Less than ±3% of span	Less than ±1% of full scale in 24 hours

Flow, Oxygen, and Carbon Dioxide

USEPA Methods 1-4 was utilized to determine stack gas velocity, volumetric flow rates and gas molecular weight under actual as well as standard conditions (68 F, 29.92 inches of mercury).

Sulfur Dioxide Sulfur Dioxide concentrations were determined using EPA Method 6C. A Thermo Environmental Instruments (TEI) Model 43C was used. EPA protocol calibration gases of SO_2 in air were used at nominal levels of 0, 12, and 25 ppm (instrument range 0-25 ppm). Calibrations were performed before and after each test run. EPA Method 6C required correction factors were applied to the data based on the results of the calibrations.

It is noted that normal practice is to have the instrument calibrated and operated at a full scale range of three times (or less) the permitted limit. In the process of making steel, it is very common to have short term peaks well above this level. To accommodate the peaks associated with normal steel making, an instrument range of 0-25 ppm was selected.

Table 2-5-4 summarized the TEI Model 43C versus those required by Method 6c.

TABLE 2-5-4

SULFUR DIOXIDE SYSTEM PERFORMANCE SPECIFICATIONS METHOD 6C VS THERMO ENVIRONMENTAL INSTRUMENTS MODEL 43C		
	METHOD 6C	**TEI 43C**
Calibration error zero, mid and high gases	Less than ±2% span	±1% of full scale
Sampling system bias for zero, mid and high gases	Less than ±5% span	±1% of full scale
Interference Check	Less than ±7% of Method 6 result	NO < 3 ppb M-Xylene <2 ppb H2O < 2% of reading
Calibration Drift	Less than ±3% of span over the run period	±1% of full scale

2.6 Lead Testing

EPA Method 12 was utilized to sample for lead. Method 12 was combined with Method 5 testing as discussed within the Method 5 Section.

The stack parameters and sampling conditions are outlined in the particulate test section. The distilled water in the impingers was replaced with 0.1N HNO_3 as specified in Method 12.

2.7 PM-10 Particulate and Condensable Particulate

USEPA Methods 201a and 202 were combined for this test.

Note-Due to the length of the probe required the requirement to use a glass liner was not feasable. A stainless steel probe liner was used. This was listed as a modification in the Test Protocol and approved by IDNR.

Test conditions were as follows:

Number of Points per run	24
Number of Minutes per point	16 (nominally)
Data recorded each (minute)	point
Total time per test run	6.5 hours - nominal
Total number of runs	3
Stack ID	19 feet 0 inches
Ports	4
Points per port	6
Length of probe	10'

The sampling apparatus was the same as Method 5 except a PM-10 cut point cyclone was used.

Five impingers were used, the last 2 will each be filled with 400 grams of silica gel. This accommodated the long duration runs.

The "Back Half" (all components down stream of the cyclone) will be cleaned as described in Method 202.

3.0 PROCESS DESCRIPTION

Electric arc furnaces (EAF) are used to produce carbon and alloy steels. The input material to an EAF is typically 100 percent scrap. Cylindrical, refractory lined EAF's are equipped with carbon electrodes to be raised or lowered through the furnace roof. With electrodes retracted, the furnace roof can be rotated aside to permit the charge of scrap steel by overhead crane. Alloying agents and fluxing materials usually are added through the doors on the side of the furnace. Electric current of the opposite polarity electrodes generates heat between the electrodes and through the scrap. After melting and refining periods, the slag and steel are poured from the furnace by tilting.

The production of steel in an EAF is a batch process. Cycles, or "heats", range from about 45 to 90 minutes to produce carbon steel. Scrap steel is charged to begin a cycle, and alloying agents and slag materials are added for refining. Stages of each cycle normally are charging and melting operations, refining (which usually includes oxygen blowing), and tapping.

4.0 RESULTS

The results from the testing demonstrate compliance with the listed permit requirements at the time of testing on July 13-15, 2004.

The results are summarized in the following tables:

4-0 Summary of Results

4-1 USEPA Method 5 Particulate Results

4-2 USEPA Method 5 & 202 Particulate Results

4-3 USEPA Method 201a & 202 Particulate Results

4-4 USEPA Method 6c Sulfur Dioxide Results

4-5 USEPA Method 7e Oxides of Nitrogen Results

4-6 USEPA Method 25a Volatile Organic Compounds

4-7 USEPA Method 10 Carbon Monoxide Results

4-8 USEPA Method 12 Lead Emission Summary

TABLE 4-0

IPSCO STEEL, INC.
MONTPELIER, IOWA

SUMMARY OF TEST RESULTS

JULY 13-15, 2004

SOURCE	PARAMETER	ALLOWABLE	TEST RESULTS
EAF Baghouse Stack	Particulate Matter	0.0052 gr/dscf	0.0012 gr/dscf
	Particulate Matter plus Condensable Particulate Matter (PM & CPM) (Iowa Compliance Sampling Manual)	0.335 lbs/ton 293.5 tons/year	0.189 lbs/ton 121.4 tons/year
	PM-10 Particulate plus Condensable Particulate Matter (PM-10 & CPM)	0.335 lbs/ton 293.5 tons/year	0.154 lbs/ton 98.2 tons/year
	Sulfur Dioxide (SO_2)	0.70 lbs/ton 613.2 tons/year	0.23 lbs/ton 153.0 tons/year
	Oxides of Nitrogen (as NO_2)	0.80 lbs/ton 700.8 tons/year	0.54 lbs/ton 348.2 tons/year
	Volatile Organic Compounds (VOC)	0.18 lbs/ton 157.7 tons/year	0.13 lbs/ton 81.0 tons/year
	Carbon Monoxide (CO)	1.93 lbs/ton 1690.7 tons/year	1.74 lbs/ton 1106.9 tons/year
	Lead (Pb)	0.00055 lbs/ton 0.49 tons/year	0.00041 lbs/ton 0.29 tons/year

AASI

Particulate Emissions Summary

USEPA Method 5 (40 CFR Part 60 Appendix A)

IPSCO

Muscatine, Iowa

EAF Baghouse

July 13-15, 2004

AASI USEPA Method 5 24 Point Template - Rev 3/10-24-2003

Run			Particulate Emissions		Volumetric Flow Rates		Stack		Sample Volume	Percent
Date	Number	Time	GR/SCFD	LBS/HR	ACFM	SCFMD	Temp °F	Moisture %	SCFD	Isokinetic
7/13/2004	1	9:14 14:04	0.0007	4.49	980358	740915	198.4	2.9	242.023	100.6
7/14/2004	2	8:16 13:20	0.0015	10.32	969612	780107	157.3	3.2	207.967	102.3
7/15/2004	3	9:42 14:54	0.0013	8.67	1015204	759414	207.3	2.8	203.807	100.5
Average			**0.0012**	**7.83**	**988391**	**760145**	**187.7**	**3.0**	**217.932**	**101.2**

AASI

Particulate + Condensable Particulate Emissions Summary

USEPA Method 5 (40 CFR Part 60 Appendix A)

IPSCO

Muscatine, Iowa

EAF Baghouse

July 13-15, 2004

Run			Particulate Emissions					Production	Volumetric Flow Rates		Sample Volume	Percent
Date	Number	Time	PM LBS/HR	CPM LBS/HR	Total LBS/HR	Total LBS/Ton	Total Tons/Year	Tons/Hour	ACFM	SCFMD	SCFD	Isokinetic
7/13/2004	1	9:14 14:04	4.49	23.05	27.54	0.207	120.6	133.0	980358	740915	242.023	100.6
7/14/2004	2	8:16 13:20	10.32	27.33	37.65	0.237	164.9	158.9	969612	780107	207.967	102.3
7/15/2004	3	9:42 14:54	8.67	9.28	17.95	0.124	78.6	144.6	1015204	759414	203.807	100.5
Average			**7.83**	**19.89**	**27.72**	**0.189**	**121.4**	**145.5**	**988391**	**760145**	**217.932**	**101.2**

AASI

Condensable Particulate + PM-10 Particulate Emissions Summary

USEPA Method 201a plus 202 (40 CFR Part 51 Appendix M)

IPSCO Steel

Montpelier, Iowa

EAF Baghouse

July 13-15, 2004

Run			Particulate <10um	CPM	Production	Combined Emissions	
Date	Number	Time	LBS/HR	LBS/HR	TPH	pounds per ton	tons per year
7/13/2004	1	9:21 16:29	2.01	23.05	133.0	0.188	109.8
7/14/2004	2	8:17 14:58	3.35	27.33	158.9	0.193	134.4
7/15/2004	3	9:21 17:07	2.21	9.28	144.6	0.079	50.3
Average			**2.53**	**19.88**	**145.5**	**0.154**	**98.2**

Note - Tons per year based on 8760 operating hours per year.

AASI

Sulfur Dioxide (SO2) Emissions Summary

USEPA Method 6C (40 CFR Part 60 Appendix A)

IPSCO Steel

Muscatine, Iowa

EAF Baghouse

July 14, 2004

Run			Concentration	Volumetric Flow Rates	Production			Mass Emissions		
Date	Number	Time (EST)	ppm-v/v	SCFM-Dry	Heat Numbers	Tons Cast	Tons per Hour	Pounds per Hour	Pounds per Ton	Tons per Year
7/14/2004	1	8:17 10:30	1.2	783312	A4G151 B4G646	165.7 132.7	133.0	9.1	0.07	40.0
7/14/2004	2	11:22 13:21	8.2	783312	B4G647 A4G153	165.8 165.8	158.9	64.2	0.40	281.2
7/14/2004	3	14:18 16:28	4.0	785901	A4G154 A4G155	132.6 165.8	144.6	31.4	0.22	137.6
Average			**4.5**	**784175**			**145.5**	**34.9**	**0.23**	**153.0**

Table 4-5

AASI

Oxides of Nitrogen (NO_X) Emissions Summary

USEPA Method 7E (40 CFR Part 60 Appendix A)

IPSCO Steel

Muscatine, Iowa

EAF Baghouse

July 14, 2004

Run			Concentration	Volumetric Flow Rates	Production			Mass Emissions		
Date	Number	Time (EST)	ppm-v/v	SCFM-Dry	Heat Numbers	Tons Cast	Tons per Hour	Pounds per Hour	Pounds per Ton	Tons per Year
7/14/2004	1	8:17 10:30	10.1	783312	A4G151 B4G646	165.7 132.7	133.0	56.8	0.43	248.6
7/14/2004	2	11:22 13:21	16.6	783312	B4G647 A4G153	165.8 165.8	158.9	93.4	0.59	409.2
7/14/2004	3	14:18 16:28	15.7	785901	A4G154 A4G155	132.6 165.8	144.6	88.3	0.61	386.8
Average			**14.1**	**784175**			**145.5**	**79.5**	**0.54**	**348.2**

Wrong
a.l.c flow
supposed to be ~1
PM flow. This is
~ 40000 less scfm higher
28
MB

AASI

Volatile Organic Compound (VOC) Emissions Summary

USEPA Method 25a (40 CFR Part 60 Appendix A)

IPSCO Steel

Muscatine, Iowa

EAF Baghouse

July 14, 2004

Run			Concentration		Volumetric Flow Rates	Production			Mass Emissions		
Date	Number	Time (EST)	ppm-v/v (as Propane)	ppm-v/v (as Carbon)	SCFM-Wet	Heat Numbers	Tons Cast	Tons per Hour	Pounds per Hour	Pounds per Ton	Tons per Year
7/14/2004	1	8:17 10:30	4.0	12.0	805648	A4G151 B4G646	165.7 132.7	133.0	18.1	0.14	79.2
7/14/2004	2	11:22 13:21	4.7	14.0	805648	B4G647 A4G153	165.8 165.8	158.9	21.1	0.13	92.2
7/14/2004	3	14:18 16:28	3.6	10.9	801940	A4G154 A4G155	132.6 165.8	144.6	16.3	0.11	71.5
Average			**4.1**	**12.3**	**804412**			**145.5**	**18.5**	**0.13**	**81.0**

Table 4-7

AASI

Carbon Monoxide (CO) Emissions Summary

USEPA Method 10 (40 CFR Part 60 Appendix A)

IPSCO Steel

Muscatine, Iowa

EAF Baghouse

July 14, 2004

Run			Concentration	Volumetric Flow Rates	Production			Mass Emissions		
Date	Number	Time (EST)	ppm-v/v	SCFM-Dry	Heat Numbers	Tons Cast	Tons per Hour	Pounds per Hour	Pounds per Ton	Tons per Year
7/14/2004	1	8:17 10:30	83.4	783312	A4G151 B4G646	165.7 132.7	133.0	284.9	2.14	1247.7
7/14/2004	2	11:22 13:21	94.0	750000	B4G647 A4G153	165.8 165.8	158.9	307.6	1.94	1347.2
7/14/2004	3	14:18 16:28	48.3	785901	A4G154 A4G155	132.6 165.8	144.6	165.7	1.15	725.8
Average			**75.2**	**773071**			**145.5**	**252.7**	**1.74**	**1106.9**

AASI

Lead Emissions Summary

USEPA Method 12 (40 CFR Part 60 Appendix A)

IPSCO

Muscatine, Iowa

EAF Baghouse

July 13-15, 2004

Run			Lead Emissions				Production	Volumetric Flow Rates		Sample Volume	Percent
Date	Number	Time	GR/SCFD	LBS/Hour	LBS/Ton	Tons/Year	Tons/Hour	ACFM	SCFMD	SCFD	Isokinetic
7/13/2004	1	9:14 14:04	9.89E-06	0.06	4.72E-04	0.28	133.00	980358	740915	242.023	100.6
7/14/2004	2	8:16 13:20	1.07E-05	0.07	4.51E-04	0.31	158.90	969612	780107	207.967	102.3
7/15/2004	3	9:42 14:54	9.91E-06	0.06	4.46E-04	0.28	144.60	1015204	759414	203.807	100.5
Average			**1.02E-05**	**0.07**	**4.56E-04**	**0.29**	**145.50**	**988391**	**760145**	**217.932**	**101.2**

Laboratory Results (ug)		
R-1	R-2	R-3
155.12	144.32	130.92

To get the 4.46×10^{-4} lb/Ton production would have to be 134.6 tph not 144.6.

mb

APPENDICES

APPENDIX A	Test Protocol
APPENDIX B	Gaseous Emissions
APPENDIX C	USEPA Methods 5 & 12 (Particulate and Lead)
APPENDIX D	USEPA Methods 201a & 202
APPENDIX E	Equipment Calibrations
APPENDIX F	Continuous Opacity Monitor Data
APPENDIX G	Control Device Operating Log
APPENDIX H	Process Information

APPENDIX A

Test Protocol

Test Protocol
Stack Diagram - EAF/LMF
Direction and Map to Site
IDNR Pre-Test Questions - EAF/LMF

TEST PROTOCOL

IPSCO STEEL, INC.
Muscatine, Iowa

Proposed Test Date - July 13-15, 2004

IDNR Permit Number(s)

EAF/LMF Meltshop Stack	94-A-548-S3

Prepared By:

Ambient Air Services, Inc.
106 Ambient Airway
Starke, FL 32091

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1.0 INTRODUCTION:

IPSCO Steel, Inc. has contracted with Ambient Air Services, Inc. to perform compliance testing at their facility located in Muscatine, Iowa.

This testing is being conducted in order to demonstrate compliance with permit limits while the facility is using tires as a supplement for carbon. The permit number for this facility is 94-A-548-S3.

Table 1-1 presents a summary of the proposed testing to cover the testing required by IDNR. Please note that IPSCO is requesting a variance to the testing time duration as well as modifications to the 201A/202 test method.

The testing is proposed for the week of July 13-15, 2004.

Questions and or comments regarding the test plan or process conditions should be directed to:

Ms. Stephanie Kreiter
IPSCO Steel
1770 Bill Sharp Blvd.
Muscatine, IA 52761
Phone#: (563) 381-5584
FAX #: (563) 381-5406

or

Joseph L. Cooksey
Ambient Air Services, Inc.
106 Ambient Air Way
Starke, FL 32091
Phone#: (904) 964-8440
FAX#: (904) 964-6775

TABLE 1-1

IPSCO STEEL, INC.
Montpelier Mill
Summary of Proposed
Performance Emission Testing Specifications

IDNR Permit 94-A-548-S3

Proposed Test Dates July 13-15, 2004

Source #	Source Description	Approx. Stack Flow	Tests	EPA Method	# of Runs	Min. hrs/test or Min.vol.
1	EAF/LMF (BH Exhaust Stack)	700,000 dscfm	PM10	40CFR60 AppM, 201A with 202	3	4.0 hr or 160 actual CF
			PM/Pb	40CFR60 AppA, Meth 5/12	3	4.0 hr or 160 actual CF[A]
			NOx	40CFR60 AppA, Meth 7E	3	2 heats per run (approx 1.5 hrs)
			SO2	40CFR60 AppA, Meth 6C	3	2 heats per run (approx 1.5 hrs)
			CO	40CFR60 AppA, Meth 10	3	2 heats per run (approx 1.5 hrs)
			VOC	40CFR60 AppA, Meth 25A/18[B]	3	2 heats per run (approx 1.5 hrs)

A) Integral number of furnace heats.

B) At IPSCO's discretion method 18 may be used for methane analysis. The reported VOC's will be methane corrected.

2.0 EAF/LMF MELTSHOP PROPOSED TESTING

2.1 Testing Methodology and Procedures

The following table identifies the testing which is proposed for the EAF/LMF Baghouse Stack and its associated systems at IPSCO.

SOURCE	PARAMETER	TEST METHOD(S)	COMMENTS
Baghouse Stack	Particulate (PM and Lead)	1-5/12	3 test runs, each test run a minimum of 240 minutes in duration. To the extent possible an integral number of heats will be sampled. Minimum sample volume 160dscf. Permit Limit 0.0052 gr/dscf PM, 0.00055 lbs Pb/ton.
Baghouse Stack	SO_2 NO_x CO VOC- See note 1	6C 7E 10 18/25A	6 heats sampled (minimum) - 2 per test run 6 heats sampled (minimum) - 2 per test run 6 heats sampled (minimum) - 2 per test run 6 heats sampled (minimum) - 2 per test run
Baghouse Stack	Particulate less than 10 microns (PM-10) and Condensable Particulate Matter (CPM)	1-4, 201A and 202	3 test runs, each test run a minimum of 4.0 hours or 160 CF Sampled, whichever is longer. Permit limit PM10 + CPM= 0.335 lbs/ton and 293.5 tons per year.

Note 1: At Ipsco's discretion methane may be measured and analyzed using USEPA Method 18. If methane is measured, then the total VOC will be reported as methane corrected VOC.

2.2 EAF/LMF Baghouse Emission Limitations

The permitted emission limitations for the EAF/LMF baghouse stack at a steel production of 200 tons per hour are as follows:

IPSCO STEEL Montpelier, Iowa Facility Emission Limitations at 200 Tons Per Hour					
Pollutant	**Lbs/ton**	**Lbs/Hr**	**Tons/year**	**Concentration**	**Designation**
PM	0.335	N/A	293.5	0.0052 gr/dscft	NSPS
PM10	0.335	N/A	293.5	N/A	BACT
SO2	0.70	N/A	613.2	N/A	
NOx	0.80	N/A	700.80	N/A	
VOC	0.18	N/A	157.7	N/A	BACT
CO	1.93	N/A	1690.7	N/A	BACT
Lead (Pb)	0.00055	N/A	0.49	N/A	BACT

2.3 Total Particulate and Lead Testing:

USEPA Method 5 and 12 sampling will be conducted on the EAF baghouse stack. The following is a listing of parameters and equipment specifications:

Number of traverse points per run	:	24 points
Number of minutes per traverse point	:	10 minutes
Data recorded	:	each 5 minutes (minimum)
Total sampling time per run	:	240 minutes
Total number of runs	:	3 runs
Stack inside diameter	:	19 feet, 0 inches
Number of ports utilized	:	4
Number of points per port	:	6 per port

Point number	Distance from inside wall
1	4.8 inches
2	15.3 inches
3	26.9 inches
4	40.4 inches
5	57.0 inches
6	81.2 inches

Length of probe : 8 feet

Sampling Apparatus

1) Nozzle - Stainless Steel with sharp, tapered leading edge.

2) Probe - Stainless steel sheath with a 5/8 inch O.D. stainless steel insert wrapped with insulated nichrome wire heating element. Probe temperature will be controlled and capable of maintaining a temperature of 250°F.

3) Pitot tube - Standard "type S", attached to the probe.

4) Filter Holder - Pyrex glass with fritted glass filter support.

5) Impingers - Four (4) glass impingers connected in series with glass ball joint fittings. The first, third and fourth are the modified Greenburg-Smith design. The second is the Greenburg-Smith design with a standard tip. All will be submerged in an ice bath during sampling runs.

6) Heated Filter Box - Insulated container with a controlled heating system capable of maintaining filter temperature not to exceed 273°F.

7) Meter Box/ Control Box - Module containing a vacuum gauge, leak free pump, dry gas meter with a minimum of one percent accuracy, valves and related equipment to maintain isokinetic sampling rate and determine sample volume.

8) Barometer - Aneroid type to measure atmospheric on-site pressure to ±0.05 inches of mercury.

9) Thermocouples - Type K thermocouples are utilized to monitor temperatures for stack gas, filter box, last impinger and dry gas meter.

Test Procedure

Prior to performing the actual particulate matter sample runs, certain stack gas and stack gas parameters will be determined. The preliminary data includes the average temperature, velocity head, and moisture content, the stack dimensions at the point where the tests will be performed, as well as a check for cyclonic flow.

The stack gas temperature will be determined by using a Type K thermocouple with a real time readout. Velocity head measurements will be determined across the stack using a type "S" pitot tube with an oil filled inclined manometer.

The sampling traverse points are selected so that a representative sample can be extracted from the gas stream. The traverse points are located in the center of equal areas, which are dependent upon equivalent duct diameters downstream from flow disturbances. The specific points selected followed the requirements of EPA Method 1.

One particulate test run consist of sampling for a specified time at each traverse point. The type "S" pitot tube will be connected adjacent to the sample probe so that an instantaneous velocity head measurement can be determined at each traverse point during the test run. The stack gas temperature will be measured throughout each test. Isokinetic sampling rates for each traverse point during each test run will be used.

The gases sampled will pass through the following components: a stainless steel nozzle and probe; a glass fiber filter; two impingers with 100 ml of 0.1N Nitric Solution; one impinger dry; one impinger with a minimum of 400 grams of silica gel (the second impinger will have a standard tip, while the first, third, and fourth impingers will have modified tips with ½-inch I.D. openings); a flexible sample line; an air-tight pump; a dry test meter; and finally a calibrated orifice.

Sample recovery will be accomplished by the following procedures in accordance with Method 5:

1. The pre-tared filter will be removed from its holder and placed in Container 1 and sealed.
2. All sample exposed surfaces prior to the filter will be washed with acetone 1st and placed in Container 2, and then washed with 0. 1N Nitric and saved for lead analysis (Container 3).
3. The volume of 0.1N Nitric Solution from the first three impingers will be measured for the purpose of calculating the moisture in the stack gas.

4. All impinger catches from first three impingers will be collected in brown glass storage containers for analysis.

5 The used silica gel from the fourth impinger will be transferred to the original tared container and sealed.

Laboratory Analysis

The sample containers from each sample run will be analyzed according to the following procedures:

1. The filter of Container 1 will be transferred to a tared glass weighting dish, dried and desiccated (desiccation environment 20-25° C, 40 ±5% RH) to a constant weight (constant weight is defined as two repeat weighings at 6 hour intervals with a difference in weights not more than 0.5 mg).

2. The solvent from Container 2 will be transferred to a tared breaker and evaporated to dryness at a temperature below its boiling point. It will then be desiccated to a constant weight (see desiccation and constant weight specification in 1).

3. All impinger catches (0.1N Nitric solutions) will be processed by approved lab along with filter from Container 1 for determination of total lead concentration.

The used silica gel in its tared container will be weighted to the nearest one-half (0.5) gram.

Data

All field data sheets, calculation sheets and nomenclature definitions will be included in the Appendices of the test report. An example calculation from a similar compliance test is included in Appendix A of this protocol.

2.4 Source Operating Parameters:

In accordance with NSPS AAa Section 60.274a(c), (f), (g), and (h) the following information will be recorded during the compliance testing:

1) Control system fan amperes and all damper positions
2) Furnace pressure in the free space inside the EAF.
3) Charge weights and materials
4) Tap weights and material
5) Heat times, including start and stop times, and a log of process operation including periods of down time.
6) Control device operation log

These items will be recorded every 30 minutes by IPSCO personnel and included in appendices of this report.

2.5 Calculation of Production Rate:

It is the intent of IPSCO and AASI to suspend testing at any time when the facility is not charging, melting, tapping or otherwise processing steel in a normal fashion. Delays of less than 10 minutes in duration are considered part of normal operation, however, delays expected to be in excess of 10 minutes are considered abnormal operation.

Since the testing will be suspended during periods the mill experienced a non-normal delay, the process weight will be adjusted to reflect only the time in which both the mill was producing steel

and the particulate test was being conducted. It is the intent of AASI to include an integral number of heats in each test run.

2.6 Other Issues:

Run Duration - Integral Number Heat(s)

As this facility operates a twin shell furnace in which only one furnace shell will be melting steel at a time, an attempt will be made to sample an integral number of heat cycles (charge to tap). Since integral number of heats and 4.0 hours very rarely coincide with each other, the run time may be extended beyond 4.0 hours. The sampling will begin when an arc is struck in one shell of the furnace. The run will continue for an aggregate of 4.0 hours (or 160 actual CF whichever is longer). At that point, a decision will be made as to how much longer the run needs to be extended in order to test through the next tap of the furnace (or charge of opposite shell whichever occurs first). The test points will be repeated in reverse order until the end of current heat is reached.

It is noted that this method potentially biases the results in favor of the fourth port tested but to comply with the requirement set forth in 40CFR60 60.275a(e)(1) it will be done. This method will only be utilized on the total particulate (EPA Method 5) as this is the only PM method addressed under NSPS AAa. PM-10 testing will end after the fourth port is tested.

2.7 Gaseous Emission Sampling

2.7.1 Methodology

Continuous instruments will be used to measure CO, NO_x, SO_2 and VOC emissions. For the arc furnace shop a sample will be obtained from the baghouse stack. A fully extractive withdrawal system will be utilized. Flow will be determined on the stack in accordance with Methods 1-4 (flows obtained from Method 5 testing data which will be conducted concurrently).

Gaseous emission sampling will consist of three runs, each run covering a minimum of two furnace "heats". The sampling probe will be positioned at a randomly selected location in the gaseous test port located at the particulate test port elevation. The test will cover a minimum of 2 heats per run, however, at the option of the permittee, each run could be extended to cover 6 or more "heats". These tests will be performed concurrent with the particulate testing to the extent possible. Utilizing the flow rates (SCFM) measured for the particulate sampling and production data from the gaseous testing periods, mass emissions will be calculated in lbs/hr and lbs/ton of liquid (tapped) steel produced.

As stated earlier, a fully extractive probe system will be used. This equipment provides a controlled temperature, Teflon coated, path wherein the sample is conveyed to the analytical instrument. Temperature is controlled to 250°F ±10°F to prevent hydrocarbon condensation problems.

Data Recording

The primary apparatus will be an electronic data recorder which is based on micro-processor technology. The recorder interrogates each analytical instrument signal on a once-every-one-second basis and for this work will be instructed to accumulate 60 of these one-second readings and store the average into recorder memory. The data bank consists of a series of one minute averages. In retrieving the data from the computerized database, scaling factors will be entered to reflect the appropriate calibrations which occurred immediately before collecting the data set of current interest. The analysis of NO_x, CO, SO_2 and VOC gaseous species will be carried out as follows:

Oxides of Nitrogen - Oxides of Nitrogen from this facility will be measured using EPA Method 7E. Table 2.7.1 relates the required performance specifications of Method 7E to those presented by the manufacturer of the TEI Model 42 to be used in these tests. The instrument will be calibrated over a nominal range of 0-50 ppm.

Results from the test will be expressed in mass per unit time with all NO_x converted to the species NO_2 as required by IDNR. At the beginning of each test series zero gas plus two calibration gases will be used to perform calibration checks. At the completion of each of the three runs, zero gas plus one calibration gas will be used as a calibration check. No compromises are anticipated in the accomplishment of the Method 7E testing.

TABLE 2.7.1

OXIDES OF NITROGEN SYSTEM PERFORMANCE SPECIFICATIONS METHOD 7E VS THERMO ENVIRONMENTAL INSTRUMENTS MODEL 42		
	METHOD 7E	TECO 42
Calibration error zero, mid and high gases	Less than ±2% span	±1% of full scale
Sampling system bias for zero, mid and high gases	Less than ±5% span	±1% of full scale
Zero Drift	Less than ±3% of span over the run period	Negligible
Calibration Drift	Less than ±3% of span over the run period	±1% of full scale

Carbon Monoxide - Carbon monoxide will be measured using an adaptation of EPA Method 10. Analyses will be on a continuous basis using a TECO Model 48 gas filter correlation type instrument. The instrument will be operated on a nominal 500 parts per million range and obtain its sample from the sample withdrawal system. The required instrumental specifications from Method 10 and the specifications of the TECO Model 48 are displayed in Table 2.7.2 as an indication that this instrument is at least equivalent to the NDIR instrumentation described in EPA Method 10.

It is noted that normal practice is to calibrate and operate the instrument on a full scale range two to three times the permitted concentration limit. In this case, that range would be 220-330 ppm. However in the steel making process, it is not uncommon to routinely have concentration peaks of 300-400 ppm for brief periods of time. In order to have the peaks remain within the calibrated range of the instrument, a range of 0-500 ppm was selected.

At the beginning of the test series calibrations will be performed using zero and three calibration gases. Following the completion of each run a zero and single point calibration check will be performed.

TABLE 2.7.2

PERFORMANCE SPECIFICATIONS CARBON MONOXIDE ANALYZERS		
	METHOD 10 SPECIFICATION	TECO 48
Range (minimum)	0 - 1000 ppm	0 - 1000 ppm
Output (minimum)	0 - 10 mv	0 - 1 volt
Minimum Detectable Sensitivity	20 ppm	0.10 ppm
Rise Time (90%)	30 seconds max	(95%) 60 seconds
Fall Time (90%)	30 seconds max	(95%) 60 seconds
Zero Drift (maximum)	10% in 8 hours	±0.2 ppm in 24 hours
Span Drift (maximum)	10% in 8 hours	±1% in 24 hours
Precision (minimum)	±2% of full scale	±0.1 ppm
Noise (maximum)	±1% of full scale	0.05 ppm
Linearity (max dev.)	2% of full scale	±1%
Interference Rejection Ratio	CO_2 - 1000 to 1 H_2O - 500 to 1	Negligible for CO_2, H_2O, SO_2 and NO_x

Volatile Organic Compounds - VOC emissions from this facility will be measured using an adaptation of EPA Method 25A. A fully extractive sample system including a heated sample system will be employed.

The instrument used for this testing, a TEI Model 51, measures total hydrocarbon concentrations through a flame ionization detector and associated electronics. As is commonly practiced, the

instrument will be calibrated on a range of 0-30 ppm with EPA protocol gases of propane, and thus the results will be expressed as being equivalent to propane. Table 2.7.3 reviews the specifications of this instrument relative to the requirements of EPA Method 25A.

At the beginning of each test, a zero and 3 propane based calibration gases will be used for calibrations. At the completion of each test run, zero plus one propane based calibration gas will be injected.

It is recognized that the full scale range is normally selected to be no more than three times the permitted concentration. However, in the normal process of making steel, it is very common to have short duration VOC peaks well above the average. A range of 30 ppm was selected based on experience with other similar facilities.

VOC mass emissions will be reported as carbon. (i.e. propane concentration x 3 = carbon concentration. Molecular weight of carbon = 12 g/g-mole)

TABLE 2.7.3

TOTAL HYDROCARBONS SYSTEM PERFORMANCE SPECIFICATIONS METHOD 25A VS THERMO ENVIRONMENTAL INSTRUMENTS MODEL 51		
	METHOD 25A	TECO 51
Calibration error zero, mid and high gases	Less than ±5% calibration gas value	2% of reading plus span gas accuracy
Zero Drift	Less than ±3% of span	Less than ±1% of full scale in 24 hours
Calibration Drift	Less than ±3% of span	Less than ±1% of full scale in 24 hours

Flow, Oxygen, and Carbon Dioxide

US EPA Methods 1-4 will be utilized to determine stack gas velocity, volumetric flow rates and gas molecular weight under actual as well as standard conditions (68 F, 29.92 inches of mercury). The O_2 and CO_2 will be assumed to be within 1% of ambient (i.e. O_2 20-20% and CO_2 0-1%).

Sulfur Dioxide

Sulfur Dioxide concentrations will be determined by EPA Method 6C. A Western Research Model 921 or Thermo Environmental Instruments Model 43H or equivalent will be used. EPA protocol calibration gases of SO_2 will be used at nominal levels of 0, 12, and 25 ppm (instrument range 0-30 ppm). Calibrations will be performed before and after each test run. EPA Method 6C required correction factors will be applied to the data based on the results of the calibrations.

It is noted that normal practice is to have the instrument calibrated and operated at a full scale range of three times (or less) the permitted limit. In the process of making steel, it is very common to have short term peaks well above this level. To accommodate the peaks associated with normal steel

making, an instrument range of 0-30 ppm was selected.

Table 2.7.4 summarized the TEI Model 43C versus those required by Method 6c.

TABLE 2.7.4

SULFUR DIOXIDE SYSTEM PERFORMANCE SPECIFICATIONS METHOD 6C VS THERMO ENVIRONMENTAL INSTRUMENTS MODEL 43C		
	METHOD 6C	TECO 43C
Calibration error zero, mid and high gases	Less than ±2% span	±1% of full scale
Sampling system bias for zero, mid and high gases	Less than ±5% span	±1% of full scale
Interference Check	Less than ±7% of Method 6 result	NO < 3 ppb M-Xylene <2 ppb H2O < 2% of reading
Calibration Drift	Less than ±3% of span over the run period	±1% of full scale

2.8 Lead Testing

EPA Method 12 will be utilized to sample for lead. It is proposed that the Method 12 be combined with Method 5 testing.

The stack parameters and sampling conditions are outlined in the particulate test section. The distilled water in the impingers will be replaced with 0.1N HNO_3 as specified in Method 12.

2.9 PM-10 Particulate and Condensable Particulate

USEPA Methods 201a and 202 will be combined for this test.

Note-Due to the length of the probe required the requirement to use a glass liner is not feasable.

AASI is proposing to use a stainless steel probe liner.

Test conditions will be as follows:

Number of Points per run	24
Number of Minutes per point	10
Data recorded each (minute)	65
Total time per test run	240 minutes (7 hours 12 minutes)
Total number of runs	3
Stack ID	19 feet 0 inches
Ports	4
Points per port	6
Length of probe	10'

The sampling apparatus will be the same as Method 5 except a PM-10 cut point cyclone will be used.

Four impingers will be used, nominally 400 grams of silica gel will be used. This is to accommodate the long duration runs.

The "Back Half" (all components down stream of the cyclone) will be cleaned as described in Method 202.

PROPOSED TEST PARTICIPANTS

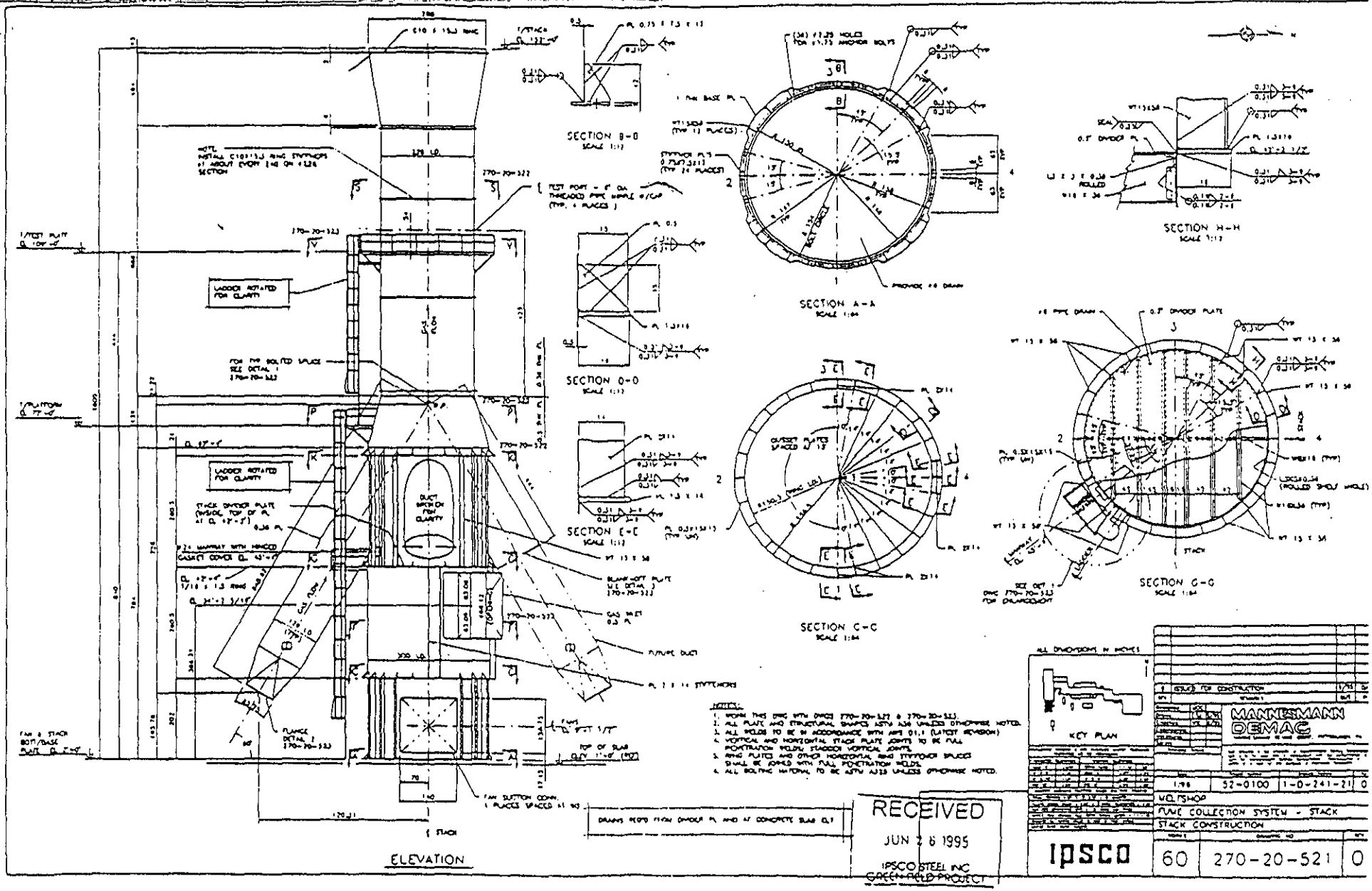
IPSCO Steel

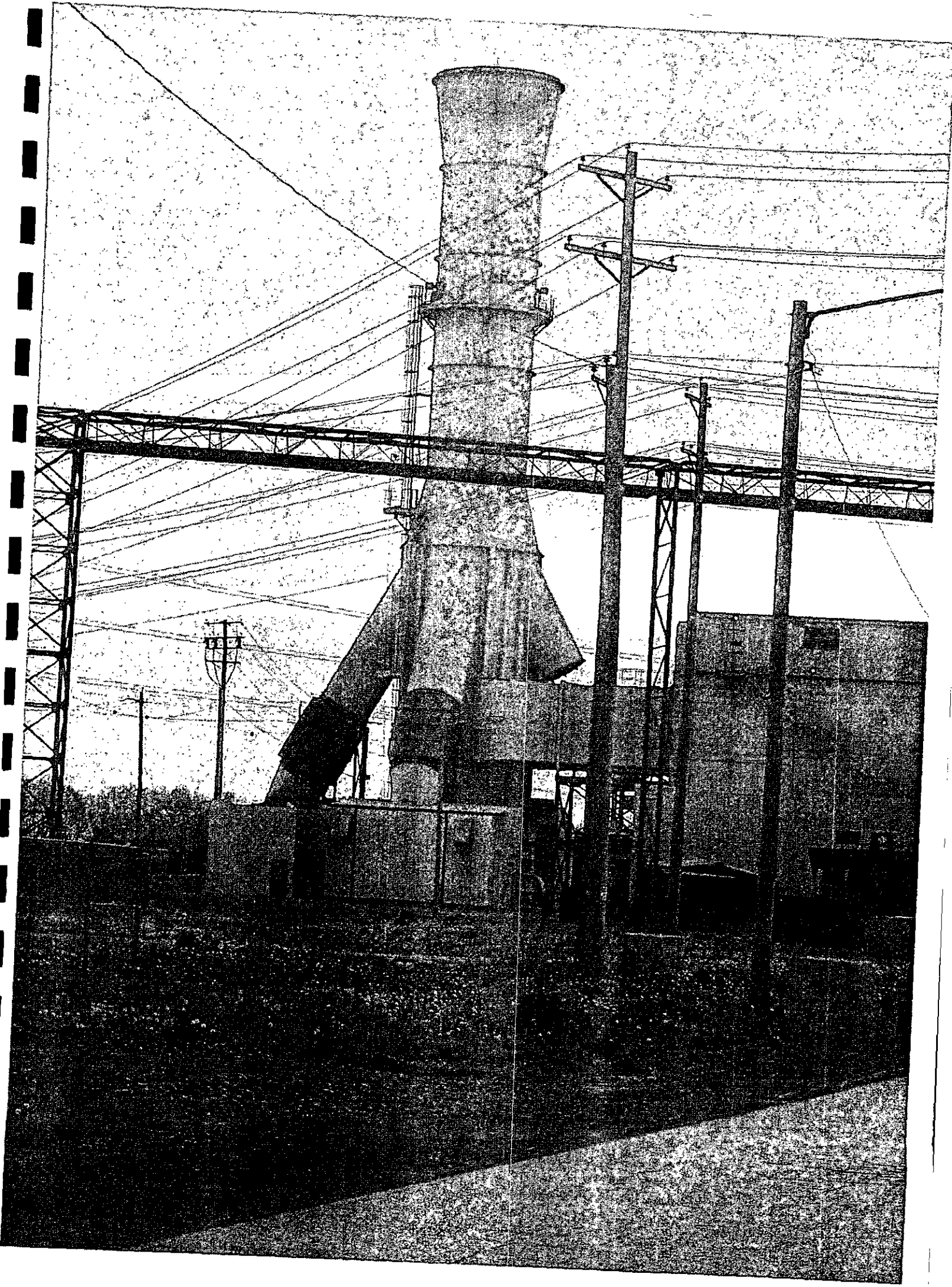
Project Director	Stephanie Kreiter, Environmental Manager

Ambient Air Services, Inc. *

Project Manger	Joseph L. Cooksey, President
Team Leader	Randy Weston
Team Member	Scott Edwards
Team Member	David Pate
Team Member	Joe Elliott

*Please note that the team members/leader may change due to scheduling conflicts, etc. All AASI employees have ample experience testing EAF facilities.


SECTION B-B
SECTION A-A
SECTION H-H
SECTION D-D
SECTION E-E
SECTION C-C
SECTION G-G
KEY PLAN
ELEVATION
RECEIVED
JUN 26 1995
IPSCO STEEL INC
GREEN-FIELD PROJECT
MANNESMANN DEMAG
WELSHOP
FUME COLLECTION SYSTEM - STACK
STACK CONSTRUCTION
ipsco
60
270-20-521
0



Example Calculations:

IPSCO Steel (Iowa) Inc.
Montpeliar, Iowa — Date 10/14/02
EAF Baghouse — Run 1

1. Stack Pressure, (PS)

PS = PB + (PG/ 13.6)

Example. PB = 29.30, PG = -0.75 — PS= 29.24 in. Hg.

2. Meter Pressure, (PM)

PM = (PB) + (*H / 13.6)

Example. *H = 1.389 — PM= 29.40 in. Hg.

3. Volume Water Vapor, (VWV).

VWV = (0.04707) x (VC)

Example. VC = 67.5 — VWV= 3.177 SCF

4. Meter Volume, corrected to Standard Conditions, (VSTPD)

$$VSTPD = \frac{(17.65) \times (VM) \times (PM) \times (Y)}{TM}$$

Example. VM = 181.976, PM = 29.40, TM = 538.9, Y = 0.999 — VSTPD = 175.063 SCF

5. Total Volume Of Sample, (VT).

VT = VWV + VSTPD

Example. VWV = 3.177, VSTPD = 175.063 — VT = 178.240 SCF

6. Fraction Water Vapor in Gas Stream, (W)

W = (VWV / VT)

Example. VWV = 3.177, VT = 178.240 — W = 0.018

7. Fraction Dry Air, (FDA).

FDA = 1.0 - W

Example. W = 0.018 — FDA = 0.982

8. Molecular Weight of Stack Gas, Dry, (MD).

MD = (0.44 x %CO2) + (0.32 x %O2) + (0.28 x %N2) + (0.28 x %CO)

Example Calculations: IPSCO Steel (Iowa) Inc.

Montpeliar, Iowa **Date** 10/14/02

EAF Baghouse **Run** 1

Example. CO2 = 0
O2 = 20.9
N2 = 79.1
CO = 0

MD = 28.84

9. Molecular Weight of Stack Gas, Stack Conditions, (MS).

MS = (MD x FDA) + (18 x W)

Example. MD = 28.84
FDA = 0.982
W = 0.018

MS = 28.64

10. Specific Gravity of Gas, Relative to Air, (GS)

GS = MS / 28.99

Example. MS = 28.643

GS = 0.988

11. Velocity of Stack Gas, as feet per minute, (U).

U =((85.49 x CP x (√H)) x √((TS) / (MS x PS))*60)

Example. CP = 0.84
H = 0.6856
TS = 640.7
PS = 29.24
MS = 28.643

U = 2583.5 FPM

12. Stack Gas Flow Rate, Stack Conditions, cubic feet per minute, (QS).

QS = U x AS

Example. U = 2583.5
AS = 283.529

QS = 732502 ACFM

13. Stack Gas Flow Rate, Dry (QD)

QD = QS x FDA

Example. QS = 732502
FDA = 0.982

QD = 719445 CFMD

14. Stack Gas Flow Rate, Standard Temperature and Pressure, Dry, (QSTPD)

QSTPD = (528 x QD x PS) / (TS x 29.92)

Example QD = 719445
PS = 29.24
TS = 640.7

Therefore QSTPD = 579515 SCFMD

Example Calculations: IPSCO Steel (Iowa) Inc.

Montpeliar, Iowa **Date** **10/14/02**

EAF Baghouse **Run** **1**

15. Percent Isokinetic Volume Sampled, (PISO)

$$PISO = \frac{(100) \times Ts \times VSTPD \times Pstd}{Tstd \times U \times \Theta \times An \times Ps \times FDA}$$

Example.

AN =	0.000341	PISO =	99.70
Θ	252	Pstd =	29.92
VSTPD	175.063	Tstd =	528
Ts =	640.7	Ps =	29.24
U =	2583.517	FDA =	0.982

16. Particulate Concentration, grains per Standard Cubic Foot, (ESTP).

$$ESTP = (.01543 \times Mg.) / VSTPD$$

Example.

Mg. = 38.4
VSTPD = 175.063

ESTP = 0.0034 Grs/ SCF.

17. Mass Emission Rate, Lbs / Hr, (EM).

$$EM = \frac{ESTP \times QSTPD \times 60\ Min/\ Hr}{7000}$$

Example.

QSTPD = 579515

EM = 16.81 Lbs/ Hr

PB = Barometric Pressure, inches of Hg.
PG = Static Pressure of stack, inches of H2O.
*H = Average meter orifice pressure differential inches of H2O.
VC = Volume condensate liquid volume + gain in silica gel wt., grams.
PM = See eq. 2.
TM = Temperature, meter, degrees Rankine.
Y = Meter Correction Factor
VWV = See eq. 3.
VSTPD = See eq. 4.
VWV = See eq. 3
VT = See eq. 5
W = See eq. 6
MD = See eq. 8
CP = Pitot Coefficient
H = Average of square roots of velocity heads, in H2O.
TS = Temperature of stack, deg. R.
PS = See eq. 1
GS = See eq. 10
VSTPD = See eq. 4
AN = Area Nozzle, Sq Ft
Mg. = Weight of particulate catch in milligrams.

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Environmental Consultants
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Starke, FL. 32091
(904) 964-8440

PM Summary Run 1

Facility	IPSCO Steel (Iowa) Inc.	Impinger Condensate	2.0
Location	Montpeliar, Iowa	Silica Gel Condensate	65.5
Stack	EAF Baghouse	Volume Metered	181.976
Run Date	10/14/2002	Meter Temp (Deg R)	538.9
Run Number	1	Orsat CO2 %	0.0
Start Time	12:37	Orsat O2 %	20.9
Finish Time	17:58	Orsat CO %	0.0
Weather	Cold and Clear	Orsat N %	79.1
Total Time (min.)	252	Condensate Volume	67.5
Barometric Pressure	29.3	Delta H (inches H2O)	1.3890
Stack Diameter (in.)	228.00	Stack Pressure	29.245
Stack Area sq. ft.	283.529	Stack Temp (Deg R)	640.7
Nozzle Area sq. ft.	0.0003409	Filter Weight (gm)	0.0023
Number of Points	24	Prefilter Weight (gm)	0.0361
Avg of SQRT of V.H.	0.6856	Total Particulate (gm)	0.0384
Meter Correction (Y)	0.999		
Nozzle Diameter	0.250		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		3.177
Gas Volume Sampled, STPD		175.063
Total Volume, STP		178.240
Moisture in stack gas, volume fraction		0.018
Dry Stack Gas, volume fraction		0.982
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		28.64
Specific gravity of Stack Gas Relative to Air		0.988
Excess Air (%)		14864.9
Average Stack Velocity, FPM		2583.6
Actual Stack Gas Flow Rate, ACFM		732526
Actual Stack Gas Flow Rate, (Dry) ACFMD		719341
Stack Gas Flow Rate, SCFMD		579434
Stack Gas Flow Rate Wet, SCFMW		590055
Percent Isokinetic		100
Stack Emissions:	Grains/DSCF	0.0034
	Lbs/Hr	16.81

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Volumetric Flow Calculations Worksheet

Data Request Entry Area	PM Run 1
Facility	IPSCO Steel (Iowa) Inc.
Location	Montpeliar, Iowa
Source	EAF Baghouse
Date	10/14/02
Run Number	1
Start Time	12:37
Finish Time	17:58
Weather	Cold and Clear
Total Time (min)	252.0
Number of Points	24
Barometric Pressure	29.30
Static Pressure ("H20)	-0.75
Stack Diameter (inches)	228.00
Nozzle Diameter (in.)	0.250
Meter Y Factor	0.999
Pitot Factor	0.84
Final Meter Reading	651.128
Initial Meter Reading	469.152
Condensate (ml)	2
Silica Gel Weight (gm)	65.5
Orsat CO2	0.0
Orsat O2	20.9
Orsat CO	0.0
Orsat N2	79.1
Filter Weight (gm)	0.0023
Prefilter Weight (gm)	0.0361
Meter Factor	2.88

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Field Data Points - PM Run 1

Port	Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter In ' F	Meter Out 'F	Sq Rt VH
1	1	0.37	1.07	164	75	76	0.6083
	2	0.4	1.15	177	75	77	0.6325
	3	0.42	1.21	181	75	78	0.6481
	4	0.4	1.15	176	75	77	0.6325
	5	0.65	1.87	154	75	77	0.8062
	6	0.4	1.15	153	76	77	0.6325
	7	0.4	1.15	171	76	77	0.6325
	8	0.35	1.01	198	76	77	0.5916
	9	0.4	1.15	214	77	77	0.6325
	10	0.38	1.09	225	78	79	0.6164
	11	0.4	1.15	208	79	78	0.6325
	12	0.4	1.15	190	78	77	0.6325
2	13	0.4	1.15	166	77	78	0.6325
	14	0.35	1.01	172	75	77	0.5916
	15	0.4	1.15	177	76	78	0.6325
	16	0.35	1.01	177	77	77	0.5916
	17	0.3	0.86	157	76	77	0.5477
	18	0.35	1.01	165	75	76	0.5916
	19	0.3	0.86	182	76	77	0.5477
	20	0.3	0.86	211	77	77	0.5477
	21	0.36	1.04	221	77	77	0.6000
	22	0.36	1.04	229	77	78	0.6000
	23	0.34	0.98	210	78	79	0.5831
	24	0.31	0.89	186	78	79	0.5568
3	25	0.43	1.24	191	78	78	0.6557
	26	0.35	1.01	179	78	78	0.5916
	27	0.4	1.15	182	80	81	0.6325
	28	0.37	1.07	182	80	82	0.6083
	29	0.4	1.15	166	80	82	0.6325
	30	0.41	1.18	158	80	83	0.6403

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	31	0.43	1.24	147	80	83	0.6557
	32	0.52	1.50	217	81	83	0.7211
	33	0.51	1.47	216	81	83	0.7141
	34	0.51	1.47	216	80	83	0.7141
	35	0.62	1.79	200	80	83	0.7874
	36	0.6	1.73	191	80	83	0.7746
4	37	1	2.88	147	79	81	1.0000
	38	0.94	2.71	140	81	85	0.9695
	39	0.68	1.96	147	82	83	0.8246
	40	0.57	1.64	153	82	83	0.7550
	41	0.55	1.58	157	80	82	0.7416
	42	0.95	2.74	155	81	83	0.9747
	43	0.55	1.58	142	78	80	0.7416
	44	0.55	1.58	161	80	80	0.7416
	45	0.67	1.93	180	80	79	0.8185
	46	0.68	1.96	196	79	81	0.8246
	47	0.73	2.10	205	79	81	0.8544
4	48	0.59	1.70	201	79	82	0.7681
	49	0.45	1.30	174	79	81	0.6708
	50	0.56	1.61	166	79	82	0.7483
	51						0.0000
	52						0.0000
	53						0.0000
	54						0.0000
	55						0.0000
	56						0.0000
	57						0.0000
	58						0.0000
	59						0.0000
	60						0.0000

AMBIENT AIR SERVICES, INC.
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SOURCE SAMPLING FIELD DATA SHEET

FACILITY:	IPSCO	RUN No.	MS/12 - Run1
SOURCE:	EAF Baghouse	DATE:	10/14/02
WEATHER:	Clear	~~ORSAT~~	Fyrite
TYPE TEST:	MS/M12	CO2	0
TESTERS:	RLW, DS, JE, PP	O2	20.9
		CO	—

BAROMETRIC PRESS	29.30	24	PTS @	10	MIN/PT	240	TOT MIN
METER BOX ID	AASI-3						
METER DELTA Ha	1.516	0.999	Y meter		Pretest Ts		Pretest Tm
PROBE ID	10K						
PITOT CORR. FACTOR	0.84	0.99	F.D.A.	Comments:			
NOZZLE DIA.	0.250						
PROBE TEMP.	250						
STACK ID (IN):	228"						
PORT LENGTH	6"						

F=1570(aXc)/b
a = (Dn^2XFDA)^2
b= (1.6+FDA)Ts
c= Tm X DHa

TIME	START		START VOLUME	469.152
TIME	END	1758 CDT	END VOLUME	651.128

STAT.PRESS -0.75

LEAK CHECK:	POST:		PITOT LEAK CHECK	VOL.WATER COLLECTED 2 ml
PRE.TEST 0.000	CFM@15".	0.015	16 " Hg.	✓=Imp, ✓STAT AT 3"	WT. MOIS. SILICA GEL ~~57.7~~ 65.5 gr

2.88

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	STACK GAS TEMP.	METER TEMP (F)	METER TEMP (F)	FILTER TEMP. (F)	LAST IMPINGER TEMP.	VACUUM INCHES Hg.	
	469.152										
1-1	0.0	~~460.985~~	0.37	~~0.88~~ 1.1	164	75	76	215	57	8	- Restart After
1	5	472.1	0.40	1.15	177	75	77	227	56	8	Change out -
2	10	475.5	0.42	1.21	181	75	78	216	54	9	
2	15	479.	0.40	1.15	176	75	77	232	54	9	
3	20	482.3	0.65	1.9	154	75	77	219	54	11	
3	25	486	0.40	1.15	153	76	77	216	59	11	
4	30	490	0.40	1.15	171	76	77	217	62	11	
4	35	493.6	0.35	1.0	198	76	77	225	65	10.5	
5	40	496.9	0.40	1.15	214	77	77	223	66	10	
5	45	500.2	0.38	1.1	225	78	79	259	67	10	
6	50	503.7	0.40	1.15	208	79	78	214	68	10	
6	55	~~506~~ 507	0.40	1.15	190	78	77	204	68	10	
2-1	60	510.350	0.40	1.15	166	77	78	225	50	9	

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Source Sampling Field Data Continuation Sheet #1 Method 5/12

FACILITY: IPSCO | RUN No. 1
SOURCE: EAF Baghouse | DATE: 10/21/02 ~~10/00~~

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	STACK GAS TEMP.	METER TEMP (F)	METER TEMP (F)	FILTER TEMP. (F)	LAST IMPINGER TEMP.	VACUUM INCHES Hg.	
1	65	513.6	0.35	1.0	172	75	77	229	51	9	
2	70	516.9	0.40	1.15	177	76	78	218	50	9	
2	75	520.3	0.35	1.0	177	77	77	213	50	9	
3	80	523.7	0.30	0.95	157	76	77	216	51	9	
3	85	527.0	0.35	1.0	165	75	76	223	51	9	
4	90	530.2	0.30	0.95	182	76	77	223	50	9	
4	95	533.3	0.30	0.95	211	77	77	231	52	8	
5	100	536.4	0.36	1.04	221	77	77	227	52	9	
5	105	539.6	0.36	1.04	229	77	78	227	53	9	
6	110	542.9	0.34	0.98	210	78	79	226	52	9	
6	115	545.9	0.31	0.89	186	78	79	227	53	8	
3- 1	120	549.035	0.43	1.24	191	78	78	260	52	9	
1	125	552.4	0.35	1	179	78	78	260	52	9	
2	130	555.6	0.40	1.15	182	80	81	260	53	9	
2	135	558.9	0.37	1.06	182	80	82	263	52	9	
3	140	562.2	0.40	1.15	166	80	82	256	51	9	
3	145	565.5	0.41	1.18	158	80	83	256	51	9	
4	150	568.7	0.43	1.2	147	80	83	256	51	9	
4	155	575.5	0.52	1.50	217	81	83	252	51	9	
5	160		0.51	1.50	216	81	83				
5	165	579.2	0.51	1.50	216	80	83	252	51	10	
6	170	583.1	0.62	1.8	200	80	83	251	51	10	
6	175	587.1	0.60	1.7	191	80	83	253	50	10	
4- 1	180	591.968	1.0	2.9	147	79	81	253	48	15	
1	185	596.0	0.94	2.7	140	81	85	253	51	15	

AMBIENT AIR SERVICES, INC.
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Source Sampling Field Data Continuation Sheet #1 — M 5/12

FACILITY: IPSCO | RUN No. 01

SOURCE: EAF Baghouse | DATE: ~~1/0/00~~ 10/14/02

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	STACK GAS TEMP.	METER TEMP (F)	METER TEMP (F)	FILTER TEMP. (F)	LAST IMPINGER TEMP.	VACUUM INCHES Hg.	
2	190	600.9	0.68	2.0	147	82	83	251	52	13	
	195	605.3	0.57	1.6	153	82	83	251	53	11	
3	200	609.2	0.55	1.6	157	80	82	251	53	9	
	205	612.6	0.95	2.7	155	81	83	251	52	14	
4	210	616.9	0.55	1.6	142	78	80	248	52	10	
	215	621.5	0.55	1.6	161	80	80	251	52	10	
5	220	624.8	0.67	1.9	180	80	79	252	52	10	
	225	629.1	0.68	2.0	196	79	81	251	52	11	
6	230	633.3	0.73	2.1	205	79	81	252	53	12	
	235	637.7	0.59	1.7	201	79	82	251	53	11	
6	240	642.0	0.45	1.3	174	79	81	252	54	9	
	245	645.5	0.56	1.6	166	79	82	252	54	10	
~~5~~	~~250~~	651.128	~~1.0~~	~~2.9~~	~~158~~						
	252.3	END @ 1758									
		TAP Heat R2J628									

Ambient Air Services, Inc. Environmental Consultants	106 Ambient Air Way Starke, Fl 32091 (904)964-8440

PM 10 Method 201A			
Facility	IPSCO Steel	Date	10/14/2002
Location	Montpeliar, Iowa	Run	1
Source	EAF Baghouse	Time Start	12:37
		Time End	19:53

PM10 Summary Run 1	
Nozzle Area (ft sq)	0.000177
Avg SqRt delta P	0.817
Avg delta P	0.667
Avg Stack Temp (R)	635.9
Avg Meter Temp (R)	534.1
Avg delta H	0.60
Gas Volume Sampled, STPD	193.360
Total Volume, STP	187.748
Volume Water Vapor, SCF	3.516
Moisture in stack gas, volume fraction	0.018
Molecular Weight of Stack Gas (Dry Basis)	28.84
Molecular Weight of Stack Gas (Stack conditions)	28.64
Average Stack Velocity, FPM	50.98
Actual Stack Gas Flow Rate, ACFM	694683.9
Percent Isokinetic	107.4
Cyclone Flow Rate at Actual Conditions	0.564
Stack Gas Velocity (Micropoise)	205.52
Aerodynamic Cut Size (um)	9.66
Grains per DSCF:	0.00120
Pounds per DSCF:	1.7108E-07
Pounds per HOUR:	7.13

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PM 10 Method 201A

Facility	IPSCO Steel	Date	10/14/2002
Location	Montpeliar, Iowa	Run	1
Source	EAF Baghouse	Time Start	12:37
		Time End	19:53

Field Data Points - PM10 Run 1

Port	Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter In ' F	Dwell	SqRt Vel Hd
1	1	0.54	0.60	116	75	14.39	0.734847
	2	0.8	0.60	157	75	17.51	0.894427
	3	0.6	0.60	147	74	15.16	0.774597
	4	0.75	0.60	211	74	16.95	0.866025
	5	0.96	0.60	181	74	19.18	0.979796
	6	0.7	0.60	153	74	16.38	0.836660
2	1	0.65	0.60	224	73	15.78	0.806226
	2	0.85	0.60	162	73	18.05	0.921954
	3	0.75	0.60	165	74	16.95	0.866025
	4	0.75	0.60	199	74	16.95	0.866025
	5	0.77	0.60	216	73	17.18	0.877496
	6	1	0.60	189	73	19.58	1.000000
3	1	0.5	0.60	187	71	13.84	0.707107
	2	0.45	0.60	218	74	13.13	0.670820
	3	0.35	0.60	191	73	11.58	0.591608
	4	0.8	0.60	141	73	17.51	0.894427
	5	0.31	0.60	158	74	10.90	0.556776
	6	0.3	0.60	139	71	10.72	0.547723
4	1	0.45	0.60	192	72	13.13	0.670820
	2	0.62	0.60	169	73	15.41	0.787401
	3	0.55	0.60	160	74	14.52	0.741620
	4	0.85	0.60	207	75	18.05	0.921954
	5	1.1	0.60	164	75	20.53	1.048809
	6	0.74	0.60	155	79	16.84	0.860233
4	6	0.8	0.60	185	78	17.51	0.894427
	5	0.85	0.60	187	78	18.05	0.921954
Average		0.6842	0.60	175.9	74.1	16.0	0.816914
				Total Time		415.78	

Ambient Air Services, Inc. Environmental Consultants	106 Ambient Air Way Starke, Fl 32091 (904)964-8440

PM 10 Method 201A

Facility	IPSCO Steel	**Date**	10/14/2002
Location	Montpeliar, Iowa	**Run**	1
Source	EAF Baghouse	**Time Start**	12:37
		Time End	19:53

Preliminary Data

Velocity Traverse

Point	deltal P	Stack Temp	(DP) E 0.5
1	0.48	168	0.693
2	0.49	170	0.700
3	0.41	172	0.640
4	0.41	172	0.640
5	0.4	174	0.632
6	0.31	174	0.557
7	0.68	179	0.825
8	0.7	179	0.837
9	0.69	178	0.831
10	0.78	180	0.883
11	0.79	180	0.889
12	0.59	181	0.768
13	0.69	185	0.831
14	0.71	185	0.843
15	1.1	182	1.049
16	1.2	179	1.095
17	1.3	178	1.140
18	1.2	177	1.095
19	0.6	170	0.775
20	0.52	171	0.721
21	0.49	173	0.700
22	0.4	167	0.632
23	0.42	168	0.648
24	0.42	174	0.648
Min	0.31		
Avg	0.6575	175.7	0.795
Max	1.3		

Known Data

Stack Diameter	228
Barometric Pressure	29.46
Static Pressure	-0.74
Meter Temp	90
Meter delta Ha	1.646
Moisture Fraction	0.01
% 02	20.9
% CO2	0
Nozzle Diameter	0.18

Calculated Data

Stack Pressure	29.41
Stack Temp	635.7
Meter Temp	550
Molecular Weight Dry	28.84
Molecular Weight Wet	28.73
Viscosity (Preliminary)	208.61
Cyclone Flow Rate (ft/sec)	0.5442
Delta H (@Ts)	**0.596**
Delta H (@Ts-50)	**0.702**
Delta H (@Ts+50)	**0.512**
Nozzle Velocity (ft/sec)	51.33
Rmin	0.691
Vmin	35.5
Minimum Velocity Head	**0.326**
Rmax	1.27
Vmax	65.1
Maximum Velocity Head	**1.098**
Avg SqRt delta P^2	0.632

Ambient Air Services, Inc. Environmental Consultants	106 Ambient Air Way Starke, Fl 32091 (904)964-8440

PM 10 Method 201A

Facility	IPSCO Steel	**Date**	10/14/2002
Location	Montpeliar, Iowa	**Run**	1
Source	EAF Baghouse	**Time Start**	12:37
		Time End	19:53

Nozzle Size Information

#	Diameter	#	Diameter	#	Diameter	#	Diameter
1	0.136	4	0.18	7	0.233	10	0.342
2	0.15	5	0.197	8	0.264	11	0.39
3	0.164	6	0.215	9	0.3		

Flow Data

Desired Run Time	396	Final Meter Volume	932.96
Number of Points	24	Initial Meter Volume	739.6
Barometric Pressure	29.46	Impinger Gain (ml)	0
Stack Pressure	29.41	Silica Gel (g)	74.7
Meter "Y" Factor	0.996	Filter Weight (mg)	0.8
Meter delta Ha	1.646	Wash Weight (mg)	13.8
Nozzle Diameter	0.18	% O2	20.9
Stack Area (ft2)	283.529	% CO2	0

Method 202 Condensible Particulate Matter
Concentration and Emission Rate Calculations

Date: October 14, 2002
Plant: Ipsco
Run No: 1

	DATA
Units, Metric(1) or English(2):	2
Barometric Pressure(mm Hg, in. Hg):	29.46
Stack Static Pressure(mm H2O, in. H2O):	-0.74
Stack Area(m^2, ft^2):	283.529
Nozzle Diameter(mm, in.):	0.18
Pitot Tube Coefficient, Cp:	0.84
DGM Calibration Factor, Y:	0.996
Initial DGM Reading(liters, dscf):	739.6
Final DGM Reading(liters, dscf):	932.96
Total Run Time(min):	415.78
Leak Rate Correction Factor Used? Yes(1) No(2):	2

WHEN DATA ENTRY IS COMPLETED, PRESS Alt B

WHEN DATA ENTRY IS COMPLETE, PRESS Alt E FOR RESULTS

Run Time	Pitot Delta P (mm H2O, in. H2O)	Orifice Delta H (mm H2O, in. H2O)	Average DGM Temp (C, F)	Stack Pressure (mm H2O, in. H2O)	Stack Temp (C, F)	Vacuum (mm Hg, in. Hg)	Filter Temp (C, F)
415.78	0.667	0.6	74.1	-0.7	175.9	4	227

Method 202 Condensible Particulate Matter
Concentration and Emission Rate Calculations

********** ********** ********** ********** ********** ********** **********

FILTER, NOZZLE RINSE, AND MOISTURE DATA

	DATA
Dry Molecular Weight of Stack Gas:	28.84
Particulate Mass in Probe Rinse(mg):	0.8
Particulate Mass in Filter Catch(mg):	1.5
Water Vapor Condensed in Impingers(ml):	1
Water Vapor Collected in Silica Gel(g):	74.7

WHEN DATA ENTRY IS COMPLETE, PRESS Alt C

Method 202 Condensible Particulate Matter
Concentration and Emission Rate Calculations

		DATA
CPM DATA	Weight of CPM in MeCl2 Blank(mg):	0.42
	Weight of CPM in Water Blank(mg):	2.88
	Weight of Organic CPM(mg):	40.3
	Weight of Dried Inorganic Fraction(mg):	15.1
	Volume of Impinger Contents Sample(ml):	320
IC RESULTS	Volume of Aliquot taken from Sample(ml):	
	Sulfate Concentration in Sample(mg/ml):	
	Chloride Concentration in Sample(mg/ml):	
NH3 TITRATION (optional)	Normality of NH4OH:	
	Volume of Sample Titrated(ml):	
	Volume of Titrant(ml):	
	Correction Needed for Cl-? Yes(1) No(2):	2
	Correction for NH4 only (1) or NH4 and H2O (2)?	
	NH3 Titration Used? Yes(1) No(2):	2

WHEN DATA ENTRY IS COMPLETE, PRESS Alt D

Method 202 Condensible Particulate Matter
Concentration and Emission Rate Calculations

RESULTS

Average DGM Temperature(K, R):	534
Average Orifice Press. Drop(mm H2O, in. H2O):	0.6
Standard Dry Gas Volume, Vm(std)(dscm, dscf):	1.88E+02
Stack Gas Velocity(m/s, f/s):	5.10E+01
Standard Volumetric Flow Rate(dscmm, dscfm):	6.94E+05
Standard Volumetric Flow Rate(dscmh,dscfh):	4.17E+07
Volume of Water Vapor(scm, scf):	3.57E+00
Moisture Content(%):	1.9
Isokinetics:	104.4
Particulate Concentration(g/m^3, gr/ft^3):	1.89E-04
Particulate Mass Emission Rate(kg/h, lbs/h):	1.13E+00

FOR MORE RESULTS, PRESS Alt F

CPM CONCENTRATION AND EMISSION RATE RESULTS

Correction for Chloride:	0
Calculated Correction Factor:	0.00
Weight of Corrected Total Inorganic CPM(mg):	15.10
Weight of Organic CPM(mg):	40.30
Weight of Total CPM(mg):	55.40
Corrected Concentration of CPM(grains/dscf):	0.0043
CPM Emission Rate(kg/hr, lbs/hr):	25.49

TO EDIT DATA,
PRESS Alt A

TO PRINT SPREADSHEET,
PRESS Alt P

Titration used; sulfate concentration: 0

Pre PM10

Velocity Traverse

Ambient Air Services, Inc.
Starke, FL (904)964-8440

Plant: IPSCO Date: 10/14/02

Source: EAF Baghouse Barometric Pressure: 29.46

Stack Diameter: 228

Run No. 1	Run No. 2	Run No.
Start: Stop:	Start: Stop:	Start: Stop:
Static Press.(in.H2O) -0.74	Static Press.(in.H2O)	Static Press.(in.H2O)

	Traverse Point No.	Velocity Head	Stack Temp. (Ts) Deg. F
1	1	.51	183
	2	.51	183
	3	.42	173
	4	.41	173
	5	.42	175
	6	.38	174
2	1	.52	173
	2	.48	174
	3	.42	174
	4	.38	174
	5	.42	175
	6	.32	176
3	1	.72	173
	2	.82	173
	3	.84	175
	4	.98	193
	5	.96	~~206~~ 175
	6	.54	175
4	1	.58	167
	2	.60	170
	3	.70	170
	4	.70	171
	5	.82	172
	6	.60	172

Traverse Point No.	Velocity Head	Stack Temp. (Ts) Deg. F
1-1	.48	168
2	.49	170
3	.41	172
4	.41	172
5	.40	174
6	.31	174
2-1	.68	179
2	.70	179
3	.69	178
4	.78	180
5	.79	180
6	.59	181
3-1	.69	185
2	.71	185
3	1.1	182
4	1.2	179
5	1.3	178
6	1.2	177
4-1	.60	170
2	.52	171
3	.49	173
4	.40	167
5	.42	168
6	.42	174

Traverse Point No.	Velocity Head	Stack emp. (Ts Deg. F

19 lot 7

PM10

AMBIENT AIR SERVICES, INC.
STARKE, FL
(904)964-8440

SOURCE SAMPLING FIELD DATA SHEET

FACILITY:	IPSCO	RUN No.	1
SOURCE:	EAF Baghouse	DATE:	10/14/02
WEATHER:	Clear, cold	~~ORSAT~~	Fyrite or 3A
TYPE TEST:	PM10 / 202	CO2	
TESTERS:	RLW, DS, JE, PP	O2	20.9
		CO	

BAROMETRIC PRESS	29.86	24	PTS @	Var	MIN/PT	396	TOT MIN
METER BOX ID	8						
METER DELTA Ha	1.646	0.996	Y meter	200	Pretest Ts	90	Pretest Tm
PROBE ID	10A1						
PITOT CORR. FACTOR	0.84	.99	F.D.A.	Comments: 739.600			
NOZZLE DIA.	0.18						
PROBE TEMP.	N/A						
STACK ID (IN):	228"						
PORT LENGTH	6"						

F=1570(aXc)/b
a = (Dn^2XFDA)^2
b= (1.6+FDA)Ts
c= Tm X DHa

TIME	START	~~1400~~ 1257	START VOLUME	~~738.700~~
TIME	END	1953	END VOLUME	932.960

STAT.PRESS -0.74

LEAK CHECK:	POST:		PITOT LEAK CHECK	VOL.WATER COLLECTED	0 ml
PRE.TEST 0	CFM@15".	.005 6.5 " Hg.	= 0 AT 3"	WT. MOIS. SILICA GEL	74.7 ~~74.3~~ gr

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	STACK GAS TEMP.	METER TEMP (F)	METER TEMP (F)	FILTER TEMP. (F)	LAST IMPINGER TEMP.	VACUUM INCHES Hg.	
1-1 (4.5)	0	~~737.600~~ ~~738.700~~	0.54	0.60	116	75	N/A	N/A	50	4	
	5	741.7	0.62	0.60	134	75			50	4.3	
	10	744.1	0.58	0.60	145	75			48	4.3	
1-2 (7.5) 16.4	14.4	746.1	0.8	0.60	157	75			50	4.3	
	5 (3)	748.3	1.2	0.60	151	75			48	4.3	
	10 (8)	750.6	0.72	0.60	142	75			49	4.3	
	15 (12)	752.4	0.67	0.60	143	74			49	4.3	
31.89 1-3 (15.0) 7.5	(15.5)	754.1	0.60	0.60	147	74			49	4.5	
	5	756.5	0.74	0.60	163	75			51	4.5	
	10	758.8	0.75	0.60	193	74			52	4.5	
46.89 1-4 (7)	15.2	761.3	0.75	0.60	211	74			52	4.5	
	5	763.7	1.1	0.60	191	74			53	4.5	
	10	766.2	0.65	0.60	167	74			53	5.0	

AMBIENT AIR SERVICES, INC.
STARKE, FL
(904)964-8440

Source Sampling Field Data Continuation Sheet #1 P1710

FACILITY: IPSCO | RUN No. 1 ~~0~~
SOURCE: EAF Baghouse | DATE: 10/19/~~01~~00

	PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	STACK GAS TEMP.	METER TEMP (F)	METER TEMP (F)	FILTER TEMP. (F)	LAST IMPINGER TEMP.	VACUUM INCHES Hg.	
63.89	1-5 (19.2)	17.0	769.6	0.96	0.60	181	74	N/A	N/A	54	5	
		5	771.9	0.93	0.60	182	74			45	5	
		10	774.3	0.8	0.60	175	74			54	5	
		15	776.7	1.4	0.60	158	75			56	5	
83.1	1-6 (16.4)	19.2	778.7	0.7	0.60	153	75			56	5	
		5	781.1	0.82	0.60	169	75			57	5	
		10	783.6	0.78	0.60	175	75			57	5	
	2-1 (15.8)	16.4	786.645	0.65	0.60	224	73			59	4.5	
		5	789.2	0.65	0.60	199	74			59	5	
		10	791.6	1.0	0.60	177	74			59	5	
	2-2 (15.8)	15.8	794.3	0.85	0.60	162	73			57	5	
		5	796.8	0.50	0.60	170	74			56	5	
		10	799.2	0.45	0.60	177	74			54	5	
		15	801.6	0.45	0.60	179	74			53	5	
	2-3 (17)	18.1	803.1	0.75	0.60	165	74			52	5	
		5	805.4	0.40	0.60	158	74			48	5	
		10	807.8	0.45	0.60	170	74			51	5	
	2-4 (17)	17	811.2	0.75	0.60	199	74			50	5	
		5	813	0.72	0.60	222	74			51	5	
	(17.2)	10	815.9	0.74	0.60	230	74			51	5	
	2-5	17	819.2	0.77	0.60	216	73			51	5	
		5	821.6	0.67	0.60	199	73			51	5	
	(14.6)	10	824.0	0.95	0.60	189	74			51	5	
	2-6	17.2	827.5	1.0	0.60	181	74			51	5	
		5	829.9	0.35	0.60	173	74			51	5	

AMBIENT AIR SERVICES, INC. STARKE, FL (904)964-8440	Source Sampling Field Data Continuation Sheet #1 PM10		
	FACILITY: IPSCO	RUN No.	1 ~~0~~
	SOURCE: EAF Baghouse	DATE:	10/14/01 ~~1/0/00~~

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	STACK GAS TEMP.	METER TEMP (F)	METER TEMP (F)	FILTER TEMP. (F)	LAST IMPINGER TEMP.	VACUUM INCHES Hg.	
	10	832.5	0.35	0.60	189	73	N/A	N/A	51	5	
(13.8)	15	834.8	0.40	0.60	169	74			51	5	
3-1	19.6	836.9	0.5	0.60	187	71			52	5	
	5	839.3	0.5	0.60	172	73			51	5	
(13.1)	10	841.7	0.48	0.60	216	74			51	5	
3-2	13.8	843.5	0.45	0.60	218	74			52	5	
	5	845.8	0.45	0.60	215	73			52	5	
	10	848.2	0.45	0.60	198	73			51	5	
(11.6) 3-3	13.1	849.6	0.35	0.60	191	73			52	5	
(17.3)	5	852.0	0.75	0.60	161	73			51	5	
3-4	11.6	855.1	0.80	0.60	141	73			51	5	
	5	857.6	0.28	0.60	143	74			50	5	
(16.9)	10	859.8	0.28	0.60	153	74			51	5	
3-5	12.5	863.4	0.25	0.60	158	74			51	5	
(10.1)	5	865.8	0.45	0.60	158	74			47	5	
3-6 10.9	~~5~~	868.6	0.30	0.60	139	71			50	5	
(13)	5	871.0	0.2	0.60	161	73			49	5	
4-1	10.7	873.8	0.45	0.60	193	72			56	5	
(16.4)	5	876.1	0.48	0.60	165	73			53	5	
4-2	13.1	879.9	0.62	0.60	169	73			50	5	
	5	882.3	0.55	0.60	176	73			50	5	
(14.9)	10	884.7	0.5	0.60	157	73			51	5	
4-3	15.4	887.3	0.55	0.60	160	74			53	5	
	5	889.7	0.90	0.60	175	74			52	5	
	10	892.1	0.85	0.60	190	75			53		

AMBIENT AIR SERVICES, INC.
STARKE, FL
(904)964-8440

Source Sampling Field Data Continuation Sheet #1 PM10

FACILITY: IPSCO | RUN No. 1 ~~0~~
SOURCE: EAF Baghouse | DATE: 10/6/02 ~~1/10/00~~

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	STACK GAS TEMP.	METER TEMP (F)	METER TEMP (F)	FILTER TEMP. (F)	LAST IMPINGER TEMP.	VACUUM INCHES Hg.	
4-4 (18.1)	14.5	894.2	0.85	0.60	207	75	N/A	N/A	52	5	
	5	896.7	0.95	0.60	195	75			52	5	
	10	898.9	0.95	0.60	197	75			52	5	
(20.5)	15	901.3	1.0	0.60	175	75			52	5	
4-5	18.1	902.8	1.1	0.60	164	75			51	5	
	5	905.2	0.79	0.60	168	75			51	5	
	10	907.6	0.77	0.60	174	79			51	5	
(16.8)	15	910.1	0.72	0.60	176	79			52	5	
4-6	20.5	912.8	0.74	0.60	155	79			52	5	
	5	915.4	0.7	0.60	155	79			52	5	
	10	917.8	0.75	0.60	157	78			52	5	
(19.5)	15										
4-6	16.8	921.2	0.8	0.60	185	78			50	5	
	5	925.8	0.85	0.60	211	78			51	5	
	10	928.1	1.0	0.60	200	78			51	5	
4-5	17.5	931.6	0.85	0.60	187	78			51	5	End test
	15	932.960									
	10										
	17.5										

Directions to IPSCO

From Quad City Airport:

From Airport exit, turn right and follow signs to I-74 North

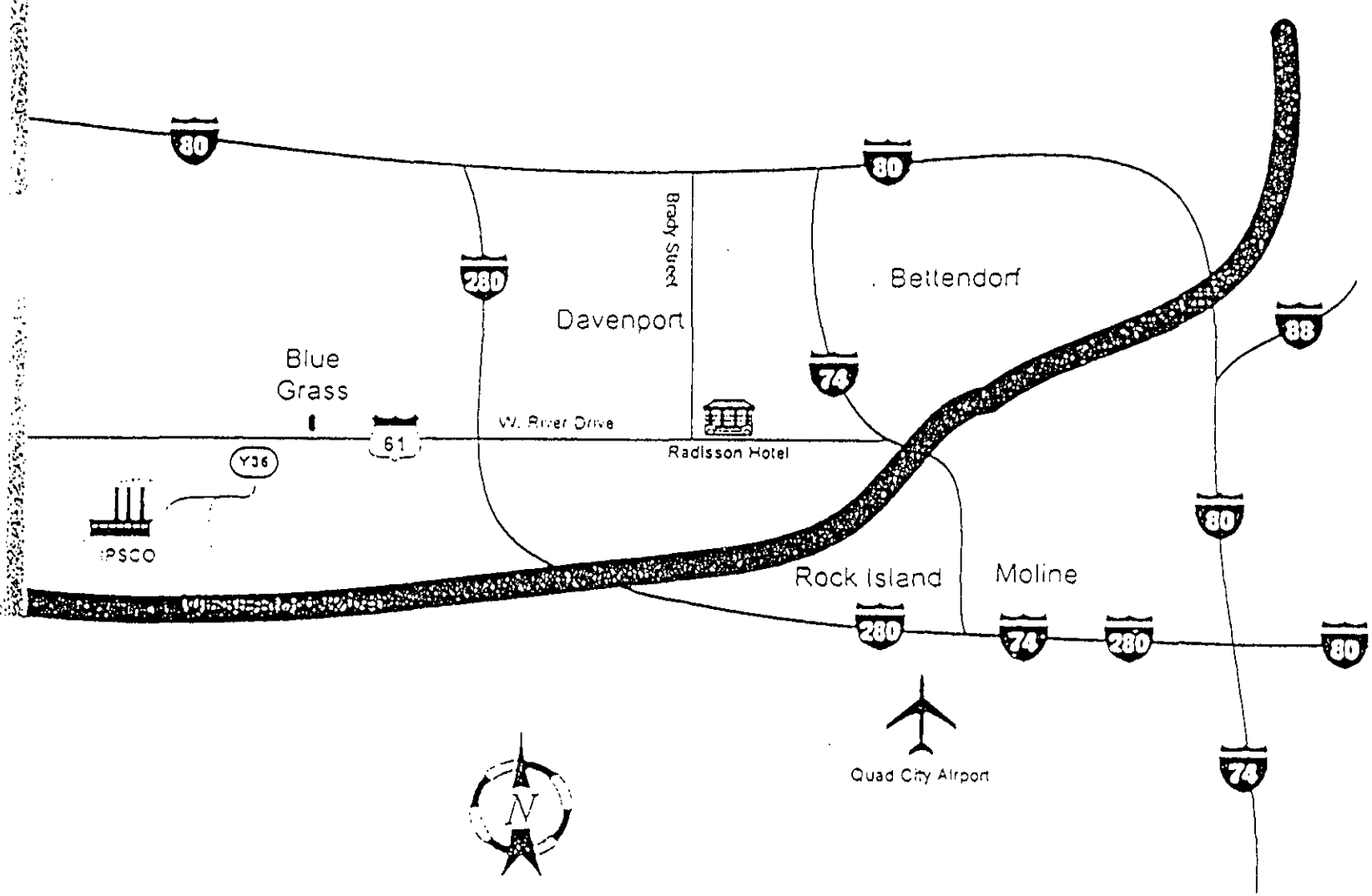
Take I-74 North to I-280 exit; proceed west to Highway 61 South exit

Proceed on Highway 61 to Y-36 (Zachary Av) - 5 miles; see following note

From Highway 61:

Proceed south on Y-36 (Zachary Av) 2-3 miles

Do not turn where Y-36 branches to the south; proceed straight to gate for auto entrance



PROPOSED TEST PLAN PROTOCOL

Company Name: IPSCO Steel (Plant Number 70-08-002)

Address: 1770 Bill Sharp Blvd., Muscatine, IA 52761

Name and Title of Contact: Stephanie Kreiter - Environmental Coordinator

Address of Contact: 1770 Bill Sharp Blvd., Muscatine, IA 52761

Telephone Number of Contact: (563) 381-5338

Proposed Test Date: July 13-15, 2004

Source Information

Type of Source: EAF/LMF Baghouse Exhaust Stack

Identification of Source to be tested: Baghouse Exhaust Stack

Permit Number of Source: 94-A-548-S3

Address of Source: 1770 Zachary Avenue

Initial Startup Date: 1998

Testing Firm Information

Name of Firm: Ambient Air Services, Inc.

Address: 106 Ambient Airway Starke, FL 32091

Name and Title of Contact: Joseph L. Cooksey - President

Telephone Number: (904) 964-8440

Number of Employees of Firm: 17

Number of Employees Engaged in Air Pollution Source Testing (Including Support Personnel): 17

Location and Description of Laboratory Facilities: 106 Ambient Airway Starke, FL 32091

Subcontractor(s) Utilized by Firm for Source Testing Activities: Columbia Analytical Services (Lead Samples)

Number of Air Pollution Sources Previously Tested by Firm: Testing since 1973 1000+

Types of Sources Previously Tested by Firm: Many different source types, considerable experience in the secondary steel industry.

PERFORMANCE TEST INFORMATION

List all pollutants to be sampled.

	Pollutant	Number of Sampling Points	Total Time per Test Run	Number of Test Runs	Test Methods to be Used
1	PM/Pb*	24*	4 hours *	3	1-5, 12
2	PM-10	24	4 hours **	3	1-4, 201a
3	NOx, CO, VOC, SO_2	1	2 heats (nominal 2 hours)	3	6C, 7E, 10, 25a
4					
5					

* PM/Pb to include an integral number of heat cycles.
** Proposed

For particulate or PM10 tests, indicate the length of each run to collect 50 milligrams of sample. Use the estimated emissions after control as the stack gas concentration.

When calculating the sample time, the length of each run should be such that a sample catch of 50 milligrams will be collected. Any variation from this must be pre-approved by the Department. Should the sample catch be less than 10 milligrams after applying the above method, the test may be subject to rejection or a 10 milligram sample weight may be assumed.

Include a description of any test procedures to be used in the conduct of the performance tests which differ from the specified method(s).

Use the space below for a drawing (or include separately) with the sampling location showing the stack or duct dimensions, air pollution control equipment, fans and location(s) of disturbances which affect the sampling location determination.

Axial fans and cyclone collectors generally cause flow conditions which are not suitable for testing and do not give reliable results. It is generally advisable to install flow straighteners in such situations. Please indicate if such problems are anticipated and what has been done to correct the flow problems prior to testing. Please refer to 40 CFR 60, Appendix A, Reference Method 2.

See test protocol

PROTOCOL SUPPLEMENT - OPERATING DATA

This form is to be filled out and returned with the test protocol.

Maximum Continuous Process Weight (Manufacturer's Rating): Existing - 164 TPH
Phase 1 - 200 TPH (Target Production for Test is Phase 1)
Phase 2 - 230 TPH

Historical Average Process Weight: Not yet established

Historical Maximum Process Weight: Plant is capable of up to 200 TPH but to date has achieved this for only short time periods.

Product Recycling Capability: Yes ____ (Heel) No X

Type of Sources of Fuels Normally Burned: Electric arc 420 KWH, 200 cu.ft. natural gas, 400 cu.ft. oxygen + 1200-1400 cu.ft. oxygen per liquid ton of steel.

Type of Control Equipment: Baghouse

Range of Pressure Drop Across Control Equipment: Currently operating at 4-6 Inches of Water

Person Responsible For This Data: Stephanie Kreiter

Person Responsible For Collecting Process Data During Actual Testing: Stephanie Kreiter

Complete and submit one of these forms for each test to be conducted. This information is especially important the determine to operating conditions of the equipment under which the tests will be conducted. The tests must be conducted while operating at maximum capacity or the highest capacity which this source will be operated. Failure to test at the permitted capacity may result in derating this source.

This information is also required to be submitted on the forms found at the end of the protocol package. These two forms, the Compliance Emission Test Operating Data and the Air Pollution Control Equipment Operating Data forms, must be filled out with the data collected on the actual date of the tests. Failure to complete the forms on the day of the testing may be cause for rejecting the tests.

SAFETY CONCERNS

List any special safety concerns, including possible hazardous chemical exposures, at your facility. This should include the area near the process being tested as well as the sampling location. Also include a list of personal safety equipment that will be required to audit the testing. Unexpected hazardous conditions are grounds for canceling testing.

PROTOCOL SUPPLEMENT

1) Copies of current calibration data must be available to the observer prior to the beginning of the test. This calibration data will include, but is not necessarily limited to the meter box, pitot tubes, and temperature gauges. If 0.84 is assumed for the pitot tube coefficient, it must be documented that the equipment meets the design criteria.

2) All equipment must be in good working order prior to arriving on site. Except for extraordinary circumstances, delays solely to broken equipment may result in the test being canceled by the observer. All glassware must be clean and free of especially for SO2, HCl and similar tests.

3) Unless specifically mentioned to the contrary in the test method or agreed to in writing in a pretest conference, glass-lined probes must be used for all tests. Spare liners must be available in case one or more is broken. The breaking of a glass liner is not an acceptable excuse for using steel liners. Particular attention should be paid to the probe and filter box heating elements.

4) Enough spare equipment should be on hand to replace any that should break down. If necessary this should include consoles. Delays due to broken equipment may be cause for canceling the test.

5) All members of the test crews should be familiar with the test methods in order to conduct the tests in strict accordance with the test methods.

6) No variations from the reference methods will be accepted in the field unless agreed to by the observer or by prior written agreement. The determination of whether the departure from the method will affect the test results will be made by the observer.

7) The Air Quality Bureau must be notified in writing by the affected facility at least 30 days prior to conducting any test that will be submitted for a compliance demonstration. This notification must be made by the source, not the consultant or contractor. Failure to notify the appropriate staff may result in the test being rejected. You should call Mark Stone at (515) 242-6001.

8) The two forms attached at the end of this protocol must be correctly and accurately filled out by the responsible plant personnel. One form concerns the production levels during the test. Tests are to be conducted at full capacity. If the tests are conducted at less than full capacity, the source may be limited to this level of production. The other form contains control equipment operating data. The appropriate section should be filled out. If the source does not have any control equipment, this should be indicated on the form. Both forms must be signed by a representative of the facility.

The following information shall be provided:

1. Sampling Equipment Information

   The manufacturer and model of the sampling equipment to be used by the tester for the performance tests, along with a description of any equipment which *may* differ from that required by the specified methods.

2. Test Procedures

   A description of any test procedures to be used in the conduct of the performance tests which *may* differ from the specified method(s).

3. Analytical Procedures

   A description of any analytical procedures which differ from the specified method(s).

4. Data Sheets

   A sample of all field data sheets which do not provide the data shown on the example sheets in. 40 CFR 60 for the specified method(s).

5. Air Pollution Control Equipment

   A description of the air pollution control equipment including as a minimum the following:

   a. Types and manufactures of all control equipment
   b. Design or guarantee efficiency
   c. Design gas volume at full load (acfm);
   d. Design pressure drop;
   e. Description of any preconditioning equipment;
   f. Normal operating conditions of air pollution control equipment;
   g. Normal maintenance schedule on control equipment, such as cleaning, replacement of components, checking for leaks, and repairs;
   h. Description of fly ash handling and disposal system; and
   i. Any problems with air pollution control equipment performance, operation, and maintenance.

SOURCE TEST REPORT FORMAT

I. **Cover** Should Indicate the name and location of the plant, the specific source tested, the name and address of the testing firm (or agency), and the month and year of the tests.

II. **Certification** A page including a certification by the test team leader that he is the person responsible for the test data, and one by the reviewer of the report (normally the supervisor of the team leader) attesting to the authenticity and accuracy of the report.

III. **Table of Contents**

IV. **Introduction**. Pertinent background information should be presented in this section. This information shall include, but not be limited to the following:

1. Name, address, and owner of plant;
2. Test purpose;
3. Name and address of testing organization;
4. Test dates;
5. Pollutants tested;
6. Names of persons present for tests (industry and agency); and
7. Any other important background information

V. **Summary of test results** A summary of the test result: necessary to evaluate the process With respect to the applicable emission standard(s) should be presented in this section. This information shall include, but not be limited to, the following:

1. A summary of the emission results;
2. Allowable emissions;
3. Isokinetic sampling rates, when applicable;
4. The operating level of the process during the tests;
5. A description of the collected samples; and
6. Discussion of errors, both real and apparent, in the tests.

VI. **Facility operation during testing** This section shall contain a description of the facility, including, but not limited to, the following:

1. General description of the facility, including the air pollution control equipment, and the process principle;
2. A discussion of the maximum and normal operating conditions;

3. Presentation of the process data for the tests, with calculations where necessary to show the production or burning rates, to demonstrate that the operating conditions are sufficiently representative of those required for testing. Calculation may be included in the Appendix;
4. Process and control equipment flow diagram; and
5. Any changes in operating conditions from those previously agreed upon by the source and agency.

VII. **Sampling and analytical procedures** A description of the sampling and analytical methods should be presented in this section. The information shall include, but not be limited to, the following:

1. A description of the sampling location(s) and sampling points;
2. Schematic drawings of the facility showing sampling location(s),major and minor flow disturbances, and stack or duct cross section(s) with the dimensions indicated;
3. A description of the sampling equipment;
4. Schematic drawings of the sampling trains (may be included in the Appendix);
5. A description of the sampling procedures, with a discussion of deviations from the standard methods, along with the sampling times;
6. A brief description of the analytical procedures, with a discussion of deviations from the standard methods; and
7. A description of the methods employed for other types of sampling and analyses, such as fuel.

VIII. **Appendix**

1. A summary of all data used in the calculations.
2. Calculations for all data submitted.
3. Copies of **all raw** field data sheets, (initialed by observer, where applicable) including those indicating sampling point locations,
4. Laboratory report, complete with analytical data sheets and chain of custody list.
5. Production and/or operational data, signed by a plant official if provided by the source.
6. Calibration procedures and work sheets for sampling equipment.
7. Copies of calibration records for plant or process Instrumentation.
8. Pertinent correspondence concerning the tests.
9. Any other information necessary to assist the agency in making a determination of compliance.

Compliance Emission Test
Operating Data

Owner: _____ **Date:** _____

Source: _____ **Permit #:** _____

Maximum Continuos Process Rate: (Manufacturer's Rating) _____

Historical Average Process Rate: _____

Historical Maximum Process Rate: _____

Types and Sources (if any) of Fuels Normally Burned: _____

Type of Fuel Burned During Test: _____

Approximate Quantities of Fuels used Annually: _____

Recycling Capability: ☐ YES ☐ NO
Recycling in Progress ☐ YES ☐ NO

Process Data During Runs

	Run 1	Run 2	Run 3
Process Rate wet** (gal/hr, lb/hr, tons/hr, ect.)			
% Moisture			
Process Rate dry** (gal/hr, lb/hr, tons/hr, ect.)			
How Process Rate was Determined			

Person Responsible for Data _____

Signature: _____

Title/Position: _____

** Please indicate in the same units as the historical information

AIR POLLUTION CONTROL EQUIPMENT OPERATING DATA

Plant _____ Location _____
Source Type _____ Rated Production _____
Date _____ Time _____ Actual Production _____
Air Flow Data _____ Run No. _____

Mechanical Collector:
Tube Dia. _____ in. Number of Tubes _____ Design Δp _____ in. H_2O Gas Temp _____ °F
Observed Δp _____ in H_2O Design cfm/tube @ Observed Δp _____ @ _____ °F
Fan Rated H.P. _____ Operating Volts _____ Operating Amps _____

Electrostatic Precipitator

Field No.	Primary Voltage (volts)	Primary Current (amps)	Secondary Voltage (KV)	Secondary Current (ma)	Spark Rate (per min)

Scrubber:
Type _____ Δp(across scrubber) _____ in H_2O
Fan Rated HP _____ Operating Volts _____ Operating Amps _____
Liquid Circulation Rate _____ gal/min. % Make-up _____ Blowdown _____ gpm
Scrubbing Water Change Interval _____
Settling Tank Cleaning Interval _____

Baghouse:
Pressure-Positive _____ Negative _____ No. Compartments _____
Type Cleaning _____ Clean Cycle _____ min
Avg. Baghouse Δp _____ in H_2O Δp Range _____
Fan: Rated H.P. _____ Operating Volts _____ Operating Amps _____

Cyclone:
Type _____ Δp _____ in H_2O Diameter _____
Fan Rated HP _____ Operating Volts _____ Operating Amps _____

Person Responsible for Data _____

Signature _____

Title/Position _____

* Averages of operating data taken during actual test run unless requested otherwise.

ipsco

June 3, 2004

Iowa Department of Natural Resources
Brian Hutchins
7900 Hickman Road
Suite 1
Urbandale, IA 50322

Re: IPSCO Steel Inc.
Facility No. 70-08-002
Pilot Project for Scrap Tires
Performance Test

Mr. Hutchins:

As requested in your February 10, 2004 letter, IPSCO would like to continue with the use of tires as a carbon substitute and will be performing the required performance test. By way of this letter we are providing the thirty-day required notice of the performance test, which will begin on Tuesday, July 13, 2004.

As per our conversation, this date is ten-weeks from the beginning of the tire trial and will be allowed. Also, please note, after speaking with Mark Stone, the NOx portion of this test will also constitute as our 3rd quarter NOx test. If you have any questions or concerns, please feel free to contact me at 563-381-5584. Thank you.

Sincerely,
IPSCO Steel Inc.

Stephanie J. Kreiter
Environmental Coordinator

ipsco steel inc.

770 Bill Sharp Boulevard, Muscatine, Iowa 52761
Phone (563) 381-5300 Fax (563) 381-5329

Cc: Richard Acquaviva – IPSCO
Wayne Schmidt - IPSCO
Tom Toner – IPSCO
Joe Cooksey – Ambient Air
Mark Stone – IDNR Stack Test Coordinator

APPENDIX B

Gaseous Emissions
(SO_2, NO_x, CO, VOC)

Sample Calculations
Data Logger Printout and Test Summary
Calibration Log
Calibration Gas Certificates

SO_2	23.89 ppm
	12.22 ppm
NO_x	45.10 ppm
	25.00 ppm
CO	505.30 ppm
	283.30 ppm
	150.30 ppm
Propane (VOC)	49.68 ppm
	25.50 ppm
	13.00 ppm

FLOW Traverse conducted for Run 3
(Run 1 and 2 flows from M5-Run1)

EXAMPLE CALCULATIONS FOR GASEOUS EMISSIONS

Calculations for Run 1 of the Sulfur Dioxide Test

Correction of SO_2 Concentrations for Instrument Drift

EPA Method 6C provides an equation for correcting the measured gaseous concentrations over a valid test run for instrument drift during the test run.

The EPA equation presented in Section 8 of EPA Method 6C is:

Cgas = (Cavg - Co)(Cma / (Cm - Co))

Where:

Cgas = Effluent gas concentration, dry basis, ppm.

Cavg = Average gas concentration indicated by the gas analyzer, ppm.

Co = Average of initial and final system calibration bias check responses for the zero gas, ppm.

Cm = Average of initial and final system calibration bias check responses for the upscale calibration gas, ppm.

Cma = Actual concentration of the upscale calibration gas, ppm.

Using the average for Run 1 of the SO_2 test:

Cavg = 0.86

From the Pre test / post test calibration

	Pre test +	Post Test	/ 2	
Co =	-0.3	-0.3	2	-0.3 ppm
Cm =	12.22	12.34	2	12.28 ppm

Cma = 12.7 ppm

Cgas = (Cavg - Co)(Cma / (Cm - Co))

	Cavg	Co	Cma	Cm	Co
Cgas =	0.86	-0.3	12.7	12.28	-0.3

Cgas = 1.17

Calculation of the Mass of SO_2 Emissions During the Test Run

The stack gas flow rate for each sampling run was measured using EPA Methods 1 through 3. Flow data in Appendix C presents the measured stack gas parameters and calculation of the stack gs flow rate for Run 1 of the SO2 test.

The average mass emission rate of a pollutant over a sampling run was calculated by using the following equation:

$$M = \frac{Cgas(avg) \times MW \times Q \times 60}{385.1 \times 10^6}$$

Where:

M	=	Average mass emission rate of the pollutant over the sampling run in lbs/hr.
Cgas(avg)	=	Average concentration of the stack gas during the sampling run in ppm. This concentration is expressed on a dry stack basis.
MW	=	Molecular weight of the pollutant in lbs/lb-mole.
Q	=	Stack gas flow rate during the sampling run in dry standard cubic feet per minute (dscfm).
385.1	=	Number of cubic feet occupied by one pound of gas at standard conditions (68° F and 29.92 in. Hg), assuming ideal gas behavior.
10^6	=	Conversion constant for parts per million to cubic feet of pollutant (1 ppm = 10^{-6} ft^3 pollutant / ft^3 stack gas)
60	=	Conversion constant for minutes to hours (1 hr = 60 Minutes)

Example Calculation:

For the SO2 test:

Cgas(avg) = 1.17 ppm (3 run average)

MW = 64 = 32 + 16 + 16

Flow SCFMD Avg:

Q = 783312 SCFMD

$$\frac{\text{Cgas(avg)}}{385.1} \times \frac{\text{MW}}{10^6} \times \text{Q} \times 60$$

$$M = \frac{\text{Cgas(avg)} \times \text{MW} \times \text{Q} \times 60}{3.85\text{E+08}}$$

$$M = \frac{1.171065 \times 64 \times 783312 \times 60}{3.85\text{E+08}}$$

M = 9.1 lbs/hr

SO2 pounds per hour to SO2 pounds per ton of steel produced (lbs/ton)

Steel Production	133 cast tons per hour
SO2 emissions	9.1 lbs/hr

SO2 lbs/ton = SO2 lbs/hr / production tons per hour

SO2 lbs/ton 0.07

EXAMPLE CALCULATIONS FOR GASEOUS EMISSIONS

Calculations for Run 1 of the Oxides of Nitrogen Test

Correction of NOx Concentrations for Instrument Drift

EPA Method 6C provides an equation for correcting the measured gaseous concentrations over a valid test run for instrument drift during the test run.

The EPA equation presented in Section 8 of EPA Method 6C is:

$$Cgas = (Cavg - Co)(Cma / (Cm - Co))$$

Where:

Cgas = Effluent gas concentration, dry basis, ppm.

Cavg = Average gas concentration indicated by the gas analyzer, ppm.

Co = Average of initial and final system calibration bias check responses for the zero gas, ppm.

Cm = Average of initial and final system calibration bias check responses for the upscale calibration gas, ppm.

Cma = Actual concentration of the upscale calibration gas, ppm.

Using the average for Run 1 of the NOx test:

Cavg = 10.6

From the Pre test / post test calibration

	Pre test +	Post Test	/ 2	
Co =	0.46	0.65	2	0.555 ppm
Cm =	25.26	25.52	2	25.39 ppm

Cma = 25 ppm

Cgas = (Cavg - Co)(Cma / (Cm - Co))

	Cavg	Co	Cma	Cm	Co
Cgas =	10.6	0.555	25	25.39	0.555

Cgas = 10.11

Calculation of the Mass of NOx Emissions During the Test Run

The stack gas flow rate for each sampling run was measured using EPA Methods 1 through 3. Flow data in Appendix C presents the measured stack gas parameters and calculation of the stack gs flow rate for Run 1 of the NOx test.

The average mass emission rate of a pollutant over a sampling run was calculated by using the following equation:

$$M = \frac{Cgas(avg) \times MW \times Q \times 60}{385.1 \times 10^{6}}$$

Where:

M	=	Average mass emission rate of the pollutant over the sampling run in lbs/hr.
Cgas(avg)	=	Average concentration of the stack gas during the sampling run in ppm. This concentration is expressed on a dry stack basis.
MW	=	Molecular weight of the pollutant in lbs/lb-mole.
Q	=	Stack gas flow rate during the sampling run in dry standard cubic feet per minute (dscfm).
385.1	=	Number of cubic feet occupied by one pound of gas at standard conditions (68° F and 29.92 in. Hg), assuming ideal gas behavior.
10^6	=	Conversion constant for parts per million to cubic feet of pollutant (1 ppm = 10^{-6} ft^3 pollutant / ft^3 stack gas)
60	=	Conversion constant for minutes to hours (1 hr = 60 Minutes)

Example Calculation:

For the NOx test:

Cgas(avg) = 10.11 ppm

MW = 46 = 14 + 16 + 16

Flow SCFMD Avg:

Q = 783312 SCFMD

$$\frac{\text{Cgas(avg)} \times \text{MW} \times \text{Q} \times 60}{385.1 \times 10^6}$$

$$M = \frac{\text{Cgas(avg)} \quad \text{MW} \quad \text{Q} \quad 60}{10.111737 \quad 46 \quad 783312 \quad 60} \over 3.85E+08$$

M = 56.8 lbs/hr

NOx pounds per hour to NOx pounds per ton of steel produced (lbs/ton)

Steel Production	133 cast tons per hour
NOx emissions	56.8 lbs/hr

NOx lbs/ton = NOx lbs/hr / production tons per hour

NOx lbs/ton 0.43

EXAMPLE CALCULATIONS FOR GASEOUS EMISSIONS

Calculations for Run 1 of the Carbon Monoxide Test

Correction of CO Concentrations for Instrument Drift

EPA Method 6C provides an equation for correcting the measured gaseous concentrations over a valid test run for instrument drift during the test run.

The EPA equation presented in Section 8 of EPA Method 6C is:

$$Cgas = (Cavg - Co)(Cma / (Cm - Co))$$

Where:

Cgas = Effluent gas concentration, dry basis, ppm.

Cavg = Average gas concentration indicated by the gas analyzer, ppm.

Co = Average of initial and final system calibration bias check responses for the zero gas, ppm.

Cm = Average of initial and final system calibration bias check responses for the upscale calibration gas, ppm.

Cma = Actual concentration of the upscale calibration gas, ppm.

Using the average for Run 1 of the CO test:

Cavg = 85.88

From the Pre test / post test calibration

	Pre test +	Post Test	/ 2	
Co =	-1.48	-1.23	2	-1.355 ppm
Cm =	153.47	158.4	2	155.935 ppm

Cma = 150.3 ppm

Cgas = (Cavg - Co)(Cma / (Cm - Co))

	Cavg	Co	Cma	Cm	Co
Cgas =	85.88	-1.355	150.3	155.935	-1.355

Cgas = 83.36

Calculation of the Mass of CO Emissions During the Test Run

The stack gas flow rate for each sampling run was measured using EPA Methods 1 through 3. Flow data in Appendix C presents the measured stack gas parameters and calculation of the stack gs flow rate for Run 1 of the CO test.

The average mass emission rate of a pollutant over a sampling run was calculated by using the following equation:

$$M = \frac{Cgas(avg) \times MW \times Q \times 60}{385.1 \times 10^{6}}$$

Where:

M	=	Average mass emission rate of the pollutant over the sampling run in lbs/hr.
Cgas(avg)	=	Average concentration of the stack gas during the sampling run in ppm. This concentration is expressed on a dry stack basis.
MW	=	Molecular weight of the pollutant in lbs/lb-mole.
Q	=	Stack gas flow rate during the sampling run in dry standard cubic feet per minute (dscfm).
385.1	=	Number of cubic feet occupied by one pound of gas at standard conditions (68° F and 29.92 in. Hg), assuming ideal gas behavior.
10^6	=	Conversion constant for parts per million to cubic feet of pollutant (1 ppm = 10^{-6} ft^3 pollutant / ft^3 stack gas)
60	=	Conversion constant for minutes to hours (1 hr = 60 Minutes)

Example Calculation:

For the CO test:

Cgas(avg) = 83.4 ppm

MW = 28 = 12 + 16

Q = 783312 SCFMD

$$\frac{Cgas(avg) \times MW \times Q \times 60}{385.1 \times 10^6}$$

M = Cgas(avg) MW Q

$$\frac{83.4 \quad 28 \quad 783312 \quad 60}{3.85E+08}$$

M = 284.9 lbs/hr

CO pounds per hour to CO pounds per ton of steel produced (lbs/ton)

Steel Production	133 cast tons per hour
CO emissions	284.9 lbs/hr

CO lbs/ton = CO lbs/hr / production tons per hour

CO lbs/ton 2.14

EXAMPLE CALCULATIONS FOR GASEOUS EMISSIONS

Calculations for Run 1 of the VOC Test

Correction of VOC (as Propane) Concentrations for Instrument Drift

EPA Method 6C provides an equation for correcting the measured gaseous concentrations over a valid test run for instrument drift during the test run.

The EPA equation presented in Section 8 of EPA Method 6C is:

$$Cgas = (Cavg - Co)(Cma / (Cm - Co))$$

Where:

Cgas = Effluent gas concentration, dry basis, ppm.

Cavg = Average gas concentration indicated by the gas analyzer, ppm.

Co = Average of initial and final system calibration bias check responses for the zero gas, ppm.

Cm = Average of initial and final system calibration bias check responses for the upscale calibration gas, ppm.

Cma = Actual concentration of the upscale calibration gas, ppm.

Using the average for Run 1 of the VOC (as Propane) test:

Cavg = 3.66

From the Pre test / post test calibration

	Pre test +	Post Test	/ 2	
Co =	-0.27	-0.39	2	-0.33 ppm
Cm =	25.14	25.02	2	25.08 ppm

Cma = 25.5 ppm

Cgas = (Cavg - Co)(Cma / (Cm - Co))

	Cavg	Co	Cma	Cm	Co
Cgas =	3.66	-0.33	25.5	25.08	-0.33

Cgas = 4.00

Calculation of the Mass of VOC (as Carbon) Emissions During the Test Run

The stack gas flow rate for each sampling run was measured using EPA Methods 1 through 3. Flow data in Appendix C presents the measured stack gas parameters and calculation of the stack gas flow rate for Run 1 of the VOC test.

The average mass emission rate of a pollutant over a sampling run was calculated by using the following equation:

$$M = \frac{Cgas(avg) \times MW \times Q \times 60}{385.1 \times 10^{6}}$$

Where:

M	=	Average mass emission rate of the pollutant over the sampling run in lbs/hr.
Cgas(avg)	=	Average concentration of the stack gas during the sampling run in ppm. This concentration is expressed on a dry stack basis.
MW	=	Molecular weight of the pollutant in lbs/lb-mole.
Q	=	Stack gas flow rate during the sampling run in dry standard cubic feet per minute (dscfm).
385.1	=	Number of cubic feet occupied by one pound of gas at standard conditions (68° F and 29.92 in. Hg), assuming ideal gas behavior.
10^6	=	Conversion constant for parts per million to cubic feet of pollutant (1 ppm = 10^{-6} ft^3 pollutant / ft^3 stack gas)
60	=	Conversion constant for minutes to hours (1 hr = 60 Minutes)

Example Calculation:

For the VOC test:

Cgas(avg)	=	4.00	ppm (as propane)	
Cgas(avg)	=	12.01	ppm (as carbon)	propane to carbon = propane concentration X 3
MW	=	12		
Q	=	805648	SCFMW	

$$\frac{\text{Cgas(avg)} \times \text{MW} \times \text{Q} \times 60}{385.1 \times 10^6}$$

$$\text{M} = \frac{\text{Cgas(avg)} \times \text{MW} \times \text{Q} \times 60}{3.85\text{E+08}}$$

$$\frac{12.01 \times 12 \times 805648 \times 60}{3.85\text{E+08}}$$

M = 18.1 lbs/hr

VOC emissions in pounds of VOC per ton of steel produced (lbs/ton)

Steel Production	133	cast tons per hour
VOC emissions	18.1	lbs/hr
lbs/ton	0.14	

IPSCO - Muscatine, Iowa - Gaseous Emissions Test Summary - 7/14/04

EAF Baghouse

	Uncorrected, PPM					BIAS CHECK RESULTS, AVERAGE RESPONSE, PPM												Corrected Concentration, PPM			
TimeStamp	NOx, ppm	CO, ppm	SO2, ppm	VOC, ppm	COMMENTS	Co, NOx	Cm, NOx	Cma, NOx	Co, CO	Cm, CO	Cma, CO	Co, SO2	Cm, SO2	Cma, SO2	Co, VOC	Cm, VOC	Cma, VOC	CORR PPM NOx	CORR PPM CO	CORR PPM SO2	CORR PPM VOC
7/14/2004 7:00	1.68	4.94	11.83	2.42																	
7/14/2004 7:01	3.57	4.69	11.39	2.75																	
7/14/2004 7:02	1.62	4.69	11.27	2.72																	
7/14/2004 7:03	1.27	4.69	10.99	2.51																	
7/14/2004 7:04	1.32	3.95	10.84	2.36																	
7/14/2004 7:05	2.06	3.70	10.70	2.36																	
7/14/2004 7:06	2.02	3.70	10.54	2.45																	
7/14/2004 7:07	2.04	3.70	10.35	2.48																	
7/14/2004 7:08	1.62	3.70	10.08	2.48																	
7/14/2004 7:09	1.41	3.70	10.03	2.48																	
7/14/2004 7:10	1.46	3.70	9.79	2.45																	
7/14/2004 7:11	1.47	3.70	9.61	2.36																	
7/14/2004 7:12	1.36	3.45	9.37	2.33																	
7/14/2004 7:13	1.37	3.70	9.29	2.39																	
7/14/2004 7:14	1.27	3.95	9.30	2.36																	
7/14/2004 7:15	1.23	3.95	9.11	2.39																	
7/14/2004 7:16	1.21	3.95	9.05	2.33																	
7/14/2004 7:17	0.95	2.71	8.89	1.18																	
7/14/2004 7:18	0.57	127.07	8.30	-0.33																	
7/14/2004 7:19	0.51	246.24	8.26	-0.33																	
7/14/2004 7:20	0.47	395.01	8.04	-0.39																	
7/14/2004 7:21	0.47	503.33	7.61	-0.39																	
7/14/2004 7:22	0.46	501.85	7.32	-0.36																	
7/14/2004 7:23	0.46	500.61	7.22	-0.33																	
7/14/2004 7:24	0.48	505.30	7.29	9.06	505.3 CO																
	0.48	505.30	7.29	9.06	505.3 CO Average																
7/14/2004 7:25	0.46	339.50	7.11	47.10																	
7/14/2004 7:26	0.46	24.67	6.96	47.28	49.68 VOC																
	0.46	24.67	6.96	47.28	49.68 VOC Average																
7/14/2004 7:27	0.47	-0.99	5.27	45.83																	
7/14/2004 7:28	0.46	-1.48	-0.30	24.71																	
7/14/2004 7:29	0.46	-1.48	-0.30	25.14	25.5 VOC/0 NOx, SO2, CO																
	0.46	-1.48	-0.30	25.14	25 VOC/0 NOx, SO2, CO Average																
7/14/2004 7:30	0.46	-1.23	-0.30	25.08																	
7/14/2004 7:31	0.46	-1.48	-0.30	25.05																	
7/14/2004 7:32	16.46	-1.48	-0.30	13.21	13 VOC																
	16.46	-1.48	-0.30	13.21	13 VOC Average																
7/14/2004 7:33	44.22	-0.74	-0.30	-0.27																	
7/14/2004 7:34	45.08	-1.97	-0.30	-0.27	45.1 NOx/0 Voc																
	45.08	-1.97	-0.30	-0.27	45.1 NOx/0 Voc Average																
7/14/2004 7:35	45.05	-2.47	-0.30	-0.27																	
7/14/2004 7:36	30.30	-0.25	-0.30	-0.30																	
7/14/2004 7:37	25.25	-2.47	-0.30	-0.33																	
7/14/2004 7:38	25.26	-1.97	-0.30	-0.27	25 NOx																
	25.26	-1.97	-0.30	-0.27	25 NOx Average																
7/14/2004 7:39	24.67	-1.97	-0.30	-0.09																	
7/14/2004 7:40	4.89	-1.73	0.32	-0.09																	
7/14/2004 7:41	0.51	-2.47	1.52	-0.18																	
7/14/2004 7:42	0.67	0.49	2.11	0.12																	
7/14/2004 7:43	0.78	2.47	0.19	1.60																	
7/14/2004 7:44	0.88	2.47	-0.18	1.57																	
7/14/2004 7:45	0.63	0.99	13.09	-0.03																	
7/14/2004 7:46	0.63	5.43	12.10	-0.18																	
7/14/2004 7:47	0.56	198.12	-0.30	-0.30																	
7/14/2004 7:48	0.43	291.88	-0.30	-0.39	283.3 CO																
	0.43	291.88	-0.30	-0.39	283.3 CO Average																
7/14/2004 7:49	0.51	294.10	1.39	-0.33																	
7/14/2004 7:50	0.44	145.57	19.55	-0.30																	
7/14/2004 7:51	0.43	3.45	22.26	-0.21																	
7/14/2004 7:52	0.49	-0.49	23.92	-0.15	23.89 SO2																
	0.49	-0.49	23.92	-0.15	23.89 SO2 Average																
7/14/2004 7:53	0.49	-0.25	20.64	-0.03																	
7/14/2004 7:54	0.43	77.97	2.67	-0.45																	
7/14/2004 7:55	0.48	153.47	0.53	-0.39	150.3 CO																
	0.48	153.47	0.53	-0.39	150.3 CO Average																
7/14/2004 7:56	0.48	134.22	5.74	-0.27																	
7/14/2004 7:57	0.44	19.25	11.84	-0.12																	
7/14/2004 7:58	0.52	-0.49	12.22	0.06	12.22 SO2																
	0.52	-0.49	12.22	0.06	12.22 SO2 Average																
7/14/2004 7:59	0.57	-0.25	11.77	0.54																	
7/14/2004 8:00	0.94	1.97	2.54	2.09																	
7/14/2004 8:01	0.95	2.96	0.51	2.63																	
7/14/2004 8:02	0.94	2.96	0.17	2.84																	
7/14/2004 8:03	0.99	3.70	0.04	3.02																	
7/14/2004 8:04	0.94	2.47	-0.08	3.08																	
7/14/2004 8:05	0.86	3.70	-0.24	3.26																	
7/14/2004 8:06	2.07	12.58	-0.25	5.35																	
7/14/2004 8:07	2.96	32.08	0.00	3.96																	

IPSCO - Muscatine, Iowa - Gaseous Emissions Test Summary - 7/14/04

EAF Baghouse

	Uncorrected, PPM					BIAS CHECK RESULTS, AVERAGE RESPONSE, PPM												Corrected Concentration, PPM			
TimeStamp	NOx, ppm	CO, ppm	SO2, ppm	VOC, ppm	COMMENTS	Co, NOx	Cm, NOx	Cma, NOx	Co, CO	Cm, CO	Cma, CO	Co, SO2	Cm, SO2	Cma, SO2	Co, VOC	Cm, VOC	Cma, VOC	CORR PPM NOx	CORR PPM CO	CORR PPM SO2	CORR PPM VOC
7/14/2004 8:08	2.15	17.76	-0.08	3.90																	
7/14/2004 8:09	1.96	15.05	-0.27	4.38																	
7/14/2004 8:10	1.62	23.44	-0.14	5.29																	
7/14/2004 8:11	1.59	24.43	-0.20	4.71																	
7/14/2004 8:12	1.48	19.49	-0.27	4.74																	
7/14/2004 8:13	1.53	18.75	-0.30	4.44																	
7/14/2004 8:14	1.51	15.79	-0.30	4.11																	
7/14/2004 8:15	1.49	13.08	-0.30	3.87																	
7/14/2004 8:16	3.08	22.45	-0.30	4.62																	
7/14/2004 8:17	3.43	30.59	-0.30	3.66	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	2.9	30.5	0.0	4.0
7/14/2004 8:18	4.39	13.57	-0.30	2.99	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	3.9	14.3	0.0	3.3
7/14/2004 8:19	5.44	10.12	-0.27	2.63	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	4.9	11.0	0.0	3.0
7/14/2004 8:20	5.00	12.09	-0.11	2.15	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	4.5	12.9	0.2	2.5
7/14/2004 8:21	4.66	9.62	0.27	2.09	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	4.1	10.5	0.6	2.4
7/14/2004 8:22	5.64	16.78	0.33	2.51	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	5.1	17.3	0.6	2.8
7/14/2004 8:23	6.17	34.54	0.33	3.32	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	5.6	34.3	0.6	3.7
7/14/2004 8:24	5.47	37.26	0.63	3.60	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	4.9	36.9	0.9	3.9
7/14/2004 8:25	3.05	52.31	1.18	3.60	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	2.5	51.3	1.5	3.9
7/14/2004 8:26	2.42	70.32	1.86	3.72	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.9	68.5	2.2	4.1
7/14/2004 8:27	1.75	64.40	1.99	3.20	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.2	62.8	2.3	3.5
7/14/2004 8:28	1.97	57.73	1.98	3.02	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.4	56.5	2.3	3.4
7/14/2004 8:29	2.21	67.60	2.15	2.81	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.7	65.9	2.5	3.2
7/14/2004 8:30	2.85	80.93	2.27	3.63	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	2.3	78.6	2.6	4.0
7/14/2004 8:31	2.68	74.51	1.31	5.62	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	2.1	72.5	1.6	6.0
7/14/2004 8:32	2.80	74.76	0.80	6.71	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	2.3	72.7	1.1	7.1
7/14/2004 8:33	2.96	50.09	0.27	4.68	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	2.4	49.2	0.6	5.0
7/14/2004 8:34	2.96	32.82	0.09	5.62	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	2.4	32.7	0.4	6.0
7/14/2004 8:35	2.99	36.27	0.11	5.14	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	2.4	36.0	0.4	5.5
7/14/2004 8:36	2.83	29.61	-0.17	4.65	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	2.3	29.6	0.1	5.0
7/14/2004 8:37	2.85	24.67	-0.07	4.77	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	2.3	24.9	0.2	5.1
7/14/2004 8:38	2.69	32.82	-0.15	5.26	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	2.1	32.7	0.1	5.6
7/14/2004 8:39	2.34	38.49	-0.24	6.13	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.8	38.1	0.1	6.5
7/14/2004 8:40	2.41	69.82	-0.28	5.50	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.9	68.0	0.0	5.8
7/14/2004 8:41	4.27	57.24	-0.29	3.78	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	3.7	56.0	0.0	4.1
7/14/2004 8:42	5.24	13.82	-0.30	4.14	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	4.7	14.5	0.0	4.5
7/14/2004 8:43	5.07	16.53	0.04	4.26	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	4.5	17.1	0.3	4.6
7/14/2004 8:44	4.69	34.79	0.96	4.32	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	4.2	34.5	1.3	4.7
7/14/2004 8:45	4.95	61.68	1.42	4.50	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	4.4	60.2	1.7	4.8
7/14/2004 8:46	4.84	73.03	1.74	4.47	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	4.3	71.1	2.1	4.8
7/14/2004 8:47	4.64	76.98	2.21	3.93	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	4.1	74.9	2.5	4.3
7/14/2004 8:48	3.84	119.66	1.96	3.54	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	3.3	115.6	2.3	3.9
7/14/2004 8:49	2.50	109.05	1.50	2.84	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	2.0	105.5	1.8	3.2
7/14/2004 8:50	1.96	90.06	1.42	2.72	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.4	87.3	1.7	3.1
7/14/2004 8:51	1.75	94.99	0.92	2.63	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.2	92.1	1.2	3.0
7/14/2004 8:52	1.69	86.36	0.53	2.66	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.1	83.8	0.8	3.0
7/14/2004 8:53	1.86	81.17	0.44	3.08	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.3	78.9	0.7	3.4
7/14/2004 8:54	1.85	96.47	0.58	3.05	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.3	93.5	0.9	3.4
7/14/2004 8:55	1.37	94.99	0.50	2.99	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	0.8	92.1	0.8	3.3
7/14/2004 8:56	1.37	83.15	0.30	2.99	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	0.8	80.7	0.6	3.3
7/14/2004 8:57	1.48	83.89	0.23	2.72	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	0.9	81.5	0.5	3.1
7/14/2004 8:58	4.56	79.69	0.21	2.81	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	4.0	77.4	0.5	3.2
7/14/2004 8:59	1.98	53.54	0.02	2.81	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.4	52.5	0.3	3.2
7/14/2004 9:00	1.33	49.35	-0.12	2.75	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	0.8	48.4	0.2	3.1
7/14/2004 9:01	1.35	121.64	-0.17	2.57	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	0.8	117.5	0.1	2.9
7/14/2004 9:02	1.27	122.13	-0.30	2.63	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	0.7	118.0	0.0	3.0
7/14/2004 9:03	1.36	143.35	-0.30	2.75	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	0.8	138.3	0.0	3.1
7/14/2004 9:04	1.30	135.21	-0.30	2.84	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	0.7	130.5	0.0	3.2
7/14/2004 9:05	1.30	103.87	-0.27	2.87	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	0.7	100.6	0.0	3.2
7/14/2004 9:06	1.48	93.76	-0.30	2.93	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	0.9	90.9	0.0	3.3
7/14/2004 9:07	1.81	124.60	-0.30	2.84	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.3	120.4	0.0	3.2
7/14/2004 9:08	1.94	103.38	-0.30	2.99	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.4	100.1	0.0	3.3
7/14/2004 9:09	2.15	52.31	-0.30	3.02	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.6	51.3	0.0	3.4
7/14/2004 9:10	3.13	40.71	-0.30	3.08	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	2.6	40.2	0.0	3.4
7/14/2004 9:11	8.49	49.84	-0.30	3.29	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	8.0	48.9	0.0	3.6
7/14/2004 9:12	10.97	17.52	-0.30	3.32	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	10.5	18.0	0.0	3.7
7/14/2004 9:13	4.23	63.16	-0.30	3.32	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	3.7	61.7	0.0	3.7
7/14/2004 9:14	4.91	78.95	-0.30	3.44	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	4.4	76.7	0.0	3.8
7/14/2004 9:15	7.59	19.74	-0.30	3.35	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	7.1	20.2	0.0	3.7
7/14/2004 9:16	7.82	16.78	-0.30	3.02	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	7.3	17.3	0.0	3.4
7/14/2004 9:17	9.57	42.93	0.08	2.57	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	9.1	42.3	0.4	2.9
7/14/2004 9:18	22.16	9.36	1.27	2.66	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	21.8	10.3	1.6	3.0
7/14/2004 9:19	21.40	5.68	0.10	3.11	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	21.0	6.7	0.4	3.5
7/14/2004 9:20	27.06	14.31	-0.17	3.63	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	26.7	15.0	0.1	4.0
7/14/2004 9:21	26.48	22.21	-0.30	4.17	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	26.1	22.5	0.0	4.5
7/14/2004 9:22	28.74	65.14	-0.05	4.05	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	28.4	63.5	0.2	4.4
7/14/2004 9:23	34.54	37.01	-0.28	3.69	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	34.2	36.7	0.0	4.0
7/14/2004 9:24	42.34	40.48	-0.24	3.75	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	42.1	40.0	0.1	4.1
7/14/2004 9:25	41.62	56.01	-0.10	2.30	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	41.3	54.8	0.2	2.6
7/14/2004 9:26	38.92	16.28	0.24	2.12	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	38.6	16.9	0.5	2.5

IPSCO - Muscatine, Iowa - Gaseous Emissions Test Summary - 7/14/04

EAF Baghouse

	Uncorrected, PPM					BIAS CHECK RESULTS, AVERAGE RESPONSE, PPM												Corrected Concentration, PPM			
TimeStamp	NOx, ppm	CO, ppm	SO2, ppm	VOC, ppm	COMMENTS	Co, NOx	Cm, NOx	Cma, NOx	Co, CO	Cm, CO	Cma, CO	Co, SO2	Cm, SO2	Cma, SO2	Co, VOC	Cm, VOC	Cma, VOC	CORR PPM NOx	CORR PPM CO	CORR PPM SO2	CORR PPM VOC
7/14/2004 9:27	37.21	9.87	0.28	2.12	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	36.9	10.7	0.6	2.5
7/14/2004 9:28	38.27	10.12	0.15	2.18	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	38.0	11.0	0.5	2.5
7/14/2004 9:29	36.82	11.60	-0.29	2.42	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	36.5	12.4	0.0	2.8
7/14/2004 9:30	33.69	15.05	-0.30	4.56	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	33.4	15.7	0.0	4.9
7/14/2004 9:31	34.53	69.58	-0.26	5.35	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	34.2	67.8	0.0	5.7
7/14/2004 9:32	31.26	102.15	-0.30	6.68	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	30.9	98.9	0.0	7.0
7/14/2004 9:33	30.61	131.75	-0.30	6.25	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	30.2	127.2	0.0	6.6
7/14/2004 9:34	27.39	163.58	-0.30	6.41	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	27.0	157.6	0.0	6.8
7/14/2004 9:35	20.32	148.28	-0.30	5.68	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	19.9	143.0	0.0	6.0
7/14/2004 9:36	20.37	128.05	-0.30	5.05	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	19.9	123.7	0.0	5.4
7/14/2004 9:37	21.32	76.49	-0.30	4.56	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	20.9	74.4	0.0	4.9
7/14/2004 9:38	19.64	88.82	-0.30	4.96	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	19.2	86.2	0.0	5.3
7/14/2004 9:39	18.97	118.92	-0.30	4.99	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	18.5	114.9	0.0	5.3
7/14/2004 9:40	22.32	179.62	-0.30	4.77	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	21.9	172.9	0.0	5.1
7/14/2004 9:41	12.76	152.23	-0.30	5.41	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	12.3	146.8	0.0	5.8
7/14/2004 9:42	5.63	64.40	-0.30	5.44	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	5.1	62.6	0.0	5.8
7/14/2004 9:43	4.33	57.73	-0.30	9.34	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	3.8	56.5	0.0	9.7
7/14/2004 9:44	5.55	117.69	-0.30	7.07	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	5.0	113.8	0.0	7.4
7/14/2004 9:45	7.23	85.86	0.71	3.93	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	6.7	83.3	1.0	4.3
7/14/2004 9:46	6.87	30.35	2.45	5.32	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	6.4	30.3	2.8	5.7
7/14/2004 9:47	5.98	48.11	4.24	6.01	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	5.5	47.3	4.6	6.4
7/14/2004 9:48	4.74	80.93	2.99	6.53	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	4.2	78.6	3.3	6.9
7/14/2004 9:49	6.64	137.67	1.10	6.16	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	6.1	132.8	1.4	6.5
7/14/2004 9:50	4.89	132.99	3.25	6.35	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	4.4	128.4	3.6	6.7
7/14/2004 9:51	4.92	136.19	6.24	5.29	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	4.4	131.4	6.6	5.6
7/14/2004 9:52	2.53	118.43	7.00	3.29	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	2.0	114.5	7.4	3.6
7/14/2004 9:53	1.91	151.74	5.78	2.21	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.4	146.3	6.1	2.5
7/14/2004 9:54	1.57	163.33	2.34	2.24	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.0	157.4	2.7	2.6
7/14/2004 9:55	1.28	162.59	0.99	2.06	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	0.7	156.7	1.3	2.4
7/14/2004 9:56	1.37	173.20	0.01	2.21	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	0.8	166.8	0.3	2.5
7/14/2004 9:57	1.49	192.94	-0.09	2.15	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	0.9	185.7	0.2	2.5
7/14/2004 9:58	1.49	230.44	-0.22	2.48	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	0.9	221.5	0.1	2.8
7/14/2004 9:59	1.58	233.65	-0.30	2.78	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.0	224.6	0.0	3.1
7/14/2004 10:00	1.72	186.53	-0.30	2.69	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.2	179.5	0.0	3.0
7/14/2004 10:01	2.27	188.25	-0.30	2.60	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.7	181.2	0.0	2.9
7/14/2004 10:02	2.27	220.82	-0.30	2.63	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.7	212.3	0.0	3.0
7/14/2004 10:03	2.26	172.22	-0.30	2.69	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.7	165.9	0.0	3.0
7/14/2004 10:04	2.23	132.74	-0.30	2.57	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.7	128.1	0.0	2.9
7/14/2004 10:05	2.11	130.27	-0.30	2.66	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.6	125.8	0.0	3.0
7/14/2004 10:06	1.88	135.70	-0.30	2.57	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.3	131.0	0.0	2.9
7/14/2004 10:07	1.79	160.13	-0.30	2.33	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.2	154.3	0.0	2.7
7/14/2004 10:08	1.97	178.39	0.21	2.15	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.4	171.7	0.5	2.5
7/14/2004 10:09	1.72	238.59	1.15	2.15	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	1.2	229.3	1.5	2.5
7/14/2004 10:10	2.78	202.56	0.36	2.33	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	2.2	194.8	0.7	2.7
7/14/2004 10:11	4.34	121.14	0.33	2.21	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	3.8	117.1	0.6	2.5
7/14/2004 10:12	6.49	63.41	1.64	1.99	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	6.0	61.9	2.0	2.3
7/14/2004 10:13	6.07	58.23	2.31	2.06	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	5.5	56.9	2.6	2.4
7/14/2004 10:14	3.32	149.76	1.62	2.27	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	2.8	144.4	1.9	2.6
7/14/2004 10:15	6.53	121.39	1.54	2.21	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	6.0	117.3	1.9	2.5
7/14/2004 10:16	4.87	123.61	1.80	2.30	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	4.3	119.4	2.1	2.6
7/14/2004 10:17	7.75	132.49	2.35	1.84	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	7.2	127.9	2.7	2.2
7/14/2004 10:18	19.00	46.88	2.03	2.42	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	18.6	46.1	2.4	2.8
7/14/2004 10:19	24.73	43.67	5.88	3.99	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	24.3	43.0	6.2	4.3
7/14/2004 10:20	28.71	109.05	6.19	5.17	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	28.3	105.5	6.6	5.5
7/14/2004 10:21	32.23	83.39	4.36	7.89	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	31.9	81.0	4.7	8.2
7/14/2004 10:22	36.23	114.98	3.05	10.48	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	35.9	111.2	3.4	10.9
7/14/2004 10:23	45.33	138.42	3.02	4.20	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	45.1	133.6	3.4	4.5
7/14/2004 10:24	42.76	68.34	3.79	2.42	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	42.5	66.6	4.1	2.8
7/14/2004 10:25	40.60	60.20	5.05	1.36	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	40.3	58.8	5.4	1.7
7/14/2004 10:26	40.20	40.71	5.98	1.24	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	39.9	40.2	6.3	1.6
7/14/2004 10:27	41.63	29.85	6.48	1.36	Run 1	0.6	25.4	25.0	-1.4	155.9	150.3	-0.3	12.3	12.7	-0.3	25.1	25.5	41.4	29.8	6.6	1.7
	10.60	85.88	0.86	3.66	Run 1 Average													10.11	83.36	1.17	4.00
7/14/2004 10:28	18.55	19.25	1.21	24.08																	
7/14/2004 10:29	0.91	0.74	-0.30	25.02																	
7/14/2004 10:30	0.65	-1.23	-0.30	25.02	25.5 VOC/0 NOx, SO2, CO																
	0.65	-1.23	-0.30	25.02	25.5 VOC/0 NOx, SO2, CO Average																
7/14/2004 10:31	0.63	10.61	-0.30	7.98																	
7/14/2004 10:32	0.63	125.09	-0.30	-0.39																	
7/14/2004 10:33	0.60	158.40	-0.30	-0.39	150.3 CO/0 VOC																
	0.60	158.40	-0.30	-0.39	150.3 CO/0 VOC Average																
7/14/2004 10:34	0.72	154.95	-0.30	-0.39																	
7/14/2004 10:35	20.95	69.82	-0.30	-0.39																	
7/14/2004 10:36	25.52	0.99	-0.30	-0.39	25 NOX																
	25.52	0.99	-0.30	-0.39	25 NOX Average																
7/14/2004 10:37	11.66	-1.97	2.73	-0.39																	
7/14/2004 10:38	0.72	-1.48	6.08	-0.39																	
7/14/2004 10:39	0.58	-1.48	7.13	-0.39																	
7/14/2004 10:40	0.54	-1.48	8.50	-0.39																	
7/14/2004 10:41	0.54	-1.73	9.48	-0.36																	

IPSCO - Muscatine, Iowa - Gaseous Emissions Test Summary - 7/14/04

EAF Baghouse

	Uncorrected, PPM					BIAS CHECK RESULTS, AVERAGE RESPONSE, PPM												Corrected Concentration, PPM			
TimeStamp	NOx, ppm	CO, ppm	SO2, ppm	VOC, ppm	COMMENTS	Co, NOx	Cm, NOx	Cma, NOx	Co, CO	Cm, CO	Cma, CO	Co, SO2	Cm, SO2	Cma, SO2	Co, VOC	Cm, VOC	Cma, VOC	CORR PPM NOx	CORR PPM CO	CORR PPM SO2	CORR PPM VOC
7/14/2004 10:42	0.54	-1.48	11.04	-0.27																	
7/14/2004 10:43	0.54	-1.73	11.97	-0.27																	
7/14/2004 10:44	0.54	-2.22	12.34	-0.21	12.7 SO2																
	0.54	-2.22	12.34	-0.21	12.7 SO2 Average																
7/14/2004 10:45	*3.02*	*0.49*	*11.40*	*2.21*																	
7/14/2004 10:46	29.40	15.54	6.08	5.83																	
7/14/2004 10:47	31.61	48.61	6.47	5.68																	
7/14/2004 10:48	30.96	47.13	4.42	5.08																	
7/14/2004 10:49	26.74	37.01	6.24	5.11																	
7/14/2004 10:50	30.84	38.74	8.15	3.51																	
7/14/2004 10:51	23.27	47.13	9.64	2.93																	
7/14/2004 10:52	27.20	66.86	12.69	2.54																	
7/14/2004 10:53	32.59	79.20	13.87	2.42																	
7/14/2004 10:54	34.64	51.81	15.57	2.54																	
7/14/2004 10:55	31.89	108.31	15.37	2.15																	
7/14/2004 10:56	30.69	112.26	16.12	2.12																	
7/14/2004 10:57	33.69	89.32	16.26	2.18																	
7/14/2004 10:58	31.79	60.70	16.58	2.27																	
7/14/2004 10:59	30.80	104.37	16.05	2.21																	
7/14/2004 11:00	35.01	65.63	10.68	2.57																	
7/14/2004 11:01	34.32	48.85	8.30	2.48																	
7/14/2004 11:02	35.12	44.91	6.99	2.63																	
7/14/2004 11:03	35.33	36.02	3.09	2.96																	
7/14/2004 11:04	27.72	70.32	2.84	2.45																	
7/14/2004 11:05	31.79	123.12	3.05	2.99																	
7/14/2004 11:06	36.65	70.81	1.99	3.11																	
7/14/2004 11:07	39.70	42.44	2.62	3.08																	
7/14/2004 11:08	44.87	35.78	4.06	3.05																	
7/14/2004 11:09	35.77	38.00	4.37	2.87																	
7/14/2004 11:10	22.66	46.88	3.99	2.72																	
7/14/2004 11:11	29.17	27.39	7.14	2.21																	
7/14/2004 11:12	21.17	29.61	6.42	2.12																	
7/14/2004 11:13	11.23	46.14	5.52	1.96																	
7/14/2004 11:14	14.15	78.95	13.86	1.78																	
7/14/2004 11:15	11.26	267.21	23.51	2.12																	
7/14/2004 11:16	9.87	217.37	21.44	2.96																	
7/14/2004 11:17	19.44	119.17	20.87	4.99																	
7/14/2004 11:18	21.24	134.47	15.81	6.65																	
7/14/2004 11:19	28.76	134.47	16.58	2.78																	
7/14/2004 11:20	26.07	59.46	18.12	1.48	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	25.8	57.8	18.7	1.8
7/14/2004 11:21	23.40	57.73	15.92	1.30	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	23.1	56.2	16.4	1.6
7/14/2004 11:22	9.99	29.11	10.95	1.39	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	9.5	28.9	11.4	1.7
7/14/2004 11:23	7.34	35.53	17.65	4.20	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	6.8	35.0	18.2	4.5
7/14/2004 11:24	7.56	68.34	27.75	5.62	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	7.0	66.3	28.6	6.0
7/14/2004 11:25	7.64	97.46	32.18	6.56	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	7.1	94.0	33.1	6.9
7/14/2004 11:26	6.95	118.68	22.33	6.38	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	6.4	114.2	23.0	6.7
7/14/2004 11:27	5.06	118.68	15.23	4.74	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	4.5	114.2	15.7	5.1
7/14/2004 11:28	5.55	139.90	14.75	3.48	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	5.0	134.4	15.2	3.8
7/14/2004 11:29	9.14	169.26	10.58	3.93	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	8.6	162.4	11.0	4.3
7/14/2004 11:30	15.27	153.22	5.69	4.53	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	14.8	147.1	6.0	4.9
7/14/2004 11:31	13.01	163.58	3.85	4.35	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	12.5	157.0	4.1	4.7
7/14/2004 11:32	14.43	172.71	4.03	3.72	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	14.0	165.7	4.3	4.0
7/14/2004 11:33	19.63	129.29	2.71	3.75	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	19.2	124.3	2.9	4.1
7/14/2004 11:34	18.00	126.82	1.80	4.35	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	17.6	122.0	2.0	4.7
7/14/2004 11:35	20.54	65.63	1.29	5.59	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	20.2	63.7	1.5	5.9
7/14/2004 11:36	21.96	64.89	0.57	6.56	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	21.6	63.0	0.7	6.9
7/14/2004 11:37	25.94	107.08	0.55	6.10	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	25.6	103.2	0.7	6.4
7/14/2004 11:38	25.56	72.29	1.51	6.25	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	25.3	70.0	1.7	6.6
7/14/2004 11:39	20.60	42.93	1.32	7.10	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	20.2	42.1	1.5	7.4
7/14/2004 11:40	21.17	46.14	4.50	6.25	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	20.8	45.1	4.8	6.6
7/14/2004 11:41	27.79	57.49	9.51	5.98	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	27.5	55.9	9.9	6.3
7/14/2004 11:42	19.76	122.13	7.57	5.17	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	19.4	117.5	7.9	5.5
7/14/2004 11:43	17.11	173.94	6.22	4.77	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	16.7	166.9	6.5	5.1
7/14/2004 11:44	16.57	217.37	4.14	3.57	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	16.1	208.2	4.4	3.9
7/14/2004 11:45	15.93	257.83	3.29	3.14	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	15.5	246.8	3.5	3.5
7/14/2004 11:46	14.72	320.01	3.80	2.84	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	14.3	306.0	4.0	3.2
7/14/2004 11:47	13.30	299.04	6.09	2.48	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	12.8	286.0	6.4	2.8
7/14/2004 11:48	13.78	226.50	9.91	2.54	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	13.3	216.9	10.3	2.9
7/14/2004 11:49	13.38	222.30	12.38	2.45	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	12.9	212.9	12.8	2.8
7/14/2004 11:50	15.95	211.45	8.36	2.87	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	15.5	202.6	8.7	3.2
7/14/2004 11:51	15.80	217.12	7.01	2.57	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	15.4	208.0	7.3	2.9
7/14/2004 11:52	17.78	231.43	8.84	2.54	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	17.4	221.6	7.2	2.9
7/14/2004 11:53	*19.31*	*172.22*	*8.05*	*2.68*	*Run 2*	*0.6*	*25.3*	*25.0*	*-1.2*	*156.6*	*150.3*	*-0.2*	*12.3*	*12.7*	*-0.3*	*25.0*	*25.5*	*18.9*	*165.2*	*6.3*	*3.0*
7/14/2004 11:54	20.38	127.31	6.61	2.93	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	20.0	122.4	7.1	3.2
7/14/2004 11:55	20.06	118.68	7.37	2.66	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	19.7	114.2	7.7	3.0
7/14/2004 11:56	19.66	123.61	9.38	2.66	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	19.3	118.9	9.8	3.0
7/14/2004 11:57	18.54	121.64	15.09	2.69	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	18.1	117.0	15.6	3.0
7/14/2004 11:58	17.15	140.64	16.94	2.45	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	16.7	135.1	17.5	2.8
7/14/2004 11:59	17.30	119.17	16.10	2.78	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	16.9	114.7	16.6	3.1

IPSCO - Muscatine, Iowa - Gaseous Emissions Test Summary - 7/14/04

EAF Baghouse

	Uncorrected, PPM					BIAS CHECK RESULTS, AVERAGE RESPONSE, PPM											Corrected Concentration, PPM			
TimeStamp	NOx, ppm	CO, ppm	SO2, ppm	VOC, ppm	COMMENTS	Co, NOx	Cm, NOx	Cma, NOx	Co, CO	Cm, CO	Cma, CO	Co, SO2	Cm, SO2	Cma, SO2	Co, VOC	Cm, VOC	Cma, VOC	CORR PPM NOx	CORR PPM CO	CORR PPM SO2	CORR PPM VOC
7/14/2004 12:00	13.88	110.53	11.87	3.32	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	13.4	106.5	12.3	3.6
7/14/2004 12:01	22.09	207.25	9.59	2.63	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	21.7	198.6	10.0	2.9
7/14/2004 12:02	19.64	104.12	6.64	2.93	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	19.3	100.4	6.9	3.2
7/14/2004 12:03	20.21	44.16	6.67	2.57	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	19.8	43.2	7.0	2.9
7/14/2004 12:04	17.62	68.84	6.81	2.69	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	17.2	66.7	7.1	3.0
7/14/2004 12:05	17.30	125.09	7.67	2.90	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	16.9	120.3	8.0	3.2
7/14/2004 12:06	20.45	72.29	5.91	3.20	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	20.1	70.0	6.2	3.5
7/14/2004 12:07	23.02	71.80	5.94	2.66	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	22.7	69.6	6.2	3.0
7/14/2004 12:08	18.31	73.28	7.07	2.81	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	17.9	71.0	7.4	3.1
7/14/2004 12:09	23.24	36.27	7.86	3.17	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	22.9	35.7	8.2	3.5
7/14/2004 12:10	29.57	17.52	10.55	2.81	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	29.3	17.9	11.0	3.1
7/14/2004 12:11	29.54	86.60	17.87	4.74	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	29.3	83.7	18.4	5.1
7/14/2004 12:12	30.86	119.66	11.17	6.71	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	30.6	115.2	11.6	7.1
7/14/2004 12:13	31.81	134.47	8.20	6.59	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	31.6	129.3	8.5	6.9
7/14/2004 12:14	30.88	155.69	8.71	5.86	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	30.6	149.5	9.1	6.2
7/14/2004 12:15	32.23	128.30	8.29	5.83	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	32.0	123.4	8.6	6.2
7/14/2004 12:16	33.02	109.30	10.83	5.11	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	32.8	105.3	11.2	5.4
7/14/2004 12:17	33.13	71.80	12.71	4.90	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	32.9	69.6	13.2	5.2
7/14/2004 12:18	35.32	49.35	9.84	5.05	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	35.1	48.2	10.2	5.4
7/14/2004 12:19	40.47	54.77	6.48	5.26	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	40.4	53.3	6.8	5.6
7/14/2004 12:20	33.21	57.49	6.02	4.80	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	33.0	55.9	6.3	5.1
7/14/2004 12:21	19.03	56.01	5.31	4.17	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	18.6	54.5	5.6	4.5
7/14/2004 12:22	16.37	43.67	5.11	3.66	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	15.9	42.8	5.4	4.0
7/14/2004 12:23	14.74	32.08	5.55	2.39	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	14.3	31.7	5.8	2.7
7/14/2004 12:24	9.25	17.02	6.08	1.99	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	8.7	17.4	6.4	2.3
7/14/2004 12:25	7.90	21.71	6.53	2.02	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	7.4	21.9	6.8	2.3
7/14/2004 12:26	7.57	29.36	6.10	2.84	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	7.0	29.1	6.4	3.2
7/14/2004 12:27	7.93	47.87	4.85	4.41	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	7.4	46.8	5.1	4.7
7/14/2004 12:28	5.22	69.08	7.71	4.08	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	4.7	67.0	8.0	4.4
7/14/2004 12:29	4.92	90.55	5.50	5.17	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	4.4	87.4	5.8	5.5
7/14/2004 12:30	4.74	156.43	5.67	3.93	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	4.2	150.2	6.0	4.3
7/14/2004 12:31	2.73	130.52	3.32	3.41	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	2.1	125.5	3.6	3.7
7/14/2004 12:32	2.20	120.65	2.58	2.90	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	1.6	116.1	2.8	3.2
7/14/2004 12:33	2.11	99.43	2.26	3.26	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	1.5	95.9	2.5	3.6
7/14/2004 12:34	2.07	91.29	2.79	3.54	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	1.5	88.1	3.0	3.9
7/14/2004 12:35	4.06	61.93	1.52	4.26	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	3.5	60.2	1.7	4.6
7/14/2004 12:36	8.77	29.61	0.92	5.59	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	8.3	29.4	1.1	5.9
7/14/2004 12:37	5.35	47.62	2.55	8.01	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	4.8	46.5	2.8	8.4
7/14/2004 12:38	3.21	158.65	2.85	15.35	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	2.6	152.3	3.1	15.8
7/14/2004 12:39	4.50	276.58	2.50	5.98	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	3.9	264.6	2.7	6.3
7/14/2004 12:40	5.68	139.16	3.49	4.05	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	5.1	133.7	3.7	4.4
7/14/2004 12:41	5.82	57.73	4.11	4.80	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	5.3	56.2	4.4	5.1
7/14/2004 12:42	5.80	49.10	4.35	5.32	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	5.2	47.9	4.6	5.7
7/14/2004 12:43	4.69	77.72	4.10	6.74	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	4.3	75.2	4.3	7.1
7/14/2004 12:44	8.80	111.77	2.62	6.83	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	8.3	107.6	2.8	7.2
7/14/2004 12:45	15.24	145.08	1.61	6.13	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	14.8	139.4	1.8	6.5
7/14/2004 12:46	15.45	93.02	1.54	4.68	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	15.0	89.8	1.7	5.0
7/14/2004 12:47	13.85	117.20	1.47	4.44	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	13.4	112.8	1.7	4.8
7/14/2004 12:48	11.10	136.19	2.13	4.41	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	10.6	130.9	2.3	4.7
7/14/2004 12:49	10.46	137.18	0.73	4.26	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	10.0	131.8	0.9	4.6
7/14/2004 12:50	11.14	148.04	0.53	4.50	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	10.7	142.2	0.7	4.8
7/14/2004 12:51	13.45	112.26	2.76	3.84	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	13.0	108.1	3.0	4.2
7/14/2004 12:52	11.56	48.61	3.34	3.87	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	11.1	47.5	3.6	4.2
7/14/2004 12:53	12.15	98.22	2.39	3.87	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	11.7	92.8	2.6	4.2
7/14/2004 12:54	13.16	52.31	8.09	3.54	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	12.7	51.0	8.4	3.9
7/14/2004 12:55	13.29	42.44	9.93	3.38	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	12.8	41.6	10.3	3.7
7/14/2004 12:56	13.26	38.24	10.22	3.60	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	12.8	37.6	10.6	3.9
7/14/2004 12:57	13.77	44.91	11.51	3.75	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	13.3	43.9	11.9	4.1
7/14/2004 12:58	20.40	25.17	13.01	4.17	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	20.0	25.1	13.5	4.5
7/14/2004 12:59	22.01	19.99	15.40	3.96	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	21.7	20.2	15.9	4.3
7/14/2004 13:00	18.69	25.17	12.85	4.17	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	18.3	25.1	13.3	4.5
7/14/2004 13:01	20.23	14.31	12.96	4.17	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	19.9	14.8	13.4	4.5
7/14/2004 13:02	17.63	19.25	16.25	3.93	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	17.2	19.5	16.8	4.3
7/14/2004 13:03	22.02	16.28	26.47	3.81	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	21.7	16.7	27.2	4.1
7/14/2004 13:04	19.91	24.18	25.23	3.81	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	19.5	24.2	26.0	4.1
7/14/2004 13:05	20.18	16.28	19.25	3.51	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	19.8	16.7	19.9	3.8
7/14/2004 13:06	14.94	20.73	13.03	3.60	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	14.5	20.9	13.5	3.9
7/14/2004 13:07	14.51	31.58	11.87	3.57	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	14.1	31.3	12.3	3.9
7/14/2004 13:08	16.15	41.94	7.68	4.26	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	15.7	41.1	8.0	4.6
7/14/2004 13:09	16.23	38.98	4.15	4.32	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	15.8	38.3	4.4	4.6
7/14/2004 13:10	28.24	28.87	3.57	5.14	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	28.0	28.7	3.8	5.5
7/14/2004 13:11	31.83	9.38	2.19	5.56	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	31.6	10.1	2.4	5.9
7/14/2004 13:12	33.91	43.92	4.81	5.65	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	33.7	43.0	5.1	6.0
7/14/2004 13:13	33.41	98.45	5.15	6.86	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	33.2	94.9	5.4	7.2
7/14/2004 13:14	30.27	86.60	3.47	7.98	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	30.0	83.7	3.7	8.3
7/14/2004 13:15	22.35	95.48	5.32	11.36	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	22.0	92.1	5.6	11.7
7/14/2004 13:16	26.70	173.94	8.24	5.71	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	26.4	168.9	8.6	6.0
7/14/2004 13:17	26.63	92.52	6.33	3.87	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	26.3	89.3	6.6	4.2
7/14/2004 13:18	26.99	30.35	3.68	3.75	Run 2	0.6	25.3	25.0	-1.2	156.6	150.3	-0.2	12.3	12.7	-0.3	25.0	25.5	26.7	30.1	3.9	4.1

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EAF Baghouse

	Uncorrected, PPM					BIAS CHECK RESULTS, AVERAGE RESPONSE, PPM												Corrected Concentration, PPM			
TimeStamp	NOx, ppm	CO, ppm	SO2, ppm	VOC, ppm	COMMENTS	Co, NOx	Cm, NOx	Cma, NOx	Co, CO	Cm, CO	Cma, CO	Co, SO2	Cm, SO2	Cma, SO2	Co, VOC	Cm, VOC	Cma, VOC	CORR PPM NOx	CORR PPM CO	CORR PPM SO2	CORR PPM VOC
	17.06	97.46	7.88	4.34	Run 2 Average													16.64	94.01	8.22	4.66
7/14/2004 13:19	21.82	16.78	2.30	13.69																	
7/14/2004 13:20	1.90	6.42	0.00	24.99	25.5 VOC																
	1.90	6.42	0.00	24.99	25.5 VOC Average																
7/14/2004 13:21	0.64	-0.74	0.00	24.96																	
7/14/2004 13:22	0.62	10.86	0.00	8.37																	
7/14/2004 13:23	0.62	124.35	0.00	-0.36																	
7/14/2004 13:24	0.54	154.70	0.00	-0.42	150.3 CO/0 VOC																
	0.54	154.70	0.00	-0.42	150.3 CO/0 VOC Average																
7/14/2004 13:25	12.19	115.72	0.00	-0.42																	
7/14/2004 13:26	24.93	10.86	0.00	-0.30																	
7/14/2004 13:27	25.10	-1.48	0.00	-0.36	25 NOx/0 SO2																
	25.10	-1.48	0.00	-0.36	25 NOx/0 SO2 Average																
7/14/2004 13:28	17.68	-1.97	3.49	-0.36																	
7/14/2004 13:29	1.05	-1.73	10.90	-0.27																	
7/14/2004 13:30	0.58	-1.48	12.00	-0.24																	
7/14/2004 13:31	0.58	-1.23	12.17	-0.18	12.7 SO2/0 NOx, CO																
	0.58	-1.23	12.17	-0.18	12.7 SO2/0 NOx, CO Average																
7/14/2004 13:32	4.38	2.96	11.13	1.45																	
7/14/2004 13:33	11.53	21.71	7.98	4.99																	
7/14/2004 13:34	21.74	71.31	3.44	6.62																	
7/14/2004 13:35	26.55	68.10	3.61	4.11																	
7/14/2004 13:36	22.04	24.92	4.62	5.59																	
7/14/2004 13:37	17.46	36.27	6.37	6.53																	
7/14/2004 13:38	18.02	57.73	6.82	7.25																	
7/14/2004 13:39	12.02	52.80	5.52	7.01																	
7/14/2004 13:40	12.99	68.59	5.70	7.55																	
7/14/2004 13:41	13.59	100.17	6.52	6.10																	
7/14/2004 13:42	16.21	130.77	5.14	6.04																	
7/14/2004 13:43	15.41	155.69	4.49	5.83																	
7/14/2004 13:44	15.25	139.16	5.38	4.99																	
7/14/2004 13:45	14.30	103.13	5.51	3.90																	
7/14/2004 13:46	14.45	122.13	5.18	3.60																	
7/14/2004 13:47	15.41	109.30	5.48	4.17																	
7/14/2004 13:48	16.63	74.51	6.40	4.59																	
7/14/2004 13:49	16.62	63.16	2.77	4.71																	
7/14/2004 13:50	16.22	68.84	3.64	4.26																	
7/14/2004 13:51	14.66	99.43	6.89	4.05																	
7/14/2004 13:52	14.62	146.06	8.62	3.93																	
7/14/2004 13:53	15.65	130.03	9.10	3.90																	
7/14/2004 13:54	16.43	137.18	8.72	3.14																	
7/14/2004 13:55	16.60	183.57	5.75	3.35																	
7/14/2004 13:56	16.91	167.53	7.02	3.32																	
7/14/2004 13:57	17.31	140.88	8.11	3.51																	
7/14/2004 13:58	17.69	106.83	7.65	3.44																	
7/14/2004 13:59	17.20	96.22	4.12	3.78																	
7/14/2004 14:00	17.31	77.97	4.74	3.72																	
7/14/2004 14:01	17.60	94.00	4.86	3.69																	
7/14/2004 14:02	17.73	110.04	6.37	3.69																	
7/14/2004 14:03	16.39	122.62	7.39	3.76																	
7/14/2004 14:04	15.82	150.50	7.37	3.44																	
7/14/2004 14:05	17.90	167.04	6.62	3.51																	
7/14/2004 14:06	19.33	93.26	5.04	3.14																	
7/14/2004 14:07	19.71	93.26	5.14	3.08																	
7/14/2004 14:08	24.44	70.56	7.58	3.23																	
7/14/2004 14:09	25.45	20.23	4.70	4.02																	
7/14/2004 14:10	27.19	23.19	4.37	3.69																	
7/14/2004 14:11	18.63	74.27	5.15	5.50																	
7/14/2004 14:12	14.84	85.62	3.92	5.80																	
7/14/2004 14:13	16.62	72.79	3.75	5.77																	
7/14/2004 14:14	18.55	60.45	5.03	4.77																	
7/14/2004 14:15	17.94	76.73	3.84	5.02																	
7/14/2004 14:16	21.26	65.88	2.21	6.56																	
7/14/2004 14:17	27.76	90.55	2.62	4.71																	
7/14/2004 14:18	27.35	59.71	3.82	3.23	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	27.3	58.6	3.9	3.6
7/14/2004 14:19	24.86	32.08	3.80	3.14	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	24.7	32.0	3.9	3.5
7/14/2004 14:20	17.04	23.93	3.68	4.90	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	16.8	24.1	3.8	5.3
7/14/2004 14:21	15.83	45.40	3.77	5.05	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	15.5	44.8	3.9	5.5
7/14/2004 14:22	16.26	47.13	3.53	4.86	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	16.0	46.5	3.6	5.3
7/14/2004 14:23	17.89	40.71	3.90	3.35	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	17.6	40.3	4.0	3.7
7/14/2004 14:24	23.11	26.65	3.61	3.02	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	22.9	26.7	3.9	3.4
7/14/2004 14:25	22.02	22.45	4.20	3.02	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	21.8	22.7	4.3	3.4
7/14/2004 14:26	15.96	21.96	3.58	3.35	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	15.7	22.2	3.7	3.7
7/14/2004 14:27	12.92	40.71	3.57	3.26	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	12.6	40.3	3.7	3.6
7/14/2004 14:28	16.21	65.38	2.83	3.23	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	15.9	64.1	2.9	3.6
7/14/2004 14:29	18.21	63.66	3.90	3.17	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	18.0	62.4	4.0	3.5
7/14/2004 14:30	21.19	62.18	5.18	3.17	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	21.0	61.0	5.4	3.5
7/14/2004 14:31	23.92	38.49	5.49	2.99	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	23.8	38.1	5.7	3.4
7/14/2004 14:32	19.39	31.83	6.24	2.99	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	19.2	31.7	6.4	3.4

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EAF Baghouse

	Uncorrected, PPM					BIAS CHECK RESULTS, AVERAGE RESPONSE, PPM											Corrected Concentration, PPM			
TimeStamp	NOx, ppm	CO, ppm	SO2, ppm	VOC, ppm	COMMENTS	Co, NOx	Cm, NOx	Cma, NOx	Co, CO	Cm, CO	Cma, CO	Co, SO2	Cm, SO2	Cma, SO2	Co, VOC	Cm, VOC	Cma, VOC	CORR PPM NOx	CORR PPM CO	CORR PPM SO2	CORR PPM VOC
7/14/2004 14:33	18.43	24.92	6.29	3.17	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	18.2	25.1	6.5	3.5
7/14/2004 14:34	19.15	30.10	4.25	4.14	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	18.9	30.1	4.4	4.5
7/14/2004 14:35	20.52	15.54	4.42	4.32	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	20.3	16.0	4.6	4.7
7/14/2004 14:36	20.60	34.54	5.25	3.96	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	20.4	34.3	5.4	4.4
7/14/2004 14:37	19.21	32.32	4.10	4.50	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	19.0	32.2	4.2	4.9
7/14/2004 14:38	21.35	42.44	3.55	5.47	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	21.2	42.0	3.7	5.9
7/14/2004 14:39	19.64	82.41	2.28	5.86	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	19.4	80.5	2.4	6.3
7/14/2004 14:40	24.64	102.39	6.79	3.32	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	24.5	99.7	7.0	3.7
7/14/2004 14:41	21.71	38.49	10.78	3.48	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	21.5	38.1	11.1	3.9
7/14/2004 14:42	20.69	12.83	9.24	4.14	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	20.5	13.4	9.5	4.5
7/14/2004 14:43	17.64	19.49	11.55	4.23	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	17.4	19.8	11.9	4.6
7/14/2004 14:44	17.26	30.35	9.32	5.02	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	17.0	30.3	9.6	5.4
7/14/2004 14:45	15.69	47.13	6.65	5.86	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	15.4	46.5	6.9	6.3
7/14/2004 14:46	9.84	83.89	6.46	5.05	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	9.4	81.9	6.7	5.5
7/14/2004 14:47	10.82	77.72	10.25	3.63	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	10.4	75.9	10.6	4.0
7/14/2004 14:48	11.32	86.60	11.64	3.41	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	10.9	84.5	12.0	3.8
7/14/2004 14:49	14.00	68.10	5.22	2.99	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	13.7	66.7	5.4	3.4
7/14/2004 14:50	15.37	51.07	7.38	2.69	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	15.1	50.3	7.6	3.1
7/14/2004 14:51	17.01	36.76	14.48	2.30	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	16.7	36.5	14.9	2.6
7/14/2004 14:52	16.48	40.22	18.10	2.06	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	16.2	39.8	18.7	2.4
7/14/2004 14:53	16.36	46.88	14.72	2.09	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	16.1	46.2	15.2	2.4
7/14/2004 14:54	16.23	42.68	14.56	2.06	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	15.9	42.2	15.0	2.4
7/14/2004 14:55	15.67	34.54	14.58	1.84	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	15.4	34.3	15.1	2.2
7/14/2004 14:56	14.84	36.76	11.59	1.87	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	14.5	36.5	12.0	2.2
7/14/2004 14:57	14.45	57.24	6.08	2.06	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	14.1	56.2	6.3	2.4
7/14/2004 14:58	14.19	48.36	4.20	2.18	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	13.9	47.7	4.3	2.5
7/14/2004 14:59	12.23	115.22	4.34	2.09	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	11.9	112.1	4.5	2.4
7/14/2004 15:00	12.51	167.28	3.67	2.12	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	12.1	162.2	3.8	2.5
7/14/2004 15:01	13.61	154.45	2.77	2.27	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	13.3	149.9	2.9	2.6
7/14/2004 15:02	13.51	116.95	2.82	2.36	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	13.2	113.7	2.9	2.7
7/14/2004 15:03	15.24	99.43	2.14	2.33	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	14.9	96.9	2.2	2.7
7/14/2004 15:04	16.79	56.50	1.59	2.36	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	16.5	55.5	1.6	2.7
7/14/2004 15:05	19.79	35.04	1.53	2.45	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	19.6	34.8	1.6	2.8
7/14/2004 15:06	19.73	24.18	2.23	2.24	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	19.5	24.4	2.3	2.6
7/14/2004 15:07	19.22	26.65	2.15	2.24	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	19.0	26.7	2.2	2.6
7/14/2004 15:08	19.61	30.35	1.69	2.21	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	19.4	30.3	1.7	2.6
7/14/2004 15:09	30.67	21.22	3.61	2.27	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	30.6	21.5	3.7	2.6
7/14/2004 15:10	34.53	14.06	3.30	2.02	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	34.6	14.6	3.4	2.4
7/14/2004 15:11	19.48	58.48	1.25	2.33	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	19.2	57.4	1.3	2.7
7/14/2004 15:12	17.94	69.33	0.65	2.27	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	17.7	67.9	0.7	2.6
7/14/2004 15:13	17.38	49.84	1.29	2.06	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	17.1	49.1	1.3	2.4
7/14/2004 15:14	17.78	36.76	1.28	2.15	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	17.5	36.5	1.3	2.5
7/14/2004 15:15	34.16	18.51	2.37	2.33	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	34.2	18.9	2.5	2.7
7/14/2004 15:16	38.74	8.14	1.55	2.27	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	38.9	8.9	1.6	2.6
7/14/2004 15:17	46.53	5.43	1.61	2.30	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	46.8	6.3	1.7	2.6
7/14/2004 15:18	44.39	8.14	1.61	2.27	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	44.6	8.9	1.7	2.6
7/14/2004 15:19	45.00	39.97	1.75	2.18	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	45.2	39.6	1.8	2.5
7/14/2004 15:20	47.53	22.45	1.61	2.21	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	47.8	22.7	1.7	2.6
7/14/2004 15:21	48.17	11.35	1.39	2.33	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	48.5	12.0	1.4	2.7
7/14/2004 15:22	46.70	8.88	0.31	2.72	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	47.0	9.6	0.3	3.1
7/14/2004 15:23	48.84	8.88	0.00	2.81	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	49.1	9.6	0.0	3.2
7/14/2004 15:24	45.93	7.16	0.00	2.39	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	46.2	8.0	0.0	2.7
7/14/2004 15:25	33.00	54.53	2.88	1.84	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	33.0	53.6	3.0	2.2
7/14/2004 15:26	21.11	114.98	2.59	2.60	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	20.9	111.8	2.7	3.0
7/14/2004 15:27	20.03	89.32	0.73	8.07	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	19.8	87.1	0.8	8.6
7/14/2004 15:28	21.55	232.67	0.13	6.92	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	21.4	225.2	0.1	7.4
7/14/2004 15:29	21.85	173.45	0.62	2.81	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	21.7	168.2	0.6	3.2
7/14/2004 15:30	8.59	35.53	1.05	3.26	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	8.2	35.3	1.1	3.6
7/14/2004 15:31	7.90	12.58	2.01	3.54	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	7.4	13.2	2.1	3.9
7/14/2004 15:32	7.25	10.12	1.30	3.57	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	6.8	10.8	1.3	3.9
7/14/2004 15:33	6.97	15.79	0.88	3.78	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	6.5	16.3	0.9	4.2
7/14/2004 15:34	7.11	21.71	0.28	3.38	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	6.6	22.0	0.3	3.8
7/14/2004 15:35	6.28	25.41	2.22	2.90	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	5.8	25.6	2.3	3.3
7/14/2004 15:36	5.61	35.28	5.50	3.11	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	5.1	35.1	5.7	3.5
7/14/2004 15:37	3.97	52.55	3.13	3.05	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	3.5	51.7	3.2	3.4
7/14/2004 15:38	3.23	38.76	2.09	2.90	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	2.7	36.5	2.2	3.3
7/14/2004 15:39	2.76	38.24	2.59	2.99	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	2.2	37.9	2.7	3.4
7/14/2004 15:40	3.47	54.28	1.70	3.05	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	2.9	53.4	1.8	3.4
7/14/2004 15:41	2.67	63.90	0.19	3.08	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	2.1	62.6	0.2	3.5
7/14/2004 15:42	3.71	57.98	0.32	3.17	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	3.2	56.9	0.3	3.5
7/14/2004 15:43	8.13	36.27	0.16	3.20	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	7.7	36.0	0.2	3.6
7/14/2004 15:44	3.00	33.60	0.00	3.35	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	2.5	33.6	0.0	3.7
7/14/2004 15:45	2.67	63.41	0.00	3.17	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	2.1	62.2	0.0	3.5
7/14/2004 15:46	2.49	77.97	0.00	3.11	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	1.9	76.2	0.0	3.5
7/14/2004 15:47	10.86	41.94	0.00	3.44	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	10.5	41.5	0.0	3.8
7/14/2004 15:48	12.31	23.19	0.44	3.99	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	11.9	23.4	0.4	4.4
7/14/2004 15:49	5.81	33.06	0.69	4.11	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	5.3	32.9	0.7	4.5
7/14/2004 15:50	4.26	45.65	0.05	8.82	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	3.7	45.0	0.0	9.3
7/14/2004 15:51	4.07	173.45	0.04	11.78	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	3.6	168.2	0.0	12.4

IPSCO - Muscatine, Iowa - Gaseous Emissions Test Summary - 7/14/04

EAF Baghouse

	Uncorrected, PPM					BIAS CHECK RESULTS, AVERAGE RESPONSE, PPM												Corrected Concentration, PPM			
TimeStamp	NOx, ppm	CO, ppm	SO2, ppm	VOC, ppm	COMMENTS	Co, NOx	Cm, NOx	Cma, NOx	Co, CO	Cm, CO	Cma, CO	Co, SO2	Cm, SO2	Cma, SO2	Co, VOC	Cm, VOC	Cma, VOC	CORR PPM NOx	CORR PPM CO	CORR PPM SO2	CORR PPM VOC
7/14/2004 15:52	6.64	198.37	0.51	3.69	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	6.2	192.2	0.5	4.1
7/14/2004 15:53	8.34	31.34	1.62	3.69	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	7.9	31.3	1.7	4.1
7/14/2004 15:54	8.07	10.36	2.16	4.23	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	7.6	11.1	2.2	4.6
7/14/2004 15:55	7.16	12.83	1.75	4.20	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	6.7	13.4	1.8	4.6
7/14/2004 15:56	4.33	39.23	2.08	4.26	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	3.8	38.9	2.1	4.7
7/14/2004 15:57	3.96	70.56	3.02	4.05	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	3.4	69.0	3.1	4.4
7/14/2004 15:58	3.55	82.41	6.20	3.20	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	3.0	80.5	6.4	3.6
7/14/2004 15:59	2.70	59.22	9.20	2.69	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	2.2	58.1	9.5	3.1
7/14/2004 16:00	2.71	61.68	6.98	2.63	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	2.2	60.5	7.2	3.0
7/14/2004 16:01	2.80	53.05	5.22	2.48	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	2.3	52.2	5.4	2.8
7/14/2004 16:02	2.74	37.01	4.22	2.69	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	2.2	36.7	4.4	3.1
7/14/2004 16:03	2.17	38.24	7.98	2.30	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	1.6	37.9	8.2	2.6
7/14/2004 16:04	1.59	27.14	9.46	2.54	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	1.0	27.2	9.8	2.9
7/14/2004 16:05	1.73	20.48	4.52	2.90	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	1.2	20.8	4.7	3.3
7/14/2004 16:06	1.80	66.86	3.57	2.72	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	1.2	65.5	3.7	3.1
7/14/2004 16:07	2.78	153.71	1.42	2.96	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	2.2	149.1	1.5	3.3
7/14/2004 16:08	2.17	66.37	1.57	2.81	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	1.6	65.0	1.6	3.2
7/14/2004 16:09	2.06	47.13	3.15	2.63	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	1.5	46.5	3.3	3.0
7/14/2004 16:10	2.25	64.64	3.26	2.84	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	1.7	63.3	3.4	3.2
7/14/2004 16:11	2.17	55.02	2.98	2.87	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	1.6	54.1	3.1	3.2
7/14/2004 16:12	2.89	35.78	3.65	2.87	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	2.3	35.5	3.8	3.2
7/14/2004 16:13	5.72	32.32	3.97	3.05	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	5.2	32.2	4.1	3.4
7/14/2004 16:14	5.19	47.87	3.31	2.93	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	4.7	47.2	3.4	3.3
7/14/2004 16:15	4.74	73.77	2.88	2.96	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	4.2	72.1	3.0	3.3
7/14/2004 16:16	3.79	74.51	3.77	2.93	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	3.3	72.8	3.9	3.3
7/14/2004 16:17	9.07	41.20	5.24	2.96	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	8.6	40.8	5.4	3.3
7/14/2004 16:18	2.96	56.99	5.37	3.02	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	2.4	56.0	5.5	3.4
7/14/2004 16:19	2.04	37.75	5.55	3.08	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	1.5	37.4	5.7	3.5
7/14/2004 16:20	14.53	26.15	6.10	3.26	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	14.2	25.3	6.3	3.6
7/14/2004 16:21	22.41	8.14	5.71	3.17	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	22.2	8.9	5.9	3.5
7/14/2004 16:22	26.76	6.42	5.80	3.17	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	26.7	7.2	6.0	3.5
7/14/2004 16:23	29.99	4.44	4.94	3.14	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	29.9	5.3	5.1	3.5
7/14/2004 16:24	31.22	22.95	2.47	3.05	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	31.2	23.2	2.5	3.4
7/14/2004 16:25	33.43	24.43	1.16	3.11	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	33.5	24.6	1.2	3.5
7/14/2004 16:26	35.86	10.36	0.69	2.96	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	35.9	11.1	0.7	3.3
7/14/2004 16:27	34.21	8.14	0.88	2.81	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	34.2	8.9	0.9	3.2
7/14/2004 16:28	34.73	5.43	1.26	3.20	Run 3	0.6	25.1	25.0	-1.1	154.9	150.3	0.0	12.3	12.7	-0.3	24.6	25.5	34.8	6.3	1.3	3.6
	15.98	49.05	3.88	3.26	Run 3 Average													15.68	48.33	4.01	3.63
7/14/2004 16:29	14.14	1.48	0.13	24.14																	
7/14/2004 16:30	0.75	-0.74	0.00	24.23	25.5 VOC																
	0.75	-0.74	0.00	24.23	25.5 VOC Average																
7/14/2004 16:31	0.58	1.73	0.00	13.42																	
7/14/2004 16:32	0.57	101.16	0.00	-0.36																	
7/14/2004 16:33	0.58	155.19	0.00	-0.39	150.3 CO/0 VOC																
	0.58	155.19	0.00	-0.39	150.3 CO/0 VOC Average																
7/14/2004 16:34	5.11	146.56	0.00	-0.36																	
7/14/2004 16:35	24.23	31.83	0.00	-0.39																	
7/14/2004 16:36	25.15	-0.99	0.00	-0.39	25 NOx/0 SO2																
	25.15	-0.99	0.00	-0.39	25 NOx/0 SO2 Average																
7/14/2004 16:37	18.87	-1.97	2.69	-0.39																	
7/14/2004 16:38	1.14	-1.48	8.87	-0.39																	
7/14/2004 16:39	0.54	-1.48	9.51	-0.39																	
7/14/2004 16:40	0.53	-1.48	10.35	-0.30																	
7/14/2004 16:41	0.53	-1.48	10.94	-0.27																	
7/14/2004 16:42	0.54	-1.23	11.88	-0.27																	
7/14/2004 16:43	0.57	-0.99	12.42	-0.24	12.7 SO2/0 NOx, CO																
	0.57	-0.99	12.42	-0.24	12.7 SO2/0 NOx, CO Average																
7/14/2004 16:44	1.37	3.70	5.98	1.51																	

IPSCO Iowa - EAF Baghouse - Gas Calibration Data - 7/14/04

Oxides of Nitrogen

Instrument Information	Manuf.	Thermo Environmental	Model	42H			Serial #	42H-48047-279		
CALIBRATION GAS VALUE	INITIAL CALIBRATION	CALIBRATION ERROR, % SPAN	POST RUN 1	POST RUN 2	POST RUN 3	POST RUN 4	POST RUN 5	POST RUN 6	POST RUN 7	POST RUN 8	POST RUN 9
0.00	0.46	0.92	0.65	0.58	0.57						
25.00	25.26	0.52	25.52	25.10	25.15						
45.10	45.08	-0.04	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RANGE	50										
Co	N/A		0.56	0.62	0.58	0.29	0.00	0.00	0.00	0.00	0.00
Cm			25.39	25.31	25.13	12.58	0.00	0.00	0.00	0.00	0.00
Cma			25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00
Cdo			0.36	0.24	0.22	-0.92	-0.92	-0.92	-0.92	-0.92	-0.92
Cdma			0.52	0.32	0.22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Sulfur Dioxide

Instrument Information	Manuf.	Western Research	Model	900			Serial #	AY-921-9376-2		
CALIBRATION GAS VALUE	INITIAL CALIBRATION	CALIBRATION ERROR, % SPAN	POST RUN 1	POST RUN 2	POST RUN 3	POST RUN 4	POST RUN 5	POST RUN 6	POST RUN 7	POST RUN 8	POST RUN 9
0.00	-0.30	-1.20	-0.30	0.00	0.00						
12.70	12.22	-1.92	12.34	12.17	12.42						
23.89	23.92	0.12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		0.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RANGE	25										
Co	N/A		-0.30	-0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cm			12.28	12.26	12.30	6.21	0.00	0.00	0.00	0.00	0.00
Cma			12.70	12.70	12.70	12.70	12.70	12.70	12.70	12.70	12.70
Cdo			0.00	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Cdma			0.48	0.20	0.80	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Carbon Monoxide

Instrument Information	Manuf.	Thermo Environmental	Model	48			Serial #	48-61604-288		
CALIBRATION GAS VALUE	INITIAL CALIBRATION	CALIBRATION ERROR, % SPAN	POST RUN 1	POST RUN 2	POST RUN 3	POST RUN 4	POST RUN 5	POST RUN 6	POST RUN 7	POST RUN 8	POST RUN 9
0.00	-1.48	-0.30	-1.23	-1.23	-0.99						
150.30	153.47	0.63	158.40	154.70	155.12						
283.30	291.88	1.72	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
505.30	505.30	0.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RANGE	500										
Co	N/A		-1.36	-1.23	-1.11	-0.50	0.00	0.00	0.00	0.00	0.00
Cm			155.94	156.55	154.91	77.56	0.00	0.00	0.00	0.00	0.00
Cma			12.70	12.70	12.70	12.70	12.70	12.70	12.70	12.70	12.70
Cdo			0.05	0.05	0.40	0.30	0.30	0.30	0.30	0.30	0.30
Cdma			0.99	0.25	0.83	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

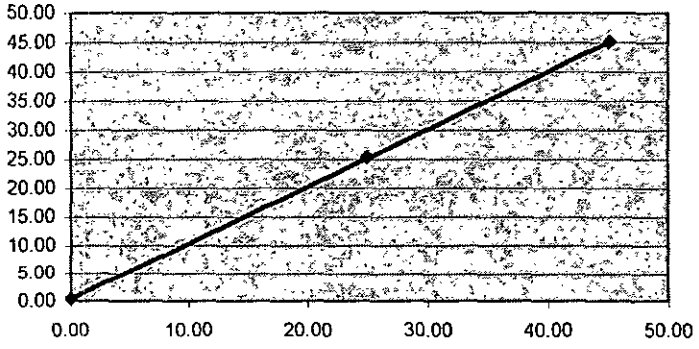
IPSCO Iowa - EAF Baghouse - Gas Calibration Data - 7/14/04

Volatile Organic Compounds

Instrument Information	Manuf.	Thermo Environmental		Model	51			Serial #	51-39686-261		
CALIBRATION GAS VALUE	INITIAL CALIBRATION	CALIBRATION ERROR, % VALUE	POST RUN 1	POST RUN 2	POST RUN 3	POST RUN 4	POST RUN 5	POST RUN 6	POST RUN 7	POST RUN 8	POST RUN 9
0.00	-0.27	-0.54	-0.39	-0.18	-0.39						
25.50	25.14	-1.41	25.02	24.99	24.23						
13.00	13.21	1.62	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
49.69	47.30	-4.79	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RANGE	50										
Co	N/A		-0.33	-0.29	-0.29	-0.20	0.00	0.00	0.00	0.00	0.00
Cm			25.08	25.01	24.61	12.12	0.00	0.00	0.00	0.00	0.00
Cma			25.50	25.50	25.50	25.50	25.50	25.50	25.50	25.50	25.50
Cdo			0.24	0.18	0.24	0.54	0.54	0.54	0.54	0.54	0.54
Cdma			0.24	0.30	1.82						

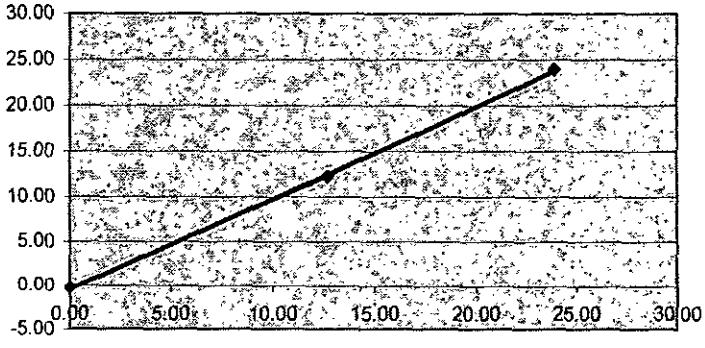
Calibration Error
NOx

y = 0.9895x + 0.4796
R^2 = 1



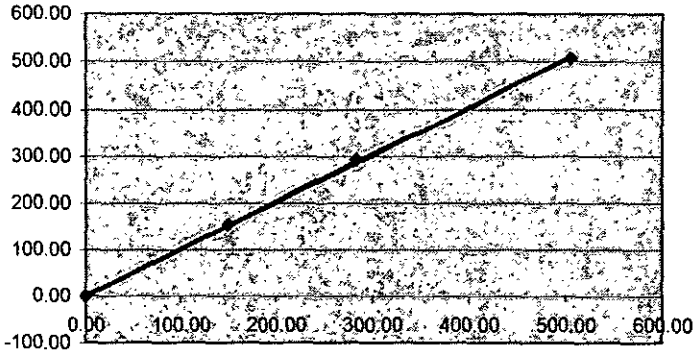
Calibration Error
SO2

y = 1.0132x - 0.4108
R^2 = 0.9997



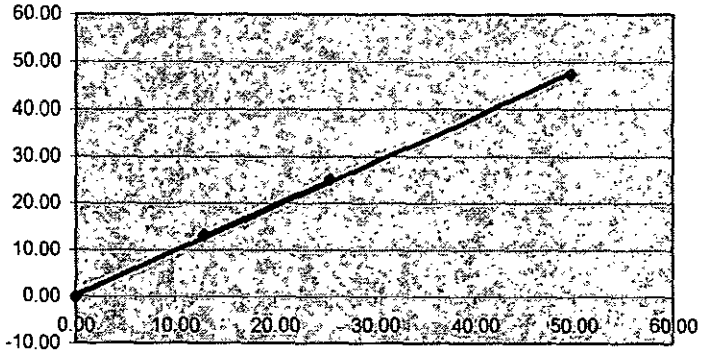
Calibration Error
CO

y = 1.0081x
R^2 = 0.9996



Calibration Error
VOC

y = 0.9531x + 0.3332
R^2 = 0.9992



Ambient Air Services, Inc.	106 Ambient Airway
Environmental Consultants	Starke, FL. 32091
	(904) 964-8440

Volumetric Flow Calculations Worksheet

Data Request Entry Area	Flow Run 1
Facility	IPSCO
Location	Muscatine, IA
Source	Baghouse
Date	07/14/04
Run Number	1
Start Time	15:20
Finish Time	15:37
Weather	Scattered
Total Time (min)	17.0
Number of Points	24
Barometric Pressure	29.14
Static Pressure ("H20)	-0.95
Stack Diameter (inches)	228.00
Pitot Factor	0.84
Moisture Fraction	0.020
CO2	0.0
O2	20.9
CO	0.0
N2	79.1

Field Data Points - Flow Run 1

Port	Trav. Pt.	Velocity Head (in H2O)	Stack Temp (F)	Sq Rt VH	
1	1	0.80	182	0.8944	
	2	0.70	183	0.8367	
	3	0.65	184	0.8062	
	4	0.60	186	0.7746	
	5	0.65	186	0.8062	
	6	0.50	186	0.7071	
2	1	1.00	185	1.0000	
	2	1.10	187	1.0488	
	3	1.20	188	1.0954	
	4	1.20	188	1.0954	
	5	1.30	187	1.1402	
	6	1.00	187	1.0000	
3	1	0.85	182	0.9220	
	2	0.85	186	0.9220	
	3	0.90	189	0.9487	
	4	1.00	189	1.0000	
	5	1.00	189	1.0000	
	6	0.99	187	0.9950	
4	1	1.00	179	1.0000	
	2	0.80	175	0.8944	
	3	0.90	174	0.9487	
	4	0.80	182	0.8944	
	5	0.75	184	0.8660	
	6	0.80	186	0.8944	

Flow Summary Run 1

Facility	IPSCO	CO2 %	0.0
Location	Scatine, IA	O2 %	20.9
Stack	Baghouse	CO %	0.0
Run Date	7/14/2004	N %	79.1
Run Number	1		
Start Time	15:20		
Finish Time	15:37		
Weather	Scattered		
Total Time (min.)	17		
Barometric Pressure	29.14		
Stack Diameter (in.)	228.00	Stack Pressure	29.070
Stack Area sq. ft.	283.529	Stack Temp (Deg R)	644.6
Number of Points	24		
Avg of SQRT of V.H.	0.9371		
Pitot Correction Factor	0.84		

Moisture in stack gas, volume fraction	0.020
Dry Stack Gas, volume fraction	0.98
Molecular Weight of Stack Gas (Dry Basis)	28.84
Molecular Weight of Stack Gas (Stack conditions)	28.62
Specific gravity of Stack Gas Relative to Air	0.987
Average Stack Velocity, FPM	3554.0
Actual Stack Gas Flow Rate, ACFM	1007661
Actual Stack Gas Flow Rate, (Dry) ACFMD	987508
Stack Gas Flow Rate, SCFMD	785901
Stack Gas Flow Rate Wet, SCFMW	801940

Velocity Traverse

Plant: Ipsco Iowa Date: 7/14/04

Source: Baghouse Barometric Pressure: 29.14

Stack Diameter: 228

Run No. 1 Run 3 Gases Run No. _____ Run No. _____

Start: 1520 Stop: 1537 Start: Stop: Start: Stop:

Static Press.(in.H2O) -0.95 Static Press.(in.H2O) _____ Static Press.(in.H2O) _____

Traverse Point No.	Velocity Head	Stack Temp. (Ts) Deg. F
1-1	0.80	182
2	0.70	183
3	0.65	184
4	0.60	186
5	0.65	186
6	0.50	186
2-1	1.0	185
2	1.1	187
3	1.2	188
4	1.2	188
5	1.3	187
6	1.0	187
3-1	0.85	182
2	0.85	186
3	0.90	189
4	1.0	189
5	1.0	189
6	0.99	187
4-1	1.0	179
2	0.80	175
3	0.90	174
4	0.80	182
5	0.75	184
6	0.80	186

Traverse Point No.	Velocity Head	Stack Temp. (Ts) Deg. F

Traverse Point No.	Velocity Head	Stack Temp. (Ts) Deg. F

Airgas

Certificate of Analysis: EPA Protocol Gas Mixture

Airgas Specialty Gases
5480 Hamilton Blvd.
Theodore, AL 36582
(251) 653-2500 Fax: (251) 653-2530
www.airgas.com

Cylinder Number: CC122797 Reference Number: 47-124019837-1
Cylinder Pressure: 2013.3 PSIG Expiration Date: 12/4/2004
Certification Date: 6/4/2004 Laboratory: W04 - 124

Certified Concentrations

Component	Concentration	Accuracy	Analytical Principle	Procedure
SULFUR DIOXIDE	23.89 PPM	+/- 1%	NDIR	G1
Air	Balance			

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences.

Notes:

Do not use cylinder below 150 psig. Approval Signature Carol Stewart

Reference Standard Information

Type	Component	Cyl.Number	Concentration
NTRM 81693	SULFUR DIOXIDE	SG9199000	44.80 PPM

Analytical Results

1st Component SULFUR DIOXIDE

1st Analysis Date: 05/27/2004

R 45	S 24	Z 0	Conc 23.89 PPM
S 24	Z 0	R 45	Conc 23.89 PPM
Z 0	R 45	S 24	Conc 23.89 PPM
			AVG: 23.89 PPM

2nd Analysis Date: 06/04/2004

R 45	S 24	Z 0	Conc 23.89 PPM
S 24	Z 0	R 45	Conc 23.89 PPM
Z 0	R 45	S 24	Conc 23.89 PPM
			AVG: 23.89 PPM

AIR LIQUIDE™

CERTIFICATE of ANALYSIS

Interference-Free Multi-Component EPA Protocol Gases

Cyl. Number:	Cyl. Pressure:*	Document Number:
CC16840	1900psig	12719540
Assay Date:	**Expiration Date:**	**Item Number:**
4/1/2004	9/30/2004	
Customer:	**P.O. Number:**	**Notes:** CGA660
Ala-Cyl-Orlando		
	LOT #: LPX97287	

COMPONENT Name	REQUESTED Concentration	ASSAY Concentration
Sulfur Dioxide	13.5 ppm	12.7 ±0.3 ppm
Air	Balance	Balance

EPA-600/R-97/123, Section 2.2 Procedure G-1

NOTE: Analytical uncertainty and NIST traceability are in compliance with EPA-600/R-97/123

*Cylinder should not be used when gas pressure is below 150 psig

REFERENCE STANDARD EMPLOYED FOR ANALYSIS

Std name	Std #	Conc	Units	Std. Error	Comp	Balance	Cyl. No	Exp. Date	Sample No.
GMIS229	GMIS229	50.7	ppm	0.8	SO2	N2	CC15876	4/16/2005	N.A.

Component 1: Sulfur Dioxide Gas Analyzer Employed		Component 2: None Gas Analyzer Employed	Component 3: Gas Analyzer Employed
Manufacturer:	KVB/Analect	Manufacturer:	Manufacturer:
Model Number:	EN3024	Model Number:	Model Number:
Serial Number:	3024	Serial Number:	Serial Number:
Analytical Principle:	FTIR	Analytical Principle:	Analytical Principle:
MPC Calibrated:	03/12/04	MPC Calibrated:	MPC Calibrated:

3/24/2004	Trial 1	Trial 2	Trial 3	Units
Zero	0.04	0.08	-0.10	
Reference 1	50.07	50.11	49.82	
Reference 2				
Candidate	12.24	12.57	12.55	
Result	12.40	12.74	12.72	ppm
	Mean Result	12.62		ppm

Component 1

Sulfur Dioxide

4/1/2004	Trial 1	Trial 2	Trial 3	Units
Zero	0.04	-0.57	-0.50	
Reference 1	49.65	49.42	48.51	
Reference 2				
Candidate	12.62	12.05	11.82	
Result	13.27	12.68	12.45	ppm
	Mean Result	12.80		ppm

Analyst Signature: Yang Qin

Air Liquide America L.P.
11426 Fairmont Parkway, La Porte, Texas 77571-6000
Phone: (281) 474-8400 Fax: (281) 474-8419

SPECTRA GASES INC.
3434 Route 22 West • Branchburg, NJ 08876 USA Tel.: (908) 252-9300 • (800) 932-0624 • Fax: (908) 252-0811
Shipped From: 80 Industrial Drive • Alpha, NJ 08865



CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE
PROCEDURE # : G1

CUSTOMER: Ambient Air Services
SGI ORDER # : 0025241
ITEM# : 1
P.O.# : VERBAL-DAVE

CYLINDER # : CC-126793
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 8/1/2002
EXPIRATION DATE: 8/1/2004

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	3/5/2001 8/1/2002	45.97 ppm 45.82 ppm	45.9 ppm	+/- 1%
NOx			45.9 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	NTRM-81684	CC-65898	98.6 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	CAI-400-CLD	6L09004	Chemi	7/15/2002

THIS STANDARD IS NIST TRACEABLE. IT 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

DATE: 8/1/2002

Airgas

Airgas Specialty Gases
5480 Hamilton Blvd.
Theodore, AL 36582

P.O. Box 190969
Mobile, AL 36619
(251) 653-2500 Fax: (251) 653-2530
http://www.airgas.com

Certificate of Analysis: E.P.A. Protocol Gas Mixture

Cylinder No :	SG9161423	Order No.	110592774
Cylinder Pressure:	2000PSIG	Expiration Date:	4/25/05
Certification Date	4/25/03	Laboratory:	ASG-Mobile
Part Number:	E04NI97E15A0658		

Reference Standard Information:

Type	Component	Cyl. Number	Concentration
GMIS	NITRIC OXIDE	CC158829	96.0 ppm
NTRM81678	CARBON MONOXIDE	SG9174905	50.94 ppm
NTRM 82625	CARBON DIOXIDE	CC34973	3.546%

Instrumentation:

Instrument/Model/Serial No.	Analytical Principle
ECOPhysics/CLD700EL/72411	Chemiluminescence
SIEMENS ULTRAMAT 5E K3-685	NDIR
SIEMENS ULTRAMAT 5E K3-384	NDIR

Analytical Methodology does not require correction for analytical interferences.

Certified Concentrations:

Component	Concentration	Accuracy	Procedure
NITRIC OXIDE	25.05 ppm	+/- 1%	G1
NOX	25.15 ppm		
CARBON MONOXIDE	26.72 ppm	+/- 1%	G1
CARBON DIOXIDE	2.541 %	+/- 1%	G1
NITROGEN	Balance		

Analytical Results:

1st Component: NITRIC OXIDE

1st Analysis Date: 11/11/02

R	94.50	S	25.10	Z	0.00	Conc	25.10 ppm
S	25.10	Z	0.00	R	94.50	Conc	25.10 ppm
Z	0.00	R	94.50	S	25.10	Conc	25.10 ppm
						AVG:	25.10 ppm

Liquid Technology Corporation

Industry Leader in Specialty Gases, Equipment and Service

Certificate of Analysis

- EPA PROTOCOL GAS -

Customer	Ambient Air Services (Starke, Florida)
Date	November 01, 2003
Delivery Receipt	DR-12239
Gas Standard	500 ppm Carbon Monoxide/Nitrogen - EPA PROTOCOL
Final Analysis Date	November 01, 2003
Expiration Date	November 01, 2005
Component	Carbon Monoxide
Balance Gas	Nitrogen

Analytical Data: **DO NOT USE BELOW 150 psi**

EPA Protocol, Section No. 2.2, Procedure G-1

Replicate Concentrations

Carbon Monoxide: 505.3 ppm +/- 5.1 ppm

Nitrogen: Balance

Reference Standards:

SRM:	GMIS	GMIS
Cylinder Number:	CC-92948	CC-166528
Concentration:	248.9 ppm CO/N2	533.4 ppm CO/N2
Expiration Date:	January 24, 2005	October 01, 2008

Certification Instrumentation

Component:	Carbon Monoxide
Make/Model:	Nicolet-NEXUS 470
Serial Number:	AEP99000154
Principal of Measurement:	FTIR
Last Calibration:	November 01, 2003

Cylinder Data

Cylinder Serial Number:	CC-166505	Cylinder Outlet:	CGA 350
Cylinder Volume:	140 Cubic Feet	Cylinder Pressure:	2000 psig, 70 F
Expiration Date:	November 01, 2005		

Analytical Uncertainty and NIST Traceability are in compliance with EPA-600/R-97/121.

Certified by: Dave Kaplan

Date: November 01, 2003

Unmatched Excellence

2564 Pemberton Drive - Apopka, Florida 32703 - Phone (407)-292-2990
Fax (407)-292-3313

Airgas

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5480 Hamilton Blvd.
Theodore, AL 36582

P.O. Box 190969
Mobile, AL 36619
(251) 653-2500 Fax: (251) 653-2530
http://www.airgas.com

Certificate of Analysis EPA Protocol Gas Mixture

Cylinder No:	CC165028	Reference Number:	47-56981200-001
Cylinder Pressure:	2,013 psig	Expiration Date:	09/09/2006
Certification Date:	09/09/2003	Laboratory:	ASG - Mobile

Certified Concentrations

Component	Concentration	Accuracy	Analytical Principle	Procedure
Carbon Monoxide	283.1 PPM	+/- 1%	NDIR	G1
Nitrogen	Balance			

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed.
Analytical Methodology does not require correction for analytical interferences.

Notes: AIRGAS PO 110622152 AIRGAS LOT #47-030827/4933

Do not use cylinder below 150 psig.

Carol Stewart
Approved for Release

Reference Standard Information

Type	Component	Cyl. Number	Concentration
NTRM	Carbon Monoxide	SG9153982	973.6 PPM

Analytical Results

1st Component Carbon Monoxide

1st Analysis Date:			09/02/2003				
R	973.6	S	283.1	Z	0.0000	Conc	283.1 PPM
S	283.1	Z	0.0000	R	973.6	Conc	283.1 PPM
Z	0.0000	R	973.6	S	283.1	Conc	283.1 PPM
						AVG:	283.1 PPM
2nd Analysis Date:			09/09/2003				
R	973.6	S	283.5	Z	0.0000	Conc	283.5 PPM
S	283.5	Z	0.0000	R	973.6	Conc	283.5 PPM
Z	0.0000	R	973.6	S	283.5	Conc	283.5 PPM
						AVG:	283.5 PPM

Airgas

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5480 Hamilton Blvd.
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(251) 653-2500 Fax: (251) 653-2530
www.airgas.com

Certificate of Analysis EPA Protocol Gas Mixture

Cylinder No:	CC147602	Reference Number:	47-92558900-003
Cylinder Pressure:	2,013 psig	Expiration Date:	05/10/2007
Certification Date:	05/10/2004	Laboratory:	ASG - Mobile

Certified Concentrations

Component	Concentration	Accuracy	Analytical Principle	Procedure
Carbon Monoxide	150.3 PPM	+/- 1%	NDIR	G1
Nitrogen	Balance			

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed.
Analytical Methodology does not require correction for analytical interferences.

Notes: Airgas PO 110686113 Airgas Lot # 47-040427/2557

Do not use cylinder below 150 psig.

Carol Stewart
Approved for Release

Reference Standard Information

Type	Component	Cyl. Number	Concentration
NTRM	Carbon Monoxide	SG9159527	244.7 PPM

Analytical Results

1st Component Carbon Monoxide

1st Analysis Date:			05/03/2004				
R	244.7	S	150.3	Z	0.0000	Conc	150.3 PPM
S	150.3	Z	0.0000	R	244.7	Conc	150.3 PPM
Z	0.0000	R	244.7	S	150.3	Conc	150.3 PPM
						AVG:	150.3 PPM
2nd Analysis Date:			05/10/2004				
R	244.7	S	150.3	Z	0.0000	Conc	150.3 PPM
S	150.3	Z	0.0000	R	244.7	Conc	150.3 PPM
Z	0.0000	R	244.7	S	150.3	Conc	150.3 PPM
						AVG:	150.3 PPM

Airgas

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Mobile, AL 36619
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http://www.airgas.com

Certificate of Analysis: E.P.A. Protocol Gas Mixture

Cylinder No :	SG9133450	Order No.	110618274
Cylinder Pressure:	2000 PSI	Expiration Date:	8/26/06
Certification Date	8/26/03	Laboratory:	ASG-MOBILE
Part Number:	E02NI99E15A0931		

Reference Standard Information:

Type	Component	Cyl. Number	Concentration
NTRM 00052015	PROPANE	SG9168891	50.5 ppm

Instrumentation:

Instrument/Model/Serial No.	Analytical Principle
SIEMENS FIDAMAT 5E-P, K4-391	FID

Analytical Methodology does not require correction for analytical interferences.

Certified Concentrations:

Component	Concentration	Accuracy	Procedure
PROPANE	49.68 PPM	+/-1%	G1
NITROGEN	Balance		

Analytical Results:

1st Component: PROPANE

1st Analysis Date: 8/25/03

R	50.50	S	49.68	Z	0.00	Conc	49.68 ppm
S	49.68	Z	0.00	R	50.50	Conc	49.68 ppm
Z	0.00	R	50.50	S	49.68	Conc	49.68 ppm
						AVG:	49.68 ppm

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed.

Do not use cylinder below 150 psig.

Carol Stewart
Approved for Release

Airgas

Airgas Specialty Gases
5480 Hamilton Blvd.
Theodore, AL 36582
(251) 653-2500 Fax: (251) 653-2530
www.airgas.com

Certificate of Analysis EPA Protocol Gas Mixture

Cylinder No:	CC159165	Reference Number:	47-78640300-002
Cylinder Pressure:	2,013 psig	Expiration Date:	01/27/2007
Certification Date:	01/27/2004	Laboratory:	ASG - Mobile

Certified Concentrations

Component	Concentration	Accuracy	Analytical Principle	Procedure
Propane	25.50 PPM	+/- 1%	FID	G1
Nitrogen	Balance			

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed.
Analytical Methodology does not require correction for analytical interferences.

Notes: Airgas PO 110657440DS Airgas Lot # 47-040122/0497

Do not use cylinder below 150 psig.

Cindy Hines
Approved for Release

Reference Standard Information

Type	Component	Cyl. Number	Concentration
NTRM	Propane	SG9168891	50.50 PPM

Analytical Results

1st Component Propane

1st Analysis Date: 01/27/2004

R	50.50	S	25.50	Z	0.0000	Conc	25.50 PPM
S	25.50	Z	0.0000	R	50.50	Conc	25.50 PPM
Z	0.0000	R	50.50	S	25.50	Conc	25.50 PPM
						AVG:	25.50 PPM

AIR LIQUIDE

CERTIFICATE of ANALYSIS

Interference-Free Multi-Component EPA Protocol Gases

Cyl. Number:	Cyl. Pressure:*	Document Number:
CC73931	1900psig	12719540
Assay Date:	**Expiration Date:**	**Item Number:**
3/25/2004	3/25/2007	
Customer:	**P.O. Number:**	**Notes:** CGA350
Ala-Cyl-Orlando		
	LOT #: LPX97285	

COMPONENT Name	REQUESTED Concentration	ASSAY Concentration
Propane	13.5 ppm	13.0 ±0.2 ppm
Nitrogen	Balance	Balance

EPA-600/R-97/123, Section 2.2
Procedure G-1

NOTE: Analytical uncertainty and NIST traceability are in compliance with EPA-600/R-97/123

*Cylinder should not be used when gas pressure is below 150 psig

REFERENCE STANDARD EMPLOYED FOR ANALYSIS

Std name	Std #	Conc.	Units	Std. Error	Comp.	Balance	Cyl. No.	Exp. Date	Sample No.
SRM14	1666b	9.69	ppm	0.1	C3H8	Air	CLM-005016	4/18/2007	84-31-G

Component 1: Propane — Gas Analyzer Employed		Component 2: None — Gas Analyzer Employed		Component 3: — Gas Analyzer Employed	
Manufacturer:	HP	Manufacturer:		Manufacturer:	
Model Number:	6890	Model Number:		Model Number:	
Serial Number:	8295	Serial Number:		Serial Number:	
Analytical Principle:	GC-FID	Analytical Principle:		Analytical Principle:	
MPC Calibrated:	03/01/04	MPC Calibrated:		MPC Calibrated:	

3/25/2004	Trial 1	Trial 2	Trial 3	Units
Zero	0.00	0.00	0.00	
Reference 1	9.91	10.20	10.00	
Reference 2				
Candidate	13.37	13.49	13.42	
Result	12.91	13.02	12.96	ppm
Mean Result:			12.96	ppm

Component 1

Propane

	Trial 1	Trial 2	Trial 3	Units
Zero				
Reference 1				
Reference 2				
Candidate				
Result				
Mean Result:				

Analyst Signature: Yang Qin

Air Liquide America L.P.
11426 Fairmont Parkway, La Porte, Texas 77571-6000
Phone: (281) 474-8400 Fax: (281) 474-8419

APPENDIX C

USEPA Method 5 and 12
(Partriculate and Lead)

Example Calculation
Run Summaries
Run Data
Field Data Sheets
PM Lab Data Sheet
Lead Lab Analysis

Example Calculations: IPSCO

Muscatine, Iowa **Date 07/13/04**

EAF Baghouse **Run 1**

AASI USEPA Method 5 24 Point Template - Rev 3/10-24-2003

1. Stack Pressure, (PS)

PS = PB + (PG/ 13.6)

Example. PB = 29.12, PG = -1.1 PS= 29.04 in. Hg.

2. Meter Pressure, (PM)

PM = (PB) + (*H / 13.6)

Example. *H = 2.777 PM= 29.32 in. Hg.

3. Volume Water Vapor, (VWV).

VWV = (0.04707) x (VC)

Example. VC = 156.2 VWV= 7.352 SCF

4. Meter Volume, corrected to Standard Conditions, (VSTPD)

$$VSTPD = \frac{(17.65) \times (VM) \times (PM) \times (Y)}{TM}$$

Example. VM = 269.093, PM = 29.32, TM = 579.4907, Y = 1.007 VSTPD = 242.023 SCF

5. Total Volume Of Sample, (VT).

VT = VWV + VSTPD

Example. VWV = 7.352, VSTPD = 242.023 VT = 249.375 SCF

6. Fraction Water Vapor in Gas Stream, (W)

W = (VWV / VT)

Example. VWV = 7.352, VT = 249.375 W = 0.029

7. Fraction Dry Air, (FDA).

FDA = 1.0 - W

Example. W = 0.029 FDA = 0.971

8. Molecular Weight of Stack Gas, Dry, (MD).

MD = (0.44 x %CO2) + (0.32 x %O2) + (0.28 x %N2) + (0.28 x %CO)

Example. CO2 = 0 MD = 28.84
O2 = 20.9
N2 = 79.1
CO = 0

9. Molecular Weight of Stack Gas, Stack Conditions, (MS).

MS = (MD x FDA) + (18 x W)

Example. MD = 28.84 MS = 28.52
FDA = 0.971
W = 0.029

10. Specific Gravity of Gas, Relative to Air, (GS)

GS = MS / 28.99

Example. MS = 28.522 GS = 0.984

11. Velocity of Stack Gas, as feet per minute, (U).

U =((85.49 x CP x (√H)) x √((TS) / (MS x PS))*60)

Example. CP = 0.84 U = 3458.2 FPM
H = 0.9002
TS = 658.4
PS = 29.04
MS = 28.522

12. Stack Gas Flow Rate, Stack Conditions, cubic feet per minute, (QS).

QS = U x AS

Example. U = 3458.2 QS = 980500 ACFM
AS = 283.529

13. Stack Gas Flow Rate, Dry (QD)

QD = QS x FDA

Example. QS = 980500 QD = 951591 CFMD
FDA = 0.971

Example Calculations: IPSCO

Muscatine, Iowa **Date 07/13/04**

EAF Baghouse **Run 1**

AASI USEPA Method 5 24 Point Template - Rev 3/10-24-2003

14. Stack Gas Flow Rate, Standard Temperature and Pressure, Dry, (QSTPD)

QSTPD = (528 x QD x PS) / (TS x 29.92)

Example QD = 951591 Therefore QSTPD = 740656 SCFMD
PS = 29.04
TS = 658.4

15. Percent Isokinetic Volume Sampled, (PISO)

$$PISO = \frac{(100) \times Ts \times VSTPD \times Pstd}{Tstd \times U \times \Theta \times An \times Ps \times FDA}$$

Example. AN = 0.000341 PISO = 100.66
Θ = 270 Pstd = 29.92
VSTPD = 242.023 Tstd = 528
Ts = 658.4 Ps = 29.04
U = 3458.199 FDA = 0.971

16. Particulate Concentration, grains per Standard Cubic Foot, (ESTP).

ESTP = (.01543 x Mg.) / VSTPD

Example. Mg. = 11.1 ESTP = 0.0007 Grs/ SCF.
VSTPD = 242.023

17. Mass Emission Rate, Lbs / Hr, (EM).

$$EM = \frac{ESTP \times QSTPD \times 60 \text{ Min/ Hr}}{7000}$$

Example.

QSTPD = 740656 EM = 4.49 Lbs/ Hr

PB = Barometric Pressure, inches of Hg.
PG = Static Pressure of stack, inches of H2O.
*H = Average meter orifice pressure differential inches of H2O.
VC = Volume condensate liquid volume + gain in silica gel wt., grams.
PM = See eq. 2.
TM = Temperature, meter, degrees Rankine.
Y = Meter Correction Factor
VWV = See eq. 3.
VSTPD = See eq. 4.
VWV = See eq. 3
VT = See eq. 5
W = See eq. 6
MD = See eq. 8
CP = Pitot Coefficient
H = Average of square roots of velocity heads, in H2O.
TS = Temperature of stack, deg. R.
PS = See eq. 1
GS = See eq. 10
VSTPD = See eq. 4
AN = Area Nozzle, Sq Ft
Mg. = Weight of particulate catch in milligrams.

Ambient Air Services, Inc.
Environmental Consultants
106 Ambient Airway
Starke, FL. 32091
(904) 964-8440

AASI USEPA Method 5 24 Point Template - Rev 3/10-24-2003

PM Summary Run 1

Facility	IPSCO	**Impinger Condensate**	94.0
Location	Muscatine, Iowa	**Silica Gel Condensate**	62.2
Stack	Baghouse	**Volume Metered**	269.093
Run Date	7/13/2004	**Meter Temp (Deg R)**	579.5
Run Number	1	**Carbon Dioxide, %**	0.0
Start Time	9:14	**Oxygen, %**	20.9
Finish Time	14:04	**Carbon Monoxide, %**	0.0
Weather	Clear	**Nitrogen, %**	79.1
Total Time (minutes)	270	**Condensate Volume**	156.2
Barometric Pressure	29.12	**Delta H (inches H2O)**	2.7770
Stack Diameter (inches)	228.00	**Stack Pressure**	29.039
Stack Area square feet	283.529	**Stack Temp (Deg R)**	658.4
Nozzle Area square feet	0.0003409	**Filter Weight (grams)**	0.0046
Number of Points	24	**Prefilter Weight (grams)**	0.0065
Avg of SQRT of V.H.	0.9002	**Total Particulate (grams)**	0.0111
Meter Correction (Y)	1.007		
Nozzle Diameter	0.250		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		7.352
Gas Volume Sampled, STPD		242.023
Total Volume, STP		249.375
Moisture in stack gas, volume fraction		0.029
Dry Stack Gas, volume fraction		0.971
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		28.53
Specific gravity of Stack Gas Relative to Air		0.984
Excess Air (%)		14864.9
Average Stack Velocity, FPM		3457.7
Actual Stack Gas Flow Rate, ACFM		980358
Actual Stack Gas Flow Rate, ACFMD		951928
Stack Gas Flow Rate, SCFMD		740915
Stack Gas Flow Rate Wet, SCFMW		763043
Percent Isokinetic		101
Stack Emissions:	**Grains per DSCF**	0.0007
	Pounds per Hour	4.49

617.3°R → 157.3°F
lowest Ts listed: 164°F

Ambient Air Services, Inc.
Environmental Consultants
106 Ambient Airway
Starke, FL. 32091
(904) 964-8440

AASI USEPA Method 5 24 Point Template - Rev 3/10-24-2003

PM Summary Run 2

Facility	IPSCO	Impinger Condensate	84.0
Location	Muscatine, Iowa	Silica Gel Condensate	63.1
Stack	Baghouse	Volume Metered	224.197
Run Date	7/14/2004	Meter Temp (Deg R)	560.7
Run Number	2	Carbon Dioxide, %	0.0
Start Time	8:16	Oxygen, %	20.9
Finish Time	13:20	Carbon Monoxide, %	0.0
Weather	Scattered	Nitrogen, %	79.1
Total Time (minutes)	285	Condensate Volume	147.1
Barometric Pressure	29.14	Delta H (inches H2O)	1.6960
Stack Diameter (inches)	228.00	Stack Pressure	29.074
Stack Area square feet	283.529	Stack Temp (Deg R)	~~617.3~~
Nozzle Area square feet	0.0002592	Filter Weight (grams)	0.0053
Number of Points	24	Prefilter Weight (grams)	0.0155
Avg of SQRT of V.H. 0.9167	~~0.9494~~	Total Particulate (grams)	0.0208
Meter Correction (Y)	1.007		
Nozzle Diameter	0.218		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		6.924
Gas Volume Sampled, STPD		207.967
Total Volume, STP		214.891
Moisture in stack gas, volume fraction		0.032
Dry Stack Gas, volume fraction		0.968
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		28.49
Specific gravity of Stack Gas Relative to Air		0.983
Excess Air (%)		14864.9
Average Stack Velocity, FPM		3419.8
Actual Stack Gas Flow Rate, ACFM		969612
Actual Stack Gas Flow Rate, ACFMD		938584
Stack Gas Flow Rate, SCFMD		780107
Stack Gas Flow Rate Wet, SCFMW		805896
Percent Isokinetic		102
Stack Emissions:	Grains per DSCF	0.0015
	Pounds per Hour	10.32

1.69

173.0

Ambient Air Services, Inc.
Environmental Consultants
106 Ambient Airway
Starke, FL. 32091
(904) 964-8440

AASI USEPA Method 5 24 Point Template - Rev 3/10-24-2003

PM Summary Run 3

Facility	IPSCO	Impinger Condensate	75.0
Location	Muscatine, Iowa	Silica Gel Condensate	52.0
Stack	Baghouse	Volume Metered	225.159
Run Date	7/15/2004	Meter Temp (Deg R)	575.3
Run Number	3	Carbon Dioxide, %	0.0
Start Time	9:42	Oxygen, %	20.9
Finish Time	14:54	Carbon Monoxide, %	0.0
Weather	Clear	Nitrogen, %	79.1
Total Time (minutes)	292	Condensate Volume	127.0
Barometric Pressure	29.17	Delta H (inches H2O)	1.7180
Stack Diameter (inches)	228.00	Stack Pressure	29.101
Stack Area square feet	283.529	Stack Temp (Deg R)	667.3
Nozzle Area square feet	0.0002592	Filter Weight (grams)	0.0091
Number of Points	24	Prefilter Weight (grams)	0.0085
Avg of SQRT of V.H.	0.9271	Total Particulate (grams)	0.0176
Meter Correction (Y)	1.007		
Nozzle Diameter	0.218		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		5.978
Gas Volume Sampled, STPD		203.807
Total Volume, STP		209.785
Moisture in stack gas, volume fraction		0.028
Dry Stack Gas, volume fraction		0.972
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		28.54
Specific gravity of Stack Gas Relative to Air		0.984
Excess Air (%)		14864.9
Average Stack Velocity, FPM		3580.6
Actual Stack Gas Flow Rate, ACFM		1015204
Actual Stack Gas Flow Rate, ACFMD		986778
Stack Gas Flow Rate, SCFMD		759414
Stack Gas Flow Rate Wet, SCFMW		781290
Percent Isokinetic		101
Stack Emissions:	Grains per DSCF	0.0013
	Pounds per Hour	8.67

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Environmental Consultants

106 Ambient Airway
Starke, FL. 32091
(904) 964-8440

AASI USEPA Method 5 24 Point Template - Rev 3/10-24-2003

Volumetric Flow Calculations Worksheet

Data Request Entry Area	PM Run 1
Facility	IPSCO
Location	Muscatine, Iowa
Source	Baghouse
Date	07/13/04
Run Number	1
Start Time	9:14
Finish Time	14:04
Weather	Clear
Total Time (minutes)	270.0
Number of Points	24
Barometric Pressure	29.12
Static Pressure (inches of water)	-1.10
Stack Diameter (inches)	228.00
Nozzle Diameter (inches)	0.250
Meter Y Factor	1.007
Pitot Factor	0.84
Final Meter Reading (cubic feet)	1064.452
Initial Meter Reading (cubic feet)	795.359
Condensate (ml)	94
Silica Gel Weight (grams)	62.2
Carbon Dioxide (percent)	0.0
Oxygen (percent)	20.9
Carbon Monoxide (percent)	0.0
Nitrogen (percent)	79.1
Filter Weight (grams)	0.0046
Prefilter Weight (grams)	0.0065
Isokinetic Rate Factor	3.41

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AASI USEPA Method 5 24 Point Template - Rev 3/10-24-2003

Field Data Points - PM Run 1				IPSCO		Baghouse	
Port	Traverse Point	Velocity Head	Meter Orifice	Stack Temp. (°F)	Meter Inlet Temp. (°F)	Meter Outlet Temp. (°F)	Square Root of Velocity Head
1	1	0.89	3.03	204	89	88	0.94
	1	0.87	2.97	200	105	104	0.93
	2	0.87	2.97	199	105	104	0.93
	2	0.74	2.52	209	110	105	0.86
	3	0.82	2.80	194	113	105	0.91
	3	1.00	3.41	196	114	105	1.00
	4	0.87	2.97	200	115	105	0.93
	4	0.97	3.31	195	116	106	0.98
	5	0.87	2.97	188	119	107	0.93
	5	0.91	3.10	203	121	108	0.95
	6	0.84	2.86	207	123	110	0.92
	6	0.69	2.35	210	123	111	0.83
2	1	0.62	2.11	204	121	113	0.79
	1	0.83	2.83	203	121	114	0.91
	2	1.10	3.75	189	126	115	1.05
	2	0.92	3.14	190	126	115	0.96
	3	0.76	2.59	192	126	116	0.87
	3	0.79	2.69	198	127	116	0.89
	4	0.90	3.07	183	129	117	0.95
	4	0.69	2.35	206	129	117	0.83
	5	0.94	3.21	199	128	117	0.97
	5	0.95	3.24	172	129	118	0.97
	6	0.79	2.69	164	128	118	0.89
	6	0.86	2.93	184	126	118	0.93
3	1	0.78	2.66	221	124	118	0.88
	1	0.83	2.83	217	124	118	0.91
	2	0.79	2.69	208	125	118	0.89
	2	0.75	2.56	189	127	118	0.87
	3	0.77	2.63	198	130	118	0.88
	3	0.76	2.59	205	129	118	0.87
	4	0.88	3.00	200	130	119	0.94
	4	0.70	2.39	195	131	119	0.84
	5	0.81	2.76	202	131	119	0.90
	5	0.74	2.52	196	130	119	0.86
	6	0.68	2.32	191	129	119	0.82
	6	0.66	2.25	206	130	119	0.81

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AASI USEPA Method 5 24 Point Template - Rev 3/10-24-2003

4	**1**	1.00	3.41	201	121	119	1.00
	1	0.94	3.21	190	120	118	0.97
	2	0.89	3.03	191	121	117	0.94
	2	0.80	2.73	194	123	117	0.89
	3	0.66	2.25	193	126	116	0.81
	3	0.74	2.52	192	128	116	0.86
	4	1.10	3.75	182	129	116	1.05
	4	0.89	3.03	169	128	116	0.94
	5	0.72	2.46	190	128	116	0.85
	5	0.65	2.22	202	129	117	0.81
	6	0.70	2.39	235	130	117	0.84
	6	0.69	2.35	218	131	117	0.83
	6	0.75	2.56	219	132	118	0.87
	6	0.68	2.32	218	131	118	0.82
	5	0.70	2.39	210	131	118	0.84
	5	0.95	3.24	191	132	119	0.97
	4	0.79	2.69	194	134	119	0.89
	4	0.68	2.32	206	135	119	0.82

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AASI USEPA Method 5 24 Point Template - Rev 3/10-24-2003

Volumetric Flow Calculations Worksheet

Data Request Entry Area	PM Run 2
Facility	IPSCO
Location	Muscatine, Iowa
Source	Baghouse
Date	07/14/04
Run Number	2
Start Time	8:16
Finish Time	13:20
Weather	Scattered
Total Time (minutes)	285.0
Number of Points	24
Barometric Pressure	29.14
Static Pressure (inches of water)	-0.90
Stack Diameter (inches)	228.00
Nozzle Diameter (inches)	0.218
Meter Y Factor	1.007
Pitot Factor	0.84
Final Meter Reading (cubic feet)	293.836
Initial Meter Reading (cubic feet)	69.639
Condensate (ml)	84
Silica Gel Weight (grams)	63.1
Carbon Dioxide (percent)	0.0
Oxygen (percent)	20.9
Carbon Monoxide (percent)	0.0
Nitrogen (percent)	79.1
Filter Weight (grams)	0.0053
Prefilter Weight (grams)	0.0155
Isokinetic Rate Factor	2.00

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AASI USEPA Method 5 24 Point Template - Rev 3/10-24-2003

Field Data Points - PM Run 2				IPSCO		Baghouse	
Port	Traverse Point	Velocity Head	Meter Orifice	Stack Temp. (°F)	Meter Inlet Temp. (°F)	Meter Outlet Temp. (°F)	Square Root of Velocity Head
1	1	0.85	1.70	112	83	83	0.92
	1	0.92	1.84	123	84	83	0.96
	2	0.89	1.78	140	88	83	0.94
	2	1.00	2.00	146	91	84	1.00
	3	1.10	2.19	140	96	85	1.05
	3	0.84	1.68	129	98	86	0.92
	4	0.80	1.60	149	101	87	0.89
	4	0.90	1.80	158	103	89	0.95
	5	0.87	1.74	164	105	91	0.93
	5	0.86	1.72	164	107	93	0.93
	6	0.84	1.68	168	109	95	0.92
	6	0.85	1.70	168	110	96	0.92
2	1	1.10	2.19	149	97	100	1.05
	1	1.00	2.00	157	109	100	1.00
	2	0.97	1.94	157	111	101	0.98
	2	0.80	1.60	169	112	101	0.89
	3	0.95	1.90	165	114	102	0.97
	3	0.74	1.48	168	113	103	0.86
	4	0.68	1.36	174	116	104	0.82
	4	0.70	1.40	180	117	105	0.84
	5	0.66	1.32	182	118	106	0.81
	5	0.66	1.32	175	118	106	0.81
	6	0.66	1.32	172	118	107	0.81
	6	0.76	1.52	165	119	108	0.87
3	1	0.69	1.38	171	117	109	0.83
	1	0.70	1.40	178	116	110	0.84
	2	0.68	1.36	173	115	109	0.82
	2	0.66	1.32	166	118	109	0.81
	3	0.60	1.20	176	118	110	0.77
	3	0.66	1.32	183	118	110	0.81
	4	0.70	1.40	183	118	109	0.84
	4	0.68	1.36	184	118	109	0.82
	5	0.75	1.50	181	118	109	0.87
	5	0.83	1.66	175	118	109	0.91
	6	0.72	1.44	182	118	109	0.85
	6	0.74	1.48	189	119	109	0.86

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AASI USEPA Method 5 24 Point Template - Rev 3/10-24-2003

4	1	1.10	2.19	188	115	110	1.05
	1	0.92	1.84	192	114	110	0.96
	2	0.89	1.78	202	114	109	0.94
	2	0.89	1.78	214	115	108	0.94
	3	0.87	1.74	202	117	109	0.93
	3	0.95	1.90	184	117	109	0.97
	4	1.10	2.19	185	118	108	1.05
	4	1.10	2.19	189	117	108	1.05
	5	1.10	2.19	175	117	108	1.05
	5	1.10	2.19	170	115	108	1.05
	6	0.87	1.74	183	116	108	0.93
	6	0.78	1.56	189	117	108	0.88
	6	0.86	1.72	189	116	107	0.93
	6	0.76	1.52	180	117	107	0.87
	5	0.82	1.64	196	116	106	0.91
	5	0.85	1.70	198	116	106	0.92
	4	0.89	1.78	193	117	106	0.94
	4	0.90	1.80	185	116	106	0.95
	3	0.92	1.84	180	115	105	0.96
	3	1.10	2.19	175	115	105	1.05
	2	0.65	1.30	175	114	105	0.81

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AASI USEPA Method 5 24 Point Template - Rev 3/10-24-2003

Volumetric Flow Calculations Worksheet

Data Request Entry Area	PM Run 3
Facility	IPSCO
Location	Muscatine, Iowa
Source	Baghouse
Date	07/15/04
Run Number	3
Start Time	9:42
Finish Time	14:54
Weather	Clear
Total Time (minutes)	292.0
Number of Points	24
Barometric Pressure	29.17
Static Pressure (inches of water)	-0.94
Stack Diameter (inches)	228.00
Nozzle Diameter (inches)	0.218
Meter Y Factor	1.007
Pitot Factor	0.84
Final Meter Reading (cubic feet)	519.433
Initial Meter Reading (cubic feet)	294.274
Condensate (ml)	75
Silica Gel Weight (grams)	52.0
Carbon Dioxide (percent)	0.0
Oxygen (percent)	20.9
Carbon Monoxide (percent)	0.0
Nitrogen (percent)	79.1
Filter Weight (grams)	0.0091
Prefilter Weight (grams)	0.0085
Isokinetic Rate Factor	2.00

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AASI USEPA Method 5 24 Point Template - Rev 3/10-24-2003

Field Data Points - PM Run 3				IPSCO		Baghouse	
Port	Traverse Point	Velocity Head	Meter Orifice	Stack Temp. (°F)	Meter Inlet Temp. (°F)	Meter Outlet Temp. (°F)	Square Root of Velocity Head
1	1	0.90	1.80	196	106	106	0.95
	1	0.84	1.68	198	108	106	0.92
	2	0.91	1.82	200	111	106	0.95
	2	1.00	2.00	193	114	107	1.00
	3	0.86	1.72	187	117	108	0.93
	3	0.84	1.68	207	118	108	0.92
	4	0.92	1.84	212	119	109	0.96
	4	0.87	1.74	234	120	109	0.93
	5	0.98	1.96	226	121	110	0.99
	5	0.90	1.80	211	122	111	0.95
	6	0.88	1.76	221	123	111	0.94
	6	0.80	1.60	218	123	112	0.89
2	1	0.84	1.68	203	119	113	0.92
	1	1.10	2.19	197	120	114	1.05
	2	0.80	1.60	193	121	114	0.89
	2	0.83	1.66	204	121	113	0.91
	3	0.82	1.64	206	122	113	0.91
	3	0.76	1.52	218	123	113	0.87
	4	0.79	1.58	218	123	113	0.89
	4	0.86	1.72	206	123	113	0.93
	5	0.80	1.60	210	124	113	0.89
	5	0.84	1.68	207	124	114	0.92
	6	0.73	1.46	215	124	114	0.85
	6	0.80	1.60	194	123	113	0.89
3	1	0.96	1.92	191	121	114	0.98
	1	0.76	1.52	183	119	114	0.87
	2	0.85	1.70	207	120	113	0.92
	2	0.80	1.60	213	120	113	0.89
	3	0.73	1.46	223	121	112	0.85
	3	0.71	1.42	232	120	112	0.84
	4	0.69	1.38	228	121	112	0.83
	4	0.72	1.44	224	120	111	0.85
	5	0.72	1.44	222	120	111	0.85
	5	0.80	1.60	209	121	111	0.89
	6	0.78	1.56	192	120	111	0.88
	6	0.68	1.36	186	121	111	0.82

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AASI USEPA Method 5 24 Point Template - Rev 3/10-24-2003

4	1	0.83	1.66	196	118	111	0.91
	1	0.89	1.78	188	116	111	0.94
	2	0.79	1.58	193	117	110	0.89
	2	0.79	1.58	213	117	109	0.89
	3	0.83	1.66	211	118	109	0.91
	3	0.82	1.64	200	118	109	0.91
	4	0.72	1.44	197	118	109	0.85
	4	0.68	1.36	207	118	109	0.82
	5	0.80	1.60	190	119	109	0.89
	5	0.76	1.52	179	118	109	0.87
	6	0.74	1.48	197	117	108	0.86
	6	0.66	1.32	206	116	108	0.81
	6	0.67	1.34	221	116	107	0.82
	6	0.67	1.34	229	115	107	0.82
	5	0.68	1.36	234	115	106	0.82
	5	0.70	1.40	230	115	105	0.84
	4	0.85	1.70	224	114	105	0.92
	4	0.88	1.76	206	114	105	0.94
	3	0.84	1.68	194	114	104	0.92
	3	0.88	1.76	186	113	104	0.94
	2	0.72	1.44	182	113	104	0.85
	2	0.72	1.44	192	113	103	0.85
	1	0.70	1.40	204	112	103	0.84

AMBIENT AIR SERVICES, INC.
STARKE, FL
(904)964-8440

SOURCE SAMPLING FIELD DATA SHEET

FACILITY:	IPSCO Iowa							RUN No.	1 - PM
SOURCE:	Baghouse							DATE:	7/13/04
WEATHER:	Sunny							ORSAT/Fyrite/Analyzer	
TYPE TEST:	M12 - Lead							CO2	0
TESTERS:	DP, RW, JE							O2	20.9
PTS @	24	MIN/PT	10	TOT MIN	240 +			CO	0
Y meter	1.007	Pretest Ts	180	Pretest Tm	90			Factor	3.41
F.D.A.	0.99	Stack TC ID		TC12.0					
Probe ID		Heater Box TC ID		HB-7				F=1570(aXc)/b	
Pitot ID		Impinger TC ID		TC-04-1				a = (Dn^2XFDA)^2	
Upstream Dia.	—	Comments:						b= (1.6+FDA)Ts	
Downstream Dia.	—							c= Tm X DHa	

BAROMETRIC PRESS	29.12			
METER BOX ID	Box # 8			
METER DELTA Ha	1.711			
PITOT CORR. FACTOR	0.84			
PROBE TEMP.	7250			
STACK ID (IN):	228			
PORT LENGTH	~64			
NOZZLE DIA.	Average: 0.250			
Cal Checks	1 0.250	2 0.250	3 0.250	

TIME START	~~828~~ CDT 914	START VOLUME	795.359	STAT.PRESS
TIME END	1404 CDT	END VOLUME	1064.452	-1.1

LEAK CHECK: PRE.TEST 0.01 | POST: CFM@15". 0.005 @ 13 " Hg.

PITOT LEAK CHECK Im @ 4.5 for 30 sec, St = @ 6.5 for 30 sec AT 3"

VOL.WATER COLLECTED 94 ml

WT. MOIS. SILICA GEL gr

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	VACUUM INCHES Hg.	STACK GAS TEMP.	FILTER TEMP. (F)	LAST IMPINGER TEMP.	METER TEMP (F)	METER TEMP (F)	
1-1	0	795.359	0.89	3.0	8	204	235	62	89	88	
1	5	800.3	0.87	3.0	9.5	200	227	64	105	104	
2	10	805.3	0.87	3.0	9.5	199	238	58	105	104	
2	15	810.3	0.74	2.5	8.5	209	232	57	110	105	
3	20	815.1	0.82	2.8	8.5	194	232	58	113	105	
3	25	820.0	1.0	3.4	10.5	196	234	58	114	105	
4	30	825.3	0.87	3.0	10	200	238	58	115	105	
4	35	830.6	0.97	3.3	10.5	195	238	57	116	106	
5	40	835.9	0.87	3.0	10	188	232	59	119	107	
5	45	841.0	0.91	3.1	10	203	239	59	121	108	
6	50	846.2	0.84	2.9	9.5	207	237	58	123	110	
6	55	851.3	0.69	2.4	8	210	239	56	123	111	
	60	856.022									

10.34 2405 2195 @ 11 Tm ~105 2611

99.4%

Pg #2

AMBIENT AIR SERVICES, INC. STARKE, FL (904)964-8440	Source Sampling Field Data Continuation Sheet #1		
	FACILITY: Ipsco Iowa	RUN No.	1 - PM (M5)
	SOURCE: Baghouse	DATE:	7/13/04

F = 3.41

PM 10 = 61
PM = 63

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	VACUUM INCHES Hg.	STACK GAS TEMP.	FILTER TEMP. (F)	LAST IMPINGER TEMP.	METER TEMP (F)	METER TEMP (F)	
2-1	65	856.022	0.62	2.1	6.5	204	236	60	121	113	
1	70	860.3	0.83	2.8	8.5	203	237	62	121	114	
2	75	865.2	1.1	3.8	11.5	189	235	62	126	115	
2	80	870.8	0.92	3.1	10	190	235	63	126	115	
3	85	876.1	0.76	2.6	8	192	239	63	126	116	
3	90	881.0	0.79	2.7	8.5	198	237	61	127	116	
4	95	885.9	0.90	3.1	9.5	183	240	60	129	117	
4	100	891.2	0.69	2.4	7	206	240	60	129	117	
5	105	895.9	0.94	3.2	10	199	233	59	128	117	
5	110	901.3	0.95	3.2	10	172	235	58	129	118	
6	115	906.6	0.79	2.7	8.5	164	236	58	128	118	
6	120	911.6	0.86	2.9	8.5	184	236	58	126	118	
3-1	125	916.644	0.78	2.7	8	221	240	58	124	118	
1	130	921.5	0.83	2.8	8.5	217	240	58	124	118	
2	135	926.5	0.79	2.7	8.5	208	241	60	125	118	
2	140	931.5	0.75	2.6	8	189	238	63	127	118	
3	145	936.5	0.77	2.6	8	198	240	64	130	118	
3	150	941.3	0.76	2.6	8	205	238	64	129	118	
4	155	946.2	0.88	3.0	9	200	238	65	130	119	
4	160	951.4	0.70	2.4	7.5	195	238	65	131	119	
5	165	956.1	0.81	2.8	8.5	202	240	65	131	119	
5	170	961.1	0.74	2.5	8	196	238	66	130	119	
6	175	966.0	0.68	2.3	7.5	191	236	66	129	119	
6	180	970.6	0.66	2.3	7.5	206	237	67	130	119	
	180	975.422									

Port 2 Tm = 2910 + 2957
Dp = 10.15 Ts = 2284 + 2406
+915

Pg #3
@.199 - .247

AMBIENT AIR SERVICES, INC.
STARKE, FL
(904)964-8440

Source Sampling Field Data Continuation Sheet #1

FACILITY:	IPSCO IOWA	RUN No.	1 - PM
SOURCE:	Baghouse	DATE:	7/13/04

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	VACUUM INCHES Hg.	STACK GAS TEMP.	FILTER TEMP. (F)	LAST IMPINGER TEMP.	METER TEMP (F)	METER TEMP (F)	
4-1	180	975.420	1.0	3.4	11	~~237~~ 201	237	60	121	119	
1	185	980.7	0.94	3.2	10.5	190	239	58	120	118	
2	190	986.1	0.89	3.0	10	191	238	58	121	117	
2	195	991.4	0.80	2.7	10	194	238	57	123	117	
3	200	996.4	0.66	2.2	9.5	193	231	56	126	116	
3	205	1001.1	0.74	2.5	8	192	236	56	128	116	
4	210	1005.9	1.1	3.7	12	182	238	55	129	116	
4	215	1011.5	0.89	3.0	10.5	169	234	56	128	116	
5	220	1016.8	0.72	2.4	8	190	236	56	128	116	
5	225	1021.5	0.65	2.2	8	202	240	57	129	117	
6	230	1026.2	0.70	2.4	7.5	235	240	57	130	117	
6	235	1030.7	0.69	2.4	7.5	218	237	58	131	117	
6	240	1035.5	0.75	2.5	8	219	232	59	132	118	
6	245	1040.2	0.68	2.3	7.5	218	231	59	131	118	
5	250	1044.8	0.70	2.4	7.5	210	240	59	131	118	
5	255	1049.5	0.65	3.2	10.5	191	237	59	132	119	
4	260	1054.8	0.79	2.7	9	194	236	59	134	119	
4	265	1059.8	0.68	2.3	7.5	206	238	60	135	119	
	270	1064.452									

AMBIENT AIR SERVICES, INC. STARKE, FL (904)964-8440

SOURCE SAMPLING FIELD DATA SHEET

FACILITY:	IPSCO Iowa							RUN No.	2 - PM
SOURCE:	Baghouse							DATE:	7/14/04
WEATHER:	clear							ORSAT/Fyrite/Analyzer	
TYPE TEST:	Method 12							CO2	0
TESTERS:	DP, SE, RW							O2	20.9
PTS @	24	MIN/PT	10	TOT MIN	240			CO	0
Y meter	1.007	Pretest Ts	190	Pretest Tm	105			Factor	1.995
F.D.A.	0.99	Stack TC ID		TC12.0					
Probe ID		Heater Box TC ID		HB-7				F=1570(aXc)/b	
Pitot ID		Impinger TC ID		TC-64-1				a = (Dn^2XFDA)^2	
Upstream Dia.	–	Comments:						b= (1.6+FDA)Ts	
Downstream Dia.	–							c= Tm X DHa	

BAROMETRIC PRESS	29.14				
METER BOX ID	Box #8				
METER DELTA Ha	1.711				
PITOT CORR. FACTOR	0.84				
PROBE TEMP.	> 250				
STACK ID (IN):	228				
PORT LENGTH	~6				
NOZZLE DIA.	Average: 0.218				
Cal Checks	1 0.217	2 0.218	3 0.219		

TIME START	816 CDT	START VOLUME	69.639
TIME END	1520	END VOLUME	293.836

STAT.PRESS
-0.9

LEAK CHECK:	POST:	PITOT LEAK CHECK	VOL.WATER COLLECTED 84	ml
PRE.TEST 0.012	CFM@15". 0.006@12 " Hg.	= OK AT 3"	WT. MOIS. SILICA GEL	gr

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	VACUUM INCHES Hg.	STACK GAS TEMP.	FILTER TEMP. (F)	LAST IMPINGER TEMP.	METER TEMP (F)	METER TEMP (F)	
1-1	0	69.639	0.85	1.7	7	112	230	60	83	83	
1	5	73.6	0.92	1.8	7	123	234	56	84	83	
2	10	77.5	0.89	1.8	8	140	235	56	88	83	
2	15	81.5	1.0	2.0	9	146	230	58	91	84	
3	20	85.7	1.1	2.2	10	140	230	60	96	85	
3	25	90.1	0.84	1.7	8	129	232	62	98	86	
4	30	94.1	0.80	1.6	7.5	149	234	64	101	87	
4	35	97.9	0.90	1.8	8	158	232	65	103	89	
5	40	101.9	0.87	1.7	8	164	234	66	105	91	
5	45	105.9	0.86	1.7	8	164	236	66	107	93	
6	50	109.8	0.84	1.7	8	168	233	64	109	95	
6	55	113.8	0.85	1.7	8	168	235	66	110	96	
	66	117.747							1175	1055	

T_s = 1761

Pg1 Total T_m = 2230 ISO = 100.1

Dp = 10.72

AMBIENT AIR SERVICES, INC.
STARKE, FL
(904)964-8440

12681

Source Sampling Field Data Continuation Sheet #1

FACILITY: IPSCO Iowa | RUN No. 2-PM
SOURCE: Baghouse | DATE: 7/14/04

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	VACUUM INCHES Hg.	STACK GAS TEMP.	FILTER TEMP. (F)	LAST IMPINGER TEMP.	METER TEMP (F)	METER TEMP (F)	
2-1	60	117.747	1.1	2.2	10	149	239	55	97	106	
1	65	122.2	1.0	2.0	9	157	240	64	109	100	
2	70	126.5	0.97	1.9	9	157	238	64	111	101	
2	75	130.6	0.80	1.6	7.5	169	236	64	112	101	
3	80	134.5	0.95	1.9	8.5	165	240	64	114	102	
3	85	138.6	0.74	1.5	7	168	239	65	113	103	
4	90	142.3	0.68	1.4	6.5	174	241	65	116	104	
4	95	146.0	0.70	1.4	6.5	180	240	66	117	105	
5	100	149.6	0.66	1.3	6.5	182	242	66	118	106	
5	105	153.1	0.66	1.3	6.5	175	238	61	118	106	
6	110	156.7	0.66	1.3	6.5	172	234	61	118	107	
6	115	160.4	0.76	1.5	7	165	240	61	119	108	1362+1243
3-1	120	163.887	0.69	1.4	6.5	171	231	65	117	109	
1	125	167.5	0.70	1.4	6.5	178	233	63	116	110	
2	130	171.1	0.68	1.4	6.5	173	235	63	115	109	
2	135	174.6	0.66	1.3	6.5	166	238	64	118	109	
3	140	178.2	0.60	1.2	6	176	236	60	118	110	
3	145	181.6	0.66	1.3	6	183	235	57	118	110	
4	150	185.1	0.70	1.4	6.5	183	238	56	118	109	
4	155	188.7	0.68	1.4	6.5	184	234	55	118	109	
5	160	192.3	0.75	1.5	7	181	237	54	118	109	
5	165	196.0	0.83	1.7	7.5	175	238	54	118	109	
6	170	200.0	0.72	1.4	6.5	182	233	56	118	109	
6	175	203.7	0.74	1.5	7	189	236	56	119	109	
	180	207.372							1411	1311	

Total at 120 Dp = 9.68 Ts = 2013 Jso = 100.05

Total at 180 Dp = 8.41 Ts = 2141 Jso = 100.26

Totals Dp = 28.81 = 0.800 Ts = 5915 = 164.3

Pg #3

AMBIENT AIR SERVICES, INC. STARKE, FL (904)964-8440

Source Sampling Field Data Continuation Sheet #1

FACILITY:	IPSCO Iowa	RUN No.	2-PM
SOURCE:	Baghouse	DATE:	7/14/04

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY ~~Dp~~	ORIFICE PRESS. DROP	VACUUM INCHES Hg.	STACK GAS TEMP.	FILTER TEMP. (F)	LAST IMPINGER TEMP.	METER TEMP (F)	METER TEMP (F)	
4-1	180	207.372	~~0.93~~ 1.1	2.2	10	188	231	54	115	110	
1	185	211.8	0.92	1.8	8.5	192	240	53	114	110	
2	190	215.9	0.89	1.8	8.5	202	239	55	114	109	
2	195	220.0	0.89	1.8	8.5	214	238	56	115	108	
3	200	224.0	0.87	1.7	8	202	228	57	117	109	
3	205	228.1	0.95	1.9	8.5	184	235	59	117	109	
4	210	232.2	1.1	2.2	10	185	229	61	118	108	
4	215	236.7	1.1	2.2	10	189	240	61	117	108	
5	220	241.2	~~0.68~~ 1.1	~~1.4~~ 2.2	10	175	237	63	117	108	
5	225	245.7	1.1	2.2	10	170	230	64	115	108	
6	230	250.2	0.87	1.7	8.5	183	242	64	116	108	
6	235	254.2	0.78	1.6	7.5	189	243	64	~~105~~ 117	108	
6	240	258.1	0.86	1.7	7.5	189	239	65	116	107	
6	245	262.0	0.76	1.5	7	180	239	65	117	107	
5	250	265.8	0.82	1.6	7.5	196	245	66	116	106	
5	255	269.6	0.85	1.7	7.5	198	239	66	116	106	
4	260	273.6	0.89	1.8	8	193	238	66	117	106	
4	265	277.6	0.90	1.8	8	185	236	67	116	106	
3	270	281.7	0.92	1.8	8	180	240	66	115	105	
3	275	285.7	1.1	2.2	10	175	240	66	115	105	
2	280	290.3	0.65	1.3	7	175	235	67	114	105	
2	285	293.836									

Dp =
T_s =
T_m =

Overall sums

sums	Avg
Dp	

AMBIENT AIR SERVICES, INC.
STARKE, FL
(904)964-8440

SOURCE SAMPLING FIELD DATA SHEET

FACILITY:	IPSCO Iowa							RUN No.	3-PM
SOURCE:	Baghouse							DATE:	7/15/04
WEATHER:	clear							ORSAT/Fyrite/Analyzer	
TYPE TEST:	M12							CO2	0
TESTERS:	RW, DP, JE							O2	20.9
PTS @	24	MIN/PT	10	TOT MIN	240			CO	0
Y meter	1.007	Pretest Ts	190	Pretest Tm	105			Factor	1.995
F.D.A.	0.99	Stack TC ID		TC 12.0					
Probe ID		Heater Box TC ID		HB-7				F=1570(aXc)/b	
Pitot ID		Impinger TC ID		TC-04-1				a = (Dn^2XFDA)^2	
Upstream Dia.		Comments:						b= (1.6+FDA)Ts	
Downstream Dia.								c= Tm X DHa	

BAROMETRIC PRESS	29.17			
METER BOX ID	Box #8			
METER DELTA Ha	1.711			
PITOT CORR. FACTOR	0.84			
PROBE TEMP.	> 250			
STACK ID (IN):	228			
PORT LENGTH	26"			
NOZZLE DIA.	Average: 0.218			
Cal Checks	10.218	2	3	

TIME START	800 1047	942	START VOLUME	294.274	STAT.PRESS
TIME END		1454	END VOLUME	519.433	-0.94

LEAK CHECK:	POST:		VOL.WATER COLLECTED 75	ml
PRE.TEST 0.012	CFM@15".	0.010 @ 12.5 " Hg.	PITOT LEAK CHECK = OK AT 3"	WT. MOIS. SILICA GEL gr

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	VACUUM INCHES Hg.	STACK GAS TEMP.	FILTER TEMP. (F)	LAST IMPINGER TEMP.	METER TEMP (F)	METER TEMP (F)	
1-1	0	294.274	~~1.0~~ 0.90	1.8	7	196	239	66	106	106	
1	5	298.3	6.84	1.7	7	198	238	60	108	106	
2	10	302.2	0.91	1.8	7.5	200	238	~~250~~ 60	111	106	
2	15	306.2	1.0	2.0	8.5	193	238	60	114	107	
3	20	310.4	0.86	1.7	8	187	240	62	117	108	
3	25	314.5	0.84	1.7	7.5	207	240	62	118	108	
4	30	318.4	0.92	1.8	8	212	239	63	119	109	
4	35	322.4	0.87	1.7	7.5	234	238	63	126	109	
5	40	326.5	0.98	2.0	8.5	226	239	64	121	110	
5	45	330.6	0.90	1.8	8	211	237	64	122	111	
6	50	334.7	0.88	1.8	8	221	237	65	123	111	
6	55	338.8	0.80	1.6	7	218	237	65	123	112	
	60	342.623							1402	1303	

Sum Dp = 10.7 Avg 0.892
Sum Ts = 2503 208.58
Sum Tm = 2705 112.7

ISO = 102.1

Pg#2

AMBIENT AIR SERVICES, INC.
STARKE, FL
(904)964-8440

Source Sampling Field Data Continuation Sheet #1

FACILITY: Epsco Downa | RUN No. 3-PM
SOURCE: Baghouse | DATE: 7/15/04

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	VACUUM INCHES Hg.	STACK GAS TEMP.	FILTER TEMP. (F)	LAST IMPINGER TEMP.	METER TEMP (F)	METER TEMP (F)	
2-1	60	342.623	0.84	1.7	7	203	239	63	119	113	
1	65	346.5	1.1	2.2	9.5	197	241	58	120	114	
2	70	350.9	0.80	1.6	7	193	239	50	121	114	
2	75	354.8	0.83	1.7	7	204	240	59	121	113	
3	80	358.7	0.82	1.6	7	206	244	60	122	113	
3	85	362.6	0.76	1.5	7	218	236	61	123	113	
4	90	366.3	0.79	1.6	7	218	237	61	123	113	
4	95	370.1	0.86	1.7	7.5	206	241	62	123	113	
5	100	374.1	0.80	1.6	7	216	237	63	124	113	
5	105	378.0	0.84	1.7	7	207	241	64	124	114	
6	110	381.7	0.73	1.5	7	215	238	65	124	114	
6	115	385.5	0.80	1.6	7	194	243	66	123	113	
3-1	120	389.339	0.96	1.9	8	191	240	66	121	114	
1	125	393.4	0.76	1.5	7	183	239	66	119	114	
2	130	397.2	0.85	1.7	7	207	240	65	120	113	
2	135	401.1	0.80	1.6	7	213	241	63	120	113	
3	140	404.9	0.73	1.5	7	223	239	60	121	112	
3	145	408.7	0.71	1.4	7	232	241	58	120	112	
4	150	412.3	0.69	1.4	7	228	243	58	121	112	
4	155	416.0	0.72	1.4	7	224	240	57	120	111	
5	160	419.7	0.72	1.4	6.5	222	225	57	120	111	
5	165	423.3	0.80	1.6	7.5	209	238	57	121	111	
6	170	427.2	0.78	1.6	7	192	238	57	120	111	
6	175	430.9	0.68	1.4	6.5	186	243	55	121	111	
	180	434.680									

Port 2 Sum: Dp = 9.97 | Overall: 20.67 | 5031 | 101.75 ISO

Port 3 Sum: Dp 9.2 | Overall: 29.87 | 7541 = 0.830 = 209.47 ISO = 101.96

AMBIENT AIR SERVICES, INC.
STARKE, FL
(904)964-8440

Source Sampling Field Data Continuation Sheet #1

FACILITY:	Ipsco Iowa	RUN No.	3-PM
SOURCE:	Baghouse	DATE:	7/15/04

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	VACUUM INCHES Hg.	STACK GAS TEMP.	FILTER TEMP. (F)	LAST IMPINGER TEMP.	METER TEMP (F)	METER TEMP (F)	
4-1	180	434.686	0.83	1.7	6	196	260	57	118	111	
1	185	438.6	0.89	1.8	8	188	244	58	116	111	
2	190	442.8	0.79	1.6	7	193	227	62	117	110	
2	195	446.8	0.79	1.6	7	213	250	63	117	109	
3	200	450.4	0.83	1.7	7.5	211	244	64	118	109	
3	205	454.4	0.82	1.6	7.5	200	243	66	118	109	
4	210	458.3	0.72	1.4	6.5	197	247	61	118	109	
4	215	462.0	0.68	1.4	6.5	207	246	62	118	109	
5	220	465.6	0.80	1.6	7	190	245	62	119	109	
5	225	469.4	0.76	1.5	7	179	245	62	118	109	
6	230	473.2	0.74	1.5	7	197	249	63	117	108	
6	235	477.0	0.66	1.3	6	206	235	63	116	108	
6	240	480.595	0.67	1.3	6	221	230	64	116	107	
6	245	484.0	0.67	1.3	7	229	232	64	115	107	
5	250	487.5	0.68	1.4	6.5	234	229	64	115	106	
5	255	491.1	0.70	1.4	6.5	230	256	64	115	105	
4	260	494.7	0.85	1.7	7.5	224	250	65	114	105	
4	265	498.6	0.88	1.8	8	206	242	65	114	105	
3	270	502.7	0.84	1.7	8	194	257	66	114	104	
3	275	506.6	0.88	1.8	8	186	240	66	113	104	
2	280	510.7	0.72	1.4	7	182	~~183~~ 250	67	113	104	
2	285	514.4	0.72	1.4	7	192	263	67	113	103	
1	290	518.0	0.70	1.4	7	204	246	65	112	103	
	292	519.433									

8.65
2171
.2497

Total at 240
Dp = 9.31
I = 2377

Total 39.18 9918

Avg 0.81625 206.625

102.2 ISO

AMBIENT AIR SERVICES, INC.
LABORATORY DATA SHEET

PARTICULATE WEIGHT DETERMINATION

PLANT & LOCATION: Ipsco Iowa

STACK: Bag house DATE Run 7-12-04 Process-720-04

	RUN 1	RUN 2	RUN 3	RUN 4	INITIALS
FILTERS:				BLANK	
Filter No.	2003	2004	2005	2187	
Filter Final Wt. (g)	0.3673	0.3655	0.3715	0.4061	
Filter Tare Wt. (g)	0.3627	0.3602	0.3624	0.4061	
Net Gain (gm)	0.0046	0.0053	0.0091	0.0000	7-22-04 CN
PREFILTER:					
Sample No.	B 872	B 873	B 874		
Sample Volume	110 ml	132 ml	110 ml		720-04 CN
Aliquot					
Factor					
Final Wt.	103.3650	112.7090	109.3098		
Tare Wt.	103.3585	112.6935	109.3013		7-23-04 CN
Net Gain	0.0065	0.0155	0.0085		723-04 CN
Net Gain x Factor = Total (gm)					
Blank Correction Factor					
Particulate Wt. (grams)					
SOLVENT BLANK:	Acetone	H20			
Solvent	B 875	B876			
Solvent Volume, ml	100 ml	100 ml			720-04 CN
Beaker Final Wt., grams	110.1698	105.2740			
Beaker Tare Wt., grams	110.1698	105.2740			
Net Gain, grams	0.0000	0.0000			7-23-04 CN
Net Gain/100 ml solvent (gram)					
SILCA GEL:					
Sample No.	1	2	3		
Final Wt., grams	450.3	452.7	462.2		
Tare Wt., grams	388.1	389.6	410.2		
Net Gain, grams	62.2	63.1	52.0		7-20-04 CN
EXTRACTABLE MATTER:					
Sample No.					
Final Wt., grams					
Tare Wt., grams					
Net Gain, grams					

AASI.02

Balance Checks

0.500 gm 0.5000 5.000 gm 5.0000 50.000 gm _____ 2.000 gm 2.0000 10.000 gm 10.0000 100.000 gm 100.000

I certify that the information contained herein is correct, weights are correct and balances used are in current calibration.

Signature Colleen S. Hunting Date 8-6-04

Quality Assurance Signature David J Pate Date 8-6-04

00150

8540 Baycenter Road Jacksonville, Florida 32256 (904) 739-2277 ph (904) 739-2011 fax

Columbia Analytical Services INC.
An Employee - Owned Company

August 09, 2004

Service Request No: J0402034

Joseph Cooksey
Ambient Air Services, Inc.
106 Ambient Air Way
Starke, FL 32091

RE: Ipsco

Dear Joseph:

Enclosed are the results of the sample(s) submitted to our laboratory on July 26, 2004. For your reference, these analyses have been assigned our service request number J0402034.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAC standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 289

Respectfully submitted,

Columbia Analytical Services, Inc.

Tom Kissinger
Project Manager

CAS, Jacksonville is NELAC-accredited by the State of Florida, #E82502. Other state accreditations include: Arkansas; Georgia, #904; Louisiana, #AI30759; North Carolina, #527; and South Carolina, #96021.

Data Qualifiers

Inorganic Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
E	The result is an estimated amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.
i	The MRL/MDL has been elevated due to matrix interference.
X	See case narrative.

Metals Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
B	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The reported value is estimated because of the presence of matrix interference.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The result was determined by Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
A	The tentatively identified compound is a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria were exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides)
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a chromatographic interference.
X	See case narrative.

Petroleum Hydrocarbon Specific

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC

Analytical Report

Client: Ambient Air Services, Inc.
Project Name: Ipsco
Project Number:
Matrix: AQUEOUS LIQUID

Service Request: J0402034
Date Collected: NA
Date Received: NA

TOTAL METALS
Lead

Prep Method: EPA 3020A
Analysis Method: 6020
Test Notes:

Unit: mg/L
Basis: AS RECEIVED

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Results	Result Notes
Method Blank	J0402034-MB	0.0010	1.0	8/5/04	8/6/2004	U	
R-1	J0402034-001	0.0010	1.0	8/5/04	8/6/2004	0.0076	
R-2	J0402034-002	0.0010	1.0	8/5/04	8/6/2004	0.021	
R-3	J0402034-003	0.0010	1.0	8/5/04	8/6/2004	0.017	
BLANK	J0402034-004	0.0010	1.0	8/5/04	8/6/2004	0.0014	

COLUMBIA ANALYTICAL SERVICES, INC

Analytical Report

Client: Ambient Air Services, Inc.
Project Name: Ipsco
Project Number:
Matrix: FILTER

Service Request: J0402034
Date Collected: NA
Date Received: NA

TOTAL METALS
Lead

Prep Method: EPA 3050B
Analysis Method: 6020
Test Notes:

Unit: ug/Filter
Basis: AS RECEIVED

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Results	Result Notes
Method Blank	J0402034-MB	0.10	1.0	8/4/04	8/5/2004	U	
F-1	J0402034-005	10	10	8/4/04	8/5/2004	130	
F-2	J0402034-006	10	10	8/4/04	8/5/2004	130	
F-3	J0402034-007	10	10	8/4/04	8/5/2004	120	
F-BLANK	J0402034-008	0.10	1.0	8/4/04	8/6/2004	9.3	

COLUMBIA ANALYTICAL SERVICES, INC

Analytical Report

Client: Ambient Air Services, Inc.
Project Name: Ipsco
Project Number:
Matrix: MISC.

Service Request: J0402034
Date Collected: NA
Date Received: NA

TOTAL METALS
Lead

Prep Method: EPA 3020A
Analysis Method: 6020
Test Notes:

Unit: ug/Beaker
Basis: AS RECEIVED

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Results	Result Notes
Method Blank	J0402034-MB	0.025	1.0	8/4/04	8/5/2004	U	
B-1	J0402034-009	0.025	1.0	8/4/04	8/5/2004	10	
B-2	J0402034-010	0.025	1.0	8/4/04	8/5/2004	16	
B-3	J0402034-011	0.025	1.0	8/4/04	8/5/2004	15	
B-BLANK	J0402034-012	0.025	1.0	8/4/04	8/5/2004	U	

COLUMBIA ANALYTICAL SERVICES, INC

QA/QC Report

Client: Ambient Air Services, Inc.
Project Name: Ipsco
Project Number:
Matrix: AQUEOUS LIQUID

Service Request: J0402034
Date Collected: 7/16/04
Date Received: 7/26/04
Date Extracted: 8/5/04
Date Analyzed: 8/6/2004

Matrix Spike Summary
TOTAL METALS

Sample Name: R-1
Lab Code: J0402034-001S
Test Notes:

Unit: mg/L
Basis: AS RECEIVED

Analyte	Prep Method	Analysis Method	MRL	Spike Level	Sample Results	Spiked Sample Results	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Lead	*EPA 3020A*	*6020*	*0.0010*	*0.0500*	*0.00755*	*0.0566*	*98*	*75-125*	

COLUMBIA ANALYTICAL SERVICES, INC

QA/QC Report

Client: Ambient Air Services, Inc.
Project Name: Ipsco
Project Number:
Matrix: AQUEOUS LIQUID

Service Request: J0402034
Date Collected: 7/16/04
Date Received: 7/26/04
Date Extracted: 8/5/04
Date Analyzed: 8/6/2004

Matrix Spike/Matrix Spike Duplicate Summary
TOTAL METALS

Sample Name: R-1
Lab Code: J0402034-001S J0402034-001SD
Test Notes:

Unit: mg/L
Basis: AS RECEIVED

Analyte	Prep Method	Analysis Method	MRL	Spiked Sample Results	Spiked Duplicate Results	Relative Percent Difference	CAS Percent Difference Acceptance Limits	Result Notes
Lead	EPA 3020A	6020	0.0010	0.0566	0.0553	2.3	20	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Ambient Air Services, Inc.
Project Name: Ipsco
Project Number:
Matrix: AQUEOUS LIQUID

Service Request: J0402034
Date Collected: NA
Date Received: NA
Date Extracted: 8/5/04
Date Analyzed: 8/6/2004

Laboratory Control Sample Summary
TOTAL METALS

Sample Name: Laboratory Control Sample
Lab Code: J0402034-LCSS
Test Notes:

Unit: mg/L
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	True Value	Results	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Lead	EPA 3020A	6020	0.0010	0.000100	0.0482	96	80-120	

COLUMBIA ANALYTICAL SERVICES, INC

QA/QC Report

Client: Ambient Air Services, Inc.
Project Name: Ipsco
Project Number:
Matrix: FILTER

Service Request: J0402034
Date Collected: NA
Date Received: NA
Date Extracted: 8/4/04
Date Analyzed: 8/5/2004

Laboratory Control Sample Summary
TOTAL METALS

Sample Name: Laboratory Control Sample
Lab Code: J0402034-LCSS
Test Notes:

Unit: ug/Filter
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	True Value	Results	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Lead	EPA 3050B	6020	0.10	200	166	83	80-120	

COLUMBIA ANALYTICAL SERVICES, INC

QA/QC Report

Client: Ambient Air Services, Inc.
Project Name: Ipsco
Project Number:
Matrix: MISC.

Service Request: J0402034
Date Collected: NA
Date Received: NA
Date Extracted: 8/4/04
Date Analyzed: 8/5/2004

Laboratory Control Sample Summary
TOTAL METALS

Sample Name: Laboratory Control Sample
Lab Code: J0402034-LCSS
Test Notes:

Unit: ug/Beaker
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	True Value	Results	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Lead	EPA 3020A	6020	0.025	1.25	1.23	98	80-120	

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

Client: Ambient Air. Service Request # JA02034

Project: IPSCO

Cooler received on 7/23/04 and opened on 7/26/04 by NJS

COURIER: CAS UPS FEDEX (Other) Shipper's # _____

1	Were custody seals on outside of cooler?	Yes	No	(N/A)
2	Were seals intact, signed and dated?	Yes	No	(N/A)
3	Were custody papers properly filled out?	Yes	(No)	N/A
4	Temperature of cooler(s) upon receipt (Should be 4 +/- 2 degrees C) N/A			
5	Temperature Blank			
6	Were Ice or Ice Packs present	Yes	No	(N/A)
7	Did all bottles arrive in good condition (unbroken, etc....)?	(Yes)	No	N/A
8	Were all bottle labels complete (sample ID, preservation, etc....)?	(Yes)	No	N/A
9	Did all bottle labels and tags agree with custody papers?	(Yes)	No	N/A
10	Were the correct bottles used for the tests indicated?	(Yes)	No	N/A
11	Were all of the preserved bottles received with the appropriate preservative?	(Yes)	No	N/A

HNO3 pH<2 H2SO4 pH<2 ZnAc2/NaOH pH>9 NaOH pH>12 HCl pH<2

Preservative additions noted below

12	Were all samples received within analysis holding times?	(Yes)	No	N/A
13	Were VOA vials checked for absence of air bubbles? If present, note below	Yes	No	(N/A)
14	Where did the bottles originate?	CAS	(Client)	

Sample ID	Reagent	Manuf. Lot # or CAS Chem ID	ml added	Inititials

Additional comments and/or explanation of all discrepancies noted above:

no sample dates/times listed on COC.

Client approval to run samples if discrepancies noted: Date:

SR # : J 0402034 Date: 7/26/24 Initials: NTS

Note that pH is checked and meets the required pH criterion listed in the column heading unless otherwise noted on cooler receipt form.

	Bottle Code																												
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Container	40-mL G	40-mL G	40-mL G	40-mL G	125-mL P	125-mL P	125-mL P	250-mL P	250-mL P	250-mL P	250-mL P	250-mL P	250-mL G	250-mL G	500-mL P	500-mL P	500-mL P	1-L P	1-L P	1-L G	1-L G	1-L G	2-oz G	4-oz G	8-oz G	16-oz G	5 g ENC	100-mL P	Misc.
Pres.		HCl	Sodium Thiosulfate	H2SO4		HCl	H2SO4		H2SO4	HNO3	ZnAcetate NaOH	NaOH		HNO3		H2SO4	HNO3		HNO3		HCl	H2SO4						Sodium Thiosulfate	
Req. pH	N/A	<2	N/A	<2	N/A	<2	<2	N/A	<2	<2	>9	>12	N/A	<2	N/A	<2	<2	N/A	<2	N/A	<2	<2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sample #	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
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-037																													
-038																													
-039																													
-040																													

AMBIENT AIR SERVICES, INC.
Chain of Custody Record

Facility:	Ipsco	Location:	Iowa
Project #:		Date:	7-14 to 16 2004
		Sampler:	J.E, DJP

Sources	Tests Conducted
	M 12 - LEAD
Bag house	

Sample ID	Sample Date	Sample Time	Quantity of containers	Method & medium	Remarks and Parameters
R-1					0.1 N HNO3 Record Volumes
R-2					↓
R-3					
Blank					0.1N HNO3
F-1					Analyze for Lead
F-2					↓
F-3					
F-Blank					

Relinquished by:	Date & Time	Received By:	Date & Time
David J Pate	7/23/04 1100		7/23/04 1100
	7/23/04 655	Jan D. Thurs	7/23/04 1055

Lab results issued to:

Sample Disposition:

[redacted]

Lab Tech. Signature:

AMBIENT AIR SERVICES, INC.
Chain of Custody Record

Facility:	IPSCO	Location:	Iowa
Project #:		Date:	7/14 - 7/16 2004
		Sampler:	DP, JE

Sources	Tests Conducted
Baghouse	Method 12 - Lead

Sample ID	Sample Date	Sample Time	Quantity of containers	Method & medium	Remarks and Parameters
					Analyze For Lead
B-1					
B-2					
B-3					
B-Blank					

Relinquished by:	Date & Time	Received By:	Date & Time
David J Patt	7/22/04 1100		7/23/04 1100
	7/23/04 1655	Tom D. Hussey	7/23/04 1655

Lab results issued to:

Sample Disposition:

Lab Tech. Signature:

Service Request Summary

Folder #: **J0402034**
Client Name: Ambient Air Services, Inc.
Project Name: Ipsco
Project Number:

Report To: Joseph Cooksey
106 Ambient Air Way
Starke, FL 32091
Phone Number: 904-964-8440
Fax Number: 904-964-6675
E-mail:

Project Chemist: Tom Kissinger
Originating Lab: JAX

Due Date: 08/09/2004
EDD: NONE
Tier: II

QAPP: LAB-QAP
Qualifier Set: CAS Standard

Formset: CAS Standard
Merged?: Y
Report to MDL?: N

Lab Code	Client Sample	COC Matrix	Sample Date	Sample Time	Receive Date	Volume
J0402034-001	R-1	Aqueous Liquid	07/16/2004	0001	07/26/2004	325ml
6020 METALS_T						
6020	METALS_T	Pb				
		Record total volume in sample container before starting.				
J0402034-002	R-2	Aqueous Liquid	07/16/2004	0001	07/26/2004	375ml
6020 METALS_T						
6020	METALS_T	Pb				
		Record total volume in sample container before starting.				
J0402034-003	R-3	Aqueous Liquid	07/16/2004	0001	07/26/2004	325ml
6020 METALS_T						
6020	METALS_T	Pb				
		Record total volume in sample container before starting.				
J0402034-004	BLANK	Aqueous Liquid	07/16/2004	0001	07/26/2004	200ml
6020 METALS_T						
6020	METALS_T	Pb				
		Record total volume in sample container before starting.				
J0402034-005	F-1	Filter	07/16/2004	0001	07/26/2004	
6020 METALS_T						
6020	METALS_T	Pb				
J0402034-006	F-2	Filter	07/16/2004	0001	07/26/2004	
6020 METALS_T						
6020	METALS_T	Pb				
J0402034-007	F-3	Filter	07/16/2004	0001	07/26/2004	
6020 METALS_T						
6020	METALS_T	Pb				
J0402034-008	F-BLANK	Filter	07/16/2004	0001	07/26/2004	
6020 METALS_T						
6020	METALS_T	Pb				

APPENDIX D

USEPA Methods 201a and 202
(PM-10 Particulate and Condensable Particulate Matter)

PM10 Run Summaries
PM10 Data
CPM Run Summaries
Field Data Sheets
PM10 Lab Data Sheets
CPM Lab Data Sheets

Ambient Air Services, Inc. Environmental Consultants	106 Ambient Airway Starke, Fl 32091 (904)964-8440

PM 10 Method 201A

Facility	IPSCO Steel	Date	7/13/2004
Location	Montpelier, Iowa	Run	1
Source	EAF Baghouse	Time Start	9:21
		Time End	16:29

PM10 Summary Run 1

Nozzle Area (ft sq)	0.000177
Avg SqRt delta P	0.951
Avg delta P	0.905
Avg Stack Temp (R)	643.7
Avg Meter Temp (R)	582.7
Avg delta H	0.52
Gas Volume Sampled ACFD	178.256
Total Volume, STP	156.789
Volume Water Vapor, SCF	5.733
Moisture in stack gas, volume fraction	0.035
Molecular Weight of Stack Gas (Dry Basis)	28.84
Molecular Weight of Stack Gas (Stack conditions)	28.45
Average Stack Velocity, FPS	60.29
Standard Stack Gas Flow Rate, SCFMD	787631.1
Percent Isokinetic	99.1
Cyclone Flow Rate at Actual Conditions	0.557
Stack Gas Viscosity (Micropoise)	206.22
Aerodynamic Cut Size (um)	9.83
Grains per DSCF:	0.00030
Pounds per DSCF:	4.3498E-08
Pounds per HOUR:	2.06

Ambient Air Services, Inc. Environmental Consultants	106 Ambient Airway Starke, Fl 32091 (904)964-8440

PM 10 Method 201A			
Facility	IPSCO Steel	Date	7/14/2004
Location	Montpelier, Iowa	Run	2
Source	EAF Baghouse	Time Start	8:17
		Time End	14:58

PM10 Summary Run 2

Nozzle Area (ft sq)	0.000177
Avg SqRt delta P	0.950
Avg delta P	0.903
Avg Stack Temp (R)	633.0
Avg Meter Temp (R)	572.5
Avg delta H	0.55
Gas Volume Sampled, ACFD	182.131
Total Volume, STP	163.110
Volume Water Vapor, SCF	4.909
Moisture in stack gas, volume fraction	0.029
Molecular Weight of Stack Gas (Dry Basis)	28.84
Molecular Weight of Stack Gas (Stack conditions)	28.52
Average Stack Velocity, FPS	59.65
Standard Stack Gas Flow Rate, SCFMD	798000.9
Percent Isokinetic	99.6
Cyclone Flow Rate at Actual Conditions	0.564
Stack Gas Viscosity (Micropoise)	204.01
Aerodynamic Cut Size (um)	9.63
Grains per DSCF:	0.00050
Pounds per DSCF:	7.14853E-08
Pounds per HOUR:	3.42

Ambient Air Services, Inc. Environmental Consultants	106 Ambient Airway Starke, Fl 32091 (904)964-8440

PM 10 Method 201A

Facility	IPSCO Steel	**Date**	7/15/2004
Location	Montpelier, Iowa	**Run**	3
Source	EAF Baghouse	**Time Start**	9:21
		Time End	17:07

PM10 Summary Run 3

Nozzle Area (ft sq)	0.000177
Avg SqRt delta P	0.926
Avg delta P	0.858
Avg Stack Temp (R)	649.7
Avg Meter Temp (R)	576.3
Avg delta H	0.58
Gas Volume Sampled, ACFD	222.380
Total Volume, STP	198.132
Volume Water Vapor, SCF	5.018
Moisture in stack gas, volume fraction	0.025
Molecular Weight of Stack Gas (Dry Basis)	28.84
Molecular Weight of Stack Gas (Stack conditions)	28.57
Average Stack Velocity, FPS	58.80
Standard Stack Gas Flow Rate, SCFMD	771119.5
Percent Isokinetic	102.1
Cyclone Flow Rate at Actual Conditions	0.567
Stack Gas Viscosity (Micropoise)	208.49
Aerodynamic Cut Size (um)	9.78
Grains per DSCF:	0.00034
Pounds per DSCF:	4.88563E-08
Pounds per HOUR:	2.26

Ambient Air Services, Inc. Environmental Consultants	106 Ambient Airway Starke, Fl 32091 (904)964-8440

PM 10 Method 201A

Facility	IPSCO Steel	Date	7/13/2004
Location	Montpelier, Iowa	Run	1
Source	EAF Baghouse	Time Start	9:21
		Time End	16:29

Preliminary Data

Velocity Traverse				Known Data	
Point	deltal P	Stack Temp	(DP) E 0.5	Stack Diameter	228
1	0.76	168	0.872	Barometric Pressure	29.12
2	0.7	170	0.837	Static Pressure	-1.1
3	0.69	172	0.831	Meter Temp	90
4	0.7	172	0.837	Meter delta Ha	1.448
5	0.79	174	0.889	Moisture Fraction	0.01
6	0.59	174	0.768	% 02	20.9
7	0.48	179	0.693	% CO2	0
8	0.49	179	0.700	Nozzle Diameter	0.18
9	0.41	178	0.640	**Calculated Data**	
10	0.41	180	0.640	Stack Pressure	29.04
11	0.4	180	0.632	Stack Temp	635.7
12	0.31	181	0.557	Meter Temp	550
13	0.69	185	0.831	Molecular Weight Dry	28.84
14	0.71	185	0.843	Molecular Weight Wet	28.73
15	1.1	182	1.049	Viscosity (Preliminary)	208.61
16	1.2	179	1.095	Cyclone Flow Rate (ft/sec)	0.5462
17	1.3	178	1.140	**Delta H (@Ts)**	**0.521**
18	1.2	177	1.095	**Delta H (@Ts-50)**	**0.614**
19	0.6	170	0.775	**Delta H (@Ts+50)**	**0.448**
20	0.52	171	0.721	Nozzle Velocity (ft/sec)	51.52
21	0.49	173	0.700	Rmin	0.691
22	0.4	167	0.632	Vmin	35.6
23	0.42	168	0.648	**Minimum Velocity Head**	**0.324**
24	0.42	174	0.648	Rmax	1.27
				Vmax	65.4
Min	0.31			**Maximum Velocity Head**	**1.092**
Avg	0.6575	175.7	0.795	Avg SqRt delta P^2	0.632
Max	1.3				

Nozzle Size Information							
#	Diameter	#	Diameter	#	Diameter	#	Diameter
1	0.136	4	0.18	7	0.233	10	0.342
2	0.15	5	0.197	8	0.264	11	0.39
3	0.164	6	0.215	9	0.3		

Flow Data			
Desired Run Time	320	Final Meter Volume	303.769
Number of Points	24	Initial Meter Volume	125.513
Barometric Pressure	29.12	Impinger Gain (ml)	84
Stack Pressure	29.04	Silica Gel (g)	37.8
Meter "Y" Factor	0.996	Filter Weight (mg)	2.6
Meter delta Ha	1.448	Wash Weight (mg)	0.5
Nozzle Diameter	0.18	% O2	20.9
Stack Area (ft2)	283.529	% CO2	0

Ambient Air Services, Inc. Environmental Consultants	106 Ambient Airway Starke, Fl 32091 (904)964-8440

PM 10 Method 201A			
Facility	IPSCO Steel	**Date**	7/13/2004
Location	Montpelier, Iowa	**Run**	1
Source	EAF Baghouse	**Time Start**	9:21
		Time End	16:29

Field Data Points - PM10 Run 1

Port	Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter In ' F	Dwell	SqRt Vel Hd
1	1	0.83	0.52	170	111	14.63	0.911043
	2	0.92	0.52	166	117	15.40	0.959166
	3	1.1	0.52	192	121	16.84	1.048809
	4	0.98	0.52	211	123	15.89	0.989949
	5	1.1	0.52	193	127	16.84	1.048809
	6	1.4	0.52	201	128	19.00	1.183216
2	1	0.95	0.52	154	124	15.65	0.974679
	2	1.1	0.52	204	126	16.84	1.048809
	3	1.3	0.52	197	129	18.31	1.140175
	4	1.2	0.52	196	130	17.59	1.095445
	5	1.2	0.52	190	129	17.59	1.095445
	6	1.1	0.52	184	125	16.84	1.048809
3	1	0.93	0.52	176	125	15.48	0.964365
	2	0.72	0.52	204	125	13.62	0.848528
	3	0.63	0.52	214	125	12.74	0.793725
	4	0.55	0.52	187	126	11.91	0.741620
	5	0.53	0.52	171	125	11.69	0.728011
	6	0.51	0.52	174	120	11.47	0.714143
4	1	0.9	0.52	173	118	15.23	0.948683
	2	0.96	0.52	172	119	15.73	0.979796
	3	0.88	0.52	171	120	15.06	0.938083
	4	0.93	0.52	182	118	15.48	0.964365
	5	0.68	0.52	173	116	13.24	0.824621
	6	0.7	0.52	154	117	13.43	0.836660
Average		0.9208	0.52	183.7	122.7	15.3	0.951123
				Total Time		366.48	

Ambient Air Services, Inc. Environmental Consultants	106 Ambient Airway Starke, Fl 32091 (904)964-8440

PM 10 Method 201A

Facility	IPSCO Steel	Date	7/14/2004
Location	Montpelier, Iowa	Run	2
Source	EAF Baghouse	Time Start	8:17
		Time End	14:58

Preliminary Data

Velocity Traverse				Known Data	
Point	deltal P	Stack Temp	(DP) E 0.5	Stack Diameter	228
1	0.95	168	0.975	Barometric Pressure	29.13
2	0.92	170	0.959	Static Pressure	-0.95
3	1.1	172	1.049	Meter Temp	120
4	0.98	172	0.990	Meter delta Ha	1.448
5	1.1	174	1.049	Moisture Fraction	0.01
6	1.4	174	1.183	% 02	20.9
7	0.83	179	0.911	% CO2	0
8	1.1	179	1.049	Nozzle Diameter	0.18
9	1.3	178	1.140	**Calculated Data**	
10	1.2	180	1.095	Stack Pressure	29.06
11	1.2	180	1.095	Stack Temp	635.7
12	1.1	181	1.049	Meter Temp	580
13	0.93	185	0.964	Molecular Weight Dry	28.84
14	0.72	185	0.849	Molecular Weight Wet	28.73
15	0.63	182	0.794	Viscosity (Preliminary)	208.61
16	0.55	179	0.742	Cyclone Flow Rate (ft/sec)	0.5461
17	0.53	178	0.728	**Delta H (@Ts)**	**0.550**
18	0.51	177	0.714	**Delta H (@Ts-50)**	**0.648**
19	0.9	170	0.949	**Delta H (@Ts+50)**	**0.473**
20	0.96	171	0.980	Nozzle Velocity (ft/sec)	51.51
21	0.88	173	0.938	Rmin	0.691
22	0.93	167	0.964	Vmin	35.6
23	0.68	168	0.825	**Minimum Velocity Head**	**0.324**
24	0.7	174	0.837	Rmax	1.27
				Vmax	65.4
Min	0.51			**Maximum Velocity Head**	**1.092**
Avg	0.920833	175.7	0.951	Avg SqRt delta P^2	0.905
Max	1.4				

Nozzle Size Information							
#	Diameter	#	Diameter	#	Diameter	#	Diameter
1	0.136	4	0.18	7	0.233	10	0.342
2	0.15	5	0.197	8	0.264	11	0.39
3	0.164	6	0.215	9	0.3		

Flow Data			
Desired Run Time	396	Final Meter Volume	486.359
Number of Points	24	Initial Meter Volume	304.228
Barometric Pressure	29.13	Impinger Gain (ml)	72
Stack Pressure	29.06	Silica Gel (g)	32.3
Meter "Y" Factor	0.996	Filter Weight (mg)	3.6
Meter delta Ha	1.448	Wash Weight (mg)	1.7
Nozzle Diameter	0.18	% O2	20.9
Stack Area (ft2)	283.529	% CO2	0

Ambient Air Services, Inc. Environmental Consultants	106 Ambient Airway Starke, Fl 32091 (904)964-8440

PM 10 Method 201A

Facility	IPSCO Steel	**Date**	7/14/2004
Location	Montpelier, Iowa	**Run**	2
Source	EAF Baghouse	**Time Start**	8:17
		Time End	14:58

Field Data Points - PM10 Run 2

Port	Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter In ' F	Dwell	SqRt Vel Hd
1	1	1.1	0.55	125	89	16.91	1.048809
	2	1.2	0.55	137	100	17.66	1.095445
	3	1.2	0.55	165	107	17.66	1.095445
	4	1.3	0.55	161	110	18.38	1.140175
	5	1.4	0.55	162	112	19.08	1.183216
	6	1.1	0.55	174	115	16.91	1.048809
2	1	1	0.55	165	113	16.12	1.000000
	2	0.95	0.55	175	117	15.71	0.974679
	3	1	0.55	179	118	16.12	1.000000
	4	1	0.55	188	118	16.12	1.000000
	5	1.1	0.55	193	119	16.91	1.048809
	6	1.1	0.55	200	119	16.91	1.048809
3	1	0.95	0.55	164	115	15.71	0.974679
	2	0.8	0.55	143	118	14.42	0.894427
	3	0.62	0.55	188	118	12.69	0.787401
	4	0.6	0.55	184	117	12.49	0.774597
	5	0.55	0.55	185	117	11.96	0.741620
	6	0.59	0.55	157	116	12.38	0.768115
4	1	0.87	0.55	194	110	15.04	0.932738
	2	0.86	0.55	200	112	14.95	0.927362
	3	0.7	0.55	190	111	13.49	0.836660
	4	0.85	0.55	179	110	14.86	0.921954
	5	0.68	0.55	183	110	13.29	0.824621
	6	0.55	0.55	162	109	11.96	0.741620
Average		0.9196	0.55	173.0	112.5	15.3	0.950416
				Total Time		367.74	

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PM 10 Method 201A

Facility	IPSCO Steel	**Date**	7/15/2004
Location	Montpelier, Iowa	**Run**	3
Source	EAF Baghouse	**Time Start**	9:21
		Time End	17:07

Preliminary Data

Velocity Traverse

Point	deltal P	Stack Temp	(DP) E 0.5
1	0.68	168	0.825
2	0.49	170	0.700
3	0.41	172	0.640
4	0.41	172	0.640
5	0.4	174	0.632
6	0.31	174	0.557
7	0.51	179	0.714
8	0.7	179	0.837
9	0.69	178	0.831
10	0.78	180	0.883
11	0.79	180	0.889
12	0.59	181	0.768
13	0.69	185	0.831
14	0.71	185	0.843
15	1.1	182	1.049
16	1.2	179	1.095
17	1.3	178	1.140
18	1.2	177	1.095
19	0.6	170	0.775
20	0.52	171	0.721
21	0.49	173	0.700
22	0.4	167	0.632
23	0.42	168	0.648
24	0.42	174	0.648
Min	0.31		
Avg	0.65875	175.7	0.796
Max	1.3		

Known Data

Stack Diameter	228
Barometric Pressure	29.17
Static Pressure	-0.94
Meter Temp	100
Meter delta Ha	1.448
Moisture Fraction	0.01
% 02	20.9
% CO2	0
Nozzle Diameter	0.18

Calculated Data

Stack Pressure	29.10
Stack Temp	635.7
Meter Temp	560
Molecular Weight Dry	28.84
Molecular Weight Wet	28.73
Viscosity (Preliminary)	208.61
Cyclone Flow Rate (ft/sec)	0.5459
Delta H (@Ts)	**0.531**
Delta H (@Ts-50)	**0.626**
Delta H (@Ts+50)	**0.457**
Nozzle Velocity (ft/sec)	51.49
Rmin	0.691
Vmin	35.6
Minimum Velocity Head	**0.324**
Rmax	1.27
Vmax	65.3
Maximum Velocity Head	**1.093**
Avg SqRt delta P^2	0.633

Nozzle Size Information

#	Diameter	#	Diameter	#	Diameter	#	Diameter
1	0.136	4	0.18	7	0.233	10	0.342
2	0.15	5	0.197	8	0.264	11	0.39
3	0.164	6	0.215	9	0.3		

Flow Data

Desired Run Time	420	Final Meter Volume	709.227
Number of Points	24	Initial Meter Volume	486.847
Barometric Pressure	29.17	Impinger Gain (ml)	74
Stack Pressure	29.10	Silica Gel (g)	32.6
Meter "Y" Factor	0.996	Filter Weight (mg)	2.5
Meter delta Ha	1.448	Wash Weight (mg)	1.9
Nozzle Diameter	0.18	% O2	20.9
Stack Area (ft2)	283.529	% CO2	0

Ambient Air Services, Inc. Environmental Consultants	106 Ambient Airway Starke, Fl 32091 (904)964-8440

PM 10 Method 201A

Facility	IPSCO Steel	**Date**	7/15/2004
Location	Montpelier, Iowa	**Run**	3
Source	EAF Baghouse	**Time Start**	9:21
		Time End	17:07

Field Data Points - PM10 Run 3

Port	Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter In ' F	Dwell	SqRt Vel Hd
1	1	0.85	0.58	177	95	18.14	0.921954
	2	0.72	0.58	168	111	16.69	0.848528
	3	0.79	0.58	161	118	17.49	0.888819
	4	0.7	0.58	176	119	16.46	0.836660
	5	0.59	0.58	174	121	15.11	0.768115
	6	0.63	0.58	168	121	15.62	0.793725
2	1	1	0.58	163	120	19.67	1.000000
	2	0.62	0.58	166	122	15.49	0.787401
	3	0.57	0.58	162	123	14.85	0.754983
	4	0.62	0.58	163	122	15.49	0.787401
	5	0.62	0.58	194	123	15.49	0.787401
	6	0.5	0.58	227	122	13.91	0.707107
3	1	1.2	0.58	209	119	26.80	1.095445
	2	1.2	0.58	202	120	26.80	1.095445
	3	1.2	0.58	195	119	26.80	1.095445
	4	1.1	0.58	225	117	20.64	1.048809
	5	1.1	0.58	205	114	20.64	1.048809
	6	1.1	0.58	196	114	20.64	1.048809
4	1	1.2	0.58	213	110	21.55	1.095445
	2	0.88	0.58	186	111	18.46	0.938083
	3	0.85	0.58	204	113	18.14	0.921954
	4	0.97	0.58	205	112	19.38	0.984886
	5	1	0.58	204	112	19.67	1.000000
	6	0.95	0.58	210	113	19.18	0.974679
Average		0.8733	0.58	189.7	116.3	18.9	0.926246
				Total Time		453.11	

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CPM Summary Run 1

Facility	IPSCO	Impinger Condensate	84.0
Location	Muscatine, Iowa	Silica Gel Condensate	37.8
Stack	Baghouse	Volume Metered	178.256
Run Date	7/13/2004	Meter Temp (Deg R)	582.7
Run Number	1	Carbon Dioxide, %	0.0
Start Time	9:21	Oxygen, %	20.9
Finish Time	16:29	Carbon Monoxide, %	0.0
Weather	Clear	Nitrogen, %	79.1
Total Time (minutes)	366.48	Condensate Volume	121.8
Barometric Pressure	29.12	Delta H (inches H2O)	0.5200
Stack Diameter (inches)	228.00	Static Pressure	-1.1
Stack Area square feet	283.529	Stack Pressure	29.039
Nozzle Area square feet	0.0001767	Stack Temp (Deg R)	643.7
Number of Points	24	Inorganic Weight	0.0248
Avg of SQRT of V.H.	0.9511	Organic Weight	0.0106
Meter Correction (Y)	1.017	Total CPM Weight	0.0354
Nozzle Diameter	0.180		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		5.733
Gas Volume Sampled, STPD		160.095
Total Volume, STP		165.828
Moisture in stack gas, volume fraction		0.035
Dry Stack Gas, volume fraction		0.965
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		28.46
Specific gravity of Stack Gas Relative to Air		0.982
Excess Air (%)		14864.9
Average Stack Velocity, FPM		3616.7
Actual Stack Gas Flow Rate, ACFM		1025427
Stack Gas Flow Rate, SCFMD		788100
Percent Isokinetic		99
Stack CPM Emissions:	Grains per DSCF	0.0034
	Pounds per Hour	23.05

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CPM Summary Run 2

Facility	IPSCO	Impinger Condensate	72.0
Location	Muscatine, Iowa	Silica Gel Condensate	32.3
Stack	Baghouse	Volume Metered	182.131
Run Date	7/14/2004	Meter Temp (Deg R)	572.5
Run Number	1	Carbon Dioxide, %	0.0
Start Time	8:17	Oxygen, %	20.9
Finish Time	14:58	Carbon Monoxide, %	0.0
Weather	Clear	Nitrogen, %	79.1
Total Time (minutes)	367.74	Condensate Volume	104.3
Barometric Pressure	29.13	Delta H (inches H2O)	0.5500
Stack Diameter (inches)	228.00	Static Pressure	-0.95
Stack Area square feet	283.529	Stack Pressure	29.060
Nozzle Area square feet	0.0001767	Stack Temp (Deg R)	633.0
Number of Points	24	Inorganic Weight	0.0314
Avg of SQRT of V.H.	0.9504	Organic Weight	0.0117
Meter Correction (Y)	1.017	Total CPM Weight	0.0431
Nozzle Diameter	0.180		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		4.909
Gas Volume Sampled, STPD		166.549
Total Volume, STP		171.459
Moisture in stack gas, volume fraction		0.029
Dry Stack Gas, volume fraction		0.97136689
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		28.53
Specific gravity of Stack Gas Relative to Air		0.984
Excess Air (%)		14864.9
Average Stack Velocity, FPM		3578.6
Actual Stack Gas Flow Rate, ACFM		1014625
Stack Gas Flow Rate, SCFMD		798394
Percent Isokinetic		100
Stack CPM Emissions:	Grains per DSCF	0.0040
	Pounds per Hour	27.33

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CPM Summary Run 3

Facility	IPSCO	Impinger Condensate	74.0
Location	Muscatine, Iowa	Silica Gel Condensate	32.6
Stack	Baghouse	Volume Metered	222.380
Run Date	7/14/2004	Meter Temp (Deg R)	576.3
Run Number	3	Carbon Dioxide, %	0.0
Start Time	9:21	Oxygen, %	20.9
Finish Time	17:07	Carbon Monoxide, %	0.0
Weather	Clear	Nitrogen, %	79.1
Total Time (minutes)	453.11	Condensate Volume	106.6
Barometric Pressure	29.17	Delta H (inches H2O)	0.5800
Stack Diameter (inches)	228.00	Static Pressure	-0.94
Stack Area square feet	283.529	Stack Pressure	29.101
Nozzle Area square feet	0.0001767	Stack Temp (Deg R)	649.7
Number of Points	24	Inorganic Weight	0.0148
Avg of SQRT of V.H.	0.9262	Organic Weight	0.0036
Meter Correction (Y)	1.017	Total CPM Weight	0.0184
Nozzle Diameter	0.180		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		5.018
Gas Volume Sampled, STPD		202.309
Total Volume, STP		207.327
Moisture in stack gas, volume fraction		0.024
Dry Stack Gas, volume fraction		0.97579833
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		28.58
Specific gravity of Stack Gas Relative to Air		0.986
Excess Air (%)		14864.9
Average Stack Velocity, FPM		3527.7
Actual Stack Gas Flow Rate, ACFM		1000211
Stack Gas Flow Rate, SCFMD		771440
Percent Isokinetic		102
Stack CPM Emissions:	Grains per DSCF	0.0014
	Pounds per Hour	9.28

AMBIENT AIR SERVICES, INC.
STARKE, FL
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SOURCE SAMPLING FIELD DATA SHEET

FACILITY:	IPSCO Iowa					RUN No.	1-PM10
SOURCE:	Baghouse					DATE:	7-13-04
WEATHER:	Clear					ORSAT/Fyrite/Analyzer	
TYPE TEST:	Method 201A - PM10					CO2	0
TESTERS:	DP, RW, JE					O2	20.9
PTS @	24	MIN/PT	NA	TOT MIN	NA	CO	0
Y meter	1.017	Pretest Ts	180	Pretest Tm	90	Factor	NA
F.D.A.	0.99	Stack TC ID		TC 11.5			
Probe ID	10.5	Heater Box TC ID		NA		F=1570(aXc)/b	
Pitot ID	10.5	Impinger TC ID		TC-I1		a = (Dn^2XFDA)^2	
Upstream Dia.	-	Comments:				b= (1.6+FDA)Ts	
Downstream Dia.	-					c= Tm X DHa	

BAROMETRIC PRESS	29.12				
METER BOX ID	AASI #2				
METER DELTA Ha	1.448				
PITOT CORR. FACTOR	0.84				
PROBE TEMP.	>250				
STACK ID (IN):	228				
PORT LENGTH	~6"				
NOZZLE DIA.	Average: 0.180				
Cal Checks	1 0.180	2 0.180	3 0.180		

TIME START	921	START VOLUME	125.513
TIME END	~~1409~~ 1624	END VOLUME	303.769

STAT.PRESS -1.1

LEAK CHECK: PRE.TEST 0.020 | POST: CFM@15". 0.008 @ 6 " Hg.

PITOT LEAK CHECK = OK - in 6.5 for 30sec, 4.5 for AT 3"

VOL.WATER COLLECTED 84 ml

WT. MOIS. SILICA GEL gr

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	VACUUM INCHES Hg.	STACK GAS TEMP.	FILTER TEMP. (F)	LAST IMPINGER TEMP.	METER TEMP (F)	METER TEMP (F)	
1	14.6 minutes	125.513	0.83	0.52	3.5	170		66	107	105	
	5	~~130.4~~	↓	↓	4	175		67	116	106	
	10	136.4	↓	↓	4	166		67	122	106	
2	15.37	132.6	0.82	↓	4	166		65	125	107	
	5	135.1	↓	↓	4	170		64	128	106	
	10	137.5	↓	↓	4	163		62	130	106	
3	16.8	140.1	1.1	↓	4	160		63	132	108	
	5	142.5	↓	↓	4	207		63	133	108	
	10	145.0	↓	↓	4	210		63	134	109	
4	15.9	148.4	0.98	↓	4	214		64	135	111	
	5	150.8	↓	↓	4	210		64	136	111	
	10	153.4	↓	↓	4	209		64	138	112	

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Source Sampling Field Data Continuation Sheet #1

FACILITY: IPSCO Iowa | RUN No. 1-PM10
SOURCE: Baghouse | DATE: 7/13/04

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	VACUUM INCHES Hg.	STACK GAS TEMP.	FILTER TEMP. (F)	LAST IMPINGER TEMP.	METER TEMP (F)	METER TEMP (F)	
5	16.8	156.2	1.1	0.52	4	199	6	65	138	113	
	5	158.7			4	190		66	139	114	
	10	161.2			4	190		66	139	115	
6	19.0	164.5	1.4		4	202		64	138	115	
	5	167.0			4	190		63	140	115	
	10	169.5			4	211		64	140	116	
	15	171.9			4	198		58	139	117	
2-1	~~19.0~~ 15.6	173.918	~~1.4~~ 0.95		4	147		61	129	116	
	5	176.4			4	149		61	132	117	
	10	178.7			4	166		61	134	115	
2-2	16.8	181.5	1.1		4	177		61	137	115	
	5	183.9			4	223		61	138	115	
	10	186.4			4	217		61	139	115	
3	18.3	189.7	1.3		4	190		65	141	116	
	5	192.2			4	193		65	142	116	
	10	194.7			4	207		66	142	116	
	15	197.1			4	203		66	141	116	
4	17.6	198.8	1.2		4	195		66	142	116	
	5	201.3			4	191		67	143	117	
	10	203.7			4	204		66	141	117	
	15	206.2			4	194		66	141	117	
5	17.6	207.5	1.2		4	179		65	142	117	
	5	210.0			4	193		64	142	116	
	10	212.4			4	198		62	141	116	
	15	214.9			4	206		60	141	116	
		216.187									

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11.7
11.4
231

Source Sampling Field Data Continuation Sheet #1

FACILITY: IPSCO Iowa | RUN No. 1-PM
SOURCE: Baghouse | DATE: 7/13/04

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY ~~ΔP~~ Dp	ORIFICE PRESS. DROP	VACUUM INCHES Hg.	STACK GAS TEMP.	FILTER TEMP. (F)	LAST IMPINGER TEMP.	METER TEMP (F)	METER TEMP (F)	
6	16.8	216.187	~~1.00~~ 1.1	0.52	4	190		61	136	114	
	5	218.7	↓	↓	4	180		58	138	114	
	10	221.2	↓	↓	4	182		57	135	115	
3-1	15.45	224.468	0.93	↓	4	175		56	136	114	
	5	225.8	↓	↓	4	171		55	138	112	
	10	228.3	↓	↓	4	181		56	136	114	
#2	13.6	230.9	0.72	↓	4	190		56	134	114	
	5	233.3	↓	↓	4	199		57	135	114	
	10	235.7	↓	↓	4	223		57	135	115	
3	12.7	237.5	0.63	↓	4	216		57	135	115	
	5	239.9	↓	↓	4	212		58	136	115	
	10	242.3	↓	↓	4	214		58	136	115	
4	11.9	243.6	0.55	↓	4	207		58	135	115	
	5	246.3	↓	↓	4	187		59	138	116	
	10	248.7	↓	↓	4	168		59	136	115	
5	11.7	249.7	0.53	↓	4	174		59	136	115	
	5	252.1	↓	↓	4	172		60	136	115	
	10	254.4	↓	↓	4	166		62	134	114	
6	11.4	255.296	0.51	↓	3.5	173		63	123	114	
	5	257.6	↓	↓	4	176		63	127	113	
	10	260.0	↓	↓	4	174		63	130	112	
4-1	15.2	261.009	0.90	↓	4	183		64	129	110	
	5	263.5	↓	↓	4	175		64	127	109	
	10	266.1	↓	↓	4	161		64	126	109	
				↓							

AMBIENT AIR SERVICES, INC.
STARKE, FL
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30.5
+13.2
43.7

Source Sampling Field Data Continuation Sheet #1

FACILITY: IPSCO Iowa | RUN No. 1-Pm10
SOURCE: Baghouse | DATE: 7/13/04

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	VACUUM INCHES Hg.	STACK GAS TEMP.	FILTER TEMP. (F)	LAST IMPINGER TEMP.	METER TEMP (F)	METER TEMP (F)	
4-2	15.7	268.5	0.96	0.52	4	162		66	130	108	
	5	271.0	↓	0.52	4	176		67	130	108	
	10	273.4	↓	0.52	4	177		67	130	108	
4-3	15.0	276.2	0.88	0.52	4	166		64	131	108	
	5	278.7	↓	0.52	4	171		62	131	108	
	10	281.0	↓	0.52	4	176		60	131	108	
4-4	15.5	283.4	0.93	0.52	4	183		60	131	108	
	5	285.9	↓	0.52	4	190		59	131	108	
	10	288.3	↓	0.52	4	173		58	127	106	
4-5	13.2	290.9	0.68	0.52	4	165		58	122	106	
	5	293.3	↓	0.52	4	179		58	126	106	
	10	295.8	↓	0.52	4	175		59	127	106	
4-6	13.4	298.0	0.70	0.52	4	152		59	129	106	
	5	299.7	↓	0.52	4	147		60	129	106	
	10	302.1	↓	0.52	4	163		60	129	106	
		303.769									

AMBIENT AIR SERVICES, INC.
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SOURCE SAMPLING FIELD DATA SHEET

FACILITY:	IPSCO Iowa					RUN No.	PM10-2
SOURCE:	Baghouse					DATE:	7/14/04
WEATHER:	Clear					ORSAT/Fyrite/Analyzer	
TYPE TEST:	PM10 - M201A					CO2	0
TESTERS:	DP, RW, JG					O2	20.9
PTS @	—	MIN/PT	—	TOT MIN	~396	CO	0
Y meter	1.017	Pretest Ts	190	Pretest Tm	110	Factor	NA
F.D.A.	0.99	Stack TC ID		TC 11.5			
Probe ID	10.5	Heater Box TC ID		NA		F=1570(aXc)/b	
Pitot ID	10.5	Impinger TC ID		TC-I1		a = (Dn^2XFDA)^2	
Upstream Dia.	—	Comments:				b= (1.6+FDA)Ts	
Downstream Dia.	—					c= Tm X DHa	

BAROMETRIC PRESS	29.14	TIME START	817	START VOLUME 304.228
METER BOX ID	AASI #2	TIME END	1458	END VOLUME 486.359
METER DELTA Ha	1.448			STAT.PRESS -0.95
PITOT CORR. FACTOR	0.84			
PROBE TEMP.	>250			
STACK ID (IN):	228			
PORT LENGTH	~6			
NOZZLE DIA. Average:	0.180			
Cal Checks 1 ~ 2 ~ 3 ~				

LEAK CHECK: POST: 0.018@7 " Hg.
PRE.TEST 0.016 CFM@15".
PITOT LEAK CHECK = OK AT 3"
VOL.WATER COLLECTED 72. ml
WT. MOIS. SILICA GEL gr

PORT & SAMPLE POINT	CLOCK TIME ~~DP 16.9~~	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	VACUUM INCHES Hg.	STACK GAS TEMP.	FILTER TEMP. (F)	LAST IMPINGER TEMP.	METER TEMP (F)	METER TEMP (F)
1-1	~~15.8~~	304.228	1.1	0.55	4.5	112		60	88	83
	5	306.6			5	123		60	95	83
	10	309.1	~~DP~~		5	139		58	102	84
2 1-2	~~19.1~~ 17.7	~~DP~~ 312.4	~~1.4~~ 1.2		5	144		57	108	86
	5	314.8			5	130		55	111	86
	10	317.3			5	137		56	113	88
	15	319.7			5	154		56	115	89
1-3	17.7	321.1	1.2		5	165		57	119	91
	5	323.5			5	162		57	120	93
	10	326.0			5	165		57	121	94
	15	328.5			5	169		56	122	95
1-4	18.4	329.9	1.3		5	170		55	122	96
	5	332.4			5	164		55	123	96
	10	334.8			5	160		55	123	96
	15	337.4			5	150		54	123	98

Pg #2

AMBIENT AIR SERVICES, INC.
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Source Sampling Field Data Continuation Sheet #1

FACILITY: IPSCO Iowa | RUN No. 2-PM10
SOURCE: Baghouse | DATE: 7/14/04

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	VACUUM INCHES Hg.	STACK GAS TEMP.	FILTER TEMP. (F)	LAST IMPINGER TEMP.	METER TEMP (F)	METER TEMP (F)	
1-5	19.1	339.0	1.4	0.55	5	161		54	124	99	
	5	341.5			5	157		54	124	99	
	10	344.1			5	170		54	125	100	
	15	346.6			5	161		53	125	101	
1-6	16.9	348.6	1.1		5	162		53	126	101	
	5	351.2			5	175		54	127	102	
	10	353.7			5	175		54	127	102	
	15	356.2			5	182		54	128	103	
2-1	16.1	357.226	1.0		5	160		60	111	105	
	5	359.7			5	167		55	121	105	
	10	362.1			5	162		54	124	104	
	15	364.7			5	171		54	126	105	
2-2	~~16.8~~ 15	365.2	~~1~~ 0.9		5	172		54	126	105	
	5	367.7			5	180		55	127	106	
	10	370.1			5	172		55	129	106	
2-3	16.1	373.0	1.0		5	170		55	130	106	
	5	375.5			5	179		51	129	107	
	10	378.1			5	184		50	129	107	
	15	380.5			5	184		50	129	107	
2-4	16.1	381.1	1.0		5	186		50	129	107	
	5	383.6			5	186		51	129	106	
	10	386.0			5	180		51	129	106	
	15	388.5			5	200		52	130	106	
2-5	16.9	389.1	1.1		5	185		53	130	106	
	5	391.5			5	189		57	130	107	
	10	394.0			5	195		57	131	107	
	15	396.5			5	203		59	130	107	

AMBIENT AIR SERVICES, INC.
STARKE, FL
(904)964-8440

Source Sampling Field Data Continuation Sheet #1

FACILITY: Ipsco Iowa | RUN.No. 2 - PM10
SOURCE: Baghouse | DATE: 7/14/04

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	VACUUM INCHES Hg.	STACK GAS TEMP.	FILTER TEMP. (F)	LAST IMPINGER TEMP.	METER TEMP (F)	METER TEMP (F)	
2-6	16.9	397.4	1.1	0.5	5	198		58	131	107	
	5	399.8	↓	↓	5	187		61	131	107	
	10	402.3			5	198		60	131	107	
	15	404.8	↓		5	215		60	131	107	
3-1	15.6	405.662	0.95		5	173		56	119	107	
	5	408.1	↓		5	162		56	124	108	
	10	410.6	↓		5	157		58	127	107	
3-2	14.4	~~413.1~~ 413.4	0.80		5	143		59	129	107	
	5	415.8	↓		5	139		58	129	107	
	10	418.4	↓		5	148		60	131	107	
3-3	12.7	420.5	0.62		5	191		59	130	107	
	5	423.0	↓		5	195		59	130	107	
	10	425.5	↓		5	178		58	129	106	
3-4	12.5	426.8	0.60		4.5	161		58	128	106	
	5	429.3	↓		4.5	195		59	128	106	
	10	431.8	↓		4.5	195		59	127	106	
3-5	12.0	433.0	0.55		4.5	191		59	127	106	
		435.4	↓		4.5	184		58	127	106	
		437.9	↓		4.5	179		58	128	106	
3-6	12.4	438.9	0.59		4.5	180		57	127	105	
	5	441.4	↓		4.5	146		59	126	105	
	10	443.8	↓		4.5	145		60	126	105	
4-1	15.0	445.022	0.87		4.5	200		66	111	104	
	5	447.5	↓		4.5	183		61	117	104	
	10	450.0	↓	↓	4.5	198		62	120	103	

AMBIENT AIR SERVICES, INC.
STARKE, FL
(904)964-8440

Source Sampling Field Data Continuation Sheet #1

FACILITY: Ipsco Iowa | RUN No. 2-PM10
SOURCE: Baghouse | DATE: 7/14/04

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	VACUUM INCHES Hg.	STACK GAS TEMP.	FILTER TEMP. (F)	LAST IMPINGER TEMP.	METER TEMP (F)	METER TEMP (F)	
4-2	14.9	452.4	0.86	0.52	5	203		62	120	103	
	5	454.9	↓		5	199		63	120	103	
	10	457.3	↓		5	198		63	121	102	
4-3	13.5	459.8	0.70		5	195		64	121	102	
	5	462.2	↓		5	193		65	121	102	
	10	464.6	↓		5	183		65	119	100	
4-4	14.9	466.5	0.85		5	175		60	121	100	
	5	469.0	↓		5	172		57	121	99	
	10	471.5	↓		5	190		56	121	100	
4-5	13.3	473.8	0.68		5	188		55	121	100	
	5	476.2	↓		5	185		55	121	100	
	10	478.7	↓		5	176		53	121	98	
4-6	12	480.3	0.55		5	176		53	121	98	
	5	482.9			5	153		53	121	97	
	10	485.3			5	158		53	121	97	

304.228
185
489

AMBIENT AIR SERVICES, INC.
STARKE, FL
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SOURCE SAMPLING FIELD DATA SHEET

FACILITY:	IPsco Iowa					RUN No.	3 -PM10
SOURCE:	Baghouse					DATE:	7/15/04
WEATHER:	Clear					ORSAT/Fyrite/Analyzer	
TYPE TEST:	Method 201A - PM10					CO2	0
TESTERS:	EW, JE, DP					O2	20.9
PTS @	24	MIN/PT	—	TOT MIN	—	CO	0
Y meter	1.017	Pretest Ts	~	Pretest Tm	—	Factor	0.84
F.D.A.	0.99	Stack TC ID					
Probe ID		Heater Box TC ID				F=1570(aXc)/b	
Pitot ID		Impinger TC ID				a = (Dn^2XFDA)^2	
Upstream Dia.	~	Comments:				b= (1.6+FDA)Ts	
Downstream Dia.	—					c= Tm X DHa	

BAROMETRIC PRESS	28.17			
METER BOX ID	AASIH2			
METER DELTA Ha	1.448			
PITOT CORR. FACTOR	0.84			
PROBE TEMP.	250			
STACK ID (IN):	228			
PORT LENGTH	~6			
NOZZLE DIA.	Average: 0.180			
Cal Checks	1 ~	2 ~	3 ~	

TIME START	~~756~~ 800 CDT	921	START VOLUME	486.847
TIME END	1707		END VOLUME	

STAT.PRESS -0.94

LEAK CHECK: PRE.TEST 0.015 | POST: 0.011@5 CFM@15". " Hg. | PITOT LEAK CHECK = OK AT 3" | VOL.WATER COLLECTED 74 ml | WT. MOIS. SILICA GEL gr

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	VACUUM INCHES Hg.	STACK GAS TEMP.	FILTER TEMP. (F)	LAST IMPINGER TEMP.	METER TEMP (F)	METER TEMP (F)
1-1	18.14	486.847	~~0.80~~ 0.85	0.53	4	159		62	87	86
	5	489.2			4	156		58	94	86
	10	491.6			4	215		58	103	91
	15	494.0	↓		4	177		60	112	97
1-2	16.7	495.6	0.72		4	175		64	117	101
	5	498.0	↓		4	170		61	122	102
	10	500.5	↓		4	166		58	124	103
1-3	17.5	503.8	0.79		4	164		57	128	104
	5	506.3	↓		4	164		55	129	105
	10	508.8	↓		4	155		55	130	106
	15	511.3	↓		4	160		54	131	107
1-4	16.5	512.5	0.70		4	167		54	130	107
	5	515.0	↓	↓	4	180		54	132	108
	10	517.5			4	181		54	132	108

pg #2

AMBIENT AIR SERVICES, INC.
STARKE, FL
(904)964-8440

Source Sampling Field Data Continuation Sheet #1

FACILITY: IPSCO Iowa | RUN No. 3-PM10
SOURCE: Baghouse | DATE: 7/19/04

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	VACUUM INCHES Hg.	STACK GAS TEMP.	FILTER TEMP. (F)	LAST IMPINGER TEMP.	METER TEMP (F)	METER TEMP (F)	
1-5	15.1	520.8	0.59	0.53	4	177		53	132	109	
	5	523.3	↓	↓	3.5	169		53	131	109	
	10	525.8	↓	↓	3.5	175		53	133	109	
1-6	15.6	528.3	0.63	↓	4	173		52	132	110	
	5	530.8	↓	↓	4	167		52	131	110	
	10	533.3	↓	↓	4	164		52	132	110	
2-1	19.7	536.065	1.0	↓	4	160		56	123	111	
	5	538.5	↓	↓	4	166		52	127	111	
	10	541.0	↓	↓	4	163		51	131	112	
	15	543.4	↓	↓	4	170		52	132	111	
2-2	~~16.8~~ 15.5	545.8	~~0.73~~ 0.62	↓	4	169		52	133	111	
	5	548.3	↓	↓	4	165		52	134	111	
	10	550.8	↓	↓	4	163		53	134	112	
2-3	14.9	553.6	0.57	↓	4	163		53	134	112	
	5	556.1	↓	↓	4	166		52	134	112	
	10	558.5	↓	↓	4	157		51	134	111	
2-4	15.5	561.0	0.62	↓	4	155		51	133	111	
	5	563.4	↓	↓	4	163		52	134	111	
	10	565.9	↓	↓	4	170		51	133	111	
2-5	15.5	568.6	0.62	↓	4	185		51	134	111	
	5	571.0	↓	↓	4	196		53	134	111	
	10	573.5	↓	↓	4	201		54	134	111	
2-6	13.9	576.1	0.60	↓	4	227		54	133	111	
	5	578.7	↓	↓	4	231		55	133	111	
	10	581.1	↓	↓	4	224		55	133	110	
		583.065									

AMBIENT AIR SERVICES, INC.
STARKE, FL
(904)964-8440

Source Sampling Field Data Continuation Sheet #1

FACILITY:	IPSCO Iowa	RUN No.	3-Pm 10
SOURCE:	Baghouse	DATE:	7/15/04

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	VACUUM INCHES Hg.	STACK GAS TEMP.	FILTER TEMP. (F)	LAST IMPINGER TEMP.	METER TEMP (F)	METER TEMP (F)	
3-1	26.8	583.065	1.2	0.53	4	221	~~680~~	56	123	110	
	5	585.5			4	206		57	129	110	
	10	587.9			4	238		58	131	110	
	15	590.4			4	186		58	129	108	
	20	592.9			4	194		58	133	110	
3-2	26.8	596.2	1.2		4	191		58	132	110	
	5	598.7			4	188		59	130	109	
	10	601.1			4	209		62	131	108	
	15	603.6			4	212		63	131	109	
	20	606.0			4	208		63	130	108	
3-3	26.8	609.2	1.2		4	199		58	130	109	
	5	611.6			4	207		57	130	109	
	10	614.1			4	188		56	130	108	
	15	616.5			4	181		54	128	108	
	20	618.8			4	200		54	128	106	
3-4	20.6	622.2	1.1		4	210		50	128	106	
	5	624.6			4	227		53	127	106	
	10	627.0			4	230		54	127	106	
	15	629.4			4	233		55	127	105	
3-5	21.6	631.8	1.2		4	225		54	126	102	
	5	634.6			4	203		54	126	104	
	10	637.0			4	198		54	126	102	
	15	639.3			4	192		54	126	103	
3-6	20.6	642.5	1.1		4	183		55	126	103	
	5	645.0			4	202		55	125	103	
	10	647.4			4	200		56	125	102	
	15	649.7			4	197		57	126	102	

652.512

Pg #4

AMBIENT AIR SERVICES, INC.
STARKE, FL
(904)964-8440

Source Sampling Field Data Continuation Sheet #1

FACILITY: IPSCO Iowa | RUN No. 3 - PM10
SOURCE: Baghouse | DATE: 7/15/04

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	VACUUM INCHES Hg.	STACK GAS TEMP.	FILTER TEMP. (F)	LAST IMPINGER TEMP.	METER TEMP (F)	METER TEMP (F)	
4-1	20.6	652.512	1.2	0.53	4	205		55	114	102	
	5	655.0			4	216		56	119	102	
	10	657.4			4	235		56	121	101	
	15 185	659.8	1.88		4	194		57	122	101	
4-2	19.2	662.5	~~0.95~~ 0.88		4	190		57	121	100	
	5	665.0			4	188		57	122	98	
	10	667.4			4	180		57	122	100	
	15	669.8			4	185		58	124	100	
4-3	18.1	671.5	0.85		4	208		60	124	101	
	5	674.0			4	196		60	124	101	
	10	676.5			4	220		60	124	101	
	15	679.0			4	192		56	124	101	
4-4	19.4	680.5	0.97		4	218		58	125	101	
	5	683.6			4	207		58	121	101	
	10	685.4			4	197		56	123	101	
	15	687.9			4	198		60	124	101	
4-5	19.7	690.2	1.0		4	197		61	124	101	
	5	692.7			4	209		62	124	101	
	10	695.1			4	214		62	124	101	
	15	697.6			4	196		62	124	101	
4-6	19.2	699.9	0.95		4	206		63	124	101	
	5	702.3			4	201		63	124	101	
	10	704.7			4	218		64	124	101	
	15	707.2			4	216		64	124	101	
		709.227									

AMBIENT AIR SERVICES, INC.
LABORATORY DATA SHEET

PARTICULATE WEIGHT DETERMINATION

PLANT & LOCATION: Ipsco Iowa

STACK: Baghouse - PM10 DATE Run 7/13,14,15/04 Process 7-18-04

	RUN 1	RUN 2	RUN 3	RUN 4	INITIALS
FILTERS:					
Filter No.	00025	00023	115		JE 7.18.04
Filter Final Wt. (g)	0.2042	0.2038	0.1486		
Filter Tare Wt. (g)	0.2016	0.2002	0.1461		
Net Gain (gm)	0.0026	0.0036	0.0025		7-22-04 CN
PREFILTER: 10	←		→		
Sample No.	B-937	B 938	B 939		
Sample Volume	25 ml	30 ml	25 ml		JE 7.18.04
Aliquot					
Factor					
Final Wt.	97.6807	110.5126	109.7156		
Tare Wt.	97.6802	110.5109	109.7137		
Net Gain	0.0005	0.0017	0.0019		7-22-04 CN
Net Gain x Factor = Total (gm)					
Blank Correction Factor					
Particulate Wt. (grams)					
SOLVENT BLANK:	Acetone				
Solvent	B 875				
Solvent Volume, ml	100 ml				7-20-04 CN
Beaker Final Wt., grams	118.1698				
Beaker Tare Wt., grams	110.1698				
Net Gain, grams	0.8000				7-23-04 CN
Net Gain/100 ml solvent (gram)					
SILCA GEL:					
Sample No.	1	2	3		
Final Wt., grams	427.3	439.9	421.6		
Tare Wt., grams	389.5	407.6	389.0		
Net Gain, grams	37.8	32.3	32.6		7-20-04CN
EXTRACTABLE MATTER:					
Sample No.					
Final Wt., grams					
Tare Wt., grams					
Net Gain, grams					

AASI.02

Balance Checks

0.500 gm √0.5001 5.000 gm √5.0000 50.000 gm _____ 2.000 gm √2.0000 10.000 gm √10.0000 100.000 gm √100.0000

I certify that the information contained herin is correct, weights are correct and balances used are in current calibration.

Signature Cathy S. Hartman Date 8-6-04

Quality Assurance Signature David J Pate Date 8-6-04

00151

AMBIENT AIR SERVICES, INC.
LABORATORY DATA SHEET

PARTICULATE WEIGHT DETERMINATION

PLANT & LOCATION: IPSCO Iowa

STACK: Bag house - PM10 >10 DATE Process 7-18-04

	RUN 1	RUN 2	RUN 3	RUN 4	INITIALS
FILTERS:					
Filter No.					
Filter Final Wt. (g)					
Filter Tare Wt. (g)					
Net Gain (gm)					
PREFILTER: >10	←		→		
Sample No.	B884	B885	B886		
Sample Volume	30 ml	20 ml	25 ml		J.E. 7-18-04
Aliquot					
Factor					
Final Wt.	101.4390	112.4406	103.3037		
Tare Wt.	101.4376	112.4374	103.3021		
Net Gain	0.0014	0.0032	0.0016		7-22-04 CH
Net Gain x Factor = Total (gm)					
Blank Correction Factor					
Particulate Wt. (grams)					
SOLVENT BLANK:					
Solvent					
Solvent Volume, ml					
Beaker Final Wt., grams					
Beaker Tare Wt., grams					
Net Gain, grams					
Net Gain/100 ml solvent (gram)					
SILCA GEL:					
Sample No.					
Final Wt., grams					
Tare Wt., grams					
Net Gain, grams					
EXTRACTABLE MATTER:					
Sample No.					
Final Wt., grams					
Tare Wt., grams					
Net Gain, grams					

AASI.02

Balance Checks

0.500 gm √0.5000 5.000 gm √5.0000 50.000 gm _____ 2.000 gm √2.0000 10.000 gm √10.0000 100.000 gm √100.0000

I certify that the information contained herin is correct, weights are correct and balances used are in current calibration.

Signature Collin S. Fontana Date 8-6-04

Quality Assurance Signature David J Pate Date 8-6-04

00152

AMBIENT AIR SERVICES, INC.
LABORATORY DATA SHEET

PARTICULATE WEIGHT DETERMINATION

PLANT & LOCATION: IPSCO IOWA

STACK: Baghouse - MC (Organic) Layer DATE Run 7-13-04 Process-7-23-04

	RUN 1	RUN 2	RUN 3	RUN 4	INITIALS
FILTERS:					
Filter No.					
Filter Final Wt. (g)					
Filter Tare Wt. (g)					
Net Gain (gm)					
PREFILTER:					
Sample No.	B882	B887	B890		
Sample Volume	167 ml	158 ml	152 ml		7-23-04 CN
Aliquot					
Factor					
Final Wt.	108.3514	96.3667	105.2517		
Tare Wt.	108.3408	96.3550	105.2481		
Net Gain	0.0106	0.0117	0.0036		7-27-04 CN
Net Gain x Factor = Total (gm)					
Blank Correction Factor					
Particulate Wt. (grams)					
SOLVENT BLANK:	MC				
Solvent	B893				
Solvent Volume, ml	100 ml				7-23-04 CN
Beaker Final Wt., grams	113.3513				
Beaker Tare Wt., grams	113.3513				
Net Gain, grams	0.0000				7-27-04 CN
Net Gain/100 ml solvent (gram)					
SILCA GEL:					
Sample No.					
Final Wt., grams					
Tare Wt., grams					
Net Gain, grams					
EXTRACTABLE MATTER:					
Sample No.					
Final Wt., grams					
Tare Wt., grams					
Net Gain, grams					

AASI.02

Balance Checks

0.500 gm V0.5000 5.000 gm V5.0000 50.000 gm _____ 2.000 gm V2.0000 10.000 gm V10.0000 100.000 gm V100.0000

I certify that the information contained herin is correct, weights are correct and balances used are in current calibration.

Signature Collin J Hutson Date 8-6-04

Quality Assurance Signature David J Pate Date 8-6-04

00148

AMBIENT AIR SERVICES, INC.
LABORATORY DATA SHEET

PARTICULATE WEIGHT DETERMINATION

PLANT & LOCATION: Ipsco Iowa

STACK: Baghouse H20 (organic) Layer DATE Run-7-13-04 Process-7-23-04

	RUN 1	RUN 2	RUN 3	RUN 4	INITIALS
FILTERS:					
Filter No.					
Filter Final Wt. (g)					
Filter Tare Wt. (g)					
Net Gain (gm)					
PREFILTER:					
Sample No.	B881 + 883	B888 + 889	B891 + 892		
Sample Volume	335 ml	268 ml	299 ml		7-23-04 CN
Aliquot					
Factor					
Final Wt.	218.3104	207.2303	222.9823		
Tare Wt.	218.2856	207.1989	222.9675		
Net Gain	0.0248	0.0314	0.0148		7-28-04 CN
Net Gain x Factor = Total (gm)					
Blank Correction Factor					
Particulate Wt. (grams)					
SOLVENT BLANK:	H20				
Solvent	B894				
Solvent Volume, ml	200 ml				7-23-04 CN
Beaker Final Wt., grams	111.6494				
Beaker Tare Wt., grams	111.6494				
Net Gain, grams	0.0000				7-27-04 CN
Net Gain/100 ml solvent (gram)					
SILCA GEL:					
Sample No.					
Final Wt., grams					
Tare Wt., grams					
Net Gain, grams					
EXTRACTABLE MATTER:					
Sample No.					
Final Wt., grams					
Tare Wt., grams					
Net Gain, grams					

AASI.02

Balance Checks

0.500 gm √0.5000 5.000 gm √5.0000 50.000 gm _____ 2.000 gm √2.0000 10.000 gm √10.0000 100.000 gm √100.0000

I certify that the information contained herin is correct, weights are correct and balances used are in current calibration.

Signature Colleen S Thomas Date 8-6-04

Quality Assurance Signature David J Pate Date 8-6-04

00149

APPENDIX E

Equipment Calibrations

Dry Gas Meter Post Test Calibrations
Dry Gas Meter Annual Calibrations
Pitot Tube Post Test Calibrations
Thermocouple Post Test Calibrations

APEX INSTRUMENTS METHOD 5 POST-TEST CONSOLE CALIBRATION
USING CALIBRATED CRITICAL ORIFICES
3-POINT ENGLISH UNITS

Meter Console Information	
Console Model Number	AASI Box 8
Pre-test "Y" value	1.007
DGM Model Number	S275
DGM Serial Number	6842125

Calibration Conditions			
Date	Time	19-Jul-04	1050
Barometric Pressure		29.83	in Hg
Theoretical Critical Vacuum[1]		14.1	in Hg
Calibration Technician		DWL	

Factors/Conversions		
Std Temp	528	°R
Std Press	29.92	in Hg
K_1	17.647	oR/in Hg

[1]For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.

[2]The Critical Orifice Coefficient, K', must be entered in English units, $(ft^3*R^{1/2})/(in.Hg*min)$.

Calibration Data

Run Time	Metering Console					Critical Orifice				
Elapsed	DGM Orifice ΔH	Volume Initial	Volume Final	Outlet Temp Initial	Outlet Temp Final	Serial Number	Coefficient	Amb Temp Initial	Amb Temp Final	Actual Vacuum
(Θ)	(P_m)	(V_{mi})	(V_{mf})	(t_{mi})	(t_{mf})		K'	(t_{amb})	(t_{amb})	
min	in H_2O	cubic feet	cubic feet	°F	°F		see above2	°F	°F	in Hg
14	2.1	548.600	560.460	86	85	63	0.6213	82	84	20
16	2.1	561.000	574.511	85	86	63	0.6213	84	84	20
15	2.1	575.000	587.673	86	87	63	0.6213	84	84	20

Results

Standardized Data				Dry Gas Meter				
				Calibration Factor		Flowrate	ΔH @	
Dry Gas Meter		Critical Orifice		Value	Variation	Std & Corr	0.75 SCFM	Variation
($V_{m(std)}$)	($Q_{m(std)}$)	($Vcr_{(std)}$)	($Q_{cr(std)}$)	(Y)	(ΔY)	($Q_{m(std)(corr)}$)	(ΔH@)	(ΔΔH@)
cubic feet	cfm	cubic feet	cfm			cfm	in H2O	
11.504	0.822	11.135	0.795	0.968	-0.002	0.795	1.822	-0.001
13.106	0.819	12.714	0.795	0.970	0.000	0.795	1.826	0.002
12.270	0.818	11.919	0.795	0.971	0.002	0.795	1.822	-0.001
				0.970	Y Average		1.823	ΔH@ Average

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.

I certify that the above Dry Gas Meter was calibrated in accordance with USEPA Methods, 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.).

Tech signature [signature] date: 19Jul04

Quality Assurance signature [signature] date: 7-23-04

APEX INSTRUMENTS METHOD 5 POST-TEST CONSOLE CALIBRATION
USING CALIBRATED CRITICAL ORIFICES
3-POINT ENGLISH UNITS

Meter Console Information	
Console Model Number	AASI Box 2
Pre-test "Y" value	1.017
DGM Model Number	S175
DGM Serial Number	631146

Calibration Conditions			
Date	Time	23-Jul-04	1016
Barometric Pressure		29.83	in Hg
Theoretical Critical Vacuum[1]		14.1	in Hg
Calibration Technician		dwl	

Factors/Conversions		
Std Temp	528	°R
Std Press	29.92	in Hg
K_1	17.647	oR/in Hg

[1]For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.

[2]The Critical Orifice Coefficient, K', must be entered in English units, $(ft^3 {}^oR^{1/2})/(in.Hg*min)$.

Calibration Data

Run Time	Metering Console					Critical Orifice				
Elapsed	DGM Orifice ΔH	Volume Initial	Volume Final	Outlet Temp Initial	Outlet Temp Final	Serial Number	Coefficient	Amb Temp Initial	Amb Temp Final	Actual Vacuum
(Θ)	(P_m)	(V_{mi})	(V_{mf})	(t_{mi})	(t_{mf})		K'	(t_{amb})	(t_{amb})	
min	in H_2O	cubic feet	cubic feet	°F	°F		see above2	°F	°F	in Hg
38	1.7	726.800	758.209	96	105	63	0.6213	87	88	19
16	1.7	758.500	771.818	105	114	63	0.6213	88	90	19
18	1.7	772.100	787.122	114	108	63	0.6213	90	90	19

Results

Standardized Data				Dry Gas Meter				
				Calibration Factor		Flowrate	ΔH @	
Dry Gas Meter		Critical Orifice		Value	Variation	Std & Corr	0.75 SCFM	Variation
($V_{m(std)}$)	($Q_{m(std)}$)	($Vcr_{(std)}$)	($Q_{cr(std)}$)	(Y)	(ΔY)	($Q_{m(std)(corr)}$)	(ΔH@)	(ΔΔH@)
cubic feet	cfm	cubic feet	cfm			cfm	in H2O	
29.622	0.780	30.099	0.792	1.016	-0.005	0.792	1.445	0.013
12.362	0.773	12.656	0.791	1.024	0.003	0.791	1.426	-0.006
13.907	0.773	14.225	0.790	1.023	0.002	0.790	1.425	-0.007
				1.021	Y Average		1.432	ΔH@ Average

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.

I certify that the above Dry Gas Meter was calibrated in accordance with USEPA Methods, 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.).

Tech signature [signature] date: 23Jul04

Quality Assurance signature [signature] date: 7-23-04

Ambient Air Services, Inc. - Method 5 Dry Gas Meter Annual Calibration

USING CALIBRATED CRITICAL ORIFICES

5-POINT ENGLISH UNITS

Meter Console Information	
Console Model Number	AASI
Console Serial Number	box-8
DGM Model Number	S-275
DGM Serial Number	6842125

Calibration Conditions			
Date	Time	11-Sep-03	8:00
Barometric Pressure		29.9	in Hg
Theoretical Critical Vacuum[1]		14.1	in Hg
Calibration Technician		DWL	

Factors/Conversions		
Std Temp	528	°R
Std Press	29.92	in Hg
K_1	17.647	oR/in Hg

[1]For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.

[2]The Critical Orifice Coefficient, K', must be entered in English units, $(ft^3 \cdot {}^oR^{1/2})/(in.Hg \cdot min)$.

Calibration Data

Run Time	Metering Console					Critical Orifice				
Elapsed	DGM Orifice ΔH	Volume Initial	Volume Final	Outlet Temp Initial	Outlet Temp Final	Serial Number	Coefficient	Amb Temp Initial	Amb Temp Final	Actual Vacuum
(Θ)	(P_m)	(V_{mi})	(V_{mf})	(t_{mi})	(t_{mf})		K'	(t_{amb})	(t_{amb})	
min	in H_2O	cubic feet	cubic feet	°F	°F		see above2	°F	°F	in Hg
15.0	3.8	122.755	139.178	71	72	73	0.8486	69	70	18
17.0	2.0	139.178	152.863	72	73	63	0.6213	70	71	20
18.0	1.2	152.863	164.100	73	72	55	0.4793	71	71	22
40.0	0.7	221.061	240.306	78	80	48	0.3740	82	85	23
48.0	0.3	240.306	256.008	80	81	40	0.2511	85	85	25

813.624

Standardized Data				Dry Gas Meter				
				Calibration Factor		Flowrate	ΔH @	
Dry Gas Meter		Critical Orifice		Value	Variation	Std & Corr	0.75 SCFM	Variation
($V_{m(std)}$)	($Q_{m(std)}$)	($Vcr_{(std)}$)	($Q_{cr(std)}$)	(Y)	(ΔY)	($Q_{m(std)(corr)}$)	(ΔH@)	(ΔΔH@)
cubic feet	cfm	cubic feet	cfm			cfm	in H2O	
16.467	1.098	16.551	1.103	1.005	-0.002	1.103	1.778	0.067
13.636	0.802	13.720	0.807	1.006	-0.001	0.807	1.731	0.020
11.175	0.621	11.202	0.622	1.002	-0.005	0.622	1.740	0.029
18.884	0.472	19.200	0.480	1.017	0.009	0.480	1.657	-0.054
15.351	0.320	15.447	0.322	1.006	-0.001	0.322	1.649	-0.062
				1.007	Y Average		1.711	ΔH@ Average

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.

I certify that the above Dry Gas Meter was calibrated in accordance with USEPA Methods, 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 _____ Date 11-Sep-03

Quality Assurance Data Review:

Signature William D. Edwards Date 09-11-03

APEX INSTRUMENTS METHOD 5 PRE-TEST CONSOLE CALIBRATION
USING CALIBRATED CRITICAL ORIFICES
5-POINT ENGLISH UNITS

Meter Console Information	
Console Model Number	AASI
Console Serial Number	box 2
DGM Model Number	S 175
DGM Serial Number	631146

Calibration Conditions			
Date	Time	11-Dec-03	1430
Barometric Pressure		29.88	in Hg
Theoretical Critical Vacuum[1]		14.1	in Hg
Calibration Technician		dwl	

Factors/Conversions		
Std Temp	528	°R
Std Press	29.92	in Hg
K_1	17.647	oR/in Hg

[1]For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.

[2]The Critical Orifice Coefficient, K', must be entered in English units, $(ft^3*°R^{1/2})/(in.Hg*min)$.

Calibration Data

Run Time	Metering Console					Critical Orifice				
Elapsed	DGM Orifice »H	Volume Initial	Volume Final	Outlet Temp Initial	Outlet Temp Final	Serial Number	Coefficient	Amb Temp Initial	Amb Temp Final	Actual Vacuum
(Δ)	(P_m)	(V_{mi})	(V_{mf})	(t_{mi})	(t_{mf})		K'	(t_{amb})	(t_{amb})	
min	in H_2O	cubic feet	cubic feet	°F	°F		see above2	°F	°F	in Hg
15.0	3.30	308.600	325.015	70	78	73	0.8486	58	58	18
15.0	1.70	325.015	337.172	78	75	63	0.6213	58	58	19
15.0	1.10	337.172	346.630	73	73	55	0.4793	58	58	20
25.0	0.60	346.630	358.635	73	65	48	0.3740	58	58	22
30.0	0.26	359.300	369.022	65	63	40	0.2511	58	57	23

Results

Standardized Data				Dry Gas Meter				
				Calibration Factor		Flowrate	»H @	
Dry Gas Meter		Critical Orifice		Value	Variation	Std & Corr	0.75 SCFM	Variation
($V_{m(std)}$)	($Q_{m(std)}$)	($Vcr_{(std)}$)	($Q_{cr(std)}$)	(Y)	(»Y)	($Q_{m(std)(corr)}$)	(»H@)	(» H@)
cubic feet	cfm	cubic feet	cfm			cfm	in H2O	
16.340	1.089	16.711	1.114	1.023	0.006	1.114	1.502	0.054
11.998	0.800	12.235	0.816	1.020	0.003	0.816	1.426	-0.022
9.382	0.625	9.439	0.629	1.006	-0.011	0.629	1.556	0.108
11.984	0.479	12.275	0.491	1.024	0.008	0.491	1.401	-0.047
9.789	0.326	9.894	0.330	1.011	-0.006	0.330	1.356	-0.092
				1.017	Y Average		1.448	»H@ Average

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.

I certify that the above Dry Gas Meter was calibrated in accordance with USEPA Methods, 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 Dec 03 Quality Assurance: Signature [signature] Date 12-12-03

AAS Inc. AMBIENT AIR SERVICES INCORPORATED
ENVIRONMENTAL CONSULTANTS

IPSCO Iowa

PITOT TUBE CALIBRATION MEASUREMENTS

DATE CALIBRATED 19 Jul 04 PITOT TUBE 10 B

Technician name: Daniel Levy

Pitot tube assembly level ? ✓ Yes ____ No

Pitot tube openings damaged? ____ Yes (explain below) ✓ NO

a1 = 1° degrees (< 10 deg) a2 = 5° degrees (< 10 deg)

b2 = 1° degrees (<5 deg) b1 = 1° degrees (<5 deg)

Y = 0° degrees θ = 0° degrees A = .1056 inches = (Pa + Pb)

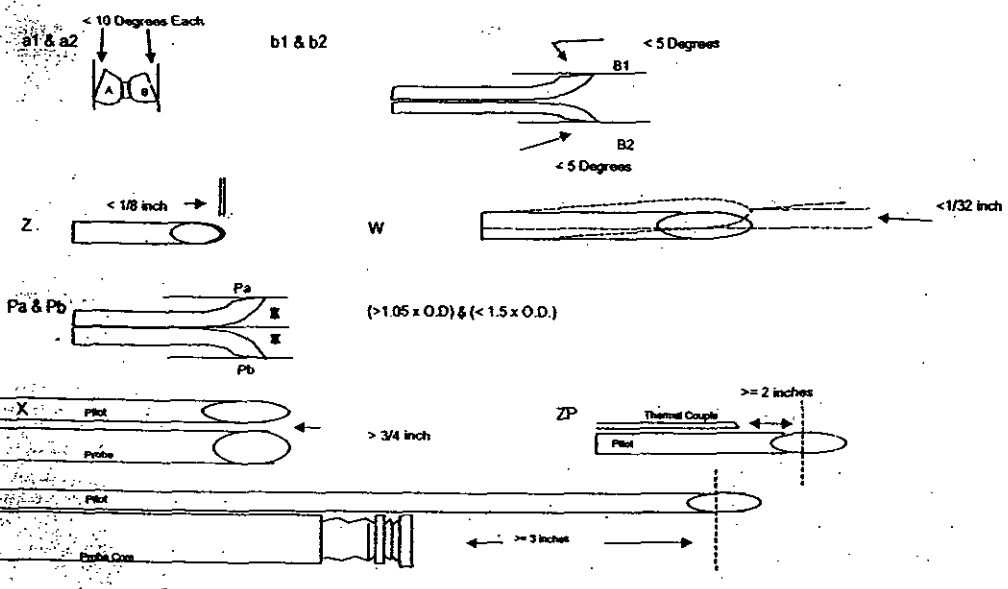
Pa = .521 Pb = .535 Dt = .375

z = A sin Y = 0 inches ; / < 1/8 inches

w = A sin θ = 0 inches ; / < 1/32 inches

Calibration required ? ____ Yes ✓ No Technician signature

Quality Assurance Review by: 8-18-04 QA date



AAS Inc. AMBIENT AIR SERVICES INCORPORATED
ENVIRONMENTAL CONSULTANTS

IPSCO Iowa

PITOT TUBE CALIBRATION MEASUREMENTS

DATE CALIBRATED 19 Jul 04 PITOT TUBE 10 8

Technician name: David Long

Pitot tube assembly level ? ✓ Yes ____ No

Pitot tube openings damaged? ____ Yes (explain below) ✓ NO

a1 = 1° degrees (< 10 deg) a2 = 5° degrees (< 10 deg)

b2 = 1° degrees (<5 deg) b1 = 1° degrees (<5 deg)

Y = 0 degrees 0 = 0° degrees A = 1.056 inches = (Pa + Pb)

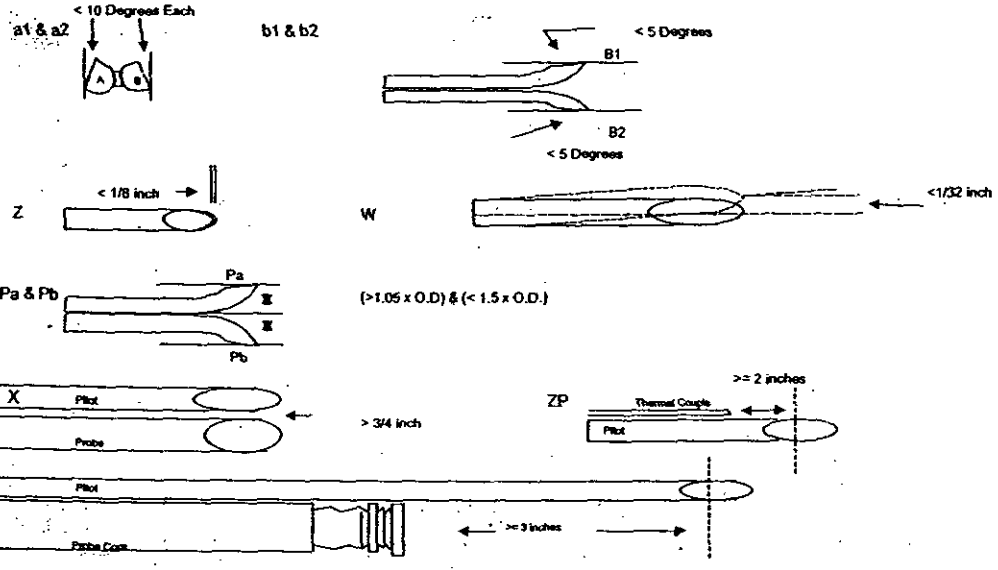
Pa = .521 Pb = .535 Dt = .375

z = A sin Y = 0 inches ; / < 1/8 inches

w = A sin 0 = 0 inches ; / < 1/32 inches

Calibration required ? ____ Yes ✓ No Technician signature

Quality Assurance Review by: 8-18-04 QA date



AMBIENT AIR SERVICES, INC.
106 Ambient Airway
Starke, Flroida 32091

IPSCO Tows

THERMOCOUPLE CALIBRATION FORM

Date 23 Jul 04 Time 1350
Ambient Temperature 94° Source Thermometer
Barometric Pressure 29.83 Source HG-B-1
Technician's Name Daniel Henry

Standard Thermometer Type Merc
Manufacturer HB USA
Serial Number 200310-1
Pyrometer Manufacturer Omega Model BB BOLK
Serial Number AASI-2 Meter Box 2

TEMPERATURE SOURCE (A)		Cold H2O			Ambient H2O			Boiling H2O					
REFERENCE THERMOMETER	Actual Reading	32°			90°			212°					
	Corrected Temperature												
CALIBRATED THERMOCOUPLE		Indicated Temp.	Difference (B)	Percent Diff. (C)	Indicated Temp.	Difference	Percent Diff.	Indicated Temp.	Difference	Percent Diff.	Indicated Temp.	Difference	Percent Diff.
Serial Number	Location												
TC 11.5	Stack	32°	0	0%	90°	0°	0%	212°	0°	0%			
N/A	Filter	N/A			N/A			N/A					
TC-F-1	Impinger	33°	1°		90°	0°		212°	0°				
TC-2	Meter In	33°	1°		89°	1°		212°	0°				
TC-2-1	Meter Out	33°	1°		93°	3°		212°	0°				

COMMENTS:

Technician Signature _____
Quality Assurance Signature _____ Date 8.18.04

Calibration Tolerances Stack = 1.5% of value, Filter Box = ±5.4°F, Impinger = ±2°F, Meter = ±5.4°F (40 CFR Pt, App. A Method 5, and QA Handbook Section 3.4, Method 5, page 13, Rev. 0)

(A) Type of calibration system used (B) Reference - Indicated = Difference

$$(C)\left[\frac{(\text{ref. temp. oF} + 460) - (\text{indicatedtemp. oF} + 460)}{(\text{referencetemp. oF} + 460)}\right] \times 100$$

AASI 68A

AMBIENT AIR SERVICES, INC.
106 Ambient Airway
Starke, Flroida 32091

IP360 Iowa

THERMOCOUPLE CALIBRATION FORM

Date 23 Jul 04 Time 1400
Ambient Temperature 94° Source Therm
Barometric Pressure 29.83 Source HG-B-1
Technician's Name Daniel Levy

Standard Thermometer Type NBS
Manufacturer HBW3A
Serial Number 200310-1
Pyrometer Manufacturer Omega Model BB201K
Serial Number AASI-8 Meter Box 8

TEMPERATURE SOURCE (A)		Cold H2o			Ambient H2o			Boiling H2o					
REFERENCE THERMOMETER	Actual Reading	32°			90°			212°					
	Corrected Temperature												
CALIBRATED THERMOCOUPLE		Indicated Temp.	Difference (B)	Percent Diff. (C)	Indicated Temp.	Difference	Percent Diff.	Indicated Temp.	Difference	Percent Diff.	Indicated Temp.	Difference	Percent Diff.
Serial Number	Location												
Tc 12	Stack	32°	0°	0%	90°	0	0%	211°	-1°	-.15%			
HB7	Filter	32°	0°		91°	1°		211°	-1°				
Tc-04-1	Impinger	33°	1°		91°	1°		212°	0°				
M.8	Meter In	33°	1°		90°	0°		212°	0°				
M.8-1	Meter Out	32°	0°		90°	0°		212°	0°				

COMMENTS:

Technician Signature _____
Quality Assurance Signature _____ Date 8-18-04

Calibration Tolerances Stack = 1.5% of value, Filter Box = ±5.4°F, Impinger = ±2°F, Meter = ±5.4°F (40 CFR Pt, App. A Method 5, and QA Handbook Section 3.4, Method 5, page 13, Rev. O)

(A) Type of calibration system used (B) Reference - Indicated = Difference

$$(C)\left[\frac{(\text{ref. temp. oF} + 460) - (\text{indicatedtemp. oF} + 460)}{(\text{referencetemp. oF} + 460)}\right] \times 100$$

AASI 68A

APPENDIX F

Continuous Opacity Monitoring Data

7/12/04
7/13/04
7/14/04

Information request: 6 minute COM averages for July 13 & 14 07:00 to 17:00

07/13/04,07:00:00,161
07/13/04,07:06:00,144
07/13/04,07:12:00,125
07/13/04,07:18:00,144
07/13/04,07:24:00,181
07/13/04,07:30:00,144
07/13/04,07:36:00,168
07/13/04,07:42:00,217
07/13/04,07:48:00,205
07/13/04,07:54:00,198
07/13/04,08:00:00,210
07/13/04,08:06:00,210
07/13/04,08:12:00,205
07/13/04,08:18:00,266
07/13/04,08:24:00,239
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07/13/04,09:06:00,173
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07/13/04,09:18:00,200
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07/13/04,10:30:00,144
07/13/04,10:36:00,151
07/13/04,10:42:00,151
07/13/04,10:48:00,120
07/13/04,10:54:00,181
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07/13/04,11:06:00,95
07/13/04,11:12:00,112
07/13/04,11:18:00,188
07/13/04,11:24:00,181
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07/13/04,11:36:00,154
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07/13/04,13:30:00,176
07/13/04,13:36:00,168
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07/13/04,13:48:00,156
07/13/04,13:54:00,139
07/13/04,14:00:00,120
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07/13/04,14:18:00,137
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07/13/04,14:42:00,156
07/13/04,14:48:00,151
07/13/04,14:54:00,127
07/13/04,15:00:00,127
07/13/04,15:06:00,164
07/13/04,15:12:00,173
07/13/04,15:18:00,139
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07/13/04,15:30:00,225
07/13/04,15:36:00,210
07/13/04,15:42:00,188
07/13/04,15:48:00,164
07/13/04,15:54:00,137
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07/13/04,16:18:00,149
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07/14/04,08:06:00,76
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07/14/04,08:18:00,88
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07/14/04,08:30:00,156
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07/14/04,08:42:00,98
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07/14/04,09:00:00,186
07/14/04,09:06:00,186
07/14/04,09:12:00,195
07/14/04,09:18:00,171
07/14/04,09:24:00,137
07/14/04,09:30:00,120
07/14/04,09:36:00,132
07/14/04,09:42:00,168
07/14/04,09:48:00,132
07/14/04,09:54:00,132
07/14/04,10:00:00,173
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07/14/04,10:18:00,156
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07/14/04,10:30:00,127
07/14/04,10:36:00,183
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07/14/04,10:48:00,112
07/14/04,10:54:00,193
07/14/04,11:00:00,181
07/14/04,11:06:00,193
07/14/04,11:12:00,171
07/14/04,11:18:00,188
07/14/04,11:24:00,125
07/14/04,11:30:00,144
07/14/04,11:36:00,183
07/14/04,11:42:00,125
07/14/04,11:48:00,168
07/14/04,11:54:00,217
07/14/04,12:00:00,181
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07/14/04,13:42:00,164
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07/14/04,14:00:00,164
07/14/04,14:06:00,193
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07/14/04,15:00:00,205
07/14/04,15:06:00,225
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07/14/04,17:12:00,127
07/14/04,17:18:00,193
07/14/04,17:24:00,212
07/14/04,17:30:00,181
07/14/04,17:36:00,181
07/14/04,17:42:00,132
07/14/04,17:48:00,168
07/14/04,17:54:00,193

APPENDIX G

Control Device Operating Log

DATE	TIME	FURNACE A PRESSURE (IN)	FURNACE B PRESSURE (IN)	ID FAN 1 CURRENT (AMPS)	ID FAN 2 CURRENT (AMPS)	ID FAN 3 CURRENT (AMPS)	ID FAN 1 DAMPER (%)	ID FAN 2 DAMPER (%)	ID FAN 3 DAMPER (%)
7/13/04	07:01:38.687	0.004	-0.001	162	163	167	100	99	100
7/13/04	07:31:38.703	0.012	-0.002	169	170	173	100	99	100
7/13/04	08:01:38.875	0.012	-0.003	167	166	170	100	99	100
7/13/04	08:31:38.906	0.012	-0.002	167	167	171	100	99	100
7/13/04	09:01:38.984	0.005	0.003	160	160	163	100	99	100
7/13/04	09:31:39.062	0.003	-0.004	166	166	168	100	99	100
7/13/04	10:01:39.093	0.004	-0.004	169	169	173	100	99	100
7/13/04	10:31:39.187	0.008	-0.006	168	169	172	99	99	100
7/13/04	11:01:39.234	0.012	-0.003	166	166	169	100	99	100
7/13/04	11:31:39.234	0.005	-0.002	165	165	168	100	99	100
7/13/04	12:01:39.312	0.012	-0.001	167	167	170	100	99	100
7/13/04	12:31:39.406	0.008	-0.006	167	166	170	100	99	100
7/13/04	13:01:39.640	0.004	-0.006	169	171	173	100	99	100
7/13/04	13:31:39.687	0.009	-0.005	168	168	171	100	99	100
7/13/04	14:01:39.750	0.001	-0.005	170	170	173	100	99	100
7/13/04	14:31:46.890	0.007	-0.005	162	162	165	100	99	100
7/13/04	15:01:46.953	0.003	-0.004	172	172	175	100	99	100
7/13/04	15:31:46.953	0.008	-0.002	165	165	168	99	99	100
7/13/04	16:01:47.000	0.005	-0.003	166	167	170	100	99	100
7/13/04	16:31:47.078	0.016	-0.008	164	164	168	99	99	100
7/13/04	17:01:47.093	0.005	-0.009	175	174	178	99	99	100
		0	0						
7/14/04	07:01:48.921	0.008	-0.002	137	138	139	40	40	40
7/14/04	07:31:49.015	0.006	-0.003	190	188	191	100	99	100
7/14/04	08:01:49.093	0.006	-0.002	190	189	194	100	99	100
7/14/04	08:31:49.093	0.005	-0.002	182	182	185	100	99	100
7/14/04	09:01:49.171	0.008	-0.001	175	176	180	100	99	100
7/14/04	09:31:49.250	0.012	0	181	181	184	100	99	100
7/14/04	10:01:49.343	0.013	0.005	175	173	176	100	99	100
7/14/04	10:31:49.500	0.009	0.002	176	175	180	100	99	100
7/14/04	11:01:49.578	0.007	-0.001	173	172	176	100	99	100
7/14/04	11:31:49.578	0.004	-0.001	171	170	174	100	99	100
7/14/04	12:01:49.656	0.008	0.01	168	167	170	99	99	100
7/14/04	12:31:49.656	0.006	0.001	175	174	178	99	99	100

7/14/04 13:01:49.750	0.009	-0.004	172	170	174	99	99	100
7/14/04 13:31:49.843	0.007	0	172	171	175	100	99	100
7/14/04 14:01:49.843	0.006	-0.001	171	169	173	100	99	100
7/14/04 14:31:49.906	0.006	0.001	171	171	175	99	99	100
7/14/04 15:01:50.062	0.008	-0.003	170	169	173	100	99	100
7/14/04 15:31:50.078	0.015	-0.001	178	177	181	99	99	100
7/14/04 16:01:50.125	0.007	-0.003	172	172	176	99	99	100
7/14/04 16:31:50.218	0.014	-0.003	177	176	181	99	99	100
7/14/04 17:01:50.312	0.005	-0.001	171	170	173	99	99	100
	0	0						
7/15/04 07:01:51.953	0.009	-0.003	166	166	170	99	99	100
7/15/04 07:31:52.015	0.009	-0.003	165	165	167	99	99	100
7/15/04 08:01:52.046	0.009	-0.003	166	165	170	100	99	100
7/15/04 08:31:52.093	0.009	-0.003	165	165	170	100	99	100
7/15/04 09:01:52.187	0.009	-0.003	172	171	175	100	99	100
7/15/04 09:31:52.281	0.009	-0.003	165	165	169	100	99	100
7/15/04 10:01:52.343	0.009	-0.003	167	167	171	100	99	100
7/15/04 10:31:52.375	0.009	-0.003	169	168	172	100	99	100
7/15/04 11:01:52.437	0.009	-0.003	169	168	172	100	99	100
7/15/04 11:31:52.531	0.009	-0.003	168	168	171	99	99	100
7/15/04 12:01:52.593	0.009	-0.003	170	169	172	100	99	100
7/15/04 12:31:52.609	0.009	-0.003	164	163	167	99	99	100
7/15/04 13:01:52.656	0.009	-0.003	175	173	177	100	99	100
7/15/04 13:31:52.703	0.009	-0.003	170	167	171	99	99	100
7/15/04 14:01:52.781	0.009	-0.003	169	169	172	99	99	100
7/15/04 14:31:52.859	0.009	-0.003	167	167	171	99	99	100
7/15/04 15:01:52.890	0.009	-0.003	169	170	173	100	99	100
7/15/04 15:31:52.984	0.009	-0.003	173	171	177	99	99	100
7/15/04 16:01:53.000	0.009	-0.003	163	163	166	99	99	100
7/15/04 16:31:53.031	0.009	-0.003	172	172	177	99	99	100
7/15/04 17:01:53.093	0.009	-0.003	164	164	167	99	99	100

APPENDIX H

Process Information

Meltshop Production

From 12/2004 23:00:00 to 7/13/2004 23:00:00

Issue Date : 7/14/2004 15:39:06
Issued By : Operations Planning
PBL Name :003 Production_Reporting.pbl Created Date : 03/19/2
Report Name :r_prod_a_meltshop_new Version : 2.1

Seq Id	Heat Id	Heat Order Id	Grade	Melt Practice	Tap Complete Time	Charge Weight	Slab Wgt.	Ht Abort Flag	Pourback Heat Id	Pourback Heat Wgt
G40041	A4G135	1420803	A/SA36A709	12203	07/12/2004 23:12:58	183.23	147.63	Yes		
G40041	B4G631	1420804	A/SA36A709	12203	07/12/2004 23:52:24	173.45	162.32	Yes		
G40041	A4G136	1420805	A/SA36A709	12203	07/13/2004 00:40:15	174.98	174.88	Yes		
G40041	B4G632	1346501	C1020	22205	07/13/2004 01:52:36	183.30	173.24	Yes		
G40041	A4G137	1346502	C1020	22205	07/13/2004 02:44:47	188.35	152.19	Yes		
Percent Yield:	91.3%	Total Scrap Charged:	903.30	Average Scrap Charge:	180.66					
Heats in Sequence:	5	Total Tons Tapped:	824.31	Average Tap Weight:	164.86					
Slabs Cast:	28	Tundish Skull:	4.95	Crop Loss:	2.35					
Slab Weights:	810.26	Pit Scrap:	6.50	Kerf / Sample Loss:	0.25					
G40042	B4G633	1346503	C1020	22205	07/13/2004 03:43:45	188.18	156.88	Yes		
G40042	A4G138	1377501	A/SA36A709	25190	07/13/2004 04:25:29	182.00	174.30	Yes		
G40042	B4G634	1377502	A/SA36A709	25190	07/13/2004 05:17:07	187.40	161.66	Yes		
G40042	A4G139	1377503	A/SA36A709	25190	07/13/2004 06:21:52	187.85	157.62	Yes		
G40042	B4G635	1377504	A/SA36A709	25190	07/13/2004 07:22:37	185.40	157.64	Yes		
G40042	A4G140	1377505	A/SA36A709	25190	07/13/2004 08:33:17	245.48	157.65	Yes		
G40042	B4G636	1377506	A/SA36A709	25190	07/13/2004 09:30:41	112.08	161.34	Yes		
G40042	A4G141	1377507		25190	07/13/2004 10:57:01	183.75	135.20	Yes		
G40042	B4G637	1377508	A/SA36A709	25190	07/13/2004 11:52:39	173.20	167.44	Yes		
Percent Yield:	87.9%	Total Scrap Charged:	1,645.33	Average Scrap Charge:	182.81					
Heats in Sequence:	9	Total Tons Tapped:	1,446.94	Average Tap Weight:	160.77					
Slabs Cast:	45	Tundish Skull:	2.88	Crop Loss:	2.38					
Slab Weights:	1,429.73	Pit Scrap:	11.70	Kerf / Sample Loss:	0.25					
G40043	A4G142	1377509	A/SA36A709	25190	07/13/2004 13:22:39	173.80	149.31	Yes		
G40043	B4G638	1377510	A/SA36A709	25190	07/13/2004 14:13:59	174.95	174.01	Yes		
G40043	A4G143	1377601	A/SA516-70	25191	07/13/2004 15:05:23	171.90	147.00	Yes		
G40043	B4G639	1377602	A/SA516-70	25191	07/13/2004 15:59:42	172.40	166.22	Yes		
G40043	A4G144	1425801	A/SA36A709	24202	07/13/2004 16:57:53	172.18	166.81	Yes		
G40043	B4G640	1425802	A/SA36A709	24202	07/13/2004 18:06:54	171.95	180.03	Yes		
G40043	A4G145	1409701	44W/A36	14201	07/13/2004 19:02:36	171.73	153.63	Yes		
Percent Yield:	95.4%	Total Scrap Charged:	1,208.90	Average Scrap Charge:	172.70					
Heats in Sequence:	7	Total Tons Tapped:	1,152.70	Average Tap Weight:	164.67					
Slabs Cast:	39	Tundish Skull:	3.96	Crop Loss:	2.38					
Slab Weights:	1,137.01	Pit Scrap:	9.10	Kerf / Sample Loss:	0.25					
G40044	B4G641	1377101	A/SA36A709	74170	07/13/2004 20:34:11	172.23	160.29	Yes		

Meltshop Production

From 12/2004 23:00:00 to 7/13/2004 23:00:00

Issue Date : 7/14/2004 15:39:06
Issued By : Operations Planning
PBL Name :003 Production_Reporting.pbl Created Date : 03/19/2
Report Name :r_prod_a_meltshop_new Version : 2.1

Seq Id	Heat Id	Heat Order Id	Grade	Melt Practice	Tap Complete Time	Charge Weight	Slab Wgt.	Ht Abort Flag	Pourback Heat Id	Pourback Heat Wgt
G40044	A4G146	1377102		74170	07/13/2004 21:26:52	171.15	175.02	Yes		

Percent Yield:	98.4%	Total Scrap Charged:	343.38	Average Scrap Charge:	171.69
Heats in Sequence:	2	Total Tons Tapped:	337.91	Average Tap Weight:	168.96
Slabs Cast:	12	Tundish Skull:	0.00	Crop Loss:	0.00
Slab Weights:	335.31	Pit Scrap:	2.60	Kerf / Sample Loss:	0.00

Production Period Summary:

Percent Yield:	91.73%	Total Scrap Charged:	4,100.90	Average Scrap Charge:	178.30
Total Heats Tapped:	23	Total Liquid Metal Tapped:	3,761.86	Average Tap Weight:	163.56
		Total Caster Losses:	49.55		
Total Slab Casts:	124	Total Tundish Loss:	11.79	Total Pit Scrap Loss:	29.90
Total Slab Weights:	3,712.31	Total Crop Loss:	7.11	Total Sample / Kerf Loss:	0.75

* Estimated - heats have not been cast.

DAILY PRODUCTION REPORT - through 07/13/04

IPSCO STEEL (Iowa) Inc.

	Daily		MTD		YTD		Product Yield		
	Units	Tons	Units	Tons	Units	Tons	Daily	MTD	YTD
Meltshop									
Heats Tapped	23		287		3,989				
Scrap Charge Tons	178.364	4,100.9		49,970.4		697,453.8			
Liquid Metal Tapped		3,761.9	159.481	45,771.2		634,508.9			
less: Tapped Pourback	163.565	0.0		0.0		385.0			
Metal Available to Caster		3,761.9		45,771.2		634,123.9	91.7%	91.6%	90.9%
Caster									
INPUT									
Heats Cast	23		290		3,998				
Heats Aborted	0		0		0				
Total	23	3,738.4	290	46,220.5	3,998	634,092.9			
OUTPUT									
Prime Slabs	125	3,688.8	1,618	45,570.5	21,645	624,574.2	98.7%	98.6%	98.5%
SCRAP									
Scrap Slabs	0	0.0	0	0.0	0	0.0	0.0%	0.0%	0.0%
Process Losses		49.6		649.9		9,518.7	1.3%	1.4%	1.5%
Total Scrap		49.6		649.9		9,518.7	1.3%	1.4%	1.5%
DIRECT CHARGE									
Direct Chargeable	56	1,543.1	794	22,871.5	12,248	363,476.1	41.8%	50.2%	58.2%
Direct Charged	47	1,304.8	597	16,977.2	8,482	252,872.5	84.6%	74.2%	69.6%
Rolling Mill - Light Plate									
SLAB INPUT	30	812.2	189	5,705.1	2,061	62,737.0			
OUTPUT									
Semi-Finished Plates	89	796.0	625	5,591.0	6,374	61,253.8	98.0%	98.0%	97.6%
SCRAP									
Scrap Plates	0	0.0	0	0.0	10	256.0	0.0%	0.0%	0.4%
Process Losses		16.3		114.1		1,227.2	2.0%	2.0%	2.0%
Total Scrap		16.3		114.1		1,483.2	2.0%	2.0%	2.4%
Rolling Mill - Heavy Plate									
SLAB INPUT	41	1,080.4	784	21,071.6	9,937	289,085.8			
OUTPUT									
Semi-Finished Plates	74	1,058.7	1,070	20,650.2	13,990	282,947.2	98.0%	98.0%	97.9%
SCRAP									
Scrap Plates	0	0.0	0	0.0	14	416.7	0.0%	0.0%	0.1%
Process Losses		21.6		421.4		5,722.0	2.0%	2.0%	2.0%
Total Scrap		21.6		421.4		6,138.6	2.0%	2.0%	2.1%
Rolling Mill - Coil									
SLAB INPUT	49	1,391.0	546	15,708.7	9,035	261,201.4			
OUTPUT									
Hold Coils	7	185.4	45	1,194.3	435	11,737.9	13.3%	7.6%	4.5%
Prime Coils	42	1,154.7	498	13,868.9	8,530	238,028.4	83.0%	88.3%	91.1%
Prime Sub Total	49	1,340.0	543	15,063.2	8,965	249,766.3	96.3%	95.9%	95.6%
Commercial Coils	0	0.0	1	14.2	36	857.6	0.0%	0.1%	0.3%
Coil Reclaim				72.6		1,208.2		0.5%	0.5%
Adjusted Prime Coils		1340.02		14,990.6		248,558.1	96.3%	95.4%	95.2%
SCRAP									
Scrap Coils	0	0.0	2	52.2	35	943.7	0.0%	0.3%	0.4%
Process Losses		51.0		579.0		9,633.8	3.7%	3.7%	3.7%
Total Scrap		51.0		703.9		11,785.7	3.7%	4.5%	4.5%
Rolling Mill - Summary									
Total Slabs Rolled	120	3,283.5	1,519	42,485.5	21,033	613,024.2			
Rolling Mill Output		3,194.7		41,304.4		593,967.3			
Average Slab Weight									
Plate		26.7		27.5		29.3			
Coil		26.4		28.8		28.9			
Finished Prime Tons									
Light Plate	1,059	887.7	5,083	5,441.2	51,061	58,986.2			
Heavy Plate	470	891.9	8,703	19,627.5	103,403	268,661.2			
Coil	49	1,340.0	543	15,063.2	8,965	249,766.3			
Total Prime Tons	1,578	3,119.6	14,329	40,131.9	163,429	577,413.7			

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 7/13/04 09:30:00 to 7/13/04 17:00:00

Issue Date	: 7/14/04 05:01:31
Issued By	: Operations Planning
PBL Name	:4 scrap_consumption.pbl Created Date : 05/25/0
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
1377507	07/13/2004	08:53:39	A4G141	0000000003	01	FRAG	049050	24.53
					02	BEACH IRON	021150	10.58
					03	MXTN	039250	19.63
					04	CAST FE	027700	13.85
					05	Flux	007950	3.98
					06	HM1	043850	21.93
					07	PITSCRAP	013900	6.95
					08	FRAG	012800	6.40
					09	FRAG	012300	6.15
						0000000003 Total	**227950**	**113.98**
1377507	07/13/2004	09:15:07	A4G141	0000000004	01	FRAG	026800	13.40
					02	MXTN	033700	16.85
					03	Flux	006950	3.48
					04	BEACH IRON	020600	10.30
					05	HM1	023600	11.80
					06	FRAG	042800	21.40
						0000000004 Total	**154450**	**77.22**
						A4G141 Total	**382400**	**191.20**
1377509	07/13/2004	11:01:36	A4G142	0000000003	01	FRAG	052000	26.00
					02	Flux	007550	3.78
					03	BEACH IRON	020750	10.38
					04	MXTN	035700	17.85
					05	CAST FE	032250	16.13
					06	HM1	044050	22.03
					07	PITSCRAP	011000	5.50
					08	FRAG	012950	6.48
					09	FRAG	012900	6.45
						0000000003 Total	**229150**	**114.58**
1377509	07/13/2004	11:54:21	A4G142	0000000002	01	FRAG	027000	13.50
					02	Flux	007700	3.85
					03	BEACH IRON	018100	9.05
					04	MXTN	031350	15.68
					05	HM1	024100	12.05
					06	FRAG	025450	12.73
						0000000002 Total	**133700**	**66.85**
						A4G142 Total	**362850**	**181.43**
1377601	07/13/2004	13:27:12	A4G143	0000000003	01	FRAG	022000	11.00
					02	Flux	008200	4.10
					03	FRAG	025200	12.60
					04	BEACH IRON	017350	8.68
					05	MXTN	044700	22.35
					06	PITSCRAP	012150	6.08
					07	FRAG	020150	10.08
					08	HM2	064700	32.35
					09	FRAG	014750	7.38
						0000000003 Total	**229200**	**114.60**

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 7/13/04 09:30:00 to 7/13/04 17:00:00

Issue Date	: 7/14/04 05:01:31
Issued By	: Operations Planning
PBL Name	:4 scrap_consumption.pbl Created Date : 05/25/0
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
1377601	07/13/2004	14:00:51	A4G143	0000000003	01	FRAG	026450	13.23
					02	Flux	007600	3.80
					03	2BN	008250	4.13
					04	BEACH IRON	014900	7.45
					05	FRAG	014000	7.00
					06	MXTN	030050	15.03
					07	FRAG	029150	14.58
						0000000003 Total	**130400**	**65.20**
						A4G143 Total	**359600**	**179.80**
1425801	07/13/2004	15:34:14	A4G144	0000000003	01	HM2	037650	18.83
					02	2BN	013100	6.55
					03	FRAG	028900	14.45
					04	FRAG	046000	23.00
					05	Flux	008700	4.35
					06	MXTN	042400	21.20
					07	PITSCRAP	009300	4.65
					08	FRAG	017450	8.73
					09	HM2	024050	12.03
						0000000003 Total	**227550**	**113.78**
1425801	07/13/2004	15:58:11	A4G144	0000000005	01	HM2	026150	13.08
					02	FRAG	037600	18.80
					03	Flux	011750	5.88
					04	MXTN	029200	14.60
					05	HM2	032550	16.27
						0000000005 Total	**137250**	**68.63**
						A4G144 Total	**364800**	**182.40**
1377506	07/13/2004	07:27:02	B4G636	0000000005	01	FRAG	052250	26.13
					02	CAST FE	020400	10.20
					03	MXTN	036100	18.05
					04	BEACH IRON	023550	11.78
					05	Flux	007550	3.78
					06	HM1	044700	22.35
					07	PITSCRAP	013700	6.85
					08	FRAG	011450	5.73
					09	FRAG	022000	11.00
						0000000005 Total	**231700**	**115.85**
						B4G636 Total	**231700**	**115.85**
1377508	07/13/2004	10:11:57	B4G637	0000000005	01	FRAG	050550	25.28
					02	BEACH IRON	017450	8.73
					03	MXTN	037350	18.68
					04	BEACH IRON	026150	13.08
					05	Flux	007950	3.98
					06	HM1	044450	22.23
					07	PITSCRAP	009750	4.88
					08	FRAG	012850	6.43

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 7/13/04 09:30:00 to 7/13/04 17:00:00

Issue Date	: 7/14/04 05:01:31
Issued By	: Operations Planning
PBL Name	:4 scrap_consumption.pbl Created Date : 05/25/0
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
1377508	07/13/2004	10:11:57	B4G637	0000000005	09	FRAG	023850	11.93
						0000000005 Total	**230350**	**115.17**
1377508	07/13/2004	10:45:37	B4G637	0000000006	01	FRAG	027250	13.63
					02	Flux	008250	4.13
					03	MXTN	034700	17.35
					04	BEACH IRON	020000	10.00
					05	HM1	023750	11.88
					06	FRAG	018300	9.15
						0000000006 Total	**132250**	**66.13**
						B4G637 Total	**362600**	**181.30**
1377510	07/13/2004	11:54:15	B4G638	0000000006	01	FRAG	058700	29.35
					02	Flux	008200	4.10
					03	BEACH IRON	023250	11.63
					04	MXTN	040350	20.18
					05	CAST FE	028500	14.25
					06	HM1	043800	21.90
					07	PITSCRAP	008750	4.38
					08	FRAG	014550	7.28
					09	FRAG	006700	3.35
						0000000006 Total	**232800**	**116.40**
1377510	07/13/2004	12:54:04	B4G638	0000000006	01	FRAG	026800	13.40
					02	Flux	007950	3.98
					03	BEACH IRON	021100	10.55
					04	MXTN	030650	15.33
					05	HM1	024900	12.45
					06	FRAG	021850	10.93
						0000000006 Total	**133250**	**66.63**
						B4G638 Total	**366050**	**183.03**
1377602	07/13/2004	14:21:45	B4G639	0000000006	01	FRAG	024700	12.35
					02	Flux	008050	4.03
					03	FRAG	023250	11.63
					04	BEACH IRON	018650	9.33
					05	MXTN	042100	21.05
					06	PITSCRAP	010200	5.10
					07	FRAG	019750	9.88
					08	HM2	063050	31.53
					09	FRAG	019250	9.63
						0000000006 Total	**229000**	**114.50**
1377602	07/13/2004	15:02:17	B4G639	0000000006	01	FRAG	025350	12.68
					02	Flux	007850	3.93
					03	2BN	005350	2.68
					04	BEACH IRON	015100	7.55
					05	FRAG	013600	6.80
					06	MXTN	028150	14.08

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 7/13/04 09:30:00 to 7/13/04 17:00:00

Issue Date	: 7/14/04 05:01:31
Issued By	: Operations Planning
PBL Name	:4 scrap_consumption.pbl Created Date : 05/25/0
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id		Material Weight(lbs)	Material Weight(tons)
1377602	07/13/2004	15:02:17	B4G639	0000000006	07	FRAG		036300	18.15
						0000000006	**Total**	**131700**	**65.85**
						B4G639	**Total**	**360700**	**180.35**

Total Heats	8	Total Weight for Time Period	2790700	Pounds	1395.35	Tons

001/002

EAF Heat Sheet **13-Jul-2004 15:02:12**

IPSCO STEEL INC.
Montpelier Works

HEAT: A4G141 *MSP: 25190*

Start Time: 13-Jul-2004 08:34:20
End Time : 13-Jul-2004 10:57:01
TapToTap Time : 142 (min)

Heat Order : 1377507
Grade : A/SA36A709
Ladle # 8 CrewID. : OperatorID: 24

START	DUR	DELAY REASON
10:53:36	0004	Operational, Tap
10:50:48	0002	Operational, Slagoff
10:31:06	0019	Operational, Hot Anode#4
10:26:47	0000	Operational, Sidewall RTD trip
10:25:27	0000	Operational, Sidewall RTD trip
10:17:49	0000	Operational, Sidewall RTD trip
10:16:30	0000	Operational, Sidewall RTD trip
10:14:36	0000	Operational, Sidewall RTD trip
09:52:56	0001	Operational, Sidewall RTD trip
09:50:50	0001	Operational, Sidewall RTD trip
09:48:52	0001	Operational, Sidewall RTD trip
09:36:21	0004	Operational, Charge
09:30:50	0001	Operational, Sidewall RTD trip
08:35:06	0044	Operational, Charge run B

CHARGES	AMOUNT
Charge 1 :	227950
Charge 2 :	154450
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0003930
4oz AL Con	0000380
Carbon	0000635
Dololime	0006130
HiCal Lime	0004590
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120
Tires	0002200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	63100	0	63100	0	0	0
O2 Burner	SCF	111	11	100	0	0	0
Gas Burner	SCF	44	4	40	0	0	0
O2 Lance	SCF	1270	0	1270	0	0	0
Carbon Lance	LBS	3938	0	3938	0	0	0
TIMES							
Melting Tm	MIN	142	40	101	0	0	0
Power on Tm	MIN	58	0	58	0	0	0
Burner On Tm	MIN	104	11	92	0	0	0
O2Lance On Tm	MIN	69	0	69	0	0	0
CLance On Tm	MIN	18	0	18	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	360.0	000.0	330.0	000.0	000.0	000.0
Flux	Tons	000.0	000.1	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	30689.0	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	007.3	000.0	006.6	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.3	000.0	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	022.7	000.0	020.6	000.0	000.0	000.0

COMMENTS

below sand wide shane

	ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CO	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
	MAX	0.20400	1.10000	0.02000	0.01000	0.32000	0.03900	0.00000	0.01500	0.00000	0.43900	0.30000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.01000	0.00000	0.00000	0.00000
	MIN	0.17500	1.00000	0.00000	0.00000	0.22000	0.01800	0.01500	0.00000	0.00100	0.39000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00600	0.00000	0.00000	0.00000
	AIM	0.19000	1.05000	0.00000	0.00000	0.27000	0.02500	0.00000	0.00000	0.00000	0.41600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00700	0.00000	0.00000	0.00000
11:00:01	E1	0.04000	0.05000	0.00600	0.08900	0.00100	0.20200	0.14400	0.00880	0.00060	0.08300	0.20000	0.10000	0.04000	0.03200	0.01000	0.00200	0.00200	0.00100	0.00100	0.00012	2783.18	0.00000

07/13/2004 15:14 FAX 563 381 5406 IPSCO STEEL INC.

002/002

EAF Heat Sheet 13-Jul-2004 15:02:13

IPSCO STEEL INC.
Montpelier Works

HEAT: A4G141 MSP: 25190

EVENTS

TIME	KWH	Description
11.00 01	0000000	Chemical Analysis Received
10:58 05	0000000	Heat End
10:57.27	0063100	Heat End
10:57:07	0063100	Ladle Weigth
10:57:03	0063100	End Tapping
10:55.10	0063100	Start Tapping
10:50:09	0063100	Temperature <2891> O2 <761> C <38>
10 44:40	0063100	Temperature <2902> O2 <779> C <38>
10.31:04	0063100	Power Off
10.26:19	0059900	Temperature <2831> O2 <0> C <0>
10:27:36	0059300	Power On
10:26:46	0059300	Power Off
10:26:03	0058600	Power On
10:25:26	0058600	Power Off
10:24.53	0057900	Temperature <2759> O2 <0> C <0>
10:24.30	0057500	Power On
10:24:21	0057500	Power Off
10:20:59	0053300	Power On
10:20:55	0053300	Power Off
10:18:26	0051200	Power On
10:17:47	0051200	Power Off
10.17:16	0050700	Power On
10:16:28	0050700	Power Off
10.14:58	0049100	Power On
10:14.34	0049100	Power Off
09:54:09	0026000	Power On
09:52:53	0026000	Power Off

07/13/2004 15:14 FAX 563 381 5406 IPSCO STEEL INC.

EAF Heat Sheet 13-Jul-2004 11:52:55

IPSCO STEEL INC.
Montpelier Works

HEAT: B4G637 MSP: 25190

Start Time: 13-Jul-2004 09:31:44
End Time : 13-Jul-2004 11:52:39
TapToTap Time : 140 (min)

Heat Order : 1377508
Grade : A/SA36A709
Ladle #: 0 CrewID: 1 OperatorID: 0

START	DUR	DELAY REASON
11:48:53	0000	Operational, Tap
11:47:11	0001	Operational, Slagoff
11:42:11	0005	Operational, Temp
10:59:29	0014	Operational, Swap columns
10:47:49	0003	Operational, Charge
10:37:34	0001	Operational, Sidewall RTD trip
09:32:31	0060	Operational, Charge run B

CHARGES	AMOUNT
Charge 1 :	230350
Charge 2 :	132250
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0003950
4oz AL Con	0000450
Carbon	0000975
Dololime	0012210
HiCal Lime	0006870
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120
Tires	0002200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	70900	15700	55200	0	0	0
O2 Burner	SCF	109	44	65	0	0	0
Gas Burner	SCF	58	24	34	0	0	0
O2 Lance	SCF	676	47	629	0	0	0
Carbon Lance	LBS	2118	0	2118	0	0	0
TIMES							
Melting Tm	MIN	140	73	66	0	0	0
Power on Tm	MIN	49	11	38	0	0	0
Burner On Tm	MIN	111	44	66	0	0	0
O2Lance On Tm	MIN	40	6	34	0	0	0
CLance On Tm	MIN	8	0	8	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	430.2	136.3	391.1	000.0	000.0	000.0
Flux	Tons	000.0	000.1	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	42244.3	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.1	000.4	003.7	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.4	000.2	000.3	000.0	000.0	000.0
Carbon Ton	LBS/Ton	012.9	000.0	011.7	000.0	000.0	000.0

COMMENTS

at sand wide casey

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.20400	1.10000	0.02000	0.01000	0.32000	0.03900	0.00000	0.01500	0.00000	0.43900	0.30000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.01000	0.00000	0.00000	0.00000
MIN	0.17500	1.00000	0.00000	0.00000	0.22000	0.01800	0.01500	0.00000	0.00100	0.39300	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00600	0.00000	0.00000	0.00000
AIM	0.19000	1.05000	0.00000	0.00000	0.27000	0.02500	0.00000	0.00000	0.00000	0.41600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00700	0.00000	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: B4G637 MSP: 25190

---------- EVENTS ----------

TIME	KWH	Description
11:52:45	0070900	Ladle Weigth
11:52:41	0070900	End Tapping
11:51:24	0070900	Start Tapping
11:42:09	0070900	Power Off
11:14:00	0027600	Power On
11:08:05	0027600	Material Addition
10:59:27	0027600	Power Off
10:51:33	0019200	Power On
10:47:47	0019200	Power Off
10:45:37	0015800	Charge
10:38:43	0005300	Power On
10:37:32	0005300	Power Off
10:36:35	0003900	Burners On
10:33:03	0000000	Melting
10:33:02	0000000	Power On
10:11:57	0000000	Charge
10:11:36	0000000	Material Addition
10:10:46	0000000	Material Addition
10:07:01	0000000	Burners Off
09:31:46	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: A4G142 MSP: 25190

Start Time: 13-Jul-2004 10:58:04
End Time : 13-Jul-2004 13:22:39
TapToTap Time : 144 (min)

Heat Order : 1377509
Grade : A/SA36A709
Ladle #: 0 CrewID: 1 OperatorID: 24

START	DUR	DELAY REASON
13:19:27	0000	Operational, Tap
13:12:15	0007	Operational, Slagoff
12:44:19	0022	Operational, Hot anode#1
12:11:49	0000	Operational, Sidewall RTD trip
12:10:14	0001	Operational, Sidewall RTD trip
12:08:02	0001	Operational, Sidewall RTD trip
12:06:16	0001	Operational, Sidewall RTD trip
11:58:48	0004	Operational, Charge
11:57:17	0000	Operational, Sidewall RTD trip
11:15:39	0028	Operational, Charge run B
11:00:57	0014	Operational, Gunning
10:58:51	0002	Operational, Turnaround

CHARGES	AMOUNT
Charge 1 : 229150	
Charge 2 : 133700	
Charge 3 : 0	
Charge 4 : 0	
Charge 5 : 0	

ADDITIONS	LBS
SiMn	0003950
4oz AL Con	0000450
Carbon	0000640
Dololime	0008135
HiCal Lime	0004585
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120
Tires	0002200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	62000	12100	49900	0	0	0
O2 Burner	SCF	104	14	90	0	0	0
Gas Burner	SCF	41	6	35	0	0	0
O2 Lance	SCF	999	22	977	0	0	0
Carbon Lance	LBS	3317	0	3317	0	0	0
TIMES							
Melting Tm	MIN	144	56	88	0	0	0
Power on Tm	MIN	55	10	45	0	0	0
Burner On Tm	MIN	95	7	88	0	0	0
O2Lance On Tm	MIN	63	4	58	0	0	0
CLance On Tm	MIN	36	0	36	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	375.9	105.6	341.7	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	26373.6	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	006.1	000.2	005.5	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	020.1	000.0	018.3	000.0	000.0	000.0

COMMENTS

at sand wide shane

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.20400	1.10000	0.02000	0.01000	0.32000	0.03900	0.00000	0.01500	0.00000	0.43900	0.30000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.01000	0.00000	0.00000	0.00000
MIN	0.17500	1.00000	0.00000	0.00000	0.22000	0.01800	0.01500	0.00000	0.00100	0.39300	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00600	0.00000	0.00000	0.00000
AIM	0.19000	1.05000	0.00000	0.00000	0.27000	0.02500	0.00000	0.00000	0.00000	0.41600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00700	0.00000	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: A4G142 MSP: 25190

EVENTS

TIME	KWH	Description
13:22:44	0062000	Ladle Weigth
13:22:41	0062000	End Tapping
13:21:04	0062000	Start Tapping
13:14:38	0062000	Temperature <2879> O2 <632> C <44>
13:12:13	0062000	Power Off
13:06:23	0054900	Power On
12:53:13	0054900	Temperature <2769> O2 <554> C <37>
12:49:27	0054900	Temperature <2775> O2 <0> C <0>
12:44:18	0054900	Power Off
12:28:09	0032700	Power On
12:28:00	0032700	Power Off
12:12:41	0020600	Power On
12:11:47	0020600	Power Off
12:11:46	0020600	Material Addition
12:11:21	0020300	Power On
12:10:12	0020300	Power Off
12:09:43	0020000	Power On
12:08:00	0020000	Power Off
12:07:37	0019700	Power On
12:06:15	0019700	Power Off
12:03:25	0017800	Power On
11:58:46	0017700	Power Off
11:58:00	0016800	Power On
11:57:15	0016800	Power Off
11:54:21	0012200	Charge
11:49:12	0004700	Burners On
11:44:15	0000000	Melting
11:44:14	0000000	Power On
11:31:38	0000000	Material Addition
11:01:37	0000000	Charge
11:00:44	0000000	Burners Off
10:58:06	0000000	TurnAround

EAF Heat Sheet 13-Jul-2004 14:14:22

IPSCO STEEL INC.
Montpelier Works

HEAT: B4G638 MSP: 25190

Start Time: 13-Jul-2004 11:53:42
End Time : 13-Jul-2004 14:13:59
TapToTap Time : 140 (min)

Heat Order : 1377510
Grade : A/SA36A709
Ladle #: 0 CrewID: 1 OperatorID: 0

START	DUR	DELAY REASON
14:10:08	0000	Operational, Tap
14:02:38	0007	Operational, Lance Taphole
13:58:02	0004	Operational, Slagoff
13:27:14	0000	Operational, Sidewall RTD trip
13:04:10	0015	Operational, Charge Run A
12:59:18	0000	Operational, Sidewall RTD trip
12:58:04	0000	Operational, Sidewall RTD trip
11:54:29	0051	Operational, Charge Run A

CHARGES	AMOUNT
Charge 1 :	232800
Charge 2 :	133250
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0003950
4oz AL Con	0000450
Carbon	0001260
Dololime	0016300
HiCal Lime	0009180
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120
Tires	0002200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	63200	7800	55400	0	0	0
O2 Burner	SCF	101	21	80	0	0	0
Gas Burner	SCF	54	11	43	0	0	0
O2 Lance	SCF	843	15	828	0	0	0
Carbon Lance	LBS	2001	0	2001	0	0	0
TIMES							
Melting Tm	MIN	140	60	79	0	0	0
Power on Tm	MIN	54	8	46	0	0	0
Burner On Tm	MIN	100	20	79	0	0	0
O2Lance On Tm	MIN	51	2	48	0	0	0
CLance On Tm	MIN	9	0	9	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	379.8	067.0	345.3	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	27137.4	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.1	000.1	004.6	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.3	000.1	000.3	000.0	000.0	000.0
Carbon Ton	LBS/Ton	012.0	000.0	010.9	000.0	000.0	000.0

COMMENTS

at sand wide casey

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.20400	1.10000	0.02000	0.01000	0.32000	0.03900	0.00000	0.01500	0.00000	0.43900	0.30000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.01000	0.00000	0.00000	0.00000
MIN	0.17500	1.00000	0.00000	0.00000	0.22000	0.01800	0.01500	0.00000	0.00100	0.39300	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00600	0.00000	0.00000	0.00000
AIM	0.19000	1.05000	0.00000	0.00000	0.27000	0.02500	0.00000	0.00000	0.00000	0.41600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00700	0.00000	0.00000	0.00000

HEAT: B4G638 MSP: 25190

---------- EVENTS ----------

TIME	KWH	Description
14:14:11	0063200	Ladle Weigth
14:14:01	0063200	End Tapping
14:04:44	0063200	Start Tapping
13:58:00	0063200	Power Off
13:27:51	0027600	Power On
13:27:13	0027600	Power Off
13:19:15	0019200	Power On
13:17:17	0019200	Material Addition
13:04:09	0019200	Power Off
13:00:05	0013800	Power On
12:59:16	0013800	Power Off
12:58:47	0013100	Power On
12:58:02	0013100	Power Off
12:54:04	0007800	Charge
12:50:40	0003700	Burners On
12:45:48	0000000	Melting
12:45:47	0000000	Power On
12:26:28	0000000	Material Addition
12:25:38	0000000	Material Addition
12:23:57	0000000	Material Addition
12:11:00	0000000	Burners Off
11:54:15	0000000	Charge
11:53:44	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: A4G143 MSP: 25191

Start Time: 13-Jul-2004 13:23:42
End Time : 13-Jul-2004 15:05:23
TapToTap Time : 101 (min)

Heat Order : 1377601
Grade : A/SA516-70
Ladle #: 0 CrewID: 1 OperatorID: 24

START	DUR	DELAY REASON
15:01:51	0000	Operational, Tap
14:55:21	0006	Operational, Slagoff
14:52:27	0002	Electrical, Rectifier - Water #4
14:51:10	0000	Operational, Temp
14:35:31	0001	Operational, Sidewall RTD trip
14:31:15	0000	Operational, Sidewall RTD trip
14:14:03	0003	Operational, Charge
13:59:23	0001	Electrical, Rectifier - Water #4
13:24:29	0034	Operational, Charge run B

CHARGES	AMOUNT
Charge 1 :	229200
Charge 2 :	130400
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0003930
4oz AL Con	0000380
Carbon	0000635
Dololime	0008130
HiCal Lime	0004590
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120
Tires	0002200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	61900	0	61900	0	0	0
O2 Burner	SCF	82	11	71	0	0	0
Gas Burner	SCF	33	4	29	0	0	0
O2 Lance	SCF	824	0	824	0	0	0
Carbon Lance	LBS	1752	3317	-1565	0	0	0
TIMES							
Melting Tm	MIN	101	37	64	0	0	0
Power on Tm	MIN	45	0	45	0	0	0
Burner On Tm	MIN	71	11	60	0	0	0
O2Lance On Tm	MIN	46	0	46	0	0	0
CLance On Tm	MIN	49	34	14	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	378.7	000.0	344.3	000.0	000.0	000.0
Flux	Tons	000.0	000.1	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	37827.2	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.0	000.0	004.6	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.0	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	010.7	028.9	009.7	000.0	000.0	000.0

COMMENTS

at sand wide shane

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.20400	1.10000	0.02000	0.01000	0.32000	0.03900	0.00000	0.01500	0.00000	0.43900	0.35000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.01000	0.00000	0.00000	0.00000
MIN	0.17500	1.00000	0.00000	0.00000	0.22000	0.01800	0.01500	0.00000	0.00100	0.39300	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00600	0.00000	0.00000	0.00000
AIM	0.19000	1.05000	0.00000	0.00000	0.27000	0.02500	0.00000	0.00000	0.00000	0.41600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00700	0.00000	0.00000	0.00000

HEAT: A4G143 MSP: 25191

---------- EVENTS ----------

TIME	KWH	Description
15:05:29	0061900	Ladle Weigth
15:05:25	0061900	End Tapping
15:03:55	0061900	Start Tapping
15:01:22	0061900	Material Addition
15:00:43	0061900	Material Addition
14:57:32	0061900	Temperature <2917> O2 <783> C <40>
14:56:30	0061900	Temperature <2891> O2 <728> C <2931>
14:55:51	0061900	Material Addition
14:55:19	0061900	Power Off
14:54:56	0061900	Power On
14:52:25	0061900	Power Off
14:51:56	0061900	Temperature <2726> O2 <71> C <249>
14:51:45	0061900	Power On
14:51:08	0061900	Power Off
14:50:10	0060700	Material Addition
14:46:49	0054900	Material Addition
14:45:19	0052500	Material Addition
14:41:09	0045600	Material Addition
14:37:22	0039500	Power On
14:35:29	0039500	Power Off
14:31:34	0035800	Power On
14:31:13	0035700	Power Off
14:18:01	0019000	Power On
14:14:02	0019000	Power Off
14:04:36	0004000	Burners On
14:00:51	0000000	Charge
14:00:48	0000000	Melting
14:00:46	0000000	Power On
13:45:32	0000000	Material Addition
13:34:45	0000000	Burners Off
13:27:12	0000000	Charge
13:23:44	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: B4G639 *MSP: 25191*

Start Time: 13-Jul-2004 14:15:02
End Time : 13-Jul-2004 15:59:42
TapToTap Time : 104 (min)

Heat Order : 1377602
Grade : A/SA516-70
Ladle #: 0 CrewID: 1 OperatorID: 0

START	DUR	DELAY REASON
15:56:06	0000	Operational, Tap
15:51:48	0004	Operational, Slagoff
15:44:41	0002	Electrical, Rectifier - Water #4
15:15:39	0003	Operational, Charge
14:57:57	0002	Electrical, Rectifier - Water #4
14:15:49	0041	Operational, Charge Run A

CHARGES	AMOUNT
Charge 1	229000
Charge 2	131700
Charge 3	0
Charge 4	0
Charge 5	0

ADDITIONS	LBS
SIMn	0003950
4oz AL Con	0000450
Carbon	0000635
Dololime	0008140
HiCal Lime	0004565
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120
Tires	0002200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	61400	700	60700	0	0	0
O2 Burner	SCF	74	13	61	0	0	0
Gas Burner	SCF	40	6	34	0	0	0
O2 Lance	SCF	790	0	790	0	0	0
Carbon Lance	LBS	1339	0	1339	0	0	0
TIMES							
Melting Tm	MIN	104	47	57	0	0	0
Power on Tm	MIN	44	2	42	0	0	0
Burner On Tm	MIN	68	14	53	0	0	0
O2Lance On Tm	MIN	41	0	41	0	0	0
CLance On Tm	MIN	3	0	3	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	374.5	006.1	340.4	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	37611.0	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.8	000.0	004.4	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	008.2	000.0	007.4	000.0	000.0	000.0

COMMENTS

at sand wide andy

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.20400	1.10000	0.02000	0.01000	0.32000	0.03900	0.00000	0.01500	0.00000	0.43900	0.35000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.01000	0.00000	0.00000	0.00000
MIN	0.17500	1.00000	0.00000	0.00000	0.22000	0.01800	0.01500	0.00000	0.00100	0.39300	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00600	0.00000	0.00000	0.00000
AIM	0.19000	1.05000	0.00000	0.00000	0.27000	0.02500	0.00000	0.00000	0.00000	0.41600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00700	0.00000	0.00000	0.00000

HEAT: B4G639 MSP: 25191

EVENTS

TIME	KWH	Description
15:59:48	0061400	Ladle Weigth
15:59:44	0061400	End Tapping
15:58:23	0061400	Start Tapping
15:51:46	0061400	Power Off
15:47:13	0053700	Power On
15:44:39	0053700	Power Off
15:35:21	0040100	Material Addition
15:19:29	0019200	Power On
15:15:37	0019200	Power Off
15:10:17	0010600	Power On
15:10:05	0010600	Power Off
15:05:51	0004300	Burners On
15:02:17	0000700	Charge
15:00:27	0000000	Power On
14:57:55	0000000	Power Off
14:57:44	0000000	Melting
14:57:43	0000000	Power On
14:42:19	0000000	Material Addition
14:29:44	0000000	Burners Off
14:21:45	0000000	Charge
14:15:04	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: A4G144 MSP: 24202

Start Time: 13-Jul-2004 15:06:26
End Time : 13-Jul-2004 16:57:53
TapToTap Time : 111 (min)

Heat Order : 1425801
Grade : A/SA36A709
Ladle #: 0 CrewID: 1 OperatorID: 24

START	DUR	DELAY REASON
16:53:53	0000	Operational, Tap
16:50:29	0003	Operational, Slagoff
16:46:53	0003	Operational, Temp
16:39:07	0001	Operational, Sidewall RTD trip
16:22:09	0000	Other, TE 402 Combustion door temp
16:14:06	0004	Operational, Pack scrap
16:11:30	0002	Operational, Charge
16:07:52	0001	Operational, Sidewall RTD trip
15:07:13	0046	Operational, Charge run B

CHARGES	AMOUNT
Charge 1 :	227550
Charge 2 :	137250
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0002300
FeMn	0000950
4oz AL Con	0000450
Carbon	0000310
Dololime	0004070
HiCal Lime	0002285
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120
Tires	0002200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	61900	5100	56800	0	0	0
O2 Burner	SCF	88	18	70	0	0	0
Gas Burner	SCF	36	7	29	0	0	0
O2 Lance	SCF	796	2	794	0	0	0
Carbon Lance	LBS	913	0	913	0	0	0
TIMES							
Melting Tm	MIN	111	51	59	0	0	0
Power on Tm	MIN	42	4	37	0	0	0
Burner On Tm	MIN	78	19	59	0	0	0
O2Lance On Tm	MIN	45	0	44	0	0	0
CLance On Tm	MIN	7	0	7	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	373.3	044.8	339.4	000.0	000.0	000.0
Flux	Tons	000.0	000.1	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	44399.3	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.8	000.0	004.4	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	005.5	000.0	005.0	000.0	000.0	000.0

COMMENTS

at sand wide andy

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.21400	0.95000	0.02000	0.01500	0.25000	0.03900	0.00000	0.01500	0.00000	0.42800	0.40000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.03200	0.00000	0.00000	0.00000
MIN	0.18500	0.85000	0.00000	0.00000	0.15000	0.01800	0.01500	0.00000	0.00100	0.37000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01600	0.00000	0.00000	0.00000
AIM	0.20000	0.90000	0.00000	0.00000	0.20000	0.02500	0.00000	0.00000	0.00000	0.40600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

HEAT: A4G144 MSP: 24202

EVENTS

TIME	KWH	Description
16:57:59	0061900	Ladle Weigth
16:57:55	0061900	End Tapping
16:56:09	0061900	Start Tapping
16:50:42	0061900	Temperature <2969> O2 <735> C <49>
16:49:26	0061900	Temperature <2973> O2 <868> C <42>
16:46:51	0061900	Power Off
16:41:06	0052500	Power On
16:39:05	0052500	Power Off
16:22:41	0026100	Power On
16:22:07	0026100	Power Off
16:18:29	0023000	Power On
16:11:29	0023000	Power Off
16:09:19	0019900	Power On
16:07:50	0019900	Power Off
16:05:27	0016200	Material Addition
15:58:11	0005100	Charge
15:57:14	0003600	Burners On
15:53:30	0000000	Melting
15:53:28	0000000	Power On
15:34:14	0000000	Charge
15:24:31	0000000	Burners Off
15:06:28	0000000	TurnAround

Meltshop Production

From 7/13/04 23:00:00 to 7/14/04 23:00:00

Issue Date : 7/15/04 06:38:01
Issued By : Operations Planning
PBL Name :003 Production_Reporting.pbl Created Date : 03/19/2
Report Name :r_prod_a_meltshop_new Version : 2.1

Seq Id	Heat Id	Heat Order Id	Grade	Melt Practice	Tap Complete Time	Charge Weight	Slab Wgt.	Ht Abort Flag	Pourback Heat Id	Pourback Heat Wgt
G40044	B4G642	1377103	44W/A36	74170	07/13/2004 23:11:25	198.98	127.43	Yes		
G40044	A4G147	1391001	A36	74173	07/14/2004 00:06:17	183.80	182.37	Yes		
G40044	B4G643	1391002	A36	74173	07/14/2004 00:46:35	182.38	155.27	Yes		

Percent Yield:	84.1%	Total Scrap Charged:	565.15	Average Scrap Charge:	188.38
Heats in Sequence:	3	Total Tons Tapped:	475.40	Average Tap Weight:	158.47
Slabs Cast:	18	Tundish Skull:	3.89	Crop Loss:	2.29
Slab Weights:	465.07	Pit Scrap:	3.90	Kerf / Sample Loss:	0.25

G40045	A4G148	1293701	J55	64155	07/14/2004 01:49:33	172.55	165.82	Yes		
G40045	B4G644	1293702	J55	64155	07/14/2004 02:45:54	172.40	132.58	Yes		
G40045	A4G149	1293703	J55	64155	07/14/2004 03:52:05	172.45	165.75	Yes		
G40045	B4G645	1293704	J55	64155	07/14/2004 04:42:57	172.20	165.73	Yes		
G40045	A4G150	1293705	J55	64155	07/14/2004 05:23:57	182.23	157.27	Yes		

Percent Yield:	91.8%	Total Scrap Charged:	871.83	Average Scrap Charge:	174.37
Heats in Sequence:	5	Total Tons Tapped:	800.29	Average Tap Weight:	160.06
Slabs Cast:	24	Tundish Skull:	4.26	Crop Loss:	2.13
Slab Weights:	787.15	Pit Scrap:	6.50	Kerf / Sample Loss:	0.25

G40046	A4G151	1293707	J55	64155	07/14/2004 09:30:04	181.50	165.74	Yes		
G40046	B4G646	1293706	J55	64155	07/14/2004 10:32:33	172.28	132.65	Yes		
G40046	A4G152	1217501	J55	64155	07/14/2004 11:29:48	173.28	165.92	Yes		
G40046	B4G647	1217502	J55	64155	07/14/2004 12:21:32	171.60	165.82	Yes		
G40046	A4G153	1217503	J55	64155	07/14/2004 13:23:58	171.95	165.79	Yes		
G40046	B4G648	1217504	J55	64155	07/14/2004 14:22:44	172.40	165.82	Yes		
G40046	A4G154	1217505	J55	64155	07/14/2004 15:27:04	182.88	132.64	Yes		
G40046	A4G155	1217507	J55	64155	07/14/2004 16:32:27	172.83	165.79	Yes		
G40046	B4G649	1217506	J55	64155	07/14/2004 17:56:08	172.45	160.80	Yes		

Percent Yield:	91.6%	Total Scrap Charged:	1,571.15	Average Scrap Charge:	174.57
Heats in Sequence:	9	Total Tons Tapped:	1,439.15	Average Tap Weight:	159.91
Slabs Cast:	43	Tundish Skull:	4.08	Crop Loss:	2.15
Slab Weights:	1,420.97	Pit Scrap:	11.70	Kerf / Sample Loss:	0.25

G40047	A4G156	1426201	J55	64155	07/14/2004 18:45:04	173.80	164.32	Yes		
G40047	B4G650	1426202	J55	64155	07/14/2004 19:45:32	175.53	164.37	Yes		
G40047	A4G157	1426203	J55	64155	07/14/2004 20:39:23	176.00	131.45	Yes		
G40047	B4G651	1426204	J55	64155	07/14/2004 21:39:08	182.98	164.32	Yes		
G40047	A4G158	1426205	J55	64155	07/14/2004 22:44:36	182.73	156.06	Yes		

Percent Yield:	89.0%	Total Scrap Charged:	891.03	Average Scrap Charge:	178.21
Heats in Sequence:	5	Total Tons Tapped:	792.76	Average Tap Weight:	157.40
Slabs Cast:	24	Tundish Skull:	3.38	Crop Loss:	2.11
Slab Weights:	780.52	Pit Scrap:	6.50	Kerf / Sample Loss:	0.25

Production Period Summary:

Percent Yield:	89.81%	Total Scrap Charged:	3,899.15	Average Scrap Charge:	177.23
Total Heats Tapped:	22	Total Liquid Metal Tapped:	3,501.86	Average Tap Weight:	159.18
		Total Caster Losses:	48.15		
Total Slab Casts:	109	Total Tundish Loss:	12.23	Total Pit Scrap Loss:	28.60
Total Slab Weights:	3,453.71	Total Crop Loss:	6.57	Total Sample / Kerf Loss:	0.75

* Estimated - heats have not been cast.

DAILY PRODUCTION REPORT - through 07/14/04

IPSCO STEEL (Iowa) Inc.

	Daily		MTD		YTD		Product Yield		
	Units	Tons	Units	Tons	Units	Tons	Daily	MTD	YTD
Meltshop									
Heats Tapped	22		309		4,011				
Scrap Charge Tons		3,899.2		53,869.6		701,353.0			
Liquid Metal Tapped		3,532.1		49,303.3		638,041.0			
less: Tapped Pourback		0.0		0.0		385.0			
Metal Available to Caster		3,532.1		49,303.3		637,656.0	90.6%	91.5%	90.9%
Caster									
INPUT									
Heats Cast	22		312		4,020				
Heats Aborted	0		0		0				
Total	22	3,516.8	312	49,737.3	4,020	637,609.7			
OUTPUT									
Prime Slabs	111	3,468.6	1,729	49,039.2	21,756	628,042.8	98.6%	98.6%	98.5%
SCRAP									
Scrap Slabs	0	0.0	0	0.0	0	0.0	0.0%	0.0%	0.0%
Process Losses		48.2		698.1		9,566.9	1.4%	1.4%	1.5%
Total Scrap		48.2		698.1		9,566.9	1.4%	1.4%	1.5%
DIRECT CHARGE									
Direct Chargeable	79	2,602.0	873	25,473.5	12,327	366,078.1	75.0%	51.9%	58.3%
Direct Charged	66	2,173.4	663	19,150.6	8,548	255,045.9	83.5%	75.2%	69.7%
Rolling Mill - Light Plate									
SLAB INPUT	0	0.0	189	5,705.1	2,061	62,737.0			
OUTPUT									
Semi-Finished Plates	0	0.0	625	5,591.0	6,374	61,253.8		98.0%	97.6%
SCRAP									
Scrap Plates	0	0.0	0	0.0	10	256.0		0.0%	0.4%
Process Losses		0.0		114.1		1,227.2		2.0%	2.0%
Total Scrap		0.0		114.1		1,483.2		2.0%	2.4%
Rolling Mill - Heavy Plate									
SLAB INPUT	49	1,333.5	833	22,405.1	9,986	290,419.2			
OUTPUT									
Semi-Finished Plates	86	1,306.8	1,156	21,956.9	14,076	284,254.0	98.0%	98.0%	97.9%
SCRAP									
Scrap Plates	0	0.0	0	0.0	14	416.7	0.0%	0.0%	0.1%
Process Losses		26.7		448.1		5,748.6	2.0%	2.0%	2.0%
Total Scrap		26.7		448.1		6,165.3	2.0%	2.0%	2.1%
Rolling Mill - Coil									
SLAB INPUT	58	1,911.3	604	17,620.0	9,093	263,112.7			
OUTPUT									
Hold Coils	1	32.3	46	1,226.6	436	11,770.1	1.7%	7.0%	4.5%
Prime Coils	57	1,820.6	555	15,689.5	8,587	239,849.0	95.3%	89.0%	91.2%
Prime Sub Total	58	1,852.8	601	16,916.1	9,023	251,619.1	96.9%	96.0%	95.6%
Commercial Coils	0	0.0	1	14.2	36	857.6	0.0%	0.1%	0.3%
Coil Reclaim				72.6		1,208.2		0.4%	0.5%
Adjusted Prime Coils		1852.82		16,843.4		250,410.9	96.9%	95.6%	95.2%
SCRAP									
Scrap Coils	0	0.0	2	52.2	35	943.7	0.0%	0.3%	0.4%
Process Losses		58.5		637.5		9,692.3	3.1%	3.6%	3.7%
Total Scrap		58.5		762.4		11,844.1	3.1%	4.3%	4.5%
Rolling Mill - Summary									
Total Slabs Rolled	107	3,244.8	1,626	45,730.2	21,140	616,268.9			
Rolling Mill Output		3,159.6		44,464.0		597,126.9			
Average Slab Weight									
Plate		27.2		27.5		29.3			
Coil		33.0		29.2		28.9			
Finished Prime Tons									
Light Plate	0	0.0	5,083	5,441.2	51,061	58,986.2			
Heavy Plate	386	1,414.9	9,089	21,042.3	103,789	270,076.1			
Coil	58	1,852.8	601	16,916.1	9,023	251,619.1			
Total Prime Tons	444	3,267.7	14,773	43,399.6	163,873	580,681.4			

07/15/2004 02:56:26

AMBIENT AIR SERVICES, INC.
106 Ambient Airway
Starke, Flroida 32091

IPSCO Tower

THERMOCOUPLE CALIBRATION FORM

Date 23 Jul 04 Time 1350
Ambient Temperature 94° Source Ther
Barometric Pressure 29.83 Source HG-B-1
Technician's Name Daniel Lang

Standard Thermometer Type Merc
Manufacturer HB USA
Serial Number 200310-1
Pyrometer Manufacturer Omega Model BB Bolk
Serial Number AASI-2 Meter Box 2

TEMPERATURE SOURCE (A)		Cold H2O			Ambient H2O			Boiling H2O					
REFERENCE THERMOMETER	Actual Reading	32°			90°			212°					
	Corrected Temperature												
CALIBRATED THERMOCOUPLE		Indicated Temp.	Difference (B)	Percent Diff. (C)	Indicated Temp.	Difference	Percent Diff.	Indicated Temp.	Difference	Percent Diff.	Indicated Temp.	Difference	Percent Diff.
Serial Number	Location												
TC 11.5	Stack	32°	0	0%	90°	0°	0%	212°	0°	0%			
N/A	Filter	N/A			N/A			N/A					
TC-I-1	Impinger	33°	1°		90°	0°		212°	0°				
TC-2	Meter In	33°	1°		89°	1°		212°	0°				
TC-2-1	Meter Out	33°	1°		93°	3°		212°	0°				

COMMENTS:

Technician Signature Daniel Lang
Quality Assurance Signature _____ Date 8-18-04

Calibration Tolerances Stack = 1.5% of value, Filter Box = ±5.4°F, Impinger = ±2°F, Meter = ±5.4°F (40 CFR Pt, App. A Method 5, and QA Handbook Section 3.4, Method 5, page 13, Rev. O)

(A) Type of calibration system used (B) Reference - Indicated = Difference

$$(C)\left[\frac{(\text{ref. temp. oF} + 460) - (\text{indicatedtemp. oF} + 460)}{(\text{referencetemp. oF} + 460)}\right] \times 100$$

AASI 68A

AMBIENT AIR SERVICES, INC.
106 Ambient Airway
Starke, Flroida 32091

TPSCO Form

THERMOCOUPLE CALIBRATION FORM

Date 23 Jul 04 Time 1400
Ambient Temperature 94° Source Therm
Barometric Pressure 29.83 Source HG-B-1
Technician's Name Daniel Levy

Standard Thermometer Type DRCS
Manufacturer HB USA
Serial Number 200310-1
Pyrometer Manufacturer Omega Model BB201K
Serial Number AASI-8 Meter Box 8

TEMPERATURE SOURCE (A)		Cold H2o			Ambient H2o			Boiling H2o					
REFERENCE THERMOMETER	Actual Reading	32°			90°			212°					
	Corrected Temperature												
CALIBRATED THERMOCOUPLE		Indicated Temp.	Difference (B)	Percent Diff. (C)	Indicated Temp.	Difference	Percent Diff.	Indicated Temp.	Difference	Percent Diff.	Indicated Temp.	Difference	Percent Diff.
Serial Number	Location												
TC 12	Stack	32°	0°	0%	90°	0	0%	211°	-1°	-.15%			
HB7	Filter	32°	0°		91°	1°		211°	-1°				
TC-04-1	Impinger	33°	1°		91°	1°		212°	0°				
M.8	Meter In	33°	1°		90°	0°		212°	0°				
M.8-1	Meter Out	32°	0°		90°	0°		212°	0°				

COMMENTS:

Technician Signature _____
Quality Assurance Signature _____ Date 8-18-04

Calibration Tolerances Stack = 1.5% of value, Filter Box = ±5.4°F, Impinger = ±2°F, Meter = ±5.4°F (40 CFR Pt, App. A Method 5, and QA Handbook Section 3.4, Method 5, page 13, Rev. 0)

(A) Type of calibration system used

(B) Reference - Indicated = Difference

$$(C)\left[\frac{(\text{ref. temp. oF} + 460) - (\text{indicatedtemp. oF} + 460)}{(\text{referencetemp. oF} + 460)}\right] \text{x100}$$

AASI 68A

APPENDIX F

Continuous Opacity Monitoring Data

7/12/04
7/13/04
7/14/04

Information request: 6 minute COM averages for July 13 & 14 07:00 to 17:00

07/13/04,07:00:00,161
07/13/04,07:06:00,144
07/13/04,07:12:00,125
07/13/04,07:18:00,144
07/13/04,07:24:00,181
07/13/04,07:30:00,144
07/13/04,07:36:00,168
07/13/04,07:42:00,217
07/13/04,07:48:00,205
07/13/04,07:54:00,198
07/13/04,08:00:00,210
07/13/04,08:06:00,210
07/13/04,08:12:00,205
07/13/04,08:18:00,266
07/13/04,08:24:00,239
07/13/04,08:30:00,176
07/13/04,08:36:00,166
07/13/04,08:42:00,200
07/13/04,08:48:00,222
07/13/04,08:54:00,232
07/13/04,09:00:00,217
07/13/04,09:06:00,173
07/13/04,09:12:00,129
07/13/04,09:18:00,200
07/13/04,09:24:00,200
07/13/04,09:30:00,149
07/13/04,09:36:00,122
07/13/04,09:42:00,173
07/13/04,09:48:00,132
07/13/04,09:54:00,166
07/13/04,10:00:00,193
07/13/04,10:06:00,198
07/13/04,10:12:00,71
07/13/04,10:18:00,176
07/13/04,10:24:00,168
07/13/04,10:30:00,144
07/13/04,10:36:00,151
07/13/04,10:42:00,151
07/13/04,10:48:00,120
07/13/04,10:54:00,181
07/13/04,11:00:00,125
07/13/04,11:06:00,95
07/13/04,11:12:00,112
07/13/04,11:18:00,188
07/13/04,11:24:00,181
07/13/04,11:30:00,156
07/13/04,11:36:00,154
07/13/04,11:42:00,139
07/13/04,11:48:00,181
07/13/04,11:54:00,188
07/13/04,12:00:00,127
07/13/04,12:06:00,151
07/13/04,12:12:00,156
07/13/04,12:18:00,139

07/13/04,12:24:00,161
07/13/04,12:30:00,193
07/13/04,12:36:00,198
07/13/04,12:42:00,147
07/13/04,12:48:00,156
07/13/04,12:54:00,183
07/13/04,13:00:00,144
07/13/04,13:06:00,132
07/13/04,13:12:00,120
07/13/04,13:18:00,112
07/13/04,13:24:00,144
07/13/04,13:30:00,176
07/13/04,13:36:00,168
07/13/04,13:42:00,181
07/13/04,13:48:00,156
07/13/04,13:54:00,139
07/13/04,14:00:00,120
07/13/04,14:06:00,168
07/13/04,14:12:00,156
07/13/04,14:18:00,137
07/13/04,14:24:00,208
07/13/04,14:30:00,193
07/13/04,14:36:00,181
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07/13/04,14:54:00,127
07/13/04,15:00:00,127
07/13/04,15:06:00,164
07/13/04,15:12:00,173
07/13/04,15:18:00,139
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07/13/04,15:30:00,225
07/13/04,15:36:00,210
07/13/04,15:42:00,188
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07/13/04,16:00:00,205
07/13/04,16:06:00,217
07/13/04,16:12:00,149
07/13/04,16:18:00,149
07/13/04,16:24:00,217
07/13/04,16:30:00,232
07/13/04,16:36:00,205
07/13/04,16:42:00,205
07/13/04,16:48:00,132
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07/13/04,17:00:00,103
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07/13/04,17:18:00,188
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07/13/04,17:48:00,269
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07/14/04,07:18:00,83
07/14/04,07:24:00,71
07/14/04,07:30:00,71
07/14/04,07:36:00,71
07/14/04,07:42:00,63
07/14/04,07:48:00,71
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07/14/04,08:00:00,63
07/14/04,08:06:00,76
07/14/04,08:12:00,71
07/14/04,08:18:00,88
07/14/04,08:24:00,127
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07/14/04,09:00:00,186
07/14/04,09:06:00,186
07/14/04,09:12:00,195
07/14/04,09:18:00,171
07/14/04,09:24:00,137
07/14/04,09:30:00,120
07/14/04,09:36:00,132
07/14/04,09:42:00,168
07/14/04,09:48:00,132
07/14/04,09:54:00,132
07/14/04,10:00:00,173
07/14/04,10:06:00,217
07/14/04,10:12:00,71
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07/14/04,10:24:00,120
07/14/04,10:30:00,127
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07/14/04,15:30:00,132
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07/14/04,16:12:00,205
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07/14/04,16:42:00,103
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07/14/04,17:00:00,176
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07/14/04,17:12:00,127
07/14/04,17:18:00,193
07/14/04,17:24:00,212
07/14/04,17:30:00,181
07/14/04,17:36:00,181
07/14/04,17:42:00,132
07/14/04,17:48:00,168
07/14/04,17:54:00,193

APPENDIX G

Control Device Operating Log

DATE	TIME	FURNACE A PRESSURE (IN)	FURNACE B PRESSURE (IN)	ID FAN 1 CURRENT (AMPS)	ID FAN 2 CURRENT (AMPS)	ID FAN 3 CURRENT (AMPS)	ID FAN 1 DAMPER (%)	ID FAN 2 DAMPER (%)	ID FAN 3 DAMPER (%)
7/13/04	07:01:38.687	0.004	-0.001	162	163	167	100	99	100
7/13/04	07:31:38.703	0.012	-0.002	169	170	173	100	99	100
7/13/04	08:01:38.875	0.012	-0.003	167	166	170	100	99	100
7/13/04	08:31:38.906	0.012	-0.002	167	167	171	100	99	100
7/13/04	09:01:38.984	0.005	0.003	160	160	163	100	99	100
7/13/04	09:31:39.062	0.003	-0.004	166	166	168	100	99	100
7/13/04	10:01:39.093	0.004	-0.004	169	169	173	100	99	100
7/13/04	10:31:39.187	0.008	-0.006	168	169	172	99	99	100
7/13/04	11:01:39.234	0.012	-0.003	166	166	169	100	99	100
7/13/04	11:31:39.234	0.005	-0.002	165	165	168	100	99	100
7/13/04	12:01:39.312	0.012	-0.001	167	167	170	100	99	100
7/13/04	12:31:39.406	0.008	-0.006	167	166	170	100	99	100
7/13/04	13:01:39.640	0.004	-0.006	169	171	173	100	99	100
7/13/04	13:31:39.687	0.009	-0.005	168	168	171	100	99	100
7/13/04	14:01:39.750	0.001	-0.005	170	170	173	100	99	100
7/13/04	14:31:46.890	0.007	-0.005	162	162	165	100	99	100
7/13/04	15:01:46.953	0.003	-0.004	172	172	175	100	99	100
7/13/04	15:31:46.953	0.008	-0.002	165	165	168	99	99	100
7/13/04	16:01:47.000	0.005	-0.003	166	167	170	100	99	100
7/13/04	16:31:47.078	0.016	-0.008	164	164	168	99	99	100
7/13/04	17:01:47.093	0.005	-0.009	175	174	178	99	99	100
		0	0						
7/14/04	07:01:48.921	0.008	-0.002	137	138	139	40	40	40
7/14/04	07:31:49.015	0.006	-0.003	190	188	191	100	99	100
7/14/04	08:01:49.093	0.006	-0.002	190	189	194	100	99	100
7/14/04	08:31:49.093	0.005	-0.002	182	182	185	100	99	100
7/14/04	09:01:49.171	0.008	-0.001	175	176	180	100	99	100
7/14/04	09:31:49.250	0.012	0	181	181	184	100	99	100
7/14/04	10:01:49.343	0.013	0.005	175	173	176	100	99	100
7/14/04	10:31:49.500	0.009	0.002	176	175	180	100	99	100
7/14/04	11:01:49.578	0.007	-0.001	173	172	176	100	99	100
7/14/04	11:31:49.578	0.004	-0.001	171	170	174	100	99	100
7/14/04	12:01:49.656	0.008	0.01	168	167	170	99	99	100
7/14/04	12:31:49.656	0.006	0.001	175	174	178	99	99	100

7/14/04 13:01:49.750	0.009	-0.004	172	170	174	99	99	100
7/14/04 13:31:49.843	0.007	0	172	171	175	100	99	100
7/14/04 14:01:49.843	0.006	-0.001	171	169	173	100	99	100
7/14/04 14:31:49.906	0.006	0.001	171	171	175	99	99	100
7/14/04 15:01:50.062	0.008	-0.003	170	169	173	100	99	100
7/14/04 15:31:50.078	0.015	-0.001	178	177	181	99	99	100
7/14/04 16:01:50.125	0.007	-0.003	172	172	176	99	99	100
7/14/04 16:31:50.218	0.014	-0.003	177	176	181	99	99	100
7/14/04 17:01:50.312	0.005	-0.001	171	170	173	99	99	100
	0	0						
7/15/04 07:01:51.953	0.009	-0.003	166	166	170	99	99	100
7/15/04 07:31:52.015	0.009	-0.003	165	165	167	99	99	100
7/15/04 08:01:52.046	0.009	-0.003	166	165	170	100	99	100
7/15/04 08:31:52.093	0.009	-0.003	165	165	170	100	99	100
7/15/04 09:01:52.187	0.009	-0.003	172	171	175	100	99	100
7/15/04 09:31:52.281	0.009	-0.003	165	165	169	100	99	100
7/15/04 10:01:52.343	0.009	-0.003	167	167	171	100	99	100
7/15/04 10:31:52.375	0.009	-0.003	169	168	172	100	99	100
7/15/04 11:01:52.437	0.009	-0.003	169	168	172	100	99	100
7/15/04 11:31:52.531	0.009	-0.003	168	168	171	99	99	100
7/15/04 12:01:52.593	0.009	-0.003	170	169	172	100	99	100
7/15/04 12:31:52.609	0.009	-0.003	164	163	167	99	99	100
7/15/04 13:01:52.656	0.009	-0.003	175	173	177	100	99	100
7/15/04 13:31:52.703	0.009	-0.003	170	167	171	99	99	100
7/15/04 14:01:52.781	0.009	-0.003	169	169	172	99	99	100
7/15/04 14:31:52.859	0.009	-0.003	167	167	171	99	99	100
7/15/04 15:01:52.890	0.009	-0.003	169	170	173	100	99	100
7/15/04 15:31:52.984	0.009	-0.003	173	171	177	99	99	100
7/15/04 16:01:53.000	0.009	-0.003	163	163	166	99	99	100
7/15/04 16:31:53.031	0.009	-0.003	172	172	177	99	99	100
7/15/04 17:01:53.093	0.009	-0.003	164	164	167	99	99	100

APPENDIX H

Process Information

Meltshop Production

From 12/2004 23:00:00 to 7/13/2004 23:00:00

Issue Date : 7/14/200[illegible] 15:39:06
Issued By : Operations Planning
PBL Name :003 Production_Reporting.pbl Created Date : 03/19/2
Report Name :r_prod_a_meltshop_new Version : 2.1

Seq Id	Heat Id	Heat Order Id	Grade	Melt Practice	Tap Complete Time	Charge Weight	Slab Wgt.	Ht Abort Flag	Pourback Heat Id	Pourback Heat Wgt
G40041	A4G135	1420803	A/SA36A709	12203	07/12/2004 23:12:58	183.23	147.63	Yes		
G40041	B4G631	1420804	A/SA36A709	12203	07/12/2004 23:52:24	173.45	162.32	Yes		
G40041	A4G136	1420805	A/SA36A709	12203	07/13/2004 00:40:15	174.98	174.88	Yes		
G40041	B4G632	1346501	C1020	22205	07/13/2004 01:52:36	183.30	173.24	Yes		
G40041	A4G137	1346502	C1020	22205	07/13/2004 02:44:47	188.35	152.19	Yes		

Percent Yield:	91.3%	Total Scrap Charged:	903.30	Average Scrap Charge:	180.66
Heats In Sequence:	5	Total Tons Tapped:	824.31	Average Tap Weight:	164.86
Slabs Cast:	28	Tundish Skull:	4.95	Crop Loss:	2.35
Slab Weights:	810.26	Pit Scrap:	6.50	Kerf / Sample Loss:	0.25

G40042	B4G633	1346503	C1020	22205	07/13/2004 03:43:45	188.18	156.88	Yes		
G40042	A4G138	1377501	A/SA36A709	25190	07/13/2004 04:25:29	182.00	174.30	Yes		
G40042	B4G634	1377502	A/SA36A709	25190	07/13/2004 05:17:07	187.40	161.66	Yes		
G40042	A4G139	1377503	A/SA36A709	25190	07/13/2004 06:21:52	187.85	157.62	Yes		
G40042	B4G635	1377504	A/SA36A709	25190	07/13/2004 07:22:37	185.40	157.64	Yes		
G40042	A4G140	1377505	A/SA36A709	25190	07/13/2004 08:33:17	245.48	157.65	Yes		
G40042	B4G636	1377506	A/SA36A709	25190	07/13/2004 09:30:41	112.08	161.34	Yes		
G40042	A4G141	1377507		25190	07/13/2004 10:57:01	183.75	135.20	Yes		
G40042	B4G637	1377508	A/SA36A709	25190	07/13/2004 11:52:39	173.20	167.44	Yes		

Percent Yield:	87.9%	Total Scrap Charged:	1,645.33	Average Scrap Charge:	182.81
Heats in Sequence:	9	Total Tons Tapped:	1,446.94	Average Tap Weight:	160.77
Slabs Cast:	45	Tundish Skull:	2.88	Crop Loss:	2.38
Slab Weights:	1,429.73	Pit Scrap:	11.70	Kerf / Sample Loss:	0.25

G40043	A4G142	1377509	A/SA36A709	25190	07/13/2004 13:22:39	173.80	149.31	Yes		
G40043	B4G638	1377510	A/SA36A709	25190	07/13/2004 14:13:59	174.95	174.01	Yes		
G40043	A4G143	1377601	A/SA516-70	25191	07/13/2004 15:05:23	171.90	147.00	Yes		
G40043	B4G639	1377602	A/SA516-70	25191	07/13/2004 15:59:42	172.40	166.22	Yes		
G40043	A4G144	1425801	A/SA36A709	24202	07/13/2004 16:57:53	172.18	166.81	Yes		
G40043	B4G640	1425802	A/SA36A709	24202	07/13/2004 18:06:54	171.95	180.03	Yes		
G40043	A4G145	1409701	44W/A36	14201	07/13/2004 19:02:36	171.73	153.63	Yes		

Percent Yield:	95.4%	Total Scrap Charged:	1,208.90	Average Scrap Charge:	172.70
Heats in Sequence:	7	Total Tons Tapped:	1,152.70	Average Tap Weight:	164.67
Slabs Cast:	39	Tundish Skull:	3.96	Crop Loss:	2.38
Slab Weights:	1,137.01	Pit Scrap:	9.10	Kerf / Sample Loss:	0.25

G40044	B4G641	1377101	A/SA36A709	74170	07/13/2004 20:34:11	172.23	160.29	Yes		

Meltshop Production

From 12/2004 23:00:00 to 7/13/2004 23:00:00

Issue Date : 7/14/2004 15:39:06
Issued By : Operations Planning
PBL Name :003 Production_Reporting.pbl Created Date : 03/19/2
Report Name :r_prod_a_meltshop_new Version : 2.1

Seq Id	Heat Id	Heat Order Id	Grade	Melt Practice	Tap Complete Time	Charge Weight	Slab Wgt.	Ht Abort Flag	Pourback Heat Id	Pourback Heat Wgt
G40044	A4G146	1377102		74170	07/13/2004 21:26:52	171.15	175.02	Yes		

Percent Yield:	98.4%	Total Scrap Charged:	343.38	Average Scrap Charge:	171.69
Heats in Sequence:	2	Total Tons Tapped:	337.91	Average Tap Weight:	168.96
Slabs Cast:	12	Tundish Skull:	0.00	Crop Loss:	0.00
Slab Weights:	335.31	Pit Scrap:	2.60	Kerf / Sample Loss:	0.00

Production Period Summary:

Percent Yield:	91.73%	Total Scrap Charged:	4,100.90	Average Scrap Charge:	178.30
Total Heats Tapped:	23	Total Liquid Metal Tapped:	3,761.86	Average Tap Weight:	163.56
		Total Caster Losses:	49.55		
Total Slab Casts:	124	Total Tundish Loss:	11.79	Total Pit Scrap Loss:	29.90
Total Slab Weights:	3,712.31	Total Crop Loss:	7.11	Total Sample / Kerf Loss:	0.75

* Estimated - heats have not been cast.

DAILY PRODUCTION REPORT - through 07/13/04

IPSCO STEEL (Iowa) Inc.

	Daily		MTD		YTD		Product Yield		
	Units	Tons	Units	Tons	Units	Tons	Daily	MTD	YTD
Meltshop									
Heats Tapped	23		287		3,989				
Scrap Charge Tons	178.364	4,100.9		49,970.4		697,453.8			
Liquid Metal Tapped		3,761.9	159.481	45,771.2		634,508.9			
less: Tapped Pourback	163.565	0.0		0.0		385.0			
Metal Available to Caster		3,761.9		45,771.2		634,123.9	91.7%	91.6%	90.9%
Caster									
INPUT									
Heats Cast	23		290		3,998				
Heats Aborted	0		0		0				
Total	23	3,738.4	290	46,220.5	3,998	634,092.9			
OUTPUT									
Prime Slabs	125	3,688.8	1,618	45,570.5	21,645	624,574.2	98.7%	98.6%	98.5%
SCRAP									
Scrap Slabs	0	0.0	0	0.0	0	0.0	0.0%	0.0%	0.0%
Process Losses		49.6		649.9		9,518.7	1.3%	1.4%	1.5%
Total Scrap		49.6		649.9		9,518.7	1.3%	1.4%	1.5%
DIRECT CHARGE									
Direct Chargeable	56	1,543.1	794	22,871.5	12,248	363,476.1	41.8%	50.2%	58.2%
Direct Charged	47	1,304.8	597	16,977.2	8,482	252,872.5	84.6%	74.2%	69.6%
Rolling Mill - Light Plate									
SLAB INPUT	30	812.2	189	5,705.1	2,061	62,737.0			
OUTPUT									
Semi-Finished Plates	89	796.0	625	5,591.0	6,374	61,253.8	98.0%	98.0%	97.6%
SCRAP									
Scrap Plates	0	0.0	0	0.0	10	256.0	0.0%	0.0%	0.4%
Process Losses		16.3		114.1		1,227.2	2.0%	2.0%	2.0%
Total Scrap		16.3		114.1		1,483.2	2.0%	2.0%	2.4%
Rolling Mill - Heavy Plate									
SLAB INPUT	41	1,080.4	784	21,071.6	9,937	289,085.8			
OUTPUT									
Semi-Finished Plates	74	1,058.7	1,070	20,650.2	13,990	282,947.2	98.0%	98.0%	97.9%
SCRAP									
Scrap Plates	0	0.0	0	0.0	14	416.7	0.0%	0.0%	0.1%
Process Losses		21.6		421.4		5,722.0	2.0%	2.0%	2.0%
Total Scrap		21.6		421.4		6,138.6	2.0%	2.0%	2.1%
Rolling Mill - Coil									
SLAB INPUT	49	1,391.0	546	15,708.7	9,035	261,201.4			
OUTPUT									
Hold Coils	7	185.4	45	1,194.3	435	11,737.9	13.3%	7.6%	4.5%
Prime Coils	42	1,154.7	498	13,868.9	8,530	238,028.4	83.0%	88.3%	91.1%
Prime Sub Total	49	1,340.0	543	15,063.2	8,965	249,766.3	96.3%	95.9%	95.6%
Commercial Coils	0	0.0	1	14.2	36	857.6	0.0%	0.1%	0.3%
Coil Reclaim				72.6		1,208.2		0.5%	0.5%
Adjusted Prime Coils		1340.02		14,990.6		248,558.1	96.3%	95.4%	95.2%
SCRAP									
Scrap Coils	0	0.0	2	52.2	35	943.7	0.0%	0.3%	0.4%
Process Losses		51.0		579.0		9,633.8	3.7%	3.7%	3.7%
Total Scrap		51.0		703.9		11,785.7	3.7%	4.5%	4.5%
Rolling Mill - Summary									
Total Slabs Rolled	120	3,283.5	1,519	42,485.5	21,033	613,024.2			
Rolling Mill Output		3,194.7		41,304.4		593,967.3			
Average Slab Weight									
Plate		26.7		27.5		29.3			
Coil		28.4		28.8		28.9			
Finished Prime Tons									
Light Plate	1,059	887.7	5,083	5,441.2	51,061	58,986.2			
Heavy Plate	470	891.9	8,703	19,627.5	103,403	268,661.2			
Coil	49	1,340.0	543	15,063.2	8,965	249,766.3			
Total Prime Tons	1,578	3,119.6	14,329	40,131.9	163,429	577,413.7			

07/14/2004 04:12:20

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 7/13/04 09:30:00 to 7/13/04 17:00:00

Issue Date	: 7/14/04 05:01:31
Issued By	: Operations Planning
PBL Name	:4 scrap_consumption.pbl Created Date : 05/25/0
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
1377507	07/13/2004	08:53:39	A4G141	0000000003	01	FRAG	049050	24.53
					02	BEACH IRON	021150	10.58
					03	MXTN	039250	19.63
					04	CAST FE	027700	13.85
					05	Flux	007950	3.98
					06	HM1	043850	21.93
					07	PITSCRAP	013900	6.95
					08	FRAG	012800	6.40
					09	FRAG	012300	6.15
						0000000003 Total	**227950**	**113.98**
1377507	07/13/2004	09:15:07	A4G141	0000000004	01	FRAG	026800	13.40
					02	MXTN	033700	16.85
					03	Flux	006950	3.48
					04	BEACH IRON	020600	10.30
					05	HM1	023600	11.80
					06	FRAG	042800	21.40
						0000000004 Total	**154450**	**77.22**
						A4G141 Total	**382400**	**191.20**
1377509	07/13/2004	11:01:36	A4G142	0000000003	01	FRAG	052000	26.00
					02	Flux	007550	3.78
					03	BEACH IRON	020750	10.38
					04	MXTN	035700	17.85
					05	CAST FE	032250	16.13
					06	HM1	044050	22.03
					07	PITSCRAP	011000	5.50
					08	FRAG	012950	6.48
					09	FRAG	012900	6.45
						0000000003 Total	**229150**	**114.58**
1377509	07/13/2004	11:54:21	A4G142	0000000002	01	FRAG	027000	13.50
					02	Flux	007700	3.85
					03	BEACH IRON	018100	9.05
					04	MXTN	031350	15.68
					05	HM1	024100	12.05
					06	FRAG	025450	12.73
						0000000002 Total	**133700**	**66.85**
						A4G142 Total	**362850**	**181.43**
1377601	07/13/2004	13:27:12	A4G143	0000000003	01	FRAG	022000	11.00
					02	Flux	008200	4.10
					03	FRAG	025200	12.60
					04	BEACH IRON	017350	8.68
					05	MXTN	044700	22.35
					06	PITSCRAP	012150	6.08
					07	FRAG	020150	10.08
					08	HM2	064700	32.35
					09	FRAG	014750	7.38
						0000000003 Total	**229200**	**114.60**

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 7/13/04 09:30:00 to 7/13/04 17:00:00

Issue Date	: 7/14/04 05:01:31
Issued By	: Operations Planning
PBL Name	:4 scrap_consumption.pbl Created Date : 05/25/0
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
1377601	07/13/2004	14:00:51	A4G143	0000000003	01	FRAG	026450	13.23
					02	Flux	007600	3.80
					03	2BN	008250	4.13
					04	BEACH IRON	014900	7.45
					05	FRAG	014000	7.00
					06	MXTN	030050	15.03
					07	FRAG	029150	14.58
						0000000003 Total	**130400**	**65.20**
						A4G143 Total	**359600**	**179.80**
1425801	07/13/2004	15:34:14	A4G144	0000000003	01	HM2	037650	18.83
					02	2BN	013100	6.55
					03	FRAG	028900	14.45
					04	FRAG	046000	23.00
					05	Flux	008700	4.35
					06	MXTN	042400	21.20
					07	PITSCRAP	009300	4.65
					08	FRAG	017450	8.73
					09	HM2	024050	12.03
						0000000003 Total	**227550**	**113.78**
1425801	07/13/2004	15:58:11	A4G144	0000000005	01	HM2	026150	13.08
					02	FRAG	037600	18.80
					03	Flux	011750	5.88
					04	MXTN	029200	14.60
					05	HM2	032550	16.27
						0000000005 Total	**137250**	**68.63**
						A4G144 Total	**364800**	**182.40**
1377506	07/13/2004	07:27:02	B4G636	0000000005	01	FRAG	052250	26.13
					02	CAST FE	020400	10.20
					03	MXTN	036100	18.05
					04	BEACH IRON	023550	11.78
					05	Flux	007550	3.78
					06	HM1	044700	22.35
					07	PITSCRAP	013700	6.85
					08	FRAG	011450	5.73
					09	FRAG	022000	11.00
						0000000005 Total	**231700**	**115.85**
						B4G636 Total	**231700**	**115.85**
1377508	07/13/2004	10:11:57	B4G637	0000000005	01	FRAG	050550	25.28
					02	BEACH IRON	017450	8.73
					03	MXTN	037350	18.68
					04	BEACH IRON	026150	13.08
					05	Flux	007950	3.98
					06	HM1	044450	22.23
					07	PITSCRAP	009750	4.88
					08	FRAG	012850	6.43

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 7/13/04 09:30:00 to 7/13/04 17:00:00

Issue Date : 7/14/04 05:01:31
Issued By : Operations Planning
PBL Name :4 scrap_consumption.pbl Created Date : 05/25/0
Report Name :d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
1377508	07/13/2004	10:11:57	B4G637	0000000005	09	FRAG	023850	11.93
						0000000005 Total	**230350**	**115.17**
1377508	07/13/2004	10:45:37	B4G637	0000000006	01	FRAG	027250	13.63
					02	Flux	008250	4.13
					03	MXTN	034700	17.35
					04	BEACH IRON	020000	10.00
					05	HM1	023750	11.88
					06	FRAG	018300	9.15
						0000000006 Total	**132250**	**66.13**
						B4G637 Total	**362600**	**181.30**
1377510	07/13/2004	11:54:15	B4G638	0000000006	01	FRAG	058700	29.35
					02	Flux	008200	4.10
					03	BEACH IRON	023250	11.63
					04	MXTN	040350	20.18
					05	CAST FE	028500	14.25
					06	HM1	043800	21.90
					07	PITSCRAP	008750	4.38
					08	FRAG	014550	7.28
					09	FRAG	006700	3.35
						0000000006 Total	**232800**	**116.40**
1377510	07/13/2004	12:54:04	B4G638	0000000006	01	FRAG	026800	13.40
					02	Flux	007950	3.98
					03	BEACH IRON	021100	10.55
					04	MXTN	030650	15.33
					05	HM1	024900	12.45
					06	FRAG	021850	10.93
						0000000006 Total	**133250**	**66.63**
						B4G638 Total	**366050**	**183.03**
1377602	07/13/2004	14:21:45	B4G639	0000000006	01	FRAG	024700	12.35
					02	Flux	008050	4.03
					03	FRAG	023250	11.63
					04	BEACH IRON	018650	9.33
					05	MXTN	042100	21.05
					06	PITSCRAP	010200	5.10
					07	FRAG	019750	9.88
					08	HM2	063050	31.53
					09	FRAG	019250	9.63
						0000000006 Total	**229000**	**114.50**
1377602	07/13/2004	15:02:17	B4G639	0000000006	01	FRAG	025350	12.68
					02	Flux	007850	3.93
					03	2BN	005350	2.68
					04	BEACH IRON	015100	7.55
					05	FRAG	013600	6.80
					06	MXTN	028150	14.08

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 7/13/04 09:30:00 to 7/13/04 17:00:00

Issue Date	: 7/14/04 05:01:31
Issued By	: Operations Planning
PBL Name	:4 scrap_consumption.pbl Created Date : 05/25/0
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id		Material Weight(lbs)	Material Weight(tons)
1377602	07/13/2004	15:02:17	B4G639	0000000006	07	FRAG		036300	18.15
						0000000006	**Total**	**131700**	**65.85**
						B4G639	**Total**	**360700**	**180.35**

Total Heats: 8 Total Weight for Time Period: 2790700 Pounds 1395.35 Tons

001/002

IPSCO STEEL INC.
Montpelier Works

HEAT: A4G141 MSP: 25190

Start Time: 13-Jul-2004 08:34:20
End Time : 13-Jul-2004 10:57:01
TapToTap Time : 142 (min)

Heat Order : 1377507
Grade : A/SA36A709
Ladle # 8 CrewID. 1 OperatorID: 24

START	DUR	DELAY REASON
10.53:36	0004	Operational, Tap
10:50:48	0002	Operational, Slagoff
10:31.06	0019	Operational, Hot Anode#4
10:26:47	0000	Operational, Sidewall RTD trip
10.25:27	0000	Operational, Sidewall RTD trip
10:17:49	0000	Operational, Sidewall RTD trip
10:16.30	0000	Operational, Sidewall RTD trip
10 14.36	0000	Operational, Sidewall RTD trip
09 52 55	0001	Operational, Sidewall RTD trip
09.50.50	0001	Operational, Sidewall RTD trip
09:48:52	0001	Operational, Sidewall RTD trip
09:36:21	0004	Operational, Charge
09.30:50	0001	Operational, Sidewall RTD trip
08.35:06	0044	Operational, Charge run B

CHARGES	AMOUNT
Charge 1 :	227950
Charge 2 :	154450
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0003930
4oz AL Con	0000380
Carbon	0000635
Dololime	0008130
HiCal Lime	0004590
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120
Tires	0002200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	83100	0	83100	0	0	0
O2 Burner	SCF	111	11	100	0	0	0
Gas Burner	SCF	44	4	40	0	0	0
O2 Lance	SCF	1270	0	1270	0	0	0
Carbon Lance	LBS	3938	0	3938	0	0	0
TIMES							
Melting Tm	MIN	142	40	101	0	0	0
Power on Tm	MIN	58	0	58	0	0	0
Burner On Tm	MIN	104	11	92	0	0	0
O2Lance On Tm	MIN	89	0	89	0	0	0
CLance On Tm	MIN	18	0	18	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	363.0	000.0	330.0	000.0	000.0	000.0
Flux	Tons	000.0	000 1	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	30689.0	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	007.3	000 0	006.6	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.3	000 0	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	022 7	000.0	020.8	000.0	000.0	000.0

COMMENTS

below sand wide shape

	ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
	MAX	0.20400	1.10000	0.02000	0.01000	0.32000	0.03900	0.00300	0.01500	0.00000	0 43900	0.30000	0 20000	0.20000	0 05000	0.02000	0.00400	0 00000	0.00000	0 01000	0.00000	0.00000	0.00000
	MIN	0 17500	1.00000	0.00000	0.00000	0.22000	0.01800	0.01500	0.00000	0.00100	0.39300	0.00000	0.00000	0.00000	0.00000	0.00000	0 00000	0.00000	0.00000	0.00600	0.00000	0.00000	0.00000
	AIM	0.19000	1.05000	0.00000	0.00000	0.27000	0.02500	0.00000	0.00000	0.00000	0.41600	0.00000	0.00000	0.00000	0.00000	0 00000	0.00000	0 00000	0.00000	0.00700	0.00000	0.00000	0.00000
11:00:01	E1	0.04000	0.05000	0.00600	0.08900	0 00100	0.20200	0.14400	0.00880	0.00060	0 06300	0 20000	0.10000	0.04000	0.03200	0 01000	0.00200	0 00200	0.00100	0.00100	0.00012	2783.18	0.00000

07/13/2004 15:14 FAX 563 381 5406 IPSCO STEEL INC.

002/002

IPSCO STEEL INC.
Montpelier Works

HEAT: A4G141 MSP: 25190

EVENTS

TIME	KWH	Description
11.00 01	0000000	Chemical Analysis Received
10:58 05	0000000	Heat End
10:57.27	0063100	Heat End
10:57:07	0063100	Ladle Weigth
10:57:03	0063100	End Tapping
10:55.10	0063100	Start Tapping
10:50:09	0063100	Temperature <2891> O2 <761> C <38>
10 44:40	0063100	Temperature <2902> O2 <779> C <38>
10.31:04	0063100	Power Off
10.28:19	0059900	Temperature <2631> O2 <0> C <0>
10:27:36	0059300	Power On
10:26:46	0059300	Power Off
10:26:03	0058600	Power On
10:25:26	0058600	Power Off
10:24.53	0057900	Temperature <2759> O2 <0> C <0>
10:24.30	0057500	Power On
10:24:21	0057500	Power Off
10:20:59	0053300	Power On
10:20:55	0053300	Power Off
10:18:26	0051200	Power On
10:17:47	0051200	Power Off
10.17:16	0050700	Power On
10:16:28	0050700	Power Off
10.14:58	0049100	Power On
10:14.34	0049100	Power Off
09:54:09	0026000	Power On
09:52:53	0026000	Power Off

07/13/2004 15:14 FAX 563 381 5406 IPSCO STEEL INC.

EAF Heat Sheet 13-Jul-2004 11:52:55

IPSCO STEEL INC.
Montpelier Works

HEAT: B4G637 MSP: 25190

Start Time: 13-Jul-2004 09:31:44
End Time : 13-Jul-2004 11:52:39
TapToTap Time : 140 (min)

Heat Order : 1377508
Grade : A/SA36A709
Ladle #: 0 CrewID: 1 OperatorID: 0

START	DUR	DELAY REASON
11:48:53	0000	Operational, Tap
11:47:11	0001	Operational, Stagoff
11:42:11	0005	Operational, Temp
10:59:29	0014	Operational, Swap columns
10:47:49	0003	Operational, Charge
10:37:34	0001	Operational, Sidewall RTD trip
09:32:31	0060	Operational, Charge run B

CHARGES	AMOUNT
Charge 1 :	230350
Charge 2 :	132250
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0003950
4oz AL Con	0000450
Carbon	0000975
Dololime	0012210
HICal Lime	0006870
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120
Tires	0002200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	70900	15700	55200	0	0	0
O2 Burner	SCF	109	44	65	0	0	0
Gas Burner	SCF	58	24	34	0	0	0
O2 Lance	SCF	676	47	629	0	0	0
Carbon Lance	LBS	2118	0	2118	0	0	0
TIMES							
Melting Tm	MIN	140	73	66	0	0	0
Power on Tm	MIN	49	11	38	0	0	0
Burner On Tm	MIN	111	44	66	0	0	0
O2Lance On Tm	MIN	40	6	34	0	0	0
CLance On Tm	MIN	8	0	8	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	430.2	136.3	391.1	000.0	000.0	000.0
Flux	Tons	000.0	000.1	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	42244.3	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.1	000.4	003.7	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.4	000.2	000.3	000.0	000.0	000.0
Carbon Ton	LBS/Ton	012.9	000.0	011.7	000.0	000.0	000.0

COMMENTS

at sand wide casey

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.20400	1.10000	0.02000	0.01000	0.32000	0.03900	0.00000	0.01500	0.00000	0.43900	0.30000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.01000	0.00000	0.00000	0.00000
MIN	0.17500	1.00000	0.00000	0.00000	0.22000	0.01800	0.01500	0.00000	0.00100	0.39300	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00600	0.00000	0.00000	0.00000
AIM	0.19000	1.05000	0.00000	0.00000	0.27000	0.02500	0.00000	0.00000	0.00000	0.41600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00700	0.00000	0.00000	0.00000

HEAT: B4G637 MSP: 25190

EVENTS

TIME	KWH	Description
11:52:45	0070900	Ladle Weigth
11:52:41	0070900	End Tapping
11:51:24	0070900	Start Tapping
11:42:09	0070900	Power Off
11:14:00	0027600	Power On
11:08:05	0027600	Material Addition
10:59:27	0027600	Power Off
10:51:33	0019200	Power On
10:47:47	0019200	Power Off
10:45:37	0015800	Charge
10:38:43	0005300	Power On
10:37:32	0005300	Power Off
10:36:35	0003900	Burners On
10:33:03	0000000	Melting
10:33:02	0000000	Power On
10:11:57	0000000	Charge
10:11:36	0000000	Material Addition
10:10:46	0000000	Material Addition
10:07:01	0000000	Burners Off
09:31:46	0000000	TurnAround

EAF Heat Sheet 13-Jul-2004 13:23:08

IPSCO STEEL INC.
Montpelier Works

HEAT: A4G142 *MSP: 25190*

Start Time: 13-Jul-2004 10:58:04
End Time : 13-Jul-2004 13:22:39
TapToTap Time : 144 (min)

Heat Order : 1377509
Grade : A/SA36A709
Ladle #: 0 CrewID: 1 OperatorID: 24

START	DUR	DELAY REASON
13:19:27	0000	Operational, Tap
13:12:15	0007	Operational, Slagoff
12:44:19	0022	Operational, Hot anode#1
12:11:49	0000	Operational, Sidewall RTD trip
12:10:14	0001	Operational, Sidewall RTD trip
12:08:02	0001	Operational, Sidewall RTD trip
12:06:16	0001	Operational, Sidewall RTD trip
11:58:48	0004	Operational, Charge
11:57:17	0000	Operational, Sidewall RTD trip
11:15:39	0028	Operational, Charge run B
11:00:57	0014	Operational, Gunning
10:58:51	0002	Operational, Turnaround

CHARGES	AMOUNT
Charge 1 :	229150
Charge 2 :	133700
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SIMn	0003950
4oz AL Con	0000450
Carbon	0000640
Dololime	0008135
HiCal Lime	0004585
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120
Tires	0002200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	62000	12100	49900	0	0	0
O2 Burner	SCF	104	14	90	0	0	0
Gas Burner	SCF	41	6	35	0	0	0
O2 Lance	SCF	999	22	977	0	0	0
Carbon Lance	LBS	3317	0	3317	0	0	0
TIMES							
Melting Tm	MIN	144	56	88	0	0	0
Power on Tm	MIN	55	10	45	0	0	0
Burner On Tm	MIN	95	7	88	0	0	0
O2Lance On Tm	MIN	63	4	58	0	0	0
CLance On Tm	MIN	36	0	36	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	375.9	105.6	341.7	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	26373.6	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	008.1	000.2	005.5	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	020.1	000.0	018.3	000.0	000.0	000.0

COMMENTS

at sand wide shane

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.20400	1.10000	0.02000	0.01000	0.32000	0.03900	0.00000	0.01500	0.00000	0.43900	0.30000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.01000	0.00000	0.00000	0.00000
MIN	0.17500	1.00000	0.00000	0.00000	0.22000	0.01800	0.01500	0.00000	0.00100	0.39300	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00600	0.00000	0.00000	0.00000
AIM	0.19000	1.05000	0.00000	0.00000	0.27000	0.02500	0.00000	0.00000	0.00000	0.41600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00700	0.00000	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: A4G142 MSP: 25190

EVENTS

TIME	KWH	Description
13:22:44	0062000	Ladle Weigth
13:22:41	0062000	End Tapping
13:21:04	0062000	Start Tapping
13:14:38	0062000	Temperature <2879> O2 <632> C <44>
13:12:13	0062000	Power Off
13:06:23	0054900	Power On
12:53:13	0054900	Temperature <2769> O2 <554> C <37>
12:49:27	0054900	Temperature <2775> O2 <0> C <0>
12:44:18	0054900	Power Off
12:28:09	0032700	Power On
12:28:00	0032700	Power Off
12:12:41	0020600	Power On
12:11:47	0020600	Power Off
12:11:46	0020600	Material Addition
12:11:21	0020300	Power On
12:10:12	0020300	Power Off
12:09:43	0020000	Power On
12:08:00	0020000	Power Off
12:07:37	0019700	Power On
12:06:15	0019700	Power Off
12:03:25	0017800	Power On
11:58:46	0017700	Power Off
11:58:00	0016800	Power On
11:57:15	0016800	Power Off
11:54:21	0012200	Charge
11:49:12	0004700	Burners On
11:44:15	0000000	Melting
11:44:14	0000000	Power On
11:31:38	0000000	Material Addition
11:01:37	0000000	Charge
11:00:44	0000000	Burners Off
10:58:06	0000000	TurnAround

EAF Heat Sheet 13-Jul-2004 14:14:22

IPSCO STEEL INC.
Montpelier Works

HEAT: B4G638 *MSP: 25190*

Start Time: 13-Jul-2004 11:53:42
End Time : 13-Jul-2004 14:13:59
TapToTap Time : 140 (min)

Heat Order : 1377510
Grade : A/SA36A709
Ladle #: 0 CrewID: 1 OperatorID: 0

START	DUR	DELAY REASON
14:10:08	0000	Operational, Tap
14:02:38	0007	Operational, Lance Taphole
13:58:02	0004	Operational, Slagoff
13:27:14	0000	Operational, Sidewall RTD trip
13:04:10	0015	Operational, Charge Run A
12:59:18	0000	Operational, Sidewall RTD trip
12:58:04	0000	Operational, Sidewall RTD trip
11:54:29	0051	Operational, Charge Run A

CHARGES	AMOUNT
Charge 1 :	232800
Charge 2 :	133250
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0003950
4oz AL Con	0000450
Carbon	0001260
Dololime	0016300
HiCal Lime	0009180
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120
Tires	0002200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	63200	7800	55400	0	0	0
O2 Burner	SCF	101	21	80	0	0	0
Gas Burner	SCF	54	11	43	0	0	0
O2 Lance	SCF	843	15	828	0	0	0
Carbon Lance	LBS	2001	0	2001	0	0	0
TIMES							
Melting Tm	MIN	140	60	79	0	0	0
Power on Tm	MIN	54	8	46	0	0	0
Burner On Tm	MIN	100	20	79	0	0	0
O2Lance On Tm	MIN	51	2	48	0	0	0
CLance On Tm	MIN	9	0	9	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	379.8	067.0	345.3	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	27137.4	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.1	000.1	004.6	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.3	000.1	000.3	000.0	000.0	000.0
Carbon Ton	LBS/Ton	012.0	000.0	010.9	000.0	000.0	000.0

COMMENTS

at sand wide casey

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.20400	1.10000	0.02000	0.01000	0.32000	0.03900	0.00000	0.01500	0.00000	0.43900	0.30000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.01000	0.00000	0.00000	0.00000
MIN	0.17500	1.00000	0.00000	0.00000	0.22000	0.01800	0.01500	0.00000	0.00100	0.39300	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00600	0.00000	0.00000	0.00000
AIM	0.19000	1.05000	0.00000	0.00000	0.27000	0.02500	0.00000	0.00000	0.00000	0.41600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00700	0.00000	0.00000	0.00000

EAF Heat Sheet 13-Jul-2004 14:14:23

IPSCO STEEL INC.
Montpelier Works

HEAT: B4G638 MSP: 25190

EVENTS

TIME	KWH	Description
14:14:11	0063200	Ladle Weigth
14:14:01	0063200	End Tapping
14:04:44	0063200	Start Tapping
13:58:00	0063200	Power Off
13:27:51	0027600	Power On
13:27:13	0027600	Power Off
13:19:15	0019200	Power On
13:17:17	0019200	Material Addition
13:04:09	0019200	Power Off
13:00:05	0013800	Power On
12:59:16	0013800	Power Off
12:58:47	0013100	Power On
12:58:02	0013100	Power Off
12:54:04	0007800	Charge
12:50:40	0003700	Burners On
12:45:48	0000000	Melting
12:45:47	0000000	Power On
12:26:28	0000000	Material Addition
12:25:38	0000000	Material Addition
12:23:57	0000000	Material Addition
12:11:00	0000000	Burners Off
11:54:15	0000000	Charge
11:53:44	0000000	TurnAround

EAF Heat Sheet 13-Jul-2004 15:05:36

IPSCO STEEL INC.
Montpelier Works

HEAT: A4G143 MSP: 25191

Start Time: 13-Jul-2004 13:23:42
End Time : 13-Jul-2004 15:05:23
TapToTap Time : 101 (min)

Heat Order : 1377601
Grade : A/SA516-70
Ladle #: 0 CrewID: 1 OperatorID: 24

START	DUR	DELAY REASON
15:01:51	0000	Operational, Tap
14:55:21	0006	Operational, Slagoff
14:52:27	0002	Electrical, Rectifier - Water #4
14:51:10	0000	Operational, Temp
14:35:31	0001	Operational, Sidewall RTD trip
14:31:15	0000	Operational, Sidewall RTD trip
14:14:03	0003	Operational, Charge
13:59:23	0001	Electrical, Rectifier - Water #4
13:24:29	0034	Operational, Charge run B

CHARGES	AMOUNT
Charge 1 : 229200	
Charge 2 : 130400	
Charge 3 : 0	
Charge 4 : 0	
Charge 5 : 0	

ADDITIONS	LBS
SIMn	0003930
4oz AL Con	0000380
Carbon	0000635
Dololime	0008130
HiCal Lime	0004590
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120
Tires	0002200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	61900	0	61900	0	0	0
O2 Burner	SCF	82	11	71	0	0	0
Gas Burner	SCF	33	4	29	0	0	0
O2 Lance	SCF	824	0	824	0	0	0
Carbon Lance	LBS	1752	3317	-1565	0	0	0
TIMES							
Melting Tm	MIN	101	37	64	0	0	0
Power on Tm	MIN	45	0	45	0	0	0
Burner On Tm	MIN	71	11	60	0	0	0
O2Lance On Tm	MIN	46	0	46	0	0	0
CLance On Tm	MIN	49	34	14	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	378.7	000.0	344.3	000.0	000.0	000.0
Flux	Tons	000.0	000.1	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	37827.2	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.0	000.0	004.6	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.0	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	010.7	028.9	009.7	000.0	000.0	000.0

COMMENTS

at sand wide shane

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.20400	1.10000	0.02000	0.01000	0.32000	0.03900	0.00000	0.01500	0.00000	0.43900	0.35000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.01000	0.00000	0.00000	0.00000
MIN	0.17500	1.00000	0.00000	0.00000	0.22000	0.01800	0.01500	0.00000	0.00100	0.39300	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00600	0.00000	0.00000	0.00000
AIM	0.19000	1.05000	0.00000	0.00000	0.27000	0.02500	0.00000	0.00000	0.00000	0.41600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00700	0.00000	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: A4G143 MSP: 25191

---------- EVENTS ----------

TIME	KWH	Description
15:05:29	0061900	Ladle Weigth
15:05:25	0061900	End Tapping
15:03:55	0061900	Start Tapping
15:01:22	0061900	Material Addition
15:00:43	0061900	Material Addition
14:57:32	0061900	Temperature <2917> O2 <783> C <40>
14:56:30	0061900	Temperature <2891> O2 <728> C <2931>
14:55:51	0061900	Material Addition
14:55:19	0061900	Power Off
14:54:56	0061900	Power On
14:52:25	0061900	Power Off
14:51:56	0061900	Temperature <2726> O2 <71> C <249>
14:51:45	0061900	Power On
14:51:08	0061900	Power Off
14:50:10	0060700	Material Addition
14:46:49	0054900	Material Addition
14:45:19	0052500	Material Addition
14:41:09	0045600	Material Addition
14:37:22	0039500	Power On
14:35:29	0039500	Power Off
14:31:34	0035800	Power On
14:31:13	0035700	Power Off
14:18:01	0019000	Power On
14:14:02	0019000	Power Off
14:04:36	0004000	Burners On
14:00:51	0000000	Charge
14:00:48	0000000	Melting
14:00:46	0000000	Power On
13:45:32	0000000	Material Addition
13:34:45	0000000	Burners Off
13:27:12	0000000	Charge
13:23:44	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: B4G639 MSP: 25191

Start Time: 13-Jul-2004 14:15:02
End Time : 13-Jul-2004 15:59:42
TapToTap Time : 104 (min)

Heat Order : 1377602
Grade : A/SA516-70
Ladle #: 0 CrewID: 1 OperatorID: 0

START	DUR	DELAY REASON
15:56:06	0000	Operational, Tap
15:51:48	0004	Operational, Slagoff
15:44:41	0002	Electrical, Rectifier - Water #4
15:15:39	0003	Operational, Charge
14:57:57	0002	Electrical, Rectifier - Water #4
14:15:49	0041	Operational, Charge Run A

CHARGES	AMOUNT
Charge 1 :	229000
Charge 2 :	131700
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0003950
4oz AL Con	0000450
Carbon	0000635
Dololime	0008140
HiCal Lime	0004565
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120
Tires	0002200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	61400	700	60700	0	0	0
O2 Burner	SCF	74	13	61	0	0	0
Gas Burner	SCF	40	6	34	0	0	0
O2 Lance	SCF	790	0	790	0	0	0
Carbon Lance	LBS	1339	0	1339	0	0	0
TIMES							
Melting Tm	MIN	104	47	57	0	0	0
Power on Tm	MIN	44	2	42	0	0	0
Burner On Tm	MIN	68	14	53	0	0	0
O2Lance On Tm	MIN	41	0	41	0	0	0
CLance On Tm	MIN	3	0	3	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	374.5	006.1	340.4	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	37611.0	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.8	000.0	004.4	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	008.2	000.0	007.4	000.0	000.0	000.0

COMMENTS

at sand wide andy

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.20400	1.10000	0.02000	0.01000	0.32000	0.03900	0.00000	0.01500	0.00000	0.43900	0.35000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.01000	0.00000	0.00000	0.00000
MIN	0.17500	1.00000	0.00000	0.00000	0.22000	0.01800	0.01500	0.00000	0.00100	0.39300	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00600	0.00000	0.00000	0.00000
AIM	0.19000	1.05000	0.00000	0.00000	0.27000	0.02500	0.00000	0.00000	0.00000	0.41600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00700	0.00000	0.00000	0.00000

HEAT: B4G639 MSP: 25191

EVENTS

TIME	KWH	Description
15:59:48	0061400	Ladle Weigth
15:59:44	0061400	End Tapping
15:58:23	0061400	Start Tapping
15:51:46	0061400	Power Off
15:47:13	0053700	Power On
15:44:39	0053700	Power Off
15:35:21	0040100	Material Addition
15:19:29	0019200	Power On
15:15:37	0019200	Power Off
15:10:17	0010600	Power On
15:10:05	0010600	Power Off
15:05:51	0004300	Burners On
15:02:17	0000700	Charge
15:00:27	0000000	Power On
14:57:55	0000000	Power Off
14:57:44	0000000	Melting
14:57:43	0000000	Power On
14:42:19	0000000	Material Addition
14:29:44	0000000	Burners Off
14:21:45	0000000	Charge
14:15:04	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: A4G144 MSP: 24202

Start Time: 13-Jul-2004 15:06:26
End Time : 13-Jul-2004 16:57:53
TapToTap Time : 111 (min)

Heat Order : 1425801
Grade : A/SA36A709
Ladle #: 0 CrewID: 1 OperatorID: 24

START	DUR	DELAY REASON
16:53:53	0000	Operational, Tap
16:50:29	0003	Operational, Slagoff
16:46:53	0003	Operational, Temp
16:39:07	0001	Operational, Sidewall RTD trip
16:22:09	0000	Other, TE 402 Combustion door temp
16:14:06	0004	Operational, Pack scrap
16:11:30	0002	Operational, Charge
16:07:52	0001	Operational, Sidewall RTD trip
15:07:13	0046	Operational, Charge run B

CHARGES	AMOUNT
Charge 1 : 227550	
Charge 2 : 137250	
Charge 3 : 0	
Charge 4 : 0	
Charge 5 : 0	

ADDITIONS	LBS
SiMn	0002300
FeMn	0000950
4oz AL Con	0000450
Carbon	0000310
Dololime	0004070
HiCal Lime	0002285
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120
Tires	0002200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	61900	5100	56800	0	0	0
O2 Burner	SCF	88	18	70	0	0	0
Gas Burner	SCF	36	7	29	0	0	0
O2 Lance	SCF	796	2	794	0	0	0
Carbon Lance	LBS	913	0	913	0	0	0
TIMES							
Melting Tm	MIN	111	51	59	0	0	0
Power on Tm	MIN	42	4	37	0	0	0
Burner On Tm	MIN	78	19	59	0	0	0
O2Lance On Tm	MIN	45	0	44	0	0	0
CLance On Tm	MIN	7	0	7	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	373.3	044.8	339.4	000.0	000.0	000.0
Flux	Tons	000.0	000.1	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	44399.3	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.8	000.0	004.4	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	005.5	000.0	005.0	000.0	000.0	000.0

COMMENTS

at sand wide andy

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.21400	0.95000	0.02000	0.01500	0.25000	0.03900	0.00000	0.01500	0.00000	0.42800	0.40000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.03200	0.00000	0.00000	0.00000
MIN	0.18500	0.85000	0.00000	0.00000	0.15000	0.01800	0.01500	0.00000	0.00100	0.37000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01600	0.00000	0.00000	0.00000
AIM	0.20000	0.90000	0.00000	0.00000	0.20000	0.02500	0.00000	0.00000	0.00000	0.40600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: A4G144 MSP: 24202

---------- EVENTS ----------

TIME	KWH	Description
16:57:59	0061900	Ladle Weigth
16:57:55	0061900	End Tapping
16:56:09	0061900	Start Tapping
16:50:42	0061900	Temperature <2969> O2 <735> C <49>
16:49:26	0061900	Temperature <2973> O2 <868> C <42>
16:46:51	0061900	Power Off
16:41:06	0052500	Power On
16:39:05	0052500	Power Off
16:22:41	0026100	Power On
16:22:07	0026100	Power Off
16:18:29	0023000	Power On
16:11:29	0023000	Power Off
16:09:19	0019900	Power On
16:07:50	0019900	Power Off
16:05:27	0016200	Material Addition
15:58:11	0005100	Charge
15:57:14	0003600	Burners On
15:53:30	0000000	Melting
15:53:28	0000000	Power On
15:34:14	0000000	Charge
15:24:31	0000000	Burners Off
15:06:28	0000000	TurnAround

Meltshop Production

From 7/13/04 23:00:00 to 7/14/04 23:00:00

Issue Date : 7/15/04 06:38:01
Issued By : Operations Planning
PBL Name :003 Production_Reporting.pbl Created Date : 03/19/2
Report Name :r_prod_a_meltshop_new Version : 2.1

Seq Id	Heat Id	Heat Order Id	Grade	Melt Practice	Tap Complete Time	Charge Weight	Slab Wgt.	Ht Abort Flag	Pourback Heat Id	Pourback Heat Wgt
G40044	B4G642	1377103	44W/A36	74170	07/13/2004 23:11:25	198.98	127.43	Yes		
G40044	A4G147	1391001	A36	74173	07/14/2004 00:06:17	183.80	182.37	Yes		
G40044	B4G643	1391002	A36	74173	07/14/2004 00:46:35	182.38	155.27	Yes		

Percent Yield:	84.1%	Total Scrap Charged:	565.15	Average Scrap Charge:	188.38
Heats in Sequence:	3	Total Tons Tapped:	475.40	Average Tap Weight:	158.47
Slabs Cast:	18	Tundish Skull:	3.89	Crop Loss:	2.29
Slab Weights:	465.07	Pit Scrap:	3.90	Kerf / Sample Loss:	0.25

G40045	A4G148	1293701	J55	64155	07/14/2004 01:49:33	172.55	165.82	Yes		
G40045	B4G644	1293702	J55	64155	07/14/2004 02:45:54	172.40	132.58	Yes		
G40045	A4G149	1293703	J55	64155	07/14/2004 03:52:05	172.45	165.75	Yes		
G40045	B4G645	1293704	J55	64155	07/14/2004 04:42:57	172.20	165.73	Yes		
G40045	A4G150	1293705	J55	64155	07/14/2004 05:23:57	182.23	157.27	Yes		

Percent Yield:	91.8%	Total Scrap Charged:	871.83	Average Scrap Charge:	174.37
Heats in Sequence:	5	Total Tons Tapped:	800.29	Average Tap Weight:	160.06
Slabs Cast:	24	Tundish Skull:	4.26	Crop Loss:	2.13
Slab Weights:	787.15	Pit Scrap:	6.50	Kerf / Sample Loss:	0.25

G40046	A4G151	1293707	J55	64155	07/14/2004 09:30:04	181.50	165.74	Yes		
G40046	B4G646	1293706	J55	64155	07/14/2004 10:32:33	172.28	132.65	Yes		
G40046	A4G152	1217501	J55	64155	07/14/2004 11:29:48	173.28	165.92	Yes		
G40046	B4G647	1217502	J55	64155	07/14/2004 12:21:32	171.60	165.82	Yes		
G40046	A4G153	1217503	J55	64155	07/14/2004 13:23:58	171.95	165.79	Yes		
G40046	B4G648	1217504	J55	64155	07/14/2004 14:22:44	172.40	165.82	Yes		
G40046	A4G154	1217505	J55	64155	07/14/2004 15:27:04	182.88	132.64	Yes		
G40046	A4G155	1217507	J55	64155	07/14/2004 16:32:27	172.83	165.79	Yes		
G40046	B4G649	1217506	J55	64155	07/14/2004 17:56:08	172.45	160.80	Yes		

Percent Yield:	91.6%	Total Scrap Charged:	1,571.15	Average Scrap Charge:	174.57
Heats in Sequence:	9	Total Tons Tapped:	1,439.15	Average Tap Weight:	159.91
Slabs Cast:	43	Tundish Skull:	4.08	Crop Loss:	2.15
Slab Weights:	1,420.97	Pit Scrap:	11.70	Kerf / Sample Loss:	0.25

G40047	A4G156	1426201	J55	64155	07/14/2004 18:45:04	173.80	164.32	Yes		
G40047	B4G650	1426202	J55	64155	07/14/2004 19:45:32	175.53	164.37	Yes		
G40047	A4G157	1426203	J55	64155	07/14/2004 20:39:23	176.00	131.45	Yes		
G40047	B4G651	1426204	J55	64155	07/14/2004 21:39:08	182.98	164.32	Yes		
G40047	A4G158	1426205	J55	64155	07/14/2004 22:44:36	182.73	156.06	Yes		

Percent Yield:	89.0%	Total Scrap Charged:	891.03	Average Scrap Charge:	178.21
Heats in Sequence:	5	Total Tons Tapped:	792.76	Average Tap Weight:	157.40
Slabs Cast:	24	Tundish Skull:	3.38	Crop Loss:	2.11
Slab Weights:	780.52	Pit Scrap:	6.50	Kerf / Sample Loss:	0.25

Production Period Summary:

Percent Yield:	89.81%	Total Scrap Charged:	3,899.15	Average Scrap Charge:	177.23
Total Heats Tapped:	22	Total Liquid Metal Tapped:	3,501.86	Average Tap Weight:	159.18
		Total Caster Losses:	48.15		
Total Slab Casts:	109	Total Tundish Loss:	12.23	Total Pit Scrap Loss:	28.60
Total Slab Weights:	3,453.71	Total Crop Loss:	6.57	Total Sample / Kerf Loss:	0.75

* Estimated - heats have not been cast.

DAILY PRODUCTION REPORT - through 07/14/04

IPSCO STEEL (Iowa) Inc.

	Daily		MTD		YTD		Product Yield		
	Units	Tons	Units	Tons	Units	Tons	Daily	MTD	YTD
Meltshop									
Heats Tapped	22		309		4,011				
Scrap Charge Tons		3,899.2		53,869.6		701,353.0			
Liquid Metal Tapped		3,532.1		49,303.3		638,041.0			
less: Tapped Pourback		0.0		0.0		385.0			
Metal Available to Caster		3,532.1		49,303.3		637,656.0	90.6%	91.5%	90.9%
Caster									
INPUT									
Heats Cast	22		312		4,020				
Heats Aborted	0		0		0				
Total	22	3,516.8	312	49,737.3	4,020	637,609.7			
OUTPUT									
Prime Slabs	111	3,468.6	1,729	49,039.2	21,756	628,042.8	98.6%	98.6%	98.5%
SCRAP									
Scrap Slabs	0	0.0	0	0.0	0	0.0	0.0%	0.0%	0.0%
Process Losses		48.2		698.1		9,566.9	1.4%	1.4%	1.5%
Total Scrap		48.2		698.1		9,566.9	1.4%	1.4%	1.5%
DIRECT CHARGE									
Direct Chargeable	79	2,602.0	873	25,473.5	12,327	366,078.1	75.0%	51.9%	58.3%
Direct Charged	66	2,173.4	663	19,150.6	8,548	255,045.9	83.5%	75.2%	69.7%
Rolling Mill - Light Plate									
SLAB INPUT	0	0.0	189	5,705.1	2,061	62,737.0			
OUTPUT									
Semi-Finished Plates	0	0.0	625	5,591.0	6,374	61,253.8		98.0%	97.6%
SCRAP									
Scrap Plates	0	0.0	0	0.0	10	256.0		0.0%	0.4%
Process Losses		0.0		114.1		1,227.2		2.0%	2.0%
Total Scrap		0.0		114.1		1,483.2		2.0%	2.4%
Rolling Mill - Heavy Plate									
SLAB INPUT	49	1,333.5	833	22,405.1	9,986	290,419.2			
OUTPUT									
Semi-Finished Plates	86	1,306.8	1,156	21,956.9	14,076	284,254.0	98.0%	98.0%	97.9%
SCRAP									
Scrap Plates	0	0.0	0	0.0	14	416.7	0.0%	0.0%	0.1%
Process Losses		26.7		448.1		5,748.6	2.0%	2.0%	2.0%
Total Scrap		26.7		448.1		6,165.3	2.0%	2.0%	2.1%
Rolling Mill - Coil									
SLAB INPUT	58	1,911.3	604	17,620.0	9,093	263,112.7			
OUTPUT									
Hold Coils	1	32.3	46	1,226.6	436	11,770.1	1.7%	7.0%	4.5%
Prime Coils	57	1,820.6	555	15,689.5	8,587	239,849.0	95.3%	89.0%	91.2%
Prime Sub Total	58	1,852.8	601	16,916.1	9,023	251,619.1	96.9%	96.0%	95.6%
Commercial Coils	0	0.0	1	14.2	36	857.6	0.0%	0.1%	0.3%
Coil Reclaim				72.6		1,208.2		0.4%	0.5%
Adjusted Prime Coils		1852.82		16,843.4		250,410.9	96.9%	95.6%	95.2%
SCRAP									
Scrap Coils	0	0.0	2	52.2	35	943.7	0.0%	0.3%	0.4%
Process Losses		58.5		637.5		9,692.3	3.1%	3.6%	3.7%
Total Scrap		58.5		762.4		11,844.1	3.1%	4.3%	4.5%
Rolling Mill - Summary									
Total Slabs Rolled	107	3,244.8	1,626	45,730.2	21,140	616,268.9			
Rolling Mill Output		3,159.6		44,464.0		597,126.9			
Average Slab Weight									
Plate		27.2		27.5		29.3			
Coil		33.0		29.2		28.9			
Finished Prime Tons									
Light Plate	0	0.0	5,083	5,441.2	51,061	58,986.2			
Heavy Plate	386	1,414.9	9,089	21,042.3	103,789	270,076.1			
Coil	58	1,852.8	601	16,916.1	9,023	251,619.1			
Total Prime Tons	444	3,267.7	14,773	43,399.6	163,873	580,681.4			

DAILY PRODUCTION REPORT - through 07/14/04
IPSCO STEEL (Iowa) Inc.

	Daily		MTD		YTD		Product Yield		
	Units	Tons	Units	Tons	Units	Tons	Daily	MTD	YTD
Finishing - Light Plate									
MP PLATE INPUT	0	0.0	627	5,591.0	6,286	61,401.9			
OUTPUT									
Hold Plates	0	0.0	731	724.7	2,947	3,593.1		13.0%	5.9%
Prime Plates	0	0.0	4,272	4,625.1	47,049	53,922.5		82.7%	87.8%
Prime Odd Plates	0	0.0	80	91.4	1,065	1,470.6		1.6%	2.4%
Prime Sub Total	0	0.0	5,083	5,441.2	51,061	58,986.2		97.3%	96.1%
Commercial Plates	0	0.0	61	37.3	780	938.8		0.7%	1.5%
Reclaim Plates	0	0.0	0	0.0	0	0.0		0.0%	0.0%
Total Plates	0	0.0	5,144	5,478.5	51,841	59,925.0		98.0%	97.6%
SCRAP									
Scrapped Plates	0	0.0	0	0.0	0	0.0		0.0%	0.0%
Process Losses		0.0		112.5		1,476.9		2.0%	2.4%
Total Scrap		0.0		112.5		1,476.9		2.0%	2.4%
Finishing - Heavy Plate									
MP PLATE INPUT	93	1,450.1	1,154	21,955.0	14,060	284,767.6			
OUTPUT									
Hold Plates	16	55.4	1,558	4,615.9	5,364	18,921.5	3.8%	21.0%	6.6%
Prime Plates	365	1,342.2	7,411	16,137.7	97,260	248,178.7	92.6%	73.5%	87.2%
Prime Odd Plates	5	17.3	120	288.8	1,165	2,975.8	1.2%	1.3%	1.0%
Prime Sub Total	386	1,414.9	9,089	21,042.3	103,789	270,076.1	97.6%	95.8%	94.8%
Commercial Plates	2	4.2	72	127.4	1,873	5,555.0	0.3%	0.6%	2.0%
Reclaim Plates	0	0.0	0	0.0	0	0.0	0.0%	0.0%	0.0%
Total Plates	388	1,419.1	9,161	21,169.8	105,662	275,631.1	97.9%	96.4%	96.8%
SCRAP									
Scrapped Plates	0	0.0	0	0.0	0	0.0	0.0%	0.0%	0.0%
Process Losses		31.0		785.2		9,136.5	2.1%	3.6%	3.2%
Total Scrap		31.0		785.2		9,136.5	2.1%	3.6%	3.2%
Finishing - Plate Reclaim									
PLATE INPUT	0	0.0	243	604.7	4,491	12,570.7			
OUTPUT									
Prime Plates	0	0.0	585	564.8	8,566	11,321.3		93.4%	90.1%
Prime Odd Plates	0	0.0	3	2.1	3	2.1		0.3%	0.0%
Prime Sub Total	0	0.0	588	566.9	8,569	11,323.3		93.7%	90.1%
Commercial Plates	0	0.0	1	0.3	274	210.7		0.1%	1.7%
Total Plates	0	0.0	589	567.2	8,843	11,534.0		93.8%	91.8%
SCRAP									
Scrap Plates	0	0.0	0	0.0	0	0.0		0.0%	0.0%
Process Losses		0.0		37.5		1,036.7		6.2%	8.2%
Total Scrap		0.0		37.5		1,036.7		6.2%	8.2%
Slitter									
Coil Input	24	608.5	426	12,917.5	6,504	203,840.8			
OUTPUT									
Prime Slit	26	588.8	1,907	12,347.0	25,059	193,437.1	96.8%	95.6%	94.9%
Commercial	0	0.0	4	25.3	66	470.9	0.0%	0.2%	0.2%
SCRAP									
Scrapped Coils	0	0.0	0	0.0	7	55.3	0.0%	0.0%	0.0%
Process Losses		19.7		545.2		9,877.6	3.2%	4.2%	4.8%
Total Scrap		19.7		545.2		9,932.9	3.2%	4.2%	4.9%
Slitter - Reclaim									
Coil Input	0	0.0	127	1,883.0	2,603	39,514.1			
OUTPUT									
Rewrapped or Sampled	0	0.0	127	1,810.4	2,579	38,302.9		96.1%	96.9%
Commercial	0	0.0	0	0.0	3	46.3		0.0%	0.1%
SCRAP									
Scrapped Coils	0	0.0	0	0.0	0	0.0		0.0%	0.0%
Process Losses		0.0		72.6		1,208.2	0.0%	3.9%	3.1%
Total Scrap		0.0		72.6		1,208.2	0.0%	3.9%	3.1%

07/15/2004 02:56:26

DAILY PRODUCTION REPORT - through 07/14/04
IPSCO STEEL (Iowa) Inc.

Shipping		Daily	MTD	YTD
SLABS		0.0	0.0	13,135.4
COIL	Prime	636.2	15,955.7	297,943.5
	Commercial	0.0	0.0	0.0
	Total	636.2	15,955.7	297,943.5
LIGHT PLATE	Prime	715.1	4,166.4	53,494.5
	Commercial	0.0	297.2	14,027.0
	Total	715.1	4,463.7	67,521.4
HEAVY PLATE	Prime	1,365.0	17,581.3	263,198.6
	Commercial	0.0	0.0	0.0
	Total	1,365.0	17,581.3	263,198.6
TOTAL COIL & PLATE		2,716.2	38,000.7	628,663.5
TOTAL SHIPMENTS		2,716.2	38,000.7	641,799.0

Scrap To Product Yield	Daily	MTD	YTD
COIL			
Prime	86.6%	86.6%	85.6%
LIGHT PLATE			
Prime		84.6%	81.9%
Prime Odd		1.4%	2.1%
Commercial		0.6%	1.3%
Total	0.0%	86.7%	85.3%
HEAVY PLATE			
Prime	84.4%	83.6%	82.2%
Prime Odd	1.0%	1.2%	0.9%
Commercial	0.3%	0.5%	1.7%
Total	85.7%	85.3%	84.8%

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 7/14/04 08:00:00 to 7/14/04 16:45:00

Issue Date	: 7/14/04 16:30:25
Issued By	: Operations Planning
PBL Name	:4 scrap_consumption.pbl Created Date : 05/25/0
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
1293706	07/14/2004	08:08:03	A4G151	0000000003	01	HM2	044300	22.15
					02	Flux	008350	4.18
					03	2BN	019450	9.73
					04	PROCREVERT	011550	5.78
					05	HM2	020050	10.03
					06	MXTN	040200	20.10
					07	HM2	035800	17.90
					08	FRAG	029600	14.80
					09	FRAG	017300	8.65
						0000000003 Total	**226600**	**113.30**
1293706	07/14/2004	08:36:50	A4G151	0000000005	01	HM2	020200	10.10
					02	Flux	008300	4.15
					03	PROCREVERT	025700	12.85
					04	MXTN	043200	21.60
					05	FRAG	055650	27.83
						0000000005 Total	**153050**	**76.53**
						A4G151 Total	**379650**	**189.83**
1217501	07/14/2004	10:24:06	A4G152	0000000003	01	FRAG	046500	23.25
					02	Flux	007600	3.80
					03	2BN	014850	7.43
					04	PROCREVERT	013350	6.68
					05	HM2	024200	12.10
					06	MXTN	039200	19.60
					07	HM2	038400	19.20
					08	HM1	024950	12.48
					09	FRAG	025500	12.75
						0000000003 Total	**234550**	**117.28**
1217501	07/14/2004	10:49:58	A4G152	0000000005	01	HM2	019600	9.80
					02	Flux	007800	3.90
					03	PROCREVERT	025600	12.80
					04	MXTN	024400	12.20
					05	FRAG	050000	25.00
						0000000005 Total	**127400**	**63.70**
						A4G152 Total	**361950**	**180.98**
1217503	07/14/2004	12:15:02	A4G153	0000000003	01	FRAG	045800	22.90
					02	Flux	007600	3.80
					03	2BN	010700	5.35
					04	PROCREVERT	016150	8.08
					05	HM2	023150	11.58
					06	MXTN	039450	19.73
					07	HM2	034350	17.18
					08	HM1	022900	11.45
					09	FRAG	028400	14.20
						0000000003 Total	**228500**	**114.25**
1217503	07/14/2004	12:46:29	A4G153	0000000005	01	HM2	020250	10.13
					02	PROCREVERT	024650	12.33

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 7/14/04 08:00:00 to 7/14/04 16:45:00

Issue Date	: 7/14/04 16:30:25
Issued By	: Operations Planning
PBL Name	:4 scrap_consumption.pbl Created Date : 05/25/0
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
1217503	07/14/2004	12:46:29	A4G153	0000000005	03	Flux	007300	3.65
					04	MXTN	024650	12.33
					05	FRAG	053450	26.73
						0000000005 Total	**130300**	**65.15**
						A4G153 Total	**358800**	**179.40**
1217505	07/14/2004	14:14:19	A4G154	0000000002	01	FRAG	045450	22.73
					02	2BN	011400	5.70
					03	PROCREVERT	011900	5.95
					04	HM2	025400	12.70
					05	Flux	007850	3.93
					06	MXTN	040950	20.48
					07	HM2	034200	17.10
					08	HM1	025300	12.65
					09	FRAG	027450	13.73
						0000000002 Total	**229900**	**114.95**
1217505	07/14/2004	14:40:54	A4G154	0000000005	01	HM2	022250	11.13
					02	PROCREVERT	023750	11.88
					03	Flux	007650	3.83
					04	MXTN	022850	11.43
					05	FRAG	074850	37.42
						0000000005 Total	**151350**	**75.68**
						A4G154 Total	**381250**	**190.63**
1217506	07/14/2004	15:30:05	A4G155	0000000003	01	FRAG	044950	22.48
					02	2BN	009900	4.95
					03	PROCREVERT	011400	5.70
					04	HM2	024200	12.10
					05	Flux	008150	4.08
					06	MXTN	038150	19.08
					07	HM2	035150	17.58
					08	HM1	024400	12.20
					09	FRAG	030650	15.33
						0000000003 Total	**226950**	**113.48**
1217506	07/14/2004	15:53:11	A4G155	0000000005	01	HM2	019950	9.98
					02	PROCREVERT	026250	13.13
					03	Flux	008350	4.18
					04	MXTN	023200	11.60
					05	FRAG	057450	28.73
						0000000005 Total	**135200**	**67.60**
						A4G155 Total	**362150**	**181.08**
1293707	07/14/2004	09:30:46	B4G646	0000000003	01	FRAG	044600	22.30
					02	Flux	007250	3.63
					03	2BN	011250	5.63
					04	PROCREVERT	012100	6.05
					05	HM2	023950	11.98
					06	MXTN	039800	19.90

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 7/14/04 08:00:00 to 7/14/04 16:45:00

Issue Date : 7/14/04 16:30:25
Issued By : Operations Planning
PBL Name :4 scrap_consumption.pbl Created Date : 05/25/0
Report Name :d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
1293707	07/14/2004	09:30:46	B4G646	0000000003	07	HM2	032950	16.48
					08	HM1	024850	12.43
					09	FRAG	033000	16.50
						0000000003 Total	**229750**	**114.87**
1293707	07/14/2004	09:45:59	B4G646	0000000005	01	HM2	021750	10.88
					02	Flux	007750	3.88
					03	PROCREVERT	026050	13.03
					04	MXTN	022000	11.00
					05	FRAG	052250	26.13
						0000000005 Total	**129800**	**64.90**
						B4G646 Total	**359550**	**179.78**
1217502	07/14/2004	11:20:05	B4G647	0000000003	01	FRAG	047100	23.55
					02	Flux	007800	3.90
					03	2BN	012000	6.00
					04	PROCREVERT	011800	5.90
					05	HM2	025050	12.53
					06	MXTN	039250	19.63
					07	HM2	034650	17.33
					08	HM1	022650	11.33
					09	FRAG	029950	14.98
						0000000003 Total	**230250**	**115.13**
1217502	07/14/2004	11:40:08	B4G647	0000000005	01	HM2	018450	9.23
					02	Flux	007800	3.90
					03	PROCREVERT	025450	12.73
					04	MXTN	024900	12.45
					05	FRAG	051950	25.98
						0000000005 Total	**128550**	**64.28**
						B4G647 Total	**358800**	**179.40**
1217504	07/14/2004	13:36:42	B4G648	0000000003	01	FRAG	044800	22.40
					02	2BN	013100	6.55
					03	PROCREVERT	010150	5.08
					04	HM2	027450	13.73
					05	Flux	007650	3.83
					06	MXTN	039150	19.58
					07	HM2	035500	17.75
					08	HM1	028200	14.10
					09	FRAG	022200	11.10
						0000000003 Total	**228200**	**114.10**
1217504	07/14/2004	13:36:45	B4G648	0000000005	01	HM2	021100	10.55
					02	PROCREVERT	027650	13.83
					03	Flux	007200	3.60
					04	MXTN	022700	11.35

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 7/14/04 08:00:00 to 7/14/04 16:45:00

Issue Date	: 7/14/04 16:30:25
Issued By	: Operations Planning
PBL Name	:4 scrap_consumption.pbl Created Date : 05/25/0
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id		Material Weight(lbs)	Material Weight(tons)
1217504	07/14/2004	13:36:45	B4G648	0000000005	05	FRAG		052800	26.40
						0000000005	**Total**	**131450**	**65.72**
						B4G648	**Total**	**359650**	**179.83**

Total Heats: 8 Total Weight for Time Period: 2921800 Pounds 1460.90 Tons

EAF Heat Sheet 14-Jul-2004 09:30:25

IPSCO STEEL INC.
Montpelier Works

HEAT: A4G151 MSP: 64155

Start Time: 14-Jul-2004 05:25:00
End Time : 14-Jul-2004 09:30:04
TapToTap Time : 244 (min)

Heat Order : 1293707
Grade : J55
Ladle #: 0 CrewID: 1 OperatorID: 24

START	DUR	DELAY REASON
09:26:39	0000	Operational, Tap
09:22:57	0003	Operational, Slagoff
09:16:31	0000	Other, Operator Did Not Enter
09:03:02	0000	Operational, Sidewall RTD trip
08:37:32	0008	Operational, Pack scrap
08:35:20	0002	Operational, Charge
05:40:29	0160	Operational, Clean Combustion Chamber
05:25:47	0014	Operational, Gunning

CHARGES AMOUNT
Charge 1 : 226600
Charge 2 : 153050
Charge 3 : 0
Charge 4 : 0
Charge 5 : 0

ADDITIONS	LBS
SiMn	0001600
FeMn	0001000
4oz AL Con	0000450
FeCb	0000100
Carbon	0000590
Dololime	0004070
HiCal Lime	0002295
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120
Tires	0002200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	68800	19100	49700	0	0	0
O2 Burner	SCF	74	19	55	0	0	0
Gas Burner	SCF	32	8	24	0	0	0
O2 Lance	SCF	732	52	680	0	0	0
Carbon Lance	LBS	50	0	50	0	0	0
TIMES							
Melting Tm	MIN	244	191	53	0	0	0
Power on Tm	MIN	50	14	36	0	0	0
Burner On Tm	MIN	66	13	53	0	0	0
O2Lance On Tm	MIN	47	9	38	0	0	0
CLance On Tm	MIN	0	0	0	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	398.7	168.6	362.4	000.0	000.0	000.0
Flux	Tons	000.0	000.1	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	50331.2	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.2	000.5	003.9	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	000.3	000.0	000.3	000.0	000.0	000.0

COMMENTS

below the sand wide esm derrick

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.17000	0.95000	0.02000	0.01000	0.20000	0.04000	0.00000	0.01500	0.00000	0.37600	0.50000	0.20000	0.20000	0.05000	0.05000	0.00400	0.04500	0.00000	0.02500	0.00000	0.00000	0.00000
MIN	0.15500	0.65000	0.00000	0.00000	0.10000	0.01800	0.01500	0.00000	0.00150	0.32900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00000	0.01500	0.00000	0.00000	0.00000
AIM	0.16000	0.00000	0.00000	0.00000	0.13000	0.02500	0.00000	0.00000	0.00000	0.34800	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.04000	0.00000	0.02000	0.00000	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: A4G151 MSP: 64155

EVENTS

TIME	KWH	Description
09:30:10	0068800	Ladle Weigth
09:30:06	0068800	End Tapping
09:28:23	0068800	Start Tapping
09:23:05	0068800	Temperature <3014> O2 <775> C <52>
09:22:56	0068800	Power Off
09:18:51	0062300	Temperature <2858> O2 <549> C <48>
09:17:45	0060500	Temperature <33> O2 <0> C <55>
09:16:48	0059600	Power On
09:16:29	0059600	Power Off
09:15:36	0058700	Power On
09:15:34	0058700	Power Off
09:15:30	0058700	Power On
09:15:28	0058700	Power Off
09:03:40	0044300	Power On
09:03:01	0044300	Power Off
08:45:36	0019100	Power On
08:36:50	0019100	Charge
08:35:18	0019100	Power Off
08:32:39	0015000	Material Addition
08:29:02	0009500	Power On
08:28:56	0009500	Power Off
08:25:17	0004100	Burners On
08:21:04	0000000	Melting
08:21:03	0000000	Power On
08:08:04	0000000	Charge
05:26:48	0000000	Burners Off
05:25:02	0000000	TurnAround

8:21

9:30 = $\frac{131 \text{ mins}}{60}$ = 2.183

10:32

158 x 2 = $\frac{316}{2.183}$ = 144.8 TPH

IPSCO STEEL INC.
Montpelier Works

HEAT: B4G646 MSP: 64155

Start Time: 14-Jul-2004 04:44:00
End Time : 14-Jul-2004 10:32:33
TapToTap Time : 348 (min)

Heat Order : 1293706
Grade : J55
Ladle #: 3 CrewID: 1 OperatorID: 0

START	DUR	DELAY REASON
10:28:52	0000	Operational, Tap
10:25:10	0003	Operational, Lance Taphole
10:22:40	0002	Operational, Slagoff
09:45:16	0004	Operational, Charge
09:35:57	0000	Other, Scrap Cave
09:22:41	0005	Operational, Charge
05:00:41	0262	Operational, Run A
04:44:47	0015	Operational, Gunning

CHARGES	AMOUNT
Charge 1 :	229750
Charge 2 :	129800
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0001580
FeMn	0001000
4oz AL Con	0000460
FeCb	0000100
Carbon	0000765
Dololime	0012215
HiCal Lime	0006520
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120
Tires	0002200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	63100	21500	41600	0	0	0
O2 Burner	SCF	69	21	48	0	0	0
Gas Burner	SCF	38	12	26	0	0	0
O2 Lance	SCF	833	108	725	0	0	0
Carbon Lance	LBS	162	0	162	0	0	0
TIMES							
Melting Tm	MIN	348	301	46	0	0	0
Power on Tm	MIN	48	15	33	0	0	0
Burner On Tm	MIN	63	17	46	0	0	0
O2Lance On Tm	MIN	45	11	34	0	0	0
CLance On Tm	MIN	2	0	2	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	386.1	187.2	351.0	000.0	000.0	000.0
Flux	Tons	000.0	000.1	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	61278.7	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.1	000.9	004.6	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	001.0	000.0	000.9	000.0	000.0	000.0

COMMENTS

chg roof center refco chris even wide

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.17000	0.95000	0.02000	0.01000	0.20000	0.04000	0.00000	0.01500	0.00000	0.37600	0.50000	0.20000	0.20000	0.05000	0.05000	0.00400	0.04500	0.00000	0.02500	0.00000	0.00000	0.00000
MIN	0.15500	0.65000	0.00000	0.00000	0.10000	0.01800	0.01500	0.00000	0.00150	0.32900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00000	0.01500	0.00000	0.00000	0.00000
AIM	0.16000	0.00000	0.00000	0.00000	0.13000	0.02500	0.00000	0.00000	0.00000	0.34800	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.04000	0.00000	0.02000	0.00000	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: B4G646 MSP: 64155

EVENTS		
TIME	KWH	Description
10:32:39	0063100	Ladle Weigth
10:32:35	0063100	End Tapping
10:30:57	0063100	Start Tapping
10:22:38	0063100	Power Off
10:15:16	0054200	Material Addition
09:56:41	0029800	Power On
09:56:31	0029800	Power Off
09:49:20	0021500	Power On
09:45:59	0021500	Charge
09:45:14	0021500	Power Off
09:43:31	0019000	Power On
09:43:28	0019000	Power Off
09:37:24	0009700	Power On
09:37:22	0009700	Power Off
09:37:20	0009700	Power On
09:37:19	0009700	Power Off
09:37:18	0009700	Power On
09:37:15	0009700	Power Off
09:37:13	0009700	Power On
09:37:12	0009700	Power Off
09:37:11	0009700	Power On
09:37:08	0009700	Power Off
09:36:54	0009500	Power On
09:36:52	0009500	Power Off
09:36:51	0009500	Power On
09:36:50	0009500	Power Off
09:36:49	0009500	Power On
09:35:56	0009500	Power Off
09:33:10	0005300	Burners On
09:30:46	0001700	Charge
09:28:25	0000000	Melting
09:28:24	0000000	Power On
09:06:48	0000000	Material Addition
05:01:52	0000000	Material Addition

EVENTS		
TIME	KWH	Description
04:48:15	0000000	Burners Off
04:44:02	0000000	TurnAround

EAF Heat Sheet 14-Jul-2004 11:30:00

IPSCO STEEL INC.
Montpelier Works

HEAT: A4G152 MSP: 64155

Start Time: 14-Jul-2004 09:31:07
End Time : 14-Jul-2004 11:29:48
TapToTap Time : 118 (min)

Heat Order : 1217501
Grade : J55
Ladle #: 4 CrewID: 1 OperatorID: 24

START	DUR	DELAY REASON
11:25:23	0000	Operational, Tap
11:20:59	0004	Operational, Slagoff
11:18:05	0001	Other, Open sump door
10:43:34	0004	Operational, Charge
10:40:39	0000	Operational, Sidewall RTD trip
10:25:18	0002	Operational, Pack scrap
10:22:54	0002	Operational, Charge
09:59:36	0023	Operational, Run B
09:31:54	0027	Operational, Lance Taphole

CHARGES	AMOUNT
Charge 1 :	234550
Charge 2 :	127400
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0001600
FeMn	0001000
4oz AL Con	0000450
FeCb	0000100
Carbon	0002135
Dololime	0008145
HiCal Lime	0004585
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120
Tires	0002200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	60000	20200	39800	0	0	0
O2 Burner	SCF	73	35	38	0	0	0
Gas Burner	SCF	31	15	16	0	0	0
O2 Lance	SCF	771	92	679	0	0	0
Carbon Lance	LBS	877	0	877	0	0	0
TIMES							
Melting Tm	MIN	118	78	39	0	0	0
Power on Tm	MIN	45	16	29	0	0	0
Burner On Tm	MIN	69	33	36	0	0	0
O2Lance On Tm	MIN	44	13	31	0	0	0
CLance On Tm	MIN	7	0	7	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	364.7	172.2	331.5	000.0	000.0	000.0
Flux	Tons	000.0	000.1	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	54794.5	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.7	000.8	004.3	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	005.3	000.0	004.8	000.0	000.0	000.0

COMMENTS

at the sand wide esm darrick

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.17000	0.95000	0.02000	0.01000	0.20000	0.04000	0.00000	0.01500	0.00000	0.37600	0.50000	0.20000	0.20000	0.05000	0.05000	0.00400	0.04500	0.00000	0.02500	0.00000	0.00000	0.00000
MIN	0.15500	0.65000	0.00000	0.00000	0.10000	0.01800	0.01500	0.00000	0.00150	0.32900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00000	0.01500	0.00000	0.00000	0.00000
AIM	0.16000	0.00000	0.00000	0.00000	0.13000	0.02500	0.00000	0.00000	0.00000	0.34800	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.04000	0.00000	0.02000	0.00000	0.00000	0.00000

EAF Heat Sheet 14-Jul-2004 11:30:01

IPSCO STEEL INC.
Montpelier Works

HEAT: A4G152 MSP: 64155

EVENTS

TIME	KWH	Description
11:29:53	0060000	Ladle Weigth
11:29:49	0060000	End Tapping
11:27:07	0060000	Start Tapping
11:26:42	0060000	Burners Off
11:21:13	0060000	Temperature <2984> O2 <677> C <55>
11:20:57	0060000	Power Off
11:19:37	0058100	Power On
11:18:32	0058100	Temperature <2865> O2 <443> C <61>
11:18:03	0058100	Power Off
10:55:10	0027600	Power On
10:55:01	0027600	Power Off
10:49:58	0020300	Charge
10:48:11	0019300	Power On
10:43:32	0019300	Power Off
10:41:31	0017100	Power On
10:40:37	0017100	Power Off
10:38:02	0013200	Power On
10:37:54	0013200	Power Off
10:35:43	0010100	Material Addition
10:31:49	0003900	Burners On
10:28:06	0000000	Melting
10:28:05	0000000	Power On
10:24:06	0000000	Charge
09:50:55	0000000	Material Addition
09:46:03	0000000	Burners Off
09:31:09	0000000	TurnAround

EAF Heat Sheet 14-Jul-2004 12:21:44

IPSCO STEEL INC.
Montpelier Works

HEAT: B4G647 MSP: 64155

Start Time: 14-Jul-2004 10:33:36
End Time : 14-Jul-2004 12:21:32
TapToTap Time : 107 (min)

Heat Order : 1217502
Grade : J55
Ladle #: 7 CrewID: 1 OperatorID: 0

START	DUR	DELAY REASON
12:19:12	0000	Operational, Tap
12:17:54	0001	Operational, Lance Taphole
12:14:12	0003	Operational, Slagoff
12:10:36	0001	Operational, Sidewall RTD trip
12:07:24	0000	Operational, Sidewall RTD trip
12:04:14	0001	Operational, Sidewall RTD trip
11:38:35	0003	Operational, Charge
11:21:17	0002	Operational, Pack scrap
11:20:11	0001	Operational, Charge Run A
10:34:23	0045	Operational, Run A

CHARGES	AMOUNT
Charge 1 :	230250
Charge 2 :	128550
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0001580
FeMn	0000970
4oz AL Con	0000460
FeCb	0000100
Carbon	0000135
Dololime	0008145
HiCal Lime	0004580
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120
Tires	0002200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	57600	19100	38500	0	0	0
O2 Burner	SCF	102	58	44	0	0	0
Gas Burner	SCF	53	29	24	0	0	0
O2 Lance	SCF	882	90	792	0	0	0
Carbon Lance	LBS	661	0	661	0	0	0
TIMES							
Melting Tm	MIN	107	66	41	0	0	0
Power on Tm	MIN	42	14	28	0	0	0
Burner On Tm	MIN	107	66	41	0	0	0
O2Lance On Tm	MIN	44	11	33	0	0	0
CLance On Tm	MIN	5	0	5	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	353.2	165.9	321.1	000.0	000.0	000.0
Flux	Tons	000.0	000.1	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	56240.8	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.4	000.8	004.9	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.3	000.3	000.3	000.0	000.0	000.0
Carbon Ton	LBS/Ton	004.1	000.0	003.7	000.0	000.0	000.0

COMMENTS

at the sand wide esm chris

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.17000	0.95000	0.02000	0.01000	0.20000	0.04000	0.00000	0.01500	0.00000	0.37600	0.50000	0.20000	0.20000	0.05000	0.05000	0.00400	0.04500	0.00000	0.02500	0.00000	0.00000	0.00000
MIN	0.15500	0.65000	0.00000	0.00000	0.10000	0.01800	0.01500	0.00000	0.00150	0.32900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00000	0.01500	0.00000	0.00000	0.00000
AIM	0.16000	0.00000	0.00000	0.00000	0.13000	0.02500	0.00000	0.00000	0.00000	0.34800	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.04000	0.00000	0.02000	0.00000	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: B4G647 MSP: 64155

EVENTS

TIME	KWH	Description
12:21:39	0057600	Ladle Weigth
12:21:35	0057600	End Tapping
12:19:52	0057600	Start Tapping
12:14:10	0057600	Power Off
12:11:42	0054200	Power On
12:10:34	0054100	Power Off
12:08:59	0051800	Material Addition
12:08:04	0050500	Power On
12:07:22	0050500	Power Off
12:06:08	0048600	Power On
12:04:12	0048600	Power Off
11:42:21	0019200	Power On
11:40:08	0019100	Charge
11:38:33	0019100	Power Off
11:31:28	0008500	Power On
11:31:19	0008500	Power Off
11:23:54	0000000	Melting
11:23:52	0000000	Power On
11:20:05	0000000	Charge
11:04:31	0000000	Material Addition
10:33:38	0000000	TurnAround

11:24
12:22 $\frac{120}{60} = 2$ hrs
13:24

158 x 2 = $\frac{316}{2}$ =

158 TPH

IPSCO STEEL INC.
Montpelier Works

HEAT: A4G153 MSP: 64155

Start Time: 14-Jul-2004 11:30:51
End Time : 14-Jul-2004 13:23:58
TapToTap Time : 112 (min)

Heat Order : 1217503
Grade : J55
Ladle #: 8 CrewID: 1 OperatorID: 24

START	DUR	DELAY REASON
13:20:07	0000	Operational, Tap
13:15:19	0004	Operational, Slagoff
13:12:47	0000	Other, Operator Did Not Enter
13:03:01	0000	Operational, Sidewall RTD trip
12:55:35	0000	Operational, Sidewall RTD trip
12:40:01	0004	Operational, Charge
12:15:02	0011	Operational, Charge
11:31:38	0043	Operational, Run B

CHARGES	AMOUNT
Charge 1 :	228500
Charge 2 :	130300
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0001600
FeMn	0001000
4oz AL Con	0000450
FeCb	0000100
Carbon	0000110
Dololime	0008140
HiCal Lime	0004585
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120
Tires	0002200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	55100	20400	34700	0	0	0
O2 Burner	SCF	86	49	37	0	0	0
Gas Burner	SCF	35	20	15	0	0	0
O2 Lance	SCF	805	96	709	0	0	0
Carbon Lance	LBS	1174	0	1174	0	0	0
TIMES							
Melting Tm	MIN	112	75	37	0	0	0
Power on Tm	MIN	42	16	26	0	0	0
Burner On Tm	MIN	110	73	37	0	0	0
O2Lance On Tm	MIN	43	14	28	0	0	0
CLance On Tm	MIN	3	0	3	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	337.8	178.6	307.1	000.0	000.0	000.0
Flux	Tons	000.0	000.1	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	47959.4	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.9	000.8	004.5	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.2	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	007.2	000.0	006.5	000.0	000.0	000.0

COMMENTS

at the sand wide esm darrick

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.17000	0.95000	0.02000	0.01000	0.20000	0.04000	0.00000	0.01500	0.00000	0.37600	0.50000	0.20000	0.20000	0.05000	0.05000	0.00400	0.04500	0.00000	0.02500	0.00000	0.00000	0.00000
MIN	0.15500	0.65000	0.00000	0.00000	0.10000	0.01800	0.01500	0.00000	0.00150	0.32900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00000	0.01500	0.00000	0.00000	0.00000
AIM	0.16000	0.00000	0.00000	0.00000	0.13000	0.02500	0.00000	0.00000	0.00000	0.34800	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.04000	0.00000	0.02000	0.00000	0.00000	0.00000

HEAT: A4G153 MSP: 64155

---------- EVENTS ----------

TIME	KWH	Description
13:24:04	0055100	Ladle Weigth
13:24:00	0055100	End Tapping
13:21:51	0055100	Start Tapping
13:15:29	0055100	Temperature <2946> O2 <650> C <52>
13:15:18	0055100	Power Off
13:15:10	0055100	Power On
13:14:58	0055100	Power Off
13:13:16	0053100	Power On
13:12:45	0053100	Power Off
13:03:50	0041900	Power On
13:03:00	0041900	Power Off
12:56:02	0033500	Power On
12:55:33	0033500	Power Off
12:53:32	0030200	Power On
12:53:31	0030200	Power Off
12:50:54	0026400	Power On
12:50:46	0026300	Power Off
12:46:29	0020400	Charge
12:44:00	0019100	Power On
12:43:37	0019100	Material Addition
12:39:59	0019100	Power Off
12:35:15	0011800	Power On
12:35:06	0011800	Power Off
12:26:06	0000000	Melting
12:26:04	0000000	Power On
12:15:02	0000000	Charge
11:34:22	0000000	Material Addition
11:33:10	0000000	Burners On
11:30:53	0000000	TurnAround

EAF Heat Sheet 14-Jul-2004 14:22:59

IPSCO STEEL INC.
Montpelier Works

HEAT: B4G648 MSP: 64155

Start Time: 14-Jul-2004 12:22:36
End Time : 14-Jul-2004 14:22:44
TapToTap Time : 119 (min)

Heat Order : 1217504
Grade : J55
Ladle #: 0 CrewID: 1 OperatorID: 0

START	DUR	DELAY REASON
14:19:21	0000	Operational, Tap
14:13:45	0005	Operational, Slagoff
13:36:02	0003	Operational, Charge
13:16:23	0004	Operational, Charge
12:51:05	0025	Operational, Run A
12:23:23	0027	Operational, Gunning

CHARGES AMOUNT
Charge 1 : 228200
Charge 2 : 131450
Charge 3 : 0
Charge 4 : 0
Charge 5 : 0

ADDITIONS	LBS
SiMn	0001600
FeMn	0001000
4oz AL Con	0000450
FeCb	0000100
Carbon	0000435
Dololime	0008145
HiCal Lime	0004585
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	61900	19200	42700	0	0	0
O2 Burner	SCF	82	37	45	0	0	0
Gas Burner	SCF	45	21	24	0	0	0
O2 Lance	SCF	694	91	603	0	0	0
Carbon Lance	LBS	566	0	566	0	0	0
TIMES							
Melting Tm	MIN	119	73	45	0	0	0
Power on Tm	MIN	48	14	33	0	0	0
Burner On Tm	MIN	100	54	45	0	0	0
O2Lance On Tm	MIN	46	11	35	0	0	0
CLance On Tm	MIN	5	0	5	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	378.6	168.3	344.2	000.0	000.0	000.0
Flux	Tons	000.0	114.1	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	80680.7	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.2	000.8	003.9	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.3	000.2	000.3	000.0	000.0	000.0
Carbon Ton	LBS/Ton	003.5	000.0	003.1	000.0	000.0	000.0

COMMENTS

at the sand wide esm chris

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.17000	0.95000	0.02000	0.01000	0.20000	0.04000	0.00000	0.01500	0.00000	0.37600	0.50000	0.20000	0.20000	0.05000	0.05000	0.00400	0.04500	0.00000	0.02500	0.00000	0.00000	0.00000
MIN	0.15500	0.65000	0.00000	0.00000	0.10000	0.01800	0.01500	0.00000	0.00150	0.32900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00000	0.01500	0.00000	0.00000	0.00000
AIM	0.16000	0.00000	0.00000	0.00000	0.13000	0.02500	0.00000	0.00000	0.00000	0.34800	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.04000	0.00000	0.02000	0.00000	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: B4G648 MSP: 64155

---------- EVENTS ----------

TIME	KWH	Description
14:22:49	0061900	Ladle Weigth
14:22:46	0061900	End Tapping
14:21:16	0061900	Start Tapping
14:15:50	0061900	Material Addition
14:14:59	0061900	Temperature <2978> O2 <753> C <49>
14:13:51	0061900	Temperature <2980> O2 <1332> C <28>
14:13:43	0061900	Power Off
14:11:54	0059700	Temperature <2589> O2 <1> C <0>
13:49:17	0030200	Power On
13:49:16	0030100	Power Off
13:39:54	0019200	Power On
13:36:45	0019200	Charge
13:36:42	0019200	Charge
13:36:00	0019200	Power Off
13:32:05	0013200	Power On
13:32:02	0013200	Power Off
13:30:53	0011900	Power On
13:30:52	0011900	Power Off
13:30:44	0011800	Power On
13:30:39	0011800	Power Off
13:20:56	0000000	Melting
13:20:55	0000000	Power On
13:06:11	0000000	Material Addition
12:48:08	0000000	Burners On
12:48:06	0000000	Burners Off
12:48:00	0000000	Burners On
12:47:58	0000000	Burners Off
12:47:50	0000000	Burners On
12:28:18	0000000	Burners Off
12:22:38	0000000	TurnAround

EAF Heat Sheet 14-Jul-2004 15:27:19

IPSCO STEEL INC.
Montpelier Works

HEAT: A4G154 *MSP: 64155*

Start Time: 14-Jul-2004 13:25:01
End Time : 14-Jul-2004 15:27:04
TapToTap Time : 121 (min)

Heat Order : 1217505
Grade : J55
Ladle #: 0 CrewID: 1 OperatorID: 24

START	DUR	DELAY REASON
15:22:59	0000	Operational, Tap
15:19:53	0003	Operational, Slagoff
15:14:13	0001	Operational, Sidewall RTD trip
14:41:31	0003	Operational, Pack scrap
14:38:49	0002	Operational, Charge
14:35:35	0000	Operational, Sidewall RTD trip
14:34:41	0000	Operational, Sidewall RTD trip
14:16:24	0005	Operational, Pack scrap
14:14:18	0002	Operational, Charge
13:25:48	0048	Operational, Run B

CHARGES	AMOUNT
Charge 1 :	229900
Charge 2 :	151350
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0001630
FeMn	0001030
4oz AL Con	0000440
FeCb	0000100
Carbon	0000625
Dololime	0008135
HiCal Lime	0004585
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	66900	19000	47900	0	0	0
O2 Burner	SCF	95	44	51	0	0	0
Gas Burner	SCF	39	18	21	0	0	0
O2 Lance	SCF	741	102	639	0	0	0
Carbon Lance	LBS	1147	0	1147	0	0	0
TIMES							
Melting Tm	MIN	121	75	46	0	0	0
Power on Tm	MIN	49	15	33	0	0	0
Burner On Tm	MIN	121	75	46	0	0	0
O2Lance On Tm	MIN	49	13	36	0	0	0
CLance On Tm	MIN	10	0	10	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	386.0	165.3	351.0	000.0	000.0	000.0
Flux	Tons	000.0	000.1	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	55175.3	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.3	000.9	003.9	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.2	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	006.6	000.0	006.0	000.0	000.0	000.0

COMMENTS

at the sand wide esm

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.17000	0.95000	0.02000	0.01000	0.20000	0.04000	0.00000	0.01500	0.00000	0.37600	0.50000	0.20000	0.20000	0.05000	0.05000	0.00400	0.04500	0.00000	0.02500	0.00000	0.00000	0.00000
MIN	0.15500	0.65000	0.00000	0.00000	0.10000	0.01800	0.01500	0.00000	0.00150	0.32900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00000	0.01500	0.00000	0.00000	0.00000
AIM	0.16000	0.00000	0.00000	0.00000	0.13000	0.02500	0.00000	0.00000	0.00000	0.34800	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.04000	0.00000	0.02000	0.00000	0.00000	0.00000

HEAT: A4G154 MSP: 64155

EVENTS

TIME	KWH	Description
15:27:10	0066900	Ladle Weigth
15:27:06	0066900	End Tapping
15:25:21	0066900	Start Tapping
15:19:51	0066900	Power Off
15:19:50	0066900	Temperature <2884> O2 <596> C <48>
15:17:35	0063400	Temperature <2842> O2 <0> C <0>
15:15:13	0060300	Power On
15:15:02	0060300	Temperature <2780> O2 <772> C <56>
15:14:11	0060300	Power Off
15:12:34	0057600	Temperature <2776> O2 <391> C <2777>
15:10:33	0054200	Temperature <2784> O2 <354> C <2844>
15:10:16	0053900	Power On
15:09:59	0053900	Power Off
14:45:06	0019000	Power On
14:41:34	0019000	Material Addition
14:40:54	0019000	Charge
14:38:48	0019000	Power Off
14:36:13	0016300	Power On
14:35:33	0016300	Power Off
14:35:07	0015700	Power On
14:34:39	0015700	Power Off
14:21:58	0000000	Melting
14:21:57	0000000	Power On
14:14:19	0000000	Charge
13:41:07	0000000	Material Addition
13:25:03	0000000	TurnAround

EAF Heat Sheet 14-Jul-2004 16:32:36

IPSCO STEEL INC.
Montpelier Works

HEAT: A4G155 *MSP: 64155*

Start Time: 14-Jul-2004 15:28:07
End Time : 14-Jul-2004 16:32:27
TapToTap Time : 64 (min)

Heat Order : 1217507
Grade : J55
Ladle #: 4 CrewID: 1 OperatorID: 24

START	DUR	DELAY REASON
16:28:57	0000	Operational, Tap
16:25:15	0003	Operational, Slagoff
16:21:58	0000	Operational, Sidewall RTD trip
16:12:10	0000	Operational, Sidewall RTD trip
15:53:48	0002	Operational, Pack scrap
15:51:48	0002	Operational, Charge
15:47:28	0000	Operational, Sidewall RTD trip
15:30:42	0003	Operational, Pack scrap
15:28:54	0001	Operational, Charge

CHARGES	AMOUNT
Charge 1 :	226950
Charge 2 :	135200
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0001600
FeMn	0001000
4oz AL Con	0000450
FeCb	0000100
Carbon	0000610
Dololime	0004075
HiCal Lime	0002290
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	62000	22200	39800	0	0	0
O2 Burner	SCF	75	31	44	0	0	0
Gas Burner	SCF	31	13	18	0	0	0
O2 Lance	SCF	679	136	543	0	0	0
Carbon Lance	LBS	1112	974	138	0	0	0
TIMES							
Melting Tm	MIN	64	24	39	0	0	0
Power on Tm	MIN	44	17	27	0	0	0
Burner On Tm	MIN	64	24	39	0	0	0
O2Lance On Tm	MIN	47	16	30	0	0	0
CLance On Tm	MIN	10	2	7	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	376.6	195.6	342.4	000.0	000.0	000.0
Flux	Tons	000.0	000.1	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	59631.3	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.1	001.2	003.7	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	006.8	008.6	006.1	000.0	000.0	000.0

COMMENTS

at the sand wide esm darrick

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.17000	0.95000	0.02000	0.01000	0.20000	0.04000	0.00000	0.01500	0.00000	0.37600	0.50000	0.20000	0.20000	0.05000	0.05000	0.00400	0.04500	0.00000	0.02500	0.00000	0.00000	0.00000
MIN	0.15500	0.65000	0.00000	0.00000	0.10000	0.01800	0.01500	0.00000	0.00150	0.32900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00000	0.01500	0.00000	0.00000	0.00000
AIM	0.16000	0.00000	0.00000	0.00000	0.13000	0.02500	0.00000	0.00000	0.00000	0.34800	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.04000	0.00000	0.02000	0.00000	0.00000	0.00000

HEAT: A4G155 MSP: 64155

---------- EVENTS ----------

TIME	KWH	Description
16:32:32	0062000	Ladle Weigth
16:32:28	0062000	End Tapping
16:30:39	0062000	Start Tapping
16:25:23	0062000	Temperature <2967> O2 <628> C <57>
16:25:13	0062000	Power Off
16:22:34	0057500	Temperature <2566> O2 <0> C <0>
16:22:20	0057400	Power On
16:21:57	0057300	Power Off
16:12:55	0045100	Power On
16:12:08	0045000	Power Off
15:57:14	0022300	Material Addition
15:56:46	0022200	Power On
15:53:11	0022200	Charge
15:51:46	0022200	Power Off
15:48:14	0017600	Power On
15:47:26	0017500	Power Off
15:41:51	0009300	Power On
15:41:50	0009300	Power Off
15:41:49	0009300	Power On
15:41:48	0009300	Power Off
15:41:44	0009300	Power On
15:41:34	0009300	Power Off
15:33:44	0000000	Melting
15:33:42	0000000	Power On
15:30:05	0000000	Charge
15:28:10	0000000	TurnAround

Meltshop Production

From 7/14/04 23:00:00 to 7/15/04 23:00:00

Issue Date : 7/16/04 07:13:23
Issued By : Operations Planning
PBL Name :003 Production_Reporting.pbl Created Date : 03/19/2
Report Name :r_prod_a_meltshop_new Version : 2.1

Seq Id	Heat Id	Heat Order Id	Grade	Melt Practice	Tap Complete Time	Charge Weight	Slab Wgt.	Ht Abort Flag	Pourback Heat Id	Pourback Heat Wgt
G40048	B4G652	1383101	A57250/50W	66062	07/14/2004 23:55:08	183.90	167.84	Yes		
G40048	A4G159	1383102		66062	07/15/2004 00:55:01	171.75	142.82	Yes		
G40048	B4G653	1383001	A572-50	66062	07/15/2004 01:40:16	170.98	172.91	Yes		
G40048	A4G160	1383002	A709M345T1	66062	07/15/2004 02:39:47	173.10	144.48	Yes		

Percent Yield:	91.3%	Total Scrap Charged:	699.73	Average Scrap Charge:	174.93
Heats in Sequence:	4	Total Tons Tapped:	638.99	Average Tap Weight:	159.75
Slabs Cast:	20	Tundish Skull:	3.18	Crop Loss:	2.31
Slab Weights:	628.05	Pit Scrap:	5.20	Kerf / Sample Loss:	0.25

Seq Id	Heat Id	Heat Order Id	Grade	Melt Practice	Tap Complete Time	Charge Weight	Slab Wgt.	Ht Abort Flag	Pourback Heat Id	Pourback Heat Wgt
G40049	B4G654	1389901	50/350WT-4	16061	07/15/2004 03:21:56	174.65	141.22	Yes		
G40049	A4G161	1389902	A572-50	16061	07/15/2004 04:13:59	173.45	171.83	Yes		
G40049	B4G655	1389903	A572-50	16061	07/15/2004 05:09:37	170.80	139.18	Yes		
G40049	A4G162	1389904	A572-50	16061	07/15/2004 06:12:27	171.90	169.69	Yes		
G40049	B4G656	1389905	A572-50	16061	07/15/2004 07:13:28	172.15	170.38	Yes		
G40049	A4G163	1389906	A572-50	16061	07/15/2004 08:03:07	169.60	164.09	Yes		

Percent Yield:	94.0%	Total Scrap Charged:	1,032.55	Average Scrap Charge:	172.09
Heats in Sequence:	6	Total Tons Tapped:	970.67	Average Tap Weight:	161.78
Slabs Cast:	30	Tundish Skull:	3.86	Crop Loss:	2.37
Slab Weights:	956.39	Pit Scrap:	7.80	Kerf / Sample Loss:	0.25

Seq Id	Heat Id	Heat Order Id	Grade	Melt Practice	Tap Complete Time	Charge Weight	Slab Wgt.	Ht Abort Flag	Pourback Heat Id	Pourback Heat Wgt
G40050	B4G657	1428801	A36	74173	07/15/2004 08:50:37	172.98	164.48	Yes		
G40050	A4G164	1428802		74173	07/15/2004 09:52:45	172.53	159.08	Yes		
G40050	B4G658	1425601	44W/A36	74175	07/15/2004 10:57:23	172.40	152.71	Yes		
G40050	A4G165	1425602	44W/A36	74175	07/15/2004 11:54:21	172.00	156.07	Yes		
G40050	B4G659	1395901	44W/A36	74177	07/15/2004 12:56:36	175.08	157.88	Yes		
G40050	B4G660	1395903	44W/A36	74177	07/15/2004 14:46:15	174.23	140.05	Yes		
G40050	A4G166	1395902	44W/A36	74177	07/15/2004 15:21:21	175.33	174.42	Yes		
G40050	B4G661	1425701	A572-50	76195	07/15/2004 16:48:26	185.95	160.46	Yes		
G40050	A4G167	1425702	A572-50	76195	07/15/2004 17:23:48	172.93	173.16	Yes		
G40050	B4G662	1383301	A572-50	76194	07/15/2004 18:25:19	181.88	143.42	Yes		

Percent Yield:	91.2%	Total Scrap Charged:	1,755.28	Average Scrap Charge:	175.53
Heats in Sequence:	10	Total Tons Tapped:	1,600.67	Average Tap Weight:	160.07
Slabs Cast:	60	Tundish Skull:	3.38	Crop Loss:	2.31
Slab Weights:	1,581.73	Pit Scrap:	13.00	Kerf / Sample Loss:	0.25

Seq Id	Heat Id	Heat Order Id	Grade	Melt Practice	Tap Complete Time	Charge Weight	Slab Wgt.	Ht Abort Flag	Pourback Heat Id	Pourback Heat Wgt
G40051	A4G168	1383302	A572-50	76194	07/15/2004 19:36:44	185.40	166.05	Yes		
G40051	B4G663	1383303	A572-50	76194	07/15/2004 20:11:00	188.00	154.03	Yes		
G40051	A4G169	1377901	50/350WT-3	15141	07/15/2004 21:02:00	184.35	139.83	Yes		
G40051	B4G664	1377902	A572-50-T2	15141	07/15/2004 21:57:15	173.00	169.86	Yes		

Meltshop Production

From 7/14/04 23:00:00 to 7/15/04 23:00:00

Issue Date	: 7/16/04 07:13:23
Issued By	: Operations Planning
PBL Name	:003 Production_Reporting.pbl Created Date : 03/19/2
Report Name	:r_prod_a_meltshop_new Version : 2.1

Seq Id	Heat Id	Heat Order Id	Grade	Melt Practice	Tap Complete Time	Charge Weight	Slab Wgt.	Ht Abort Flag	Pourback Heat Id	Pourback Heat Wgt
G40051	A4G170	1378001	A57250/A36	15140	07/15/2004 22:52:51	173.30	139.26	Yes		

Percent Yield:	85.8%	Total Scrap Charged:	904.05	Average Scrap Charge:	180.81
Heats in Sequence:	5	Total Tons Tapped:	775.53	Average Tap Weight:	155.11
Slabs Cast:	26	Tundish Skull:	0.00	Crop Loss:	0.00
Slab Weights:	769.03	Pit Scrap:	6.50	Kerf / Sample Loss:	0.00

Production Period Summary:

Percent Yield:	90.83%	Total Scrap Charged:	4,391.60	Average Scrap Charge:	175.66
Total Heats Tapped:	25	Total Liquid Metal Tapped:	3,989.00	Average Tap Weight:	159.56
		Total Caster Losses:	53.80		
Total Slab Casts:	136	Total Tundish Loss:	13.80	Total Pit Scrap Loss:	29.90
Total Slab Weights:	3,935.20	Total Crop Loss:	9.10	Total Sample / Kerf Loss:	1.00

* Estimated - heats have not been cast.

DAILY PRODUCTION REPORT - through 07/15/04

IPSCO STEEL (Iowa) Inc.

	Daily		MTD		YTD		Product Yield		
	Units	Tons	Units	Tons	Units	Tons	Daily	MTD	YTD
Meltshop									
Heats Tapped	25		334		4,036				
Scrap Charge Tons		4,391.6		58,261.2		705,744.6			
Liquid Metal Tapped		3,989.0		53,262.1		641,999.8			
less: Tapped Pourback		0.0		0.0		385.0			
Metal Available to Caster		3,989.0		53,262.1		641,614.8	90.8%	91.4%	90.9%
Caster									
INPUT									
Heats Cast	23		335		4,043				
Heats Aborted	0		0		0				
Total	23	3,706.4	335	53,443.7	4,043	641,316.1			
OUTPUT									
Prime Slabs	126	3,652.6	1,855	52,691.8	21,882	631,695.4	98.5%	98.6%	98.5%
SCRAP									
Scrap Slabs	0	0.0	0	0.0	0	0.0	0.0%	0.0%	0.0%
Process Losses		53.8		751.9		9,620.7	1.5%	1.4%	1.5%
Total Scrap		53.8		751.9		9,620.7	1.5%	1.4%	1.5%
DIRECT CHARGE									
Direct Chargeable	59	1,869.8	932	27,343.2	12,386	367,947.9	51.2%	51.9%	58.2%
Direct Charged	52	1,657.5	715	20,808.0	8,600	256,703.3	88.6%	76.1%	69.8%
Rolling Mill - Light Plate									
SLAB INPUT	0	0.0	189	5,705.1	2,061	62,737.0			
OUTPUT									
Semi-Finished Plates	0	0.0	625	5,591.0	6,374	61,253.8		98.0%	97.6%
SCRAP									
Scrap Plates	0	0.0	0	0.0	10	256.0		0.0%	0.4%
Process Losses		0.0		114.1		1,227.2		2.0%	2.0%
Total Scrap		0.0		114.1		1,483.2		2.0%	2.4%
Rolling Mill - Heavy Plate									
SLAB INPUT	89	2,755.7	922	25,160.7	10,075	293,174.9			
OUTPUT									
Semi-Finished Plates	114	2,700.6	1,270	24,657.5	14,190	286,954.5	98.0%	98.0%	97.9%
SCRAP									
Scrap Plates	0	0.0	0	0.0	14	416.7	0.0%	0.0%	0.1%
Process Losses		55.1		503.2		5,803.7	2.0%	2.0%	2.0%
Total Scrap		55.1		503.2		6,220.4	2.0%	2.0%	2.1%
Rolling Mill - Coil									
SLAB INPUT	32	1,044.5	636	18,664.5	9,125	264,157.2			
OUTPUT									
Hold Coils	3	84.8	54	1,495.5	444	12,039.0	8.1%	8.0%	4.6%
Prime Coils	29	922.8	576	16,357.2	8,608	240,516.7	88.4%	87.6%	91.1%
Prime Sub Total	32	1,007.6	630	17,852.7	9,052	252,555.7	96.5%	95.7%	95.6%
Commercial Coils	0	0.0	4	85.2	39	928.6	0.0%	0.5%	0.4%
Coil Reclaim				113.9		1,249.4		0.6%	0.5%
Adjusted Prime Coils		1007.57		17,738.8		251,306.3	96.5%	95.0%	95.1%
SCRAP									
Scrap Coils	0	0.0	2	52.2	35	943.7	0.0%	0.3%	0.4%
Process Losses		36.9		674.4		9,729.2	3.5%	3.6%	3.7%
Total Scrap		36.9		840.5		11,922.3	3.5%	4.5%	4.5%
Rolling Mill - Summary									
Total Slabs Rolled	121	3,800.2	1,747	49,530.4	21,261	620,069.1			
Rolling Mill Output		3,708.1		48,101.2		600,764.1			
Average Slab Weight									
Plate		31.0		27.8		29.3			
Coil		32.6		29.3		28.9			
Finished Prime Tons									
Light Plate	0	0.0	5,078	5,428.8	51,056	58,973.9			
Heavy Plate	803	2,536.2	9,866	23,520.6	104,566	272,554.3			
Coil	32	1,007.6	630	17,852.7	9,052	252,555.7			
Total Prime Tons	835	3,543.8	15,574	46,802.0	164,674	584,083.8			

07/16/2004 02:53:52

DAILY PRODUCTION REPORT - through 07/15/04
IPSCO STEEL (Iowa) Inc.

	Daily		MTD		YTD		Product Yield		
	Units	Tons	Units	Tons	Units	Tons	Daily	MTD	YTD
Finishing - Light Plate									
MP PLATE INPUT	0	0.0	627	5,591.0	6,286	61,401.9			
OUTPUT									
Hold Plates	0	0.0	398	344.1	2,614	3,212.5		6.2%	5.2%
Prime Plates	0	0.0	4,600	4,995.8	47,377	54,293.3		89.4%	88.4%
Prime Odd Plates	0	0.0	80	88.9	1,065	1,468.0		1.6%	2.4%
Prime Sub Total	0	0.0	5,078	5,428.8	51,056	58,973.9		97.1%	96.0%
Commercial Plates	0	0.0	72	50.5	791	952.0		0.9%	1.6%
Reclaim Plates	0	0.0	0	0.0	0	0.0		0.0%	0.0%
Total Plates	0	0.0	5,150	5,479.4	51,847	59,925.8		98.0%	97.6%
SCRAP									
Scrapped Plates	0	0.0	0	0.0	0	0.0		0.0%	0.0%
Process Losses		0.0		111.6		1,476.1		2.0%	2.4%
Total Scrap		0.0		111.6		1,476.1		2.0%	2.4%
Finishing - Heavy Plate									
MP PLATE INPUT	109	2,590.7	1,263	24,545.7	14,169	287,358.3			
OUTPUT									
Hold Plates	74	341.3	1,106	3,715.3	4,912	18,021.0	13.2%	15.1%	6.3%
Prime Plates	729	2,195.0	8,660	19,557.7	98,509	251,598.7	84.7%	79.7%	87.6%
Prime Odd Plates	0	0.0	100	247.5	1,145	2,934.6	0.0%	1.0%	1.0%
Prime Sub Total	803	2,536.2	9,866	23,520.6	104,566	272,554.3	97.9%	95.8%	94.8%
Commercial Plates	3	5.8	106	216.2	1,907	5,643.8	0.2%	0.9%	2.0%
Reclaim Plates	0	0.0	0	0.0	0	0.0	0.0%	0.0%	0.0%
Total Plates	806	2,542.1	9,972	23,736.8	106,473	278,198.1	98.1%	96.7%	96.8%
SCRAP									
Scrapped Plates	0	0.0	0	0.0	0	0.0	0.0%	0.0%	0.0%
Process Losses		48.6		808.9		9,160.2	1.9%	3.3%	3.2%
Total Scrap		48.6		808.9		9,160.2	1.9%	3.3%	3.2%
Finishing - Plate Reclaim									
PLATE INPUT	0	0.0	243	604.7	4,491	12,570.7			
OUTPUT									
Prime Plates	0	0.0	585	564.8	8,566	11,321.3		93.4%	90.1%
Prime Odd Plates	0	0.0	3	2.1	3	2.1		0.3%	0.0%
Prime Sub Total	0	0.0	588	566.9	8,569	11,323.3		93.7%	90.1%
Commercial Plates	0	0.0	1	0.3	274	210.7		0.1%	1.7%
Total Plates	0	0.0	589	567.2	8,843	11,534.0		93.8%	91.8%
SCRAP									
Scrap Plates	0	0.0	0	0.0	0	0.0		0.0%	0.0%
Process Losses		0.0		37.5		1,036.7		6.2%	8.2%
Total Scrap		0.0		37.5		1,036.7		6.2%	8.2%
Slitter									
Coil Input	5	164.4	431	13,081.9	6,509	204,005.2			
OUTPUT									
Prime Slit	9	154.9	1,916	12,500.2	25,068	193,590.3	94.2%	95.6%	94.9%
Commercial	0	0.0	4	25.3	66	470.9	0.0%	0.2%	0.2%
SCRAP									
Scrapped Coils	0	0.0	0	0.0	7	55.3	0.0%	0.0%	0.0%
Process Losses		9.5		556.4		9,888.8	5.8%	4.3%	4.8%
Total Scrap		9.5		556.4		9,944.1	5.8%	4.3%	4.9%
Slitter - Reclaim									
Coil Input	25	571.0	154	2,512.0	2,630	40,143.1			
OUTPUT									
Rewrapped or Sampled	25	529.7	154	2,398.1	2,606	38,890.6	92.8%	95.5%	96.9%
Commercial	0	0.0	0	0.0	3	46.3	0.0%	0.0%	0.1%
SCRAP									
Scrapped Coils	0	0.0	0	0.0	0	0.0	0.0%	0.0%	0.0%
Process Losses		41.3		113.9		1,249.4	7.2%	4.5%	3.1%
Total Scrap		41.3		113.9		1,249.4	7.2%	4.5%	3.1%

DAILY PRODUCTION REPORT - through 07/15/04
IPSCO STEEL (Iowa) Inc.

Shipping		Daily	MTD	YTD
SLABS		0.0	0.0	13,135.4
COIL	Prime	470.5	16,426.2	298,414.0
	Commercial	0.0	0.0	0.0
	Total	470.5	16,426.2	298,414.0
LIGHT PLATE	Prime	132.5	4,298.9	53,627.0
	Commercial	177.7	474.9	14,204.6
	Total	310.2	4,773.8	67,831.6
HEAVY PLATE	Prime	904.2	18,485.5	264,102.8
	Commercial	0.0	0.0	0.0
	Total	904.2	18,485.5	264,102.8
TOTAL COIL & PLATE		1,684.9	39,685.5	630,348.4
TOTAL SHIPMENTS		1,684.9	39,685.5	643,483.8

Scrap To Product Yield	Daily	MTD	YTD
COIL			
Prime	86.4%	86.2%	85.6%
LIGHT PLATE			
Prime		84.4%	81.9%
Prime Odd		1.4%	2.1%
Commercial		0.8%	1.4%
Total	0.0%	86.6%	85.3%
HEAVY PLATE			
Prime	85.9%	83.8%	82.2%
Prime Odd	0.0%	0.9%	0.9%
Commercial	0.2%	0.8%	1.7%
Total	86.1%	85.4%	84.9%

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 7/15/04 09:00:00 to 7/15/04 17:00:00

Issue Date	: 7/15/04 16:49:13
Issued By	: Operations Planning
PBL Name	:4 scrap_consumption.pbl Created Date : 05/25/0
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
1428802	07/15/2004	08:06:25	A4G164	0000000003	01	FRAG	052550	26.28
					02	Flux	007800	3.90
					03	CAST FE	020700	10.35
					04	MXTN	038050	19.02
					05	BEACH IRON	024300	12.15
					06	HM1	043600	21.80
					07	PITSCRAP	016050	8.03
					08	FRAG	009150	4.58
					09	FRAG	014000	7.00
						0000000003 Total	**226200**	**113.10**
1428802	07/15/2004	09:08:57	A4G164	0000000003	01	FRAG	025400	12.70
					02	Flux	007850	3.93
					03	BEACH IRON	017850	8.93
					04	MXTN	035500	17.75
					05	HM1	023650	11.83
					06	FRAG	024250	12.13
						0000000003 Total	**134500**	**67.25**
						A4G164 Total	**360700**	**180.35**
1425602	07/15/2004	10:18:12	A4G165	0000000003	01	FRAG	054800	27.40
					02	Flux	007750	3.88
					03	CAST FE	020700	10.35
					04	MXTN	034700	17.35
					05	BEACH IRON	024700	12.35
					06	HM1	044650	22.33
					07	PITSCRAP	010350	5.18
					08	FRAG	012700	6.35
					09	FRAG	016700	8.35
						0000000003 Total	**227050**	**113.53**
1425602	07/15/2004	11:00:57	A4G165	0000000003	01	FRAG	025600	12.80
					02	Flux	008450	4.23
					03	BEACH IRON	019100	9.55
					04	MXTN	030850	15.43
					05	HM1	023600	11.80
					06	FRAG	025550	12.78
						0000000003 Total	**133150**	**66.58**
						A4G165 Total	**360200**	**180.10**
1395902	07/15/2004	12:12:27	A4G166	0000000003	01	FRAG	052850	26.43
					02	Flux	008600	4.30
					03	CAST FE	021900	10.95
					04	MXTN	036750	18.38
					05	BEACH IRON	026950	13.48
					06	HM1	045400	22.70
					07	PITSCRAP	012200	6.10
					08	PROCREVERT	009950	4.98
					09	FRAG	015550	7.78
						0000000003 Total	**230150**	**115.07**

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 7/15/04 09:00:00 to 7/15/04 17:00:00

Issue Date : 7/15/04 16:49:13
Issued By : Operations Planning
PBL Name :4 scrap_consumption.pbl Created Date : 05/25/0
Report Name :d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
1395902	07/15/2004	13:10:17	A4G166	0000000003	01	FRAG	025800	12.90
					02	Flux	007700	3.85
					03	BEACH IRON	021550	10.78
					04	MXTN	029350	14.68
					05	HM1	024900	12.45
					06	FRAG	027500	13.75
						0000000003 Total	**136800**	**68.40**
						A4G166 Total	**366950**	**183.48**
1425601	07/15/2004	09:09:40	B4G658	0000000005	01	FRAG	050400	25.20
					02	Flux	007700	3.85
					03	CAST FE	020250	10.13
					04	MXTN	036600	18.30
					05	BEACH IRON	025500	12.75
					06	HM1	044150	22.08
					07	PITSCRAP	011400	5.70
					08	FRAG	009400	4.70
					09	FRAG	022300	11.15
						0000000005 Total	**227700**	**113.85**
1425601	07/15/2004	09:59:24	B4G658	0000000005	01	FRAG	025800	12.90
					02	Flux	007700	3.85
					03	BEACH IRON	019650	9.83
					04	MXTN	031800	15.90
					05	HM1	024100	12.05
					06	FRAG	023450	11.73
						0000000005 Total	**132500**	**66.25**
						B4G658 Total	**360200**	**180.10**
1395901	07/15/2004	11:13:23	B4G659	0000000005	01	FRAG	051000	25.50
					02	Flux	006250	3.13
					03	CAST FE	022600	11.30
					04	MXTN	037150	18.58
					05	BEACH IRON	023600	11.80
					06	HM1	046000	23.00
					07	PITSCRAP	012800	6.40
					08	PROCREVERT	011950	5.98
					09	FRAG	017250	8.63
						0000000005 Total	**228600**	**114.30**
1395901	07/15/2004	11:53:04	B4G659	0000000005	01	FRAG	024450	12.23
					02	Flux	008150	4.08
					03	BEACH IRON	021500	10.75
					04	MXTN	029700	14.85
					05	HM1	023950	11.98
					06	FRAG	028200	14.10
						0000000005 Total	**135950**	**67.97**
						B4G659 Total	**364550**	**182.27**
1395903	07/15/2004	13:18:57	B4G660	0000000006	01	FRAG	052700	26.35

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 7/15/04 09:00:00 to 7/15/04 17:00:00

Issue Date : 7/15/04 16:49:13
Issued By : Operations Planning
PBL Name :4 scrap_consumption.pbl Created Date : 05/25/0
Report Name :d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
1395903	07/15/2004	13:18:57	B4G660	0000000006	02	Flux	008600	4.30
					03	CAST FE	020050	10.03
					04	MXTN	036050	18.02
					05	BEACH IRON	025100	12.55
					06	HM1	043350	21.68
					07	PITSCRAP	010600	5.30
					08	PROCREVERT	011600	5.80
					09	FRAG	020800	10.40
						0000000006 Total	**228850**	**114.43**
1395903	07/15/2004	13:48:01	B4G660	0000000005	01	FRAG	026000	13.00
					02	Flux	008800	4.40
					03	BEACH IRON	025350	12.68
					04	MXTN	030200	15.10
					05	HM1	024650	12.33
					06	FRAG	022000	11.00
						0000000005 Total	**137000**	**68.50**
						B4G660 Total	**365850**	**182.93**
1425702	07/15/2004	14:50:45	B4G661	0000000005	01	FRAG	053250	26.63
					02	Flux	008350	4.18
					03	CAST FE	020500	10.25
					04	MXTN	036600	18.30
					05	BEACH IRON	026200	13.10
					06	HM1	043500	21.75
					07	PITSCRAP	009200	4.60
					08	PROCREVERT	009600	4.80
					09	FRAG	020900	10.45
						0000000005 Total	**228100**	**114.05**
1425702	07/15/2004	15:29:30	B4G661	0000000005	01	FRAG	025050	12.53
					02	Flux	008100	4.05
					03	BEACH IRON	021850	10.93
					04	MXTN	032050	16.02
					05	HM1	024550	12.28
					06	FRAG	048650	24.33
						0000000005 Total	**160250**	**80.13**
						B4G661 Total	**388350**	**194.18**

Total Heats: 7 Total Weight for Time Period: 2566800 Pounds 1283.40 Tons

EAF Heat Sheet 15-Jul-2004 10:57:38

IPSCO STEEL INC.
Montpelier Works

HEAT: B4G658 MSP: 74175

Start Time: 15-Jul-2004 08:51:40
End Time : 15-Jul-2004 10:57:23
TapToTap Time : 125 (min)

Heat Order : 1425601
Grade : 44W/A36
Ladle #: 6 CrewID: 1 OperatorID: 0

START	DUR	DELAY REASON
10:53:58	0000	Operational, Tap
10:48:46	0005	Operational, Slagoff
10:46:10	0002	Operational, Temp
10:41:08	0000	Operational, Temp
10:26:49	0003	Other, Let baghouse catch up
10:02:03	0003	Operational, Slip electrode
09:59:39	0002	Operational, Charge
08:52:27	0054	Operational, Charge Run A

CHARGES	AMOUNT
Charge 1 :	227700
Charge 2 :	132500
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0001800
FeMn	0001400
4oz AL Con	0000450
FeVan	0000225
Carbon	0000915
Dololime	0012210
HiCal Lime	0006870
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120
Tires	0002200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	66600	12300	54300	0	0	0
O2 Burner	SCF	81	24	57	0	0	0
Gas Burner	SCF	43	12	31	0	0	0
O2 Lance	SCF	885	57	828	0	0	0
Carbon Lance	LBS	1510	0	1510	0	0	0
TIMES							
Melting Tm	MIN	125	67	57	0	0	0
Power on Tm	MIN	48	12	36	0	0	0
Burner On Tm	MIN	89	32	57	0	0	0
O2Lance On Tm	MIN	49	8	41	0	0	0
CLance On Tm	MIN	13	0	13	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	406.8	108.0	369.8	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	37097.3	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.4	000.5	004.9	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.3	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	009.2	000.0	008.4	000.0	000.0	000.0

COMMENTS

at the sand wide esm chris

	ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
	MAX	0.17400	1.00000	0.02000	0.01000	0.25000	0.03900	0.00000	0.01500	0.00000	0.40900	0.30000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00400	0.09000	0.01000	0.00000	0.00000	0.00000
	MIN	0.15500	0.85000	0.00000	0.00000	0.15000	0.01800	0.01500	0.00000	0.00100	0.37100	0.00000	0.15000	0.15000	0.00000	0.00000	0.00000	0.00000	0.08000	0.00600	0.00000	0.00000	0.00000
	AIM	0.16000	0.90000	0.00000	0.00000	0.18000	0.02500	0.00000	0.00000	0.00000	0.38500	0.00000	0.16000	0.16000	0.00000	0.00000	0.00000	0.00000	0.08500	0.00700	0.00000	0.00000	0.00000
10:55:22	E1	0.05100	0.15000	0.01000	0.07300	0.00100	0.14000	0.11700	0.00390	0.00050	0.14600	0.19000	0.10000	0.20000	0.05800	0.00800	0.00200	0.00300	0.00100	0.00100	0.00024	2780.34	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: B4G658 MSP: 74175

---------- EVENTS ----------

TIME	KWH	Description
10:57:28	0066600	Ladle Weigth
10:57:25	0066600	End Tapping
10:55:52	0066600	Start Tapping
10:55:22	0000000	Chemical Analysis Received
10:48:41	0066600	Temperature <3030> O2 <0> C <0>
10:47:35	0066600	Temperature <3046> O2 <564> C <78>
10:46:09	0066600	Power Off
10:45:00	0064800	Temperature <2877> O2 <19> C <111>
10:42:43	0061000	Temperature <2808> O2 <205> C <111>
10:41:47	0059700	Power On
10:41:06	0059700	Power Off
10:30:24	0042000	Power On
10:26:47	0042000	Power Off
10:26:40	0041900	Material Addition
10:05:38	0012600	Power On
09:59:37	0012600	Power Off
09:59:24	0012300	Charge
09:50:28	0001900	Burners On
09:47:14	0000000	Melting
09:47:12	0000000	Power On
09:37:19	0000000	Material Addition
09:31:28	0000000	Material Addition
09:14:51	0000000	Burners Off
09:09:40	0000000	Charge
08:51:42	0000000	TurnAround

EAF Heat Sheet 15-Jul-2004 11:54:36

IPSCO STEEL INC.
Montpelier Works

HEAT: A4G165 MSP: 74175

Start Time: 15-Jul-2004 09:53:48
End Time : 15-Jul-2004 11:54:21
TapToTap Time : 120 (min)

Heat Order : 1425602
Grade : 44W/A36
Ladle #: 7 CrewID: 1 OperatorID: 24

START	DUR	DELAY REASON
11:51:25	0000	Operational, Tap
11:45:37	0005	Operational, Slagoff
11:29:27	0001	Operational, Sidewall RTD trip
11:27:40	0000	Operational, Sidewall RTD trip
11:24:58	0001	Operational, Sidewall RTD trip
11:22:05	0000	Operational, Sidewall RTD trip
11:18:39	0000	Operational, Sidewall RTD trip
10:59:21	0004	Operational, Charge
10:18:12	0030	Operational, Charge run B
10:09:54	0008	Operational, Run B
09:54:36	0015	Operational, Gunning

CHARGES	AMOUNT
Charge 1 :	227050
Charge 2 :	133150
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SIMn	0001800
FeMn	0001400
4oz AL Con	0000450
FeVan	0000225
Carbon	0000895
Dololime	0008135
HiCal Lime	0004580
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120
Tires	0002200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	62600	13300	49300	0	0	0
O2 Burner	SCF	72	16	56	0	0	0
Gas Burner	SCF	30	7	23	0	0	0
O2 Lance	SCF	979	36	943	0	0	0
Carbon Lance	LBS	2473	0	2473	0	0	0
TIMES							
Melting Tm	MIN	120	67	53	0	0	0
Power on Tm	MIN	47	10	37	0	0	0
Burner On Tm	MIN	64	11	53	0	0	0
O2Lance On Tm	MIN	51	6	44	0	0	0
CLance On Tm	MIN	25	0	25	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	382.3	117.2	347.6	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	39064.0	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	006.0	000.3	005.4	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	015.1	000.0	013.7	000.0	000.0	000.0

COMMENTS

at the sand wide esm darrick

	ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
	MAX	0.17400	1.00000	0.02000	0.01000	0.25000	0.03900	0.00000	0.01500	0.00000	0.40900	0.30000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00400	0.09000	0.01000	0.00000	0.00000	0.00000
	MIN	0.15500	0.85000	0.00000	0.00000	0.15000	0.01800	0.01500	0.00000	0.00100	0.37100	0.00000	0.15000	0.15000	0.00000	0.00000	0.00000	0.00000	0.08000	0.00600	0.00000	0.00000	0.00000
	AIM	0.16000	0.90000	0.00000	0.00000	0.18000	0.02500	0.00000	0.00000	0.00000	0.38500	0.00000	0.16000	0.16000	0.00000	0.00000	0.00000	0.00000	0.08500	0.00700	0.00000	0.00000	0.00000
11:52:26	E1	0.12500	0.19000	0.01300	0.06500	0.00200	0.17800	0.15900	0.00540	0.00370	0.21800	0.30000	0.10000	0.14000	0.03200	0.01000	0.00200	0.00300	0.00100	0.00100	0.00019	2768.91	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: A4G165 MSP: 74175

EVENTS

TIME	KWH	Description
11:54:27	0062600	Ladle Weigth
11:54:23	0062600	End Tapping
11:52:45	0062600	Start Tapping
11:52:26	0000000	Chemical Analysis Received
11:46:58	0062600	Temperature <2911> O2 <0> C <0>
11:46:09	0062600	Temperature <2900> O2 <248> C <120>
11:45:36	0062600	Power Off
11:30:28	0040600	Power On
11:29:25	0040600	Power Off
11:28:06	0038800	Power On
11:27:38	0038800	Power Off
11:26:10	0037400	Power On
11:24:56	0037400	Power Off
11:22:56	0035000	Power On
11:22:03	0035000	Power Off
11:19:23	0031800	Power On
11:18:37	0031800	Power Off
11:14:24	0026400	Material Addition
11:03:35	0013300	Power On
11:00:58	0013300	Charge
10:59:20	0013300	Power Off
10:55:26	0007400	Power On
10:55:19	0007400	Power Off
10:51:28	0001500	Burners On
10:49:00	0000000	Melting
10:48:59	0000000	Power On
10:36:05	0000000	Material Addition
10:18:12	0000000	Charge
09:55:35	0000000	Burners Off
09:53:50	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: B4G659 MSP: 74177

Start Time: 15-Jul-2004 10:58:27
End Time : 15-Jul-2004 12:56:36
TapToTap Time : 117 (min)

Heat Order : 1395901
Grade : 44W/A36
Ladle #: 4 CrewID: 1 OperatorID: 0

START	DUR	DELAY REASON
12:50:51	0000	Operational, Slagoff
12:41:51	0009	Operational, Blow Carbon
12:39:51	0000	Other, Open sump door
12:01:17	0004	Operational, Pack scrap
11:58:59	0002	Operational, Charge
10:59:13	0048	Operational, Charge Run A

CHARGES	AMOUNT
Charge 1 : 228600	
Charge 2 : 135950	
Charge 3 : 0	
Charge 4 : 0	
Charge 5 : 0	

ADDITIONS	LBS
SiMn	0001800
FeMn	0001400
4oz AL Con	0000450
FeVan	0000225
Carbon	0001815
Dololime	0012210
HiCal Lime	0006870
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120
Tires	0002200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	65200	4500	60700	0	0	0
O2 Burner	SCF	69	8	61	0	0	0
Gas Burner	SCF	36	3	33	0	0	0
O2 Lance	SCF	1046	4	1042	0	0	0
Carbon Lance	LBS	2158	0	2158	0	0	0
TIMES							
Melting Tm	MIN	117	54	63	0	0	0
Power on Tm	MIN	46	5	40	0	0	0
Burner On Tm	MIN	82	18	63	0	0	0
O2Lance On Tm	MIN	49	0	49	0	0	0
CLance On Tm	MIN	21	0	21	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	393.5	039.4	357.7	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	37894.7	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	006.3	000.0	005.7	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.0	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	013.0	000.0	011.8	000.0	000.0	000.0

COMMENTS

at the sand wide esm

	ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
	MAX	0.17400	1.00000	0.02000	0.01000	0.25000	0.03900	0.00000	0.01500	0.00000	0.40900	0.30000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00400	0.09000	0.01000	0.00000	0.00000	0.00000
	MIN	0.15500	0.85000	0.00000	0.00000	0.15000	0.01800	0.01500	0.00000	0.00100	0.37100	0.00000	0.15000	0.15000	0.00000	0.00000	0.00000	0.00000	0.08000	0.00000	0.00000	0.00000	0.00000
	AIM	0.16000	0.90000	0.00000	0.00000	0.18000	0.02500	0.00000	0.00000	0.00000	0.38500	0.00000	0.16000	0.16000	0.00000	0.00000	0.00000	0.00000	0.08500	0.00000	0.00000	0.00000	0.00000
12:46:27	E1	0.33700	0.21000	0.01500	0.06900	0.01400	0.29800	0.28600	0.00740	0.00020	0.44400	0.25000	0.12000	0.20000	0.04200	0.01100	0.00200	0.00300	0.00200	0.00100	0.00013	2737.80	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: B4G659 MSP: 74177

---------- EVENTS ----------

TIME	KWH	Description
12:56:42	0065200	Ladle Weigth
12:56:38	0065200	End Tapping
12:55:11	0065200	Start Tapping
12:50:54	0065200	Temperature <3013> O2 <549> C <73>
12:46:28	0000000	Chemical Analysis Received
12:44:32	0065200	Temperature <2975> O2 <117> C <312>
12:41:49	0065200	Power Off
12:41:14	0064300	Temperature <2917> O2 <0> C <0>
12:40:26	0063300	Power On
12:40:21	0063300	Temperature <2865> O2 <87> C <309>
12:39:50	0063300	Power Off
12:17:17	0026000	Power On
12:17:10	0025900	Power Off
12:15:59	0024100	Material Addition
12:06:06	0013200	Power On
11:58:58	0013200	Power Off
11:53:04	0004500	Charge
11:51:51	0003000	Burners On
11:47:52	0000000	Melting
11:47:51	0000000	Power On
11:30:12	0000000	Material Addition
11:28:03	0000000	Material Addition
11:15:51	0000000	Burners Off
11:13:23	0000000	Charge
10:58:28	0000000	TurnAround

EAF Heat Sheet 15-Jul-2004 14:46:28

IPSCO STEEL INC.
Montpelier Works

HEAT: B4G660 MSP: 74177

Start Time: 15-Jul-2004 12:57:39
End Time : 15-Jul-2004 14:46:15
TapToTap Time : 108 (min)

Heat Order : 1395903
Grade : 44W/A36
Ladle #: 3 CrewID: 1 OperatorID: 0

START	DUR	DELAY REASON
14:44:19	0000	Operational, Tap
14:40:43	0003	Operational, Slagoff
14:25:49	0014	Operational, Blow Carbon
13:47:24	0004	Operational, Charge
13:44:36	0002	Operational, Wait on Scrap
12:58:26	0034	Operational, Charge Run A

CHARGES	AMOUNT
Charge 1 :	228850
Charge 2 :	137000
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0001800
FeMn	0001400
4oz AL Con	0000450
FeVan	0000225
Carbon	0002440
Dolotime	0016280
HiCal Lime	0009160
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120
Tires	0002200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	68200	16600	51600	0	0	0
O2 Burner	SCF	85	28	57	0	0	0
Gas Burner	SCF	45	14	31	0	0	0
O2 Lance	SCF	949	76	873	0	0	0
Carbon Lance	LBS	2498	0	2498	0	0	0
TIMES							
Melting Tm	MIN	108	50	58	0	0	0
Power on Tm	MIN	45	12	33	0	0	0
Burner On Tm	MIN	94	36	58	0	0	0
O2Lance On Tm	MIN	48	8	40	0	0	0
CLance On Tm	MIN	13	0	13	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	410.1	145.1	372.8	000.0	000.0	000.0
Flux	Tons	000.0	000.1	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	46872.9	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.7	000.7	005.2	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.3	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	015.0	000.0	013.7	000.0	000.0	000.0

COMMENTS

at the sand wide esm chad

	ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
	MAX	0.17400	1.00000	0.02000	0.01000	0.25000	0.03900	0.00000	0.01500	0.00000	0.40900	0.30000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00400	0.09000	0.01000	0.00000	0.00000	0.00000
	MIN	0.15500	0.85000	0.00000	0.00000	0.15000	0.01800	0.01500	0.00000	0.00100	0.37100	0.00000	0.15000	0.15000	0.00000	0.00000	0.00000	0.00000	0.08000	0.00000	0.00000	0.00000	0.00000
	AIM	0.16000	0.90000	0.00000	0.00000	0.18000	0.02500	0.00000	0.00000	0.00000	0.38500	0.00000	0.16000	0.16000	0.00000	0.00000	0.00000	0.00000	0.08500	0.00000	0.00000	0.00000	0.00000
14:36:00	E1	0.32600	0.24000	0.01600	0.07500	0.00200	0.19300	0.15900	0.00500	0.00070	0.43700	0.21000	0.11000	0.20000	0.03900	0.00900	0.00200	0.00300	0.00100	0.00100	0.00023	2739.85	0.00000

HEAT: B4G660 MSP: 74177

EVENTS

TIME	KWH	Description
14:46:21	0068200	Ladle Weigth
14:46:17	0068200	End Tapping
14:44:37	0068200	Start Tapping
14:40:33	0068200	Temperature <2976> O2 <301> C <121>
14:36:08	0068200	Temperature <2963> O2 <117> C <303>
14:36:01	0000000	Chemical Analysis Received
14:34:40	0068200	Temperature <2965> O2 <0> C <0>
14:29:31	0068200	Temperature <2996> O2 <73> C <522>
14:25:47	0068200	Power Off
14:24:01	0065400	Temperature <2829> O2 <32> C <73>
14:11:00	0043600	Material Addition
13:52:17	0016600	Power On
13:48:01	0016600	Charge
13:44:34	0016600	Power Off
13:44:05	0015900	Material Addition
13:37:24	0005300	Material Addition
13:34:46	0002000	Burners On
13:32:35	0000000	Power On
13:32:34	0000000	Power Off
13:32:31	0000000	Melting
13:32:29	0000000	Power On
13:32:12	0000000	Material Addition
13:20:51	0000000	Burners Off
13:18:57	0000000	Charge
12:57:41	0000000	TurnAround

EAF Heat Sheet **15-Jul-2004 15:21:44**

IPSCO STEEL INC.
Montpelier Works

HEAT: A4G166 *MSP: 74177*

Start Time: 15-Jul-2004 11:55:25
End Time : 15-Jul-2004 15:21:21
TapToTap Time : 205 (min)

Heat Order : 1395902
Grade : 44W/A36
Ladle #: 5 CrewID: 1 OperatorID: 24

START	DUR	DELAY REASON
15:18:46	0000	Operational, Tap
15:12:04	0006	Operational, Slagoff
15:09:46	0002	Operational, Temp
14:57:37	0000	Operational, Sidewall RTD trip
14:28:58	0017	Operational, Swap columns
14:25:05	0003	Operational, Run B
13:57:47	0027	Mechanical, Change Burner Injector Lanc
13:30:47	0027	Mechanical, Change O2 Lance
13:11:01	0002	Operational, Pack scrap
13:08:55	0002	Operational, Charge
12:45:11	0009	Mechanical, Replace Sidewall RTD
11:56:11	0049	Operational, Charge run B

CHARGES	AMOUNT
Charge 1 :	230150
Charge 2 :	136800
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0001800
FeMn	0001400
4oz AL Con	0000450
FeVan	0000225
Carbon	0001210
Dololime	0008140
HiCal Lime	0004580
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120
Tires	0002200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	66500	15600	50900	0	0	0
O2 Burner	SCF	144	26	118	0	0	0
Gas Burner	SCF	57	11	46	0	0	0
O2 Lance	SCF	832	74	758	0	0	0
Carbon Lance	LBS	1792	0	1792	0	0	0
TIMES							
Melting Tm	MIN	205	74	130	0	0	0
Power on Tm	MIN	53	13	39	0	0	0
Burner On Tm	MIN	160	29	130	0	0	0
O2Lance On Tm	MIN	55	9	46	0	0	0
CLance On Tm	MIN	9	0	9	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	398.7	135.6	362.4	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	21122.3	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.0	000.6	004.5	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.3	000.1	000.3	000.0	000.0	000.0
Carbon Ton	LBS/Ton	010.7	000.0	009.8	000.0	000.0	000.0

COMMENTS

at the sand wide esmdarrick

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.17400	1.00000	0.02000	0.01000	0.25000	0.03900	0.00000	0.01500	0.00000	0.40900	0.30000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00400	0.09000	0.01000	0.00000	0.00000	0.00000
MIN	0.15500	0.85000	0.00000	0.00000	0.15000	0.01800	0.01500	0.00000	0.00100	0.37100	0.00000	0.15000	0.15000	0.00000	0.00000	0.00000	0.00000	0.08000	0.00000	0.00000	0.00000	0.00000
AIM	0.16000	0.90000	0.00000	0.00000	0.18000	0.02500	0.00000	0.00000	0.00000	0.38500	0.00000	0.16000	0.16000	0.00000	0.00000	0.00000	0.00000	0.08500	0.00000	0.00000	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: A4G166 MSP: 74177

---------- EVENTS ----------

TIME	KWH	Description
15:21:27	0066500	Ladle Weigth
15:21:23	0066500	End Tapping
15:19:25	0066500	Start Tapping
15:12:09	0066500	Temperature <3047> O2 <509> C <86>
15:11:06	0066500	Temperature <3033> O2 <0> C <0>
15:09:44	0066500	Power Off
15:06:46	0062200	Power On
15:06:30	0062200	Power Off
14:58:22	0051100	Power On
14:57:36	0051100	Power Off
14:45:59	0037900	Power On
14:28:56	0037900	Power Off
14:28:51	0037900	Power On
13:30:45	0037900	Power Off
13:26:10	0032400	Material Addition
13:13:56	0015700	Power On
13:10:17	0015600	Charge
13:08:53	0015600	Power Off
12:57:54	0001400	Burners On
12:55:03	0000000	Melting
12:55:01	0000000	Power On
12:30:46	0000000	Material Addition
12:23:54	0000000	Material Addition
12:13:00	0000000	Burners Off
12:12:27	0000000	Charge
11:55:26	0000000	TurnAround

EAF Heat Sheet 15-Jul-2004 16:48:49

IPSCO STEEL INC.
Montpelier Works

HEAT: B4G661 *MSP: 76195*

Start Time: 15-Jul-2004 14:47:18
End Time : 15-Jul-2004 16:48:26
TapToTap Time : 120 (min)

Heat Order : 1425701
Grade : A572-50
Ladle #: 10 CrewID: 1 OperatorID: 0

START	DUR	DELAY REASON
16:46:04	0000	Operational, Tap
16:42:28	0003	Operational, Slagoff
16:27:16	0015	Operational, Blow Carbon
16:02:29	0020	Operational, Hot Anode#4
15:27:13	0004	Operational, Charge
14:48:05	0025	Operational, Charge Run A

CHARGES	AMOUNT
Charge 1 : 228100	
Charge 2 : 160250	
Charge 3 : 0	
Charge 4 : 0	
Charge 5 : 0	

ADDITIONS	LBS
SiMn	0004500
FeMn	0000500
4oz AL Con	0000450
FeVan	0000350
Carbon	0001220
Dololime	0008140
HiCal Lime	0004580
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120
Tires	0002200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	70500	16700	53800	0	0	0
O2 Burner	SCF	96	21	75	0	0	0
Gas Burner	SCF	51	12	39	0	0	0
O2 Lance	SCF	1233	83	1150	0	0	0
Carbon Lance	LBS	2282	28	2254	0	0	0
TIMES							
Melting Tm	MIN	120	42	78	0	0	0
Power on Tm	MIN	48	13	35	0	0	0
Burner On Tm	MIN	95	16	78	0	0	0
O2Lance On Tm	MIN	61	8	52	0	0	0
CLance On Tm	MIN	23	0	22	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	399.4	146.4	363.1	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
AVerage Power	Kwh/hr	35943.9	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	007.0	000.7	006.3	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.3	000.1	000.3	000.0	000.0	000.0
Carbon Ton	LBS/Ton	012.9	000.2	011.8	000.0	000.0	000.0

COMMENTS

below sand wide esm chad

	ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
	MAX	0.19000	1.30000	0.02000	0.01000	0.32000	0.03900	0.00000	0.01500	0.00000	0.46900	0.30000	0.30000	0.30000	0.05000	0.02000	0.00400	0.00400	0.12500	0.01000	0.00000	0.00000	0.00000
	MIN	0.17000	1.20000	0.00000	0.00000	0.25000	0.01800	0.01500	0.00000	0.00100	0.43100	0.00000	0.20000	0.20000	0.00000	0.00000	0.00000	0.00000	0.11500	0.00000	0.00000	0.00000	0.00000
	AIM	0.18000	1.25000	0.00000	0.00000	0.26000	0.02500	0.00000	0.00000	0.00000	0.45000	0.00000	0.21000	0.21000	0.00000	0.00000	0.00000	0.00000	0.12000	0.00000	0.00000	0.00000	0.00000
16:20:33	E1	0.46500	0.24000	0.01700	0.07400	0.01400	0.23100	0.23000	0.00600	0.00020	0.57800	0.23000	0.10000	0.21000	0.04300	0.01000	0.00200	0.00200	0.00200	0.00100	0.00016	2719.79	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: B4G661 MSP: 76195

EVENTS

TIME	KWH	Description
16:48:31	0070500	Ladle Weigth
16:48:28	0070500	End Tapping
16:46:47	0070500	Start Tapping
16:43:21	0070500	Temperature <2977> O2 <355> C <103>
16:36:47	0070500	Temperature <2993> O2 <127> C <300>
16:27:15	0070500	Power Off
16:22:55	0063600	Power On
16:20:33	0000000	Chemical Analysis Received
16:14:51	0063500	Temperature <2774> O2 <0> C <0>
16:02:27	0063500	Power Off
15:45:13	0035500	Material Addition
15:38:55	0025100	Power On
15:38:45	0025100	Power Off
15:31:33	0016700	Power On
15:29:30	0016700	Charge
15:27:11	0016700	Power Off
15:18:13	0003000	Burners On
15:13:48	0000000	Melting
15:13:47	0000000	Power On
15:03:39	0000000	Material Addition
14:52:58	0000000	Burners Off
14:50:45	0000000	Charge
14:47:20	0000000	TurnAround

JUN 7 '99 AM11:05

GASEOUS POLLUTANT EMISSIONS
~~BILLET~~ REHEAT FURNACE
TEST REPORT

FOR

IPSCO STEEL, INC.
MUSCATINE, IOWA

April 30, 1999

AMBIENT AIR SERVICES, INC.
106 AMBIENT AIR WAY
STARKE, FLORIDA 32091
(904) 964-8440

Ambient Air Services, Inc. of Starke, Florida has completed the testing described in this report for the IPSCO Steel, Inc., Muscatine, Iowa facility. To the best of our knowledge and abilities we certify that all information, facts and test data are true and correct. Information supplied to AASI for use in this report from IPSCO Steel, Inc. is perceived to be accurate and is used as such where necessary.

Prepared by:

David T. Larocca

Reviewed by:

Joseph L. Cooksey

EXECUTIVE SUMMARY

On April 30, 1999 compliance tests were conducted on the Billet Reheat Furnace of IPSCO Steel, Inc. These tests were limited to oxides of nitrogen and carbon monoxide emissions from the reheat furnace.

This facility is regulated by Air Permit ID 94-A-560-S1, issued by Iowa Department of Natural Resources. This test was conducted in order to satisfy specific conditions contained in the permit.

The following table briefly summarizes the NO_x and CO emission discharge rate. NO_x mass emissions are in the form of NO_2.

WALKING BEAM REHEAT FURNACE

IPSCO STEEL
Montpelier, Iowa

April 30, 1999

SUMMARY OF TESTING RESULTS

	TEST AVERAGE	PERMIT LIMITS
Oxygen	8.1%	—
Carbon Dioxide	7.0%	—
Moisture	14.4%	—
Flow	56851 SCFMD	—
Carbon Monoxide	0.04 ppm 0.008 lbs/hour 0 lbs/mmbtu	50 ppm 5.8 lbs/hour —
Oxides of Nitrogen	125.1 ppm 51.16 lbs/hour 0.224 lbs/mmbtu	— 39.36 lbs/hour 0.230 lbs/mmbtu

1.0 INTRODUCTION

On November 17, 1998 through November 19, 1998, Ambient Air Services, Inc. conducted emissions testing as required by IDNR Permit # 94-A-560-S1. Upon review of the November Reheat Furnace test report, Mark Stone of the Iowa Department of Natural Resources found the testing to be unsatisfactory for compliance demonstration. In order to satisfy IDNR, IPSCO and AASI elected to retest the reheat furnace. The retest was conducted on April 30, 1999 to fulfill the testing requirements of IDNR Permit # 94-A-560-S1.

Mr. Mark Stone of IDNR was notified of IPSCO's intent to retest and agreed to the test date. Mr. Stone was present for the full duration of the retest and indicated at the completion of the testing, to IPSCO and AASI personnel, that he was satisfied with the test procedures used.

2.0 WALKING BEAM REHEAT FURNACE

Permit 94-A-560-S1

2.1 General

The permit requires testing of the reheat furnace, Emission Point Number 13, for Oxides of Nitrogen and Carbon Monoxide emissions.

The Oxides of Nitrogen (NO_x) testing was conducted in accordance with EPA Method 7E. The Carbon Monoxide (CO) testing was conducted in accordance with EPA Method 10.

The permitted emission limits for this source are as follows:

	Lbs/Hr.	Tons/year	Concentration
NO_x	39.36	172.38	0.230 lb/MMBTU
CO	5.80	25.4	50 ppm v.v

Permit No. 94-A-560-S1, Item 8 states that the furnace must operate with a preheat temperature of 790°F or lower. The final manufacturer recommendation for this value is 845°F. Therefore, the furnace must operate at a temperature higher than listed to be within the equipment manufacturer specifications.

The instruments were set up on a 0-150 ppm range for NO_x and a 0-50 ppm range for CO. The appropriate calibration gases were utilized as specified in the EPA methods.

It should be noted that the test location did not meet EPA Method 1 criteria. The stack has a continuous taper prior to an air injection system and three, non-equally spaced test ports. To compensate for this, 24 points were measured for flow, eight per port. NO_x, CO, CO_2 and O_2 concentrations were measured across the stack (see Figure 1).

O_2 and CO_2 readings were made in accordance with Method 3. Moisture was determined in accordance with Method 4.

WALKING BEAM REHEAT FURNACE Summary of Testing IPSCO STEEL			
PARAMETER	**METHOD**	**# OF RUNS**	**TYPE OF SAMPLES**
O2/CO2	3	3	Grab
Moisture	4	3	1 hour continuous
Flow	1-2	3	3 traverses (1 traverse per run)
CO	10	3	1 hour continuous per run
NOx	7E	3	1 hour continuous per run

2.3 Test Results

TABLE 2.3.1

WALKING BEAM REHEAT FURNACE IPSCO STEEL Montpelier, Iowa April 30, 1999 SUMMARY OF TESTING RESULTS				
	RUN 1	**RUN 2**	**RUN 3**	**AVERAGE**
Oxygen	7.8%	8.2%	8.3%	8.1%
Carbon Dioxide	7.5%	6.9%	6.7%	7.0%
Moisture	15.0%	14.3%	14.0%	14.4%
Flow	40988 SCFMD	66640 SCFMD	62926 SCFMD	56851 SCFMD
Carbon Monoxide	0.14 ppm 0.025 lbs/hour 0 lbs/mmbtu	0 ppm 0 lbs/hour 0 lbs/mmbtu	0 ppm 0 lbs/hour 0 lbs/mmbtu	0.04 ppm 0.008 lbs/hour 0 lbs/mmbtu
Oxides of Nitrogen	122.3 ppm 35.9 lbs/hour 0.212 lbs/mmbtu	126.6 ppm 60.5 lbs/hour 0.231 lbs/mmbtu	126.5 ppm 57.0 lbs/hour 0.229 lbs/mmbtu	125.1 ppm 51.16 lbs/hour 0.224 lbs/mmbtu
T (°R)	1584.6	1667.3	1672.9	1641.6 °R = 1182.02°F
V ft/m	2797	4743	4477	4005.7 = 66.76 fps

[redacted] 11/30/99

IPSCO

Natural Gas Consumption Calculations

run #	Initial Gas Meter Reading 1000 cuft	Final Gas Meter Reading 1000 cuft	Gas Line Pressure psig	Gas Consumed @line P 1000 cuft	Gas Consumed @atm 1000 cuft	Initial Time	Final Time	Gas Cons. Rate @atm 1000cuft/hr	Gas Cons. Rate @atm mmbtu/hr
1	301988.5	302020.6	79	32.1	204.61	7:20	8:34	166.35	169.68
2	302036.6	302076.8	79	40.2	256.24	9:09	10:09	256.24	261.37
3	302094.4	302132	79	37.6	239.67	10:39	11:38	243.81	248.69
Avg								222.13	226.58

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, Florida 32091

(904) 964 - 8440
(904) 964 - 6675 fax

Volumetric Air-Flow Rates

Plant	IPSCO		
Location	IOWA		
Stack	Reheat		
Run Date	04/30/99		
Run Number	1	**Volume Metered**	44.594
Start Time	0.3125	**Meter Temp (Deg R)**	536.3
Finish Time	0.3541667	**Orsat CO2 %**	7.5
Barometric Pressure	29.62	**Orsat O2 %**	7.8125
Stack Diameter (in.)	98	**Orsat CO %**	0
Stack Area sq. ft.	52.382	**Orsat N %**	84.6875
Number of Points	8	**Condensate Volume**	166.3
Avg of SQRT of V.H.	0.4679	**Delta H (inches H2O)**	1.5
Meter Correction (Y)	1.01	**Stack Pressure**	29.58
Pitot Correction Factor	0.84	**Stack Temp (Deg R)**	1584.6

==========

Moisture in stack gas, volume fraction	**0.1508372**
Dry Stack Gas, volume fraction	**0.8491628**
Molecular Weight of Stack Gas (Dry Basis)	**29.51**
Molecular Weight of Stack Gas (Stack conditions)	**27.78**
Specific gravity of Stack Gas Relative to Air	**0.958**
Excess Air (%)	
Average Stack Velocity, FPM	**2797.3**
Actual Stack Gas Flow Rate, ACFM	**146528**
Actual Stack Gas Flow Rate, (Dry) ACFMD	**124426**
Stack Gas Flow Rate (Standard conditions), SCFMD	**40988**
Stack Gas Flow Rate (Standard conditions), SCFMW	**48268.72**

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, Florida 32091

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Volumetric Air-Flow Rates

Plant	IPSCO		
Location	IOWA		
Stack	Reheat		
Run Date	04/30/99		
Run Number	2	**Volume Metered**	44.722
Start Time	0.3798611	**Meter Temp (Deg R)**	539.1
Finish Time	0.4173611	**Orsat CO2 %**	6.875
Barometric Pressure	29.62	**Orsat O2 %**	8.25
Stack Diameter (in.)	98	**Orsat CO %**	0
Stack Area sq. ft.	52.382	**Orsat N %**	84.875
Number of Points	8	**Condensate Volume**	156.3
Avg of SQRT of V.H.	0.7739	**Delta H (inches H2O)**	1.5
Meter Correction (Y)	1.01	**Stack Pressure**	29.58
Pitot Correction Factor	0.84	**Stack Temp (Deg R)**	1667.3

==========

Moisture in stack gas, volume fraction	**0.143347**
Dry Stack Gas, volume fraction	**0.856653**
Molecular Weight of Stack Gas (Dry Basis)	**29.43**
Molecular Weight of Stack Gas (Stack conditions)	**27.79**
Specific gravity of Stack Gas Relative to Air	**0.959**
Excess Air (%)	
Average Stack Velocity, FPM	**4743.4**
Actual Stack Gas Flow Rate, ACFM	**248469**
Actual Stack Gas Flow Rate, (Dry) ACFMD	**212852**
Stack Gas Flow Rate (Standard conditions), SCFMD	**66640**
Stack Gas Flow Rate (Standard conditions), SCFMW	**77791.128**

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Volumetric Air-Flow Rates

Plant	IPSCO		
Location	IOWA		
Stack	Reheat		
Run Date	04/30/99		
Run Number	3	**Volume Metered**	44.861
Start Time	0.4409722	**Meter Temp (Deg R)**	541.3
Finish Time	0.4826389	**Orsat CO2 %**	6.7
Barometric Pressure	29.62	**Orsat O2 %**	8.3
Stack Diameter (in.)	98	**Orsat CO %**	0
Stack Area sq. ft.	52.382	**Orsat N %**	85
Number of Points	8	**Condensate Volume**	152
Avg of SQRT of V.H.	0.7292	**Delta H (inches H2O)**	1.5
Meter Correction (Y)	1.01	**Stack Pressure**	29.58
Pitot Correction Factor	0.84	**Stack Temp (Deg R)**	1672.9

==========

Moisture in stack gas, volume fraction	**0.1400799**
Dry Stack Gas, volume fraction	**0.8599201**
Molecular Weight of Stack Gas (Dry Basis)	**29.40**
Molecular Weight of Stack Gas (Stack conditions)	**27.81**
Specific gravity of Stack Gas Relative to Air	**0.959**
Excess Air (%)	
Average Stack Velocity, FPM	**4477.0**
Actual Stack Gas Flow Rate, ACFM	**234514**
Actual Stack Gas Flow Rate, (Dry) ACFMD	**201663**
Stack Gas Flow Rate (Standard conditions), SCFMD	**62926**
Stack Gas Flow Rate (Standard conditions), SCFMW	**73176.564**

R. SERIES/ Initials CON 10-1 / AJB
FACILITY ID 70-08-002
WK ACT/ Doc Code ST / TR
Permit # 94-A-560-S2
Date Rec. 12-21-02



AAS Inc.

AMBIENT AIR SERVICES, INC.

106 Ambient Airway ■ Starke, FL 32091 ■ 904-964-8440

R. Initials con 10-1 / MS
FAC. ID 70-08-003
WK ACT / Doc Code 5T / TR

COMPLIANCE TESTING REPORT

REHEAT FURNACE

TEST

IPSCO STEEL
MONTPELIER PLANT

January 9, 2002

Prepared by:

AMBIENT AIR SERVICES, INC.
106 AMBIENT AIR WAY
STARKE, FLORIDA 32091
(904) 964-8440

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Ambient Air Services, Inc. of Starke, Florida, has completed the testing described in this report for IPSCO Steel's Montpelier, Iowa facility. To the best of our knowledge and abilities we certify that all information, facts and test data are true and correct. Information supplied to AASI for use in this report from IPSCO is perceived to be accurate and is used as such where necessary. This report was prepared and certified by:

Reviewed by:

David C. Sholtes

David C. Sholtes

Prepared by:

Joseph L. Cooksey
Project Manager

EXECUTIVE SUMMARY

On January 9, 2002, compliance testing was conducted on the Reheat Furnace owned and operated by IPSCO Steel located in Montpelier, Iowa. The compliance testing was for carbon monoxide, and oxides of nitrogen emissions. The testing was conducted in accordance with the requirements listed in the Iowa Department of Natural Resources issued Permit Number 94-A-560-S2. The results of this testing, which demonstrate compliance with all the permit conditions, are summarized in Table 1.

TABLE 1

IPSCO Steel Montpelier Iowa Facility Reheat Furnace SUMMARY OF EMISSION TEST RESULTS		
PARAMETER	**PERMIT LIMIT**	**AVERAGE TEST RESULTS**
Oxides of Nitrogen (NO_x) (Reported as NO_2)	N/A 73.42 lbs/hr N/A[1]	55.02 ppm 50.48 lbs/hr 0.190 lbs/MMBtu[1]
Carbon Monoxide (CO)	N/A 6.77 lbs/hr N/A	0.0 ppm 0.0 lbs/hr 0.0 lbs/MMBtu

[1] Emission Rate based on 0.230 lbs NO_x/MMBtu

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APPENDIX B - CO and NOx Calibration Data

APPENDIX C - Flow and Moisture Data

APPENDIX D - Plant Operating Data

APPENDIX E - Test Participants

APPENDIX F - Permit / Test Protocol

1.0 INTRODUCTION

On January 9, 2002, Ambient Air Services, Inc. conducted compliance testing on the Reheat Furnace located at IPSCO Steel's Montpelier, Iowa Facility. The results of these tests demonstrate compliance with the IDNR issued Permit Number 94-A-560-S2 issued for this source.

The combustion gases from the reheat furnace are exhausted through an 118 inch diameter stack. Emission measurements were conducted in this stack using EPA Methods 1-4, 7E, and 10 as published in 40CFR Part 60 Appendix A. Prior to the test date Mr. Mark Stone from IDNR, was advised of the testing schedule, provided with a test protocol, and conducted a pre test site visit. Mr. Cory Carr of IDNR was present for the first two compliance test runs.

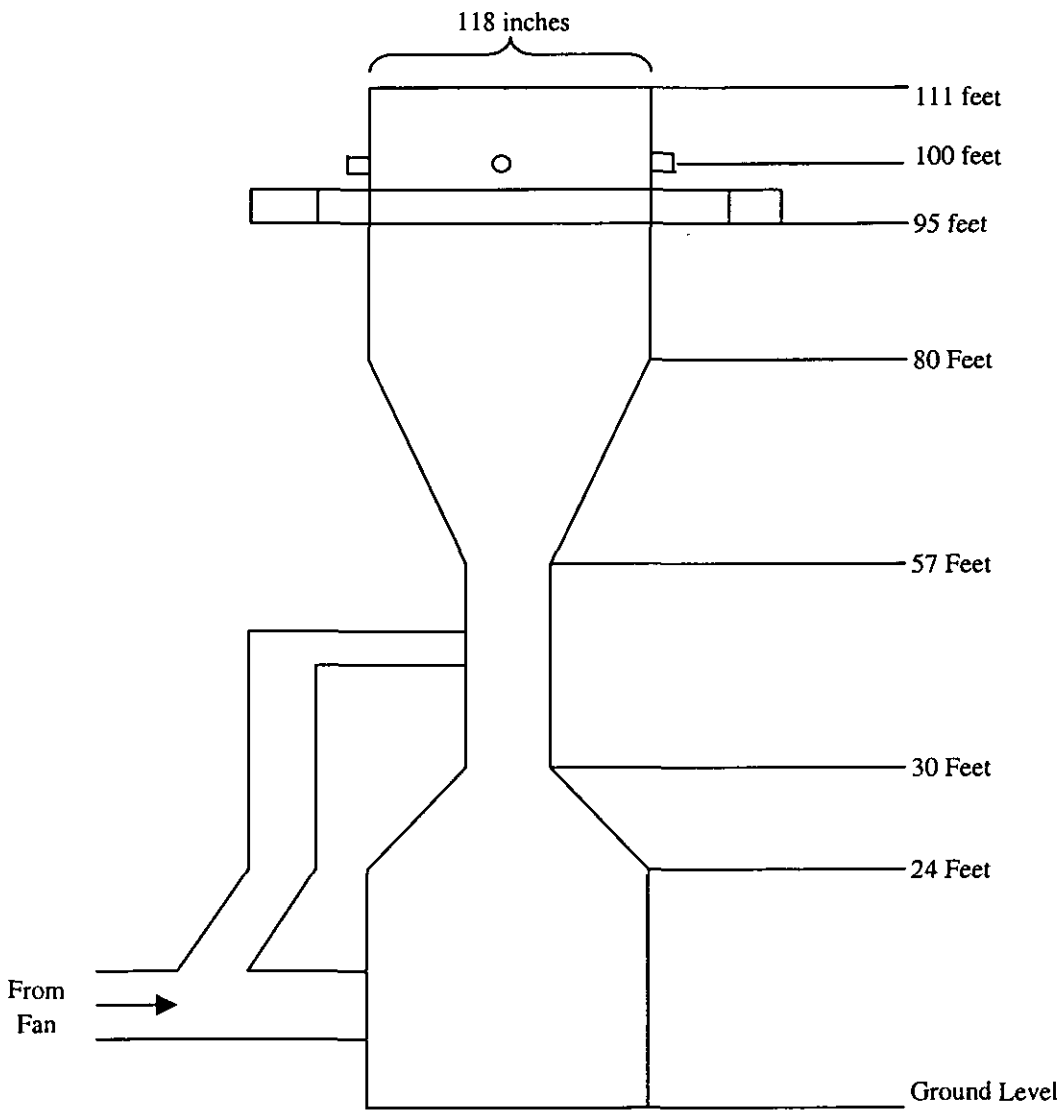
2.0 PROCESS DESCRIPTION

At the Montpelier, Iowa facility of IPSCO Steel, the overall objective is to reclaim scrap steel of various forms, refining this material to create rolled steel coils and plate. This type of mill is commonly referred to as a "mini" mill. The particular aspect of this mill examined by these testing efforts was the Reheat Furnace operations. The Walking Beam Reheat Furnace in the form of gas burners provides the energy necessary to control the temperature. Once the steel is at the proper temperature it can be formed into rolled steel or plate.

2.1 SAMPLING POINT LOCATION

Four sampling ports were located in the 118.0 inch diameter stack, 90° from one another at approximately 100 feet above grade. The sampling ports were 4.0 inches in diameter. The ports were located greater than 2 diameters above and ½ diameter below any flow disturbances. Using criteria established in USEPA Method 1, it was determined that 24 sampling points would be used; six points for each port. A diagram of the stack configuration and a table of the sampling point distances are shown in Figure 2-1.

Ipsco's Walking Beam
Reheat Furnace
(Not To Scale)



Ports 1 thru 4

Point 1	2.5	inches	Point 4	20.9	inches
Point 2	7.9	inches	Point 5	29.5	inches
Point 3	13.9	inches	Point 6	42	inches

Figure 2 - 1

3.0 CARBON MONOXIDE AND OXIDES OF NITROGEN SAMPLING

Oxides of Nitrogen concentrations were determined in accordance with EPA Method 7E. Carbon Monoxide concentrations were determined in accordance with EPA Method 10. Flow rates were determined using EPA Methods 1 through 4. A fully extractive sample system was employed to convey the source gas to the analytical instruments.

The fully extractive sample withdrawal system included a stainless steel probe, teflon sample filter, teflon sample line and moisture condensing system. The system delivered source gas to the instruments on a dry basis. Figure 3-1 illustrates the sample withdrawal system.

Calibrations were conducted in accordance with EPA Method 7E and 10. At the start of the test complete calibrations were performed, two point calibrations were performed after each sample run. All calibration gases were injected at the sampling probe, thus passing through the entire sampling system. Calibration activities carried out during this sampling program and other pertinent information related to the instrumental analysis are summarized in the Appendices of this report.

Due to a fresh air injection system used as an eductor to induce furnace draft, it was expected to find stratification of the NO_x and CO concentrations within the stack. For this reason the gaseous sampling probe was traversed across 24 points along with the flow and moisture probe. A sampling time of 2.5 minutes per point was used.

Data recording was accomplished utilizing a Telog Model 2400 electronic data recorder. This system which is based on a micro-processor technology interrogates the instrument signal on a once-every-one-second basis. For this test it was programed to accumulate 60 of these one-second readings and store the average into recorder memory. The data thus consists of a series of one minute averages. The analysis of NO_x and CO gaseous species was carried out as follows:

Oxides of Nitrogen - Oxides of Nitrogen emissions from this source was determined using EPA Method 7E. Table 3-1 relates the required performance specifications of Method 7E to those presented by the manufacturer of the Model 42H used in these tests. Figure 3-1 demonstrates the sample withdrawal system utilized for this source.

A nominal instrument range of 0 to 200 ppm was selected as appropriate. EPA Protocol calibration gases of oxides of nitrogen at levels 0, 84.98 and 175.7 parts per million were used to calibrate the instrument.

TABLE 3-1

OXIDES OF NITROGEN SYSTEM PERFORMANCE SPECIFICATIONS METHOD 7E VS THERMO ENVIRONMENTAL INSTRUMENTS MODEL 42H		
	METHOD 7E	TECO 42H
Calibration error zero, mid and high gases	Less than ±2% span	±1% of full scale
Sampling system bias for zero, mid and high gases	Less than ±5% span	±1% of full scale
Zero Drift	Less than ±3% of span over the run period	Negligible
Calibration Drift	Less than ±3% of span over the run period	±1% of full scale

Carbon Monoxide - Carbon monoxide was measured using EPA Method 10. Analyses were on a continuous basis using a Thermo Environmental Instruments (TEI) Model 48 gas filter correlation type instrument. The instrument was operated on a nominal 100 parts per million range and obtained its sample from the sample withdrawal system illustrated in Figure 3-1. The required instrumental specifications from Method 10 and the specifications of the TECO model 48 are displayed in Table 3-2 as an indication that this instrument is at least equivalent to the NDIR instrumentation described in EPA Method 10. EPA Protocol calibration gases of carbon monoxide at nominal levels 0, 24.9, 56.9 and 100.2 parts per million were used to calibrate the instrument.

Flow, Oxygen, and Carbon Dioxide

USEPA Methods 1-4 were utilized to determine stack gas velocity and volumetric flow rates under actual as well as standard conditions (68 F, 29.92 inches of mercury). A flow, moisture, and integrated O_2/CO_2 measurement were made for each corresponding gas test run. A Fyrite analyzer was used to determine oxygen and carbon dioxide.

PNEUMATIC SCHEMATIC

(NOT TO SCALE)

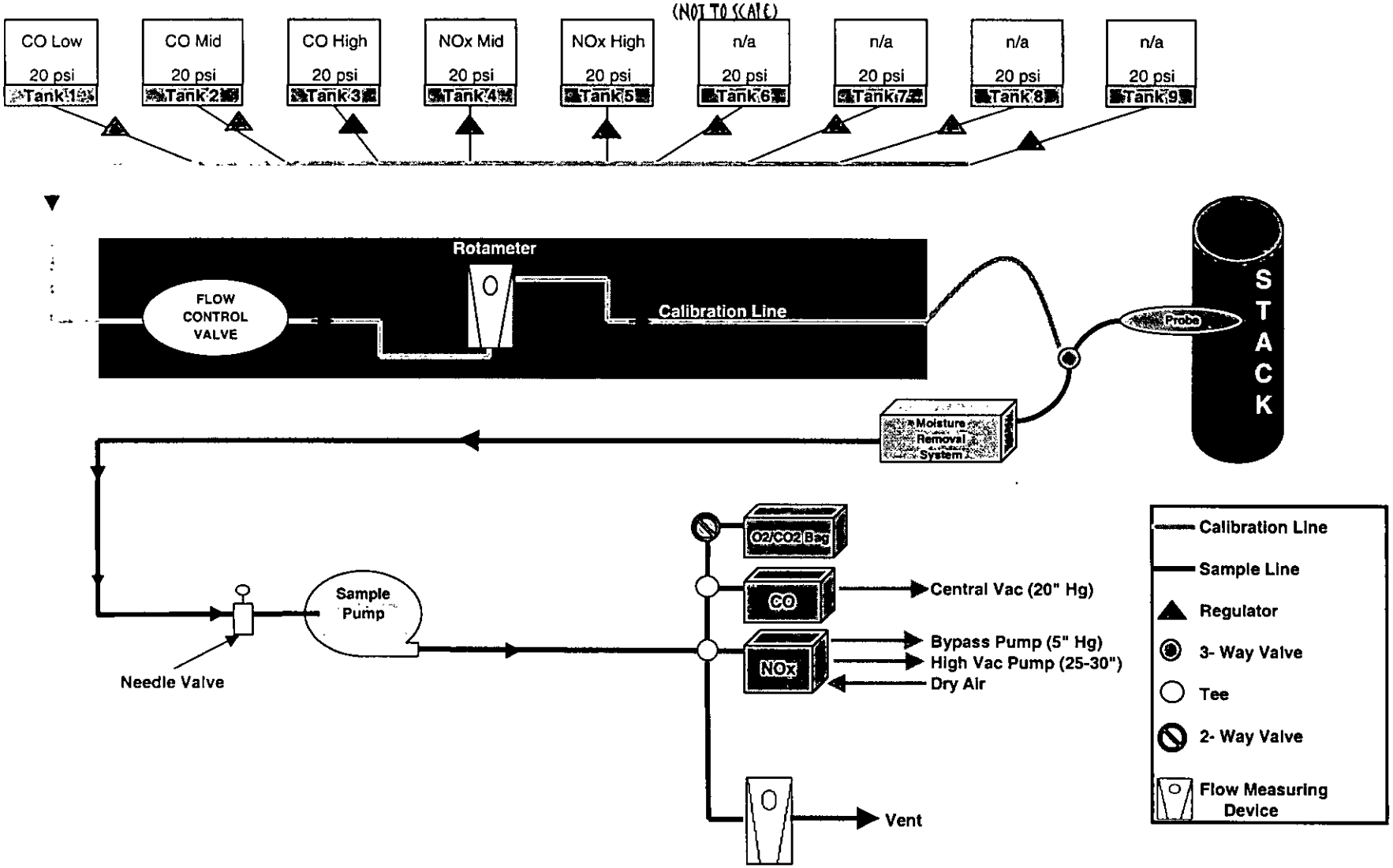


Figure 3 - 1

TABLE 3-2

PERFORMANCE SPECIFICATIONS CARBON MONOXIDE ANALYZERS		
	METHOD 10 SPECIFICATION	TECO 48
Range (minimum)	0 - 1000 ppm	1 - 1000 ppm
Output (minimum)	1 - 10 mv	0 - 1 volt
Minimum Detectable Sensitivity	20 ppm	0.10 ppm
Rise Time (90%)	30 seconds max	(95%) 60 seconds
Fall time (90%)	30 seconds max	(95%) 60 seconds
Zero Drift (maximum)	10% in 8 hours	±0.2 ppm in 24 hours
Span Drift (maximum)	10% in 8 hours	±1% in 24 hours
Precision (minimum)	±2% of full scale	±0.1 ppm
Noise (maximum)	±1% of full scale	0.05 ppm
Linearity (max dev.)	2% of full scale	±1%
Interference Rejection Ratio	CO_2 - 1000 to 1 H_2O - 500 to 1	Negligible for CO_2, H_2O SO_2 and NO_x

4.2 Results

Detail listings of all emission data and calibration checks associated therewith are contained in the Appendices. The test program resulted in 180 minutes of data, 3 test runs of 60 minutes each. The test results demonstrate compliance with the permit limitations for CO and NO_x emissions.

IPSCO STEEL MONTPELIER, IOWA FACILITY REHEAT FURNACE EMISSIONS JANUARY 9, 2002		
PARAMETER	**PERMIT LIMIT**	**TEST RESULTS**
CO Emission Rate	N/A 6.77 lbs/hr N/A	0.00 ppm 0.00 lbs/hr 0.00 lbs/MMBtu
NO_x Emission Rate (as NO_2)	N/A 73.42 lbs/hr N/A	55.02 ppm NO_x 50.48 lbs/hr NO_x 0.190 lbs NO_x/MMBtu[1]
Production Rate		206.3 Tons/hr
Operating Parameters	Stack Height AGL Stack Opening Exhaust Temperature Exhaust Flow Rate	Approximately 111.2 Feet 118.0 inches 708°F (Average) 128054 SCFM-Dry (Average)

[1] Emission factor used to establish emission rate = 0.230 lbs/MMBtu

4.3 Test Compromises

There were no test compromises noted during these test efforts.

APPENDICES

APPENDIX A -	Gaseous Emission Data
APPENDIX B -	CO and NOx Calibration Data
APPENDIX C -	Flow and Moisture Data
APPENDIX D -	Plant Operating Data
APPENDIX E -	Test Participants
APPENDIX F -	Permit / Test Protocol

APPENDIX A

GASEOUS EMISSION DATA

DATA SUMMARY

SAMPLE CALCULATION

Ipsco Steel - Iowa - Reheat Furnace

Time	NOx ppm	CO ppm	COMMENTS	Nox 0 Response	Nox 84.98	CO 0 RESPONSE	CO 24.8	CORRECTED NOX, ppm	CORRECTED CO, ppm	Flow, scfm-dry	NOx lbs/hr	CO lbs/hr	Fuel Consumption MMbtu/hr	NOx lbs/MMBtu
1/9/2002 6:25	--	-0.72												
1/9/2002 6:26	--	-0.50												
1/9/2002 6:27	--	-0.61												
1/9/2002 6:28	--	-0.50												
1/9/2002 6:29	--	-0.72												
1/9/2002 6:30	--	-0.72												
1/9/2002 6:31	--	-1.04												
1/9/2002 6:32	--	-1.04												
1/9/2002 6:33	--	-0.93												
1/9/2002 6:34	--	-1.04												
1/9/2002 6:35	--	-1.25												
1/9/2002 6:36	--	-1.25												
1/9/2002 6:37	--	-1.25												
1/9/2002 6:38	--	-1.36												
1/9/2002 6:39	--	-1.47												
1/9/2002 6:40	--	-1.36												
1/9/2002 6:41	--	-1.36												
1/9/2002 6:42	--	-1.25												
1/9/2002 6:43	--	-1.25												
1/9/2002 6:44	--	-1.47												
1/9/2002 6:45	--	-1.47												
1/9/2002 6:46	--	-1.36												
1/9/2002 6:47	--	-1.36												
1/9/2002 6:48	--	-1.25												
1/9/2002 6:49	--	-1.25												
1/9/2002 6:50	--	-1.15												
1/9/2002 6:51	--	-1.15												
1/9/2002 6:52	--	-0.83												
1/9/2002 6:53	--	-1.15												
1/9/2002 6:54	--	34.80												
1/9/2002 6:55	--	10.23												
1/9/2002 6:56	--	-1.25												
1/9/2002 6:57	--	-1.15												
1/9/2002 6:58	--	-0.39												
1/9/2002 6:59	--	-0.50												
1/9/2002 7:00	--	-1.25												
1/9/2002 7:01	--	-1.25												
1/9/2002 7:02	--	-1.47												
1/9/2002 7:03	--	-1.25												
1/9/2002 7:04	--	-1.47												
1/9/2002 7:05	--	-1.04												
1/9/2002 7:06	--	-1.04												
1/9/2002 7:07	--	-1.36												
1/9/2002 7:08	--	-1.47												
1/9/2002 7:09	--	-1.36												
1/9/2002 7:10	--	-1.15												
1/9/2002 7:11	--	-2.65												
1/9/2002 7:12	--	-3.08												
1/9/2002 7:13	--	-2.97												
1/9/2002 7:14	--	-3.29												
1/9/2002 7:15	--	-2.86												
1/9/2002 7:16	--	-2.43												
1/9/2002 7:17	--	-0.29												
1/9/2002 7:18	--	2.07												
1/9/2002 7:19	--	1.86												
1/9/2002 7:20	--	1.54												
1/9/2002 7:21	--	0.46												
1/9/2002 7:22	--	0.14												
1/9/2002 7:23	--	0.25												
1/9/2002 7:24	--	0.46												
1/9/2002 7:25	--	---												
1/9/2002 7:26	1.01	46.38												
1/9/2002 7:27	0.81	103.46												
1/9/2002 7:28	0.61	100.69	100.2 CO CAL											
1/9/2002 7:29	0.61	100.69	100.2 CO CAL											
	0.61	100.69	**100.2 CO CAL Average**											
1/9/2002 7:30	0.61	72.35												
1/9/2002 7:31	0.61	54.97	56.9 CO CAL											
	0.61	54.97	**56.9 CO CAL Average**											
1/9/2002 7:32	0.61	54.75												
1/9/2002 7:33	0.61	33.83												
1/9/2002 7:34	0.61	26.64												
1/9/2002 7:35	0.61	26.54	24.9 CO CAL											
1/9/2002 7:36	0.61	26.54	24.9 CO CAL											
	0.61	26.54	**24.9 CO CAL Average**											
1/9/2002 7:37	84.76	21.71												
1/9/2002 7:38	177.45	0.25												
1/9/2002 7:39	177.85	-0.39												
1/9/2002 7:40	176.30	-0.39	175.7 NOx CAL											
	176.30	-0.39	**175.7 NOx CAL Average**											
1/9/2002 7:41	155.13	-0.39												

Ipsco Steel - Iowa - Reheat Furnace

Time	NOx ppm	CO ppm	COMMENTS	Nox 0 Response	Nox 84.98	CO 0 RESPONSE	CO 24.8	CORRECTED NOX, ppm	CORRECTED CO, ppm	Flow, scfm-dry	NOx lbs/hr	CO lbs/hr	Fuel Consumption kmbtu/hr	NOx lbs/MMBtu
1/9/2002 7:42	5.35	0.14												
1/9/2002 7:43	78.28	-0.18												
1/9/2002 7:44	83.80	-0.39	84.98 NOx CAL											
	83.80	-0.39	84.98 NOx CAL Average											
1/9/2002 7:45	77.06	-0.39												
1/9/2002 7:46	1.20	-0.07												
1/9/2002 7:47	1.01	0.04												
1/9/2002 7:48	---	---												
1/9/2002 7:49	1.01	-0.07												
1/9/2002 7:50	1.01	-0.29												
1/9/2002 7:51	1.01	-0.39												
1/9/2002 7:52	0.81	-0.39												
1/9/2002 7:53	0.81	-0.29												
1/9/2002 7:54	1.01	-0.16												
1/9/2002 7:55	1.01	-0.16												
1/9/2002 7:56	1.01	0.04												
1/9/2002 7:57	1.01	0.25												
1/9/2002 7:58	1.01	0.14												
1/9/2002 7:59	1.01	0.04												
1/9/2002 8:00	1.01	-0.07												
1/9/2002 8:01	1.01	-0.07												
1/9/2002 8:02	1.01	-0.16												
1/9/2002 8:03	34.40	0.14												
1/9/2002 8:04	47.83	2.72												
1/9/2002 8:05	50.40	1.11												
1/9/2002 8:06	46.06	0.36												
1/9/2002 8:07	45.46	0.04												
1/9/2002 8:08	45.46	-0.16												
1/9/2002 8:09	45.27	-0.16												
1/9/2002 8:10	45.27	-0.16												
1/9/2002 8:11	45.07	-0.07												
1/9/2002 8:12	44.87	-0.16												
1/9/2002 8:13	45.86	-0.16												
1/9/2002 8:14	47.04	-0.29												
1/9/2002 8:15	---	---												
1/9/2002 8:17	50.01	-0.29												
1/9/2002 8:18	50.80	-0.29												
1/9/2002 8:19	51.19	-0.39												
1/9/2002 8:20	51.59	-0.39												
1/9/2002 8:21	51.59	-0.39												
1/9/2002 8:22	51.59	-0.39												
1/9/2002 8:23	52.77	-0.39												
1/9/2002 8:24	53.17	-0.39												
1/9/2002 8:25	53.56	-0.39												
1/9/2002 8:26	53.37	-0.50												
1/9/2002 8:27	54.16	-0.39												
1/9/2002 8:28	54.75	-0.39												
1/9/2002 8:29	55.15	-0.39												
1/9/2002 8:30	55.54	-0.39												
1/9/2002 8:31	57.12	-0.39												
1/9/2002 8:32	58.11	-0.29												
1/9/2002 8:33	58.90	0.14												
1/9/2002 8:34	59.29	-0.39												
1/9/2002 8:35	59.49	-0.39												
1/9/2002 8:36	60.48	-0.50												
1/9/2002 8:37	62.06	-0.39												
1/9/2002 8:38	63.25	-0.50												
1/9/2002 8:39	67.20	-0.50												
1/9/2002 8:40	70.95	-0.50												
1/9/2002 8:41	69.17	-0.39												
1/9/2002 8:42	70.36	-0.50												
1/9/2002 8:43	71.35	-0.50												
1/9/2002 8:44	68.19	-0.50												
1/9/2002 8:45	66.41	-0.50												
1/9/2002 8:46	63.64	-0.50												
1/9/2002 8:47	64.63	-0.50												
1/9/2002 8:48	64.23	-0.50												
1/9/2002 8:49	67.00	-0.50												
1/9/2002 8:50	60.09	-0.50												
1/9/2002 8:51	58.11	-0.50												
1/9/2002 8:52	55.74	-0.50												
1/9/2002 8:53	52.77	-0.50												
1/9/2002 8:54	55.74	-0.50												
1/9/2002 8:55	53.37	-0.50												
1/9/2002 8:56	51.39	-0.61												
1/9/2002 8:57	49.81	-0.39												
1/9/2002 8:58	50.80	-0.50												
1/9/2002 8:59	52.18	-0.50												
1/9/2002 9:00	52.77	-0.50												
1/9/2002 9:01	53.17	-0.50												
1/9/2002 9:02	53.76	-0.50												

Ipsco Steel - Iowa - Reheat Furnace

Time	NOx ppm	CO ppm	COMMENTS	Nox 0 Response	Nox 84.98	CO 0 RESPONSE	CO 24.9	CORRECTED NOX, ppm	CORRECTED CO, ppm	Flow, scfm-dry	NOx lbs/hr	CO lbs/hr	Fuel Consumption Mmbtu/hr	NOx lbs/MMBtu
1/9/2002 9:03	55.34	-0.50												
1/9/2002 9:04	55.15	-0.50												
1/9/2002 9:05	55.34	-0.50												
1/9/2002 9:06	57.91	-0.50												
1/9/2002 9:07	56.13	-0.61												
1/9/2002 9:08	56.53	-0.61												
1/9/2002 9:09	57.52	-0.50												
1/9/2002 9:10	57.52	-0.39												
1/9/2002 9:11	56.90	-0.39												
1/9/2002 9:12	60.86	-0.50												
1/9/2002 9:13	56.53	-0.29												
1/9/2002 9:14	53.76	-0.50												
1/9/2002 9:15	56.53	0.36												
1/9/2002 9:16	1.20	22.57												
1/9/2002 9:17	0.61	26.12	24.9 CO CAL											
1/9/2002 9:18	5.55	26.12	24.9 CO CAL											
	3.18	26.12	**24.9 CO CAL Average**											
1/9/2002 9:19	82.61	6.69												
1/9/2002 9:20	83.40	-0.39	84.98 NOx CAL											
	83.40	-0.39	**84.98 NOx CAL Average**											
1/9/2002 9:21	49.02	-0.29												
1/9/2002 9:22	55.34	-0.50												
1/9/2002 9:23	48.82	-0.50	RUN 1	0.70	83.00	-0.45	26.10	49.69	-0.05	126034.00	44.88	-0.03	251.21	0.18
1/9/2002 9:24	49.02	-0.50	RUN 1	0.70	83.00	-0.45	26.10	49.89	-0.05	126034.00	45.07	-0.03	251.21	0.18
1/9/2002 9:25	50.21	-0.50	RUN 1	0.70	83.00	-0.45	26.10	51.12	-0.05	126034.00	46.17	-0.03	251.21	0.18
1/9/2002 9:26	51.19	-0.50	RUN 1	0.70	83.00	-0.45	26.10	52.14	-0.05	126034.00	47.09	-0.03	251.21	0.19
1/9/2002 9:27	52.18	-0.50	RUN 1	0.70	83.00	-0.45	26.10	53.16	-0.05	126034.00	48.02	-0.03	251.21	0.19
1/9/2002 9:28	53.56	-0.61	RUN 1	0.70	83.00	-0.45	26.10	54.59	-0.15	126034.00	49.31	-0.09	251.21	0.20
1/9/2002 9:29	54.36	-0.61	RUN 1	0.70	83.00	-0.45	26.10	55.40	-0.15	126034.00	50.04	-0.09	251.21	0.20
1/9/2002 9:30	55.34	-0.61	RUN 1	0.70	83.00	-0.45	26.10	56.42	-0.15	126034.00	50.97	-0.09	251.21	0.20
1/9/2002 9:31	56.33	-0.61	RUN 1	0.70	83.00	-0.45	26.10	57.44	-0.15	126034.00	51.89	-0.09	251.21	0.21
1/9/2002 9:32	58.50	-0.61	RUN 1	0.70	83.00	-0.45	26.10	59.69	-0.15	126034.00	53.91	-0.09	251.21	0.21
1/9/2002 9:33	53.96	-0.61	RUN 1	0.70	83.00	-0.45	26.10	54.99	-0.15	126034.00	49.67	-0.09	251.21	0.20
1/9/2002 9:34	50.60	-0.61	RUN 1	0.70	83.00	-0.45	26.10	51.52	-0.15	126034.00	46.54	-0.09	251.21	0.19
1/9/2002 9:35	51.39	-0.50	RUN 1	0.70	83.00	-0.45	26.10	52.34	-0.05	126034.00	47.28	-0.03	251.21	0.19
1/9/2002 9:36	50.80	-0.72	RUN 1	0.70	83.00	-0.45	26.10	51.73	-0.25	126034.00	46.73	-0.15	251.21	0.19
1/9/2002 9:37	50.40	-0.61	RUN 1	0.70	83.00	-0.45	26.10	51.32	-0.15	126034.00	46.36	-0.09	251.21	0.18
	52.44	-0.57	**RUN 1 Average**					53.43	-0.12		48.26	-0.07		0.19
1/9/2002 9:38	36.57	-0.61												
1/9/2002 9:39	1.20	-0.07												
1/9/2002 9:40	1.01	-0.29												
1/9/2002 9:41	1.40	0.14												
1/9/2002 9:42	20.57	0.57												
1/9/2002 9:43	51.79	-0.29												
1/9/2002 9:44	51.98	-0.18	RUN 1	0.70	83.00	-0.45	26.10	52.95	0.25	126034.00	47.83	0.15	251.21	0.19
1/9/2002 9:45	51.98	-0.18	RUN 1	0.70	83.00	-0.45	26.10	52.95	0.25	126034.00	47.83	0.15	251.21	0.19
1/9/2002 9:46	53.56	-0.50	RUN 1	0.70	83.00	-0.45	26.10	54.59	-0.05	126034.00	49.31	-0.03	251.21	0.20
1/9/2002 9:47	52.77	-0.61	RUN 1	0.70	83.00	-0.45	26.10	53.77	-0.15	126034.00	48.57	-0.09	251.21	0.19
1/9/2002 9:48	48.82	-0.61	RUN 1	0.70	83.00	-0.45	26.10	49.69	-0.15	126034.00	44.88	-0.09	251.21	0.18
1/9/2002 9:49	48.82	-0.61	RUN 1	0.70	83.00	-0.45	26.10	49.48	-0.15	126034.00	44.70	-0.09	251.21	0.18
1/9/2002 9:50	48.23	-0.61	RUN 1	0.70	83.00	-0.45	26.10	49.08	-0.15	126034.00	44.33	-0.09	251.21	0.18
1/9/2002 9:51	48.03	-0.61	RUN 1	0.70	83.00	-0.45	26.10	48.87	-0.15	126034.00	44.15	-0.09	251.21	0.18
1/9/2002 9:52	51.39	-0.61	RUN 1	0.70	83.00	-0.45	26.10	52.34	-0.15	126034.00	47.28	-0.09	251.21	0.19
1/9/2002 9:53	47.44	-0.61	RUN 1	0.70	83.00	-0.45	26.10	48.26	-0.15	126034.00	43.59	-0.09	251.21	0.17
1/9/2002 9:54	46.06	-0.72	RUN 1	0.70	83.00	-0.45	26.10	46.83	-0.25	126034.00	42.30	-0.15	251.21	0.17
1/9/2002 9:55	46.06	-0.72	RUN 1	0.70	83.00	-0.45	26.10	46.83	-0.25	126034.00	42.30	-0.15	251.21	0.17
1/9/2002 9:56	49.02	-0.72	RUN 1	0.70	83.00	-0.45	26.10	49.89	-0.25	126034.00	45.07	-0.15	251.21	0.18
1/9/2002 9:57	45.46	-0.72	RUN 1	0.70	83.00	-0.45	26.10	46.22	-0.25	126034.00	41.75	-0.15	251.21	0.17
1/9/2002 9:58	45.27	-0.61	RUN 1	0.70	83.00	-0.45	26.10	46.02	-0.15	126034.00	41.57	-0.09	251.21	0.17
	48.96	-0.57	**RUN 1 Average**					49.85	-0.12		45.03	-0.07		0.18
1/9/2002 9:59	17.01	-0.61												
1/9/2002 10:00	1.01	-0.39												
1/9/2002 10:01	1.01	-0.39												
1/9/2002 10:02	0.81	-0.39												
1/9/2002 10:03	47.64	-0.50												
1/9/2002 10:04	54.55	-0.72	RUN 1	0.70	83.00	-0.45	26.10	55.61	-0.25	126034.00	50.23	-0.15	251.21	0.20
1/9/2002 10:05	56.33	-0.72	RUN 1	0.70	83.00	-0.45	26.10	57.44	-0.25	126034.00	51.89	-0.15	251.21	0.21
1/9/2002 10:06	50.01	-0.72	RUN 1	0.70	83.00	-0.45	26.10	50.91	-0.25	126034.00	45.99	-0.15	251.21	0.18
1/9/2002 10:07	48.82	-0.50	RUN 1	0.70	83.00	-0.45	26.10	49.69	-0.05	126034.00	44.88	-0.03	251.21	0.18
1/9/2002 10:08	46.65	-0.50	RUN 1	0.70	83.00	-0.45	26.10	47.45	-0.05	126034.00	42.86	-0.03	251.21	0.17
1/9/2002 10:09	46.06	-0.61	RUN 1	0.70	83.00	-0.45	26.10	46.83	-0.15	126034.00	42.30	-0.09	251.21	0.17
1/9/2002 10:10	49.42	-0.50	RUN 1	0.70	83.00	-0.45	26.10	50.30	-0.05	126034.00	45.44	-0.03	251.21	0.18
1/9/2002 10:11	47.83	-0.39	RUN 1	0.70	83.00	-0.45	26.10	48.67	0.05	126034.00	43.96	0.03	251.21	0.17
1/9/2002 10:12	47.64	-0.39	RUN 1	0.70	83.00	-0.45	26.10	48.47	0.05	126034.00	43.78	0.03	251.21	0.17
1/9/2002 10:13	48.43	-0.18	RUN 1	0.70	83.00	-0.45	26.10	49.28	0.25	126034.00	44.51	0.15	251.21	0.18
1/9/2002 10:14	50.40	0.04	RUN 1	0.70	83.00	-0.45	26.10	51.32	0.45	126034.00	46.36	0.27	251.21	0.18
1/9/2002 10:15	50.01	-0.18	RUN 1	0.70	83.00	-0.45	26.10	50.91	0.25	126034.00	45.99	0.15	251.21	0.18
1/9/2002 10:16	50.60	-0.29	RUN 1	0.70	83.00	-0.45	26.10	51.52	0.15	126034.00	46.54	0.09	251.21	0.19
1/9/2002 10:17	50.80	-0.39	RUN 1	0.70	83.00	-0.45	26.10	51.73	0.05	126034.00	46.73	0.03	251.21	0.19
1/9/2002 10:18	51.39	-0.29	RUN 1	0.70	83.00	-0.45	26.10	52.34	0.15	126034.00	47.28	0.09	251.21	0.19
	49.93	-0.42	**RUN 1 Average**					50.83	0.03		45.92	0.02		0.18

Ipsco Steel - Iowa - Reheat Furnace

Time	NOx ppm	CO ppm	COMMENTS	Noz 0 Response	Nox 84.98	CO 0 RESPONSE	CO 24.8	CORRECTED NOX, ppm	CORRECTED CO, ppm	Flow, scfm-dry	NOx lbs/hr	CO lbs/hr	Fuel Consumption MmbtuHr	NOx lbs/MMBtu
1/9/2002 10:19	30.05	-0.29												
1/9/2002 10:20	15.63	-0.07												
1/9/2002 10:21	57.91	-0.39												
1/9/2002 10:22	56.92	-0.50	RUN 1	0.70	83.00	-0.45	26.10	58.05	-0.05	126034.00	52.44	-0.03	251.21	0.21
1/9/2002 10:23	57.52	-0.50	RUN 1	0.70	83.00	-0.45	26.10	58.67	-0.05	126034.00	52.99	-0.03	251.21	0.21
1/9/2002 10:24	57.91	-0.50	RUN 1	0.70	83.00	-0.45	26.10	59.07	-0.05	126034.00	53.36	-0.03	251.21	0.21
1/9/2002 10:25	59.10	-0.50	RUN 1	0.70	83.00	-0.45	26.10	60.30	-0.05	126034.00	54.47	-0.03	251.21	0.22
1/9/2002 10:26	59.89	-0.50	RUN 1	0.70	83.00	-0.45	26.10	60.91	-0.05	126034.00	55.02	-0.03	251.21	0.22
1/9/2002 10:27	61.47	-0.39	RUN 1	0.70	83.00	-0.45	26.10	62.75	0.05	126034.00	56.68	0.03	251.21	0.23
1/9/2002 10:28	62.85	-0.39	RUN 1	0.70	83.00	-0.45	26.10	63.97	0.05	126034.00	57.78	0.03	251.21	0.23
1/9/2002 10:29	62.85	-0.50	RUN 1	0.70	83.00	-0.45	26.10	64.17	-0.05	126034.00	57.97	-0.03	251.21	0.23
1/9/2002 10:30	61.66	-0.50	RUN 1	0.70	83.00	-0.45	26.10	63.15	-0.05	126034.00	57.05	-0.03	251.21	0.23
1/9/2002 10:31	61.87	-0.61	RUN 1	0.70	83.00	-0.45	26.10	62.95	-0.15	126034.00	56.86	-0.09	251.21	0.23
1/9/2002 10:32	61.47	-0.72	RUN 1	0.70	83.00	-0.45	26.10	62.75	-0.25	126034.00	56.68	-0.15	251.21	0.23
1/9/2002 10:33	62.06	-0.61	RUN 1	0.70	83.00	-0.45	26.10	63.36	-0.15	126034.00	57.23	-0.09	251.21	0.23
1/9/2002 10:34	61.07	-0.72	RUN 1	0.70	83.00	-0.45	26.10	62.34	-0.25	126034.00	56.31	-0.15	251.21	0.22
1/9/2002 10:35	59.89	-0.72	RUN 1	0.70	83.00	-0.45	26.10	61.11	-0.25	126034.00	55.20	-0.15	251.21	0.22
1/9/2002 10:36	59.89	-0.50	RUN 1	0.70	83.00	-0.45	26.10	61.11	-0.05	126034.00	55.20	-0.03	251.21	0.22
	60.40	-0.54	**RUN 1 Average**					61.64	-0.09		55.68	-0.05		0.22
1/9/2002 10:37	2.78	-0.50												
1/9/2002 10:38	1.01	-0.29												
1/9/2002 10:39	1.20	-0.39												
1/9/2002 10:40	1.20	-0.18												
1/9/2002 10:41	15.63	-0.07												
1/9/2002 10:42	60.83	-0.18												
1/9/2002 10:43	62.62	-0.50	84.98 NOx CAL											
1/9/2002 10:44	62.84	-0.50	84.98 NOx CAL											
	62.63	-0.50	**84.98 NOx CAL Average**											
1/9/2002 10:45	57.12	1.32												
1/9/2002 10:46	0.81	26.10	24.9 CO CAL											
	0.81	26.10	**24.9 CO CAL Average**											
1/9/2002 10:47	0.81	19.99												
1/9/2002 10:48	0.81	0.04												
1/9/2002 10:49	0.81	-0.39												
1/9/2002 10:50	1.01	-0.39												
1/9/2002 10:51	0.81	-0.29												
1/9/2002 10:52	1.01	-0.39												
1/9/2002 10:53	1.01	-0.39												
1/9/2002 10:54	1.01	-0.39												
1/9/2002 10:55	0.81	-0.39												
1/9/2002 10:56	0.81	-0.29												
1/9/2002 10:57	0.81	-0.39												
1/9/2002 10:58	56.53	-0.61												
1/9/2002 10:59	58.31	-0.61												
1/9/2002 11:00	56.73	-0.72	RUN 2	0.60	82.45	-0.50	26.05	58.27	-0.20	124301.00	51.91	-0.12	262.94	0.20
1/9/2002 11:01	57.32	-0.72	RUN 2	0.60	82.45	-0.50	26.05	58.89	-0.20	124301.00	52.46	-0.12	262.94	0.20
1/9/2002 11:02	58.70	-0.72	RUN 2	0.60	82.45	-0.50	26.05	60.32	-0.20	124301.00	53.74	-0.12	262.94	0.20
1/9/2002 11:03	59.49	-0.61	RUN 2	0.60	82.45	-0.50	26.05	61.14	-0.10	124301.00	54.47	-0.06	262.94	0.21
1/9/2002 11:04	62.26	-0.72	RUN 2	0.60	82.45	-0.50	26.05	64.02	-0.20	124301.00	57.03	-0.12	262.94	0.22
1/9/2002 11:05	63.44	-0.82	RUN 2	0.60	82.45	-0.50	26.05	65.25	-0.30	124301.00	58.13	-0.18	262.94	0.22
1/9/2002 11:06	64.04	-0.82	RUN 2	0.60	82.45	-0.50	26.05	65.86	-0.30	124301.00	58.67	-0.18	262.94	0.22
1/9/2002 11:07	65.42	-0.82	RUN 2	0.60	82.45	-0.50	26.05	67.30	-0.30	124301.00	59.95	-0.18	262.94	0.23
1/9/2002 11:08	66.21	-0.72	RUN 2	0.60	82.45	-0.50	26.05	68.12	-0.20	124301.00	60.68	-0.12	262.94	0.23
1/9/2002 11:09	67.79	-0.72	RUN 2	0.60	82.45	-0.50	26.05	69.76	-0.20	124301.00	62.15	-0.12	262.94	0.24
1/9/2002 11:10	62.65	-0.72	RUN 2	0.60	82.45	-0.50	26.05	64.43	-0.20	124301.00	57.39	-0.12	262.94	0.22
1/9/2002 11:11	63.05	-0.72	RUN 2	0.60	82.45	-0.50	26.05	64.84	-0.20	124301.00	57.76	-0.12	262.94	0.22
1/9/2002 11:12	62.85	-0.72	RUN 2	0.60	82.45	-0.50	26.05	64.63	-0.20	124301.00	57.58	-0.12	262.94	0.22
1/9/2002 11:13	60.48	-0.82	RUN 2	0.60	82.45	-0.50	26.05	62.17	-0.30	124301.00	55.38	-0.18	262.94	0.21
1/9/2002 11:14	59.69	-0.72	RUN 2	0.60	82.45	-0.50	26.05	61.35	-0.20	124301.00	54.65	-0.12	262.94	0.21
	62.01	-0.74	**RUN 2 Average**					63.76	-0.22		56.80	-0.13		0.22
1/9/2002 11:15	58.70	-0.72												
1/9/2002 11:16	44.87	-0.61												
1/9/2002 11:17	16.59	0.04												
1/9/2002 11:18	57.91	-0.50	RUN 2	0.60	82.45	-0.50	26.05	59.50	0.00	124301.00	53.01	0.00	262.94	0.20
1/9/2002 11:19	56.92	-0.50	RUN 2	0.60	82.45	-0.50	26.05	58.48	0.00	124301.00	52.09	0.00	262.94	0.20
1/9/2002 11:20	57.91	-0.50	RUN 2	0.60	82.45	-0.50	26.05	59.50	0.00	124301.00	53.01	0.00	262.94	0.20
1/9/2002 11:21	57.71	-0.50	RUN 2	0.60	82.45	-0.50	26.05	59.30	0.00	124301.00	52.83	0.00	262.94	0.20
1/9/2002 11:22	56.92	-0.50	RUN 2	0.60	82.45	-0.50	26.05	58.48	0.00	124301.00	52.09	0.00	262.94	0.20
1/9/2002 11:23	58.31	-0.39	RUN 2	0.60	82.45	-0.50	26.05	59.91	0.10	124301.00	53.37	0.06	262.94	0.20
1/9/2002 11:24	60.28	-0.50	RUN 2	0.60	82.45	-0.50	26.05	61.96	0.00	124301.00	55.20	0.00	262.94	0.21
1/9/2002 11:25	60.28	-0.50	RUN 2	0.60	82.45	-0.50	26.05	61.96	0.00	124301.00	55.20	0.00	262.94	0.21
1/9/2002 11:26	63.05	-0.50	RUN 2	0.60	82.45	-0.50	26.05	64.84	0.00	124301.00	57.76	0.00	262.94	0.22
1/9/2002 11:27	59.69	-0.50	RUN 2	0.60	82.45	-0.50	26.05	61.55	0.00	124301.00	54.84	0.00	262.94	0.21
1/9/2002 11:28	59.29	-0.72	RUN 2	0.60	82.45	-0.50	26.05	60.94	-0.20	124301.00	54.29	-0.12	262.94	0.21
1/9/2002 11:29	57.52	-0.72	RUN 2	0.60	82.45	-0.50	26.05	59.09	-0.20	124301.00	52.64	-0.12	262.94	0.20
1/9/2002 11:30	57.32	-0.72	RUN 2	0.60	82.45	-0.50	26.05	58.89	-0.20	124301.00	52.46	-0.12	262.94	0.20
1/9/2002 11:31	52.97	-0.72	RUN 2	0.60	82.45	-0.50	26.05	54.37	-0.20	124301.00	48.44	-0.12	262.94	0.18
1/9/2002 11:32	50.01	-0.72	RUN 2	0.60	82.45	-0.50	26.05	51.30	-0.20	124301.00	45.70	-0.12	262.94	0.17
	57.75	-0.57	**RUN 2 Average**					59.34	-0.06		52.86	-0.04		0.20
1/9/2002 11:33	52.97	-0.72												
1/9/2002 11:34	22.84	-0.72												

Ipsco Steel - Iowa - Reheat Furnace

Time	NOx ppm	CO ppm	COMMENTS	Nox 0 Response	Nox 84.98	CO 0 RESPONSE	CO 24.9	CORRECTED NOX, ppm	CORRECTED CO, ppm	Flow, scfm-dry	NOx lbs/hr	CO lbs/hr	Fuel Consumption MMbtu/hr	NOx lbs/MMBtu
1/9/2002 11:35	0.81	-0.50												
1/9/2002 11:36	43.69	-0.61												
1/9/2002 11:37	53.56	-0.72	RUN 2	0.60	82.45	-0.50	26.05	54.99	-0.20	124301.00	46.99	-0.12	262.94	0.19
1/9/2002 11:38	54.36	-0.72	RUN 2	0.60	82.45	-0.50	26.05	55.81	-0.20	124301.00	49.72	-0.12	262.94	0.19
1/9/2002 11:39	54.36	-0.72	RUN 2	0.60	82.45	-0.50	26.05	55.81	-0.20	124301.00	49.72	-0.12	262.94	0.19
1/9/2002 11:40	51.79	-0.72	RUN 2	0.60	82.45	-0.50	26.05	53.14	-0.20	124301.00	47.34	-0.12	262.94	0.18
1/9/2002 11:41	50.40	-0.61	RUN 2	0.60	82.45	-0.50	26.05	51.71	-0.10	124301.00	46.06	-0.06	262.94	0.18
1/9/2002 11:42	51.59	-0.72	RUN 2	0.60	82.45	-0.50	26.05	52.94	-0.20	124301.00	47.16	-0.12	262.94	0.18
1/9/2002 11:43	51.00	-0.61	RUN 2	0.60	82.45	-0.50	26.05	52.32	-0.10	124301.00	46.61	-0.06	262.94	0.18
1/9/2002 11:44	49.02	-0.61	RUN 2	0.60	82.45	-0.50	26.05	50.27	-0.10	124301.00	44.79	-0.06	262.94	0.17
1/9/2002 11:45	48.23	-0.50	RUN 2	0.60	82.45	-0.50	26.05	49.45	0.00	124301.00	44.05	0.00	262.94	0.17
1/9/2002 11:46	50.40	-0.61	RUN 2	0.60	82.45	-0.50	26.05	51.71	-0.10	124301.00	46.06	-0.06	262.94	0.18
1/9/2002 11:47	53.17	-0.72	RUN 2	0.60	82.45	-0.50	26.05	54.58	-0.20	124301.00	48.62	-0.12	262.94	0.18
1/9/2002 11:48	50.21	-0.72	RUN 2	0.60	82.45	-0.50	26.05	51.50	-0.20	124301.00	45.88	-0.12	262.94	0.17
1/9/2002 11:49	50.40	-0.82	RUN 2	0.60	82.45	-0.50	26.05	51.71	-0.30	124301.00	46.06	-0.18	262.94	0.18
1/9/2002 11:50	50.40	-0.72	RUN 2	0.60	82.45	-0.50	26.05	51.71	-0.20	124301.00	46.06	-0.12	262.94	0.18
1/9/2002 11:51	50.40	-0.72	RUN 2	0.60	82.45	-0.50	26.05	51.71	-0.20	124301.00	46.06	-0.12	262.94	0.18
	51.29	-0.66	**RUN 2 Average**					52.62	-0.17		46.88	-0.10		0.18
1/9/2002 11:52	43.09	-0.61												
1/9/2002 11:53	1.20	-0.39												
1/9/2002 11:54	1.01	-0.39												
1/9/2002 11:55	21.75	-0.29												
1/9/2002 11:56	51.39	-0.61	RUN 2	0.60	82.45	-0.50	26.05	52.73	-0.10	124301.00	46.98	-0.06	262.94	0.18
1/9/2002 11:57	46.62	-0.61	RUN 2	0.60	82.45	-0.50	26.05	49.86	-0.10	124301.00	44.42	-0.06	262.94	0.17
1/9/2002 11:58	50.01	-0.50	RUN 2	0.60	82.45	-0.50	26.05	51.30	0.00	124301.00	45.70	0.00	262.94	0.17
1/9/2002 11:59	48.03	-0.61	RUN 2	0.60	82.45	-0.50	26.05	49.25	-0.10	124301.00	43.87	-0.06	262.94	0.17
1/9/2002 12:00	47.64	-0.61	RUN 2	0.60	82.45	-0.50	26.05	48.84	-0.10	124301.00	43.51	-0.06	262.94	0.17
1/9/2002 12:01	50.01	-0.61	RUN 2	0.60	82.45	-0.50	26.05	51.30	-0.10	124301.00	45.70	-0.06	262.94	0.17
1/9/2002 12:02	51.39	-0.61	RUN 2	0.60	82.45	-0.50	26.05	52.73	-0.10	124301.00	46.98	-0.06	262.94	0.18
1/9/2002 12:03	52.77	-0.50	RUN 2	0.60	82.45	-0.50	26.05	54.17	0.00	124301.00	48.26	0.00	262.94	0.18
1/9/2002 12:04	50.01	-0.61	RUN 2	0.60	82.45	-0.50	26.05	51.30	-0.10	124301.00	45.70	-0.06	262.94	0.17
1/9/2002 12:05	50.21	-0.50	RUN 2	0.60	82.45	-0.50	26.05	51.50	0.00	124301.00	45.88	0.00	262.94	0.17
1/9/2002 12:06	50.40	-0.50	RUN 2	0.60	82.45	-0.50	26.05	51.71	0.00	124301.00	46.06	0.00	262.94	0.18
1/9/2002 12:07	51.79	-0.61	RUN 2	0.60	82.45	-0.50	26.05	53.14	-0.10	124301.00	47.34	-0.06	262.94	0.18
1/9/2002 12:08	53.37	-0.50	RUN 2	0.60	82.45	-0.50	26.05	54.78	0.00	124301.00	48.81	0.00	262.94	0.19
1/9/2002 12:09	49.81	-0.61	RUN 2	0.60	82.45	-0.50	26.05	51.09	-0.10	124301.00	45.52	-0.06	262.94	0.17
1/9/2002 12:10	48.03	-0.61	RUN 2	0.60	82.45	-0.50	26.05	49.25	-0.10	124301.00	43.87	-0.06	262.94	0.17
	50.23	-0.57	**RUN 2 Average**					51.53	-0.07		45.91	-0.04		0.17
1/9/2002 12:11	42.30	-0.29												
1/9/2002 12:12	1.60	0.36												
1/9/2002 12:13	1.20	18.92												
1/9/2002 12:14	0.61	26.00	**24.9 CO CAL**											
	0.61	26.00	**24.9 CO CAL Average**											
1/9/2002 12:15	50.80	17.85												
1/9/2002 12:16	81.82	-0.29												
1/9/2002 12:17	82.32	-0.50	**84.98 NOx CAL**											
	82.32	-0.50	**84.98 NOx CAL Average**											
1/9/2002 12:18	15.43	-0.07												
1/9/2002 12:19	1.01	0.79												
1/9/2002 12:20	1.01	0.46												
1/9/2002 12:21	1.01	0.46												
1/9/2002 12:22	1.01	0.36												
1/9/2002 12:23	1.01	0.46												
1/9/2002 12:24	1.01	0.14												
1/9/2002 12:25	0.61	0.04												
1/9/2002 12:26	1.01	-0.07												
1/9/2002 12:27	1.01	-0.07												
1/9/2002 12:28	1.01	-0.18												
1/9/2002 12:29	0.81	-0.29												
1/9/2002 12:30	0.81	-0.39												
1/9/2002 12:31	0.81	-0.29												
1/9/2002 12:32	0.81	-0.29												
1/9/2002 12:33	1.01	-0.39												
1/9/2002 12:34	22.15	-0.29												
1/9/2002 12:35	52.38	-0.72	RUN 3	0.60	82.35	-0.50	26.05	53.82	-0.20	133826.00	51.62	-0.13	283.44	0.18
1/9/2002 12:36	51.79	-0.82	RUN 3	0.60	82.35	-0.50	26.05	53.21	-0.30	133826.00	51.03	-0.19	283.44	0.18
1/9/2002 12:37	48.23	-0.72	RUN 3	0.60	82.35	-0.50	26.05	49.51	-0.20	133826.00	47.49	-0.13	283.44	0.17
1/9/2002 12:38	48.62	-0.72	RUN 3	0.60	82.35	-0.50	26.05	49.92	-0.20	133826.00	47.88	-0.13	283.44	0.17
1/9/2002 12:39	49.61	-0.82	RUN 3	0.60	82.35	-0.50	26.05	51.15	-0.30	133826.00	49.06	-0.19	283.44	0.17
1/9/2002 12:40	50.80	-0.72	RUN 3	0.60	82.35	-0.50	26.05	51.98	-0.20	133826.00	49.85	-0.13	283.44	0.18
1/9/2002 12:41	54.55	-0.82	RUN 3	0.60	82.35	-0.50	26.05	56.06	-0.30	133826.00	53.79	-0.19	283.44	0.19
1/9/2002 12:42	50.01	-0.82	RUN 3	0.60	82.35	-0.50	26.05	51.36	-0.30	133826.00	49.26	-0.19	283.44	0.17
1/9/2002 12:43	51.00	-0.82	RUN 3	0.60	82.35	-0.50	26.05	52.39	-0.30	133826.00	50.25	-0.19	283.44	0.18
1/9/2002 12:44	51.00	-0.82	RUN 3	0.60	82.35	-0.50	26.05	52.39	-0.30	133826.00	50.25	-0.19	283.44	0.18
1/9/2002 12:45	49.61	-0.82	RUN 3	0.60	82.35	-0.50	26.05	50.95	-0.30	133826.00	48.87	-0.19	283.44	0.17
1/9/2002 12:46	51.79	-0.82	RUN 3	0.60	82.35	-0.50	26.05	53.21	-0.30	133826.00	51.03	-0.19	283.44	0.18
1/9/2002 12:47	52.77	-0.82	RUN 3	0.60	82.35	-0.50	26.05	54.24	-0.30	133826.00	52.02	-0.19	283.44	0.18
1/9/2002 12:48	50.40	-0.82	RUN 3	0.60	82.35	-0.50	26.05	51.77	-0.30	133826.00	49.65	-0.19	283.44	0.18
1/9/2002 12:49	51.98	-0.72	RUN 3	0.60	82.35	-0.50	26.05	53.41	-0.20	133826.00	51.23	-0.13	283.44	0.18
	50.97	-0.79	**RUN 3 Average**					52.36	-0.27		50.22	-0.17		0.18
1/9/2002 12:50	51.19	-0.82												

Ipsco Steel - Iowa - Reheat Furnace

Time	NOx ppm	CO ppm	COMMENTS	Nox 0 Response	Nox 84.98	CO 0 RESPONSE	CO 24.9	CORRECTED NOX, ppm	CORRECTED CO, ppm	Flow, scfm-dry	NOx lbs/hr	CO lbs/hr	Fuel Consumption MmbtuHr	NOx lbs/MMBtu
1/9/2002 12:51	8.71	-0.72												
1/9/2002 12:52	11.48	-0.50												
1/9/2002 12:53	51.59	-0.72	RUN 3	0.60	82.35	-0.50	26.05	53.00	-0.20	133826.00	50.84	-0.13	283.44	0.18
1/9/2002 12:54	48.03	-0.72	RUN 3	0.60	82.35	-0.50	26.05	49.31	-0.20	133826.00	47.29	-0.13	283.44	0.17
1/9/2002 12:55	53.78	-0.72	RUN 3	0.60	82.35	-0.50	26.05	55.26	-0.20	133826.00	53.00	-0.13	283.44	0.19
1/9/2002 12:56	49.81	-0.72	RUN 3	0.60	82.35	-0.50	26.05	51.15	-0.20	133826.00	49.06	-0.13	283.44	0.17
1/9/2002 12:57	49.22	-0.72	RUN 3	0.60	82.35	-0.50	26.05	50.54	-0.20	133826.00	48.47	-0.13	283.44	0.17
1/9/2002 12:58	50.01	-0.72	RUN 3	0.60	82.35	-0.50	26.05	51.36	-0.20	133826.00	49.26	-0.13	283.44	0.17
1/9/2002 12:59	50.60	-0.72	RUN 3	0.60	82.35	-0.50	26.05	51.98	-0.20	133826.00	49.85	-0.13	283.44	0.18
1/9/2002 13:00	54.55	-0.72	RUN 3	0.60	82.35	-0.50	26.05	56.08	-0.20	133826.00	53.79	-0.13	283.44	0.19
1/9/2002 13:01	49.61	-0.72	RUN 3	0.60	82.35	-0.50	26.05	50.95	-0.20	133826.00	48.87	-0.13	283.44	0.17
1/9/2002 13:02	50.60	-0.72	RUN 3	0.60	82.35	-0.50	26.05	51.98	-0.20	133826.00	49.85	-0.13	283.44	0.18
1/9/2002 13:03	51.39	-0.72	RUN 3	0.60	82.35	-0.50	26.05	52.80	-0.20	133826.00	50.64	-0.13	283.44	0.18
1/9/2002 13:04	49.22	-0.72	RUN 3	0.60	82.35	-0.50	26.05	50.54	-0.20	133826.00	48.47	-0.13	283.44	0.17
1/9/2002 13:05	51.59	-0.72	RUN 3	0.60	82.35	-0.50	26.05	53.00	-0.20	133826.00	50.84	-0.13	283.44	0.18
1/9/2002 13:06	52.77	-0.72	RUN 3	0.60	82.35	-0.50	26.05	54.24	-0.20	133826.00	52.02	-0.13	283.44	0.18
1/9/2002 13:07	49.81	-0.72	RUN 3	0.60	82.35	-0.50	26.05	51.15	-0.20	133826.00	49.06	-0.13	283.44	0.17
	50.84	-0.72	**RUN 3 Average**					52.22	-0.20		50.09	-0.13		0.18
1/9/2002 13:08	51.39	-0.72												
1/9/2002 13:09	51.59	-0.72												
1/9/2002 13:10	48.23	-0.61												
1/9/2002 13:11	11.48	-0.50												
1/9/2002 13:12	18.00	0.14												
1/9/2002 13:13	51.39	-0.50	RUN 3	0.60	82.35	-0.50	26.05	52.80	0.00	133826.00	50.64	0.00	283.44	0.18
1/9/2002 13:14	56.13	-0.39	RUN 3	0.60	82.35	-0.50	26.05	57.73	0.10	133826.00	55.37	0.06	283.44	0.20
1/9/2002 13:15	52.97	-0.61	RUN 3	0.60	82.35	-0.50	26.05	54.44	-0.10	133826.00	52.22	-0.06	283.44	0.18
1/9/2002 13:16	52.18	-0.50	RUN 3	0.60	82.35	-0.50	26.05	53.62	0.00	133826.00	51.43	0.00	283.44	0.18
1/9/2002 13:17	53.17	-0.61	RUN 3	0.60	82.35	-0.50	26.05	54.65	-0.10	133826.00	52.41	-0.06	283.44	0.18
1/9/2002 13:18	54.36	-0.50	RUN 3	0.60	82.35	-0.50	26.05	55.86	0.00	133826.00	53.59	0.00	283.44	0.19
1/9/2002 13:19	56.13	-0.50	RUN 3	0.60	82.35	-0.50	26.05	57.73	0.00	133826.00	55.37	0.00	283.44	0.20
1/9/2002 13:20	55.15	-0.61	RUN 3	0.60	82.35	-0.50	26.05	56.70	-0.10	133826.00	54.38	-0.06	283.44	0.19
1/9/2002 13:21	54.16	-0.61	RUN 3	0.60	82.35	-0.50	26.05	55.67	-0.10	133826.00	53.40	-0.06	283.44	0.19
1/9/2002 13:22	54.95	-0.50	RUN 3	0.60	82.35	-0.50	26.05	56.49	0.00	133826.00	54.19	0.00	283.44	0.19
1/9/2002 13:23	52.38	-0.50	RUN 3	0.60	82.35	-0.50	26.05	53.82	0.00	133826.00	51.62	0.00	283.44	0.18
1/9/2002 13:24	54.95	-0.61	RUN 3	0.60	82.35	-0.50	26.05	56.49	-0.10	133826.00	54.19	-0.06	283.44	0.19
1/9/2002 13:25	53.17	-0.61	RUN 3	0.60	82.35	-0.50	26.05	54.65	-0.10	133826.00	52.41	-0.06	283.44	0.18
1/9/2002 13:26	52.58	-0.61	RUN 3	0.60	82.35	-0.50	26.05	54.03	-0.10	133826.00	51.82	-0.06	283.44	0.18
1/9/2002 13:27	49.42	-0.72	RUN 3	0.60	82.35	-0.50	26.05	50.74	-0.20	133826.00	48.67	-0.13	283.44	0.17
	53.54	-0.56	**RUN 3 Average**					55.03	-0.05		52.78	-0.03		0.19
1/9/2002 13:28	44.87	-0.61												
1/9/2002 13:29	9.70	-0.50												
1/9/2002 13:30	42.89	-0.50												
1/9/2002 13:31	56.73	-0.72	RUN 3	0.60	82.35	-0.50	26.05	58.34	-0.20	133826.00	55.96	-0.13	283.44	0.20
1/9/2002 13:32	56.53	-0.61	RUN 3	0.60	82.35	-0.50	26.05	58.14	-0.10	133826.00	55.76	-0.06	283.44	0.20
1/9/2002 13:33	53.96	-0.61	RUN 3	0.60	82.35	-0.50	26.05	55.47	-0.10	133826.00	53.20	-0.06	283.44	0.19
1/9/2002 13:34	54.55	-0.61	RUN 3	0.60	82.35	-0.50	26.05	56.08	-0.10	133826.00	53.79	-0.06	283.44	0.19
1/9/2002 13:35	55.94	-0.61	RUN 3	0.60	82.35	-0.50	26.05	57.52	-0.10	133826.00	55.17	-0.06	283.44	0.19
1/9/2002 13:36	57.52	-0.61	RUN 3	0.60	82.35	-0.50	26.05	59.16	-0.10	133826.00	56.75	-0.06	283.44	0.20
1/9/2002 13:37	59.89	-0.61	RUN 3	0.60	82.35	-0.50	26.05	61.63	-0.10	133826.00	59.11	-0.06	283.44	0.21
1/9/2002 13:38	56.33	-0.61	RUN 3	0.60	82.35	-0.50	26.05	57.93	-0.10	133826.00	55.56	-0.06	283.44	0.20
1/9/2002 13:39	57.71	-0.72	RUN 3	0.60	82.35	-0.50	26.05	59.37	-0.20	133826.00	56.94	-0.13	283.44	0.20
1/9/2002 13:40	54.95	-0.72	RUN 3	0.60	82.35	-0.50	26.05	56.49	-0.20	133826.00	54.19	-0.13	283.44	0.19
1/9/2002 13:41	57.12	-0.72	RUN 3	0.60	82.35	-0.50	26.05	58.75	-0.20	133826.00	56.35	-0.13	283.44	0.20
1/9/2002 13:42	56.13	-0.72	RUN 3	0.60	82.35	-0.50	26.05	57.73	-0.20	133826.00	55.37	-0.13	283.44	0.20
1/9/2002 13:43	54.36	-0.72	RUN 3	0.60	82.35	-0.50	26.05	55.88	-0.20	133826.00	53.59	-0.13	283.44	0.19
1/9/2002 13:44	55.54	-0.72	RUN 3	0.60	82.35	-0.50	26.05	57.11	-0.20	133826.00	54.78	-0.13	283.44	0.19
1/9/2002 13:45	53.56	-0.29	RUN 3	0.60	82.35	-0.50	26.05	55.06	0.20	133826.00	52.81	0.12	283.44	0.19
	56.05	-0.64	**RUN 3 Average**					57.64	-0.13		55.29	-0.08		0.20
1/9/2002 13:46	15.63	-0.50												
1/9/2002 13:47	1.01	-0.39												
1/9/2002 13:48	1.01	-0.39												
1/9/2002 13:49	70.56	-0.16												
1/9/2002 13:50	82.02	-0.50												
1/9/2002 13:51	82.36	-0.50	**84.98 NOx CAL**											
	82.36	-0.50	**84.98 NOx CAL Average**											
1/9/2002 13:52	82.02	-0.50												
1/9/2002 13:53	22.74	10.34												
1/9/2002 13:54	0.61	26.11	**24.9 CO CAL**											
	0.61	26.11	**24.9 CO CAL Average**											
1/9/2002 13:55	-2.75	-3.40												
			Test Average					55.02	-0.12	128053.67	50.48	-0.07	265.86	0.190

EXAMPLE CALCULATIONS FOR GASEOUS POLLUTANTS

Correction of Measured CO and NO_x Concentrations for Drift

EPA Methods 6C and 7E provide an equation for correcting the measured gaseous emission concentrations over a valid test period for instrument drift during the test period. For this test, each test period is defined as the time between instrument calibrations. The following sample calculations describe how the drift calculation factors were determined.

The EPA equation presented in Section 8 of EPA Method 6C that corrects the raw data for system drift is the following:

$$Cgas = (C - Co) * Cma/(Cm - Co)$$

Where:

Cgas = Effluent gas concentration, dry basis, ppm
C = Average gas concentration indicated by the gas analyzer, ppm
Co = Average of initial and final system calibration bias check responses for the zero gas, ppm
Cm = Average of initial and final system calibration bias check responses for the upscale calibration gas, ppm
Cma = Actual concentration of the upscale calibration gas, ppm

Example Calculation:

<u>NO_x</u>
Using the one-minute period for NO_x ppm on 1/9/02 at 09:44 AM:
C =51.98 ppm

From the calibration sheet for the drift calculation from Pre Run to Post Run:

Co = (0.80 + 0.60)/2 = 0.70 ppm

Cm = (83.4 + 82.6)/2 = 83.00 ppm

Cma = 84.98 ppm

Cgas = (51.98 - 0.70) x 84.98 /(83.00 - 0.70) = 52.95

Calculation of pounds per hour:

$$\text{pounds per hour} = \frac{60 \times \text{Flow SCFMD} \times \text{concentration} \times \text{molecular weight of } NO_2}{385.1E6}$$

For the point 1/9/02 at 09:44 AM:

$$47.83 \text{ lbs/hr } NO_x = \frac{60 \times 126034 \times 52.95 \times 46}{385.1E6}$$

Conversion of lb/hr to lb/MMBtu

Using the same one-minute period on 1/9/02 at 09:44 AM:

M_{NOx} = 47.83 lbs NO_x/hr

Fuel Consumption. = 65* 1000 cu. ft. per hour

Average gas pressure = Pact = 77.7 psi

Correction Factor to STP = (Pact + 14.7)/14.7 = (77.7 + 14.7)/14.7 = 6.286

Gas Consumption @ STP
= Consumption*6.286 = 65*6.286 = 407.31*1000 cu.ft/1 hr 40 min

1020 MMBtu = 1000 cu.ft.

$$408.57 \times \frac{1020}{1000} \times \frac{1}{1.667 \text{ hours}} = 251.21 \text{ MMBtu/hr}$$

lb/MMBTU = M_{NOx} / Fuel Consumption @ STP
= 47.83 lb/hr / 251.21 MMBtu/hr = 0.190 lbs NOx/MMBtu

Carbon Monoxide

Carbon Monoxide was calculated in the same manner. The molecular weight of CO is 30 grams per mole.

APPENDIX B

CO AND NOX CALIBRATION DATA

- Calibration Summary

- Calibration Gas Certificates

- Field Notes

Ipsco Steel Reheat Test

OXIDES OF NITROGEN 0 - 200 ppm

CALIBRATION GAS VALUE	INITIAL CALIBRATION	CALIBRATION ERROR, % SPAN	PRE RUN 1	POST RUN 1	POST RUN 2	POST RUN 3					
0.00	0.60	0.30	0.80	0.60	0.60	0.60					
84.98	83.80	-0.59	83.40	82.60	82.30	82.40					
175.70	176.30	0.30	N/A	N/A	N/A	N/A					

Co	N/A	N/A	0.70	0.70	0.60	0.60
Cm	N/A	N/A	83.60	83.00	82.45	82.35
Cma	N/A	N/A	84.98	84.98	84.98	84.98
Cdo	N/A	N/A	0.10	0.00	0.00	0.00
Cdma	N/A	N/A	-0.20	-0.60	-0.75	-0.70

Carbon Monoxide 0 - 100 ppm

CALIBRATION GAS VALUE	INITIAL CALIBRATION	CALIBRATION ERROR, % SPAN	PRE RUN 1	POST RUN 1	POST RUN 2	POST RUN 3					
0.00	-0.40	-0.40	-0.40	-0.50	-0.50	-0.50					
24.90	26.50	1.60	26.10	26.10	26.00	26.10					
56.90	55.00	-1.90	N/A	N/A	N/A	N/A					
100.20	100.90	0.70	N/A	N/A	N/A	N/A					

Co	N/A	N/A	-0.40	-0.45	-0.50	-0.50
Cm	N/A	N/A	26.30	26.10	26.05	26.05
Cma	N/A	N/A	24.90	24.90	24.90	24.90
Cmao	N/A	N/A	0	0	0	0
Cdo	N/A	N/A	0.00	-0.10	-0.10	-0.10
Cdma	N/A	N/A	-0.40	-0.40	-0.50	-0.40

Airgas
Specialty Gases

[illegible] Hamilton Blvd.
[illegible]eodore, AL 36582
P.O. Box 190969
Mobile, AL 36619
Phone: (334) 653-2500
FAX: (334) 653-2530

Certificate of Analysis: E.P.A. Protocol Gas Mixture

Cylinder No :	CC105089	Order No.	356005
Cylinder Pressure:	2000 PSIG	Expiration Date:	10/12/02
Certification Date	10/13/99	Laboratory:	ASG-MOBILE

Reference Standard Information:

Type	Component	Cyl. Number	Concentration
GMIS	CARBON MONOXIDE	CC99532	101.2 PPM

Instrumentation:

Instrument/Model/Serial No.	Analytical Principle
SIEMENS ULTRAMAT 5E/J9-661	NDIR

Analytical Methodology does not require correction for analytical interferences.

Certified Concentrations:

Component	Concentration	Accuracy	Procedure
CARBON MONOXIDE	24.90 PPM	+/-1%	G1
NITROGEN	Balance		

Analytical Results:

1st Component: CARBON MONOXIDE

1st Analysis Date:		10/5/99					
R	101.2	S	24.80	Z	0.000	Conc	24.80
S	24.80	Z	0.000	R	101.2	Conc	24.80
Z	0.000	R	101.2	S	24.80	Conc	24.80
						AVG:	24.80

2nd Analysis Date:		10/12/99					
R	101.2	S	25.00	Z	0.000	Conc	25.00
S	25.00	Z	0.000	R	101.2	Conc	25.00
Z	0.000	R	101.2	S	25.00	Conc	25.00
						AVG:	25.00

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed.

Do not use cylinder below 150 psig.

Bridget H. Richardson
Approved for Release

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: 854 -17
AMBIENT AIR SERVICES
106 AMBIENT AIR WAY
STARKE FL 32091

Order No: 854054827-01
Batch No: 86145419
PO:
Release:
Shipper No: 147C67720
Ship Date : 04/01/1999

Cylinder No: SG9133369BAL
Bar Code No: BXH248
Cylinder Pressure*: 1650 psig
Certification Date: 04/03/2001
Expiration Date: 04/03/2004

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	56.9±.60 PPM	SG9161497BAL	NTRM 81679	99.90 PPM	Horiba VIA-510	405079	03/10/01	NON DISPERSIVE INFRARED

NITROGEN *Balance Gas*

* **STANDARD SHOULD NOT BE USED BELOW 150 PSIG**

EPA PROTOCOL GAS MIXTURE : CARBON MONOXIDE IN NITROGEN
To reorder this mixture please use Mix ID: 23334

CHRONOLOGICAL DATA:
3/2/98 - 3/20/2000
CO- 55.7ppm

Analyst: Bryan Baker

Approved By: James Laas

(16921)

Pub. No. 320-9702

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Specialty Gases

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...eodore, AL 36582
P.O. Box 190969
Mobile, AL 36619
Phone: (334) 653-2500
FAX: (334) 653-2530

Certificate of Analysis: E.P.A. Protocol Gas Mixture

Cylinder No :	CC56885	Order No.	356005
Cylinder Pressure:	2000 PSIG	Expiration Date:	10/12/02
Certification Date	10/13/99	Laboratory:	ASG-MOBILE

Reference Standard Information:

Type	Component	Cyl. Number	Concentration
GMIS	CARBON MONOXIDE	CC99532	101.2 PPM

Instrumentation:

Instrument/Model/Serial No.	Analytical Principle
SIEMENS ULTRAMAT 5E/J9-661	NDIR

Analytical Methodology does not require correction for analytical interferences.

Certified Concentrations:

Component	Concentration	Accuracy	Procedure
CARBON MONOXIDE	100.2 PPM	+/-1%	G1
NITROGEN	Balance		

Analytical Results:

1st Component: CARBON MONOXIDE

1st Analysis Date:		10/5/99					
R	101.2	S	100.2	Z	0.000	Conc	100.2
S	100.2	Z	0.000	R	101.2	Conc	100.2
Z	0.000	R	101.2	S	100.2	Conc	100.2
						AVG:	100.2

2nd Analysis Date:		10/12/99					
R	101.2	S	100.2	Z	0.000	Conc	100.2
S	100.2	Z	0.000	R	101.2	Conc	100.2
Z	0.000	R	101.2	S	100.2	Conc	100.2
						AVG:	100.2

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed.

Do not use cylinder below 150 psig.

Robert M. Richardson
Approved for Release

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FAX: (334) 653-2530

Certificate of Analysis: E.P.A. Protocol Gas Mixture

Cylinder No :	CC13859	Order No.	383678
Cylinder Pressure:	2000PSIG	Expiration Date:	4/4/02
Certification Date	4/4/00	Laboratory:	ASG-MOBILE

Reference Standard Information:

Type	Component	Cyl. Number	Concentration
NTRM81684	NITRIC OXIDE	CC66785	96.9PPM

Instrumentation:

Instrument/Model/Serial No.	Analytical Principle
ECOPhysics/CLD700EL/72411	Chemiluminescence

Analytical Methodology does not require correction for analytical interferences.

Certified Concentrations:

Component	Concentration		Accuracy	Procedure
NITRIC OXIDE	84.98	PPM	+/-1%	G1
NOX	84.98	PPM		
NITROGEN	Balance			

Analytical Results:

1st Component: NITRIC OXIDE

1st Analysis Date:		3/23/00					
R	96.90	S	85.20	Z	0.000	Conc	85.20
S	85.00	Z	0.000	R	97.00	Conc	84.91
Z	0.000	R	96.90	S	85.00	Conc	85.00
						AVG:	85.04

2nd Analysis Date:		4/4/00					
R	96.80	S	84.80	Z	0.000	Conc	84.89
S	84.90	Z	0.000	R	96.90	Conc	84.90
Z	0.000	R	96.70	S	84.80	Conc	84.98
						AVG:	84.92

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed.

Do not use cylinder below 150 psig.

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Mobile, AL 36619
Phone: (334) 653-2500
FAX: (334) 653-2530

Certificate of Analysis: E.P.A. Protocol Gas Mixture

Cylinder No :	CC118407	Order No.	383678
Cylinder Pressure:	2000PSIG	Expiration Date:	4/3/02
Certification Date	4/3/00	Laboratory:	ASG-MOBILE

Reference Standard Information:

Type	Component	Cyl. Number	Concentration
NTRM81687	NITRIC OXIDE	CC50049	980PPM

Instrumentation:

Instrument/Model/Serial No.	Analytical Principle
ECOPhysics/CLD700EL/72411	Chemiluminescence

Analytical Methodology does not require correction for analytical interferences.

Certified Concentrations:

Component	Concentration		Accuracy	Procedure
NITRIC OXIDE	173.8	PPM	+/-1%	G1
NOX	175.7	PPM		
NITROGEN	Balance			

Analytical Results:

1st Component: NITRIC OXIDE

1st Analysis Date: 3/27/00

R	981.0	S	174.0	Z	0.000	Conc	173.8
S	175.0	Z	0.000	R	981.0	Conc	174.8
Z	0.000	R	978.0	S	173.0	Conc	173.4
						AVG:	174.0

2nd Analysis Date: 4/3/00

R	980.0	S	174.0	Z	0.000	Conc	174.0
S	174.0	Z	0.000	R	981.0	Conc	173.8
Z	0.000	R	980.0	S	173.0	Conc	173.0
						AVG:	173.6

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed.

Do not use cylinder below 150 psig.

Bridget M. Richerson
Approved for Release

1/9/02 START 0725 IPSLD Reheat

(100.9) 100.2 CO = 0.975 0 NO_x = 0.030

(55.0) 56.9 CO = 0.547 0.029

(26.5) 24.9 CO = 0.282 0.029 (0.6)

(-0.4) ~~KD~~ CO = 0.031 175.7 = 0.918 (176.3)

84.98 = 0.45 (838)

~~0 = 0.0347v~~

O_v = -3.72

I_v = 103.57

O_v = -5.12

I_v = 192.97

PRE RUN 1	CO	NO_x
24.9 CO	26.1	0.8
84.98 NO_x	-0.4	83.4

-0.45/26.1 R1 0.7 83.0

RUN 1 O_2 = 17%

CO_2 = 2.5%

PRE RUN 2	CO	NO_x
84.98 NO_x	-0.5	82.6
24.9 CO	26.1	0.6

-0.5/26.6 R2 0.6 82.45

RUN 2 CO_2 2.5%

O_2 18.5%

PRE RUN 3	CO	NO_x
24.9 CO	26.0	0.6
84.98 NO_x	-0.5	~~82.0~~ 82.3

-0.5/26.05 R3 0.6 82.35

RUN 3 CO_2 2.5%

O_2 17.5%

END TEST	CO	NO_x
84.98 NO_x	-0.5	82.4
24.9 CO	26.1	0.6

APPENDIX C

FLOW AND MOISTURE DATA

- Flow Summary

- Data Printouts

- Example Calculations

- Field Data Sheets

- Post Test Calibrations
  - Dry Gas Meter
  - Pitot Tube
  - Thermocouple

STACK GAS FLOW SUMMARY
IPSCO STEEL
MONTPELIER FACILITY

REHEAT FURNACE
JANUARY 9, 2002

RUN NUMBER	TIME	VOLUMETRIC FLOW ACFM[1]	VOLUMETRIC FLOW SCFMD[2]	% H_2O	STACK TEMP °F
1	09:23-10:40	310968	126024	6.8	708.0
2	11:00-12:15	307285	124301	7.1	706.4
3	12:34-13:45	332855	133826	7.3	710.6
	AVERAGE	317036	128050	7.1	708.3

1 ACFM- Actual Cubic Feet per Minute at Stack Conditions

2 SCFMD- Cubic Feet per Minute at Standard Conditions, dry. Standard conditions are 68°F and 29.92 in Hg.

- Ambient Air Services, Inc. -
Environmental Consultants

106 Ambient Air Way
Starke, FL 32091

(904) 964-8440
(904) 964-6675 *fax*

VOLUMETRIC FLOW RATES

Plant	**Ipsco Steel**		
Location	**Iowa**		
Stack	**Reheat Furnace Stack**		
Run Date	**1/9/2002**		
Run Number	**1**	Volume Metered	**45.797**
Start Time	**9:23**	Meter Temp (Deg R)	**538.4**
Finish Time	**10:40**	$\%CO_2$	**2.5**
Barometric Pressure	**28.80**	$\%O_2$	**17.0**
Stack Diameter (in.)	**118.0**	%CO	
Stack Area sq. ft.	**75.94**	$\%N_2$	**80.5**
Number of Points	**24**	Condensate Volume	**67.4**
Avg of SQRT of V.H.	**0.795**	Delta H (inches H_2O)	**1.80**
Meter Correction (Y)	**1.000**	Stack Pressure	**28.78**
Pitot Correction Factor	**0.84**	Stack Temp (Deg R)	**1168**

Moisture in stack gas, volume fraction	**0.068**
Dry Stack Gas, volume fraction	**0.932**
Molecular Weight of Stack Gas (Dry basis)	**29.08**
Molecular Weight of Stack Gas (Stack conditions)	**28.33**
Specific gravity of Stack Gas Relative to Air	**0.977**
Excess Air (%)	
Average Stack Velocity, FPM	**4095**
Actual Stack Gas Flow Rate, ACFM	**310968**
Actual Stack Gas Flow Rate (Dry) ACFMD	**289822**
Stack Gas Flow Rate (Standard conditions, dry) SCFMD	**126024**
Stack Gas Flow Rate (Standard conditions, wet) SCFMW	**135219**

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Volumetric Flow Calculations Worksheet

Flow / Moisture Field Data

Data Request	Data Entry Point
Plant	Ipsco Steel
Location	Iowa
Stack	Reheat Furnace Stack
Date	1/9/2002
Run Number	1
Start Time	9:23
Finish Time	10:40
Number of Points	24
Barometric Pressure	28.80
Static Pressure ("H20)	-0.25
Stack Diameter (inches)	118
Meter Y Factor **	1.000
Pitot Factor	0.84
Final Meter Reading*	90.107
Initial Meter Reading*	44.31
Condensate (ml)*	60
Silica Gel Weight (gm)*	7.4
$\%CO_2$	2.5
$\%O_2$	17.0
%CO	0.0
$\%N_2$	80.5
Moisture Fraction	0.068
Vol Water Vapor, SCF	3.173
Gas Vol Sampled, STPD	43.437
Total Volume, STP	46.61

* Disregard these entry requests if a moisture determination run was not necessary and enter the moisture fraction in cell F30; Also disregard the "Meter Orif." and Meter 'F" below if moisture determination run was not necessary.

** This factor must come from a post test meter cal

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(904) 964-6675 *fax*

Volumetric Flow Field Data Points

Run No 1

Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter ' F
1	1.00	1.8	714	74
2	1.05		714	74
3	0.97		716	74
4	0.54		710	74
5	0.45		702	74
6	0.47		689	74
7	1.20		708	75
8	1.30		697	76
9	1.50		700	77
10	1.00		695	77
11	0.80		687	78
12	0.70		687	78
13	0.81		715	79
14	0.82		717	79
15	0.66		716	80
16	0.45		710	81
17	0.40		700	82
18	0.32		678	82
19	0.46		730	80
20	0.38		723	82
21	0.38		729	82
22	0.26		730	83
23	0.19		713	83
24	0.19		713	83
25				
26				
27				
28				
29				
30				

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VOLUMETRIC FLOW RATES

Plant	**Ipsco Steel**		
Location	**Iowa**		
Stack	**Reheat Furnace Stack**		
Run Date	**1/9/2002**		
Run Number	**2**	Volume Metered	**46.158**
Start Time	**11:00**	Meter Temp (Deg R)	**542.9**
Finish Time	**12:15**	$\%CO_2$	**2.5**
Barometric Pressure	**28.80**	$\%O_2$	**18.5**
Stack Diameter (in.)	**118.0**	%CO	
Stack Area sq. ft.	**75.94**	$\%N_2$	**79.0**
Number of Points	**24**	Condensate Volume	**70.8**
Avg of SQRT of V.H.	**0.786**	Delta H (inches H_2O)	**1.80**
Meter Correction (Y)	**1.000**	Stack Pressure	**28.78**
Pitot Correction Factor	**0.84**	Stack Temp (Deg R)	**1166.4**

Moisture in stack gas, volume fraction	**0.071**
Dry Stack Gas, volume fraction	**0.929**
Molecular Weight of Stack Gas (Dry basis)	**29.14**
Molecular Weight of Stack Gas (Stack conditions)	**28.35**
Specific gravity of Stack Gas Relative to Air	**0.978**
Excess Air (%)	
Average Stack Velocity, FPM	**4046**
Actual Stack Gas Flow Rate, ACFM	**307285**
Actual Stack Gas Flow Rate (Dry) ACFMD	**285468**
Stack Gas Flow Rate (Standard conditions, dry) SCFMD	**124301**
Stack Gas Flow Rate (Standard conditions, wet) SCFMW	**133801**

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Volumetric Flow Calculations Worksheet

Flow / Moisture Field Data

Data Request	Data Entry Point
Plant	Ipsco Steel
Location	Iowa
Stack	Reheat Furnace Stack
Date	1/9/2002
Run Number	2
Start Time	11:00
Finish Time	12:15
Number of Points	24
Barometric Pressure	28.80
Static Pressure ("H20)	-0.25
Stack Diameter (inches)	118
Meter Y Factor **	1.000
Pitot Factor	0.84
Final Meter Reading*	136.503
Initial Meter Reading*	90.345
Condensate (ml)*	64
Silica Gel Weight (gm)*	6.8
$\%CO_2$	2.5
$\%O_2$	18.5
%CO	0.0
$\%N_2$	79.0
Moisture Fraction	0.071
Vol Water Vapor, SCF	3.333
Gas Vol Sampled, STPD	43.417
Total Volume, STP	46.75

* Disregard these entry requests if a moisture determination run was not necessary and enter the moisture fraction in cell F30; Also disregard the "Meter Orif." and Meter 'F" below if moisture determination run was not necessary.

** This factor must come from a post test meter cal

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Volumetric Flow Field Data Points

Run No. 2

Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter ' F
1	0.80	1.8	723	80
2	0.33		725	81
3	0.24		730	81
4	0.25		717	81
5	0.17		718	81
6	0.14		690	82
7	1.00		718	82
8	0.84		706	82
9	0.40		708	83
10	0.31		712	83
11	0.27		696	84
12	0.25		679	84
13	1.20		703	83
14	1.40		700	83
15	1.30		698	84
16	1.00		688	84
17	0.73		689	84
18	0.58		679	84
19	1.15		720	84
20	1.00		719	84
21	0.98		712	84
22	0.82		709	84
23	0.61		706	84
24	0.51		708	83
25				
26				
27				
28				
29				
30				

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Starke, FL 32091

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(904) 964-6675 *fax*

VOLUMETRIC FLOW RATES

Plant	**Ipsco Steel**		
Location	**Iowa**		
Stack	**Reheat Furnace Stack**		
Run Date	**1/9/2002**		
Run Number	**3**	Volume Metered	**46.398**
Start Time	**12:35**	Meter Temp (Deg R)	**543.2**
Finish Time	**13:45**	$\%CO_2$	**2.5**
Barometric Pressure	**28.80**	$\%O_2$	**17.5**
Stack Diameter (in.)	**118.0**	%CO	
Stack Area sq. ft.	**75.94**	$\%N_2$	**80.0**
Number of Points	**24**	Condensate Volume	**73.1**
Avg of SQRT of V.H.	**0.849**	Delta H (inches H_2O)	**1.80**
Meter Correction (Y)	**1.000**	Stack Pressure	**28.77**
Pitot Correction Factor	**0.84**	Stack Temp (Deg R)	**1170.6**

Moisture in stack gas, volume fraction	**0.073**
Dry Stack Gas, volume fraction	**0.927**
Molecular Weight of Stack Gas (Dry basis)	**29.1**
Molecular Weight of Stack Gas (Stack conditions)	**28.29**
Specific gravity of Stack Gas Relative to Air	**0.976**
Excess Air (%)	
Average Stack Velocity, FPM	**4383**
Actual Stack Gas Flow Rate, ACFM	**332855**
Actual Stack Gas Flow Rate (Dry) ACFMD	**308557**
Stack Gas Flow Rate (Standard conditions, dry) SCFMD	**133826**
Stack Gas Flow Rate (Standard conditions, wet) SCFMW	**144365**

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Volumetric Flow Calculations Worksheet

Flow / Moisture Field Data

Data Request	Data Entry Point
Plant	Ipsco Steel
Location	Iowa
Stack	Reheat Furnace Stack
Date	1/9/2002
Run Number	3
Start Time	12:35
Finish Time	13:45
Number of Points	24
Barometric Pressure	28.80
Static Pressure ("H20)	-0.40
Stack Diameter (inches)	118
Meter Y Factor **	1.000
Pitot Factor	0.84
Final Meter Reading*	182.988
Initial Meter Reading*	136.59
Condensate (ml)*	66
Silica Gel Weight (gm)*	7.1
$\%CO_2$	2.5
$\%O_2$	17.5
%CO	0.0
$\%N_2$	80.0
Moisture Fraction	0.073
Vol Water Vapor, SCF	3.441
Gas Vol Sampled, STPD	43.618
Total Volume, STP	47.059

* Disregard these entry requests if a moisture determination run was not necessary and enter the moisture fraction in cell F30; Also disregard the "Meter Orif." and Meter 'F" below if moisture determination run was not necessary.

** This factor must come from a post test meter cal

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Volumetric Flow Field Data Points

Run No. 3

Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter ' F
1	1.10	1.8	710	83
2	1.00		718	83
3	0.84		714	83
4	0.78		717	83
5	0.52		713	84
6	0.48		710	83
7	1.50		708	83
8	1.50		705	83
9	1.80		701	83
10	1.00		700	83
11	0.95		696	83
12	0.74		689	83
13	0.92		719	83
14	1.10		719	83
15	0.59		720	83
16	0.47		712	83
17	0.20		709	83
18	0.18		667	83
19	0.83		724	83
20	0.77		727	83
21	0.53		726	83
22	0.35		728	84
23	0.30		717	84
24	0.25		705	84
25				
26				
27				
28				
29				
30				

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EXAMPLE CALCULATIONS

Plant	Ipsco Steel
Location	Iowa
Stack	Reheat Furnace Stack
Run Date	1/9/2002
Run Number	1

1. Stack Pressure, PS

Where:
PB = Barometric Pressure, inches Hg
PG = Static Pressure, stack, inches H2O

PS= PB + (PG / 13.6)

PB= 28.8
PG= -0.3

PS= 28.78

2. Meter Pressure, PM

Where:
DH = Average meter orifice pressure differential, inches H2O

PM= PB + (DH » 13.6)

DH= 1.8

PM= 28.93

3. Volume Water Vapor, VWV

Where:
VC = Volume condensate, liquid volume plus gain in silica gel weight, grams

VWV= 0.04707 * VC

VWV= 3.17

4. Metered Volume corrected to standard condition, Vstpd

Where:
VM = Metered volume, meter conditions
PM = See equation 2
TM = Temperature of meter, degrees Rankin
Y = Meter correction factor

$$Vstpd = \frac{17.65 * VM * PM * Y}{TM}$$

Vstpd = 43.44

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EXAMPLE CALCULATIONS - CONTINUED

Plant	Ipsco Steel
Location	Iowa
Stack	Reheat Furnace Stack
Run Date	1/9/2002
Run Number	1

5. Total Volume of sample, VT — Where: VWV = See equation 3; Vstpd = See equation 4

VT = VWV + Vstpd

VT = 46.61

6. Fraction water vapor in gas stream, W — Where: VWV = See equation 3; VT = See equation 5

W= VWV / VT

W= 0.068

7. Fraction Dry Air, FDA — Where: W = See equation 6

FDA= 1.0 - W

FDA= 0.932

8. Molecular Weight of stack gas, dry, MD

MD= (0.44 * %CO2) + (0.32 * %O2) + (0.28 * %N2) + (0.28 * %CO)

CO2= 2.5
O2= 17
N2= 0
CO= 80.5

MD= 29.08

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EXAMPLE CALCULATIONS - CONTINUED

Plant	Ipsco Steel
Location	Iowa
Stack	Reheat Furnace Stack
Run Date	1/9/2002
Run Number	1

9. Molecular weight of stack gas, stack conditions, MS

Where: MD = See equation 8; W = See equation 6; FDA = See equation 7

MS= (MD * FDA) + (18 * W)

FDA= 0.932

W= 0.068

MS= 28.327

10. Specific Gravity of Gas, relative to air, GS

Where: MS = See equation 9

GS= MS / 28.99

GS= 0.977

11. Velocity of stack gas, feet per minute, U

Where: CP = Pitot Coefficient; H = Average of the square roots of the velocity heads, in. H2O; TS = Temperature of the stack, degrees Rankin; PS = See equation 1; GS = See equation 10

U= 174* CP *(H)^.5 * ((TS*29.92)/(GS*PS))^.5

U= 4094.5 FPM

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EPA METHOD 4
MOISTURE RUN DATA SHEET

TEST ID IPSCO R1 Reheat PAGE 1 OF 2

Plant IPSCO Source Reheat
Plant Location IOWA
Type of Sampling Train Moisture / Flow
Type of Samples
Date 1/9/02 Run No. 1
Time Start 923 Time End
Sample Time 2.5 min/pf 60 Total Min
Bar. Pressure 28.80 "Hg Stack Pressure "Hg
Assumed Moisture % FDA
Weather Clear / Cool Temperature 40 °F
Meter Box No. 4 ΔH 1.8 Y 1.001
Stack Dimensions
Stack Area (Effective ft²)
Stack Height ft
Stack Diameter: Upstream Downstream
Port Size in Nipple Length
U Cord Length 200'

Mat'l Processing Rate
Gas Meter Readings: Final 090.107 ft³
Initial 044.310 ft³
Net ft³
Impingers Vol. Gain 60 ml
Silica Gel No. R1 Wt. Gain 7.4 g
Total Condensate ml

Leak Checks: Meter Box/Pump
Pre-Test 0.01 CFM 10 "Hg Post-Test 0.01 CFM 8 "Hg
Box Operator COOKSEY Probe Holder WARREN
Pyrometer No. Thermocouple No.
Comments:

pitot Leak check 0 @ 4.5 +
0 @ 4 −

PORT AND TRAVERSE POINT NUMBER	DISTANCE FROM INSIDE STACK WALL (IN) pitot / Nozzle	CLOCK TIME	GAS METER READING (FT³)	METER ORIFICE PRESS. DIFF CALC.	METER ORIFICE PRESS. DIFF ACTUAL	LAST IMPINGER TEMP. (°F)	DRY GAS METER TEMP. (°F)	VACUUM ON SAMPLE TRAIN ("Hg)
1-1	1.0 / 7.14	0.0	044.310	1.8	1.8	58	74	5
2	1.05 / 7.14	2.5	46.4		1.8	53	74	5
3	0.97 / 7.16	5.0	48.3		1.8	51	74	5
4	0.54 / 7.10	7.5	49.9		1.8	52	74	5
5	0.45 / 7.02	10.0	51.9		1.8	53	74	5
6	0.47 / 6.89	12.5	53.7		1.8	53	74	5
2-1	1.2 / 7.08	15.0	55.8		1.8	55	75	5
2	1.3 / 6.97	17.5	57.5		1.8	53	76	5
3	1.5 / 7.00	20.0	59.5		1.8	53	77	5
4	1.0 / 6.95	22.5	61.3		1.8	53	77	5
5	0.8 / 6.87	25.0	63.2		1.8	53	78	5
6	0.7 / 6.87	27.5	65.2		1.8	53	78	5

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EPA METHOD 4
MOISTURE RUN DATA SHEET

TEST ID IBS6 R1 (Retest) PAGE 2 OF 2

Plant _____ Source _____
Plant Location _____
Type of Sampling Train _____
Type of Samples _____
Date _____ Run No. _____
Time Start _____ Time End _____
Sample Time _____ min/pf _____ Total Min
Bar. Pressure _____ "Hg Stack Pressure _____ "Hg
Assumed Moisture _____ % FDA _____
Weather _____ Temperature _____ °F
Meter Box No. _____ ΔH _____ Y _____
Stack Dimensions _____
Stack Area _____ (Effective _____ ft²)
Stack Height _____ ft
Stack Diameter: Upstream _____ Downstream _____
Port Size _____ in Nipple Length _____
U Cord Length _____

Mat'l Processing Rate _____
Gas Meter Readings: Final _____ ft³
Initial _____ ft³
Net _____ ft³
Impingers Vol. Gain _____ ml
Silica Gel No. _____ Wt. Gain _____ g
Total Condensate _____ ml

Leak Checks: Meter Box/Pump _____
Pre-Test _____ CFM _____ "Hg Post-Test _____ CFM _____ "Hg
Box Operator _____ Probe Holder _____
Pyrometer No. _____ Thermocouple No. _____
Comments: _____

PORT AND TRAVERSE POINT NUMBER	DISTANCE FROM INSIDE STACK WALL (IN) point/temp	CLOCK TIME	GAS METER READING (FT³)	METER ORIFICE PRESS. DIFF		LAST IMPINGER TEMP. (°F)	DRY GAS METER TEMP. (°F)	VACUUM ON SAMPLE TRAIN ("Hg)
				CALC.	ACTUAL			
3-1	0.81 / 715	30.0	67.114	1.8	1.8	56	79	5
2	0.82 / 717	32.5	69.0		1.8	52	79	5
3	0.66 / 716	35.0	71		1.8	52	80	5
4	0.45 / 710	37.5	72.9		1.8	51	81	5
5	0.40 / 700	40.0	75.0		1.8	51	82	5
6	0.32 / 678	42.5	77.1		1.8	51	82	5
4-1	0.46 / 730	45.0	78.556		1.8	54	80	5
2	0.38 / 723	47.5	80.5		1.8	52	82	5
3	0.38 / 729	50.0	82.5		1.8	52	82	5
4	0.26 / 730	52.5	84.4		1.8	53	83	5
5	0.19 / 713	55.0	86.2		1.8	53	83	5
6	0.19 / 713	57.5	88.1		1.8	53	83	5
		60.0	90.107					

approx Flow
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EPA METHOD 4
MOISTURE RUN DATA SHEET

TEST ID IPSCO R2 REHEAT PAGE 1 OF 2

Plant IPSCO Source REHEAT
Plant Location IOWA
Type of Sampling Train Moisture / Flow
Type of Samples
Date 1/9/02 Run No. 2
Time Start 11:00 Time End 12:15
Sample Time 2.5 min/pf 60 Total Min
Bar. Pressure 28.80 "Hg Stack Pressure ____ "Hg
Assumed Moisture ____ % FDA ____
Weather Excellent (warm clear) Temperature 40+ °F
Meter Box No. 4 ΔH 1.001 Y 1.8
Stack Dimensions ____
Stack Area ____ (Effective ____ ft²)
Stack Height ____ ft
Stack Diameter: Upstream 2 Downstream 0.5
Port Size ____ in Nipple Length ____
U Cord Length 200

Mat'l Processing Rate ____
Gas Meter Readings: Final 136.503 ft³
Initial 90.345 ft³
Net ____ ft³
Impingers Vol. Gain 64 ml
Silica Gel No. R2 Wt. Gain 6.8 g
Total Condensate ____ ml

Leak Checks: Meter Box/Pump ____
Pre-Test 0.00 CFM 8 "Hg Post-Test 0.015 CFM 8 "Hg
Box Operator COOKSEY Probe Holder WARREN
Pyrometer No. ____ Thermocouple No. ____
Comments: ____

PORT AND TRAVERSE POINT NUMBER	DISTANCE FROM INSIDE STACK WALL (IN)	CLOCK TIME	GAS METER READING (FT³)	METER ORIFICE PRESS. DIFF		LAST IMPINGER TEMP. (°F)	DRY GAS METER TEMP. (°F)	VACUUM ON SAMPLE TRAIN ("Hg)
				CALC.	ACTUAL			
4-1	0.80/723	0.0	90.345	1.8	1.8	67	80	5
2	0.33/725	2.5	92.2		1.8	63	81	5
3	0.28/730	5.0	94.2		1.8	63	81	5
4	0.25/717	7.5	96.1		1.8	61	81	5
5	0.17/718	10.0	98.1		1.8	58	81	5
6	0.14/690	12.5	100.0		1.8	56	82	5
3-1	1.0/718	15.0	102.0		1.8	57	82	5
2	0.84/706	17.5	103.9		1.8	53	82	5
3	0.40/708	20.0	105.7		1.8	51	83	5
4	0.31/712	22.5	107.7		1.8	50	83	5
5	0.27/696	25.0	109.7		1.8	50	84	5
6	0.25/679	27.5	111.6		1.8	50	84	5

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EPA METHOD 4
MOISTURE RUN DATA SHEET

TEST ID IPSCO R2 PAGE 2 OF 2
RE HEAT 1/9/02

Plant IPSCO Source _____
Plant Location _____
Type of Sampling Train _____
Type of Samples _____
Date _____ Run No. _____
Time Start _____ Time End _____
Sample Time _____ min/pf _____ Total Min
Bar. Pressure _____ "Hg Stack Pressure _____ "Hg
Assumed Moisture _____ % FDA _____
Weather _____ Temperature _____ °F
Meter Box No. _____ ΔH _____ Y _____
Stack Dimensions _____
Stack Area _____ (Effective _____ ft²)
Stack Height _____ ft
Stack Diameter: Upstream _____ Downstream _____
Port Size _____ in Nipple Length _____
U Cord Length _____

Mat'l Processing Rate _____
Gas Meter Readings: Final _____ ft³
Initial _____ ft³
Net _____ ft³
Impingers Vol. Gain _____ ml
Silica Gel No. _____ Wt. Gain _____ g
Total Condensate _____ ml

Leak Checks: Meter Box/Pump _____
Pre-Test _____ CFM _____ "Hg Post-Test _____ CFM _____ "Hg
Box Operator _____ Probe Holder _____
Pyrometer No. _____ Thermocouple No. _____
Comments: _____

PORT AND TRAVERSE POINT NUMBER	DISTANCE FROM INSIDE STACK WALL (IN)	CLOCK TIME	GAS METER READING (FT^3)	METER ORIFICE PRESS. DIFF		LAST IMPINGER TEMP. (°F)	DRY GAS METER TEMP. (°F)	VACUUM ON SAMPLE TRAIN ("Hg)
				CALC.	ACTUAL			
2-1	1.2 / 703	30	113.255	1.8	1.8	55	83	5
2	1.4 / 700	32.5	115.1		1.8	48	83	5
3	1.3 / 698	35	117.1		1.8	49	84	5
4	1.0 / 688	37.5	119.0		1.8	49	84	5
5	0.73 / 689	40	121.1		1.8	49	84	5
6	0.58 / 679	42.5	123.0		1.8	49	84	5
1-1	1.15 / 720	45	125.0		1.8	50	84	5
2	1.0 / 719	47.5	126.9		1.8	49	84	5
3	0.98 / 712	50	128.7		1.8	48	84	5
4	0.82 / 709	52.5	130.6		1.8	48	84	5
5	0.61 / 706	55	132.6		1.8	47	85	5
6	0.51 / 708	57.5	134.6		1.8	48	84	5
		60	136.503					

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EPA METHOD 4
MOISTURE RUN DATA SHEET

TEST ID IPSCO REHEAT R3 PAGE 1 OF 2

Plant IPSCO Source REHEAT
Plant Location IOWA
Type of Sampling Train Moisture / Flow
Type of Samples
Date 1/9/02 Run No. 3
Time Start 12:35 CST Time End
Sample Time 2.5 min/pf 60 Total Min
Bar. Pressure 28.80 "Hg Stack Pressure "Hg
Assumed Moisture % FDA
Weather OVC, WARM Temperature 50 °F
Meter Box No. 4 ΔH 1.001 Y 1.8
Stack Dimensions
Stack Area (Effective ft²)
Stack Height ft
Stack Diameter: Upstream Downstream
Port Size in Nipple Length
U Cord Length 7.00'

1/9/02
Mat'l Processing Rate
Gas Meter Readings: Final 182.988 ft³
Initial 136.590 ft³
Net ft³
Impingers Vol. Gain 66 ml
Silica Gel No. R3 Wt. Gain 7.1 g
Total Condensate ml

Leak Checks: Meter Box/Pump
Pre-Test 0.005 CFM 7 "Hg Post-Test 0.01 CFM 8 "Hg
Box Operator Cooksey Probe Holder Worrell
Pyrometer No. Thermocouple No.
Comments:

PITOT

PORT AND TRAVERSE POINT NUMBER	DISTANCE FROM INSIDE STACK WALL (IN)	CLOCK TIME	GAS METER READING (FT³)	METER ORIFICE PRESS. DIFF		LAST IMPINGER TEMP. (°F)	DRY GAS METER TEMP. (°F)	VACUUM ON SAMPLE TRAIN ("Hg)
				CALC.	ACTUAL			
1-1	1.1 / 710	0.0	136.590	1.8	1.8	64	83	5
2	1.0 / 718	2.5	138.5		1.8	64	83	5
3	0.84 / 714	5.0	140.5		1.8	61	84	5
4	0.78 / 717	7.5	142.4		1.8	60	83	5
5	0.52 / 713	10.0	144.2		1.8	60	83	5
6	0.48 / 710	12.5	146.2		1.8	58	83	5
2-1	1.5 / 708	15.0	148.2		1.8	57	83	5
2	1.5 / 705	17.5	150.1		1.8	55	83	5
3	1.8 / 701	20.0	152.1		1.8	55	83	5
4	1.0 / 700	22.5	154.0		1.8	53	83	5
5	0.95 / 696	25.0	156.0		1.8	53	83	5
6	0.74 / 689	27.5	157.9		1.8	53	83	5

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EPA METHOD 4
MOISTURE RUN DATA SHEET

TEST ID IBLO R3 Reheat 1/9/02 PAGE 2 OF 2

Plant _____ Source _____
Plant Location _____
Type of Sampling Train _____
Type of Samples _____
Date _____ Run No. _____
Time Start _____ Time End _____
Sample Time _____ min/pf _____ Total Min
Bar. Pressure _____ "Hg Stack Pressure _____ "Hg
Assumed Moisture _____ % FDA _____
Weather _____ Temperature _____ °F
Meter Box No. _____ ΔH _____ Y _____
Stack Dimensions _____
Stack Area _____ (Effective _____ ft²)
Stack Height _____ ft
Stack Diameter: Upstream _____ Downstream _____
Port Size _____ in Nipple Length _____
U Cord Length _____

Mat'l Processing Rate _____
Gas Meter Readings: Final _____ ft³
Initial _____ ft³
Net _____ ft³
Impingers Vol. Gain 66 ml
Silica Gel No. _____ Wt. Gain _____ g
Total Condensate _____ ml

Leak Checks: Meter Box/Pump _____
Pre-Test _____ CFM _____ "Hg Post-Test _____ CFM _____ "Hg
Box Operator _____ Probe Holder _____
Pyrometer No. _____ Thermocouple No. _____
Comments: _____

PORT AND TRAVERSE POINT NUMBER	DISTANCE FROM INSIDE STACK WALL (IN)	CLOCK TIME	GAS METER READING (FT^3)	METER ORIFICE PRESS. DIFF		LAST IMPINGER TEMP. (°F)	DRY GAS METER TEMP. (°F)	VACUUM ON SAMPLE TRAIN ("Hg)
				CALC.	ACTUAL			
3-1	0.92 / 719	30.0	159.672	1.8	1.8	59	83	5
2	1.1 / 719	32.5	161.6		1.8	53	83	5
3	0.59 / 720	35.0	163.5		1.8	52	83	5
4	0.47 / 712	37.5	165.3		1.8	52	83	5
5	0.20 / 709	40.0	167.1		1.8	52	83	5
6	0.18 / 667	42.5	169.0		1.8	52	83	5
4-1	0.83 / 724	45.0	171.303		1.8	62	83	5
2	0.77 / 727	47.5	173.2		1.8	51	83	5
3	0.53 / 726	50.0	175.2		1.8	51	83	5
4	0.35 / 728	52.5	177.1		1.8	52	84	5
5	0.30 / 717	55.0	179.1		1.8	51	84	5
6	0.25 / 705	57.5	181.0		1.80	52	84	5
		60.0	182.988					

POSTTEST DRY GAS METER CALIBRATION DATA (ENGLISH UNITS)

Test numbers: 1-3 Date: 1-14-02 Meter Box number: 4

Barometric Pressure: 29.95 inches Hg. Dry Gas Meter Number: 2 Pretest Y: 1.00

Plant: IPSCO Location: Reheat

Orifice manomtr setting (DH), inches H20	Gas volume		Temperature				Time in minutes	Vacuum setting inches Hg	Yi
	Wet test meter (Vw), cu.ft.	Dry gas meter (Vd), cu.ft.	Wet test meter (Tw), deg F	Dry gas meter					
				Inlet (Tdi), deg F	Outlet (Tdo), deg F	Average (Td), deg F			
1.80	10.567	10.277	65.00	94.0	77.0	85.50	13.10	1.8	1.0637
1.80	10.662	11.918	64.75	96.0	77.0	86.50	15.10	1.8	0.9276
1.80	11.340	11.831	64.50	96.5	76.5	86.50	15.10	1.8	0.9943
									1.00

If there is only one thermometer on the dry gas meter, record the temperature under Td

Vw= Gas volume passing through the wet test meter, in cubic feet
Vd= Gas volume passing through the dry gas meter, in cubic feet
Tw= Temperature of the gas in the wet test meter, degrees farenheit
Tdi= Temperature of the inlet gas of the dry gas meter, degrees farenheit
Tdo= Temperature of the outlet gas of the dry gas meter, degrees farenheit
Td= Average temperature of the gas in the dry gs meter, obtained by the average of Tdi and Tdo, degrees farenheit
DH= Pressure differential across orifice, inches H2O
Yi= Ratio of accuracy of wet test meter to dry gas meter for each run.
Y= Average ratio of accuracy of wet test meter to dry gas meter for all three runs; tolerance = pretest Y plus/minus 0.05Y
Pb= Barometric pressure, inches Mercury
Time= Time of calibration run, in minutes.

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PITOT TUBE CALIBRATION MEASUREMENTS

DATE CALIBRATED 1-14-02 PITOT TUBE PTO-1

Pitot tube assembly level? V Yes _____ No

Pitot tube openings damaged? _____ Yes (explain below) V No

α_1 = 0.0 ° (<10°), α_2 = 1.0 ° (<10°), β_1 = 0.0 ° (<5°),

β_2 = 1.0 ° (<5°)

γ = ~~0.0~~ 1.0 °, θ = 3.0 °, A = 1.083 in. = (Pa + Pb)

z = A sin γ = 0.018 in.; <0.32 / <1/8 in.

w = A sin θ = 0.056 in.; <0.08 / <1/32 in.

P_a 0.541 in. P_b 0.542 in. D_t = 0.375

Calibration required? _____ Yes √ No

By: [signature]

AMBIENT AIR SERVICES, INC.
106 Ambient Air Way
Starke, Florida

THERMOCOUPLE CALIBRATION FORM

Date 1-15-02 Time 9:AEST
Ambient Temperature 58°F Source Lab
Barometric Pressure 29.95 Source Lab
Technician's Signature William R. Warren

Standard Thermometer Type ~~ASTM~~ Mercury in Glass
Manufacturer ASTM
Serial Number 09302
Pyrometer Manufacturer Atkins Model 3E
Serial Number 386-2 Meter Box 4

TEMPERATURE SOURCE (A)		Ice			Ambient Air			Boiling Water					
REFERENCE THERMOMETER	Actual Reading	32			58			212					
	Corrected Temperature												
CALIBRATED THERMOCOUPLE		Indicated Temp.	Difference (B)	Percent Diff. (C)	Indicated Temp.	Difference	Percent Diff.	Indicated Temp.	Difference	Percent Diff.	Indicated Temp.	Difference	Percent Diff.
Serial Number	Location												
PT 0-1	Stack	32	0		57	1		212	0				
	Filter												
TT-2	Impinger	32	0		57	1		212	0				
4-in	Meter In	33	1		57	1		213	1				
4-out	Meter Out	33	1		57	1		214	2				

Comments:

Calibration Tolerances Stack = 1.5% of value, Filter Box = ±5.4°F, Impinger = ±2°F, Meter = ±5.4°F (40CFR Pt 60, App. A Method 5, and QA Handbook Section 3.4, Method 5, page 13, Rev. 0)

(A) Type of calibration system used (B) Reference - Indicated = Difference

(C) $\left[\frac{\text{(ref. temp. °F + 460) - (indicated temp. °F + 460)}}{\text{(reference temp. °F + 460)}}\right] \times 100$

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APPENDIX D

PLANT OPERATING DATA

- Plant Data
- Natural Gas Consumption Calculations
- IDNR Required Forms

Compliance Emission Test
Operating Data

Owner: IPSCO STEEL **Date:** January 9, 2002

Source: Reheat Furnace **Permit #:** _____

Maximum Continuous Process Rate: (Manufacturer's Rating) 400 TPH Burst, 275 TPH Average

Historical Average Process Rate: Average since October 14, 2001 – 121.27

Historical Maximum Process Rate: Maximum TPH based on 24 hour time period – 178.64

Types and Sources (if any) of Fuels Normally Burned: Natural Gas

Type of Fuel Burned During Test: Natural Gas

Approximate Quantities of Fuels used Annually: 2866611.5 MCF

Recycling Capability: ☐ YES X☐ NO
Recycling in Progress ☐ YES X☐ NO

Process Data During Runs

	Run 1	Run 2	Run 3
Process Rate wet** (gal/hr, lb/hr, tons/hr, ect.)			
% Moisture			
Process Rate dry** (gal/hr, lb/hr, tons/hr, ect.)	SEE NEXT TWO PAGES		
How Process Rate was Determined			

Person Responsible for Data _____

Signature: _____

Title/Position: _____

** Please indicate in the same units as the historical information

2001 Reheat Emission Test Operating Data – Run 1				
Date	**Time**	**Gas Meter Reading**	**Gas Pressure Reading**	**Tons of Steel Through Furnace**
1/9/02	9:20 A	643749 Acf	77 Psig	
1/9/02	9:35 A	643758 Acf	25 Psig	11 7585 LB -58.79 Tons
1/9/02	9:50 A	643768 Acf	25 Psig	95495 LB -47.74 Tons
1/9/02	10:05 A	643781 Acf	77 Psig	95495 LB -47.74 Tons
1/9/02	10:20 A	643792 Acf	79 Psig	47414 LB -23.70 Tons
1/9/02	10:35 A	643801 Acf	80 Psig	0 LB -0 Tons
1/9/02	10:50 A	643807 Acf	80 Psig	49159 LB -24.57 Tons
1/9/02	11:00 A	643814 Acf	79 Psig	69772 LB 34.886 Tons
				237.426 Tons
				= 142.5 TPH

READINGS MUST BE TAKEN EVERY 15 MINUTES

Person Responsible for Data: Bill Tallman

Signature: Bill Tallman

Title/Position: Admin Asst

2001 Reheat Emission Test Operating Data – Run 2					
Date	**Time**	**Gas Meter Reading**	**Gas Pressure Reading**	**Tons of Steel Through Furnace**	
1/9/02	11:00A	643814	74 Psig	~~[illegible]~~	~~[illegible] Tons~~
1/9/02	11:15A	643802	76 Psig	56713 lb	28.35 Tons
1/9/02	11:30A	643830	75 Psig	143476 lb	71.73 Tons
1/9/02	11:45A	643840	77 Psig	116059 lb	58.02 Tons
1/9/02	12:00 P	643852	77 Psig	137300 lb	68.65 Tons
1/9/02	12:15 P	643864	77 Psig	137300 lb	68.65 Tons
1/9/02	12:30	643876	77 Psig	138772 lb	69.35 Tons
					364.75 Tons
					243.2 TPH

READINGS MUST BE TAKEN EVERY 15 MINUTES

Person Responsible for Data: Bill Tallman

Signature: Bill Tallman

Title/Position: Admin Asst

2001 Reheat Emission Test Operating Data – Run 3					
Date	**Time**	**Gas Meter Reading**	**Gas Pressure Reading**	**Tons of Steel Through Furnace**	
~~1/9/02~~	~~12:00 P~~	~~643804~~	~~Psig~~		
1/9/02	12:30 P	643876	77 Psig		
1/9/02	12:45 P	643888	77 Psig	137970 lb	68.98 Tons
1/9/02	1:00 P	643899	77 Psig	71999 lb.	35.99 Tons
1/9/02	1:15 P	643909	77 Psig	137300 lb	68.65 Tons
1/9/02	1:30 P	643920	77 Psig	68650 lb	34.32 Tons
1/9/02	1:45 P	643931	74 Psig	137300 lb	68.65 Tons
1/9/02	1:50 P	643935	77 Psig.	68450 lb	34.32 Tons
					233.2 TPH

READINGS MUST BE TAKEN EVERY 15 MINUTES

Person Responsible for Data: Bill Tallman

Signature: Bill Tallman

Title/Position: Adm. Asst

IPSCO STEEL

Natural Gas Consumption Analysis

Run #	Initial Gas Meter Reading 1000 cu ft	Final Gas Meter Reading 1000 cu ft	Gas Consumed @ Line P 1000 cu ft	Gas Line Pressure psig	Gas Consumed @ atm P 1000 cu ft	Initial Time	Final Time	Gas Cons. Rate @ atm P 1000 cuft / hr	Gas Cons. Rate @ atm P MMBtu / hr
1	643749	643758	9	76	55.53	9:20	9:35	222.12	227.23
1	643758	643768	10	75	61.02	9:35	9:50	244.08	249.70
1	643768	643781	13	76	80.21	9:50	10:05	320.84	328.22
1	643781	643792	11	78	69.37	10:05	10:20	277.47	283.85
1	643792	643801	9	79.5	57.67	10:20	10:35	230.69	236.00
1	643801	643807	6	80	38.65	10:35	10:50	154.61	158.17
1	643807	643814	7	79.5	44.86	10:50	11:00	269.14	275.33
Average			65	77.7	407.31	9:20	11:00	245.57	251.21

IPSCO STEEL

Natural Gas Consumption Analysis

Run #	Initial Gas Meter Reading 1000 cu ft	Final Gas Meter Reading 1000 cu ft	Gas Consumed @ Line P 1000 cu ft	Gas Line Pressure psig	Gas Consumed @ atm P 1000 cu ft	Initial Time	Final Time	Gas Cons. Rate @ atm P 1000 cuft / hr	Gas Cons. Rate @ atm P MMBtu / hr
2	643814	643822	8	77.5	50.18	11:00	11:15	200.71	205.32
2	643822	643830	8	75.5	49.09	11:15	11:30	196.35	200.87
2	643830	643840	10	76	61.70	11:30	11:45	246.80	252.48
2	643840	643852	12	77	74.86	11:45	12:00	299.43	306.32
2	643852	643864	12	77	74.86	12:00	12:15	299.43	306.32
2	643864	643876	12	77	74.86	12:15	12:30	299.43	306.32
Average			62	76.7	385.54	9:20	11:00	257.02	262.94

IPSCO STEEL

Natural Gas Consumption Analysis

Run #	Initial Gas Meter Reading 1000 cu ft	Final Gas Meter Reading 1000 cu ft	Gas Consumed @ Line P 1000 cu ft	Gas Line Pressure psig	Gas Consumed @ atm P 1000 cu ft	Initial Time	Final Time	Gas Cons. Rate @ atm P 1000 cuft / hr	Gas Cons. Rate @ atm P MMBtu / hr
3	643876	643888	12	77	74.86	12:30	12:45	299.43	306.32
3	643888	643899	11	77	68.62	12:45	13:00	274.48	280.79
3	643899	643909	10	77	62.38	13:00	13:15	249.52	255.26
3	643909	643920	11	77	68.62	13:15	13:30	274.48	280.79
3	643920	643931	11	75.5	67.50	13:30	13:45	269.99	276.20
3	643931	643935	4	75.5	24.54	13:45	13:50	294.53	301.30
Average			59	76.5	366.52	9:20	11:00	277.07	283.44

APPENDIX E

TEST PARTICIPANTS

Ambient Air Services, Inc.

Joseph L. Cooksey	Project Manager
William Warren	Technician

IPSCO Steel

Stephanie Kreiter	Environmental Coordinator

IDNR

Mark Stone	
Cory Carr	Field Inspector

APPENDIX F

- Permit

- Test Protocol

STATE OF IOWA

DEPARTMENT OF NATURAL RESOURCES

THOMAS J. VILSACK, GOVERNOR
SALLY J. PEDERSON, LT. GOVERNOR

LYLE W. ASELL, INTERIM DIRECTOR

June 26, 2000

CERTIFIED

Ms. Stephanie Vaughan
Environmental Engineer
IPSCO Steel Inc.
1770 Bill Sharp Boulevard
Muscatine, Iowa 52761-9492

Subject: Reheat Furnace PSD Air Quality Construction Permit; Project Number 00-047; Montpelier Plant, Plant Number 70-08-002.

Dear Ms. Vaughan:

This letter transmits the following modified PSD air quality construction permit for the air contaminant unit and related control equipment described in your permit application of January 21, 2000.

Unit	Description	Project #	Permit #	Permit Type
#13	Reheat Furnace	00-047	94-A-560-S2	Major Modification

The department has determined from information supplied by you that for Prevention of Significant Deterioration (PSD) purposes the IPSCO Steel Inc., Montpelier Plant (Plant Number 70-08-002) is classified as a "major stationary source" and is therefore subject to the requirements of PSD. The plant is also subject to the New Source Performance Standards (NSPS), Subpart AAa found in 40 CFR 60.270a; *Subpart AAa-Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed after August 7, 1983.* The plant is also subject to the Iowa Administrative Code (IAC), 567 IAC 23.3(2). However, the plant is **not** subject to the National Emission Standards for Hazardous Air Pollutants (NESHAPS).

Issuance of the attached permit for the reheat furnace does not imply that all emission units in your facility are in compliance nor does it affect the status of any outstanding Notice of Violation.

If you have any questions please contact me at 515-281-8189; dave.phelps@dnr.state.ia.us.

Sincerely,

David A. Phelps, Supervisor
Construction Permits Section
Air Quality Bureau
Environmental Protection Division

WSW
Copies:
1. IDNR FO #6
2. Doug Campbell, Title V
3. Don Toensing, Chief
Air Permits Section
USEPA, Region VII
901 North 5th Street
Kansas City, Kansas 66101

Mark Stone
Just Fill out forms

Plant Number 70-08-002

Test date 1/9/02

Iowa Department of Natural Resources
PSD Air Quality Construction Permit

Permit Holder

Firm: IPSCO Steel Inc.

Contact:

Ms. Stephanie Vaughn
Environmental Engineer
319-381-5300
1770 Bill Sharp Boulevard
Muscatine, Iowa 52761-9492

Responsible Party:

Mr. Richard Acquaviva
Vice-President, Operations
319-381-5338
1770 Bill Sharp Boulevard
Muscatine, Iowa 52761-9492

Permitted Equipment

Emission Unit(s): Walking Beam Reheat Furnace; 400 tph burst capacity; 275 tph average capacity

Control Equipment: Low-NOx/CO Burners; Burner Internal Flue Gas Recirculation

Emission Point: EP #13

Equipment Location: 1770 Bill Sharp Boulevard
Muscatine, Iowa 52761-9492

Plant Number: 70-08-002

Permit No.	Proj. No.	Description	Date	Testing
94-A-560	94-244	PSD Major Stationary Source, Initial Permit	1/03/95	Yes
94-A-560-S1	95-314	Administrative corrections	3/13/96	Yes
94-A-560-S2	00-047	PSD "Major Modification" for NOx	6/26/00	Yes

Under the Direction of the Director of
the Department of Natural Resources

PERMIT CONDITIONS

The owner or operator of the facility shall assure that the installation, operation, and maintenance of this equipment is in compliance with all of the following conditions.

1. Departmental Review

This permit is issued based on information submitted by the applicant. Any misinformation, false statements or misrepresentations by the applicant shall cause this permit to be void. In addition, the applicant may be subject to criminal penalties according to Iowa Code Section 455B.146A.

This permit is issued under the authority of 567 Iowa Administrative Code (IAC) 22.3. The proposed equipment has been evaluated for conformance with Iowa Code Chapter 455B; 567 IAC Chapters 20-31; and 40 CFR Parts 51, 52, 60, 61 and 63 and has the potential to comply.

No review has been undertaken on the engineering aspects of the equipment or control equipment other than the potential of that equipment for reducing air contaminant emissions. The DNR assumes no liability, directly or indirectly, for any loss due to damage to persons or property caused by, resulting from, or arising out of the design, installation, maintenance or operation of the proposed equipment.

2. Transferability

As limited by 567 IAC 22.3(3)"f", this permit is not transferable from one location to another or from one piece of equipment to another, unless the equipment is portable. When portable equipment for which a permit has been issued is to be transferred from one location to another, the DNR shall be notified in writing at least thirty (30) days prior to transferring to the new location. The owner will be notified at least ten (10) days prior to the scheduled relocation if the relocation will cause a violation of the National Ambient Air Quality Standards. In such case, a supplemental permit shall be required prior to the initiation of construction of additional control equipment or equipment modifications needed to meet the standards.

This permit is for the construction and operation of the specific emission unit(s), control equipment and emission point as described in this permit and in the application for this permit. Any owner or operator of the specified emission unit(s), control equipment or emission point, including any person who becomes an owner or operator subsequent to the date on which this permit is issued, is responsible for compliance with the provisions of this permit. No person shall construct, install, reconstruct or alter this emission unit, control equipment or emission point without the required revisions to this permit.

3. Construction

This permit shall become void if construction on the proposed project has not been initiated within eighteen (18) months after the date of the issuance of this permit and completed within thirty-six (36) months after the date of the issuance of this permit.

3. Construction (Continued)

It shall be the responsibility of the owner to ensure that construction conforms to the final plans and specifications as submitted and that adequate operation and maintenance is provided to ensure that no condition of air pollution is created. A supplement to this permit shall be obtained if the owner proposes changes to the final submitted plans and specifications.

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4. Credible Evidence

As stated in 567 IAC 21.5 and also in 40 CFR Part 60.11(g), where applicable, any credible evidence may be used for the purpose of establishing whether a person has violated or is in violation of any provisions specified in this permit or any provisions of 567 IAC Chapters 20 through 31.

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5. Owner Responsibility

Issuance of this permit shall not relieve the owner or operator of the responsibility to comply fully with applicable provisions of the State Implementation Plan (SIP), and any other requirements of local, state, and federal law.

The owner or operator of any emission unit or control equipment shall maintain and operate the equipment and control equipment at all times in a manner consistent with good practice for minimizing emissions, as required by paragraph 567 IAC 24.2(1) *"Maintenance and Repair"*.

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6. Disposal of Contaminants

The disposal of materials collected by the control equipment shall meet all applicable rules.

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7. Excess Emissions

Excess emissions during a period of startup, shutdown, or cleaning of control equipment are not a violation of the emission standard if it is accomplished expeditiously and in a manner consistent with good practice for minimizing emissions. Cleaning of control equipment, which does not require the shutdown of process equipment, shall be limited to one six-minute period per one-hour period. An incident of excess emissions other than the above is a violation and may be subject to criminal penalties according to Iowa Code 455B.146A. If excess emissions are occurring, either the control equipment causing the excess shall be repaired in an expeditious manner, or the process generating the emissions shall be shutdown within a reasonable period of time, as specified in 567 IAC 24.1.

An incident of excess emissions shall be orally reported to the appropriate DNR field office within eight (8) hours of, or at the start of, the first working day following the onset of the incident. A written report of an incident of excess emissions shall be submitted as a follow-up to all required oral reports within seven (7) days of the onset of the upset condition.

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8. Notification, Reporting and Recordkeeping

A. The owner shall furnish the DNR the following written notifications:

1. The date construction, installation, or alteration is initiated postmarked within seven (7) days following initiation of construction, installation, or alteration;
2. The date of intended startup, at least ten (10) days before the equipment or control equipment involved is placed into operation;
3. The actual date of startup, postmarked within fifteen (15) days following the start of operation;
4. The date of each compliance test required by Permit Condition 12, at least thirty (30) days before the anticipated compliance test date;
5. The date of each pretest meeting, at least fifteen (15) days before the proposed meeting date. The owner shall request a proposed test plan protocol questionnaire at least sixty (60) days prior to each compliance test date. The completed questionnaire shall be received by the DNR at least fifteen (15) days before the pretest meeting date;
6. Transfer of equipment ownership, within 30 days of the occurrence;
7. Portable equipment relocation, at least thirty (30) days before equipment relocation.

B. The owner shall furnish DNR with the following reports:

1. Oral excess emissions reports, in accordance with 567 IAC 24.1;
2. Indicator opacity reports in accordance with Opacity Policy 3-b-08 (See footnote 1, Permit Condition 10);
3. A written compliance demonstration report for each compliance testing event, whether successful or not, postmarked not later than forty-five (45) days after the completion of the test period;
4. Operation of this emission unit(s) or control equipment outside of those limits specified in Permit Conditions 10, 11 and 14 and according to the schedule set forth in 567 IAC 24.1.

C. The owner shall send notifications, reports and correspondence to the following addresses:

Mr. David Phelps
Construction Permit Supervisor
Air Quality Bureau
Iowa Department of Natural Resources
7900 Hickman Road, Suite 1
Urbandale, IA 50322
Telephone: (515) 281-8189
Fax: (515) 242-5094

DNR Field Office #6
1004 West Madison Street
Washington, IA 52353
Telephone: (319) 653-2856

D. The owner shall send correspondence concerning stack testing to:

Stack Testing Coordinator
Air Quality Bureau
Iowa Department of Natural Resources
7900 Hickman Road, Suite 1
Urbandale, Iowa 50322
Telephone: (515) 242-6001
FAX: (515) 242-5127

8. Notification, Reporting and Recordkeeping (Continued)

E. All data, records, reports, documentation, construction plans, and calculations required under this permit shall be available at the plant during normal business hours for inspection and copying by federal, state, or local air pollution regulatory agencies and their authorized representatives, for a minimum of two (2) years from the date of recording.

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9. Permit Violations

Knowingly committing a violation of this permit may carry a criminal penalty of up to $10,000 per day fine and 2 years in jail according to Iowa Code Section 455B.146A.

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10. Emission Limits

Pollutant	Lb/Hr[4]	Tons/Yr	Additional Limits	Reference (567 IAC)
Particulate Matter (PM)	1.31[1]	NA	NA	BACT
PM_{10}	1.31[1]	NA	NA	BACT
Opacity	NA	NA	40%[2]	23.3(2)"d"
Sulfur Oxides (SO_x)	0.45[3]	NA	NA	BACT
Nitrogen Dioxide (NO_2)	73.42	NA	NA	BACT
Volatile Organic Compounds	NA	NA	NA	NA
Carbon Monoxide (CO)	6.77	NA	NA	BACT
Lead (Pb)	NA	NA	NA	NA
(Single HAP)	NA	NA	NA	NA
(Total HAP)	NA	NA	NA	NA

85.4

7.87

[1] Based on AP-42, Table 1.4.1 for natural gas consumption plus 0.13 lb/hr for scale carry-over.

[2] According to DNR Air Quality Policy 3-b-08, Opacity Limits, "If visible emissions are observed other than startup, shut-down, or malfunction, a stack test may be required to demonstrate compliance with the particulate standard."

[3] Based on 0.5 grains of sulfur per CCF of natural gas and a HHV for natural gas of 1023 Btu/cf.

[4] Based upon a maximum (burst) firing rate of 319.21 MMBtu/hr, a HHV for natural gas of 1023 Btu/cf, an emission factor of 0.2300 lb NOx/MMBtu, 0.0041lb PM10/MMBtu, 0.0041 lb PM/MMBtu, 0.0014 lb SOx/MMBtu and an emission factor of 0.0212 lb CO/MMBtu.

Note: TPY values for PSD applicability purposes are based upon an average natural gas consumption of 6.2 MMcf/day and an annual natural gas consumption of 2263 MMcf/yr, a HHV of 1023 Btu/cf, an emission factor of 0.2300 lb NOx/MMBtu, 3.8 lb PM10/MMcf, and an emission factor of 0.0212 lb CO/MMBtu.

$73.42 = \frac{60 \cdot 7600 \cdot 46 \cdot ppm}{385.1E6}$

$= 135\ ppm \times$

$CO: 6.77 = \frac{60 \cdot 76,000 \cdot 28 \cdot ppm}{385.1 \times 10^6}$

$= 20.4 \times 2.5 = \sim 50$ RANGE

0-500 ✓

11. Emission Point Characteristics

This emission point shall conform to the specifications listed below.

Parameter	Value
Stack Height, (ft, from the ground)	111.17 – 105
Discharge Style	Unobstructed Vertical
Stack Opening, (inches, dia.)	98.4 – 118
Exhaust Temperature (^{o}F)	1,200 – 700
Exhaust Flowrate (dscfm)	76,000 – /

It shall be the owner's responsibility to ensure that construction conforms with the emission point characteristics stated above. If it is determined that any of the emission point characteristics are different than stated above, the owner must notify the Department and obtain a permit amendment, if required.

12. Initial Performance Testing Requirements

Pollutant	Testing Required	Test Method
PM	No	Iowa Compliance Sampling Manual Method 5
PM_{10}	No	40 CFR 51, Appendix M, 201A with 202
Opacity	No	40 CFR 60, Appendix A, Method 9
SO_x	No	40 CFR 60, Appendix A, Method 6C
NO_2	Yes	40 CFR 60, Appendix A, Method 7E
VOC	No	40 CFR 60, Appendix A, Method 25A
CO	See Note:	Note: Tested in compliance April 30, 1999
Pb	No	40 CFR 60, Appendix A, Method 12
Other	No	

If specified above, the owner shall verify compliance with the emission limitations contained in Permit Condition 10 within 90 days after achieving maximum production rate and no later than one hundred eighty (180) days after the initial startup date of the proposed equipment. The tests shall be conducted with the equipment operating in a manner representative of maximum rated capacity. Failure to test at the rated capacity may be cause for the Department to limit the emission unit to the operating level at which the compliance tests had been conducted.

Each emissions compliance test must be approved by the DNR. Unless otherwise specified by the DNR, each test shall consist of three separate runs. The duration of each run shall be established by the DNR at the pretest meeting. The arithmetic mean of three acceptable test runs shall apply for compliance, unless otherwise indicated by the DNR. The test methods to be used are those stated above unless otherwise approved by the DNR.

A pretest meeting shall be held at a mutually agreeable site no less than fifteen (15) days prior to the date of each test. Representatives from the DNR shall attend this meeting, along with the owner and the testing firm, if any. It shall be the responsibility of the owner to coordinate and schedule the pretest meeting. The owner shall be responsible for the installation and maintenance of test ports. The DNR shall reserve the right to impose additional, different, or more detailed testing requirements.

13. NSPS and NESHAP Applicability

This emission unit is not an "affected facility" under any NSPS or NESHAP because there are no applicable subparts.

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14. Operating Limits

A. This emission unit is limited to the combustion of only natural gas.

B. This emission unit is limited, by design capacity, to 319.2 MMBtu/hr.

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15. Operating Condition Monitoring

A. A totalizing meter which cannot be reset shall be installed in the natural gas supply line of the furnace. The quantity of natural gas combusted shall be recorded monthly.

B. The hours of operation shall be recorded monthly.

C. The capacity of the furnace shall be calculated each month by multiplying the HHV of the natural gas times the amount of natural gas consumed for that month and divided by the hours of operation.

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16. Continuous Emission Monitoring

Continuous emission monitoring is not required by this permit at this time.

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17. Descriptions of Terms and Acronyms

acfm	Actual cubic foot per minute
Applicant	The owner, company official or authorized agent
BACT	Best Available Control Technology
CFR	Code of Federal Regulations
CO	Carbon Monoxide, a criteria pollutant
Department	Iowa Department of Natural Resources
DNR	Iowa Department of Natural Resources
gr/dscf	Grains per dry standard cubic foot
HAP	Hazardous Air Pollutant(s)
IAC	Iowa Administrative Code
MMBtu	One million British thermal units
NA	Not Applicable
NAAQS	National Ambient Air Quality Standards
NO_2	Nitrogen Dioxide, a criteria pollutant measured as NO_x
Owner	The owner or authorized representative
Permit	This document including permit conditions and all submitted application materials
PM	Particulate Matter, a criteria pollutant
PM_{10}	Particulate Matter equal to or less than 10 microns in aerodynamic diameter
scfm	Standard cubic foot per minute
SIP	State Implementation Plan
SO_2	Sulfur Dioxide, the measured surrogate for SO_x
SO_x	Sulfur Oxides, a criteria pollutant
tpy	tons per year; a twelve month total, rolled monthly
VOC	Volatile Organic Compound, a criteria pollutant

END OF PERMIT CONDITIONS

PROPOSED TEST PLAN PROTOCOL

Company Name: IPSCO STEEL INC., Montpelier Plant (number 70-08-02

Address: 1770 Bill Sharp Boulevard, Muscatine, Iowa 52761-9492

Name and Title of Contact: Ms. Stephanie Kreiter, Environmental Engineer

Address of Contact: Same

Telephone Number of Contact: 563-381-5300

Proposed Test Date: January 9, 2002

Source Information

Type of Source: Reheat Furnace

Identification of Source to be tested: Emission Point 13

Permit Number of Source: 94 – A – 560 – S3

Address of Source: Same

Initial Startup Date: October 14, 2001

Testing Firm Information

Name of Firm: Ambient Air Services, Inc.

Address: 106 Ambient Air Way, Starke FL 32091

Name and Title of Contact: Joseph L. Cooksey Jr., President

Telephone Number: 904-964-8440.

Number of Employees of Firm: 10±

Number of Employees Engaged in Air Pollution Source Testing (Including Support Personnel): 10±

Location and Description of Laboratory Facilities: Same

Subcontractor(s) Utilized by Firm for Source Testing Activities: None

Number of Air Pollution Sources Previously Tested by Firm: over 1000 +

Types of Sources Previously Tested by Firm: See above

PERFORMANCE TEST INFORMATION

List all pollutants to be sampled.

	Pollutant	Number of Sampling Points	Total Time per Test Run	Number of Test Runs	Test Methods to be Used
1	CO	24	60	3	USEPA 10
2	NOx	24	60	3	USEPA 7E
3	Flow	24	60	3	USEPA 1-4
4					
5					

For particulate or PM10 tests, indicate the length of each run to collect 50 milligrams of sample. Use the estimated emissions after control as the stack gas concentration.

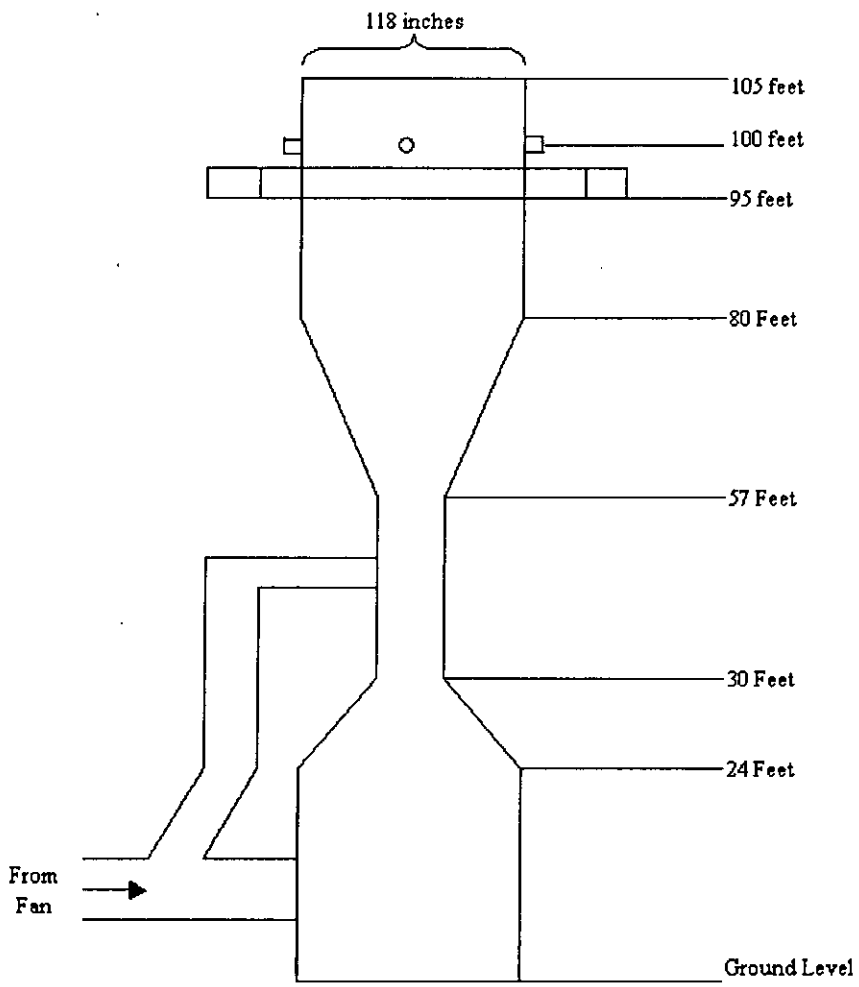
When calculating the sample time, the length of each run should be such that a sample catch of 50 milligrams will be collected. Any variation from this must be pre-approved by the Department. Should the sample catch be less than 10 milligrams after applying the above method, the test may be subject to rejection or a 10 milligram sample weight may be assumed.

Include a description of any test procedures to be used in the conduct of the performance tests which differ from the specified method(s).

Use the space below for a drawing (or include separately) with the sampling location showing the stack or duct dimensions, air pollution control equipment, fans and location(s) of disturbances which affect the sampling location determination.

Axial fans and cyclone collectors generally cause flow conditions which are not suitable for testing and do not give reliable results. It is generally advisable to install flow straighteners in such situations. Please indicate if such problems are anticipated and what has been done to correct the flow problems prior to testing. Please refer to 40 CFR 60, Appendix A, Reference Method 2.

Ipsco's Walking Beam
Reheat Furnace
(Not To Scale)



Ports 1 thru 4

Point 1	2.5	inches	Point 4	20.9	inches
Point 2	7.9	inches	Point 5	29.5	inches
Point 3	14	inches	Point 6	42	inches

PROTOCOL SUPPLEMENT – OPERATING DATA

This form is to be filled out and returned with the test protocol.

Maximum Continuous Process Weight (Manufacturer's Rating): 400 TPH Burst
275 TPH Average

Historical Average Process Weight: Average since October 14, 2001 – 107 TPH

Historical Maximum Process Weight: Maximum TPH based on 24 hour time period – 178.6

Product Recycling Capability Yes _____ No X

Type and Sources of Fuels Normally Burned: Natural Gas

Type of Control Equipment: Low NOx/CO Burners, Burner Internal
Flue gas recirculation

Range of Pressure Drop Across Control Equipment: N/A Inches of Water

Average Pressure Drop N/A Inches of Water

Person Responsible For This Data: N/A

Person Responsible For Collecting Process Data During Actual Testing:
Stephanie Kreiter

Complete and submit one of these forms for each test to be conducted. This information is especially important the determine to operating conditions of the equipment under which the tests will be conducted. The tests must be conducted while operating at maximum capacity or the highest capacity which this source will be operated. Failure to test at the permitted capacity may result in derating this source.

This information is also required to be submitted on the forms found at the end of the protocol package. These two forms, the Compliance Emission Test Operating Data and the Air Pollution Control Equipment Operating Data forms, must be filled out with the data collected on the actual date of the tests. Failure to complete the forms on the day of the testing may be cause for rejecting the tests.

SAFETY CONCERNS

List any special safety concerns, including possible hazardous chemical exposures, at your facility. This should include the area near the process being tested as well as the sampling location. Also include a list of personal safety equipment that will be required to audit the testing. Unexpected hazardous conditions are grounds for canceling testing.

PROTOCOL SUPPLEMENT

1) Copies of current calibration data must be available to the observer prior to the beginning of the test. This calibration data will include, but is not necessarily limited to the meter box, pitot tubes, and temperature gauges. If 0.84 is assumed for the pitot tube coefficient, it must be documented that the equipment meets the design criteria.

2) All equipment must be in good working order prior to arriving on site. Except for extraordinary circumstances, delays solely to broken equipment may result in the test being canceled by the observer. All glassware must be clean and free of especially for SO2, HCl and similar tests.

3) Unless specifically mentioned to the contrary in the test method or agreed to in writing in a pretest conference, glass-lined probes must be used for all tests. Spare liners must be available in case one or more is broken. The breaking of a glass liner is not an acceptable excuse for using steel liners. Particular attention should be paid to the probe and filter box heating elements.

4) Enough spare equipment should be on hand to replace any that should break down. If necessary this should include consoles. Delays due to broken equipment may be cause for canceling the test.

5) All members of the test crews should be familiar with the test methods in order to conduct the tests in strict accordance with the test methods.

6) No variations from the reference methods will be accepted in the field unless agreed to by the observer or by prior written agreement. The determination of whether the departure from the method will affect the test results will be made by the observer.

7) The Air Quality Bureau must be notified in writing by the affected facility at least 30 days prior to conducting any test that will be submitted for a compliance demonstration. This notification must be made by the source, not the consultant or contractor. Failure to notify the appropriate staff may result in the test being rejected. You should call Mark Stone at (515) 242-6001.

8) The two forms attached at the end of this protocol must be correctly and accurately filled out by the responsible plant personnel. One form concerns the production levels during the test. Tests are to be conducted at full capacity. If the tests are conducted at less than full capacity, the source may be limited to this level of production. The other form contains control equipment operating data. The appropriate section should be filled out. If the source does not have any control equipment, this should be indicated on the form. Both forms must be signed by a representative of the facility.

The following information shall be provided:

1. Sampling Equipment Information

   The manufacturer and model of the sampling equipment to be used by the tester for the performance tests, along with a description of any equipment which *may* differ from that required by the specified methods.

   Thermo Environmental Instruments Model 48 CO Analyzer
   Thermo Environmental Instruments Model 42H NO_x Analyzer or 10S NO_x Analyzer
   USEPA Protocol Calibration Gases
   AASI mfg pitot and moisture equipment
   Firite CO2, O2 analyzer

2. Test Procedures

   A description of any test procedures to be used in the conduct of the performance tests which *may* differ from the specified method(s).
   24 Sampling points for NOx, 2.5 minutes per point due to potential NOx stratification.

3. Analytical Procedures

   A description of any analytical procedures which differ from the specified method(s).

4. Data Sheets

   A sample of all field data sheets which do not provide the data shown on the example sheets in. 40 CFR 60 for the specified method(s).

5. Air Pollution Control Equipment

   A description of the air pollution control equipment including as a minimum the following:

   a. Types and manufactures of all control equipment
   b. Design or guarantee efficiency
   c. Design gas volume at full load (acfm);
   d. Design pressure drop;
   e. Description of any preconditioning equipment;
   f. Normal operating conditions of air pollution control equipment;
   g. Normal maintenance schedule on control equipment, such as cleaning, replacement of components, checking for leaks, and repairs;
   h. Description of fly ash handling and disposal system; and
   i. Any problems with air pollution control equipment performance, operation, and maintenance.

SOURCE TEST REPORT FORMAT

I. **Cover** Should Indicate the name and location of the plant, the specific source tested, the name and address of the testing firm (or agency), and the month and year of the tests.

II. **Certification** A page including a certification by the test team leader that he is the person responsible for the test data, and one by the reviewer of the report (normally the supervisor of the team leader) attesting to the authenticity and accuracy of the report.

III. **Table of Contents**

IV. **Introduction**. Pertinent background information should be presented in this section. This information shall include, but not be limited to the following:

1. Name, address, and owner of plant;
2. Test purpose;
3. Name and address of testing organization;
4. Test dates;
5. Pollutants tested;
6. Names of persons present for tests (industry and agency); and
7. Any other important background information

V. **Summary of test results** A summary of the test result: necessary to evaluate the process With respect to the applicable emission standard(s) should be presented in this section. This information shall include, but not be limited to, the following:

1. A summary of the emission results;
2. Allowable emissions;
3. Isokinetic sampling rates, when applicable;
4. The operating level of the process during the tests;
5. A description of the collected samples; and
6. Discussion of errors, both real and apparent, in the tests.

VI. **Facility operation during testing** This section shall contain a description of the facility, including, but not limited to, the following:

1. General description of the facility, including the air pollution control equipment, and the process principle;
2. A discussion of the maximum and normal operating conditions;

3. Presentation of the process data for the tests, with calculations where necessary to show the production or burning rates, to demonstrate that the operating conditions are sufficiently representative of those required for testing. Calculation may be included in the Appendix;
4. Process and control equipment flow diagram; and
5. Any changes in operating conditions from those previously agreed upon by the source and agency.

VII. **Sampling and analytical procedures** A description of the sampling and analytical methods should be presented in this section. The information shall include, but not be limited to, the following:

1. A description of the sampling location(s) and sampling points;
2. Schematic drawings of the facility showing sampling location(s),major and minor flow disturbances, and stack or duct cross section(s) with the dimensions indicated;
3. A description of the sampling equipment;
4. Schematic drawings of the sampling trains (may be included in the Appendix);
5. A description of the sampling procedures, with a discussion of deviations from the standard methods, along with the sampling times;
6. A brief description of the analytical procedures, with a discussion of deviations from the standard methods; and
7. A description of the methods employed for other types of sampling and analyses, such as fuel.

VIII. **Appendix**

1. A summary of all data used in the calculations.
2. Calculations for all data submitted.
3. Copies of **all raw** field data sheets, (initialed by observer, where applicable) including those indicating sampling point locations,
4. Laboratory report, complete with analytical data sheets and chain of custody list.
5. Production and/or operational data, signed by a plant official if provided by the source.
6. Calibration procedures and work sheets for sampling equipment.
7. Copies of calibration records for plant or process Instrumentation.
8. Pertinent correspondence concerning the tests.
9. Any other information necessary to assist the agency in making a determination of compliance.

Compliance Emission Test
Operating Data

Owner: _____ **Date:** _____

Source: _____ **Permit #:** _____

Maximum Continuos Process Rate: (Manufacturer's Rating) _____

Historical Average Process Rate: _____

Historical Maximum Process Rate: _____

Types and Sources (if any) of Fuels Normally Burned: _____

Type of Fuel Burned During Test: _____

Approximate Quantities of Fuels used Annually: _____

Recycling Capability: ☐ YES ☐ NO
Recycling in Progress ☐ YES ☐ NO

Process Data During Runs

	Run 1	Run 2	Run 3
Process Rate wet** (gal/hr, lb/hr, tons/hr, ect.)			
% Moisture			
Process Rate dry** (gal/hr, lb/hr, tons/hr, ect.)			
How Process Rate was Determined			

Person Responsible for Data _____

Signature: _____

Title/Position: _____

** Please indicate in the same units as the historical information

AIR POLLUTION CONTROL EQUIPMENT OPERATING DATA

Plant _____ Location _____
Source Type _____ Rated Production _____
Date _____ Time _____ Actual Production _____
Air Flow Data _____ Run No. _____

Mechanical Collector:
Tube Dia. _____ in. Number of Tubes _____ Design Δp _____ in. H_2O Gas Temp _____ °F
Observed Δp _____ in H_2O Design cfm/tube @ Observed Δp _____ @ _____ °F
Fan Rated H.P. _____ Operating Volts _____ Operating Amps _____

Electrostatic Precipitator

Field No.	Primary Voltage (volts)	Primary Current (amps)	Secondary Voltage (KV)	Secondary Current (ma)	Spark Rate (per min)

Scrubber:
Type _____ Δp(across scrubber) _____ in H_2O
Fan Rated HP _____ Operating Volts _____ Operating Amps _____
Liquid Circulation Rate _____ gal/min. % Make-up _____ Blowdown _____ gpm
Scrubbing Water Change Interval _____
Settling Tank Cleaning Interval _____

Baghouse:
Pressure-Positive _____ Negative _____ No. Compartments _____
Type Cleaning _____ Clean Cycle _____ min
Avg. Baghouse Δp _____ in H_2O Δp Range _____
Fan: Rated H.P. _____ Operating Volts _____ Operating Amps _____

Cyclone:
Type _____ Δp _____ in H_2O Diameter _____
Fan Rated HP _____ Operating Volts _____ Operating Amps _____

Person Responsible for Data _____

Signature _____

Title/Position _____

* Averages of operating data taken during actual test run unless requested otherwise.

RECORD COPY

File Name con10-1 70-08-002

Senders Initials MS

EMISSION TEST REPORT

IPSCO STEEL, INC.
Muscatine, Iowa

TEST

Fourth Quarter 2004 Oxides of Nitrogen Test

October 21, 2004

IDNR Permit Number(s)

EAF/LMF Meltshop Stack 94-A-548-S3

Prepared By:

AAS Inc.

Ambient Air Services, Inc.

106 Ambient Airway • Starke, FL 32091 • (904) 964-8440 • Fax (904) 964-6675

LELAP Accredited Laboratory Certification Number 04064

LELAP Agency Interest Number 100329

CERTIFICATION

Ambient Air Services, Inc. of Starke, Florida, has completed the testing as described in this report for IPSCO Steel Inc.'s Montpelier Works facility. To the best of our knowledge and abilities, all information, facts, and test data are true and correct. Information supplied to AASI for use in this report from IPSCO Steel is perceived to be accurate and is used as such where necessary.

This report contains pages i through iv, and pages 1 through 66.

This report was prepared and reviewed by:

Joseph L. Cooksey, Project Manager — Date: 11/3/04

David C. Sholtes, Report Review — Date: 11/03/04

Questions and or comments regarding this report or process conditions should be directed to:

Ms. Stephanie Kreiter
IPSCO Steel
1770 Bill Sharp Blvd.
Muscatine, IA 52761
Phone: 563-381-5584
Fax: 563-381-5406

Mr. Joseph L. Cooksey
Ambient Air Services, Inc.
106 Ambient Airway
Starke, FL 32091
Phone: 904-964-8440
Fax: 904-964-6675
Email: joecooksey@ambientairservices.com

RECEIVED
NOV 30 2004

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EXECUTIVE SUMMARY

Ambient Air Services, Inc. (AASI) conducted emission testing at the IPSCO Steel (Iowa) Facility located in Montpelier, Iowa. The testing included the determination of oxides of nitrogen(NO_x) emissions from the EAF/LMF Baghouse Stack.

The results, shown in Table 1, demonstrate compliance with the facilities oxides of nitrogen emission limitations as listed in permit number IDNR-94-A-548-S3.

TABLE 1

EMISSION TEST RESULTS
EXECUTIVE SUMMARY
IPSCO STEEL (IOWA), INC.
MONTPELIER, IOWA

October 21, 2004

SOURCE	PARAMETER	ALLOWABLE	TEST RESULTS
EAF/LMF Baghouse Stack	Oxides of Nitrogen (NO_x) (reported as NO_2)	0.80 lbs/ton 700.8 tons/year	0.52 lbs/ton 389.5 tons/year*

*Tons per year based on 24 hours per day, 365 days per year at tested production rate.

1.0 INTRODUCTION

1.1 General

IPSCO Steel (Iowa), Inc. contracted with Ambient Air Services, Inc. (AASI) to conduct emission testing on their EAF/LMF Baghouse Stack. The testing involved the determination of oxides of nitrogen (NO_x) emissions.

The purpose of the testing was to satisfy specific requirements of the IDNR issued permit number 94-A-548-S3 for quarterly NO_x testing.

Prior to the testing Mr. Mark Stone of IDNR was provided a Test Protocol and Notification of test dates. Mr. Stone approved the protocol prior to testing.

1.2 Test Participants

The personnel indicated in Table 1-2 participated in this project:

TABLE 1-2

NAME	AFFILIATION	RESPONSIBILITY
Joseph L. Cooksey	Ambient Air Services, Inc.	Project Manager
David C. Sholtes	Ambient Air Services, Inc.	Report Review
Stephanie Kreiter	IPSCO	Environmental Coordinator

1.3 Summary of Testing Conducted

TABLE 1-3

SUMMARY OF TESTING CONDUCTED IPSCO STEEL (IOWA), INC. MONTPELIER, IOWA OCTOBER 21, 2004			
SOURCE	**PARAMETER**	**USEPA TEST METHODS**	**COMMENTS**
EAF/LMF Baghouse Exhaust Stack	Oxides of Nitrogen (NO_x)	40 CFR 60, Appendix A, Method 7E	3 Test Runs, Each Run 2 heats in duration
	Flow	40 CFR 60, Appendix A, Methods 1-4	1 Flow Traverse per NO_x Test, Moisture by wet bulb/dry bulb, O_2/CO_2 assumed ambient (21% O_2, 0% CO_2).

2.0 TEST METHODOLOGIES

2.1 Flow and Moisture

Flow and moisture were determined in accordance with USEPA Methods 1-2 as published in 40 CFR 60 Appendix A. One flow traverse was conducted per NO_x test run.

The Oxygen and Carbon Dioxide levels were assumed to be ambient conditions, (O_2 and CO_2 were 21% and 0%).

Moisture was determined using a wet bulb/dry bulb technique. The wet bulb/dry bulb readings were taken once per flow traverse.

2.2 Oxides of Nitrogen

Oxides of nitrogen from this facility were measured using USEPA Method 7E as published in 40 CFR 60, Appendix A. For this test a TEI Model 42 was used. The instrument was calibrated over a nominal range of 0-50 ppm.

Results from the test were reported in mass per unit of production. All NO_x ($NO + NO_2$) was reported as NO_2.

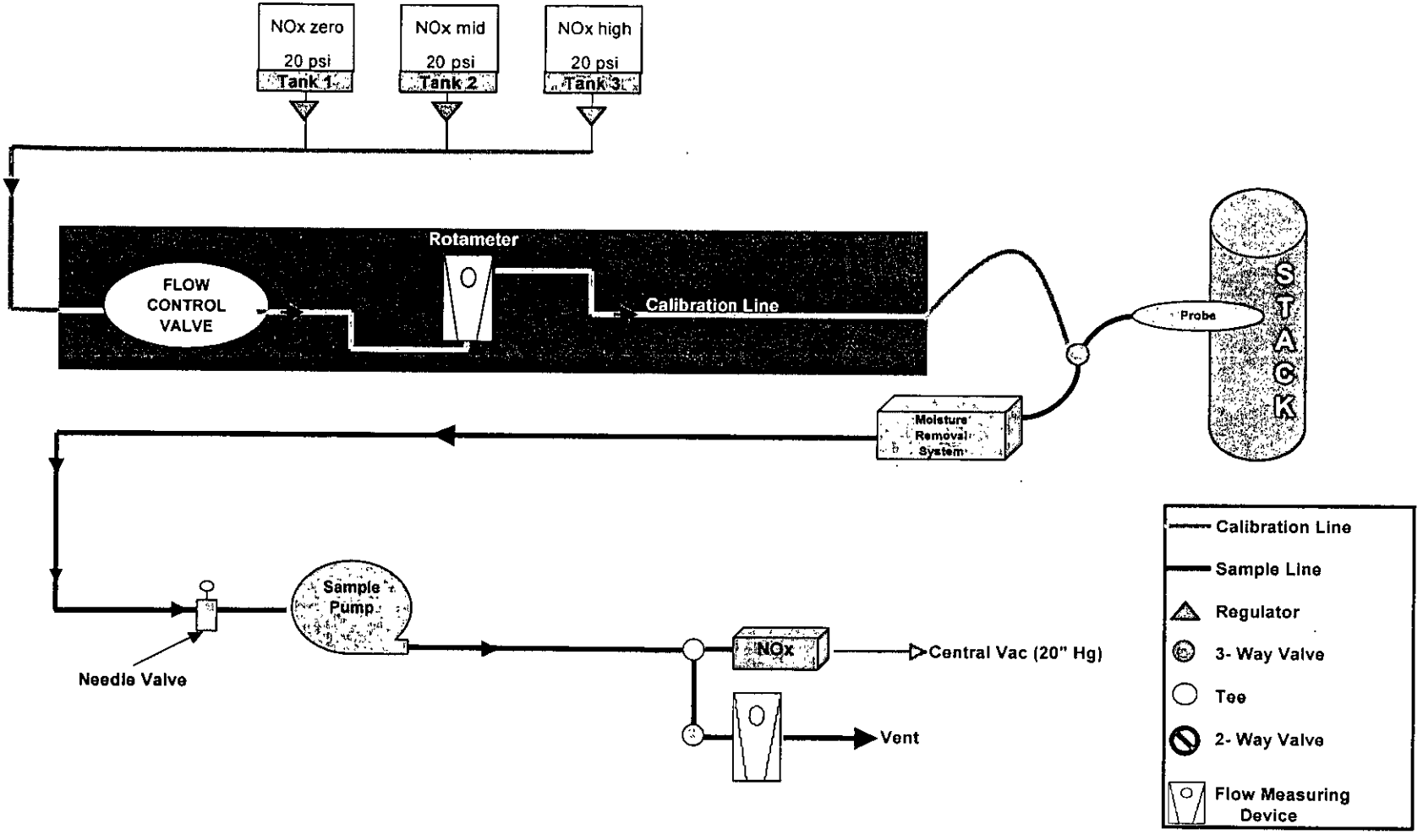
At the beginning of the test the NO_x system was calibrated using zero, 25 and 45 ppm USEPA Protocol gas standards. At the completion of each test run the system was checked at zero and 45 ppm.

The sampling system is shown in Figure 2-1.

Data from the NO_x analyzer was recorded using a computerized data logging system. The data recorder took a reading each second and averaged these readings into 1 minute data points. All test data is included in the appendix section of this report.

Sample System Schematic

Figure 2-1



3.0 PROCESS DESCRIPTION

Electric arc furnaces (EAF) are used to produce carbon and alloy steels. The input material to an EAF is typically 100 percent scrap. Cylindrical, refractory lined EAF's are equipped with carbon electrodes to be raised or lowered through the furnace roof. With electrodes retracted, the furnace roof can be rotated aside to permit the charge of scrap steel by overhead crane. Lime and charge carbon are added to the charge buckets, alloying agents and materials are added during the tapping process. Electric current of the opposite polarity electrodes generates heat between the electrodes and through the scrap. After melting and refining periods, the slag and steel are poured from the furnace by tilting.

The production of steel in an EAF is a batch process. Cycles, or "heats", range from about 45 to 90 minutes to produce carbon steel. Scrap steel is charged to begin a cycle, and alloying agents and slag materials are added for refining. Stages of each cycle normally are charging and melting operations, refining (which usually includes oxygen blowing), and tapping.

4.0 RESULTS

The results from this testing demonstrate compliance with the permit limitations at the time of testing on October 21, 2004.

The results are summarized in Table 4-1.

Table 4 - 1

AASI

Oxides of Nitrogen (NO_x) Emissions Summary
USEPA Method 7E (40 CFR Part 60 Appendix A)
Ipsco Steel (Iowa), Inc.
Montpeliar, Iowa
IDNR Permit Number 94-A-548-S3
October 21, 2004

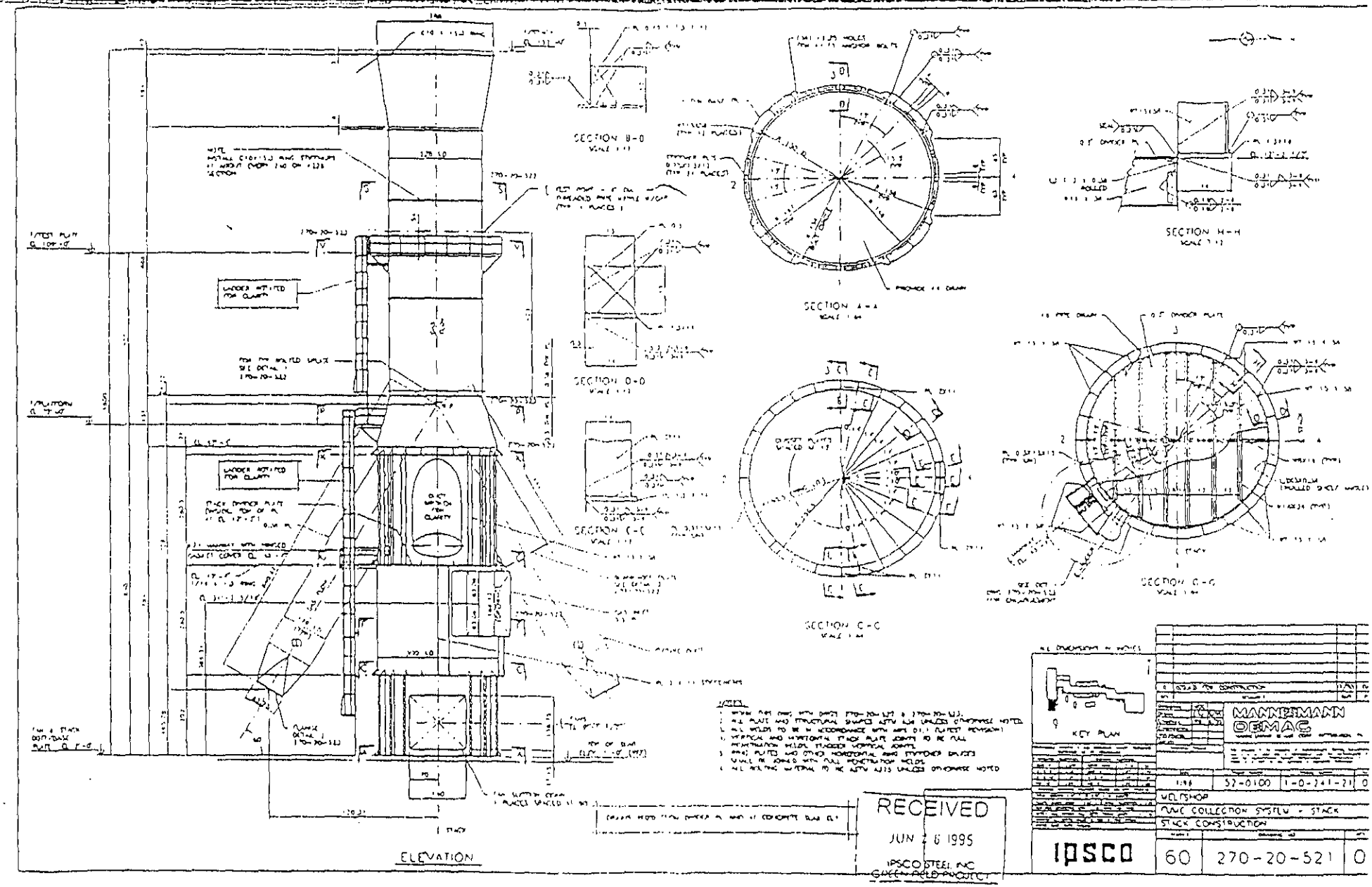
Run			Concentration	Volumetric Flow Rates	Production	Mass Emissions (as NO_2)	
Date	Number	Time (CDT)	ppm-v/v	SCFM-Dry	Tons per Hour	Pounds per Hour	Pounds per Ton
10/21/2004	1	9:12 11:10	18.9	805917	159.4	109.17	0.69
10/21/2004	2	11:20 13:18	14.0	694116	164.6	69.65	0.42
10/21/2004	3	14:30 16:22	20.7	592886	189.5	87.96	0.46
Average			**17.9**	**697640**	**171.2**	**88.92**	**0.52**

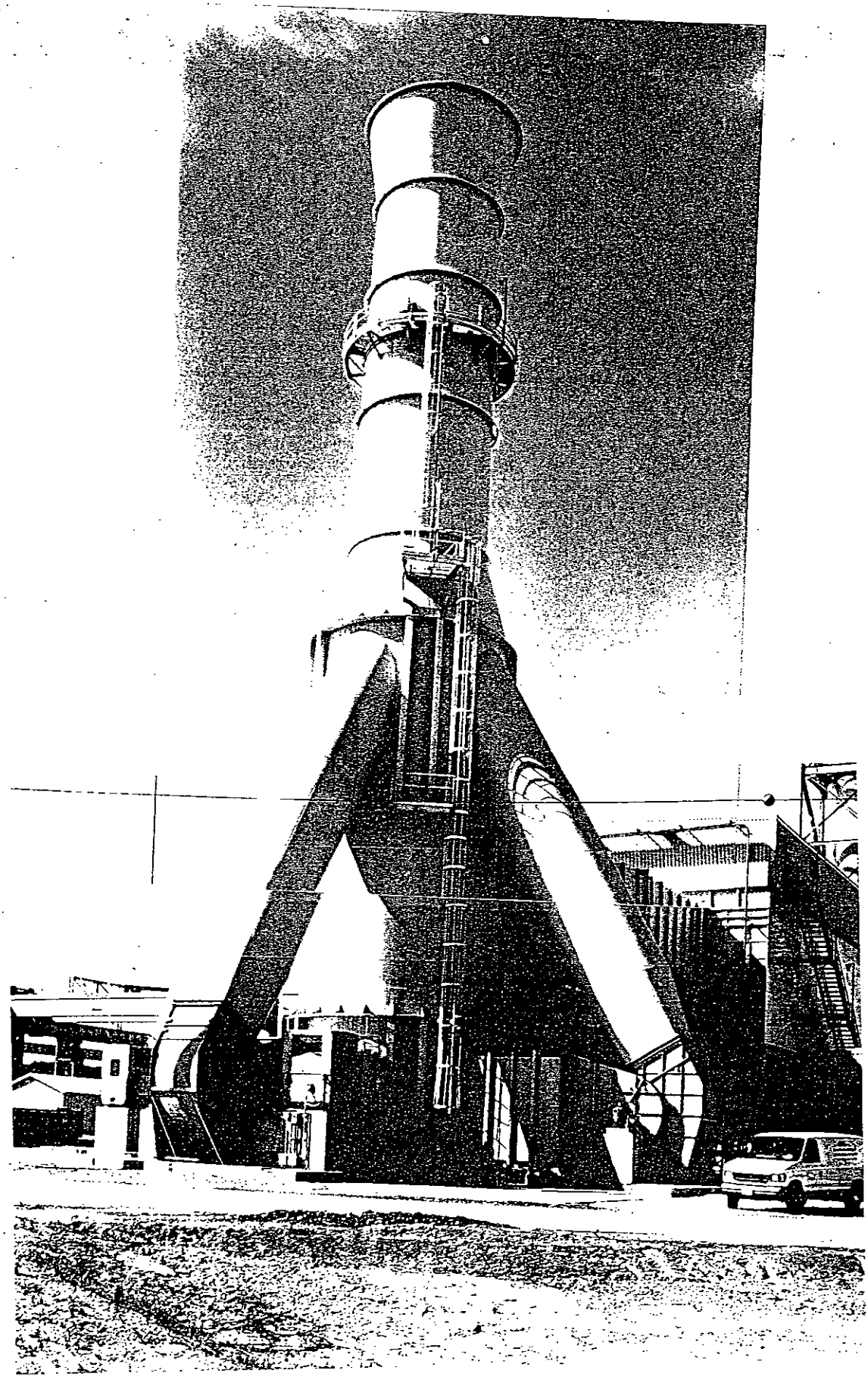
APPENDICES

APPENDIX A	STACK DIAGRAM - EAF/LMF
APPENDIX B	DIRECTIONS AND MAP TO SITE IDNR PRE-TEST QUESTIONS AND TEST PROTOCOL
APPENDIX C	FLOW INFORMATION
APPENDIX D	NO_x DATA
APPENDIX E	FACILITY OPERATING DATA

APPENDIX A

STACK DIAGRAM - EAF/LMF


SECTION B-B
SECTION A-A
SECTION H-H
SECTION D-D
SECTION E-E
SECTION C-C
SECTION G-G
ELEVATION
KEY PLAN
RECEIVED
JUN 26 1995
IPSCO STEEL INC
GREEN FIELD PROJECT
MANNESMANN DEMAG
WELSHOP
DUST COLLECTION SYSTEM - STACK
STACK CONSTRUCTION
ipsco
60
270-20-521
0



APPENDIX B

DIRECTIONS AND MAP TO SITE
IDNR PRETEST QUESTIONS AND TEST PROTOCOL

Directions to IPSCO

From Quad City Airport:

From Airport exit, turn right and follow signs to I-74 North

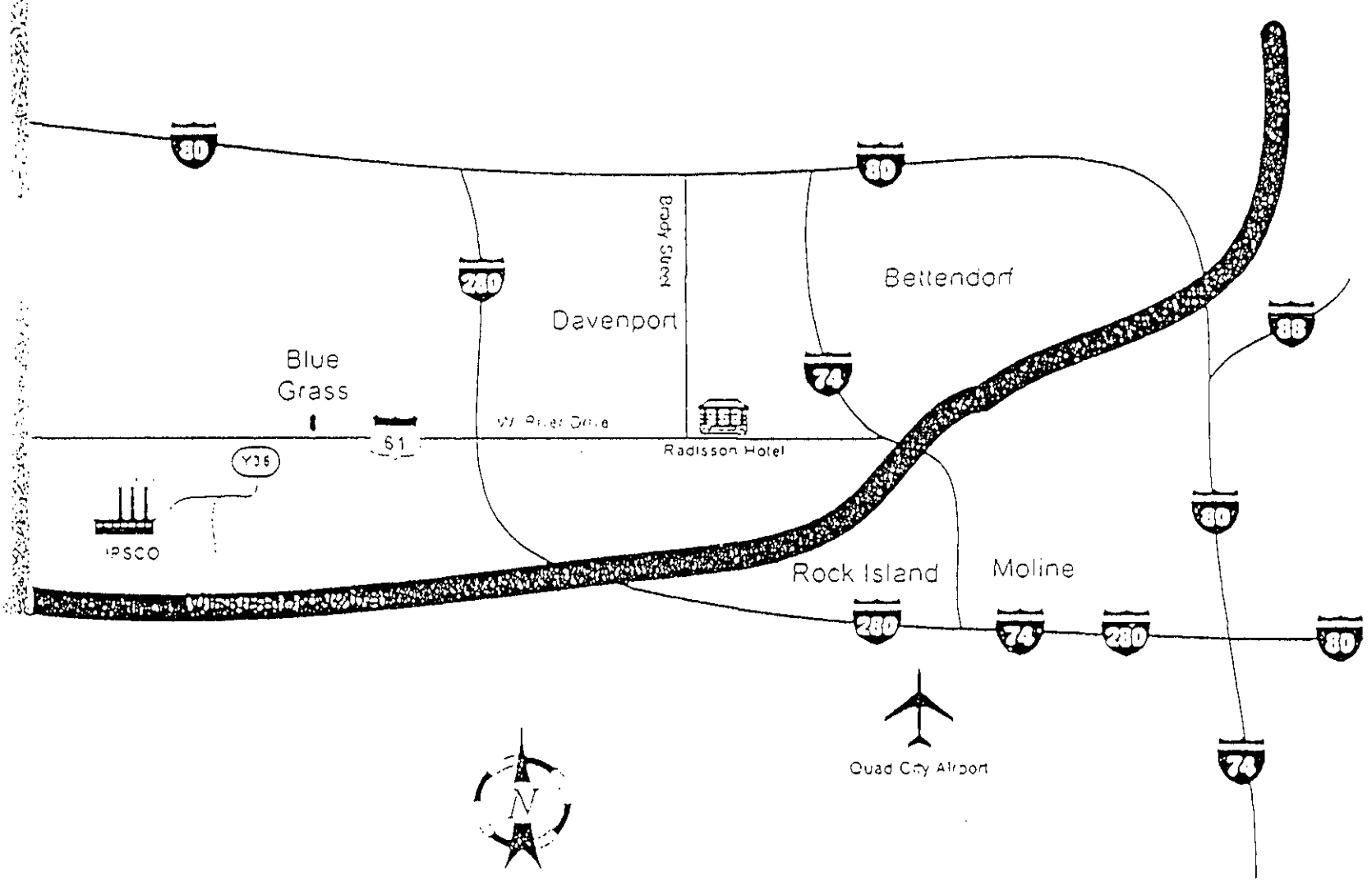
Take I-74 North to I-280 exit; proceed west to Highway 61 South exit

Proceed on Highway 61 to Y-36 (Zachary Av) - 5 miles; see following note

From Highway 61:

Proceed south on Y-36 (Zachary Av) 2-3 miles

Do not turn where Y-36 branches to the south; proceed straight to gate for auto entrance



PROPOSED TEST PLAN PROTOCOL

Company Name: IPSCO Steel (Plant Number 70-08-002)

Address: 1770 Bill Sharp Boulevard, Muscatine, IA 52761

Name and Title of Contact: Stephanie Kreiter

Address of Contact: 1770 Bill Sharp Boulevard, Muscatine, IA 52761

Telephone Number of Contact: (563) 381-5338

Proposed Test Date: Quarterly Starting March 5, 2003, April 30, 2003, July 9, 2003 and October 8,2003.

Source Information

Type of Source: EAF/LMF Baghouse Exhaust Stack

Identification of Source to be tested: Baghouse Exhaust Stack

Permit Number of Source: 94-A-548-S3

Address of Source: 1770 Zachary Avenue

Initial Startup Date: 1998

Testing Firm Information

Name of Firm: Ambient Air Services, Inc.

Address: 106 Ambient Air Way, Starke, Florida 32091

Name and Title of Contact: Joseph L. Cooksey, President

Telephone Number: (904) 964-8440

Number of Employees of Firm: 17

Number of Employees engaged in Air Pollution Source Testing (Including Support Personnel): 17

Location and Description of Laboratory Facilities: 106 Ambient Air Way, Starke, Florida
(Metals by Ppb Environmental Laboratories, 6821 S.W. Archer Road, Gainesville, FL)

Subcontractor(s) Utilized by firm for Source Testing Activities: None

Number of Air Pollution Sources Previously Tested by Firm: Testing since 1973

Types of Sources Previously Tested by Firm: Many different source types including heavy experience in Steel Industry.

PERFORMANCE TEST INFORMATION

List all pollutants to be sampled. 94-A-548-S3 - EAF / LMF Baghouse

	Pollutant	Number of Sampling Points	Total Time per Test Run	Number of Test Runs	Test Methods to be Used
1	NOx	1	2 heats	3	M 7E
2	Flow	24	N/A	3	1-4*
3*	VE	Meltshop Building	180 minutes	1	9

***VE Test will be conducted on March 5, 2003 only.**

For EPA Reference Method 5 or Iowa Method 5 tests, indicate the length of each run to collect 50 milligrams of sample. Use the estimated emissions after control as the stack gas concentration.

If the permitted emission standard or expected concentration of particulate is equal to or less than 0.005 grains per dry standard cubic foot (gr/dscf), an extended sampling time must be considered. When calculating the sample time, the length of each run should be such that a sample catch of 50 milligrams will be colleted. Should the sample catch be less than 10 milligrams after applying the above method, the test may be subject to rejection or a 10 milligrams sample weight may be assumed.

Include a description of any test procedures to be used in the conduct of the performance tests which differ from the specified method(s).

* Moisture using wet bulb/dry bulb

PROTOCOL SUPPLEMENT - OPERATING DATA

This form is to be filled out and returned with the test protocol.

Maximum Continuous Process Weight (Manufacturer's Rating): Existing - 164 TPH
Phase 1 - 200 TPH (Target Production for Test is Phase 1)
Phase 2 - 230 TPH

Historical Average Process Weight: Not yet established however plant is capable of up to 200 TPH but to date has achieved this for only short time periods.

Historical Maximum Process Weight:

Product Recycling Capability: Yes ____ (Heel) No X

Type of Sources of Fuels Normally Burned: Electric arc 420 KWH, 200 cu.ft. natural gas, 400 cu.ft. oxygen + 1200-1400 cu.ft. oxygen per liquid ton of steel.

Type of Control Equipment: Baghouse

Range of Pressure Drop Across Control Equipment: 4-6 Currently operating at Inches of Water

Person Responsible For This Data: Stephanie Kreiter

Person Responsible For Collecting Process Data During Actual Testing: Stephanie Kreiter

Complete and submit one of these forms for each test to be conducted. This information is especially important the determine to operating conditions of the equipment under which the tests will be conducted. The tests must be conducted while operating at maximum capacity or the highest capacity which this source will be operated. Failure to test at the permitted capacity may result in derating this source.

This information is also required to be submitted on the forms found at the end of the protocol package. These two forms, the Compliance Emission Test Operating Data and the Air Pollution Control Equipment Operating Data forms, must be filled out with the data collected on the actual date of the tests. Failure to complete the forms on the day of the testing may be cause for rejecting the tests.

APPENDIX C

FLOW INFORMATION

-Data Printouts
-Field Data Sheets
-Magnehelic Calibration
-Wet Bulb/Dry Bulb Chart

Ambient Air Services, Inc.
Environmental Consultants
106 Ambient Airway
Starke, Florida 32091
(904) 964-8440

PM Summary Run 1

Facility	IPSCO Steel (Iowa) Inc.	Impinger Condensate	N/A
Location	Montpeliar, Iowa	Silica Gel Condensate	N/A
Stack	EAF Baghouse	Volume Metered	N/A
Run Date	10/21/2004	Meter Temp (Deg R)	N/A
Run Number	1	CO2 %	0.0
Start Time	10:15	O2 %	20.9
Finish Time	10:35	CO %	0.0
Weather	ovc, cool, windy	N %	79.1
Total Time (min.)	N/A	Condensate Volume	N/A
Barometric Pressure	29.15	Delta H (inches H2O)	N/A
Stack Diameter (in.)	228.00	Stack Pressure	29.121
Stack Area sq. ft.	283.529	Stack Temp (Deg R)	647.5
Nozzle Area sq. ft.	N/A	Filter Weight (gm)	N/A
Number of Points	24	Prefilter Weight (gm)	N/A
Avg of SQRT of V.H.	0.9720	Total Particulate (gm)	N/A
Meter Correction (Y)	N/A		
Nozzle Diameter	N/A		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		N/A
Gas Volume Sampled, STPD		N/A
Total Volume, STP		N/A
Moisture in stack gas, volume fraction		0.032
Dry Stack Gas, volume fraction		0.968
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		28.49
Specific gravity of Stack Gas Relative to Air		0.983
Excess Air (%)		14864.9
Average Stack Velocity, FPM		3699.8
Actual Stack Gas Flow Rate, ACFM		1049001
Actual Stack Gas Flow Rate, (Dry) ACFMD		1015433
Stack Gas Flow Rate, SCFMD		805917
Stack Gas Flow Rate Wet, SCFMW		832559
Percent Isokinetic		N/A
Stack Emissions:	Grains/DSCF	N/A
	Lbs/Hr	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Airway
Starke, Florida 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

Data Request Entry Area	PM Run 1
Facility	IPSCO Steel (Iowa) Inc.
Location	Montpeliar, Iowa
Source	EAF Baghouse
Date	10/21/04
Run Number	1
Start Time	10:15
Finish Time	10:35
Weather	ovc, cool, windy
Total Time (min)	N/A
Number of Points	24
Barometric Pressure	29.15
Static Pressure ("H20)	-0.40
Stack Diameter (inches)	228.00
Nozzle Diameter (in.)	N/A
Meter Y Factor	N/A
Pitot Factor	0.84
Final Meter Reading	N/A
Initial Meter Reading	N/A
Condensate (ml)	N/A
Silica Gel Weight (gm)	N/A
CO2	0.0
O2	20.9
CO	0.0
N2	79.1
Filter Weight (gm)	N/A
Prefilter Weight (gm)	N/A
Meter Factor	N/A

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Environmental Consultants

106 Ambient Airway
Starke, Florida 32091
(904) 964-8440

Field Data Points - PM Run 1							
Port	Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter In ' F	Meter Out 'F	Sq Rt VH
1	1	1		209			1.0000
	2	1.1		210			1.0488
	3	0.95		208			0.9747
	4	1		205			1.0000
	5	0.9		203			0.9487
	6	1.1		199			1.0488
2	1	1.1		198			1.0488
	2	1.5		198			1.2247
	3	1.4		198			1.1832
	4	1.5		197			1.2247
	5	1.4		194			1.1832
	6	1.3		192			1.1402
3	1	0.5		175			0.7071
	2	0.8		176			0.8944
	3	0.7		178			0.8367
	4	0.7		180			0.8367
	5	1		181			1.0000
	6	1		181			1.0000
4	1	0.45		170			0.6708
	2	0.7		170			0.8367
	3	0.7		170			0.8367
	4	0.8		170			0.8944
	5	0.8		170			0.8944
	6	0.8		169			0.8944

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PM Summary Run 2

Facility	IPSCO Steel (Iowa) Inc.	Impinger Condensate	N/A
Location	Montpeliar, Iowa	Silica Gel Condensate	N/A
Stack	EAF Baghouse	Volume Metered	N/A
Run Date	10/21/2004	Meter Temp (Deg R)	N/A
Run Number	2	CO2 %	0.0
Start Time	12:15	O2 %	21.0
Finish Time	12:33	CO %	0.0
Weather	ovc, cool, windy	N %	79.0
Total Time (min.)	N/A	Condensate Volume	N/A
Barometric Pressure	29.15	Delta H (inches H2O)	N/A
Stack Diameter (in.)	228.00	Stack Pressure	29.115
Stack Area sq. ft.	283.529	Stack Temp (Deg R)	657.0 ✓
Nozzle Area sq. ft.	N/A	Filter Weight (gm)	N/A
Number of Points	24	Prefilter Weight (gm)	N/A
Avg of SQRT of V.H.	0.8419 ✓	Total Particulate (gm)	N/A
Meter Correction (Y)	N/A		
Nozzle Diameter	N/A		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		N/A
Gas Volume Sampled, STPD		N/A
Total Volume, STP		N/A
Moisture in stack gas, volume fraction		0.030
Dry Stack Gas, volume fraction		0.97
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		28.51
Specific gravity of Stack Gas Relative to Air		0.983
Excess Air (%)		150000.0
Average Stack Velocity, FPM		3227.3
Actual Stack Gas Flow Rate, ACFM		915033
Actual Stack Gas Flow Rate, (Dry) ACFMD		887582
Stack Gas Flow Rate, SCFMD		694116
Stack Gas Flow Rate Wet, SCFMW		715584
Percent Isokinetic		N/A
Stack Emissions:	Grains/DSCF	N/A
	Lbs/Hr	N/A

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Data Request Entry Area	PM Run 2
Facility	IPSCO Steel (Iowa) Inc.
Location	Montpeliar, Iowa
Source	EAF Baghouse
Date	10/21/04
Run Number	2
Start Time	12:15
Finish Time	12:33
Weather	ovc, cool, windy
Total Time (min)	N/A
Number of Points	24
Barometric Pressure	29.15
Static Pressure ("H20)	-0.48
Stack Diameter (inches)	228.00
Nozzle Diameter (in.)	N/A
Meter Y Factor	N/A
Pitot Factor	0.84
Final Meter Reading	N/A
Initial Meter Reading	N/A
Condensate (ml)	N/A
Silica Gel Weight (gm)	N/A
CO2	0.0
O2	21.0
CO	0.0
N2	79.0
Filter Weight (gm)	N/A
Prefilter Weight (gm)	N/A
Meter Factor	N/A

Ambient Air Services, Inc.
Environmental Consultants

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Starke, Florida 32091
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Field Data Points - PM Run 2							
Port	Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter In ' F	Meter Out 'F	Sq Rt VH
1	1	0.8		189			0.8944
	2	1.3		191			1.1402
	3	1.3		190			1.1402
	4	0.8		188			0.8944
	5	0.75		187			0.8660
	6	0.6		187			0.7746
2	1	0.7		192			0.8367
	2	1.2		194			1.0954
	3	0.9		196			0.9487
	4	0.9		197			0.9487
	5	0.9		198			0.9487
	6	0.7		197			0.8367
3	1	0.6		198			0.7746
	2	0.6		195			0.7746
	3	0.5		196			0.7071
	4	0.55		196			0.7416
	5	0.6		197			0.7746
	6	0.6		198			0.7746
4	1	0.35		203			0.5916
	2	0.5		207			0.7071
	3	0.4		209			0.6325
	4	0.45		209			0.6708
	5	0.75		209			0.8660
	6	0.75		206			0.8660

Ambient Air Services, Inc.
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(904) 964-8440

Volumetric Flow Calculations Worksheet

PM Summary Run 3

Facility	IPSCO Steel (Iowa) Inc.	Impinger Condensate	N/A
Location	Montpeliar, Iowa	Silica Gel Condensate	N/A
Stack	EAF Baghouse	Volume Metered	N/A
Run Date	10/21/2004	Meter Temp (Deg R)	N/A
Run Number	3	CO2 %	0.0
Start Time	16:00	O2 %	20.9
Finish Time	16:20	CO %	0.0
Weather	ovc, cool, windy	N %	79.1
Total Time (min.)	N/A	Condensate Volume	N/A
Barometric Pressure	29.15	Delta H (inches H2O)	N/A
Stack Diameter (in.)	228.00	Stack Pressure	29.110
Stack Area sq. ft.	283.529	Stack Temp (Deg R)	674.3
Nozzle Area sq. ft.	N/A	Filter Weight (gm)	N/A
Number of Points	24	Prefilter Weight (gm)	N/A
Avg of SQRT of V.H.	0.7286	Total Particulate (gm)	N/A
Meter Correction (Y)	N/A		
Nozzle Diameter	N/A		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF	N/A
Gas Volume Sampled, STPD	N/A
Total Volume, STP	N/A
Moisture in stack gas, volume fraction	0.030
Dry Stack Gas, volume fraction	0.97
Molecular Weight of Stack Gas (Dry Basis)	28.84
Molecular Weight of Stack Gas (Stack conditions)	28.51
Specific gravity of Stack Gas Relative to Air	0.983
Excess Air (%)	14864.9
Average Stack Velocity, FPM	2829.7
Actual Stack Gas Flow Rate, ACFM	802302
Actual Stack Gas Flow Rate, (Dry) ACFMD	778233
Stack Gas Flow Rate, SCFMD	592886
Stack Gas Flow Rate Wet, SCFMW	611223
Percent Isokinetic	N/A

Ambient Air Services, Inc.
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Volumetric Flow Calculations Worksheet

Data Request Entry Area	PM Run 3
Facility	IPSCO Steel (Iowa) Inc.
Location	Montpeliar, Iowa
Source	EAF Baghouse
Date	10/21/04
Run Number	3
Start Time	16:00
Finish Time	16:20
Weather	ovc, cool, windy
Total Time (min)	N/A
Number of Points	24
Barometric Pressure	29.15
Static Pressure ("H20)	-0.55
Stack Diameter (inches)	228.00
Nozzle Diameter (in.)	N/A
Meter Y Factor	N/A
Pitot Factor	0.84
Final Meter Reading	N/A
Initial Meter Reading	N/A
Condensate (ml)	N/A
Silica Gel Weight (gm)	N/A
CO2	0.0
O2	20.9
CO	0.0
N2	79.1
Filter Weight (gm)	N/A
Prefilter Weight (gm)	N/A
Meter Factor	N/A

Ambient Air Services, Inc.
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Volumetric Flow Calculations Worksheet

Field Data Points - PM Run 3							
Port	Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter In ' F	Meter Out 'F	Sq Rt VH
1	1	0.55		199			0.7416
	2	0.75		205			0.8660
	3	0.7		210			0.8367
	4	0.7		211			0.8367
	5	0.75		213			0.8660
	6	0.6		214			0.7746
2	1	0.6		207			0.7746
	2	0.85		215			0.9220
	3	0.75		217			0.8660
	4	0.75		219			0.8660
	5	0.8		220			0.8944
	6	0.7		220			0.8367
3	1	0.45		205			0.6708
	2	0.4		212			0.6325
	3	0.45		214			0.6708
	4	0.5		217			0.7071
	5	0.4		219			0.6325
	6	0.35		220			0.5916
4	1	0.3		208			0.5477
	2	0.3		216			0.5477
	3	0.35		218			0.5916
	4	0.3		220			0.5477
	5	0.4		221			0.6325
	6	0.4		222			0.6325

Ambient Air Services, Inc.
106 Ambient Air Way
Starke, FL
(904) 964-8440

Velocity Traverse

Plant: IPSCO Steel Inc. Date: 10/21/04

Source: Baghouse Stack Barometric Pressure: 29.15 @ platform

Stack Diameter:_____ Pitot ID_____ Thermocouple ID_____

Run 1			Run 2			Run 3		
Static Pressure		-.040	Static Pressure		-0.48	Static Pressure		-0.55
Start	10:15		Start	12 15		Start	1600	
Stop	10:35		Stop	12 33		Stop	1620	
Traverse Point No.	Velocity Head	Stack Temp Deg F	Traverse Point No.	Velocity Head	Stack Temp Deg F	Traverse Point No.	Velocity Head	Stack Temp Deg F
1-1	1.0	209		0.8	189		0.55	199
2	1.1	210		1.3	191		0.75	205
3	0.95	208		1.3	190		0.7	210
4	1.0	205		0.8	188		0.7	211
5	0.9	203		0.75	187		0.75	213
6	1.1	199		0.6	187		0.6	214
2-1	1.1	198		0.7	192		0.6	207
2	1.5	198		1.2	194		0.85	215
3	1.4	198		0.9	196		0.75	217
4	1.5	197		0.9	197		0.75	219
5	1.4	194		0.9	198		0.8	220
6	1.3	192		0.7	197		0.7	220
3-1	0.5	175		0.6	198		0.45	205
2	0.8	176		0.6	195		0.4	212
3	0.7	178		0.5	196		0.45	214
4	0.7	180		0.55	196		0.5	217
5	1.0	181		0.6	197		0.4	219
6	1.0	181		0.6	198		0.35	220
4-1	0.45	170		0.35	203		0.3	208
2	0.7	170		0.5	207		0.3	216
3	0.7	170		0.4	209		0.35	218
4	0.8	170		0.45	209		0.3	220
5	0.8	170		0.75	209		0.4	221
6	0.8	169		0.75	206		0.4	222

Ambient Air Services Inc.

Magnehelic Calibration

Date: 2 November 2004

Magnehelic ID: V53

Manometer ID: IM3

Technician Name: Jory

Manometer (Audit value)	**Magnehelic** (Display value) **Positive**	**Magnehelic** (Display value) **Negative**	**Percent Difference Positive**	**Percent Difference Negative**
0.5	0.51	0.51	2%	2%
1.0	1.01	1.01	1%	1%
1.5	1.51	1.51	0.6%	0.6%
2.0	2.01	2.01	0.5%	0.5%
2.5	2.51	2.51	0.4%	0.4%
3.0	3.01	3.01	0.3%	0.3%

	Positive	Negative
Average Percent Difference:	0.8%	0.8%

Signature:

Q A Review: J. Elliott

APPENDIX D

NO_x DATA

-Summary of Equipment Used
-Calibration Summary
-Data Logger Printout and Test Summary
-Example Calculations
-Calibration Gas Certificates
25.1 NO_x
45.1 NO_x

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

October 21, 2004

Equipment List

Oxides of Nitrogen Instrument: **Manufacturer -** Thermo Environmental Instruments **Model -** 42

Serial Number - 33584-245

NOx Range - zero to 50 ppm

Calibration Gas Standards		Concentration	Manufacturer	Cylinder Number	Expiration Date	PSI
Zero	Zero	0.00	Air Gas UHP Air	N/A	N/A	400
Mid	NOx	45.10	Spectra Gases	CC 85252	Feb-05	1250
High	NOx	25.10	Spectra Gases	CC 135361	Feb-05	1200

Description of Sampling System :

8' 1/4" SS probe to Tee to H_2O condenser to 200 feet 1/4" Teflon sample line to SS/Teflon pump to instruments

all calibration gases injected direct to probe Tee location

Sampling probe positioned in Baghouse Stack at test platform location.

Test Participants :

NOx Testing - Joe Cooksey - Ambient Air Services, Inc.

Other Comments :

Ipsco Steel - Montpelier, Iowa
Meltshop Baghouse - Quarterly Oxides of Nitrogen Test
IDNR Permit Number 94-A-548-S3
October 21, 2004
Calibration Sheet

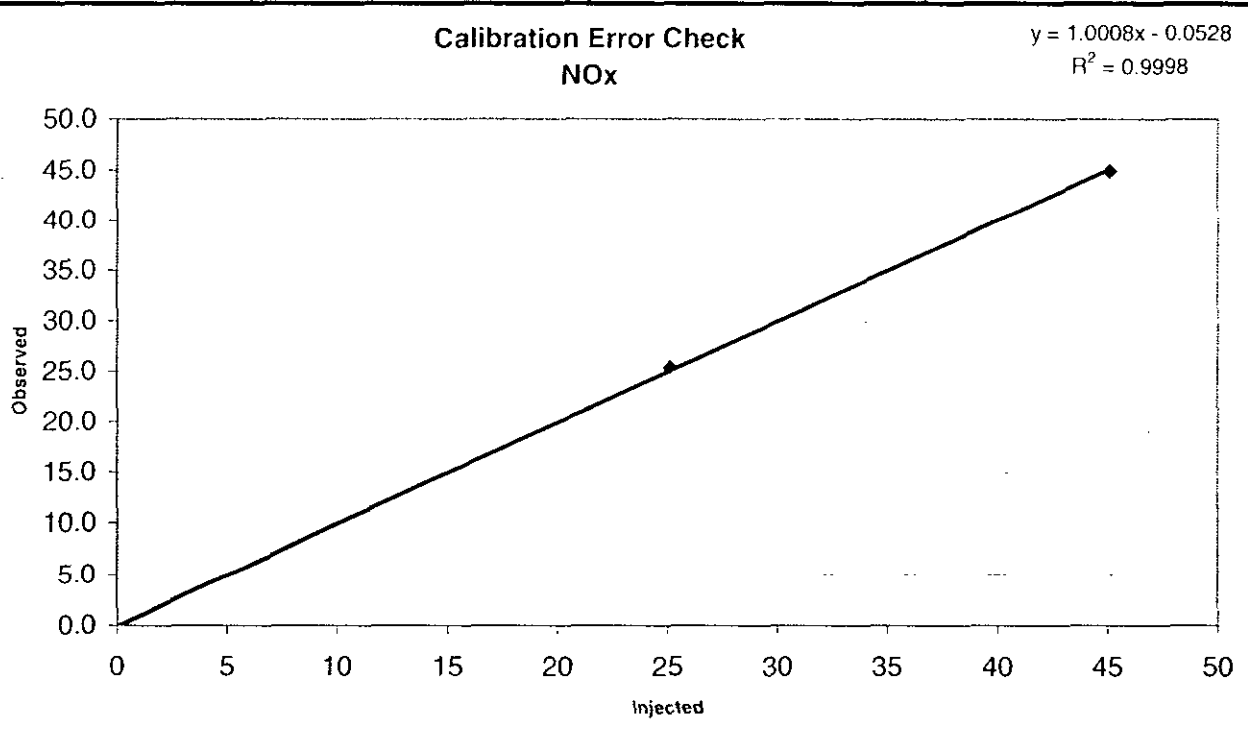
Initial Calibration

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0		-0.2
NOx	45.1		44.9
NOx	25.1		25.4

% Error of Range Table

Inject (ppm)		Time	% Error of Range
Gas	Conc.		NOx
Zero	0	0:00	-0.40%
NOx	45.1	0:00	-0.40%
NOx	25.1	0:00	0.60%



Ipsco Steel - Montpelier, Iowa
Meltshop Baghouse - Quarterly Oxides of Nitrogen Test
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October 21, 2004

Calibration Sheet

Calibration - Post Run 1

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0		-0.1
NOx	45.1		44.0

Drift Analysis From Initial Calibrations to the End of Run 1

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		NOx
Zero	0		0.20%
NOx	45.1		-1.80%

Drift Variables for Run 1

Variable	NOx	
Co	-0.15	
Cm	44.45	
Cma	45.10	

Calibration - Post Run 2

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0		-0.20
NOx	45.1		44.20

Drift Analysis From Initial Calibrations to the End of Run 2

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		NOx
Zero	0		0.00%
NOx	45.1		-1.40%

Drift Variables for Run 2

Variable	NOx	
Co	-0.15	
Cm	44.10	
Cma	45.1	

Ipsco Steel - Montpelier, Iowa
Meltshop Baghouse - Quarterly Oxides of Nitrogen Test
IDNR Permit Number 94-A-548-S3
October 21, 2004

Calibration Sheet

Calibration - Post Run 3

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0		-0.2
NOx	45.1		43.5

Drift Analysis From Initial Calibrations to the End of Run 3

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		NOx
Zero	0		0.00%
NOx	45.1		-2.80%

Drift Variables for Run 3

Variable	NOx	
Co	-0.20	
Cm	43.85	
Cma	45.1	

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

October 21, 2004

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
10/21/2004 8:25	9.5						
10/21/2004 8:26	4.0						
10/21/2004 8:27	0.4						
10/21/2004 8:28	-0.1		0 ppm cal				
10/21/2004 8:29	-0.2		0 ppm cal				
	-0.1		**0 ppm cal Average**				
10/21/2004 8:30	23.6						
10/21/2004 8:31	41.4						
10/21/2004 8:32	44.6						
10/21/2004 8:33	44.9		45.1 ppm cal				
	44.9		**45.1 ppm cal Average**				
10/21/2004 8:34	41.3						
10/21/2004 8:35	16.8						
10/21/2004 8:36	23.0						
10/21/2004 8:37	25.0						
10/21/2004 8:38	25.3		25.1 ppm cal				
10/21/2004 8:39	25.4		25.1 ppm cal				
10/21/2004 8:40	25.3		25.1 ppm cal				
	25.3		**25.1 ppm cal Average**				
10/21/2004 8:41	8.9						
10/21/2004 8:42	2.8						
10/21/2004 8:43	2.4						
10/21/2004 8:44	3.4						
10/21/2004 8:45	14.9		standby - wait on caster				
	14.9		**standby - wait on caster Average**				
10/21/2004 8:46	24.6						
10/21/2004 8:47	28.8						
10/21/2004 8:48	32.9						
10/21/2004 8:49	30.4						
10/21/2004 8:50	7.5						
10/21/2004 8:51	2.5						
10/21/2004 8:52	2.9						
10/21/2004 8:53	1.9						
10/21/2004 8:54	2.0						
10/21/2004 8:55	1.3						
10/21/2004 8:56	1.2						
10/21/2004 8:57	1.3						
10/21/2004 8:58	1.2						
10/21/2004 8:59	1.0						
10/21/2004 9:00	1.0						
10/21/2004 9:01	1.1						
10/21/2004 9:02	1.9						
10/21/2004 9:03	1.9						

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

October 21, 2004

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	COMMENTS	NOx C_O	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
10/21/2004 9:04	1.7						
10/21/2004 9:05	2.0						
10/21/2004 9:06	3.8						
10/21/2004 9:07	4.1						
10/21/2004 9:08	2.5						
10/21/2004 9:09	1.6						
10/21/2004 9:10	2.6						
10/21/2004 9:11	4.9						
10/21/2004 9:12	3.1	1	Run 1	-0.2	44.5	45.1	3.3
10/21/2004 9:13	1.8	1	Run 1	-0.2	44.5	45.1	2.0
10/21/2004 9:14	6.1	1	Run 1	-0.2	44.5	45.1	6.3
10/21/2004 9:15	13.0	1	Run 1	-0.2	44.5	45.1	13.3
10/21/2004 9:16	13.8	1	Run 1	-0.2	44.5	45.1	14.1
10/21/2004 9:17	8.2	1	Run 1	-0.2	44.5	45.1	8.5
10/21/2004 9:18	5.6	1	Run 1	-0.2	44.5	45.1	5.8
10/21/2004 9:19	5.0	1	Run 1	-0.2	44.5	45.1	5.2
10/21/2004 9:20	3.7	1	Run 1	-0.2	44.5	45.1	3.9
10/21/2004 9:21	6.7	1	Run 1	-0.2	44.5	45.1	7.0
10/21/2004 9:22	5.0	1	Run 1	-0.2	44.5	45.1	5.2
10/21/2004 9:23	3.1	1	Run 1	-0.2	44.5	45.1	3.3
10/21/2004 9:24	2.6	1	Run 1	-0.2	44.5	45.1	2.8
10/21/2004 9:25	2.7	1	Run 1	-0.2	44.5	45.1	2.9
10/21/2004 9:26	5.1	1	Run 1	-0.2	44.5	45.1	5.3
10/21/2004 9:27	7.9	1	Run 1	-0.2	44.5	45.1	8.2
10/21/2004 9:28	10.9	1	Run 1	-0.2	44.5	45.1	11.2
10/21/2004 9:29	11.8	1	Run 1	-0.2	44.5	45.1	12.1
10/21/2004 9:30	14.7	1	Run 1	-0.2	44.5	45.1	15.1
10/21/2004 9:31	15.2	1	Run 1	-0.2	44.5	45.1	15.5
10/21/2004 9:32	7.2	1	Run 1	-0.2	44.5	45.1	7.5
10/21/2004 9:33	4.2	1	Run 1	-0.2	44.5	45.1	4.4
10/21/2004 9:34	3.3	1	Run 1	-0.2	44.5	45.1	3.5
10/21/2004 9:35	3.2	1	Run 1	-0.2	44.5	45.1	3.4
10/21/2004 9:36	6.7	1	Run 1	-0.2	44.5	45.1	7.0
10/21/2004 9:37	9.9	1	Run 1	-0.2	44.5	45.1	10.2
10/21/2004 9:38	10.8	1	Run 1	-0.2	44.5	45.1	11.1
10/21/2004 9:39	10.0	1	Run 1	-0.2	44.5	45.1	10.2
10/21/2004 9:40	9.2	1	Run 1	-0.2	44.5	45.1	9.5
10/21/2004 9:41	7.5	1	Run 1	-0.2	44.5	45.1	7.7
10/21/2004 9:42	4.4	1	Run 1	-0.2	44.5	45.1	4.6
10/21/2004 9:43	2.5	1	Run 1	-0.2	44.5	45.1	2.7
10/21/2004 9:44	1.4	1	Run 1	-0.2	44.5	45.1	1.6
10/21/2004 9:45	2.2	1	Run 1	-0.2	44.5	45.1	2.3
10/21/2004 9:46	4.0	1	Run 1	-0.2	44.5	45.1	4.2

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

October 21, 2004

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	COMMENTS	NOx C_0	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
10/21/2004 9:47	5.2	1	Run 1	-0.2	44.5	45.1	5.4
10/21/2004 9:48	6.0	1	Run 1	-0.2	44.5	45.1	6.2
10/21/2004 9:49	6.4	1	Run 1	-0.2	44.5	45.1	6.6
10/21/2004 9:50	7.1	1	Run 1	-0.2	44.5	45.1	7.4
10/21/2004 9:51	7.8	1	Run 1	-0.2	44.5	45.1	8.0
10/21/2004 9:52	8.2	1	Run 1	-0.2	44.5	45.1	8.4
10/21/2004 9:53	7.4	1	Run 1	-0.2	44.5	45.1	7.6
10/21/2004 9:54	8.1	1	Run 1	-0.2	44.5	45.1	8.4
10/21/2004 9:55	7.2	1	Run 1	-0.2	44.5	45.1	7.4
10/21/2004 9:56	7.7	1	Run 1	-0.2	44.5	45.1	7.9
10/21/2004 9:57	6.3	1	Run 1	-0.2	44.5	45.1	6.5
10/21/2004 9:58	3.0	1	Run 1	-0.2	44.5	45.1	3.2
10/21/2004 9:59	2.8	1	Run 1	-0.2	44.5	45.1	3.0
10/21/2004 10:00	3.5	1	Run 1	-0.2	44.5	45.1	3.7
10/21/2004 10:01	5.9	1	Run 1	-0.2	44.5	45.1	6.1
10/21/2004 10:02	8.7	1	Run 1	-0.2	44.5	45.1	9.0
10/21/2004 10:03	12.9	1	Run 1	-0.2	44.5	45.1	13.2
10/21/2004 10:04	18.9	1	Run 1	-0.2	44.5	45.1	19.3
10/21/2004 10:05	40.4	1	Run 1	-0.2	44.5	45.1	41.0
10/21/2004 10:06	41.1	1	Run 1	-0.2	44.5	45.1	41.7
10/21/2004 10:07	41.5	1	Run 1	-0.2	44.5	45.1	42.2
10/21/2004 10:08	41.5	1	Run 1	-0.2	44.5	45.1	42.1
10/21/2004 10:09	38.6	1	Run 1	-0.2	44.5	45.1	39.1
10/21/2004 10:10	36.8	1	Run 1	-0.2	44.5	45.1	37.3
10/21/2004 10:11	36.7	1	Run 1	-0.2	44.5	45.1	37.3
10/21/2004 10:12	39.7	1	Run 1	-0.2	44.5	45.1	40.3
10/21/2004 10:13	40.5	1	Run 1	-0.2	44.5	45.1	41.1
10/21/2004 10:14	42.5	1	Run 1	-0.2	44.5	45.1	43.1
10/21/2004 10:15	42.7	1	Run 1	-0.2	44.5	45.1	43.3
10/21/2004 10:16	42.7	1	Run 1	-0.2	44.5	45.1	43.3
10/21/2004 10:17	41.1	1	Run 1	-0.2	44.5	45.1	41.7
10/21/2004 10:18	42.6	1	Run 1	-0.2	44.5	45.1	43.2
10/21/2004 10:19	42.8	1	Run 1	-0.2	44.5	45.1	43.4
10/21/2004 10:20	40.3	1	Run 1	-0.2	44.5	45.1	40.9
10/21/2004 10:21	40.6	1	Run 1	-0.2	44.5	45.1	41.2
10/21/2004 10:22	41.4	1	Run 1	-0.2	44.5	45.1	42.0
10/21/2004 10:23	37.4	1	Run 1	-0.2	44.5	45.1	38.0
10/21/2004 10:24	38.3	1	Run 1	-0.2	44.5	45.1	38.9
10/21/2004 10:25	38.4	1	Run 1	-0.2	44.5	45.1	38.9
10/21/2004 10:26	38.7	1	Run 1	-0.2	44.5	45.1	39.3
10/21/2004 10:27	32.2	1	Run 1	-0.2	44.5	45.1	32.7
10/21/2004 10:28	28.9	1	Run 1	-0.2	44.5	45.1	29.3
10/21/2004 10:29	28.1	1	Run 1	-0.2	44.5	45.1	28.6

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Time	NOx, ppm	Run Number	COMMENTS	NOx C_O	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
10/21/2004 10:30	32.4	1	Run 1	-0.2	44.5	45.1	32.9
10/21/2004 10:31	32.4	1	Run 1	-0.2	44.5	45.1	32.9
10/21/2004 10:32	32.1	1	Run 1	-0.2	44.5	45.1	32.6
10/21/2004 10:33	39.3	1	Run 1	-0.2	44.5	45.1	39.9
10/21/2004 10:34	46.1	1	Run 1	-0.2	44.5	45.1	46.8
10/21/2004 10:35	43.4	1	Run 1	-0.2	44.5	45.1	44.0
10/21/2004 10:36	44.5	1	Run 1	-0.2	44.5	45.1	45.2
10/21/2004 10:37	42.3	1	Run 1	-0.2	44.5	45.1	42.9
10/21/2004 10:38	37.1	1	Run 1	-0.2	44.5	45.1	37.6
10/21/2004 10:39	35.6	1	Run 1	-0.2	44.5	45.1	36.2
10/21/2004 10:40	34.2	1	Run 1	-0.2	44.5	45.1	34.8
10/21/2004 10:41	33.8	1	Run 1	-0.2	44.5	45.1	34.4
10/21/2004 10:42	36.0	1	Run 1	-0.2	44.5	45.1	36.6
10/21/2004 10:43	37.1	1	Run 1	-0.2	44.5	45.1	37.6
10/21/2004 10:44	37.6	1	Run 1	-0.2	44.5	45.1	38.2
10/21/2004 10:45	37.4	1	Run 1	-0.2	44.5	45.1	38.0
10/21/2004 10:46	28.2	1	Run 1	-0.2	44.5	45.1	28.7
10/21/2004 10:47	20.6	1	Run 1	-0.2	44.5	45.1	21.0
10/21/2004 10:48	13.7	1	Run 1	-0.2	44.5	45.1	14.0
10/21/2004 10:49	8.7	1	Run 1	-0.2	44.5	45.1	8.9
10/21/2004 10:50	9.7	1	Run 1	-0.2	44.5	45.1	9.9
10/21/2004 10:51	8.8	1	Run 1	-0.2	44.5	45.1	9.1
10/21/2004 10:52	5.6	1	Run 1	-0.2	44.5	45.1	5.8
10/21/2004 10:53	5.1	1	Run 1	-0.2	44.5	45.1	5.3
10/21/2004 10:54	3.8	1	Run 1	-0.2	44.5	45.1	3.9
10/21/2004 10:55	3.2	1	Run 1	-0.2	44.5	45.1	3.4
10/21/2004 10:56	3.8	1	Run 1	-0.2	44.5	45.1	3.9
10/21/2004 10:57	3.6	1	Run 1	-0.2	44.5	45.1	3.8
10/21/2004 10:58	2.6	1	Run 1	-0.2	44.5	45.1	2.8
10/21/2004 10:59	5.8	1	Run 1	-0.2	44.5	45.1	6.0
10/21/2004 11:00	15.9	1	Run 1	-0.2	44.5	45.1	16.3
10/21/2004 11:01	13.8	1	Run 1	-0.2	44.5	45.1	14.1
10/21/2004 11:02	13.8	1	Run 1	-0.2	44.5	45.1	14.1
10/21/2004 11:03	13.2	1	Run 1	-0.2	44.5	45.1	13.5
10/21/2004 11:04	12.4	1	Run 1	-0.2	44.5	45.1	12.7
10/21/2004 11:05	12.1	1	Run 1	-0.2	44.5	45.1	12.4
10/21/2004 11:06	13.0	1	Run 1	-0.2	44.5	45.1	13.3
10/21/2004 11:07	12.6	1	Run 1	-0.2	44.5	45.1	12.9
10/21/2004 11:08	11.4	1	Run 1	-0.2	44.5	45.1	11.7
10/21/2004 11:09	10.8	1	Run 1	-0.2	44.5	45.1	11.1
10/21/2004 11:10	7.0	1	Run 1	-0.2	44.5	45.1	7.2
	18.5		**Run 1 Average**				18.9
10/21/2004 11:11	0.7						

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Time	NOx, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
10/21/2004 11:12	-0.1		0 ppm cal				
	-0.1		**0 ppm cal Average**				
10/21/2004 11:13	11.9						
10/21/2004 11:14	36.9						
10/21/2004 11:15	43.0						
10/21/2004 11:16	44.0		45.1 ppm cal				
	44.0		**45.1 ppm cal Average**				
10/21/2004 11:17	38.8						
10/21/2004 11:18	8.8						
10/21/2004 11:19	6.4						
10/21/2004 11:20	4.1		Run 2	-0.2	44.1	45.1	4.4
10/21/2004 11:21	3.1		Run 2	-0.2	44.1	45.1	3.3
10/21/2004 11:22	2.5		Run 2	-0.2	44.1	45.1	2.7
10/21/2004 11:23	3.2		Run 2	-0.2	44.1	45.1	3.4
10/21/2004 11:24	6.1		Run 2	-0.2	44.1	45.1	6.3
10/21/2004 11:25	8.7		Run 2	-0.2	44.1	45.1	9.0
10/21/2004 11:26	4.4		Run 2	-0.2	44.1	45.1	4.7
10/21/2004 11:27	3.9		Run 2	-0.2	44.1	45.1	4.1
10/21/2004 11:28	4.1		Run 2	-0.2	44.1	45.1	4.3
10/21/2004 11:29	4.6		Run 2	-0.2	44.1	45.1	4.8
10/21/2004 11:30	3.3		Run 2	-0.2	44.1	45.1	3.5
10/21/2004 11:31	1.3		Run 2	-0.2	44.1	45.1	1.5
10/21/2004 11:32	2.8		Run 2	-0.2	44.1	45.1	3.0
10/21/2004 11:33	3.5		Run 2	-0.2	44.1	45.1	3.7
10/21/2004 11:34	3.2		Run 2	-0.2	44.1	45.1	3.4
10/21/2004 11:35	3.9		Run 2	-0.2	44.1	45.1	4.2
10/21/2004 11:36	6.2		Run 2	-0.2	44.1	45.1	6.5
10/21/2004 11:37	9.7		Run 2	-0.2	44.1	45.1	10.1
10/21/2004 11:38	15.0		Run 2	-0.2	44.1	45.1	15.4
10/21/2004 11:39	20.1		Run 2	-0.2	44.1	45.1	20.7
10/21/2004 11:40	21.8		Run 2	-0.2	44.1	45.1	22.4
10/21/2004 11:41	16.5		Run 2	-0.2	44.1	45.1	16.9
10/21/2004 11:42	7.4		Run 2	-0.2	44.1	45.1	7.7
10/21/2004 11:43	4.4		Run 2	-0.2	44.1	45.1	4.7
10/21/2004 11:44	3.2		Run 2	-0.2	44.1	45.1	3.4
10/21/2004 11:45	5.7		Run 2	-0.2	44.1	45.1	6.0
10/21/2004 11:46	9.2		Run 2	-0.2	44.1	45.1	9.5
10/21/2004 11:47	9.7		Run 2	-0.2	44.1	45.1	10.0
10/21/2004 11:48	9.6		Run 2	-0.2	44.1	45.1	9.9
10/21/2004 11:49	12.0		Run 2	-0.2	44.1	45.1	12.4
10/21/2004 11:50	11.5		Run 2	-0.2	44.1	45.1	11.8
10/21/2004 11:51	8.8		Run 2	-0.2	44.1	45.1	9.1
10/21/2004 11:52	9.9		Run 2	-0.2	44.1	45.1	10.2

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Time	NOx, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
10/21/2004 11:53	12.3		Run 2	-0.2	44.1	45.1	12.7
10/21/2004 11:54	12.1		Run 2	-0.2	44.1	45.1	12.5
10/21/2004 11:55	9.5		Run 2	-0.2	44.1	45.1	9.9
10/21/2004 11:56	5.5		Run 2	-0.2	44.1	45.1	5.8
10/21/2004 11:57	6.3		Run 2	-0.2	44.1	45.1	6.5
10/21/2004 11:58	10.6		Run 2	-0.2	44.1	45.1	11.0
10/21/2004 11:59	11.2		Run 2	-0.2	44.1	45.1	11.5
10/21/2004 12:00	11.7		Run 2	-0.2	44.1	45.1	12.0
10/21/2004 12:01	11.6		Run 2	-0.2	44.1	45.1	11.9
10/21/2004 12:02	11.3		Run 2	-0.2	44.1	45.1	11.6
10/21/2004 12:03	11.0		Run 2	-0.2	44.1	45.1	11.3
10/21/2004 12:04	10.6		Run 2	-0.2	44.1	45.1	11.0
10/21/2004 12:05	10.4		Run 2	-0.2	44.1	45.1	10.8
10/21/2004 12:06	10.6		Run 2	-0.2	44.1	45.1	11.0
10/21/2004 12:07	11.4		Run 2	-0.2	44.1	45.1	11.7
10/21/2004 12:08	11.3		Run 2	-0.2	44.1	45.1	11.7
10/21/2004 12:09	10.6		Run 2	-0.2	44.1	45.1	11.0
10/21/2004 12:10	10.4		Run 2	-0.2	44.1	45.1	10.8
10/21/2004 12:11	9.9		Run 2	-0.2	44.1	45.1	10.3
10/21/2004 12:12	8.1		Run 2	-0.2	44.1	45.1	8.4
10/21/2004 12:13	3.4		Run 2	-0.2	44.1	45.1	3.6
10/21/2004 12:14	4.5		Run 2	-0.2	44.1	45.1	4.7
10/21/2004 12:15	7.9		Run 2	-0.2	44.1	45.1	8.3
10/21/2004 12:16	25.5		Run 2	-0.2	44.1	45.1	26.1
10/21/2004 12:17	36.5		Run 2	-0.2	44.1	45.1	37.4
10/21/2004 12:18	39.0		Run 2	-0.2	44.1	45.1	39.9
10/21/2004 12:19	39.9		Run 2	-0.2	44.1	45.1	40.8
10/21/2004 12:20	41.7		Run 2	-0.2	44.1	45.1	42.6
10/21/2004 12:21	43.6		Run 2	-0.2	44.1	45.1	44.6
10/21/2004 12:22	36.3		Run 2	-0.2	44.1	45.1	37.2
10/21/2004 12:23	26.6		Run 2	-0.2	44.1	45.1	27.3
10/21/2004 12:24	18.6		Run 2	-0.2	44.1	45.1	19.2
10/21/2004 12:25	14.5		Run 2	-0.2	44.1	45.1	14.9
10/21/2004 12:26	21.1		Run 2	-0.2	44.1	45.1	21.6
10/21/2004 12:27	28.0		Run 2	-0.2	44.1	45.1	28.6
10/21/2004 12:28	38.4		Run 2	-0.2	44.1	45.1	39.3
10/21/2004 12:29	46.7		Run 2	-0.2	44.1	45.1	47.7
10/21/2004 12:30	43.2		Run 2	-0.2	44.1	45.1	44.2
10/21/2004 12:31	41.4		Run 2	-0.2	44.1	45.1	42.4
10/21/2004 12:32	41.9		Run 2	-0.2	44.1	45.1	42.9
10/21/2004 12:33	43.0		Run 2	-0.2	44.1	45.1	44.0
10/21/2004 12:34	46.2		Run 2	-0.2	44.1	45.1	47.2
10/21/2004 12:35	46.8		Run 2	-0.2	44.1	45.1	47.8

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Time	NOx, ppm	Run Number	COMMENTS	NOx C_O	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
10/21/2004 12:36	42.6		Run 2	-0.2	44.1	45.1	43.5
10/21/2004 12:37	23.4		Run 2	-0.2	44.1	45.1	24.0
10/21/2004 12:38	9.7		Run 2	-0.2	44.1	45.1	10.1
10/21/2004 12:39	4.0		Run 2	-0.2	44.1	45.1	4.2
10/21/2004 12:40	14.7		Run 2	-0.2	44.1	45.1	15.2
10/21/2004 12:41	16.7		Run 2	-0.2	44.1	45.1	17.2
10/21/2004 12:42	15.7		Run 2	-0.2	44.1	45.1	16.1
10/21/2004 12:43	11.7		Run 2	-0.2	44.1	45.1	12.0
10/21/2004 12:44	9.4		Run 2	-0.2	44.1	45.1	9.8
10/21/2004 12:45	9.1		Run 2	-0.2	44.1	45.1	9.4
10/21/2004 12:46	10.7		Run 2	-0.2	44.1	45.1	11.1
10/21/2004 12:47	13.3		Run 2	-0.2	44.1	45.1	13.8
10/21/2004 12:48	14.2		Run 2	-0.2	44.1	45.1	14.6
10/21/2004 12:49	15.3		Run 2	-0.2	44.1	45.1	15.8
10/21/2004 12:50	15.6		Run 2	-0.2	44.1	45.1	16.1
10/21/2004 12:51	12.0		Run 2	-0.2	44.1	45.1	12.4
10/21/2004 12:52	8.0		Run 2	-0.2	44.1	45.1	8.4
10/21/2004 12:53	5.2		Run 2	-0.2	44.1	45.1	5.5
10/21/2004 12:54	4.4		Run 2	-0.2	44.1	45.1	4.6
10/21/2004 12:55	4.4		Run 2	-0.2	44.1	45.1	4.7
10/21/2004 12:56	4.8		Run 2	-0.2	44.1	45.1	5.1
10/21/2004 12:57	5.1		Run 2	-0.2	44.1	45.1	5.3
10/21/2004 12:58	5.5		Run 2	-0.2	44.1	45.1	5.8
10/21/2004 12:59	5.9		Run 2	-0.2	44.1	45.1	6.2
10/21/2004 13:00	6.9		Run 2	-0.2	44.1	45.1	7.2
10/21/2004 13:01	7.7		Run 2	-0.2	44.1	45.1	8.0
10/21/2004 13:02	8.6		Run 2	-0.2	44.1	45.1	8.9
10/21/2004 13:03	9.0		Run 2	-0.2	44.1	45.1	9.3
10/21/2004 13:04	8.5		Run 2	-0.2	44.1	45.1	8.8
10/21/2004 13:05	8.0		Run 2	-0.2	44.1	45.1	8.4
10/21/2004 13:06	5.7		Run 2	-0.2	44.1	45.1	6.0
10/21/2004 13:07	5.0		Run 2	-0.2	44.1	45.1	5.2
10/21/2004 13:08	9.4		Run 2	-0.2	44.1	45.1	9.8
10/21/2004 13:09	8.6		Run 2	-0.2	44.1	45.1	8.9
10/21/2004 13:10	7.2		Run 2	-0.2	44.1	45.1	7.5
10/21/2004 13:11	8.1		Run 2	-0.2	44.1	45.1	8.4
10/21/2004 13:12	24.1		Run 2	-0.2	44.1	45.1	24.8
10/21/2004 13:13	13.1		Run 2	-0.2	44.1	45.1	13.5
10/21/2004 13:14	6.4		Run 2	-0.2	44.1	45.1	6.7
10/21/2004 13:15	2.4		Run 2	-0.2	44.1	45.1	2.6
10/21/2004 13:16	1.8		Run 2	-0.2	44.1	45.1	2.0
10/21/2004 13:17	3.9		Run 2	-0.2	44.1	45.1	4.1
10/21/2004 13:18	3.5		Run 2	-0.2	44.1	45.1	3.7

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	13.6		Run 2 Average				14.0
10/21/2004 13:19	2.7						
10/21/2004 13:22	-0.1						
10/21/2004 13:23	-0.2		0 ppm cal				
10/21/2004 13:24	-0.2		0 ppm cal				
	-0.2		**0 ppm cal Average**				
10/21/2004 13:25	4.5						
10/21/2004 13:26	32.7						
10/21/2004 13:27	41.5						
10/21/2004 13:28	43.9						
10/21/2004 13:29	44.2		45.1 ppm cal				
	44.2		**45.1 ppm cal Average**				
10/21/2004 13:30	33.3						
10/21/2004 13:31	1.5						
10/21/2004 13:32	0.8						
10/21/2004 13:33	1.8		Delay - caster				
10/21/2004 13:34	9.3		Delay - caster				
10/21/2004 13:35	11.5		Delay - caster				
10/21/2004 13:36	11.5		Delay - caster				
10/21/2004 13:37	11.7		Delay - caster				
10/21/2004 13:38	11.3		Delay - caster				
10/21/2004 13:39	10.2		Delay - caster				
10/21/2004 13:40	10.7		Delay - caster				
10/21/2004 13:41	8.1		Delay - caster				
10/21/2004 13:42	2.3		Delay - caster				
10/21/2004 13:43	2.0		Delay - caster				
10/21/2004 13:44	4.1		Delay - caster				
10/21/2004 13:45	6.9		Delay - caster				
10/21/2004 13:46	3.5		Delay - caster				
10/21/2004 13:47	1.8		Delay - caster				
10/21/2004 13:48	2.1		Delay - caster				
10/21/2004 13:49	3.9		Delay - caster				
10/21/2004 13:50	5.4		Delay - caster				
10/21/2004 13:51	5.2		Delay - caster				
10/21/2004 13:52	6.4		Delay - caster				
10/21/2004 13:53	6.2		Delay - caster				
10/21/2004 13:54	3.2		Delay - caster				
10/21/2004 13:55	1.4		Delay - caster				
10/21/2004 13:56	1.6		Delay - caster				
10/21/2004 13:57	2.0		Delay - caster				
10/21/2004 13:58	2.0		Delay - caster				
10/21/2004 13:59	2.2		Delay - caster				
10/21/2004 14:00	2.1		Delay - caster				

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

October 21, 2004

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	COMMENTS	NOx C_O	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
10/21/2004 14:01	1.7		Delay - caster				
10/21/2004 14:02	1.9		Delay - caster				
10/21/2004 14:03	1.4		Delay - caster				
10/21/2004 14:04	2.0		Delay - caster				
10/21/2004 14:05	2.4		Delay - caster				
10/21/2004 14:06	2.8		Delay - caster				
10/21/2004 14:07	2.4		Delay - caster				
10/21/2004 14:08	1.2		Delay - caster				
10/21/2004 14:09	1.9		Delay - caster				
10/21/2004 14:10	2.7		Delay - caster				
10/21/2004 14:11	3.9		Delay - caster				
10/21/2004 14:12	4.3		Delay - caster				
10/21/2004 14:13	4.2		Delay - caster				
10/21/2004 14:14	3.9		Delay - caster				
10/21/2004 14:15	3.9		Delay - caster				
10/21/2004 14:16	3.5		Delay - caster				
10/21/2004 14:17	3.6		Delay - caster				
10/21/2004 14:18	1.9		Delay - caster				
10/21/2004 14:19	1.0		Delay - caster				
10/21/2004 14:20	1.0		Delay - caster				
10/21/2004 14:21	0.9		Delay - caster				
10/21/2004 14:22	0.9		Delay - caster				
10/21/2004 14:23	1.4		Delay - caster				
10/21/2004 14:24	3.8		Delay - caster				
10/21/2004 14:25	6.1		Delay - caster				
	4.1		**Delay - caster Average**				
10/21/2004 14:26	7.8						
10/21/2004 14:27	8.6						
10/21/2004 14:28	8.3						
10/21/2004 14:29	8.2						
10/21/2004 14:30	18.6		Run 3	-0.2	43.9	45.1	19.2
10/21/2004 14:31	15.2		Run 3	-0.2	43.9	45.1	15.8
10/21/2004 14:32	15.0		Run 3	-0.2	43.9	45.1	15.6
10/21/2004 14:33	16.8		Run 3	-0.2	43.9	45.1	17.4
10/21/2004 14:34	19.3		Run 3	-0.2	43.9	45.1	20.0
10/21/2004 14:35	18.5		Run 3	-0.2	43.9	45.1	19.1
10/21/2004 14:36	15.8		Run 3	-0.2	43.9	45.1	16.3
10/21/2004 14:37	10.0		Run 3	-0.2	43.9	45.1	10.4
10/21/2004 14:38	7.0		Run 3	-0.2	43.9	45.1	7.3
10/21/2004 14:39	9.4		Run 3	-0.2	43.9	45.1	9.8
10/21/2004 14:40	3.4		Run 3	-0.2	43.9	45.1	3.7
10/21/2004 14:41	1.7		Run 3	-0.2	43.9	45.1	1.9
10/21/2004 14:42	1.6		Run 3	-0.2	43.9	45.1	1.8

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

October 21, 2004

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	COMMENTS	NOx C_O	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
10/21/2004 14:43	1.3		Run 3	-0.2	43.9	45.1	1.5
10/21/2004 14:44	1.2		Run 3	-0.2	43.9	45.1	1.3
10/21/2004 14:45	4.9		Run 3	-0.2	43.9	45.1	5.2
10/21/2004 14:46	11.7		Run 3	-0.2	43.9	45.1	12.1
10/21/2004 14:47	15.3		Run 3	-0.2	43.9	45.1	15.8
10/21/2004 14:48	7.3		Run 3	-0.2	43.9	45.1	7.7
10/21/2004 14:49	5.1		Run 3	-0.2	43.9	45.1	5.3
10/21/2004 14:50	4.3		Run 3	-0.2	43.9	45.1	4.6
10/21/2004 14:51	4.4		Run 3	-0.2	43.9	45.1	4.7
10/21/2004 14:52	7.0		Run 3	-0.2	43.9	45.1	7.4
10/21/2004 14:53	7.5		Run 3	-0.2	43.9	45.1	7.9
10/21/2004 14:54	9.2		Run 3	-0.2	43.9	45.1	9.6
10/21/2004 14:55	9.0		Run 3	-0.2	43.9	45.1	9.4
10/21/2004 14:56	6.7		Run 3	-0.2	43.9	45.1	7.1
10/21/2004 14:57	6.7		Run 3	-0.2	43.9	45.1	7.0
10/21/2004 14:58	4.5		Run 3	-0.2	43.9	45.1	4.8
10/21/2004 14:59	3.5		Run 3	-0.2	43.9	45.1	3.7
10/21/2004 15:00	3.2		Run 3	-0.2	43.9	45.1	3.5
10/21/2004 15:01	2.9		Run 3	-0.2	43.9	45.1	3.1
10/21/2004 15:02	2.8		Run 3	-0.2	43.9	45.1	3.0
10/21/2004 15:03	3.2		Run 3	-0.2	43.9	45.1	3.5
10/21/2004 15:04	2.6		Run 3	-0.2	43.9	45.1	2.9
10/21/2004 15:05	1.5		Run 3	-0.2	43.9	45.1	1.7
10/21/2004 15:06	1.3		Run 3	-0.2	43.9	45.1	1.5
10/21/2004 15:07	1.6		Run 3	-0.2	43.9	45.1	1.8
10/21/2004 15:08	2.2		Run 3	-0.2	43.9	45.1	2.4
10/21/2004 15:09	2.6		Run 3	-0.2	43.9	45.1	2.8
10/21/2004 15:10	3.9		Run 3	-0.2	43.9	45.1	4.2
10/21/2004 15:11	4.3		Run 3	-0.2	43.9	45.1	4.5
10/21/2004 15:12	5.2		Run 3	-0.2	43.9	45.1	5.5
10/21/2004 15:13	6.1		Run 3	-0.2	43.9	45.1	6.4
10/21/2004 15:14	6.4		Run 3	-0.2	43.9	45.1	6.7
10/21/2004 15:15	6.9		Run 3	-0.2	43.9	45.1	7.2
10/21/2004 15:16	8.1		Run 3	-0.2	43.9	45.1	8.4
10/21/2004 15:17	8.8		Run 3	-0.2	43.9	45.1	9.2
10/21/2004 15:18	9.2		Run 3	-0.2	43.9	45.1	9.6
10/21/2004 15:19	8.5		Run 3	-0.2	43.9	45.1	8.9
10/21/2004 15:20	12.3		Run 3	-0.2	43.9	45.1	12.8
10/21/2004 15:21	16.4		Run 3	-0.2	43.9	45.1	17.0
10/21/2004 15:22	25.4		Run 3	-0.2	43.9	45.1	26.2
10/21/2004 15:23	29.1		Run 3	-0.2	43.9	45.1	30.0
10/21/2004 15:24	31.5		Run 3	-0.2	43.9	45.1	32.5
10/21/2004 15:25	39.0		Run 3	-0.2	43.9	45.1	40.1

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

October 21, 2004

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	COMMENTS	NOx C_0	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
10/21/2004 15:26	46.8		Run 3	-0.2	43.9	45.1	48.1
10/21/2004 15:27	54.6		Run 3	-0.2	43.9	45.1	56.1
10/21/2004 15:28	62.4		Run 3	-0.2	43.9	45.1	64.1
10/21/2004 15:29	50.2		Run 3	-0.2	43.9	45.1	51.6
10/21/2004 15:30	58.0		Run 3	-0.2	43.9	45.1	59.6
10/21/2004 15:31	52.5		Run 3	-0.2	43.9	45.1	54.0
10/21/2004 15:32	50.3		Run 3	-0.2	43.9	45.1	51.7
10/21/2004 15:33	46.8		Run 3	-0.2	43.9	45.1	48.1
10/21/2004 15:34	46.8		Run 3	-0.2	43.9	45.1	48.1
10/21/2004 15:35	56.8		Run 3	-0.2	43.9	45.1	58.4
10/21/2004 15:36	64.6		Run 3	-0.2	43.9	45.1	66.4
10/21/2004 15:37	61.0		Run 3	-0.2	43.9	45.1	62.6
10/21/2004 15:38	57.3		Run 3	-0.2	43.9	45.1	58.9
10/21/2004 15:39	53.6		Run 3	-0.2	43.9	45.1	55.1
10/21/2004 15:40	50.0		Run 3	-0.2	43.9	45.1	51.4
10/21/2004 15:41	46.3		Run 3	-0.2	43.9	45.1	47.6
10/21/2004 15:42	42.7		Run 3	-0.2	43.9	45.1	43.9
10/21/2004 15:43	39.7		Run 3	-0.2	43.9	45.1	40.9
10/21/2004 15:44	40.5		Run 3	-0.2	43.9	45.1	41.6
10/21/2004 15:45	41.4		Run 3	-0.2	43.9	45.1	42.5
10/21/2004 15:46	41.7		Run 3	-0.2	43.9	45.1	42.9
10/21/2004 15:47	36.2		Run 3	-0.2	43.9	45.1	37.3
10/21/2004 15:48	34.1		Run 3	-0.2	43.9	45.1	35.1
10/21/2004 15:49	40.6		Run 3	-0.2	43.9	45.1	41.8
10/21/2004 15:50	46.8		Run 3	-0.2	43.9	45.1	48.1
10/21/2004 15:51	56.8		Run 3	-0.2	43.9	45.1	58.4
10/21/2004 15:52	46.8		Run 3	-0.2	43.9	45.1	48.1
10/21/2004 15:53	45.6		Run 3	-0.2	43.9	45.1	46.9
10/21/2004 15:54	42.8		Run 3	-0.2	43.9	45.1	44.1
10/21/2004 15:55	38.7		Run 3	-0.2	43.9	45.1	39.8
10/21/2004 15:56	27.2		Run 3	-0.2	43.9	45.1	28.1
10/21/2004 15:57	30.6		Run 3	-0.2	43.9	45.1	31.6
10/21/2004 15:58	26.4		Run 3	-0.2	43.9	45.1	27.2
10/21/2004 15:59	17.1		Run 3	-0.2	43.9	45.1	17.6
10/21/2004 16:00	8.4		Run 3	-0.2	43.9	45.1	8.8
10/21/2004 16:01	6.8		Run 3	-0.2	43.9	45.1	7.2
10/21/2004 16:02	6.9		Run 3	-0.2	43.9	45.1	7.2
10/21/2004 16:03	8.1		Run 3	-0.2	43.9	45.1	8.4
10/21/2004 16:04	7.8		Run 3	-0.2	43.9	45.1	8.2
10/21/2004 16:05	6.6		Run 3	-0.2	43.9	45.1	7.0
10/21/2004 16:06	6.4		Run 3	-0.2	43.9	45.1	6.7
10/21/2004 16:07	6.4		Run 3	-0.2	43.9	45.1	6.7
10/21/2004 16:08	7.3		Run 3	-0.2	43.9	45.1	7.6

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

October 21, 2004

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
10/21/2004 16:09	7.3		Run 3	-0.2	43.9	45.1	7.6
10/21/2004 16:10	6.5		Run 3	-0.2	43.9	45.1	6.8
10/21/2004 16:11	6.5		Run 3	-0.2	43.9	45.1	6.9
10/21/2004 16:12	6.5		Run 3	-0.2	43.9	45.1	6.8
10/21/2004 16:13	10.6		Run 3	-0.2	43.9	45.1	11.1
10/21/2004 16:14	31.6		Run 3	-0.2	43.9	45.1	32.5
10/21/2004 16:15	26.2		Run 3	-0.2	43.9	45.1	27.0
10/21/2004 16:16	12.8		Run 3	-0.2	43.9	45.1	13.2
10/21/2004 16:17	9.7		Run 3	-0.2	43.9	45.1	10.1
10/21/2004 16:18	8.0		Run 3	-0.2	43.9	45.1	8.3
10/21/2004 16:19	6.9		Run 3	-0.2	43.9	45.1	7.2
10/21/2004 16:20	4.9		Run 3	-0.2	43.9	45.1	5.1
10/21/2004 16:21	4.0		Run 3	-0.2	43.9	45.1	4.2
10/21/2004 16:22	2.5		Run 3	-0.2	43.9	45.1	2.8
	20.1		**Run 3 Average**				20.7
10/21/2004 16:23	9.4						
10/21/2004 16:24	34.9						
10/21/2004 16:25	41.7						
10/21/2004 16:26	43.3						
10/21/2004 16:27	43.5		45.1 ppm cal				
	43.5		**45.1 ppm cal Average**				
10/21/2004 16:28	22.1						
10/21/2004 16:29	0.7						
10/21/2004 16:30	-0.1						
10/21/2004 16:31	-0.2		0 ppm cal				
	-0.2		**0 ppm cal Average**				
			Test Average				17.8

EXAMPLE CALCULATIONS FOR GASEOUS EMISSIONS

Calculations for Run 1 of the Oxides of Nitrogen Test

Correction of NOx Concentrations for Instrument Drift

EPA Method 6C provides an equation for correcting the measured gaseous concentrations over a valid test run for instrument drift during the test run.

The EPA equation presented in Section 8 of EPA Method 6C is:

Cgas = (Cavg - Co)(Cma / (Cm - Co))

Where:

Cgas = Effluent gas concentration, dry basis, ppm.

Cavg = Average gas concentration indicated by the gas analyzer, ppm.

Co = Average of initial and final system calibration bias check responses for the zero gas, ppm.

Cm = Average of initial and final system calibration bias check responses for the upscale calibration gas, ppm.

Cma = Actual concentration of the upscale calibration gas, ppm.

Using the average for Run 1 of the NOx test:

Cavg = 18.5

From the Pre test / post test calibration

	Pre test +	Post Test	/ 2	
Co =	-0.2	-0.1	2	-0.15 ppm
Cm =	44.9	44	2	44.45 ppm

Cma = 45.1 ppm

Cgas = (Cavg - Co)(Cma / (Cm - Co))

	Cavg	Co	Cma	Cm	Co
Cgas =	18.5	-0.15	45.1	44.45	-0.15

Cgas = 18.9

Calculation of the Mass of NOx Emissions During the Test Run

The stack gas flow rate for each sampling run was measured using EPA Methods 1 through 3. Flow data in the appendix section presents the measured stack gas parameters and calculation of the stack gas flow rates.

The average mass emission rate of a pollutant over a sampling run was calculated by using the following equation:

$$M = \frac{Cgas(avg) \times MW \times Q \times 60}{385.1 \times 10^{6}}$$

Where:

M = Average mass emission rate of the pollutant over the sampling run in lbs/hr.

Cgas(avg) = Average concentration of the stack gas during the sampling run in ppm. This concentration is expressed on a dry stack basis.

MW = Molecular weight of the pollutant in lbs/lb-mole.

Q = Stack gas flow rate during the sampling run in dry standard cubic feet per minute (dscfm).

385.1 = Number of cubic feet occupied by one pound of gas at standard conditions (68° F and 29.92 in. Hg), assuming ideal gas behavior.

10^6 = Conversion constant for parts per million to cubic feet of pollutant (1 ppm = 10^{-6} ft^3 pollutant / ft^3 stack gas)

60 = Conversion constant for minutes to hours (1 hr = 60 Minutes)

Example Calculation:

For the NOx test:

Cgas(avg) = 18.86 ppm

MW = 46 = 14 + 16 + 16

Flow SCFMD Avg:

Q = 805917 SCFMD

$$\frac{\text{Cgas(avg)} \times \text{MW} \times \text{Q} \times 60}{385.1 \times 10^6}$$

$$M = \frac{\text{Cgas(avg)} \quad \text{MW} \quad \text{Q}}{\underline{18.85908 \quad 46 \quad 805917 \quad 60}}$$
$$3.85E{+}08$$

M = 108.9 lbs/hr

NOx pounds per hour to pounds per ton

Production 159.4 tons/hour (from production records, see appendix section)

NOx 108.9 pounds/hour

pounds per ton = (pounds/hour)/(tons/hour)

Pounds per ton = 0.68

NOx pounds per hour to tons per year

NOx 88.9 pounds per hour (3 run average)

8760 operating hours per year (24 X 365)

2000 pounds = 1 ton

NOx pounds per hour X 8760 operating hours per year / 2000 pounds/ton

NOx 389.5 tons per year

SPECTRA GASES INC.

3434 Route 22 West • Branchburg, NJ 08876 USA Tel: (908) 252-9300 • (800) 932-0624 • Fax: (908) 252-0811
Shipped From: 80 Industrial Drive • Alpha, NJ 08865



CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: IPSCO Steel, Inc.
SGI ORDER # : 0033156
ITEM# : 1
P.O.# : VERBAL-DAVID

CYLINDER # : CC-135361
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 2/18/2003
EXPIRATION DATE: 2/18/2005

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	2/10/2003 2/18/2003	24.94 ppm 25.04 ppm	25.0 ppm	+/- 1%
NOx			25.1 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	NTRM-82660	CC-133646	99.5 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	CAI-400-CLD	6L09004	Chemi	1/28/2003

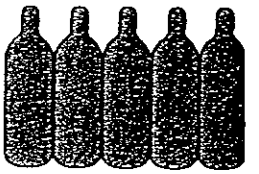
THIS STANDARD IS NIST TRACEABLE. IT WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: _____
FRED PIKULA

DATE: 2/18/2003

SPECTRA GASES INC.

3434 Route 22 West • Branchburg, NJ 08876 USA Tel.: (908) 252-9300 • (800) 932-0624 • Fax: (908) 252-0811
Shipped From: 80 Industrial Drive • Alpha, NJ 08865



CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: IPSCO Steel, Inc.
SGI ORDER # : 0033156
ITEM# : 2
P.O.# : VERBAL-DAVID

CYLINDER # : CC-85252
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 2/18/2003
EXPIRATION DATE: 2/18/2005

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	2/10/2003 2/18/2003	44.81 ppm 44.91 ppm	44.9 ppm	+/- 1%
NOx			45.1 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	NTRM-82660	CC-133646	99.5 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	CAI-400-CLD	6L09004	Chemi	1/28/2003

THIS STANDARD IS NIST TRACEABLE. IT 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

DATE: 2/18/2003

APPENDIX E

FACILITY OPERATING DATA

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 10/21/04 08:00:00 to 10/21/04 18:00:00

Issue Date	: 10/22/04 07:52:50
Issued By	: Operations Planning
PBL Name	:4 scrap_consumption.pbl Created Date : 09/14/0
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0126605	10/21/2004	07:18:40	A4J217	0000000003	01	HM2	043400	21.70
					02	2BN	018050	9.03
					03	PITSCRAP	018000	9.00
					04	MXTN	054300	27.15
					06	HM1	032800	16.40
					07	HM2	023350	11.68
						0000000003 Total	**189900**	**94.95**
0126605	10/21/2004	07:50:59	A4J217	0000000003	01	HM2	056300	28.15
					02	HM2	009800	4.90
					04	HM1	005650	2.83
					05	FRAG	040450	20.23
					06	FRAG	044150	22.08
						0000000003 Total	**156350**	**78.18**
						A4J217 Total	**346250**	**173.12**
0126607	10/21/2004	09:30:00	A4J218	0000000002	01	HM2	044750	22.38
					02	2BN	014900	7.45
					03	PITSCRAP	013400	6.70
					04	MXTN	055100	27.55
					06	HM1	045850	22.93
					07	HM2	024200	12.10
						0000000002 Total	**198200**	**99.10**
0126607	10/21/2004	10:30:52	A4J218	0000000003	01	HM2	058750	29.38
					02	2BN	012400	6.20
					04	HM1	002950	1.48
					05	FRAG	039100	19.55
					06	FRAG	055900	27.95
						0000000003 Total	**169100**	**84.55**
						A4J218 Total	**367300**	**183.65**
0191901	10/21/2004	12:47:03	A4J219	0000000002	01	HM2	045750	22.88
					02	2BN	010450	5.23
					03	PITSCRAP	016400	8.20
					04	MXTN	032500	16.25
					06	HM1	034650	17.33
					07	FRAG	076050	38.03
						0000000002 Total	**215800**	**107.90**
0191901	10/21/2004	12:51:05	A4J219	0000000003	01	HM2	056450	28.23
					02	2BN	009950	4.98
					04	PROCREVERT	010600	5.30
					05	FRAG	041550	20.78
					06	FRAG	035400	17.70
						0000000003 Total	**153950**	**76.97**
						A4J219 Total	**369750**	**184.88**
0191903	10/21/2004	13:43:26	A4J220	0000000002	01	HM2	043700	21.85
					02	2BN	013050	6.53
					03	PITSCRAP	015850	7.93

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 10/21/04 08:00:00 to 10/21/04 18:00:00

Issue Date : 10/22/04 07:52:50
Issued By : Operations Planning
PBL Name :4 scrap_consumption.pbl Created Date : 09/14/0
Report Name :d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0191903	10/21/2004	13:43:26	A4J220	0000000002	04	MXTN	057050	28.53
					06	HM1	037700	18.85
					07	HM2	038750	19.38
						0000000002 Total	**206100**	**103.05**
0191903	10/21/2004	15:49:27	A4J220	0000000003	01	HM2	057600	28.80
					02	2BN	010700	5.35
					04	PROCREVERT	006000	3.00
					05	FRAG	044700	22.35
					06	FRAG	039650	19.83
						0000000003 Total	**158650**	**79.33**
						A4J220 Total	**364750**	**182.37**
0126606	10/21/2004	08:22:44	B4J735	0000000005	01	HM2	046450	23.23
					02	2BN	015450	7.73
					03	PITSCRAP	011950	5.98
					04	MXTN	055950	27.98
					06	HM1	035300	17.65
					07	HM2	042150	21.08
						0000000005 Total	**207250**	**103.63**
0126606	10/21/2004	10:06:12	B4J735	0000000006	01	HM2	056800	28.40
					02	2BN	010150	5.08
					04	HM1	004900	2.45
					05	FRAG	045450	22.73
						0000000006 Total	**117300**	**58.65**
						B4J735 Total	**324550**	**162.27**
0126608	10/21/2004	10:55:20	B4J736	0000000005	01	HM2	045950	22.98
					02	2BN	014150	7.08
					03	PITSCRAP	014950	7.48
					04	MXTN	055450	27.73
					06	HM1	039250	19.63
					07	HM2	026300	13.15
						0000000005 Total	**196050**	**98.03**
0126608	10/21/2004	11:47:16	B4J736	0000000006	01	HM2	061850	30.93
					02	2BN	009500	4.75
					04	HM1	008300	4.15
					05	FRAG	041750	20.88
					06	FRAG	028250	14.13
						0000000006 Total	**149650**	**74.82**
						B4J736 Total	**345700**	**172.85**
0191902	10/21/2004	13:16:43	B4J737	0000000005	01	HM2	045400	22.70
					02	2BN	015300	7.65
					03	PITSCRAP	017350	8.68
					04	MXTN	054650	27.33
					06	HM1	037000	18.50
					07	HM2	024850	12.43
						0000000005 Total	**194550**	**97.28**

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 10/21/04 08:00:00 to 10/21/04 18:00:00

Issue Date	: 10/22/04 07:52:50
Issued By	: Operations Planning
PBL Name	:4 scrap_consumption.pbl Created Date : 09/14/0
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0191902	10/21/2004	14:55:19	B4J737	0000000006	01	HM2	059650	29.83
					02	2BN	007700	3.85
					04	HM1	004150	2.08
					05	FRAG	038650	19.33
					06	FRAG	036150	18.08
						0000000006 Total	**146300**	**73.15**
						B4J737 Total	**340850**	**170.43**
0191904	10/21/2004	16:04:43	B4J738	0000000005	01	HM2	045200	22.60
					02	2BN	018250	9.13
					03	PITSCRAP	013650	6.83
					04	MXTN	055600	27.80
					06	HM1	033650	16.83
					07	HM2	043650	21.83
						0000000005 Total	**210000**	**105.00**
0191904	10/21/2004	16:55:48	B4J738	0000000006	01	HM2	056350	28.18
					02	2BN	011050	5.53
					04	PROCREVERT	007950	3.98
					05	FRAG	044650	22.33
					06	FRAG	009500	4.75
						0000000006 Total	**129500**	**64.75**
						B4J738 Total	**339500**	**169.75**

Total Heats 8 **Total Weight for Time Period** 2798650 **Pounds** 1399.33 **Tons**

001/012

IPSCO STEEL INC.
Montpelier Works

HEAT: B4J735 MSP: 64153

Start Time: 21-Oct-2004 07:44:04
End Time : 21-Oct-2004 10:31:32
TapToTap Time : 167 (min)

Heat Order : 0126606
Grade : J55
Ladle #: 2 CrewID: 4 OperatorID. 4

START	DUR	DELAY REASON
10:27:20	0000	Operational, Tap
10:17:08	0010	Operational, Lance Taphole
10:14:20	0002	Operational, Slagoff
10:11:32	0002	Operational, Blow Carbon
09:41:27	0003	Operational, Pack scrap
09:38:09	0003	Operational, Charge
07:44:50	0098	Down Stream Processes, Waiting on Caste

CHARGES	AMOUNT
Charge 1 :	221650
Charge 2 :	117300
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0001600
FeMn	0001750
4oz AL Con	0000450
FeCb	0000100
Carbon	0006080
Dololime	0040880
HiCal Lime	0022800
ESM	0001000
MW13	0003300
40 # Syn G	0000120
Fluorspar	0000200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	61000	52400	8600	0	0	0
O2 Burner	SCF	57	41	16	0	0	0
Gas Burner	SCF	32	23	9	0	0	0
O2 Lance	SCF	792	557	235	0	0	0
Carbon Lance	LBS	2598	2598	0	0	0	0
TIMES							
Melting Tm	MIN	167	141	25	0	0	0
Power on Tm	MIN	41	36	5	0	0	0
Burner On Tm	MIN	64	39	25	0	0	0
O2Lance On Tm	MIN	40	32	7	0	0	0
CLance On Tm	MIN	17	17	0	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	395.9	472.8	359.9	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	28416.1	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.1	005.0	004.7	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.2	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	016.9	023.4	015.3	000.0	000.0	000.0

COMMENTS

over sand

ELEM	C	Mn	P	S	SI	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.17000	1.10000	0.02000	0.01000	0.20000	0.04000	0.00000	0.01500	0.00000	0.41300	0.50000	0.20000	0.20000	0.05000	0.05000	0.00400	0.04500	0.00000	0.02500	0.00000	0.00000	0.00000
MIN	0.15500	0.85000	0.00000	0.00000	0.10000	0.01800	0.01500	0.00000	0.00150	0.36600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00000	0.01500	0.00000	0.00000	0.00000
AIM	0.16000	0.00000	0.00000	0.00000	0.15000	0.02500	0.00000	0.00000	0.00000	0.38000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.04000	0.00000	0.02000	0.00000	0.00000	0.00000

IPSCO STEEL INC.

10/25/2004 16:15 FAX 563 381 5406

002/012

EAF Heat Sheet 21-Oct-2004 10:32:00

IPSCO STEEL INC.
Montpelier Works

HEAT: B4J735 MSP: 64153

EVENTS

TIME	KWH	Description
10:31:38	0061000	Ladle Weigth
10:31:34	0061000	End Tapping
10:30:46	0061000	Material Addition
10:27:25	0061000	Material Addition
10:27:05	0061000	Material Addition
10:24:33	0061000	Material Addition
10:18:39	0061000	Start Tapping
10:14:01	0061000	Temperature <2876> O2 <375> C <98>
10:11:52	0061000	Temperature <2904> O2 <264> C <114>
10:11:31	0061000	Power Off
10:10:36	0059500	Temperature <2875> O2 <298> C <93>
10:09:12	0057300	Temperature <2803> O2 <190> C <119>
10:07:23	0054300	Temperature <2752> O2 <149> C <129>
10:06:12	0052400	Charge
10:06:00	0052100	Temperature <2349> O2 <0> C <0>
09:49:48	0026500	Power On
09:49:42	0026500	Power Off
09:44:38	0021200	Power On
09:38:08	0021200	Power Off
09:26:56	0003900	Burners On
09:22:57	0000000	Melting
09:22:56	0000000	Power On
08:22:45	0000000	Charge
08:02:42	0000000	Material Addition
07:44:06	0000000	TurnAround

10/25/2004 16:15 FAX 563 381 5406 IPSCO STEEL INC.

007/012

IPSCO STEEL INC.
Montpelier Works

HEAT: A4J218 MSP: 64153

Start Time: 21-Oct-2004 09:03:58
End Time : 21-Oct-2004 11:17:58
TapToTap Time : 133 (min)

Heat Order : 0126607
Grade : J55
Ladle #: 10 CrewID: 4 OperatorID: 4

START	DUR	DELAY REASON
11:14:16	0004	Operational, Tap
11:08:16	0006	Operational, Slagoff
10:30:43	0011	Operational, Pack scrap
10:28:01	0002	Operational, Charge
09:30:03	0042	Operational, Charge run B
09:04:45	0025	Down Stream Processes, Waiting on Caste

CHARGES	AMOUNT
Charge 1 :	211200
Charge 2 :	169100
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0001600
FeMn	0001750
4oz AL Con	0000450
FeCb	0000100
ESM	0001000
MW13	0003300
40 # Syn G	0000120
Fluorspar	0000200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	60800	21000	39800	0	0	0
O2 Burner	SCF	82	25	57	0	0	0
Gas Burner	SCF	27	9	18	0	0	0
O2 Lance	SCF	789	194	595	0	0	0
Carbon Lance	LBS	2717	656	2061	0	0	0
TIMES							
Melting Tm	MIN	133	86	47	0	0	0
Power on Tm	MIN	41	14	26	0	0	0
Burner On Tm	MIN	53	15	37	0	0	0
O2Lance On Tm	MIN	40	12	27	0	0	0
CLance On Tm	MIN	22	4	17	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	351.7	198.9	319.7	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	33783.0	000.0	000.0	000.0	000.0	000.0
O2 Ton	SCF/Ton	004.6	001.8	004.1	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.1	000.0	000.0	000.0
Carbon Ton	LBS/Ton	015.7	006.2	014.3	000.0	000.0	000.0

COMMENTS

below sand

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.17000	1.10000	0.02000	0.01000	0.20000	0.04000	0.00000	0.01500	0.00000	0.41300	0.50000	0.20000	0.20000	0.05000	0.05000	0.00400	0.04500	0.00000	0.02500	0.00000	0.00000	0.00000
MIN	0.15500	0.85000	0.00000	0.00000	0.10000	0.01800	0.01500	0.00000	0.00150	0.36600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00000	0.01500	0.00000	0.00000	0.00000
AIM	0.16000	0.00000	0.00000	0.00000	0.15000	0.02500	0.00000	0.00000	0.00000	0.38000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.04000	0.00000	0.02000	0.00000	0.00000	0.00000

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008/012

IPSCO STEEL INC.
Montpelier Works

HEAT: A4J218 MSP: 64153

EVENTS

TIME	KWH	Description
11:19:02	0000000	Heat End
11:18:04	0060800	Ladle Weigth
11:18:00	0060800	End Tapping
11:16:16	0060800	Start Tapping
11:09:39	0060800	Material Addition
11:08:36	0060800	Burners Off
11:08:25	0060800	Temperature <2998> O2 <905> C <43>
11:08:14	0060800	Power Off
11:05:08	0055500	Temperature <2318> O2 <0> C <0>
11:04:36	0054800	Power On
11:04:33	0054800	Power Off
10:47:27	0027800	Power On
10:47:26	0027800	Power Off
10:45:32	0025000	Power On
10:45:28	0025000	Power Off
10:45:25	0024900	Power On
10:45:24	0024900	Power Off
10:41:54	0021100	Power On
10:30:53	0021000	Charge
10:26:00	0021000	Power Off
10:15:07	0001700	Burners On
10:13:01	0000000	Melting
10:13:00	0000000	Power On
09:30:00	0000000	Charge
09:06:46	0000000	Material Addition
09:04:00	0000000	TurnAround

912 − 1110 = 118 min

1120 − 1318 = 118

1430 − 1622 112

10/29/2004 16:15 FAX 563 381 5406 IPSCO STEEL INC.

003/012

IPSCO STEEL INC.
Montpelier Works

HEAT: B4J736 MSP: 64153

Start Time: 21-Oct-2004 10:32:36
End Time : 21-Oct-2004 12:42:48
TapToTap Time . 129 (min)

Heat Order : 0126608
Grade : J55
Ladle #: 4 CrewID: 4 OperatorID: 4

START	DUR	DELAY REASON
12:38:31	0000	Operational, Tap
12:35:13	0003	Operational, Slagoff
12:22:20	0010	Operational, Soak
12:01:50	0000	Other, Scrap Cave
11:55:58	0001	Water Flows, RP-1 Drop out box flow
11:50:29	0003	Operational, Pack scrap
11:47:41	0002	Operational, Charge
11:45:47	0001	Operational, Wait on Scrap
11:09:10	0021	Other, New Other
10:33:22	0035	Operational, Charge Run A

CHARGES	AMOUNT
Charge 1 :	210150
Charge 2	149650
Charge 3	0
Charge 4 :	0
Charge 5 .	0

ADDITIONS	LBS
SiMn	0001600
FeMn	0001750
4oz AL Con	0000450
FeCb	0000100
Carbon	0001220
Dololime	0006815
ESM	0001000
MW13	0003300
40 # Syn G	0000120
Fluorspar	0000200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	65200	21100	44100	0	0	0
O2 Burner	SCF	85	34	51	0	0	0
Gas Burner	SCF	48	19	29	0	0	0
O2 Lance	SCF	1016	201	815	0	0	0
Carbon Lance	LBS	4113	885	3228	0	0	0
TIMES							
Melting Tm	MIN	129	73	55	0	0	0
Power on Tm	MIN	44	15	29	0	0	0
Burner On Tm	MIN	93	38	55	0	0	0
O2Lance On Tm	MIN	50	13	36	0	0	0
CLance On Tm	MIN	27	3	24	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	398 7	200.8	362.4	000.0	000.0	000.0
Flux	Tons	000.0	000 0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	36402 0	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	006.2	001.9	005.6	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.3	000.2	000 3	000.0	000.0	000.0
Carbon Ton	LBS/Ton	025 1	008.4	022 9	000.0	000.0	000.0

COMMENTS

Wait for NoX test calibration (T. Toner) dan

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.17000	1.10000	0.02000	0.01000	0.20000	0.04000	0.00000	0.01500	0.00000	0.41300	0.50000	0.20000	0 20000	0.05000	0.05000	0 00400	0.04500	0.00000	0.02500	0.00000	0 00000	0.00000
MIN	0.15500	0.85000	0.00000	0 00000	0.10000	0.01800	0.01500	0.00000	0.00150	0.36600	0.00000	0.00000	0.00000	0 00000	0.00000	0.00000	0.03500	0.00000	0.01500	0.00000	0.00000	0.00000
AIM	0.16000	0.00000	0.00000	0.00000	0.15000	0.02500	0.00000	0.00000	0.00000	0.38000	0.00000	0.00000	0 00000	0 00000	0.00000	0 00000	0 04000	0.00000	0.02000	0.00000	0.00000	0.00000

IPSCO STEEL INC.
10/25/2004 16:15 FAX 563 381 5406

004/012

IPSCO STEEL INC.
Montpelier Works

HEAT: B4J736 MSP: 64153

EVENTS		
TIME	KWH	Description
12:42:56	0065200	Ladle Weigth
12:42:51	0065200	End Tapping
12:41:22	0065200	Material Addition
12:40:38	0065200	Start Tapping
12:35:23	0065200	Temperature <2923> O2 <353> C <90>
12:35:11	0065200	Power Off
12:32:23	0060900	Power On
12:22:19	0060900	Power Off
12:02:10	0028200	Power On
12:01:48	0028100	Power Off
12:00:24	0026200	Power On
12:00:18	0026200	Power Off
12:00:15	0026200	Power On
12:00:12	0026200	Power Off
11:59:59	0026100	Power On
11:59:58	0026100	Power Off
11:59:51	0026000	Power On
11:59:48	0026000	Power Off
11:59:37	0026000	Power On
11:59:36	0026000	Power Off
11:59:34	0026000	Power On
11:59:33	0026000	Power Off
11:59:24	0025800	Power On
11:59:22	0025800	Power Off
11:57:25	0023500	Power On
11:57:21	0023400	Power Off
11:57:04	0023200	Power On
11:55:56	0023200	Power Off
11:53:35	0021200	Power On
11:47:18	0021100	Charge
11:45:45	0021100	Power Off
11:32:40	0001900	Burners On
11:30:24	0000000	Melting
11:30:22	0000000	Power On

EVENTS		
TIME	KWH	Description
10:58:36	0000000	Burners Off
10:56:20	0000000	Charge
10:32:40	0000000	TurnAround

10/25/2004 16:15 FAX 563 381 5406 IPSCO STEEL INC.

009/012

IPSCO STEEL INC.
Montpelier Works

HEAT: A4J219 MSP: 64153

Start Time: 21-Oct-2004 11:19:01
End Time : 21-Oct-2004 13:28:31
TapToTap Time : 129 (min)

Heat Order : 0191901
Grade : J55
Ladle #: 0 CrewID: 4 OperatorID: 4

START	DUR	DELAY REASON
13:23:00	0000	Operational, Tap
13:20:30	0002	Operational, Slagoff
12:50:55	0004	Operational, Pack scrap
12:48:25	0002	Operational, Charge
12:30:21	0006	Operational, Run B
11:19:48	0064	Operational, Charge run B

CHARGES	AMOUNT
Charge 1 :	229050
Charge 2 :	153950
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0001600
FeMn	0001750
4oz AL Con	0000450
FeCb	0000100
Carbon	0000715
Dololime	0004090
HiCal Lime	0002290
ESM	0001000
MW13	0003300
40 # Syn G	0000120
Fluorspar	0000200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	61800	24100	37700	0	0	0
O2 Burner	SCF	82	35	47	0	0	0
Gas Burner	SCF	27	11	16	0	0	0
O2 Lance	SCF	673	146	527	0	0	0
Carbon Lance	LBS	3037	2177	860	0	0	0
TIMES							
Melting Tm	MIN	129	91	37	0	0	0
Power on Tm	MIN	42	17	25	0	0	0
Burner On Tm	MIN	52	22	30	0	0	0
O2Lance On Tm	MIN	39	12	27	0	0	0
CLance On Tm	MIN	21	4	17	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	355 0	210.4	322 7	000.0	000 0	000.0
Flux	Tons	000.0	000 5	000.0	000.0	000.0	000.0
Average Power	KwhMhr	89421 2	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	003 9	001.3	003.5	000.0	000.0	000.0
Gas Ton	SCF/Ton	000 2	000.1	000.1	000.0	000.0	000.0
Carbon Ton	LBS/Ton	017 4	019.0	015.9	000.0	000.0	000.0

COMMENTS

dan below

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.17000	1.10000	0.02000	0.01000	0.20000	0.04000	0.00000	0.01500	0.00000	0.41300	0 50000	0.20000	0 20000	0.05000	0.05000	0 00400	0 04500	0.00000	0.02500	0.00000	0 00000	0.00000
MIN	0.15500	0.85000	0.00000	0.00000	0.10000	0.01800	0.01500	0.00000	0 00150	0 36600	0.00000	0.00000	0 00000	0.00000	0.00000	0.00000	0.03500	0.00000	0.01500	0.00000	0.00000	0.00000
AIM	0.16000	0.00000	0.00000	0.00000	0.15000	0.02500	0.00000	0.00000	0.00000	0.38000	0 00000	0.00000	0.00000	0.00000	0 00000	0 00000	0.04000	0 00000	0.02000	0 00000	0.00000	0.00000

IPSCO STEEL INC.
10/25/2004 16:15 FAX 563 381 5406

10/25/2004 16:15 FAX 563 381 5406 IPSCO STEEL INC. 010/012

HEAT: A4J219 MSP: 64153

EVENTS

TIME	KWH	Description
13:28:36	0061800	Ladle Weigth
13:28:32	0061800	End Tapping
13:27:07	0061800	Start Tapping
13:24:37	0061800	Material Addition
13:21:16	0061800	Burners Off
13:20:38	0061800	Temperature <2977> O2 <832> C <44>
13:20:28	0061800	Power Off
13:19:09	0059800	Temperature <2887> O2 <622> C <2927>
13:17:27	0057100	Temperature <2897> O2 <625> C <47>
13:15:54	0054600	Temperature <2894> O2 <667> C <44>
13:14:23	0052100	Temperature <2849> O2 <567> C <45>
13:13:12	0050100	Temperature <2846> O2 <0> C <0>
13:13:01	0050000	Power On
13:12:50	0050000	Power Off
12:55:10	0024100	Power On
12:51:05	0024100	Charge
12:48:23	0024100	Power Off
12:47:03	0022000	Charge
12:38:53	0007500	Power On
12:30:20	0007500	Power Off
12:28:36	0004900	Burners On
12:24:10	0000000	Melting
12:24:08	0000000	Power On
11:19:04	0000000	TurnAround

EAF Heat Sheet **21-Oct-2004 15:52:00**

IPSCO STEEL INC.
Montpelier Works

HEAT: B4J737 *MSP: 64153*

Start Time: 21-Oct-2004 12:43:52
End Time : 21-Oct-2004 15:51:38
TapToTap Time : 187 (min)

Heat Order : 0191902
Grade : J55
Ladle #. 0 CrewID: 4 OperatorID: 4

START	DUR	DELAY REASON
15:48:02	0000	Operational, Tap
15:37.32	0010	Operational, Lance Taphole
15:34.32	0003	Operational, Slagoff
15:28:44	0005	Operational, Blow Carbon
14:58:32	0003	Operational, Pack scrap
14:54:02	0002	Operational, Charge
13:04:45	0093	Down Stream Processes, Waiting on Caste
12:44.39	0020	Operational, Gunning

CHARGES	AMOUNT
Charge 1 :	206650
Charge 2 :	150650
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0001600
FeMn	0001750
4oz AL Con	0000450
FeCb	0000100
Carbon	0001430
Dololime	0008165
HiCal Lime	0004575
ESM	0001000
MW13	0003300
40 # Syn G	0000120
Fluorspar	0000200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	64900	21200	43700	0	0	0
O2 Burner	SCF	65	21	44	0	0	0
Gas Burner	SCF	36	12	24	0	0	0
O2 Lance	SCF	828	164	664	0	0	0
Carbon Lance	LBS	2854	457	2397	0	0	0
TIMES							
Melting Tm	MIN	187	131	56	0	0	0
Power on Tm	MIN	43	15	28	0	0	0
Burner On Tm	MIN	73	16	58	0	0	0
O2Lance On Tm	MIN	46	12	34	0	0	0
CLance On Tm	MIN	19	2	17	0	0	0
PERFORMANCE							
KwhTon	Kwh/Ton	400 7	206 2	364.3	000 0	000.0	000.0
Flux	Tons	000 0	000.0	000.0	000 0	000 0	000.0
Average Power	Kwh/hr	25138.8	000.0	000.0	000.0	000 0	000.0
O2 ton	SCF/Ton	005 1	001.6	004.6	000 0	000.0	000.0
Gas Ton	SCF/Ton	000 2	000 1	000.2	000.0	000 0	000.0
Carbon Ton	LBS/Ton	017.6	004 4	016.0	000.0	000 0	000.0

COMMENTS

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.17000	1.10000	0.02000	0.01000	0.20000	0 04000	0.00000	0.01500	0.00000	0.41300	0.50000	0 20000	0 20000	0.05000	0.05000	0.00400	0 04500	0.00000	0.02500	0.00000	0.00000	0.00000
MIN	0.15500	0.85000	0.00000	0.00000	0.10000	0.01800	0.01500	0.00000	0.00150	0.36600	0.00000	0.00000	0.00000	0.00000	0 00000	0 00000	0 03500	0.00000	0.01500	0.00000	0.00000	0.00000
AIM	0.16000	0.00000	0.00000	0.00000	0.15000	0.02500	0.00000	0.00000	0.00000	0.38000	0.00000	0.00000	0 00000	0 00000	0 00000	0.00000	0 04000	0.00000	0.02000	0 00000	0.00000	0.00000

IPSCO STEEL INC. 563 381 5406 10/25/2004 16:15 FAX

006/012
IPSCO STEEL INC.
10/25/2004 16:15 FAX 563 381 5406

IPSCO STEEL INC.
Montpelier Works

HEAT: B4J737 MSP: 64153

EVENTS

TIME	KWH	Description
15:51:44	0064900	Ladle Weigth
15:51:41	0064900	End Tapping
15:40:25	0064900	Material Addition
15:40:12	0064900	Start Tapping
15:34:07	0064900	Temperature <2979> O2 <371> C <2879>
15:30:34	0064800	Temperature <2977> O2 <304> C <2977>
15:29:28	0064900	Temperature <2989> O2 <0> C <0>
15:28:42	0064900	Power Off
15:06:02	0026200	Power On
15:05:54	0026100	Power Off
15:00:25	0021200	Power On
14:55:19	0021200	Charge
14:54:00	0021200	Power Off
14:40:58	0001900	Burners On
14:38:37	0000000	Melting
14:38:36	0000000	Power On
13:58:11	0000000	Material Addition
13:16:44	0000000	Charge
12:46:25	0000000	Burners Off
12:43:54	0000000	TurnAround

011/012
IPSCO STEEL INC.
10/25/2004 16:15 FAX 563 381 5406

EAF Heat Sheet **21-Oct-2004 16:32:22**

IPSCO STEEL INC.
Montpelier Works

HEAT: A4J220 *MSP: 64153*

Start Time: 21-Oct-2004 13:28:34
End Time : 21-Oct-2004 16:32:03
TapToTap Time : 182 (min)

Heat Order : 0191903
Grade : J55
Ladle # 0 CrewID: 4 OperatorID: 4

START	DUR	DELAY REASON
16:27:07	0000	Operational, Tap
16:22:13	0004	Operational, Slagoff
15:50:31	0006	Operational, Pack scrap
15:47:25	0003	Operational, Charge
14:38:38	0052	Operational, Run B
13:43.38	0055	Down Stream Processes, Waiting on Caste
13:30 20	0013	Operational, Gunning

CHARGES	AMOUNT
Charge 1 : 213550	
Charge 2 : 166500	
Charge 3 : 0	
Charge 4 : 0	
Charge 5 : 0	

ADDITIONS	LBS
SiMn	0001600
FeMn	0001750
4oz AL Con	0000450
FeCb	0000100
Carbon	0000985
Dololime	0004085
HiCal Lime	0002290
ESM	0001000
MW13	0003300
40 # Syn G	0000120
Fluorspar	0000200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	60400	23200	37200	0	0	0
O2 Burner	SCF	79	27	52	0	0	0
Gas Burner	SCF	26	9	17	0	0	0
O2 Lance	SCF	737	102	635	0	0	0
Carbon Lance	LBS	3203	259	2944	0	0	0
TIMES							
Melting Tm	MIN	182	139	42	0	0	0
Power on Tm	MIN	40	16	24	0	0	0
Burner On Tm	MIN	50	16	34	0	0	0
O2Lance On Tm	MIN	40	13	27	0	0	0
CLance On Tm	MIN	20	1	19	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	349 6	217 3	317.9	000.0	000.0	000.0
Flux	Tons	000.0	000 0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	21492 5	000.0	000.0	000.0	000 0	000.0
O2 ton	SCF/Ton	004.3	001.0	003.9	000 0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000 1	000.1	000 0	000.0	000.0
Carbon Ton	LBS/Ton	018 5	002.4	016.9	000.0	000.0	000.0

COMMENTS

below adam

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.17000	1.10000	0 02000	0.01000	0.20000	0.04000	0.00000	0.01500	0.00000	0.41300	0 50000	0.20000	0 20000	0 05000	0.05000	0.00400	0 04500	0 00000	0.02500	0.00000	0 00000	0.00000
MIN	0 15500	0.85000	0.00000	0.00000	0.10000	0.01800	0.01500	0.00000	0.00150	0.36600	0.00000	0.00000	0 00000	0.00000	0 00000	0 00000	0.03500	0.00000	0.01500	0.00000	0.00000	0.00000
AIM	0.16000	0.00000	0.00000	0.00000	0.15000	0.02500	0.00000	0.00000	0.00000	0.38000	0.00000	0.00000	0 00000	0.00000	0 00000	0 00000	0.04000	0 00000	0 02000	0.00000	0.00000	0.00000

012/012

IPSCO STEEL INC.
Montpelier Works

HEAT: A4J220 MSP: 64153

EVENTS

TIME	KWH	Description
16:32:09	0060400	Ladle Weigth
16:32:05	0060400	End Tapping
16:30:43	0060400	Start Tapping
16:24:30	0060400	Temperature <2935> O2 <654> C <50>
16:23:40	0060400	Burners Off
16:22:12	0060400	Power Off
16:16:16	0051100	Power On
16:16:07	0051100	Power Off
15:57:19	0023200	Power On
15:49:27	0023200	Charge
15:47:23	0023200	Power Off
15:38:57	0010300	Power On
15:38:53	0010300	Power Off
15:38:52	0010300	Power On
15:38:49	0010300	Power Off
15:33:26	0002100	Burners On
15:31:13	0000000	Melting
15:31:11	0000000	Power On
14:22:58	0000000	Material Addition
13:43:26	0000000	Charge
13:29:36	0000000	TurnAround

10/25/2004 16:15 FAX 563 381 5406 IPSCO STEEL INC.

EMISSION TEST REPORT

IPSCO STEEL, INC.
Muscatine, Iowa

Third Quarter 2003 Oxides of Nitrogen Test

July 09, 2003

TEST

IDNR Permit Number(s)

EAF/LMF Meltshop Stack 94-A-548-S3

RECORD COPY

File Name 5010-1 70-08-002

Senders Initials

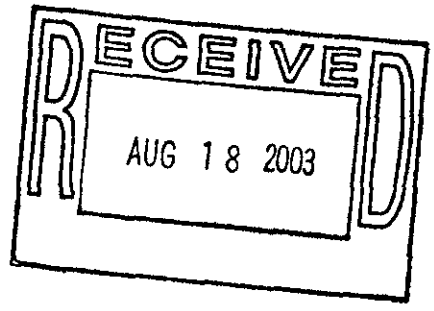
Prepared By:

AAS Inc.
Ambient Air Services, Inc.
106 Ambient Airway • Starke, FL 32091 • (904) 964-8440 • Fax (904) 964-6675

ipsco

August 15, 2003

Iowa Department of Natural Resources
Air Quality Bureau
Stack Test Coordinator
7900 Hickman Road
Suite 1
Urbandale, IA 50322



Re: IPSCO Steel Inc. – Montpelier
Permit #94-A-548-S3
3rd Quarter NOx Test

Mr. Stone:

Enclosed, please find the third quarter NOx report as required by the above-mentioned permit. If you have any questions, please feel free to contact me at (563)381-5584. Thank you.

Sincerely,
IPSCO Steel Inc.

Stephanie J. Kreiter
Environmental Coordinator

Cc: Richard Acquaviva – letter only
Wayne Schmidt – letter only
Tom Toner – letter only
Joe Wesselman – letter only

ipsco steel inc.

1770 Bill Sharp Boulevard, Muscatine, Iowa 52761
Phone (563) 381-5300 Fax (563) 381-5329

CERTIFICATION PAGE

Ambient Air Services, Inc. of Starke, Florida, has completed the testing described in this report for IPSCO Steel Inc.'s Montpelier Works facility. To the best of our knowledge and abilities we certify that all information, facts and test data are true and correct. Information supplied to AASI for use in this report from IPSCO Steel is perceived to be accurate and is used as such where necessary. This report was prepared and certified by:

David C. Sholtes, Report Review — Date 8/11/03

Joseph L. Cooksey, Project Manager — Date 8/12/03

Questions and or comments regarding this report or process conditions should be directed to:

Ms. Stephanie Kreiter
IPSCO Steel
1770 Bill Sharp Blvd.
Muscatine, IA 52761
Phone: 563-381-5584
Fax: 563-381-5406

Mr. Joseph L. Cooksey
Ambient Air Services
106 Ambient Air Way
Starke, FL 32091
Phone: 904-964-8440
Fax: 904-964-6675
Email: AASI@atlantic.net

RECEIVED
AUG 18 2003

EXECUTIVE SUMMARY

Ambient Air Services, Inc. (AASI) conducted emission testing at the IPSCO Steel (Iowa) Facility located in Montpelier, Iowa. The testing included the determination of Oxides of Nitrogen emissions from the EAF/LMF Baghouse Stack.

The results, shown in Table 1-1 demonstrate compliance with the facilities oxides of nitrogen emission limitations as listed in permit number IDNR-94-A-548-S3

TABLE 1-1

EMISSION TEST RESULTS
EXECUTIVE SUMMARY
IPSCO STEEL, INC.
MONTPELIER, IOWA

July 09, 2003

SOURCE	PARAMETER	ALLOWABLE	TEST RESULTS
EAF/LMF Baghouse Stack	Oxides of Nitrogen (NOx) As (NO_2)	0.80 lbs/ton 700.8 tons/year	0.23 lbs/ton 137.1tons/year*

*Tons per year based on 24 hours per day, 365 days per year at Tested Production Rate

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	1.2	TEST PARTICIPANTS	1
	1.3	SUMMARY OF TESTING CONDUCTED	2
2.0	TEST METHODOLOGIES		3
	2.1	FLOW AND MOISTURE	3
	2.2	OXIDES OF NITROGEN	3
3.0	PROCESS DESCRIPTION		5
4.0	RESULTS		7

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1-1	Summary of Testing Conducted	2
2-1	Oxides of Nitrogen System Performance Specifications	4
4-1	Oxides of Nitrogen Summary	8

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Appendix B	Directions and Map to site IDNR Pre test Questions and Test Protocol	13
Appendix C	Flow Information	21
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1.0 INTRODUCTION

1.1 General

IPSCO Steel (Iowa), Inc. contracted with Ambient Air Services, Inc. (AASI) to conduct emission testing on their EAF/LMF Baghouse Stack. The testing involved the determination of Oxides of Nitrogen (NOx) Emissions.

The purpose of the testing was to satisfy specific requirements of the IDNR issued permit number 94-A-548-S3, for Quarterly NOx testing.

Prior to the testing Mr. Mark Stone of IDNR was provided a Test Protocol and Notification of test dates. Mr. Stone approved the protocol prior to testing

1.2 Test Participants

Ms. Stephanie Kreiter	IPSCO	Environmental Coordinator
Mr. Mark Stone	IDNR	State of Iowa Observer
Mr. Joseph Cooksey	AASI	Project Manager
Mr. David Sholtes	AASI	Report Review

1.3 Summary of Testing Conducted

Table 1-2

Summary of Testing Conducted IPSCO Steel, (Iowa), Inc. Montpelier, Iowa July 09, 2003			
SOURCE	**PARAMETER**	**USEPA TEST METHODS**	**COMMENTS**
EAF/LMF Baghouse Exhaust Stack	Oxides of Nitrogen (NOx)	40 CFR 60 Appendix A Method 7E	3 Test Runs, Each Run 2 heats in duration
	Flow	40 CFR 60 Appendix A Methods 1-4	1 Flow Traverse per NOx Test, Moisture by wet bulb/dry bulb

2.0 TEST METHODOLOGIES

2.1 Flow and Moisture

Flow and moisture were determined in accordance with USEPA Methods 1-4 as published in 40 CFR 60 Appendix A.

One flow traverse was conducted per NOx test run.

The Oxygen and Carbon Dioxide levels were determined in Run 1 using a fyrite analyzer. It was confirmed that the levels of O_2 and CO_2 were 21% and 0% (ambient conditions). Further analysis was deemed unnecessary.

Moisture was determined using a wet bulb/dry bulb technique. The wet bulb/dry bulb readings were taken once per flow traverse.

2.2 Oxides of Nitrogen

Oxides of Nitrogen from this facility were measured using USEPA Method 7E as published in 40 CFR 60 Appendix A. Table 2-1 shows the specifications of Method 7E compared to those presented by the instrument manufacturer. For this test a TEI Model 42 was used. The instrument was calibrated over a nominal range of 0-50 ppm.

Results from the test were reported in mass per unit of production. All NOx (NO + NO_2) was converted to NO_2 as required by IDNR.

At the beginning of the test the NOx system was calibrated using zero, 25 and 45 ppm USEPA Protocol gas standards. At the completion of each test run the system was checked at zero and 25 ppm.

The sampling system is shown in Figure 3-1.

Data from the NOx analyzer was recorded using a computerized data logging system. The data recorder took a reading each second and averaged these readings into 1 minute data points. All test data is included in the appendix section of this report.

Table 2-1

OXIDES OF NITROGEN SYSTEM PERFORMANCE SPECIFICATIONS METHOD 7E VS THERMO ENVIRONMENTAL INSTRUMENTS MODEL 42		
	METHOD 7E	TEI 42
Calibration error zero, mid and high gases	Less than ±2% span	±1% of full scale
Sampling system bias for zero, mid and high gases	Less than ±5% span	±1% of full scale
Zero Drift	Less than ±3% of span over the run period	Negligible
Calibration Drift	Less than ±3% of span over the run period	±1% of full scale

3.0 PROCESS DESCRIPTION

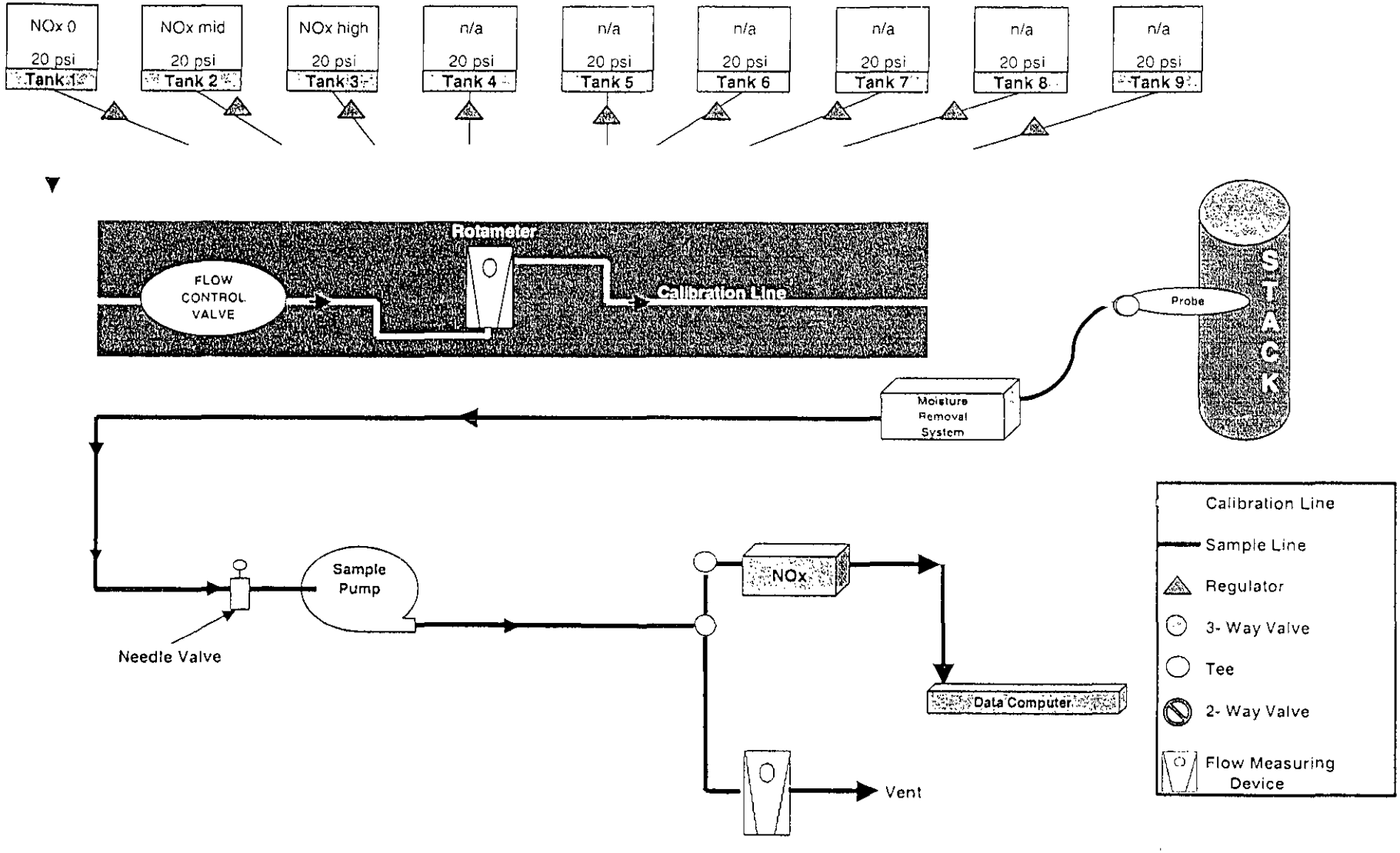
Electric arc furnaces (EAF) are used to produce carbon and alloy steels. The input material to an EAF is typically 100 percent scrap. Cylindrical, refractory lined EAF's are equipped with carbon electrodes to be raised or lowered through the furnace roof. With electrodes retracted, the furnace roof can be rotated aside to permit the charge of scrap steel by overhead crane. Lime and charge carbon are added to the charge buckets, alloying agents and materials are added during the tapping process. Electric current of the opposite polarity electrodes generates heat between the electrodes and through the scrap. After melting and refining periods, the slag and steel are poured from the furnace by tilting.

The production of steel in an EAF is a batch process. Cycles, or "heats", range from about 45 to 90 minutes to produce carbon steel. Scrap steel is charged to begin a cycle, and alloying agents and slag materials are added for refining. Stages of each cycle normally are charging and melting operations, refining (which usually includes oxygen blowing), and tapping.

SAMPLE SYSTEM SCHEMATIC

(Not To Scale)

Figure 3-1



4.0 RESULTS

The results from this testing demonstrate compliance with the permit limitations at the time of testing on July 09, 2003.

The results are summarized in Table 4-1.

Table 4 - 1

AASI

Oxides of Nitrogen (NO_X) Emissions Summary

USEPA Method 7E (40 CFR Part 60 Appendix A)

Ipsco Steel (Iowa), Inc.

Montpeliar, Iowa

IDNR Permit Number 94-A-548-S3

July 9, 2003

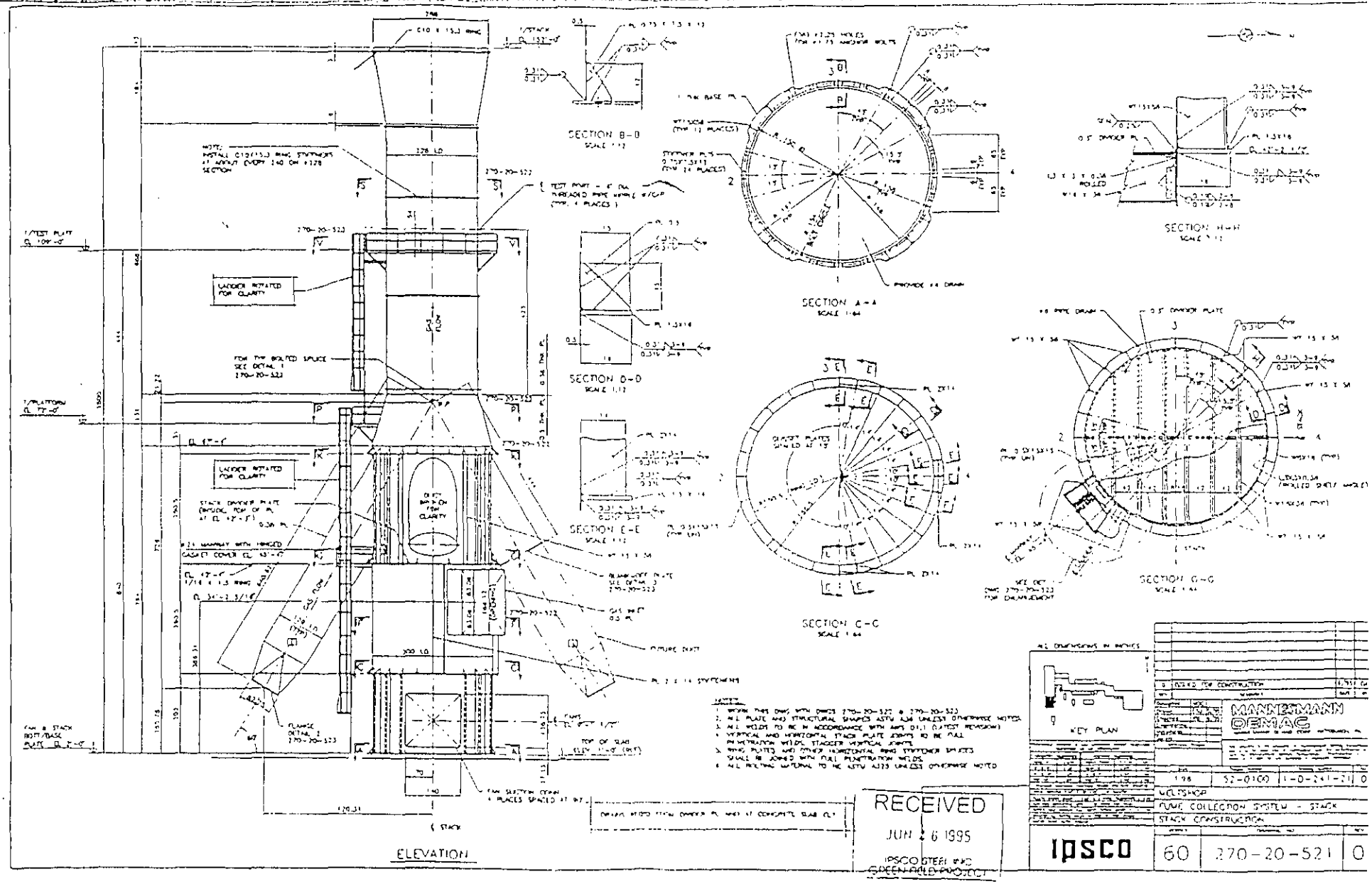
Run			Concentration	Volumetric Flow Rates	Production	Mass Emissions (as NO_2)	
Date	Number	Time (CDT)	ppm-v/v	SCFM-Dry	Tons per Hour	Pounds per Hour	Pounds per Ton
7/9/2003	1	8:15 11:06	5.61	715231	127.0	28.76	0.23
7/9/2003	2	11:45 14:14	5.52	824008	139.4	32.60	0.23
7/9/2003	3	14:32 17:07	5.95	763536	142.8	32.56	0.23
Average			**5.69**	**767592**	**136.4**	**31.31**	**0.23**

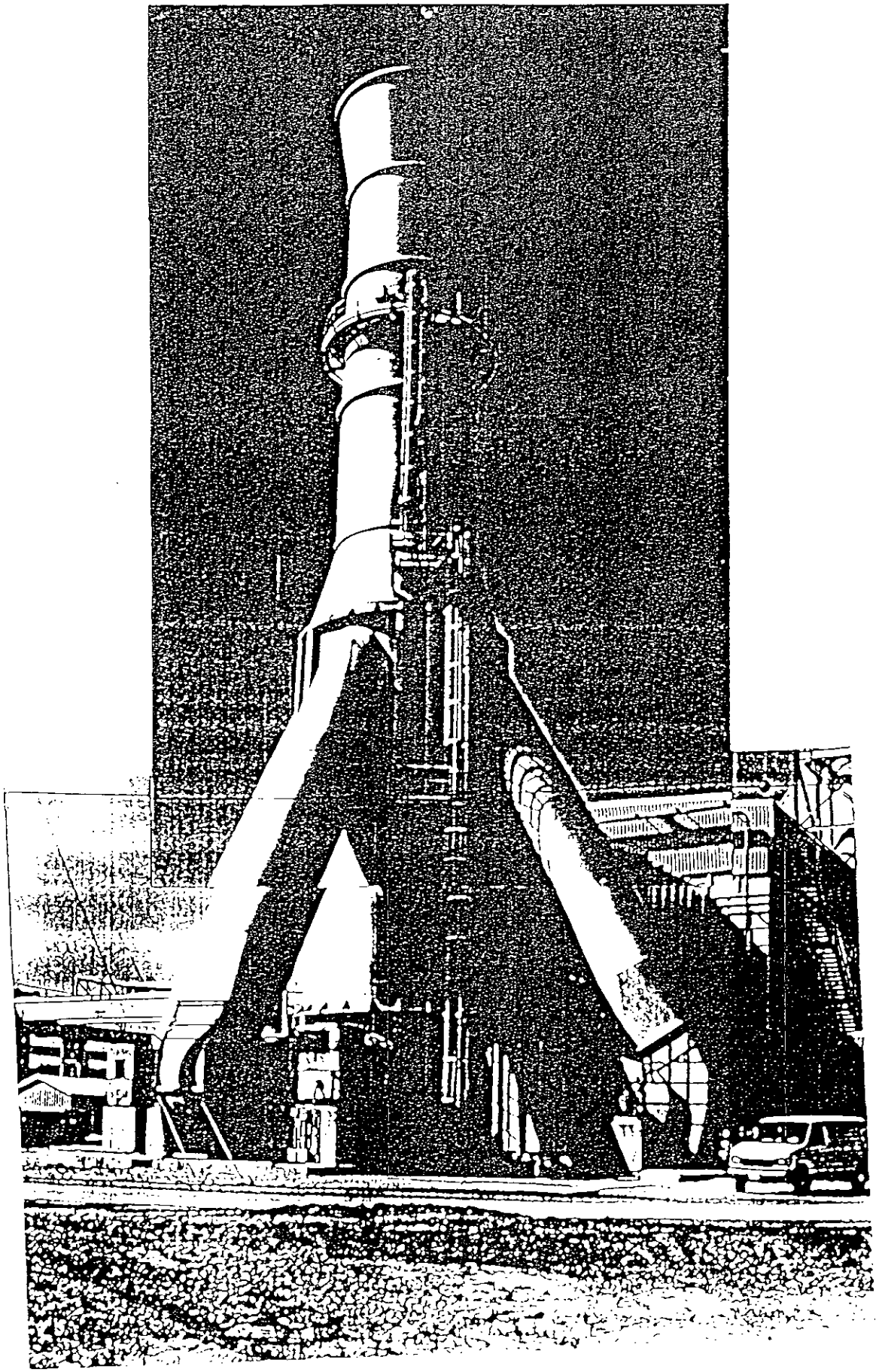
APPENDICES

Appendix A	Stack Diagram - EAF/LMF
Appendix B	Directions and Map to site IDNR Pre-test Questions and Test Protocol
Appendix C	Flow Information
Appendix D	NOx Data
Appendix E	Facility Operating Data

APPENDIX A

Stack Diagram-EAF/LMF


ELEVATION
SECTION B-B
SECTION D-D
SECTION E-E
SECTION A-A
SECTION C-C
SECTION H-H
SECTION G-G
KEY PLAN
RECEIVED
JUN 26 1995
IPSCO STEEL INC.
GREEN FIELD PROJECT
MANNESMANN DEMAG
WELLSHOP
FLUE COLLECTION SYSTEM - STACK
STACK CONSTRUCTION
ipsco
60
270-20-521
0



APPENDIX B

Directions and Map to site
IDNR Pretest Questions and Test Protocol

Directions to IPSCO

From Quad City Airport:

From Airport exit, turn right and follow signs to I-74 North

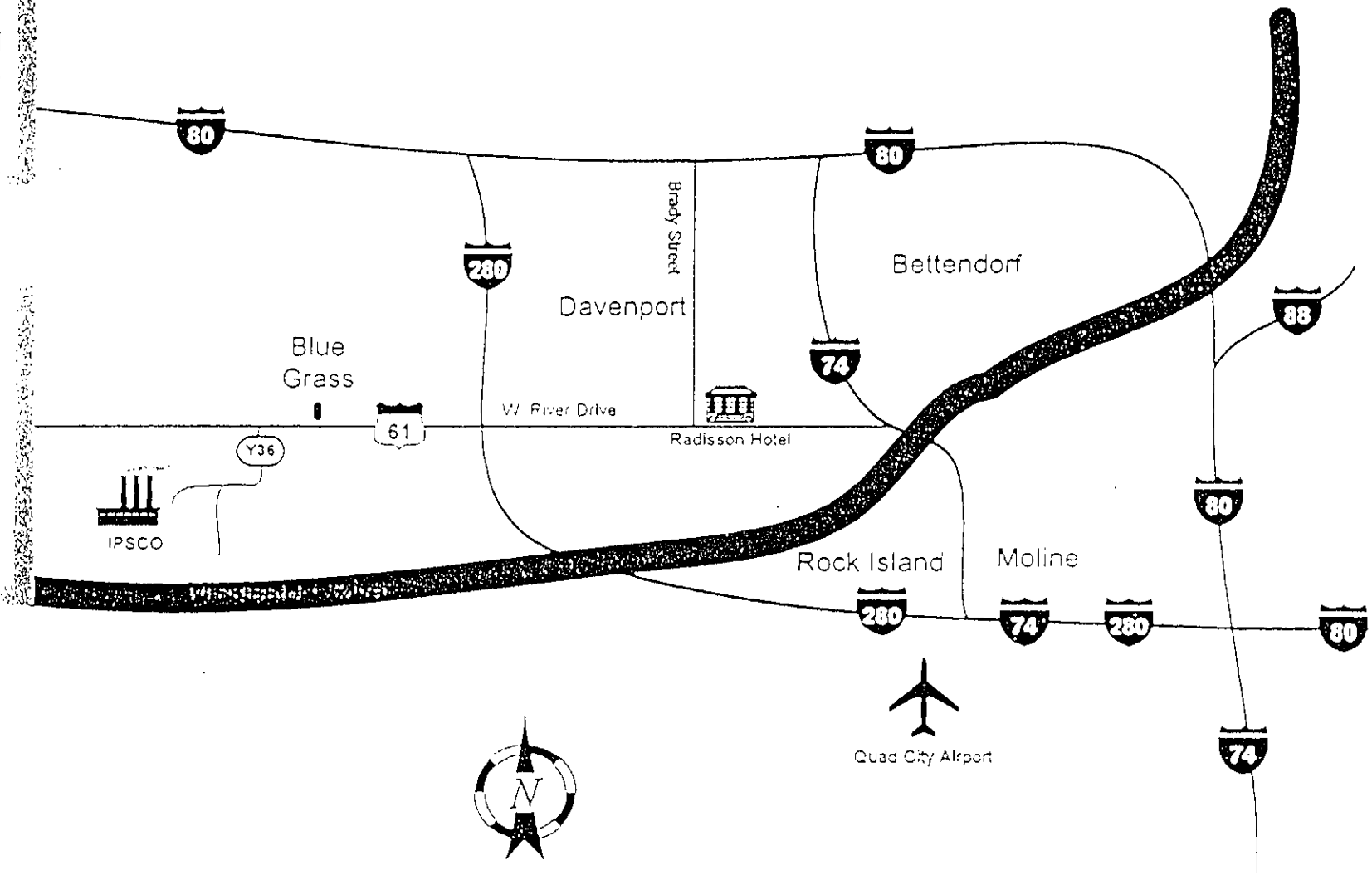
Take I-74 North to I-280 exit; proceed west to Highway 61 South exit

Proceed on Highway 61 to Y-36 (Zachary Av) - 5 miles; see following note

From Highway 61:

Proceed south on Y-36 (Zachary Av) 2-3 miles

Do not turn where Y-36 branches to the south; proceed straight to gate for auto entrance



PROPOSED TEST PLAN PROTOCOL

Company Name: IPSCO Steel (Plant Number 70-08-002)

Address: 1770 Bill Sharp Boulevard, Muscatine, IA 52761

Name and Title of Contact: Stephanie Kreiter

Address of Contact: 1770 Bill Sharp Boulevard, Muscatine, IA 52761

Telephone Number of Contact: (563) 381-5338

Proposed Test Date: Quarterly Starting March 5, 2003, April 30, 2003, July 9, 2003 and October 8,2003.

Source Information

Type of Source: EAF/LMF Baghouse Exhaust Stack

Identification of Source to be tested: Baghouse Exhaust Stack

Permit Number of Source: 94-A-548-S3

Address of Source: 1770 Zachary Avenue

Initial Startup Date: 1998

Testing Firm Information

Name of Firm: Ambient Air Services, Inc.

Address: 106 Ambient Air Way, Starke, Florida 32091

Name and Title of Contact: Joseph L. Cooksey, President

Telephone Number: (904) 964-8440

Number of Employees of Firm: 17

Number of Employees engaged in Air Pollution Source Testing (Including Support Personnel): 17

Location and Description of Laboratory Facilities: 106 Ambient Air Way, Starke, Florida (Metals by Ppb Environmental Laboratories, 6821 S.W. Archer Road, Gainesville, FL)

Subcontractor(s) Utilized by firm for Source Testing Activities: None

Number of Air Pollution Sources Previously Tested by Firm: Testing since 1973

Types of Sources Previously Tested by Firm: Many different source types including heavy experience in Steel Industry.

PERFORMANCE TEST INFORMATION

List all pollutants to be sampled 94-A-548-S3 - EAF / LMF Baghouse

	Pollutant	Number of Sampling Points	Total Time per Test Run	Number of Test Runs	Test Methods to be Used
1	NOx	1	2 heats	3	M 7E
2	Flow	24	N/A	3	1-4*
3*	VE	Meltshop Building	180 minutes	1	9

***VE Test will be conducted on March 5, 2003 only.**

For EPA Reference Method 5 or Iowa Method 5 tests, indicate the length of each run to collect 50 milligrams of sample. Use the estimated emissions after control as the stack gas concentration.

If the permitted emission standard or expected concentration of particulate is equal to or less than 0.005 grains per dry standard cubic foot (gr/dscf), an extended sampling time must be considered. When calculating the sample time, the length of each run should be such that a sample catch of 50 milligrams will be colleted. Should the sample catch be less than 10 milligrams after applying the above method, the test may be subject to rejection or a 10 milligrams sample weight may be assumed.

Include a description of any test procedures to be used in the conduct of the performance tests which differ from the specified method(s).

* Moisture using wet bulb/dry bulb

PROTOCOL SUPPLEMENT - OPERATING DATA

This form is to be filled out and returned with the test protocol.

Maximum Continuous Process Weight (Manufacturer's Rating): Existing - 164 TPH
Phase 1 - 200 TPH (Target Production for Test is Phase 1)
Phase 2 - 230 TPH

Historical Average Process Weight: Not yet established however plant is capable of up to 200 TPH but to date has achieved this for only short time periods.

Historical Maximum Process Weight:

Product Recycling Capability: Yes ___ (Heel) No X

Type of Sources of Fuels Normally Burned: Electric arc 420 KWH, 200 cu ft. natural gas, 400 cu ft. oxygen + 1200-1400 cu ft. oxygen per liquid ton of steel.

Type of Control Equipment: Baghouse

Range of Pressure Drop Across Control Equipment: 4-6 Currently operating at Inches of Water

Person Responsible For This Data: Stephanie Kreiter

Person Responsible For Collecting Process Data During Actual Testing: Stephanie Kreiter

Complete and submit one of these forms for each test to be conducted. This information is especially important the determine to operating conditions of the equipment under which the tests will be conducted. The tests must be conducted while operating at maximum capacity or the highest capacity which this source will be operated. Failure to test at the permitted capacity may result in derating this source.

This information is also required to be submitted on the forms found at the end of the protocol package. These two forms, the Compliance Emission Test Operating Data and the Air Pollution Control Equipment Operating Data forms, must be filled out with the data collected on the actual date of the tests. Failure to complete the forms on the day of the testing may be cause for rejecting the tests.

Ambient Air Services, Inc.

106 Ambient Airway • Starke, FL 32091 • (904) 964-8440 • Fax (904) 964-6675

January 7, 2003

Mr. Mark Stone
Stack Testing Coordinator
Air Quality Bureau
Iowa Department of Natural Resources
7900 Hickman Road, Suite 1
Urbandale, Iowa 50322

Dear Mark:

Attached is the IDNR test protocol form completed for the quarterly NOx testing at IPSCO Steel's Montpelier Works facility.

The tentative date for conducting the testing for the First Quarter of 2003 is March 5.

A brief synopsis of the testing planned is as follows:

Oxides of Nitrogen (NOx):	3 test runs, each run 2 heats (nominally 1.5 - 2.0 hours) in duration. Instrument range 0-50 ppm, calibration gases nominally 0, 25 ppm and 45 ppm. Test in accordance with USEPA Method 7E.
Flow:	3 flow traverses, one for each NOx test run. Moisture by wet bulb/dry bulb. O2 and CO2 are expected to be 21% and 0% and will be confirmed using a fyrite analyzer.
VE:	Visible Emission Testing (VE) will be conducted on the Meltshop Building. The VE test will be conducted on March 5, 2003 only. The VE test will be used to re-establish the NSPS AAa requirments for establishment of control device fan amp, damper positions, and furnace pressure operating ranges.

For planning purposes IPSCO has selected the following dates for the remaining calendar quarters for 2003:

Second Quarter	April 30, 2003
Third Quarter	July 9, 2003
Fourth Quarter	October 8, 2003

Please note that these dates are tentative only. As each date approaches we will confirm production schedules and confirm dates and test start times.

Please let me know if you have any questions.

Sincerely,

Joseph L. Cooksey

JLC:las

cc: Stephanie Kreiter, IPSCO Montpelier Works
Joseph Wesselman, IPSCO Corporate

ipsco

February 6, 2003

Iowa Department of Natural Resources
Air Quality Bureau
Stack Test Coordinator
7900 Hickman Road
Suite 1
Des Moines, IA 50322

Re: Quarterly NOx Test
Pre-Test Meeting Requirements

Mr. Stone:

As per our conversation on Thursday, February 6, 2003, I am hereby confirming by way of letter that a pre-test meeting for the quarterly NOx testing requirements will not be required for the tests scheduled in the calendar year 2003. If this information is incorrect, please give me a call at (563)381-5584. Thank you.

Sincerely,
IPSCO Steel Inc.

Stephanie J. Kreiter
Environmental Coordinator

Cc: Joe Wesselman - IPSCO
Joe Cooksey – Ambient Air

ipsco steel inc.

1770 Bill Sharp Boulevard, Muscatine, Iowa 52761
Phone (563) 381-5300 Fax (563) 381-5329

APPENDIX C

Flow Information
Data Printouts
Field Data Sheets
Pitot Tube Calibration
Thermocouple Calibration
Magnehelic Calibration

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

PM Summary Run 1

Facility	IPSCO Steel (Iowa) Inc.	Impinger Condensate	N/A
Location	Montpeliar, Iowa	Silica Gel Condensate	N/A
Stack	EAF Baghouse	Volume Metered	N/A
Run Date	7/9/2003	Meter Temp (Deg R)	460.0
Run Number	1	CO2 %	0.0
Start Time	8:57	O2 %	20.9
Finish Time	9:15	CO %	0.0
Weather	Ovc, lt rain	N %	79.1
Total Time (min.)	N/A	Condensate Volume	N/A
Barometric Pressure	29.48	Delta H (inches H2O)	N/A
Stack Diameter (in.)	228.00	Stack Pressure	29.425
Stack Area sq. ft.	283.529	Stack Temp (Deg R)	660.8
Nozzle Area sq. ft.	N/A	Filter Weight (gm)	N/A
Number of Points	24	Prefilter Weight (gm)	N/A
Avg of SQRT of V.H.	0.8619	Total Particulate (gm)	N/A
Meter Correction (Y)	N/A		
Nozzle Diameter	N/A		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		N/A
Gas Volume Sampled, STPD		N/A
Total Volume, STP		N/A
Moisture in stack gas, volume fraction		0.025
Dry Stack Gas, volume fraction		0.975
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		28.57
Specific gravity of Stack Gas Relative to Air		0.986
Excess Air (%)		14864.9
Average Stack Velocity, FPM		3292.5
Actual Stack Gas Flow Rate, ACFM		933519
Actual Stack Gas Flow Rate, (Dry) ACFMD		910181
Stack Gas Flow Rate, SCFMD		715231
Stack Gas Flow Rate Wet, SCFMW		733570
Percent Isokinetic		N/A
Stack Emissions:	Grains/DSCF	N/A
	Lbs/Hr	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

PM Summary Run 2

Facility	IPSCO Steel (Iowa) Inc.	Impinger Condensate	N/A
Location	Montpeliar, Iowa	Silica Gel Condensate	N/A
Stack	EAF Baghouse	Volume Metered	N/A
Run Date	7/9/2003	Meter Temp (Deg R)	N/A
Run Number	2	Orsat CO2 %	0.0
Start Time	12:10	Orsat O2 %	21.0
Finish Time	12:30	Orsat CO %	0.0
Weather	cloudy	Orsat N %	79.0
Total Time (min.)	N/A	Condensate Volume	N/A
Barometric Pressure	29.43	Delta H (inches H2O)	N/A
Stack Diameter (in.)	228.00	Stack Pressure	29.365
Stack Area sq. ft.	283.529	Stack Temp (Deg R)	619.3
Nozzle Area sq. ft.	N/A	Filter Weight (gm)	N/A
Number of Points	24	Prefilter Weight (gm)	N/A
Avg of SQRT of V.H.	0.9639	Total Particulate (gm)	N/A
Meter Correction (Y)	N/A		
Nozzle Diameter	N/A		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		N/A
Gas Volume Sampled, STPD		N/A
Total Volume, STP		N/A
Moisture in stack gas, volume fraction		0.027
Dry Stack Gas, volume fraction		0.973
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		28.55
Specific gravity of Stack Gas Relative to Air		0.985
Excess Air (%)		150000.0
Average Stack Velocity, FPM		3569.6
Actual Stack Gas Flow Rate, ACFM		1012085
Actual Stack Gas Flow Rate, (Dry) ACFMD		984759
Stack Gas Flow Rate, SCFMD		824008
Stack Gas Flow Rate Wet, SCFMW		846874
Percent Isokinetic		N/A
Stack Emissions:	Grains/DSCF	N/A
	Lbs/Hr	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

PM Summary Run 3

Facility	IPSCO Steel (Iowa) Inc.	Impinger Condensate	N/A
Location	Montpeliar, Iowa	Silica Gel Condensate	N/A
Stack	EAF Baghouse	Volume Metered	N/A
Run Date	7/9/2003	Meter Temp (Deg R)	N/A
Run Number	3	Orsat CO2 %	0.0
Start Time	15:35	Orsat O2 %	20.9
Finish Time	15:55	Orsat CO %	0.0
Weather	Clearing	Orsat N %	79.1
Total Time (min.)	N/A	Condensate Volume	N/A
Barometric Pressure	29.45	Delta H (inches H2O)	N/A
Stack Diameter (in.)	228.00	Stack Pressure	29.399
Stack Area sq. ft.	283.529	Stack Temp (Deg R)	641.6
Nozzle Area sq. ft.	N/A	Filter Weight (gm)	N/A
Number of Points	24	Prefilter Weight (gm)	N/A
Avg of SQRT of V.H.	0.9094	Total Particulate (gm)	N/A
Meter Correction (Y)	N/A		
Nozzle Diameter	N/A		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF	N/A
Gas Volume Sampled, STPD	N/A
Total Volume, STP	N/A
Moisture in stack gas, volume fraction	0.028
Dry Stack Gas, volume fraction	0.972
Molecular Weight of Stack Gas (Dry Basis)	28.84
Molecular Weight of Stack Gas (Stack conditions)	28.54
Specific gravity of Stack Gas Relative to Air	0.984
Excess Air (%)	14864.9
Average Stack Velocity, FPM	3426.3
Actual Stack Gas Flow Rate, ACFM	971455
Actual Stack Gas Flow Rate, (Dry) ACFMD	944254
Stack Gas Flow Rate, SCFMD	763536
Stack Gas Flow Rate Wet, SCFMW	785531
Percent Isokinetic	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

Data Request Entry Area	PM Run 1
Facility	IPSCO Steel (Iowa) Inc.
Location	Montpeliar, Iowa
Source	EAF Baghouse
Date	07/09/03
Run Number	1
Start Time	8:57
Finish Time	9:15
Weather	Ovc, lt rain
Total Time (min)	N/A
Number of Points	24
Barometric Pressure	29.48
Static Pressure ("H20)	-0.75
Stack Diameter (inches)	228.00
Nozzle Diameter (in.)	N/A
Meter Y Factor	N/A
Pitot Factor	0.84
Final Meter Reading	N/A
Initial Meter Reading	N/A
Condensate (ml)	N/A
Silica Gel Weight (gm)	N/A
CO2	0.0
O2	20.9
CO	0.0
N2	79.1
Filter Weight (gm)	N/A
Prefilter Weight (gm)	N/A
Meter Factor	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Field Data Points - PM Run 1							
Port	Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter In ' F	Meter Out 'F	Sq Rt VH
1	1	0.75		199			0.8660
	2	0.7		202			0.8367
	3	0.95		203			0.9747
	4	1.05		206			1.0247
	5	0.95		207			0.9747
	6	0.85		206			0.9220
2	1	0.92		191			0.9592
	2	0.91		195			0.9539
	3	1.1		205			1.0488
	4	1.18		207			1.0863
	5	1.05		208			1.0247
	6	0.85		208			0.9220
3	1	0.75		194			0.8660
	2	0.5		199			0.7071
	3	0.48		198			0.6928
	4	0.58		199			0.7616
	5	0.65		205			0.8062
	6	0.55		209			0.7416
4	1	0.6		193			0.7746
	2	0.4		195			0.6325
	3	0.6		195			0.7746
	4	0.66		199			0.8124
	5	0.6		198			0.7746
	6	0.56		198			0.7483

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Data Request Entry Area	PM Run 2
Facility	IPSCO Steel (Iowa) Inc.
Location	Montpeliar, Iowa
Source	EAF Baghouse
Date	07/09/03
Run Number	2
Start Time	12:10
Finish Time	12:30
Weather	cloudy
Total Time (min)	N/A
Number of Points	24
Barometric Pressure	29.43
Static Pressure ("H20)	-0.88
Stack Diameter (inches)	228.00
Nozzle Diameter (in.)	N/A
Meter Y Factor	N/A
Pitot Factor	0.84
Final Meter Reading	N/A
Initial Meter Reading	N/A
Condensate (ml)	N/A
Silica Gel Weight (gm)	N/A
Orsat CO2	0.0
Orsat O2	21.0
Orsat CO	0.0
Orsat N2	79.0
Filter Weight (gm)	N/A
Prefilter Weight (gm)	N/A
Meter Factor	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Field Data Points - PM Run 2

Port	Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter In ' F	Meter Out 'F	Sq Rt VH
1	1	0.75		192			0.8660
	2	0.95		203			0.9747
	3	0.9		206			0.9487
	4	1.05		209			1.0247
	5	1.05		209			1.0247
	6	0.73		209			0.8544
2	1	1.15		143			1.0724
	2	1.2		144			1.0954
	3	1.26		145			1.1225
	4	1.35		146			1.1619
	5	1.44		146			1.2000
	6	1.35		147			1.1619
3	1	1		132			1.0000
	2	0.92		142			0.9592
	3	0.68		144			0.8246
	4	0.7		145			0.8367
	5	0.92		145			0.9592
	6	0.62		141			0.7874
4	1	0.72		146			0.8485
	2	0.93		146			0.9644
	3	0.82		146			0.9055
	4	0.85		146			0.9220
	5	0.77		146			0.8775
	6	0.55		146			0.7416

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

Data Request Entry Area	PM Run 3
Facility	IPSCO Steel (Iowa) Inc.
Location	Montpeliar, Iowa
Source	EAF Baghouse
Date	07/09/03
Run Number	3
Start Time	15:35
Finish Time	15:55
Weather	Clearing
Total Time (min)	N/A
Number of Points	24
Barometric Pressure	29.45
Static Pressure ("H20)	-0.70
Stack Diameter (inches)	228.00
Nozzle Diameter (in.)	N/A
Meter Y Factor	N/A
Pitot Factor	0.84
Final Meter Reading	N/A
Initial Meter Reading	N/A
Condensate (ml)	N/A
Silica Gel Weight (gm)	N/A
Orsat CO2	0.0
Orsat O2	20.9
Orsat CO	0.0
Orsat N2	79.1
Filter Weight (gm)	N/A
Prefilter Weight (gm)	N/A
Meter Factor	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

Field Data Points - PM Run 3							
Port	Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter In ' F	Meter Out 'F	Sq Rt VH
1	1	0.75		183			0.8660
	2	0.77		183			0.8775
	3	0.85		182			0.9220
	4	1		184			1.0000
	5	1.05		185			1.0247
	6	0.85		185			0.9220
2	1	0.85		184			0.9220
	2	1.05		183			1.0247
	3	1.32		182			1.1489
	4	1.38		181			1.1747
	5	1.68		180			1.2961
	6	1.58		179			1.2570
3	1	0.74		176			0.8602
	2	0.55		178			0.7416
	3	0.62		179			0.7874
	4	0.6		180			0.7746
	5	0.58		182			0.7616
	6	0.42		182			0.6481
4	1	0.72		178			0.8485
	2	0.65		180			0.8062
	3	0.68		184			0.8246
	4	0.6		183			0.7746
	5	0.62		183			0.7874
	6	0.6		183			0.7746

AAS Inc. AMBIENT AIR SERVICES INCORPORATED
ENVIRONMENTAL CONSULTANTS

PITOT TRAVERSE FORM

Plant IPSCO Iowa Stack EAF BH

Date 7/9/03

Stack Dimensions _____ Stack Area(ft.²) _____

Sketch of Stack Cross Section

Run 1 857 –
DB 199
WB 106

Pitot Corr. Factor _____

DB _____ °F WB _____ °F DP _____ °F

V.P. at DP _____ "Hg Fract. D.A. _____

Density Factor _____ Stack Pres. _____

Weather _____

Temp _____ °F Pressure _____ "Hg

Wind Direction _____ Vel. _____

Point Number	Equal Area Radius	Distance from Stack Wall	Distance from End of Port	Port #1 H	Port #1 Velocity	Port #2 H	Port #2 Velocity	Port #3 H	Port #3 Velocity	Port #4 H	Port #4 Velocity	
1				194	0.75	199	0.72	191	0.75		0.6	193
2				199	0.70	202	0.91	195	0.50		0.4	195
3				198	0.95	203	1.30	205	0.48		0.6	195
4				199	1.05	206	1.18	207	0.58		0.6	199
5				205	0.95	207	1.05	208	0.65		0.6	198
6				209	0.85	206	0.85	208	0.55		0.56	193
7												
8			Static -0.75"									
9												
10												
11		Run 2		12:10								
12												
13	W D			192	0.75	143	1.15	132	1.0	146	0.72	
14	96/145			203	0.95	144	1.20	142	0.92	146	0.93	
15				206	0.90	145	1.26	144	0.68	146	0.82	
16				209	1.05	146	1.35	145	0.70	146	0.85	
17				209	1.05	146	1.49	145	0.92	146	0.77	
18				209	0.73	147	1.35	141	0.62	146	0.55	
19												
20						-0.88						
21												
22												
23												
24												

Average: $\sqrt{\Delta P}$ = _____

$$U = (174)\ (CP)\ (\sqrt{\Delta P})\ \sqrt{\left\{\frac{T_s + 460}{GS} \times \frac{29.92}{PS}\right\}} = _____ \text{ ft/min.}$$

RSSWP.50

AAS Inc.

AMBIENT AIR SERVICES INCORPORATED
ENVIRONMENTAL CONSULTANTS

PITOT TRAVERSE FORM

Plant IPSCO IOWA Stack EAF BH

Date 7/9/03

Stack Dimensions _____ Stack Area(ft.²) _____

Sketch of Stack Cross Section

IPSCO
RUN 3
7/9/03 1535

Pitot Corr. Factor _____

DB _____ °F WB _____ °F DP _____ °F

V.P. at DP _____ "Hg Fract. D.A. _____

Density Factor _____ Stack Pres. _____

Weather _____

Temp _____ °F Pressure _____ "Hg

Wind Direction _____ Vel. _____

Point Number	Equal Area Radius	Distance from Stack Wall	Distance from End of Port	Port #1		Port #2		Port #3		Port #4	
				H	Velocity	H	Velocity	H	Velocity	H	Velocity
1				183	0.75	184	0.85	176	0.74	178	0.72
2	102 W			183	0.77	183	1.05	178	0.55	180	0.65
3				182	0.85	182	1.32	179	0.62	184	0.68
4	1830			184	1.0	181	1.38	180	0.60	183	0.60
5				185	1.05	180	1.68	182	0.58	183	0.62
6		-0.1		185	0.85	179	1.58	182	0.42	183	0.60
7	Static										
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											

Average: $\sqrt{\Delta P}$ = _____

$$U = (174)\ (CP)\ (\sqrt{\Delta P})\ \sqrt{\left\{\frac{T_s + 460}{GS} \times \frac{29.92}{PS}\right\}} = _____ \text{ ft/min.}$$

RSSWP.50

APPENDIX D

NOx Data

Summary of Equipment used
Calibration Summary
Data Logger Printout and Test Summary
Calibration Gas Certificates
25.1 NOx
45.1 NOx

RECEIVED

AUG 2 6 2003

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

July 9, 2003

Equipment List

Oxides of Nitrogen Instrument: **Manufacturer -** Thermo Environmental Instruments **Model -** 42

Serial Number - 33584-245

NOx Range - zero to 50 ppm

Calibration Gas Standards		Concentration	Manufacturer	Cylinder Number	Expiration Date	PSI
Zero	Zero	0.00	Air Gas UHP Air	N/A	N/A	1100
Mid	NOx	25.10	Spectra Gases	CC 135361	Feb-05	1800
High	NOx	45.10	Spectra Gases	CC 85252	Feb-05	1800

Description of Sampling System :

8' 1/4" SS probe to Tee to H_2O condenser to 200 feet 1/4" Teflon sample line to SS/Teflon pump to instruments

all calibration gases injected direct to probe Tee location

Sampling probe positioned in Baghouse Stack at test platform location.

Test Participants :

NOx Testing - Joe Cooksey - Ambient Air Services, Inc. Mark Stone - IDNR Representative

Stephanie Kreiter - Ipsco Steel Environmental Coordinator

Other Comments :

Ipsco Steel - Montpelier, Iowa
Meltshop Baghouse - Quarterly Oxides of Nitrogen Test
IDNR Permit Number 94-A-548-S3
July 9, 2003

Calibration Sheet

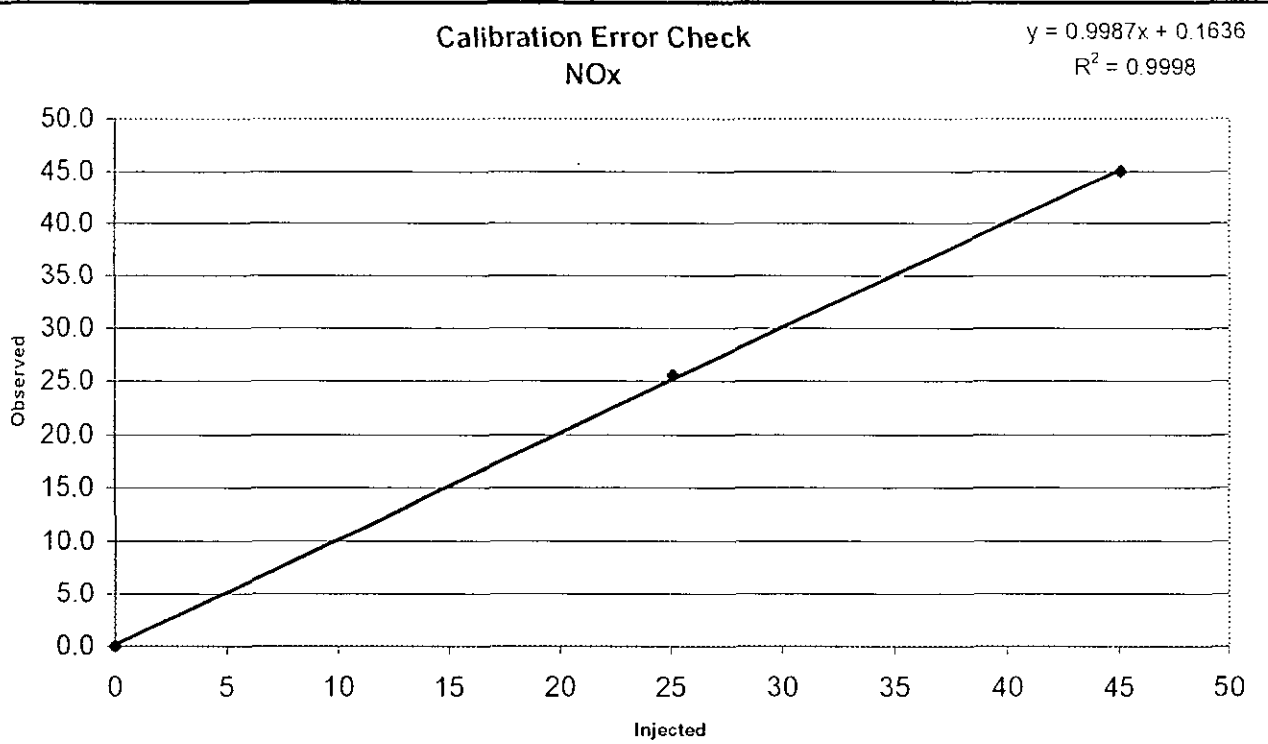
Initial Calibration

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0	7:58 - 8:12	0.0
NOx	25.1	7:58 - 8:12	25.6
NOx	45.1	7:58 - 8:12	45.0

% Error of Range Table

Inject (ppm)		Time	% Error of Range
Gas	Conc.		NOx
Zero	0	7:58 - 8:12	0.00%
NOx	25.1	7:58 - 8:12	1.00%
NOx	45.1	7:58 - 8:12	-0.20%



Ipsco Steel - Montpelier, Iowa
Meltshop Baghouse - Quarterly Oxides of Nitrogen Test
IDNR Permit Number 94-A-548-S3
July 9, 2003

Calibration Sheet

Calibration - Post Run 1

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0	11:08 - 11:16	0.0
NOx	25.1	11:08 - 11:16	25.2

Drift Analysis From Initial Calibrations to the End of Run 1

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		NOx
Zero	0	11:08 - 11:16	0.00%
NOx	25.1	11:08 - 11:16	-0.80%

Drift Variables for Run 1

Variable	NOx	
Co	0.00	
Cm	25.40	
Cma	25.10	

Calibration - Post Run 2

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0	14:15 - 14:28	0.00
NOx	25.1	14:15 - 14:28	25.10

Drift Analysis From Initial Calibrations to the End of Run 2

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		NOx
Zero	0	14:15 - 14:28	0.00%
NOx	25.1	14:15 - 14:28	-1.00%

Drift Variables for Run 2

Variable	NOx	
Co	0.00	
Cm	25.15	
Cma	25.1	

Ipsco Steel - Montpelier, Iowa
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Calibration Sheet

Calibration - Post Run 3

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0	17:12 - 17:19	0
NOx	25.1	17:12 - 17:19	25

Drift Analysis From Initial Calibrations to the End of Run 3

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		NOx
Zero	0	17:12 - 17:19	0.00%
NOx	25.1	17:12 - 17:19	-1.20%

Drift Variables for Run 3

Variable	NOx	
Co	0.00	
Cm	25.05	
Cma	25.1	

Ipsco Steel - Montpelier, Iowa

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IDNR Permit Number 94-A-548-S3

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DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Nox, Pounds per Ton
7/9/2003 7:45	0.0																		
7/9/2003 7:46	0.0																		
7/9/2003 7:47	0.0																		
7/9/2003 7:48	0.0																		
7/9/2003 7:49	0.0																		
7/9/2003 7:50	0.0																		
7/9/2003 7:51	0.0																		
7/9/2003 7:52	0.0																		
7/9/2003 7:53	0.0																		
7/9/2003 7:54	0.0																		
7/9/2003 7:55	0.0																		
7/9/2003 7:56	0.0											0 ppm Cal							
7/9/2003 7:57	0.0											0 ppm Cal							
7/9/2003 7:58	0.0											0 ppm Cal							
7/9/2003 7:59	0.0											0 ppm Cal							
	0.0											**0 ppm Cal Average**							
7/9/2003 8:00	6.0																		
7/9/2003 8:01	31.5																		
7/9/2003 8:02	44.4																		
7/9/2003 8:03	48.8																		
7/9/2003 8:04	48.8																		
7/9/2003 8:05	46.0																		
7/9/2003 8:06	45.0											45.1 ppm Cal							
7/9/2003 8:07	45.0											45.1 ppm Cal							
	45.0											**45.1 ppm Cal Average**							
7/9/2003 8:08	37.3																		
7/9/2003 8:09	27.8																		
7/9/2003 8:10	26.1																		
7/9/2003 8:11	25.7																		
7/9/2003 8:12	25.6											25.1 ppm Cal							
	25.6											**25.1 ppm Cal Average**							
7/9/2003 8:13	23.4																		
7/9/2003 8:14	9.3																		
7/9/2003 8:15	4.2	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	4.1	715231	21.26	0.169
7/9/2003 8:16	3.0	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	3.0	715231	15.40	0.122
7/9/2003 8:17	2.6	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	2.5	715231	13.01	0.103
7/9/2003 8:18	2.5	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	2.4	715231	12.48	0.099
7/9/2003 8:19	2.3	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	2.2	715231	11.41	0.090
7/9/2003 8:20	2.3	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	2.2	715231	11.41	0.090
7/9/2003 8:21	2.3	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	2.3	715231	11.68	0.093
7/9/2003 8:22	2.2	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	2.2	715231	11.14	0.088
7/9/2003 8:23	2.1	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	2.1	715231	10.61	0.084
7/9/2003 8:24	1.9	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	1.9	715231	9.55	0.076
7/9/2003 8:25	1.8	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	1.8	715231	9.28	0.074
7/9/2003 8:26	1.8	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	1.8	715231	9.02	0.071
7/9/2003 8:27	1.8	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	1.8	715231	9.28	0.074
7/9/2003 8:28	2.0	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	2.0	715231	10.08	0.080
7/9/2003 8:29	2.4	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	2.3	715231	11.94	0.095
7/9/2003 8:30	2.5	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	2.4	715231	12.48	0.099
7/9/2003 8:31	2.6	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	2.6	715231	13.28	0.105

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

July 9, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_o	NOx C_{ma}	NOx C_{adj}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per Hour	Nox, Pounds per Ton
7/9/2003 8:32	3.5	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	3.5	715231	17.80	0.141
7/9/2003 8:33	3.6	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	3.6	715231	18.34	0.145
7/9/2003 8:34	3.0	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	3.0	715231	15.40	0.122
7/9/2003 8:35	3.4	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	3.3	715231	17.00	0.135
7/9/2003 8:36	2.6	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	2.5	715231	13.01	0.103
7/9/2003 8:37	2.3	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	2.3	715231	11.68	0.093
7/9/2003 8:38	2.3	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	2.3	715231	11.68	0.093
7/9/2003 8:39	2.2	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	2.2	715231	11.14	0.088
7/9/2003 8:40	2.0	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	2.0	715231	10.08	0.080
7/9/2003 8:41	1.9	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	1.9	715231	9.82	0.078
7/9/2003 8:42	1.7	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	1.7	715231	8.48	0.067
7/9/2003 8:43	1.6	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	1.6	715231	7.95	0.063
7/9/2003 8:44	1.5	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	1.4	715231	7.42	0.059
7/9/2003 8:45	1.9	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	1.9	715231	9.55	0.076
7/9/2003 8:46	8.2	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	8.1	715231	41.77	0.331
7/9/2003 8:47	12.5	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	12.3	715231	63.07	0.500
7/9/2003 8:48	7.9	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	7.8	715231	40.17	0.318
7/9/2003 8:49	5.1	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	5.0	715231	25.79	0.204
7/9/2003 8:50	3.8	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	3.8	715231	19.40	0.154
7/9/2003 8:51	3.6	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	3.5	715231	18.07	0.143
7/9/2003 8:52	6.6	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	6.5	715231	33.24	0.264
7/9/2003 8:53	7.4	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	7.3	715231	37.24	0.295
7/9/2003 8:54	6.1	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	6.1	715231	31.11	0.247
7/9/2003 8:55	5.9	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	5.9	715231	30.05	0.238
7/9/2003 8:56	11.0	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	10.8	715231	55.61	0.441
7/9/2003 8:57	14.4	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	14.3	715231	73.18	0.580
7/9/2003 8:58	9.8	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	9.7	715231	49.75	0.394
7/9/2003 8:59	17.7	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	17.5	715231	89.69	0.711
7/9/2003 9:00	25.1	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	24.8	715231	127.23	1.008
7/9/2003 9:01	16.5	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	16.3	715231	83.57	0.662
7/9/2003 9:02	10.7	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	10.5	715231	54.01	0.428
7/9/2003 9:03	8.4	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	8.3	715231	42.30	0.335
7/9/2003 9:04	7.9	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	7.8	715231	39.90	0.316
7/9/2003 9:05	5.4	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	5.3	715231	27.39	0.217
7/9/2003 9:06	4.1	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	4.1	715231	21.00	0.166
7/9/2003 9:07	4.4	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	4.4	715231	22.33	0.177
7/9/2003 9:08	5.6	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	5.5	715231	28.18	0.223
7/9/2003 9:09	6.1	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	6.0	715231	30.85	0.245
7/9/2003 9:10	6.2	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	6.2	715231	31.65	0.251
7/9/2003 9:11	5.5	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	5.4	715231	27.65	0.219
7/9/2003 9:12	3.5	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	3.5	715231	17.80	0.141
7/9/2003 9:13	3.0	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	3.0	715231	15.40	0.122
7/9/2003 9:14	3.0	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	3.0	715231	15.40	0.122
7/9/2003 9:15	3.1	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	3.1	715231	15.94	0.126
7/9/2003 9:16	2.8	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	2.8	715231	14.34	0.114
7/9/2003 9:17	2.4	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	2.4	715231	12.21	0.097
7/9/2003 9:18	4.1	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	4.1	715231	21.00	0.166
7/9/2003 9:19	6.0	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	6.0	715231	30.58	0.242
7/9/2003 9:20	2.7	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	2.6	715231	13.54	0.107
7/9/2003 9:21	7.6	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	7.5	715231	38.57	0.306

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

July 9, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_o	NOx C_{ma}	NOx C_{ma}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Nox, Pounds per Ton
7/9/2003 9:22	31.2	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	30.8	715231	158.11	1.253
7/9/2003 9:23	26.9	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	26.5	715231	136.02	1.078
7/9/2003 9:24	17.5	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	17.3	715231	88.63	0.702
7/9/2003 9:25	11.1	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	11.0	715231	56.41	0.447
7/9/2003 9:26	5.0	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	4.9	715231	25.26	0.200
7/9/2003 9:27	3.3	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	3.2	715231	16.47	0.131
7/9/2003 9:28	2.3	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	2.2	715231	11.41	0.090
7/9/2003 9:29	1.7	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	1.7	715231	8.48	0.067
7/9/2003 9:30	1.4	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	1.3	715231	6.88	0.055
7/9/2003 9:31	1.3	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	1.3	715231	6.62	0.052
7/9/2003 9:32	2.0	1	A3G083	149	71	126.16		0.00	60	0.00	126.16	Run 1	0.0	25.4	25.1	2.0	715231	10.35	0.082
7/9/2003 9:33	1.9	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	1.9	715231	9.55	0.075
7/9/2003 9:34	1.9	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	1.9	715231	9.55	0.075
7/9/2003 9:35	1.9	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	1.9	715231	9.55	0.075
7/9/2003 9:36	1.9	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	1.9	715231	9.82	0.077
7/9/2003 9:37	1.4	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	1.4	715231	7.15	0.056
7/9/2003 9:38	1.3	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	1.2	715231	6.35	0.050
7/9/2003 9:39	1.2	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	1.2	715231	6.09	0.048
7/9/2003 9:40	1.1	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	1.1	715231	5.82	0.046
7/9/2003 9:41	0.8	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	0.8	715231	4.22	0.033
7/9/2003 9:42	7.0	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	7.0	715231	35.64	0.279
7/9/2003 9:43	16.7	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	16.5	715231	84.37	0.660
7/9/2003 9:44	13.7	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	13.5	715231	69.19	0.542
7/9/2003 9:45	11.4	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	11.3	715231	57.74	0.452
7/9/2003 9:46	8.0	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	7.9	715231	40.43	0.316
7/9/2003 9:47	5.5	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	5.4	715231	27.92	0.219
7/9/2003 9:48	3.7	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	3.7	715231	18.87	0.148
7/9/2003 9:49	2.6	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	2.6	715231	13.28	0.104
7/9/2003 9:50	1.9	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	1.9	715231	9.55	0.075
7/9/2003 9:51	1.9	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	1.9	715231	9.55	0.075
7/9/2003 9:52	2.1	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	2.1	715231	10.68	0.085
7/9/2003 9:53	2.4	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	2.3	715231	11.94	0.093
7/9/2003 9:54	2.2	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	2.2	715231	11.14	0.087
7/9/2003 9:55	1.6	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	1.6	715231	7.95	0.062
7/9/2003 9:56	1.9	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	1.9	715231	9.55	0.075
7/9/2003 9:57	2.4	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	2.4	715231	12.21	0.096
7/9/2003 9:58	2.3	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	2.3	715231	11.68	0.091
7/9/2003 9:59	2.5	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	2.4	715231	12.48	0.098
7/9/2003 10:00	2.8	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	2.7	715231	14.08	0.110
7/9/2003 10:01	2.5	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	2.5	715231	12.74	0.100
7/9/2003 10:02	3.1	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	3.1	715231	15.94	0.125
7/9/2003 10:03	3.9	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	3.8	715231	19.66	0.154
7/9/2003 10:04	6.9	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	6.8	715231	35.11	0.275
7/9/2003 10:05	17.2	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	17.0	715231	87.03	0.681
7/9/2003 10:06	17.2	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	17.0	715231	87.03	0.681
7/9/2003 10:07	12.8	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	12.7	715231	64.93	0.508
7/9/2003 10:08	11.1	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	11.0	715231	56.14	0.439
7/9/2003 10:09	10.6	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	10.4	715231	53.48	0.419
7/9/2003 10:10	9.3	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	9.2	715231	47.09	0.369
7/9/2003 10:11	6.2	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	6.2	715231	31.65	0.248

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

July 9, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_o	NOx C_{ma}	NOx C_{ma}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Nox, Pounds per Ton
7/9/2003 10:12	6.2	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	6.1	715231	31.38	0.246
7/9/2003 10:13	6.6	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	6.5	715231	33.24	0.260
7/9/2003 10:14	5.5	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	5.4	715231	27.65	0.216
7/9/2003 10:15	5.3	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	5.2	715231	26.65	0.210
7/9/2003 10:16	5.9	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	5.8	715231	29.79	0.233
7/9/2003 10:17	5.1	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	5.1	715231	26.05	0.204
7/9/2003 10:18	4.6	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	4.5	715231	23.13	0.181
7/9/2003 10:19	4.6	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	4.6	715231	23.39	0.183
7/9/2003 10:20	4.0	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	4.0	715231	20.46	0.160
7/9/2003 10:21	5.0	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	4.9	715231	25.26	0.198
7/9/2003 10:22	4.9	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	4.9	715231	24.99	0.196
7/9/2003 10:23	3.7	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	3.7	715231	18.87	0.148
7/9/2003 10:24	2.9	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	2.9	715231	14.67	0.116
7/9/2003 10:25	3.4	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	3.3	715231	17.00	0.133
7/9/2003 10:26	3.6	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	3.6	715231	18.34	0.144
7/9/2003 10:27	4.2	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	4.1	715231	21.26	0.166
7/9/2003 10:28	6.2	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	6.2	715231	31.65	0.248
7/9/2003 10:29	5.2	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	5.1	715231	26.32	0.206
7/9/2003 10:30	4.6	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	4.6	715231	23.39	0.183
7/9/2003 10:31	4.2	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	4.1	715231	21.26	0.166
7/9/2003 10:32	3.6	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	3.6	715231	18.34	0.144
7/9/2003 10:33	3.8	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	3.8	715231	19.40	0.152
7/9/2003 10:34	3.6	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	3.6	715231	18.34	0.144
7/9/2003 10:35	5.4	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	5.3	715231	27.12	0.212
7/9/2003 10:36	10.0	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	9.9	715231	50.82	0.398
7/9/2003 10:37	10.7	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	10.6	715231	54.28	0.425
7/9/2003 10:38	14.3	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	14.1	715231	72.38	0.567
7/9/2003 10:39	13.6	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	13.4	715231	68.92	0.539
7/9/2003 10:40	9.8	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	9.7	715231	49.48	0.387
7/9/2003 10:41	7.5	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	7.4	715231	38.04	0.298
7/9/2003 10:42	7.0	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	6.9	715231	35.37	0.277
7/9/2003 10:43	6.6	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	6.5	715231	33.51	0.262
7/9/2003 10:44	5.6	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	5.6	715231	28.45	0.223
7/9/2003 10:45	4.3	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	4.3	715231	21.80	0.171
7/9/2003 10:46	3.8	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	3.7	715231	19.13	0.150
7/9/2003 10:47	4.4	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	4.4	715231	22.33	0.175
7/9/2003 10:48	4.1	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	4.1	715231	21.00	0.164
7/9/2003 10:49	5.0	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	4.9	715231	25.26	0.198
7/9/2003 10:50	4.5	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	4.4	715231	22.60	0.177
7/9/2003 10:51	4.0	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	4.0	715231	20.46	0.160
7/9/2003 10:52	3.9	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	3.9	715231	19.93	0.156
7/9/2003 10:53	3.6	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	3.6	715231	18.34	0.144
7/9/2003 10:54	3.0	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	3.0	715231	15.40	0.121
7/9/2003 10:55	7.4	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	7.3	715231	37.50	0.294
7/9/2003 10:56	13.1	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	12.9	715231	66.26	0.519
7/9/2003 10:57	8.4	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	8.3	715231	42.30	0.331
7/9/2003 10:58	5.9	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	5.8	715231	29.79	0.233
7/9/2003 10:59	8.0	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	7.9	715231	40.43	0.316
7/9/2003 11:00	9.8	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	9.7	715231	49.48	0.387
7/9/2003 11:01	8.1	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	8.0	715231	40.96	0.321

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

July 9, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_g	NOx C_{ma}	NOx C_{wa}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Nox, Pounds per Ton
7/9/2003 11:02	7.8	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	7.7	715231	39.37	0.308
7/9/2003 11:03	6.6	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	6.5	715231	33.51	0.262
7/9/2003 11:04	7.0	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	6.9	715231	35.37	0.277
7/9/2003 11:05	6.4	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	6.3	715231	32.44	0.254
7/9/2003 11:06	1.8	1	A3G084	162	76	127.75		0.00	60	0.00	127.75	Run 1	0.0	25.4	25.1	1.8	715231	9.02	0.071
	5.7										127.03	**Run 1 Average**				5.6	715231		0.226
7/9/2003 11:07	0.4																		
7/9/2003 11:08	0.1																		
7/9/2003 11:09	0.0											0 ppm Cal							
	0.0											**0 ppm Cal Average**							
7/9/2003 11:10	0.7																		
7/9/2003 11:11	16.1																		
7/9/2003 11:12	23.5																		
7/9/2003 11:13	24.8																		
7/9/2003 11:14	25.1											25.1 ppm Cal							
7/9/2003 11:15	25.2											25.1 ppm Cal							
7/9/2003 11:16	25.3											25.1 ppm Cal							
	25.2											**25.1 ppm Cal Average**							
7/9/2003 11:17	26.8																		
7/9/2003 11:18	16.8																		
7/9/2003 11:19	11.1																		
7/9/2003 11:20	6.9																		
7/9/2003 11:21	10.2																		
7/9/2003 11:22	17.8																		
7/9/2003 11:23	14.9																		
7/9/2003 11:24	5.3																		
7/9/2003 11:25	2.8																		
7/9/2003 11:26	2.4																		
7/9/2003 11:27	2.3																		
7/9/2003 11:28	2.8																		
7/9/2003 11:29	13.8																		
7/9/2003 11:30	24.8																		
7/9/2003 11:31	31.9																		
7/9/2003 11:32	36.2																		
7/9/2003 11:33	38.1																		
7/9/2003 11:34	38.6																		
7/9/2003 11:35	30.4																		
7/9/2003 11:36	8.1																		
7/9/2003 11:37	2.8																		
7/9/2003 11:38	1.8																		
7/9/2003 11:39	1.6																		
7/9/2003 11:40	1.6																		
7/9/2003 11:41	1.5																		
7/9/2003 11:42	1.6																		
7/9/2003 11:43	1.7																		
7/9/2003 11:44	1.8																		
7/9/2003 11:45	3.8	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	3.8	824008	22.26	0.154
7/9/2003 11:46	14.8	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	14.8	824008	87.32	0.603
7/9/2003 11:47	12.9	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	12.9	824008	76.17	0.526
7/9/2003 11:48	7.9	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	7.9	824008	46.63	0.320

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

July 9, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_o	NOx C_{ma}	NOx C_{wa}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Nox, Pounds per Ton
7/9/2003 11:49	5.8	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	5.8	824008	34.34	0.237
7/9/2003 11:50	3.7	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	3.7	824008	21.95	0.152
7/9/2003 11:51	2.8	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.8	824008	16.38	0.113
7/9/2003 11:52	2.8	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.8	824008	16.38	0.113
7/9/2003 11:53	3.4	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	3.4	824008	19.79	0.137
7/9/2003 11:54	2.7	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.7	824008	16.07	0.111
7/9/2003 11:55	2.4	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.4	824008	14.21	0.098
7/9/2003 11:56	2.1	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.1	824008	12.35	0.085
7/9/2003 11:57	2.7	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.7	824008	16.07	0.111
7/9/2003 11:58	2.4	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.4	824008	14.21	0.098
7/9/2003 11:59	2.3	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.2	824008	13.28	0.092
7/9/2003 12:00	2.0	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.0	824008	11.73	0.081
7/9/2003 12:01	2.0	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.0	824008	11.73	0.081
7/9/2003 12:02	2.2	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.2	824008	12.97	0.090
7/9/2003 12:03	2.3	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.2	824008	13.28	0.092
7/9/2003 12:04	2.3	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.2	824008	13.28	0.092
7/9/2003 12:05	2.0	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.0	824008	11.73	0.081
7/9/2003 12:06	1.8	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	1.8	824008	10.49	0.072
7/9/2003 12:07	2.5	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.5	824008	14.83	0.102
7/9/2003 12:08	3.1	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	3.1	824008	18.24	0.126
7/9/2003 12:09	3.1	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	3.1	824008	18.54	0.128
7/9/2003 12:10	3.9	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	3.9	824008	23.19	0.160
7/9/2003 12:11	4.4	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	4.4	824008	25.98	0.179
7/9/2003 12:12	4.5	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	4.5	824008	26.29	0.181
7/9/2003 12:13	6.4	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	6.3	824008	37.44	0.258
7/9/2003 12:14	13.2	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	13.2	824008	78.02	0.539
7/9/2003 12:15	9.9	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	9.9	824008	58.20	0.402
7/9/2003 12:16	16.8	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	16.7	824008	98.78	0.682
7/9/2003 12:17	11.6	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	11.6	824008	68.42	0.472
7/9/2003 12:18	7.9	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	7.9	824008	46.43	0.320
7/9/2003 12:19	4.6	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	4.6	824008	26.91	0.186
7/9/2003 12:20	3.5	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	3.5	824008	20.40	0.141
7/9/2003 12:21	3.6	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	3.6	824008	21.02	0.145
7/9/2003 12:22	3.5	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	3.5	824008	20.71	0.143
7/9/2003 12:23	4.4	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	4.3	824008	25.67	0.177
7/9/2003 12:24	5.4	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	5.3	824008	31.56	0.218
7/9/2003 12:25	3.3	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	3.3	824008	19.47	0.134
7/9/2003 12:26	5.2	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	5.2	824008	30.62	0.211
7/9/2003 12:27	9.3	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	9.3	824008	55.10	0.380
7/9/2003 12:28	10.6	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	10.6	824008	62.53	0.432
7/9/2003 12:29	12.6	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	12.6	824008	74.30	0.513
7/9/2003 12:30	15.6	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	15.5	824008	91.65	0.633
7/9/2003 12:31	10.2	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	10.2	824008	60.06	0.415
7/9/2003 12:32	6.1	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	6.1	824008	36.20	0.250
7/9/2003 12:33	4.5	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	4.5	824008	26.60	0.184
7/9/2003 12:34	3.9	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	3.9	824008	23.19	0.160
7/9/2003 12:35	4.2	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	4.2	824008	24.74	0.171
7/9/2003 12:36	4.4	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	4.4	824008	25.98	0.179
7/9/2003 12:37	5.1	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	5.1	824008	30.32	0.209
7/9/2003 12:38	5.4	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	5.4	824008	31.87	0.220

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

July 9, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Nox, Pounds per Ton
7/9/2003 12:39	5.6	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	5.6	824008	32.79	0.226
7/9/2003 12:40	4.4	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	4.3	824008	25.67	0.177
7/9/2003 12:41	4.2	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	4.2	824008	24.74	0.171
7/9/2003 12:42	4.5	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	4.5	824008	26.60	0.184
7/9/2003 12:43	3.6	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	3.6	824008	21.34	0.147
7/9/2003 12:44	3.0	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	3.0	824008	17.92	0.124
7/9/2003 12:45	2.5	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.5	824008	14.52	0.100
7/9/2003 12:46	2.3	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.2	824008	13.28	0.092
7/9/2003 12:47	2.2	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.2	824008	12.97	0.090
7/9/2003 12:48	2.7	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.7	824008	16.07	0.111
7/9/2003 12:49	2.7	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.7	824008	16.07	0.111
7/9/2003 12:50	2.9	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.9	824008	17.30	0.119
7/9/2003 12:51	2.6	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.6	824008	15.45	0.107
7/9/2003 12:52	2.3	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.3	824008	13.59	0.094
7/9/2003 12:53	2.1	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.1	824008	12.35	0.085
7/9/2003 12:54	2.6	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.6	824008	15.14	0.104
7/9/2003 12:55	2.8	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.8	824008	16.36	0.113
7/9/2003 12:56	2.4	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.4	824008	13.90	0.096
7/9/2003 12:57	2.3	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.3	824008	13.59	0.094
7/9/2003 12:58	2.6	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.6	824008	15.14	0.104
7/9/2003 12:59	2.0	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.0	824008	11.73	0.081
7/9/2003 13:00	1.8	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	1.8	824008	10.49	0.072
7/9/2003 13:01	1.7	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	1.7	824008	10.18	0.070
7/9/2003 13:02	2.0	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.0	824008	12.04	0.083
7/9/2003 13:03	2.8	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.8	824008	16.69	0.115
7/9/2003 13:04	3.7	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	3.7	824008	21.64	0.149
7/9/2003 13:05	9.6	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	9.5	824008	56.34	0.389
7/9/2003 13:06	17.3	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	17.3	824008	101.88	0.703
7/9/2003 13:07	14.2	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	14.2	824008	83.91	0.579
7/9/2003 13:08	8.2	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	8.2	824008	48.28	0.333
7/9/2003 13:09	12.7	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	12.6	824008	74.62	0.515
7/9/2003 13:10	7.0	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	7.0	824008	41.47	0.286
7/9/2003 13:11	5.9	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	5.9	824008	34.96	0.241
7/9/2003 13:12	5.1	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	5.1	824008	30.01	0.207
7/9/2003 13:13	5.7	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	5.7	824008	33.72	0.233
7/9/2003 13:14	5.1	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	5.1	824008	30.32	0.209
7/9/2003 13:15	2.9	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	2.9	824008	17.00	0.117
7/9/2003 13:16	1.9	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	1.9	824008	11.42	0.079
7/9/2003 13:17	1.4	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	1.4	824008	8.32	0.057
7/9/2003 13:18	1.0	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	1.0	824008	5.84	0.040
7/9/2003 13:19	0.7	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	0.7	824008	4.30	0.030
7/9/2003 13:20	0.6	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	0.6	824008	3.68	0.025
7/9/2003 13:21	0.8	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	0.8	824008	4.92	0.034
7/9/2003 13:22	7.0	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	7.0	824008	41.16	0.284
7/9/2003 13:23	3.8	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	3.8	824008	22.57	0.156
7/9/2003 13:24	4.7	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	4.7	824008	27.53	0.190
7/9/2003 13:25	14.1	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	14.1	824008	83.29	0.575
7/9/2003 13:26	15.2	2	A3G085	142	59	144.86		0.00	60	0.00	144.86	Run 2	0.00	25.15	25.10	15.2	824008	89.80	0.620
7/9/2003 13:27	8.2	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	8.2	824008	48.28	0.378
7/9/2003 13:28	6.3	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	6.3	824008	37.13	0.291

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Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

July 9, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_g	NOx C_w	NOx C_{wa}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Nox, Pounds per Ton
7/9/2003 13:29	5.7	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	5.7	824008	33.41	0.262
7/9/2003 13:30	5.3	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	5.3	824008	31.24	0.245
7/9/2003 13:31	3.4	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	3.4	824008	19.79	0.155
7/9/2003 13:32	2.4	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	2.4	824008	13.90	0.109
7/9/2003 13:33	1.4	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	1.4	824008	8.32	0.065
7/9/2003 13:34	1.1	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	1.1	824008	6.47	0.051
7/9/2003 13:35	0.9	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	0.9	824008	5.53	0.043
7/9/2003 13:36	0.9	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	0.9	824008	5.22	0.041
7/9/2003 13:37	1.0	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	1.0	824008	6.15	0.048
7/9/2003 13:38	1.2	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	1.2	824008	7.08	0.056
7/9/2003 13:39	1.4	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	1.4	824008	8.01	0.063
7/9/2003 13:40	8.0	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	8.0	824008	47.36	0.371
7/9/2003 13:41	13.8	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	13.7	824008	81.12	0.636
7/9/2003 13:42	9.3	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	9.3	824008	54.79	0.429
7/9/2003 13:43	7.4	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	7.3	824008	43.33	0.339
7/9/2003 13:44	6.2	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	6.2	824008	36.51	0.286
7/9/2003 13:45	5.0	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	5.0	824008	29.70	0.233
7/9/2003 13:46	3.6	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	3.6	824008	21.34	0.167
7/9/2003 13:47	3.9	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	3.9	824008	22.88	0.179
7/9/2003 13:48	3.7	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	3.7	824008	21.95	0.172
7/9/2003 13:49	3.2	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	3.2	824008	18.85	0.148
7/9/2003 13:50	3.0	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	3.0	824008	17.92	0.140
7/9/2003 13:51	2.7	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	2.7	824008	16.07	0.126
7/9/2003 13:52	3.3	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	3.3	824008	19.47	0.153
7/9/2003 13:53	3.8	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	3.8	824008	22.57	0.177
7/9/2003 13:54	3.8	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	3.8	824008	22.57	0.177
7/9/2003 13:55	4.2	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	4.2	824008	24.74	0.194
7/9/2003 13:56	4.8	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	4.8	824008	28.46	0.223
7/9/2003 13:57	5.4	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	5.3	824008	31.56	0.247
7/9/2003 13:58	5.5	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	5.5	824008	32.49	0.255
7/9/2003 13:59	8.8	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	8.8	824008	52.00	0.407
7/9/2003 14:00	15.0	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	14.9	824008	88.25	0.692
7/9/2003 14:01	24.1	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	24.0	824008	141.84	1.111
7/9/2003 14:02	31.4	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	31.3	824008	184.90	1.449
7/9/2003 14:03	34.0	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	33.9	824008	200.39	1.570
7/9/2003 14:04	14.0	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	13.9	824008	82.36	0.645
7/9/2003 14:05	10.6	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	10.7	824008	63.47	0.497
7/9/2003 14:06	15.1	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	15.1	824008	89.17	0.699
7/9/2003 14:07	6.7	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	6.7	824008	39.61	0.310
7/9/2003 14:08	3.1	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	3.1	824008	18.54	0.145
7/9/2003 14:09	2.0	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	2.0	824008	11.73	0.092
7/9/2003 14:10	1.5	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	1.5	824008	8.94	0.070
7/9/2003 14:11	1.3	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	1.3	824008	7.70	0.060
7/9/2003 14:12	1.3	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	1.3	824008	7.39	0.058
7/9/2003 14:13	1.1	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	1.1	824008	6.77	0.053
7/9/2003 14:14	1.1	2		0	60	0.00	B3G587	155.27	73	127.62	127.62	Run 2	0.00	25.15	25.10	1.1	824008	6.47	0.051
	5.5										139.35	**Run 2 Average**				5.5	824008		0.237
7/9/2003 14:15	1.0																		
7/9/2003 14:16	1.0																		
7/9/2003 14:17	1.0																		

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Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Nox, Pounds per Ton
7/9/2003 14:18	0.0											0 ppm Cal							
	0.0											0 ppm Cal Average							
7/9/2003 14:19	1.2																		
7/9/2003 14:20	13.3																		
7/9/2003 14:21	21.9																		
7/9/2003 14:22	24.0																		
7/9/2003 14:23	24.9																		
7/9/2003 14:24	25.1											25.1 ppm Cal							
7/9/2003 14:25	25.1											25.1 ppm Cal							
7/9/2003 14:26	25.1											25.1 ppm Cal							
	25.1											25.1 ppm Cal Average							
7/9/2003 14:27	16.9																		
7/9/2003 14:28	4.4																		
7/9/2003 14:29	1.1																		
7/9/2003 14:30	0.3																		
7/9/2003 14:31	0.2																		
7/9/2003 14:32	0.6	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	0.6	763536	3.13	0.023
7/9/2003 14:33	0.8	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	0.8	763536	4.28	0.031
7/9/2003 14:34	1.5	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	1.5	763536	8.03	0.058
7/9/2003 14:35	5.7	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	5.7	763536	31.08	0.224
7/9/2003 14:36	4.1	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	4.1	763536	22.44	0.162
7/9/2003 14:37	3.3	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	3.3	763536	17.83	0.128
7/9/2003 14:38	2.4	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	2.4	763536	13.22	0.095
7/9/2003 14:39	2.3	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	2.3	763536	12.35	0.089
7/9/2003 14:40	2.1	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	2.2	763536	11.78	0.085
7/9/2003 14:41	1.4	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	1.4	763536	7.45	0.054
7/9/2003 14:42	1.0	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	1.0	763536	5.43	0.039
7/9/2003 14:43	1.1	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	1.1	763536	6.02	0.043
7/9/2003 14:44	2.3	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	2.3	763536	12.35	0.089
7/9/2003 14:45	1.1	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	1.2	763536	6.30	0.045
7/9/2003 14:46	0.9	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	0.9	763536	5.15	0.037
7/9/2003 14:47	0.8	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	0.8	763536	4.28	0.031
7/9/2003 14:48	0.6	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	0.6	763536	3.42	0.025
7/9/2003 14:49	0.4	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	0.4	763536	2.26	0.016
7/9/2003 14:50	0.4	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	0.4	763536	1.98	0.014
7/9/2003 14:51	0.4	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	0.4	763536	1.98	0.014
7/9/2003 14:52	0.7	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	0.7	763536	3.71	0.027
7/9/2003 14:53	5.5	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	5.5	763536	30.22	0.218
7/9/2003 14:54	14.7	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	14.7	763536	80.37	0.578
7/9/2003 14:55	13.0	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	13.1	763536	71.43	0.514
7/9/2003 14:56	7.2	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	7.3	763536	39.73	0.286
7/9/2003 14:57	11.3	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	11.4	763536	62.21	0.448
7/9/2003 14:58	12.3	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	12.4	763536	67.69	0.487
7/9/2003 14:59	10.8	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	10.8	763536	59.04	0.425
7/9/2003 15:00	12.7	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	12.7	763536	69.71	0.502
7/9/2003 15:01	7.4	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	7.4	763536	40.31	0.290
7/9/2003 15:02	3.6	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	3.6	763536	19.65	0.143
7/9/2003 15:03	4.7	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	4.7	763536	25.61	0.184
7/9/2003 15:04	4.1	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	4.2	763536	22.73	0.164
7/9/2003 15:05	3.3	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	3.3	763536	17.83	0.128

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7/9/2003 15:06	3.3	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	3.3	763536	18.12	0.130
7/9/2003 15:07	3.4	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	3.4	763536	18.41	0.132
7/9/2003 15:08	3.5	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	3.5	763536	18.98	0.137
7/9/2003 15:09	9.0	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	9.1	763536	49.53	0.357
7/9/2003 15:10	9.0	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	9.1	763536	49.53	0.357
7/9/2003 15:11	5.5	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	5.5	763536	29.93	0.215
7/9/2003 15:12	2.6	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	2.6	763536	14.37	0.103
7/9/2003 15:13	3.3	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	3.3	763536	17.83	0.128
7/9/2003 15:14	8.8	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	8.8	763536	48.09	0.346
7/9/2003 15:15	14.7	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	14.7	763536	80.66	0.581
7/9/2003 15:16	18.7	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	18.7	763536	102.56	0.738
7/9/2003 15:17	22.0	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	22.0	763536	120.43	0.867
7/9/2003 15:18	24.0	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	24.1	763536	131.67	0.948
7/9/2003 15:19	25.5	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	25.5	763536	139.74	1.006
7/9/2003 15:20	25.1	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	25.2	763536	137.72	0.991
7/9/2003 15:21	25.0	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	25.0	763536	136.85	0.985
7/9/2003 15:22	23.9	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	24.0	763536	131.09	0.944
7/9/2003 15:23	22.3	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	22.3	763536	122.16	0.879
7/9/2003 15:24	23.3	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	23.3	763536	127.63	0.919
7/9/2003 15:25	23.8	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	23.9	763536	130.52	0.939
7/9/2003 15:26	12.5	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	12.5	763536	68.27	0.491
7/9/2003 15:27	4.6	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	4.6	763536	25.32	0.182
7/9/2003 15:28	2.9	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	2.9	763536	16.10	0.116
7/9/2003 15:29	2.5	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	2.5	763536	13.80	0.099
7/9/2003 15:30	2.7	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	2.7	763536	14.66	0.105
7/9/2003 15:31	2.7	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	2.7	763536	14.66	0.105
7/9/2003 15:32	2.3	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	2.3	763536	12.64	0.091
7/9/2003 15:33	1.9	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	1.9	763536	10.63	0.076
7/9/2003 15:34	1.9	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	1.9	763536	10.34	0.074
7/9/2003 15:35	2.0	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	2.0	763536	11.20	0.081
7/9/2003 15:36	5.7	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	5.7	763536	31.37	0.226
7/9/2003 15:37	5.8	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	5.8	763536	31.67	0.228
7/9/2003 15:38	2.6	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	2.6	763536	14.08	0.101
7/9/2003 15:39	1.9	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	1.9	763536	10.34	0.074
7/9/2003 15:40	1.5	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	1.5	763536	8.32	0.060
7/9/2003 15:41	8.1	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	8.2	763536	44.63	0.321
7/9/2003 15:42	13.9	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	13.9	763536	76.34	0.549
7/9/2003 15:43	9.9	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	9.9	763536	54.14	0.390
7/9/2003 15:44	4.3	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	4.3	763536	23.59	0.170
7/9/2003 15:45	2.5	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	2.5	763536	13.80	0.099
7/9/2003 15:46	1.5	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	1.5	763536	8.03	0.058
7/9/2003 15:47	1.2	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	1.2	763536	6.59	0.047
7/9/2003 15:48	2.0	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	2.0	763536	10.91	0.079
7/9/2003 15:49	1.3	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	1.3	763536	7.17	0.052
7/9/2003 15:50	1.9	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	1.9	763536	10.63	0.076
7/9/2003 15:51	2.9	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	2.9	763536	15.81	0.114
7/9/2003 15:52	7.0	3	A3G086	160	69	138.93		0.00	60	0.00	138.93	Run 3	0.00	25.05	25.10	7.0	763536	38.29	0.276
7/9/2003 15:53	6.6	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	6.6	763536	35.99	0.245
7/9/2003 15:54	3.7	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	3.7	763536	20.42	0.139
7/9/2003 15:55	2.8	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	2.8	763536	15.24	0.104

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

July 9, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_o	NOx C_M	NOx C_{adj}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Nox, Pounds per Ton
7/9/2003 15:56	2.7	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	2.7	763536	14.66	0.100
7/9/2003 15:57	2.3	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	2.3	763536	12.35	0.084
7/9/2003 15:58	2.0	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	2.0	763536	10.91	0.074
7/9/2003 15:59	1.9	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	1.9	763536	10.63	0.072
7/9/2003 16:00	1.9	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	1.9	763536	10.63	0.072
7/9/2003 16:01	3.5	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	3.5	763536	18.96	0.129
7/9/2003 16:02	6.3	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	6.3	763536	34.54	0.235
7/9/2003 16:03	6.7	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	6.7	763536	36.56	0.249
7/9/2003 16:04	6.8	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	6.8	763536	37.14	0.253
7/9/2003 16:05	7.6	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	7.6	763536	41.46	0.282
7/9/2003 16:06	7.7	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	7.7	763536	42.32	0.288
7/9/2003 16:07	6.6	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	6.6	763536	36.28	0.247
7/9/2003 16:08	3.3	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	3.3	763536	18.12	0.123
7/9/2003 16:09	1.9	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	1.9	763536	10.34	0.070
7/9/2003 16:10	1.8	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	1.8	763536	10.05	0.068
7/9/2003 16:11	1.6	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	1.6	763536	8.61	0.059
7/9/2003 16:12	1.6	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	1.6	763536	8.61	0.059
7/9/2003 16:13	1.6	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	1.6	763536	8.61	0.059
7/9/2003 16:14	1.6	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	1.6	763536	8.89	0.061
7/9/2003 16:15	1.8	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	1.8	763536	10.05	0.068
7/9/2003 16:16	1.8	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	1.8	763536	9.76	0.066
7/9/2003 16:17	1.3	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	1.3	763536	6.88	0.047
7/9/2003 16:18	1.0	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	1.0	763536	5.43	0.037
7/9/2003 16:19	1.0	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	1.0	763536	5.43	0.037
7/9/2003 16:20	1.2	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	1.2	763536	6.59	0.045
7/9/2003 16:21	3.6	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	3.6	763536	19.56	0.133
7/9/2003 16:22	4.8	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	4.8	763536	26.19	0.178
7/9/2003 16:23	6.8	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	6.8	763536	37.14	0.253
7/9/2003 16:24	3.6	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	3.6	763536	19.56	0.133
7/9/2003 16:25	3.4	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	3.4	763536	18.41	0.125
7/9/2003 16:26	3.1	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	3.2	763536	17.25	0.117
7/9/2003 16:27	2.3	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	2.3	763536	12.64	0.086
7/9/2003 16:28	2.1	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	2.2	763536	11.78	0.080
7/9/2003 16:29	2.9	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	2.9	763536	15.81	0.108
7/9/2003 16:30	3.0	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	3.0	763536	16.67	0.113
7/9/2003 16:31	13.4	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	13.4	763536	73.45	0.500
7/9/2003 16:32	13.9	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	13.9	763536	76.34	0.519
7/9/2003 16:33	9.0	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	9.1	763536	49.53	0.337
7/9/2003 16:34	7.7	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	7.7	763536	42.32	0.288
7/9/2003 16:35	6.5	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	6.5	763536	35.70	0.243
7/9/2003 16:36	4.5	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	4.5	763536	24.46	0.166
7/9/2003 16:37	3.4	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	3.4	763536	18.41	0.125
7/9/2003 16:38	4.0	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	4.0	763536	22.15	0.151
7/9/2003 16:39	7.8	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	7.8	763536	42.62	0.290
7/9/2003 16:40	14.6	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	14.6	763536	80.08	0.545
7/9/2003 16:41	21.9	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	21.9	763536	119.85	0.815
7/9/2003 16:42	18.7	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	18.7	763536	102.56	0.698
7/9/2003 16:43	7.0	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	7.1	763536	38.58	0.262
7/9/2003 16:44	4.7	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	4.7	763536	25.61	0.174
7/9/2003 16:45	4.3	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	4.3	763536	23.30	0.159

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

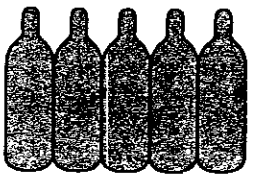
IDNR Permit Number 94-A-548-S3

July 9, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_o	NOx C_M	NOx C_{Ma}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Nox, Pounds per Ton
7/9/2003 16:46	7.6	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	7.6	763536	41.75	0.284
7/9/2003 16:47	11.6	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	11.6	763536	63.36	0.431
7/9/2003 16:48	9.6	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	9.6	763536	52.70	0.358
7/9/2003 16:49	4.9	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	4.9	763536	27.05	0.184
7/9/2003 16:50	3.3	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	3.3	763536	18.12	0.123
7/9/2003 16:51	3.6	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	3.6	763536	19.85	0.135
7/9/2003 16:52	2.3	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	2.3	763536	12.64	0.086
7/9/2003 16:53	1.5	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	1.5	763536	8.03	0.055
7/9/2003 16:54	3.5	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	3.5	763536	18.98	0.129
7/9/2003 16:55	5.7	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	5.7	763536	31.08	0.211
7/9/2003 16:56	7.0	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	7.1	763536	38.56	0.262
7/9/2003 16:57	5.1	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	5.1	763536	27.91	0.190
7/9/2003 16:58	2.7	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	2.7	763536	14.95	0.102
7/9/2003 16:59	2.0	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	2.0	763536	10.91	0.074
7/9/2003 17:00	2.5	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	2.5	763536	13.51	0.092
7/9/2003 17:01	2.8	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	2.8	763536	15.52	0.106
7/9/2003 17:02	3.6	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	3.6	763536	19.85	0.135
7/9/2003 17:03	4.5	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	4.5	763536	24.46	0.166
7/9/2003 17:04	4.8	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	4.8	763536	26.19	0.178
7/9/2003 17:05	5.9	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	5.9	763536	32.53	0.221
7/9/2003 17:06	6.8	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	6.8	763536	37.14	0.253
7/9/2003 17:07	7.4	3		0	60	0.00	B3G588	176.40	72	147.00	147.00	Run 3	0.00	25.05	25.10	7.4	763536	40.31	0.274
	5.9										142.81	**Run 3 Average**				6.0	763536		0.229
7/9/2003 17:08	8.0																		
7/9/2003 17:09	9.3																		
7/9/2003 17:10	7.6																		
7/9/2003 17:11	1.5																		
7/9/2003 17:12	0.3																		
7/9/2003 17:13	0.0											0 ppm Cal							
	0.0											**0 ppm Cal Average**							
7/9/2003 17:14	3.7																		
7/9/2003 17:15	18.8																		
7/9/2003 17:16	24.0																		
7/9/2003 17:17	24.8																		
7/9/2003 17:18	25.0											25.1 ppm Cal							
	25.0											**25.1 ppm Cal Average**							
7/9/2003 17:19	18.9																		
7/9/2003 17:20	-3.5																		
7/9/2003 17:21	-3.6																		
											136.05	Test Average (time weighted)				5.7	765130.9		0.230

SPECTRA GASES INC.
3434 Route 22 West • Branchburg, NJ 08876 USA Tel.: (908) 252-9300 • (800) 932-0624 • Fax: (908) 252-0811
Shipped From: 80 Industrial Drive • Alpha, NJ 08865



CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE
PROCEDURE # : G1

CUSTOMER: IPSCO Steel, Inc.
SGI ORDER # : 0033156
ITEM# : 1
P.O.# : VERBAL-DAVID

CYLINDER # : CC-135361
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 2/18/2003
EXPIRATION DATE: 2/18/2005

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	2/10/2003 2/18/2003	24.94 ppm 25.04 ppm	25.0 ppm	+/- 1%
NOx			25.1 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	NTRM-82660	CC-133646	99.5 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	CAI-400-CLD	6L09004	Chemi	1/28/2003

THIS STANDARD IS NIST TRACEABLE. IT 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

DATE: 2/18/2003

SPECTRA GASES INC.
3434 Route 22 West • Branchburg, NJ 08876 USA Tel.: (908) 252-9300 • (800) 932-0624 • Fax: (908) 252-0811
Shipped From: 80 Industrial Drive • Alpha, NJ 08865



CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: IPSCO Steel, Inc.
SGI ORDER # : 0033156
ITEM# : 2
P.O.# : VERBAL-DAVID

CYLINDER # : CC-85252
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 2/18/2003
EXPIRATION DATE: 2/18/2005

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	2/10/2003 2/18/2003	44.81 ppm 44.91 ppm	44.9 ppm	+/- 1%
NOx			45.1 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	NTRM-82660	CC-133646	99.5 ppm

RECEIVED
AUG 2 6 2003

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	CAI-400-CLD	6L09004	Chemi	1/28/2003

THIS STANDARD IS NIST TRACEABLE. IT 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

DATE: 2/18/2003

EAF Heat Sheet 09-Jul-2003 09:32:26

IPSCO STEEL INC.
Montpelier Works

HEAT: A3G083 MSP: 74172

Start Time: 09-Jul-2003 07:02:23
End Time : 09-Jul-2003 09:32:04
TapToTap Time : 149 (min)

Heat Order : 0614201
Grade : JDM A13C
Ladle #: 0 CrewID: 0 OperatorID: 24

START	DUR	DELAY REASON
09:26:00	0000	Operational, Tap
09:25:54	0000	Operational, Tap
09:21:12	0004	Operational, Slagoff
09:19:12	0002	Other, Open sump door
08:47:15	0002	Operational, Pack scrap
08:43:09	0004	Operational, Charge
08:33:02	0000	Other, Scrap Cave
08:10:47	0015	Operational, Swap columns
07:03:10	0063	Operational, Charge run B

CHARGES	AMOUNT
Charge 1 :	242850
Charge 2 :	142400
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0002620
75% Fe Si	0000120
4oz AL Con	0000630
FeVan	0000125
LSR	0004400
Carbon	0000050
Dololime	0007670
HiCal Lime	0004245

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	68200	25600	42600	0	0	0
O2 Burner	SCF	74	32	42	0	0	0
Gas Burner	SCF	35	15	20	0	0	0
O2 Lance	SCF	657	0	657	0	0	0
Carbon Lance	LBS	2010	0	2010	0	0	0
TIMES							
Melting Tm	MIN	149	100	48	0	0	0
Power on Tm	MIN	49	20	29	0	0	0
Burner On Tm	MIN	91	52	39	0	0	0
O2Lance On Tm	MIN	32	0	32	0	0	0
CLance On Tm	MIN	9	0	9	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	389.5	210.8	354.1	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	27776.9	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	003.8	000.0	003.4	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	011.5	000.0	010.4	000.0	000.0	000.0

149 − 78 = 71

158 / 71 = 2.23 × 60 = 133.5 TPH

COMMENTS

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.18400	1.00000	0.02000	0.01000	0.28000	0.03500	0.00000	0.01500	0.00000	0.41400	0.35000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00400	0.05800	0.01000	0.00000	0.00000	0.00000
MIN	0.16500	0.90000	0.00000	0.00000	0.18000	0.01800	0.01500	0.00000	0.00100	0.37700	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.04800	0.00600	0.00000	0.00000	0.00000
AIM	0.17000	0.95000	0.00000	0.00000	0.20000	0.02500	0.00000	0.00000	0.00000	0.39100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.05000	0.00700	0.00000	0.00000	0.00000

EAF Heat Sheet 09-Jul-2003 09:32:27

IPSCO STEEL INC.
Montpelier Works

HEAT: A3G083 MSP: 74172

---------- EVENTS ----------

TIME	KWH	Description
09:32:09	0068200	Ladle Weigth
09:32:06	0068200	End Tapping
09:25:26	0068200	Start Tapping
09:23:12	0068200	Burners Off
09:19:11	0068200	Power Off
09:03:13	0041800	Material Addition
08:58:27	0034400	Power On
08:58:18	0034400	Power Off
08:57:15	0033000	Power On
08:57:12	0033000	Power Off
08:56:01	0031400	Power On
08:55:57	0031400	Power Off
08:49:34	0025600	Power On
08:43:34	0025600	Charge
08:43:07	0025600	Power Off
08:33:25	0010800	Power On
08:33:00	0010800	Power Off
08:28:47	0006000	Burners On
08:26:02	0004000	Power On
08:10:45	0004000	Power Off
08:06:58	0000000	Melting
08:06:57	0000000	Power On
07:58:41	0000000	Material Addition
07:39:59	0000000	Burners Off
07:04:45	0000000	Charge
07:02:26	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: A3G083 MSP: 74172

---------- EVENTS ----------

TIME	KWH	Description
09:32:09	0068200	Ladle Weigth
09:32:06	0068200	End Tapping
09:25:26	0068200	Start Tapping
09:23:12	0068200	Burners Off
09:19:11	0068200	Power Off
09:03:13	0041800	Material Addition
08:58:27	0034400	Power On
08:58:18	0034400	Power Off
08:57:15	0033000	Power On
08:57:12	0033000	Power Off
08:56:01	0031400	Power On
08:55:57	0031400	Power Off
08:49:34	0025600	Power On
08:43:34	0025600	Charge
08:43:07	0025600	Power Off
08:33:25	0010800	Power On
08:33:00	0010800	Power Off
08:28:47	0006000	Burners On
08:26:02	0004000	Power On
08:10:45	0004000	Power Off
08:06:58	0000000	Melting
08:06:57	0000000	Power On
07:58:41	0000000	Material Addition
07:39:59	0000000	Burners Off
07:04:45	0000000	Charge
07:02:26	0000000	TurnAround

EAF Heat Sheet 09-Jul-2003 09:32:26

IPSCO STEEL INC.
Montpelier Works

HEAT: A3G083 *MSP: 74172*

Start Time: 09-Jul-2003 07:02:23
End Time : 09-Jul-2003 09:32:04
TapToTap Time : 149 (min)

Heat Order : 0614201
Grade : JDM A13C
Ladle # 0 CrewID: 0 OperatorID: 24

START	DUR	DELAY REASON
09:26:00	0000	Operational, Tap
09:25:54	0000	Operational, Tap
09:21:12	0004	Operational, Slagoff
09:19:12	0002	Other, Open sump door
08:47:15	0002	Operational, Pack scrap
08:43:09	0004	Operational, Charge
08:33:02	0000	Other, Scrap Cave
08:10:47	0015	Operational, Swap columns
07:03:10	0063	Operational, Charge run B

CHARGES	AMOUNT
Charge 1 :	242850
Charge 2 :	142400
Charge 3 :	0
Charge 4 :	0
Charge 5 .	0

ADDITIONS	LBS
SiMn	0002620
75% Fe Si	0000120
4oz AL Con	0000630
FeVan	0000125
LSR	0004400
Carbon	0000050
Dololime	0007670
HiCal Lime	0004245

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	68200	25600	42600	0	0	0
O2 Burner	SCF	74	32	42	0	0	0
Gas Burner	SCF	35	15	20	0	0	0
O2 Lance	SCF	657	0	657	0	0	0
Carbon Lance	LBS	2010	0	2010	0	0	0
TIMES							
Melting Tm	MIN	149	100	48	0	0	0
Power on Tm	MIN	49	20	29	0	0	0
Burner On Tm	MIN	91	52	39	0	0	0
O2Lance On Tm	MIN	32	0	32	0	0	0
CLance On Tm	MIN	9	0	9	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	389.5	210.8	354.1	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	27776.9	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	003.8	000.0	003.4	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	011.5	000.0	010.4	000.0	000.0	000.0

COMMENTS

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.18400	1.00000	0.02000	0.01000	0.28000	0.03500	0.00000	0.01500	0.00000	0.41400	0.35000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00400	0.05800	0.01000	0.00000	0.00000	0.00000
MIN	0.16500	0.90000	0.00000	0.00000	0.18000	0.01800	0.01500	0.00000	0.00100	0.37700	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.04800	0.00600	0.00000	0.00000	0.00000
AIM	0.17000	0.95000	0.00000	0.00000	0.20000	0.02500	0.00000	0.00000	0.00000	0.39100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.05000	0.00700	0.00000	0.00000	0.00000

2

EAF Heat Sheet 09-Jul-2003 11:06:41

IPSCO STEEL INC.
Montpelier Works

HEAT: A3G084 *MSP: 15142*

Start Time: 09-Jul-2003 09:33.07
End Time : 09-Jul-2003 11:06.26
TapToTap Time : 93 (min)

Heat Order : 0640601
Grade : 1E0650
Ladle #: 0 CrewID: 0 OperatorID: 24

START	DUR	DELAY REASON
10:59:51	0000	Operational, Tap
10:58:15	0001	Operational, Slagoff
10:40:27	0017	Operational, Blow Carbon
10:33:21	0007	Operational, Hot Anode #2
10:01:52	0004	Operational, Charge
09:57:19	0000	Operational, Swap slag pot
09:55:21	0000	Operational, Swap slag pot
09:38:30	0005	Operational, Charge
09:33:54	0004	Operational, Turnaround

93
-17
76

CHARGES AMOUNT
Charge 1 : 241650
Charge 2 . 134000
Charge 3 : 0
Charge 4 : 0
Charge 5 : 0

ADDITIONS	LBS
FeMn	0003600
4oz AL Con	0000600
FeVan	0000125
LSR	0004550
Carbon	0000105
Dololime	0003840
HiCal Lime	0002125

158 — 2.08 124.7 TPH
76

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	64800	34000	30800	0	0	0
O2 Burner	SCF	57	39	18	0	0	0
Gas Burner	SCF	27	20	7	0	0	0
O2 Lance	SCF	1000	86	914	0	0	0
Carbon Lance	LBS	42	0	42	0	0	0
TIMES							
Melting Tm	MIN	93	41	51	0	0	0
Power on Tm	MIN	44	25	18	0	0	0
Burner On Tm	MIN	47	27	19	0	0	0
O2Lance On Tm	MIN	52	8	43	0	0	0
CLance On Tm	MIN	0	0	0	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	379.5	281.4	345.0	000.0	000.0	000.0
Flux	Tons	000.0	000.1	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	44468.2	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.9	000.7	005.3	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.2	000.1	000.0	000.0	000.0
Carbon Ton	LBS/Ton	000.2	000.0	000.2	000.0	000.0	000.0

COMMENTS

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.15400	1.20000	0.02000	0.01000	0.15000	0.03500	0.00000	0.01500	0.00000	0.41600	0.40000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00400	0.05500	0.01000	0.00000	0.00000	0.00000
MIN	0.14500	1.10000	0.00000	0.00000	0.00000	0.01800	0.01500	0.00000	0.00070	0.37400	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.04500	0.00600	0.00000	0.00000	0.00000
AIM	0.14500	1.15000	0.00000	0.00000	0.00000	0.02500	0.00000	0.00000	0.00000	0.39300	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.05000	0.00700	0.00000	0.00000	0.00000

EAF Heat Sheet 09-Jul-2003 11:06:41

IPSCO STEEL INC.
Montpelier Works

HEAT: A3G084 *MSP: 15142*

Start Time. 09-Jul-2003 09:33:07
End Time : 09-Jul-2003 11:06:26
TapToTap Time : 93 (min)

Heat Order : 0640601
Grade : 1E0650
Ladle #: 0 CrewID: 0 OperatorID: 24

START	DUR	DELAY REASON
10:59:51	0000	Operational, Tap
10:58:15	0001	Operational, Slagoff
10:40:27	0017	Operational, Blow Carbon
10:33:21	0007	Operational, Hot Anode #2
10:01:52	0004	Operational, Charge
09:57:19	0000	Operational, Swap slag pot
09:55:21	0000	Operational, Swap slag pot
09:38:30	0005	Operational, Charge
09:33:54	0004	Operational, Turnaround

CHARGES	AMOUNT
Charge 1 :	241650
Charge 2 :	134000
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
FeMn	0003600
4oz AL Con	0000600
FeVan	0000125
LSR	0004550
Carbon	0000105
Dololime	0003840
HiCal Lime	0002125

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	64800	34000	30800	0	0	0
O2 Burner	SCF	57	39	18	0	0	0
Gas Burner	SCF	27	20	7	0	0	0
O2 Lance	SCF	1000	86	914	0	0	0
Carbon Lance	LBS	42	0	42	0	0	0
TIMES							
Melting Tm	MIN	93	41	51	0	0	0
Power on Tm	MIN	44	25	18	0	0	0
Burner On Tm	MIN	47	27	19	0	0	0
O2Lance On Tm	MIN	52	8	43	0	0	0
CLance On Tm	MIN	0	0	0	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	379.5	281.4	345.0	000.0	000.0	000.0
Flux	Tons	000.0	000.1	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	44468.2	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.9	000.7	005.3	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.2	000.1	000.0	000.0	000.0
Carbon Ton	LBS/Ton	000.2	000.0	000.2	000.0	000.0	000.0

COMMENTS

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CO	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B
MAX	0.15400	1.20000	0.02000	0.01000	0.15000	0.03500	0.00000	0.01500	0.00000	0.41600	0.40000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00400	0.05500	0.01000	0.00000	0.00000	0.00000
MIN	0.14500	1.10000	0.00000	0.00000	0.00000	0.01800	0.01500	0.00000	0.00070	0.37400	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.04500	0.00600	0.00000	0.00000	0.00000
AIM	0.14500	1.15000	0.00000	0.00000	0.00000	0.02500	0.00000	0.00000	0.00000	0.39300	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.05000	0.00700	0.00000	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: A3G084 MSP: 15142

EVENTS

TIME	KWH	Description
11:06:32	0064800	Ladle Weigth
11:06:28	0064800	End Tapping
11:02:31	0064800	Start Tapping
10:34:25	0064800	Burners Off
10:33:19	0064800	Power Off
10:14:38	0034000	Charge
10:06:02	0025200	Power On
10:03:13	0025200	Material Addition
10:01:50	0025200	Power Off
09:57:37	0018900	Power On
09:57:18	0018900	Power Off
09:55:52	0016900	Power On
09:55:19	0016900	Power Off
09:47:16	0004400	Burners On
09:43:35	0000000	Melting
09:43:33	0000000	Power On
09:38:57	0000000	Charge
09:33:10	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: A3G084 MSP: 15142

EVENTS

TIME	KWH	Description
11:06:32	0064800	Ladle Weigth
11:06:28	0064800	End Tapping
11:02:31	0064800	Start Tapping
10:34:25	0064800	Burners Off
10:33:19	0064800	Power Off
10:14:36	0034000	Charge
10:06:02	0025200	Power On
10:03:13	0025200	Material Addition
10:01:50	0025200	Power Off
09:57:37	0018900	Power On
09:57:18	0018900	Power Off
09:55:52	0016900	Power On
09:55:19	0016900	Power Off
09:47:16	0004400	Burners On
09:43:35	0000000	Melting
09:43:33	0000000	Power On
09:38:57	0000000	Charge
09:33:10	0000000	TurnAround

3

EAF Heat Sheet 09-Jul-2003 13:26:48

IPSCO STEEL INC.
Montpelier Works

HEAT: A3G085 MSP: 15140

Start Time: 09-Jul-2003 11:07:29
End Time : 09-Jul-2003 13:26:34
TapToTap Time : 138 (min)

Heat Order : 0613602
Grade : A572-50
Ladle #. 0 CrewID. 0 OperatorID. 24

START	DUR	DELAY REASON
13:20:44	0000	Operational, Tap
13:16:14	0004	Operational, Rebar Taphole
13:09:38	0006	Operational, Slagoff
13:04:56	0004	Operational, Blow Carbon
13:02:45	0001	Other, Open sump door
12:31:55	0006	Operational, Pack scrap
12:26:25	0005	Operational, Charge
12:24:25	0002	Operational, Slip electrode
12:23:49	0000	Other, New Other
12:15:28	0000	Other, New Other
11:53:00	0018	Mechanical, Burner Problem
11:08:16	0036	Operational, Charge run B

CHARGES	AMOUNT
Charge 1 :	242650
Charge 2 :	120350
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
FeMn	0003540
4oz AL Con	0000610
FeVan	0000075
LSR	0004550
Carbon	0000060
Dololime	0007665
HiCal Lime	0004250

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	62600	25800	36800	0	0	0
O2 Burner	SCF	72	27	45	0	0	0
Gas Burner	SCF	32	13	19	0	0	0
O2 Lance	SCF	618	0	618	0	0	0
Carbon Lance	LBS	769	0	769	0	0	0
TIMES							
Melting Tm	MIN	138	80	57	0	0	0
Power on Tm	MIN	42	18	24	0	0	0
Burner On Tm	MIN	76	39	36	0	0	0
O2Lance On Tm	MIN	31	0	31	0	0	0
CLance On Tm	MIN	9	0	9	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	379.4	212.7	344.9	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	34665.4	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	003.7	000.0	003.4	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	004.7	000.0	004.2	000.0	000.0	000.0

SM 138 − 79 = 59 158/59 = 2.68 160.7 TPH

COMMENTS

m24

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.15400	1.20000	0.02000	0.01000	0.15000	0.03500	0.00000	0.01500	0.00000	0.41600	0.40000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00400	0.04000	0.01000	0.00000	0.00000	0.00000
MIN	0.14500	1.10000	0.00000	0.00000	0.00000	0.01800	0.01500	0.00000	0.00100	0.37400	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03000	0.00600	0.00000	0.00000	0.00000
AIM	0.14500	1.15000	0.00000	0.00000	0.00000	0.02500	0.00000	0.00000	0.00000	0.39300	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00700	0.00000	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: A3G085 MSP: 15140

EVENTS

TIME	KWH	Description
13:26:40	0062600	Ladle Weigth
13:26:36	0062600	End Tapping
13:22:55	0062600	Start Tapping
13:05:29	0062600	Burners Off
13:04:55	0062600	Power Off
13:04:37	0062500	Power On
13:02:43	0062500	Power Off
12:55:28	0050500	Material Addition
12:38:42	0025800	Power On
12:28:33	0025800	Charge
12:23:47	0025800	Power Off
12:21:32	0022800	Power On
12:21:15	0022800	Power Off
12:16:06	0015100	Power On
12:15:26	0015100	Power Off
12:11:55	0009700	Power On
11:52:58	0009700	Power Off
11:52:46	0009500	Power On
11:52:39	0009500	Power Off
11:49:01	0003800	Burners On
11:45:06	0000000	Melting
11:45:04	0000000	Power On
11:38:14	0000000	Charge
11:27:53	0000000	Material Addition
11:07:34	0000000	TurnAround

EAF Heat Sheet 09-Jul-2003 13:26:48

IPSCO STEEL INC.
Montpelier Works

HEAT: A3G085 MSP: 15140

Start Time: 09-Jul-2003 11:07:29
End Time : 09-Jul-2003 13:26:34
TapToTap Time . 138 (min)

Heat Order : 0613602
Grade : A572-50
Ladle #: 0 CrewID: 0 OperatorID: 24

START	DUR	DELAY REASON
13:20:44	0000	Operational, Tap
13:16:14	0004	Operational, Rebar Taphole
13:09:38	0006	Operational, Slagoff
13:04:56	0004	Operational, Blow Carbon
13:02:45	0001	Other, Open sump door
12:31:55	0006	Operational, Pack scrap
12:26:25	0005	Operational, Charge
12:24:25	0002	Operational, Slip electrode
12:23:49	0000	Other, New Other
12:15:28	0000	Other, New Other
11:53:00	0018	Mechanical, Burner Problem
11:08:16	0036	Operational, Charge run B

CHARGES	AMOUNT
Charge 1 :	242650
Charge 2 :	120350
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
FeMn	0003540
4oz AL Con	0000610
FeVan	0000075
LSR	0004550
Carbon	0000060
Dololime	0007665
HiCal Lime	0004250

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	62600	25800	36800	0	0	0
O2 Burner	SCF	72	27	45	0	0	0
Gas Burner	SCF	32	13	19	0	0	0
O2 Lance	SCF	618	0	618	0	0	0
Carbon Lance	LBS	769	0	769	0	0	0
TIMES							
Melting Tm	MIN	138	80	57	0	0	0
Power on Tm	MIN	42	18	24	0	0	0
Burner On Tm	MIN	76	39	36	0	0	0
O2Lance On Tm	MIN	31	0	31	0	0	0
CLance On Tm	MIN	9	0	9	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	379.4	212.7	344.9	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	34665.4	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	003.7	000.0	003.4	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	004.7	000.0	004.2	000.0	000.0	000.0

COMMENTS

m24

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.15400	1.20000	0.02000	0.01000	0.15000	0.03500	0.00000	0.01500	0.00000	0.41600	0.40000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00400	0.04000	0.01000	0.00000	0.00000	0.00000
MIN	0.14500	1.10000	0.00000	0.00000	0.00000	0.01800	0.01500	0.00000	0.00100	0.37400	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03000	0.00600	0.00000	0.00000	0.00000
AIM	0.14500	1.15000	0.00000	0.00000	0.00000	0.02500	0.00000	0.00000	0.00000	0.39300	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00700	0.00000	0.00000	0.00000

EAF Heat Sheet 09-Jul-2003 13:26:49

IPSCO STEEL INC.
Montpelier Works

HEAT: A3G085 MSP: 15140

---------- EVENTS ----------

TIME	KWH	Description
13:26:40	0062600	Ladle Weigth
13:26:36	0062600	End Tapping
13:22:55	0062600	Start Tapping
13:05:29	0062600	Burners Off
13:04:55	0062600	Power Off
13:04:37	0062500	Power On
13:02:43	0062500	Power Off
12:55:28	0050500	Material Addition
12:38:42	0025800	Power On
12:28:33	0025800	Charge
12:23:47	0025800	Power Off
12:21:32	0022800	Power On
12:21:15	0022800	Power Off
12:16:06	0015100	Power On
12:15:26	0015100	Power Off
12:11:55	0009700	Power On
11:52:58	0009700	Power Off
11:52:46	0009500	Power On
11:52:39	0009500	Power Off
11:49:01	0003800	Burners On
11:45:06	0000000	Melting
11:45:04	0000000	Power On
11:38:14	0000000	Charge
11:27:53	0000000	Material Addition
11:07:34	0000000	TurnAround

4

EAF Heat Sheet 09-Jul-2003 14:18:39

IPSCO STEEL INC.
Montpelier Works

HEAT: B3G587 MSP: 25190

Start Time: 09-Jul-2003 12:01:38
End Time : 09-Jul-2003 14:18:20
TapToTap Time : 136 (min)

Heat Order : 0640401
Grade : A/SA36A709
Ladle #: 0 CrewID: 4 OperatorID: 8

START	DUR	DELAY REASON
14:14:06	0000	Operational, Tap
14:12:48	0001	Operational, Rebar Taphole
14:03:18	0009	Operational, Slagoff
13:56:52	0004	Operational, Temp and Sample
13:22:19	0003	Operational, Charge
13:20:02	0000	Operational, Sidewall RTD trip
12:44:12	0022	Operational, Run A
12:32:06	0012	Operational, Clean slag pot area
12:11:24	0020	Operational, Charge Run A
12:02:24	0009	Operational, Run A

CHARGES	AMOUNT
Charge 1 :	242400
Charge 2 :	115200
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0003200
75% Fe Si	0000100
Reclaim Mn	0000500
4oz AL Con	0000600
LSR	0004400
Carbon	0000160
Dololime	0007670
HiCal Lime	0003310

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	69100	7400	61700	0	0	0
O2 Burner	SCF	67	4	63	0	0	0
Gas Burner	SCF	37	3	34	0	0	0
O2 Lance	SCF	796	0	796	0	0	0
Carbon Lance	LBS	3230	0	3230	0	0	0
TIMES							
Melting Tm	MIN	136	71	64	0	0	0
Power on Tm	MIN	47	6	40	0	0	0
Burner On Tm	MIN	53	2	51	0	0	0
O2Lance On Tm	MIN	39	0	39	0	0	0
CLance On Tm	MIN	23	0	23	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	425.1	061.1	386.5	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	30639.2	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.9	000.0	004.5	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.0	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	019.9	000.0	018.1	000.0	000.0	000.0

136
− 63
73

158 / 73 = 2.16 129.9 TPH

COMMENTS

m25

	ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
	MAX	0.20400	1.10000	0.02000	0.01000	0.32000	0.03500	0.00000	0.01500	0.00000	0.43900	0.30000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.02500	0.00050	0.00000	0.00000
	MIN	0.17500	1.00000	0.00000	0.00000	0.22000	0.01800	0.01500	0.00000	0.00100	0.39300	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01500	0.00000	0.00000	0.00000
	AIM	0.19000	1.05000	0.00000	0.00000	0.27000	0.02500	0.00000	0.00000	0.00000	0.41600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.02000	0.00000	0.00000	0.00000
14:12:13	E1	0.06400	0.11000	0.00900	0.10300	0.00100	0.12200	0.08500	0.00600	0.00030	0.15400	0.28000	0.17000	0.15000	0.05800	0.02600	0.00200	0.00100	0.00100	0.00100	0.00020	2775.96	0.08403

IPSCO STEEL INC.
Montpelier Works

HEAT: B3G587 MSP: 25190

EVENTS

TIME	KWH	Description
14:18:27	0069100	Ladle Weigth
14:18:24	0069100	End Tapping
14:15:50	0069100	Start Tapping
14:12:13	0000000	Chemical Analysis Received
14:04:52	0069100	Temperature <2951> O2 <3940> C <90>
14:04:26	0069100	Burners Off
14:04:25	0069100	Temperature <2964> O2 <3940> C <90>
14:03:16	0069100	Power Off
14:01:40	0066700	Power On
14:01:03	0066600	Temperature <2997> O2 <216> C <45>
13:56:50	0066600	Power Off
13:41:31	0041100	Material Addition
13:26:04	0019200	Power On
13:22:18	0019100	Power Off
13:20:36	0016900	Power On
13:20:00	0016900	Power Off
13:13:16	0007400	Charge
13:12:09	0005900	Power On
13:12:07	0005900	Power Off
13:10:41	0004000	Burners On
13:06:43	0000000	Melting
13:06:42	0000000	Power On
12:30:56	0000000	Material Addition
12:03:01	0000000	Charge
12:01:40	0000000	TurnAround

EAF Heat Sheet 09-Jul-2003 14:18:39

IPSCO STEEL INC.
Montpelier Works

HEAT: B3G587 *MSP: 25190*

Start Time: 09-Jul-2003 12:01:38
End Time : 09-Jul-2003 14:18:20
TapToTap Time : 136 (min)

Heat Order : 0640401
Grade : A/SA36A709
Ladle #: 0 CrewID: 4 OperatorID: 8

START	DUR	DELAY REASON
14:14:06	0000	Operational, Tap
14:12:48	0001	Operational, Rebar Taphole
14:03:18	0009	Operational, Slagoff
13:56:52	0004	Operational, Temp and Sample
13:22:19	0003	Operational, Charge
13:20:02	0000	Operational, Sidewall RTD trip
12:44:12	0022	Operational, Run A
12:32:06	0012	Operational, Clean slag pot area
12:11:24	0020	Operational, Charge Run A
12:02:24	0009	Operational, Run A

CHARGES	AMOUNT
Charge 1 :	242400
Charge 2 :	115200
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0003200
75% Fe Si	0000100
Reclaim Mn	0000500
4oz AL Con	0000600
LSR	0004400
Carbon	0000160
Dololime	0007670
HiCal Lime	0003310

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	69100	7400	61700	0	0	0
O2 Burner	SCF	67	4	63	0	0	0
Gas Burner	SCF	37	3	34	0	0	0
O2 Lance	SCF	796	0	796	0	0	0
Carbon Lance	LBS	3230	0	3230	0	0	0
TIMES							
Melting Tm	MIN	136	71	64	0	0	0
Power on Tm	MIN	47	6	40	0	0	0
Burner On Tm	MIN	53	2	51	0	0	0
O2Lance On Tm	MIN	39	0	39	0	0	0
CLance On Tm	MIN	23	0	23	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	425.1	061.1	386.5	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	30639.2	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.9	000.0	004.5	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.0	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	019.9	000.0	018.1	000.0	000.0	000.0

COMMENTS

m25

	ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
	MAX	0.20400	1.10000	0.02000	0.01000	0.32000	0.03500	0.00000	0.01500	0.00000	0.43900	0.30000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.02500	0.00050	0.00000	0.00000
	MIN	0.17500	1.00000	0.00000	0.00000	0.22000	0.01800	0.01500	0.00000	0.00100	0.39300	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01500	0.00000	0.00000	0.00000
	AIM	0.19000	1.05000	0.00000	0.00000	0.27000	0.02500	0.00000	0.00000	0.00000	0.41600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.02000	0.00000	0.00000	0.00000
14:12:13	E1	0.06400	0.11000	0.00900	0.10300	0.00100	0.12200	0.08500	0.00600	0.00030	0.15400	0.28000	0.17000	0.15000	0.05800	0.02600	0.00200	0.00100	0.00100	0.00100	0.00020	2775.96	0.08403

EAF Heat Sheet 09-Jul-2003 14:18:40

IPSCO STEEL INC.
Montpelier Works

HEAT: B3G587 MSP: 25190

---------- EVENTS ----------

TIME	KWH	Description
14:18:27	0069100	Ladle Weigth
14:18:24	0069100	End Tapping
14:15:50	0069100	Start Tapping
14:12:13	0000000	Chemical Analysis Received
14:04:52	0069100	Temperature <2951> O2 <3940> C <90>
14:04:26	0069100	Burners Off
14:04:25	0069100	Temperature <2964> O2 <3940> C <90>
14:03:16	0069100	Power Off
14:01:40	0066700	Power On
14:01:03	0066600	Temperature <2997> O2 <216> C <45>
13:56:50	0066600	Power Off
13:41:31	0041100	Material Addition
13:26:04	0019200	Power On
13:22:18	0019100	Power Off
13:20:36	0016900	Power On
13:20:00	0016900	Power Off
13:13:16	0007400	Charge
13:12:09	0005900	Power On
13:12:07	0005900	Power Off
13:10:41	0004000	Burners On
13:06:43	0000000	Melting
13:06:42	0000000	Power On
12:30:56	0000000	Material Addition
12:03:01	0000000	Charge
12:01:40	0000000	TurnAround

5

EAF Heat Sheet 09-Jul-2003 15:52:43

IPSCO STEEL INC.
Montpelier Works

HEAT: A3G086 MSP: 25190

Start Time: 09-Jul-2003 13:27:37
End Time : 09-Jul-2003 15:52:26
TapToTap Time : 144 (min)

Heat Order : 0640402
Grade : A/SA36A709
Ladle #: 0 CrewID: 0 OperatorID: 24

START	DUR	DELAY REASON
15:45:54	0000	Operational, Tap
15:38:36	0007	Operational, Slagoff
15:33:31	0001	Other, Open sump door
15:11:18	0011	Other, New Other
15:05:46	0002	Other, New Other
14:50:47	0004	Operational, Charge
14:06:48	0026	Other, New Other
13:28:24	0038	Operational, Charge run B

CHARGES	AMOUNT
Charge 1 :	224700
Charge 2 :	131450
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0003150
75% Fe Si	0000110
4oz AL Con	0000030
LSR	0004400
Carbon	0000070
Dololime	0007670
HiCal Lime	0004245

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	66800	3900	62900	0	0	0
O2 Burner	SCF	77	0	77	0	0	0
Gas Burner	SCF	33	0	33	0	0	0
O2 Lance	SCF	475	0	475	0	0	0
Carbon Lance	LBS	890	0	890	0	0	0
TIMES							
Melting Tm	MIN	144	69	75	0	0	0
Power on Tm	MIN	45	3	41	0	0	0
Burner On Tm	MIN	62	0	62	0	0	0
O2Lance On Tm	MIN	30	0	30	0	0	0
CLance On Tm	MIN	9	0	9	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	412.6	034.7	375.1	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	27923.8	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	002.9	000.0	002.7	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.0	000.2	000.0	000 0	000.0
Carbon Ton	LBS/Ton	005.5	000.0	005.0	000.0	000.0	000.0

144
− 75
69

158/69 = 2.29 137.4 TPH

COMMENTS

no o2 or gas on lance calibration for nox

	ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
	MAX	0.20400	1.10000	0.02000	0.01000	0.32000	0.03500	0.00000	0.01500	0.00000	0.43900	0.30000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.02500	0.00050	0.00000	0.00000
	MIN	0.17500	1.00000	0.00000	0.00000	0.22000	0.01800	0.01500	0.00000	0.00100	0.39300	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01500	0.00000	0.00000	0.00000
	AIM	0.19000	1.05000	0.00000	0.00000	0.27000	0.02500	0.00000	0.00000	0.00000	0.41600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.02000	0.00000	0.00000	0.00000
15:45:20	E1	0.05000	0.10000	0.01100	0.07600	0.00100	0.16800	0.12900	0.00670	0.00110	0.13900	0.37000	0.19000	0.12000	0.06200	0.01300	0.00200	0.00300	0.00100	0.00100	0.00020	2778.64	0.08751

IPSCO STEEL INC.
Montpelier Works

HEAT: A3G086 MSP: 25190

EVENTS

TIME	KWH	Description
15:52:32	0066800	Ladle Weigth
15:52:28	0066800	End Tapping
15:49:35	0066800	Start Tapping
15:45:20	0000000	Chemical Analysis Received
15:40:08	0066800	Burners Off
15:38:34	0066800	Power Off
15:34:52	0061000	Power On
15:33:29	0061000	Power Off
15:22:50	0044000	Power On
15:11:17	0043900	Power Off
15:10:36	0042900	Material Addition
15:08:07	0039100	Power On
15:05:44	0039100	Power Off
14:59:50	0029600	Power On
14:59:46	0029600	Power Off
14:59:45	0029600	Power On
14:59:41	0029600	Power Off
14:55:04	0024800	Power On
14:50:46	0024800	Power Off
14:37:12	0004100	Burners On
14:37:01	0003900	Charge
14:33:07	0000000	Melting
14:33:06	0000000	Power On
14:01:14	0000000	Material Addition
13:28:54	0000000	Charge
13:27:40	0000000	TurnAround

EAF Heat Sheet 09-Jul-2003 15:52:43

IPSCO STEEL INC.
Montpelier Works

HEAT: A3G086 *MSP: 25190*

Start Time: 09-Jul-2003 13:27:37
End Time : 09-Jul-2003 15:52:26
TapToTap Time : 144 (min)

Heat Order : 0640402
Grade : A/SA36A709
Ladle #: 0 CrewID: 0 OperatorID: 24

START	DUR	DELAY REASON
15:45:54	0000	Operational, Tap
15:38:36	0007	Operational, Slagoff
15:33:31	0001	Other, Open sump door
15:11:18	0011	Other, New Other
15:05:46	0002	Other, New Other
14:50:47	0004	Operational, Charge
14:06:48	0026	Other, New Other
13:28:24	0038	Operational, Charge run B

CHARGES	AMOUNT
Charge 1 :	224700
Charge 2 :	131450
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0003150
75% Fe Si	0000110
4oz AL Con	0000030
LSR	0004400
Carbon	0000070
Dololime	0007670
HiCal Lime	0004245

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	66800	3900	62900	0	0	0
O2 Burner	SCF	77	0	77	0	0	0
Gas Burner	SCF	33	0	33	0	0	0
O2 Lance	SCF	475	0	475	0	0	0
Carbon Lance	LBS	890	0	890	0	0	0
TIMES							
Melting Tm	MIN	144	69	75	0	0	0
Power on Tm	MIN	45	3	41	0	0	0
Burner On Tm	MIN	62	0	62	0	0	0
O2Lance On Tm	MIN	30	0	30	0	0	0
CLance On Tm	MIN	9	0	9	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	412.6	034.7	375.1	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	27923.8	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	002.9	000.0	002.7	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.0	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	005.5	000.0	005.0	000.0	000.0	000.0

COMMENTS

no o2 or gas on lance calibration for nox

	ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
	MAX	0.20400	1.10000	0.02000	0.01000	0.32000	0.03500	0.00000	0.01500	0.00000	0.43900	0.30000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.02500	0.00050	0.00000	0.00000
	MIN	0.17500	1.00000	0.00000	0.00000	0.22000	0.01800	0.01500	0.00000	0.00100	0.39300	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01500	0.00000	0.00000	0.00000
	AIM	0.19000	1.05000	0.00000	0.00000	0.27000	0.02500	0.00000	0.00000	0.00000	0.41600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.02000	0.00000	0.00000	0.00000
15:45:20	E1	0.05000	0.10000	0.01100	0.07600	0.00100	0.16800	0.12900	0.00670	0.00110	0.13900	0.37000	0.19000	0.12000	0.06200	0.01300	0.00200	0.00300	0.00100	0.00100	0.00020	2778.64	0.08751

IPSCO STEEL INC.
Montpelier Works

HEAT: A3G086 MSP: 25190

EVENTS

TIME	KWH	Description
15:52:32	0066800	Ladle Weigth
15:52:28	0066800	End Tapping
15:49:35	0066800	Start Tapping
15:45:20	0000000	Chemical Analysis Received
15:40:08	0066800	Burners Off
15:38:34	0066800	Power Off
15:34:52	0061000	Power On
15:33:29	0061000	Power Off
15:22:50	0044000	Power On
15:11:17	0043900	Power Off
15:10:36	0042900	Material Addition
15:08:07	0039100	Power On
15:05:44	0039100	Power Off
14:59:50	0029600	Power On
14:59:46	0029600	Power Off
14:59:45	0029600	Power On
14:59:41	0029600	Power Off
14:55:04	0024800	Power On
14:50:46	0024800	Power Off
14:37:12	0004100	Burners On
14:37:01	0003900	Charge
14:33:07	0000000	Melting
14:33:06	0000000	Power On
14:01:14	0000000	Material Addition
13:28:54	0000000	Charge
13:27:40	0000000	TurnAround

6

EAF Heat Sheet 09-Jul-2003 17:07:35

IPSCO STEEL INC.
Montpelier Works

HEAT: B3G588 MSP: 14150

EVENTS

EAF Heat Sheet 09-Jul-2003 17:07:35

IPSCO STEEL INC.
Montpelier Works

HEAT: B3G588 MSP: 14150

Start Time: 09-Jul-2003 14:19:25
End Time : 09-Jul-2003 17:07:16
TapToTap Time : 167 (min)

Heat Order : 0613401
Grade : A36 MODMN
Ladle #: 0 CrewID: 4 OperatorID: 8

START	DUR	DELAY REASON
17:03:08	0000	Operational, Tap
17:01:50	0001	Operational, Lance Taphole
16:57:38	0004	Operational, Rebar Taphole
16:54:50	0002	Operational, Slagoff
16:41:44	0013	Operational, Blow Carbon
16:37:18	0002	Operational, Temp and Sample
16:31:12	0000	Other, Baghouse inlet temp
16:19:00	0003	Operational, Sidewall RTD trip
16:15:15	0001	Operational, Sidewall RTD trip
16:13:01	0000	Operational, Sidewall RTD trip
16:01:12	0000	Other, Operator Did Not Enter
15:52:15	0007	Other, New Other
15:48:15	0004	Operational, Charge
15:45:43	0000	Operational, Sidewall RTD trip
15:43:54	0000	Operational, Sidewall RTD trip
15:20:49	0019	Operational, Run A
14:20:12	0052	Operational, Charge Run A

CHARGES	AMOUNT
Charge 1 :	227250
Charge 2 :	132950
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
FeMn	0002300
4oz AL Con	0000600
LSR	0004550
Carbon	0000150
Dololime	0007680
HiCal Lime	0004250

167
− 95
72

158/72 = 2.19

131.7 TPH

COMMENTS

ins a fce m34

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	66000	17600	48400	0	0	0
O2 Burner	SCF	66	5	61	0	0	0
Gas Burner	SCF	37	3	34	0	0	0
O2 Lance	SCF	1047	0	1047	0	0	0
Carbon Lance	LBS	4653	0	4653	0	0	0
TIMES							
Melting Tm	MIN	167	87	79	0	0	0
Power on Tm	MIN	46	13	33	0	0	0
Burner On Tm	MIN	61	7	54	0	0	0
O2Lance On Tm	MIN	53	0	53	0	0	0
CLance On Tm	MIN	23	0	23	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	403.1	154.9	366.5	000.0	000.0	000.0
Flux	Tons	000.0	000.2	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	43540.4	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	006.4	000.0	005.8	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.0	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	028.4	000.0	025.8	000.0	000.0	000.0

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CO	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B
MAX	0.16500	0.90000	0.02000	0.01000	0.05000	0.03500	0.00000	0.00000	0.00000	0.37400	0.50000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.02500	0.00000	0.00000	0.00000
MIN	0.14500	0.80000	0.00000	0.00000	0.00000	0.01800	0.01500	0.00000	0.00070	0.33800	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01500	0.00000	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: B3G588 MSP: 14150

---------- EVENTS ----------

TIME	KWH	Description
17:07:22	0066000	Ladle Weigh
17:07:18	0066000	End Tapping
17:04:33	0066000	Start Tapping
16:54:47	0066000	Temperature <2940> O2 <3770> C <376>
16:46:01	0066000	Temperature <2012> O2 <819> C <3197>
16:41:46	0066000	Burners Off
16:41:42	0066000	Power Off
16:40:16	0064000	Power On
16:39:46	0064000	Temperature <2895> O2 <748> C <90>
16:38:31	0064000	Temperature <2790> O2 <140> C <90>
16:37:17	0064000	Power Off
16:31:44	0055000	Power On
16:31:41	0055000	Power Off
16:31:37	0055000	Power On
16:31:11	0055000	Power Off
16:22:22	0040700	Power On
16:18:58	0040700	Power Off
16:16:16	0037000	Power On
16:15:14	0037000	Power Off
16:14:01	0035000	Material Addition
16:13:48	0034800	Power On
16:12:59	0034800	Power Off
16:04:59	0022300	Power On
16:04:54	0022300	Power Off
16:02:07	0019300	Power On
16:01:10	0019300	Power Off
15:59:32	0018900	Power On
15:48:14	0018900	Power Off
15:47:06	0017600	Charge
15:46:35	0017000	Power On
15:45:41	0017000	Power Off
15:44:14	0014800	Power On
15:43:53	0014800	Power Off
15:42:19	0012700	Burners On

---------- EVENTS ----------

TIME	KWH	Description
15:40:25	0010000	Power On
15:36:19	0010000	Charge
15:33:17	0010000	Material Addition
15:20:48	0010000	Burners Off
15:20:47	0010000	Power Off
15:18:32	0006300	Burners On
15:12:07	0000000	Melting
15:12:55	0000000	Power On
14:19:25	0000000	TurnAround

HEAT: B3G588 MSP: 14150

EVENTS

EAF Heat Sheet 09-Jul-2003 17:07:35 IPSCO STEEL INC. Montpelier Works

HEAT: B3G588 MSP: 14150

Start Time: 09-Jul-2003 14:19:25
End Time 09-Jul-2003 17:07.16
TapToTap Time : 167 (min)

Heat Order : 0613401
Grade : A36 MODMN
Ladle #: 0 CrewID. 4 OperatorID 8

START	DUR	DELAY REASON
17 03.08	0000	Operational, Tap
17:01:50	0001	Operational, Lance Taphole
16:57:38	0004	Operational, Rebar Taphole
16:54:50	0002	Operational, Slagoff
16:41:44	0013	Operational, Blow Carbon
16:37:18	0002	Operational, Temp and Sample
16:31:12	0000	Other, Baghouse inlet temp
16:19:00	0003	Operational, Sidewall RTD trip
16:15:15	0001	Operational, Sidewall RTD trip
16:13:01	0000	Operational, Sidewall RTD trip
16:01:12	0000	Other, Operator Did Not Enter
15:52:15	0007	Other, New Other
15:48:15	0004	Operational, Charge
15:45:43	0000	Operational, Sidewall RTD trip
15:43:54	0000	Operational, Sidewall RTD trip
15:20.49	0019	Operational, Run A
14:20:12	0052	Operational, Charge Run A

CHARGES	AMOUNT
Charge 1 :	227250
Charge 2 :	132950
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
FeMn	0002300
4oz AL Con	0000600
LSR	0004550
Carbon	0000150
Dololime	0007680
HiCal Lime	0004250

COMMENTS

ins a fce m34

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	66000	17600	48400	0	0	0
O2 Burner	SCF	66	5	61	0	0	0
Gas Burner	SCF	37	3	34	0	0	0
O2 Lance	SCF	1047	0	1047	0	0	0
Carbon Lance	LBS	4653	0	4653	0	0	0
TIMES							
Melting Tm	MIN	167	87	79	0	0	0
Power on Tm	MIN	46	13	33	0	0	0
Burner On Tm	MIN	61	7	54	0	0	0
O2Lance On Tm	MIN	53	0	53	0	0	0
CLance On Tm	MIN	23	0	23	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	403.1	154.9	366.5	000.0	000.0	000.0
Flux	Tons	000.0	000.2	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	43540.4	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	006.4	000.0	005.8	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.0	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	028.4	000.0	025.8	000.0	000.0	000.0

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CO	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.16500	0.90000	0.02000	0.01000	0.05000	0.03500	0.00000	0.00000	0.00000	0.37400	0.50000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.02500	0.00000	0.00000	0.00000
MIN	0.14500	0.80000	0.00000	0.00000	0.00000	0.01800	0.01500	0.00000	0.00070	0.33800	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01500	0.00000	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: B3G588 MSP: 14150

EVENTS		
TIME	KWH	Description
17:07:22	0066000	Ladle Weigth
17:07:18	0066000	End Tapping
17:04:33	0066000	Start Tapping
16:54:47	0066000	Temperature <2940> O2 <3770> C <376>
16:46:01	0066000	Temperature <2912> O2 <819> C <3197>
16:41:46	0066000	Burners Off
16:41:42	0066000	Power Off
16:40:16	0064000	Power On
16:39:46	0064000	Temperature <2895> O2 <748> C <90>
16:38:31	0064000	Temperature <2790> O2 <140> C <90>
16:37:17	0064000	Power Off
16:31:44	0055000	Power On
16:31:41	0055000	Power Off
16:31:37	0055000	Power On
16:31:11	0055000	Power Off
16:22:22	0040700	Power On
16:18:58	0040700	Power Off
16:16:16	0037000	Power On
16:15:14	0037000	Power Off
16:14:01	0035000	Material Addition
16:13:48	0034800	Power On
16:12:59	0034800	Power Off
16:04:59	0022300	Power On
16:04:54	0022300	Power Off
16:02:07	0019300	Power On
16:01:10	0019300	Power Off
15:59:32	0018900	Power On
15:48:14	0018900	Power Off
15:47:06	0017600	Charge
15:46:35	0017000	Power On
15:45:41	0017000	Power Off
15:44:14	0014800	Power On
15:43:53	0014800	Power Off
15:42:19	0012700	Burners On

EVENTS		
TIME	KWH	Description
15:40:25	0010000	Power On
15:36:19	0010000	Charge
15:33:17	0010000	Material Addition
15:20:48	0010000	Burners Off
15:20:47	0010000	Power Off
15:18:22	0006300	Burners On
15:12:57	0000300	Melting
15:12:55	0000300	Power On
14:19:28	0000000	TurnAround

ipsco steel

DAILY PRODUCTION REPORT - through 07/09/03

IPSCO STEEL (Iowa) Inc.

	Daily Units	Daily Tons	MTD Units	MTD Tons	YTD Units	YTD Tons	Product Yield Daily	Product Yield MTD	Product Yield YTD
Meltshop									
Heats Tapped	17		177		3,600				
Scrap Charge Tons		2,965.4		31,123.9		631,404.7			
Liquid Metal Tapped	154.8	2,631.1	159.5	28,332.6		572,061.1			
less: Tapped Pourback		0.0		110.0		380.0			
Metal Available to Caster		2,631.1		28,222.6		571,681.1	88.7%	90.7%	90.5%
Caster									
INPUT									
Heats Cast	18		178		3,601				
Heats Aborted	0		0		1				
Total	18	2,777.4	178	28,384.4	3,600	571,967.6			
OUTPUT									
Prime Slabs	113	2,720.1	927	27,971.0	19,755	562,694.7	97.9%	98.5%	98.4%
SCRAP									
Scrap Slabs	0	0.0	0	0.0	0	0.0	0.0%	0.0%	0.0%
Process Losses		57.4		413.4		9,272.9	2.1%	1.5%	1.6%
Total Scrap		57.4		413.4		9,272.9	2.1%	1.5%	1.6%
DIRECT CHARGE									
Direct Chargeable	30	743.8	546	17,166.2	11,046	322,075.0	27.3%	61.4%	57.2%
Direct Charged	12	300.2	289	9,410.6	5,221	156,600.8	40.4%	54.8%	48.6%
Rolling Mill - Light Plate									
SLAB INPUT	0	0.0	19	531.6	2,126	61,394.6			
OUTPUT									
Semi-Finished Plates	0	0.0	74	520.9	6,376	59,753.6		98.0%	97.3%
SCRAP									
Scrap Plates	0	0.0	0	0.0	15	421.1		0.0%	0.7%
Process Losses		0.0		10.6		1,219.9		2.0%	2.0%
Total Scrap		0.0		10.6		1,641.0		2.0%	2.7%
Rolling Mill - Heavy Plate									
SLAB INPUT	0	0.0	166	5,721.6	7,503	216,303.6			
OUTPUT									
Semi-Finished Plates	0	0.0	248	5,607.1	10,663	211,709.9		98.0%	97.9%
SCRAP									
Scrap Plates	0	0.0	0	0.0	9	294.1		0.0%	0.7%
Process Losses		0.0		114.5		4,299.6		2.0%	2.0%
Total Scrap		0.0		114.5		4,593.6		2.0%	2.1%
Rolling Mill - Coil									
SLAB INPUT	79	2,285.1	463	14,979.3	9,425	270,271.3			
OUTPUT									
Hold Coils	6	146.6	18	541.2	643	17,646.3	6.4%	3.6%	6.5%
Prime Coils	71	1,980.7	440	13,810.7	8,689	240,911.0	86.7%	92.2%	89.1%
Prime Sub Total	77	2,127.3	458	14,351.9	9,332	258,557.3	93.1%	95.8%	95.7%
Commercial Coils	0	0.0	1	29.7	37	871.0	0.0%	0.2%	0.3%
Coil Reclaim				104.1		2,692.2		0.7%	1.0%
Adjusted Prime Coils		2127.3		14,247.7		255,865.1	93.1%	95.1%	94.7%
SCRAP									
Scrap Coils	2	52.9	3	70.8	53	1,375.0	2.3%	0.5%	0.5%
Process Losses		104.9		527.0		9,467.9	4.6%	3.5%	3.5%
Total Scrap		157.8		701.9		13,535.1	6.9%	4.7%	5.0%
Rolling Mill - Summary									
Total Slabs Rolled	79	2,285.1	648	21,232.4	19,054	547,969.4			
Rolling Mill Output		2,127.3		20,479.9		530,020.9			
Average Slab Weight									
Plate				33.8		28.8			
Coil		28.9		32.4		28.7			
Finished Prime Tons									
Light Plate	0	0.0	298	437.2	49,325	55,411.1			
Heavy Plate	0	0.0	1,208	5,406.9	88,676	197,869.7			
Coil	77	2,127.3	458	14,351.9	9,332	258,557.3			
Total Prime Tons	77	2,127.3	1,964	20,195.9	147,333	511,838.1			

27971
21232
+6739

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 7/8/2003 23:00:00 to 7/9/2003 23:00:00

Issue Date	: 7/10/200 14:31:29
Issued By	: Operations Planning
PBL Name	:003 Planning-g.pbl Created Date : 03/26/2
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0605502	07/08/2003	23:08:58	A3G081	0000000002	01	FRAG	019200	9.60
					02	2BN	010200	5.10
					03	BEACH IRON	020300	10.15
					04	BEACH IRON	013600	6.80
					06	MXTN	059250	29.63
					07	HM1	044250	22.13
					08	PITSCRAP	011950	5.98
					09	PROCREVERT	028500	14.25
					10	FRAG	028350	14.18
						0000000002 Total	**235600**	**117.80**
0605502	07/08/2003	23:50:10	A3G081	0000000003	01	HM2	037700	18.85
					02	MXTN	023900	11.95
					04	FRAG	026550	13.28
						0000000003 Total	**88150**	**44.08**
						A3G081 Total	**323750**	**161.88**
0614201	07/09/2003	05:07:39	A3G082	0000000003	01	FRAG	018500	9.25
					02	2BN	005750	2.88
					03	BEACH IRON	020200	10.10
					04	BEACH IRON	011350	5.68
					06	MXTN	058100	29.05
					07	HM1	004600	2.30
					08	PITSCRAP	013450	6.73
					09	PROCREVERT	027400	13.70
					10	FRAG	036700	18.35
						0000000003 Total	**196050**	**98.03**
0614201	07/09/2003	05:48:51	A3G082	0000000003	01	HM2	057850	28.93
					02	MXTN	026300	13.15
					04	FRAG	018000	9.00
					05	HM2	010350	5.18
					06	MXTN	019450	9.73
						0000000003 Total	**131950**	**65.97**
						A3G082 Total	**328000**	**164.00**
0000000	07/09/2003	01:26:25	A3G083	0000000002	01	FRAG	040100	20.05
						0000000002 Total	**40100**	**20.05**
0640601	07/09/2003	07:04:45	A3G083	0000000003	01	FRAG	020200	10.10
					02	2BN	010300	5.15
					03	BEACH IRON	021800	10.90
					04	BEACH IRON	011950	5.98
					06	MXTN	059550	29.78
					07	HM1	041350	20.68
					08	PITSCRAP	010800	5.40
					09	PROCREVERT	026900	13.45
					10	FRAG	034350	17.18
						0000000003 Total	**237200**	**118.60**
0640601	07/09/2003	08:43:33	A3G083	0000000003	01	HM2	058950	29.48
					02	MXTN	023800	11.90

MELTSHOP RAW MATERIALS REPORT

(By Heat)

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Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0640601	07/09/2003	08:43:33	A3G083	0000000003	04	FRAG	027000	13.50
					05	HM2	012250	6.13
					06	MXTN	014650	7.33
						0000000003 Total	**136650**	**68.33**
						A3G083 Total	**413950**	**206.98**
0613602	07/09/2003	09:38:57	A3G084	0000000003	01	FRAG	022000	11.00
					02	2BN	010950	5.48
					03	BEACH IRON	021250	10.63
					04	BEACH IRON	013900	6.95
					06	MXTN	058200	29.10
					07	HM1	045100	22.55
					08	PITSCRAP	014350	7.18
					09	PROCREVERT	032300	16.15
					10	FRAG	017900	8.95
						0000000003 Total	**235950**	**117.98**
0613601	07/09/2003	10:14:38	A3G084	0000000005	01	HM2	059500	29.75
					02	MXTN	023300	11.65
					04	FRAG	027900	13.95
					05	HM2	013150	6.58
					06	MXTN	003600	1.80
						0000000005 Total	**127450**	**63.72**
						A3G084 Total	**363400**	**181.70**
0640401	07/09/2003	11:38:14	A3G085	0000000003	01	FRAG	020550	10.28
					02	BEACH IRON	015600	7.80
					03	MXTN	038800	19.40
					04	BEACH IRON	024600	12.30
					06	HM1	043500	21.75
					07	PROCREVERT	014450	7.23
					08	FRAG	079500	39.75
						0000000003 Total	**237000**	**118.50**
0640401	07/09/2003	12:28:33	A3G085	0000000002	01	FRAG	014150	7.08
					02	BEACH IRON	018450	9.23
					04	MXTN	034700	17.35
					05	HM1	023200	11.60
					06	FRAG	024050	12.03
						0000000002 Total	**114550**	**57.28**
						A3G085 Total	**351550**	**175.77**
0614001	07/09/2003	13:28:54	A3G086	0000000003	01	FRAG	015400	7.70
					02	2BN	026100	13.05
					03	BEACH IRON	021500	10.75
					04	BEACH IRON	011750	5.88
					06	MXTN	060800	30.40
					07	HM1	041700	20.85
					08	PITSCRAP	015100	7.55
					09	PROCREVERT	026900	13.45

MELTSHOP RAW MATERIALS REPORT

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Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0614001	07/09/2003	13:28:54	A3G086	0000000003	10	FRAG	000000	0.00
						0000000003 Total	**219250**	**109.63**
0614001	07/09/2003	14:37:00	A3G086	0000000003	01	HM2	059450	29.73
					02	MXTN	029650	14.83
					04	FRAG	036600	18.30
						0000000003 Total	**125700**	**62.85**
						A3G086 Total	**344950**	**172.48**
0613402	07/09/2003	16:34:10	A3G087	0000000003	01	FRAG	014500	7.25
					02	2BN	024350	12.18
					03	BEACH IRON	019350	9.68
					04	BEACH IRON	013200	6.60
					06	MXTN	057750	28.88
					07	HM1	042850	21.43
					08	PITSCRAP	010000	5.00
					09	PROCREVERT	029300	14.65
					10	FRAG	010950	5.48
						0000000003 Total	**222250**	**111.13**
0613402	07/09/2003	16:59:59	A3G087	0000000003	01	HM2	058700	29.35
					02	MXTN	029300	14.65
					04	FRAG	036600	18.30
						0000000003 Total	**124600**	**62.30**
						A3G087 Total	**346850**	**173.43**
0605501	07/08/2003	22:10:15	B3G581	0000000004	01	FRAG	023150	11.58
					02	2BN	011350	5.68
					03	BEACH IRON	024250	12.13
					04	BEACH IRON	011150	5.58
					06	MXTN	059600	29.80
					07	HM1	041400	20.70
					08	REVERT	013050	6.53
					09	PROCREVERT	030750	15.38
					10	FRAG	022700	11.35
						0000000004 Total	**237400**	**118.70**
0605501	07/08/2003	23:09:01	B3G581	0000000005	01	HM2	060700	30.35
					02	MXTN	024950	12.48
					04	FRAG	030800	15.40
						0000000005 Total	**116450**	**58.23**
						B3G581 Total	**353850**	**176.93**
0654101	07/09/2003	00:26:26	B3G582	0000000004	01	FRAG	021800	10.90
					02	2BN	007550	3.78
					03	BEACH IRON	022500	11.25
					04	BEACH IRON	011800	5.90
					06	MXTN	058550	29.28
					07	HM1	041800	20.90
					08	PITSCRAP	010200	5.10
					09	PROCREVERT	029850	14.93

MELTSHOP RAW MATERIALS REPORT

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Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0654101	07/09/2003	00:26:26	B3G582	0000000004	10	FRAG	033550	16.77
						0000000004 Total	**237600**	**118.80**
0654101	07/09/2003	01:04:19	B3G582	0000000005	01	HM2	058550	29.28
					02	MXTN	024150	12.08
					04	FRAG	030000	15.00
					05	HM2	011100	5.55
					06	MXTN	009200	4.60
						0000000005 Total	**133000**	**66.50**
						B3G582 Total	**370600**	**185.30**
0614502	07/09/2003	02:20:32	B3G583	0000000004	01	FRAG	020350	10.18
					02	2BN	005750	2.88
					03	BEACH IRON	020600	10.30
					04	BEACH IRON	011700	5.85
					06	MXTN	061250	30.63
					07	FRAG	048950	24.48
					08	PITSCRAP	010150	5.08
					09	PROCREVERT	028850	14.43
					10	FRAG	029050	14.53
						0000000004 Total	**236650**	**118.33**
0614502	07/09/2003	02:40:25	B3G583	0000000002	01	HM2	058200	29.10
					02	MXTN	027800	13.90
					04	HM2	000000	0.00
					05	FRAG	025350	12.68
						0000000002 Total	**111350**	**55.68**
						B3G583 Total	**348000**	**174.00**
0614503	07/09/2003	04:04:08	B3G584	0000000004	01	FRAG	021000	10.50
					02	2BN	007800	3.90
					03	BEACH IRON	020950	10.48
					04	BEACH IRON	014200	7.10
					06	MXTN	061500	30.75
					07	HM1	045450	22.73
					08	PITSCRAP	012300	6.15
					09	PROCREVERT	028750	14.38
					10	FRAG	025350	12.68
						0000000004 Total	**237300**	**118.65**
0614503	07/09/2003	04:27:16	B3G584	0000000002	01	HM2	063000	31.50
					02	MXTN	023500	11.75
					04	HM2	000000	0.00
						0000000002 Total	**86500**	**43.25**
						B3G584 Total	**323800**	**161.90**
0605201	07/09/2003	05:59:06	B3G585	0000000005	01	FRAG	020800	10.40
					02	BEACH IRON	014850	7.43
					03	MXTN	034800	17.40
					04	BEACH IRON	023900	11.95
					06	HM1	045750	22.88

MELTSHOP RAW MATERIALS REPORT

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Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0605201	07/09/2003	05:59:06	B3G585	0000000005	07	PROCREVERT	011150	5.58
					08	FRAG	086450	43.23
						0000000005 Total	**237700**	**118.85**
0605201	07/09/2003	08:11:24	B3G585	0000000005	01	FRAG	016500	8.25
					02	BEACH IRON	018400	9.20
					04	MXTN	030800	15.40
					05	HM1	024500	12.25
					06	FRAG	022900	11.45
						0000000005 Total	**113100**	**56.55**
						B3G585 Total	**350800**	**175.40**
0613601	07/09/2003	08:54:29	B3G586	0000000006	01	FRAG	020900	10.45
					02	2BN	010250	5.13
					03	BEACH IRON	018950	9.48
					04	BEACH IRON	011300	5.65
					06	MXTN	060400	30.20
					07	HM1	043150	21.58
					08	PITSCRAP	012550	6.28
					09	PROCREVERT	025750	12.88
					10	FRAG	034100	17.05
						0000000006 Total	**237350**	**118.68**
0613602	07/09/2003	10:41:45	B3G586	0000000006	01	HM2	060500	30.25
					02	MXTN	023450	11.73
					04	FRAG	026350	13.18
						0000000006 Total	**110300**	**55.15**
						B3G586 Total	**347650**	**173.83**
0640402	07/09/2003	12:03:00	B3G587	0000000005	01	FRAG	023100	11.55
					02	BEACH IRON	017950	8.98
					03	MXTN	038500	19.25
					04	BEACH IRON	025050	12.53
					06	HM1	045600	22.80
					07	PROCREVERT	012100	6.05
					08	FRAG	074300	37.15
						0000000005 Total	**236600**	**118.30**
0640402	07/09/2003	13:13:15	B3G587	0000000005	01	FRAG	016300	8.15
					02	BEACH IRON	020400	10.20
					04	MXTN	031200	15.60
					05	HM1	023250	11.63
					06	FRAG	020650	10.33
						0000000005 Total	**111800**	**55.90**
						B3G587 Total	**348400**	**174.20**
0613401	07/09/2003	15:36:18	B3G588	0000000005	01	FRAG	016550	8.28
					02	2BN	024450	12.23
					03	BEACH IRON	019700	9.85
					04	BEACH IRON	011700	5.85
					06	MXTN	060250	30.13

MELTSHOP RAW MATERIALS REPORT

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Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0613401	07/09/2003	15:36:18	B3G588	0000000005	07	HM1	041400	20.70
					08	PITSCRAP	010250	5.13
					09	PROCREVERT	028350	14.18
					10	FRAG	009400	4.70
						0000000005 Total	**222050**	**111.03**
0613401	07/09/2003	15:47:05	B3G588	0000000006	01	HM2	062500	31.25
					02	MXTN	030600	15.30
					04	FRAG	034500	17.25
						0000000006 Total	**127600**	**63.80**
						B3G588 Total	**349650**	**174.83**
0613403	07/09/2003	17:08:55	B3G589	0000000005	01	FRAG	013600	6.80
					02	2BN	023200	11.60
					03	BEACH IRON	021000	10.50
					04	BEACH IRON	009900	4.95
					06	MXTN	059700	29.85
					07	HM1	042050	21.03
					08	PITSCRAP	013750	6.88
					09	PROCREVERT	024450	12.23
					10	FRAG	013600	6.80
						0000000005 Total	**221250**	**110.62**
0613403	07/09/2003	18:16:06	B3G589	0000000005	01	HM2	060250	30.13
					02	MXTN	033550	16.77
					04	FRAG	032050	16.02
						0000000005 Total	**125850**	**62.93**
						B3G589 Total	**347100**	**173.55**
0613202	07/09/2003	20:11:20	B3G590	0000000005	01	FRAG	021150	10.58
					02	2BN	007100	3.55
					03	BEACH IRON	019450	9.73
					04	BEACH IRON	012500	6.25
					06	MXTN	059900	29.95
					07	HM1	042850	21.43
					08	PITSCRAP	012600	6.30
					09	PROCREVERT	031250	15.63
					10	FRAG	029450	14.73
						0000000005 Total	**236250**	**118.12**
0613201	07/09/2003	20:11:22	B3G590	0000000002	01	HM2	057150	28.58
					02	MXTN	024300	12.15
					04	FRAG	040850	20.43
						0000000002 Total	**122300**	**61.15**
						B3G590 Total	**358550**	**179.28**

Total Heats 17 **Total Weight for Time Period** 5970850 **Pounds** 2985.43 **Tons**

EMISSION TEST REPORT

IPSCO STEEL, INC.
Muscatine, Iowa

Fourth Quarter 2003 Oxides of Nitrogen Test

October 09, 2003

TEST

IDNR Permit Number(s)

EAF/LMF Meltshop Stack 94-A-548-S3

RECORD COPY

File Name: Con10-1 10-08-003

Senders Initials: MS

Prepared By:

AAS Inc.

Ambient Air Services, Inc.

106 Ambient Airway • Starke, FL 32091 • (904) 964-8440 • Fax (904) 964-6675

LELAP Certification Number: 100329

ipsco

November 11, 2003

Iowa Department of Natural Resources
Air Quality Bureau
Stack Test Coordinator
7900 Hickman Road
Suite 1
Urbandale, IA 50322

Re: IPSCO Steel Inc. – Montpelier
Permit #94-A-548-S3
4th Quarter NOx Test

Mr. Stone:

Enclosed, please find the fourth quarter NOx report as required by the above-mentioned permit. If you have any questions, please feel free to contact me at (563)381-5584.

Sincerely,

Stephanie J. Kreiter
Environmental Coordinator

Cc: Richard Acquaviva – letter only
Wayne Schmidt – letter only
Tom Toner – letter only
Joe Wesselman – letter only

ipsco steel inc.

1770 Bill Sharp Boulevard, Muscatine, Iowa 52761
Phone (563) 381-5300 Fax (563) 381-5329

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PRESENTATION OF DATA AND REVIEW

Ambient Air Services, Inc. of Starke, Florida, has completed the testing described in this report for IPSCO Steel Inc.'s Montpelier Works facility. To the best of our knowledge and abilities all information, facts and test data are true and correct. Information supplied to AASI for use in this report from IPSCO Steel is perceived to be accurate and is used as such where necessary. This report was prepared and reviewed by:

David C. Sholtes, Report Review — Date: 11-5-03

Joseph L. Cooksey, Project Manager — Date: 11-5-03

Questions and or comments regarding this report or process conditions should be directed to:

Ms. Stephanie Kreiter
IPSCO Steel
1770 Bill Sharp Blvd.
Muscatine, IA 52761
Phone: 563-381-5584
Fax: 563-381-5406

Mr. Joseph L. Cooksey
Ambient Air Services
106 Ambient Air Way
Starke, FL 32091
Phone: 904-964-8440
Fax: 904-964-6675
Email: AASI@atlantic.net

EXECUTIVE SUMMARY

Ambient Air Services, Inc. (AASI) conducted emission testing at the IPSCO Steel (Iowa) Facility located in Montpelier, Iowa. The testing included the determination of Oxides of Nitrogen emissions from the EAF/LMF Baghouse Stack.

The results, shown in Table 1-1 demonstrate compliance with the facilities oxides of nitrogen emission limitations as listed in permit number IDNR-94-A-548-S3

TABLE 1-1

EMISSION TEST RESULTS
EXECUTIVE SUMMARY
IPSCO STEEL, INC.
MONTPELIER, IOWA

October 09, 2003

SOURCE	PARAMETER	ALLOWABLE	TEST RESULTS
EAF/LMF Baghouse Stack	Oxides of Nitrogen (NOx) As (NO_2)	0.80 lbs/ton 700.8 tons/year	0.20 lbs/ton 131.0 tons/year*

*Tons per year based on 24 hours per day, 365 days per year at Tested Production Rate

1.0 INTRODUCTION

1.1 General

IPSCO Steel (Iowa), Inc. contracted with Ambient Air Services, Inc. (AASI) to conduct emission testing on their EAF/LMF Baghouse Stack. The testing involved the determination of Oxides of Nitrogen (NOx) Emissions.

The purpose of the testing was to satisfy specific requirements of the IDNR issued permit number 94-A-548-S3, for Quarterly NOx testing.

Prior to the testing Mr. Mark Stone of IDNR was provided a Test Protocol and Notification of test dates. Mr. Stone approved the protocol prior to testing

1.2 Test Participants

Name	Affiliation	Responsibility
Joseph L. Cooksey	Ambient Air Services, Inc.	Project Manager
David C. Sholtes	Ambient Air Services, Inc.	Report Review
Stephanie Kreiter	IPSCO	Environmental Coordinator

1.3 Summary of Testing Conducted

Table 1-2

Summary of Testing Conducted IPSCO Steel, (Iowa), Inc. Montpelier, Iowa October 09, 2003			
SOURCE	**PARAMETER**	**USEPA TEST METHODS**	**COMMENTS**
EAF/LMF Baghouse Exhaust Stack	Oxides of Nitrogen (NOx)	40 CFR 60 Appendix A Method 7E	3 Test Runs, Each Run 2 heats in duration
	Flow	40 CFR 60 Appendix A Methods 1-4	1 Flow Traverse per NOx Test, Moisture by wet bulb/dry bulb

2.0 TEST METHODOLOGIES

2.1 Flow and Moisture

Flow and moisture were determined in accordance with USEPA Methods 1-4 as published in 40 CFR 60 Appendix A.

One flow traverse was conducted per NOx test run.

The Oxygen and Carbon Dioxide levels were determined in Run 1 using a fyrite analyzer. It was confirmed that the levels of O_2 and CO_2 were 21% and 0% (ambient conditions). Further analysis was deemed unnecessary.

Moisture was determined using a wet bulb/dry bulb technique. The wet bulb/dry bulb readings were taken once per flow traverse.

2.2 Oxides of Nitrogen

Oxides of Nitrogen from this facility were measured using USEPA Method 7E as published in 40 CFR 60 Appendix A. Table 2-1 shows the specifications of Method 7E compared to those presented by the instrument manufacturer. For this test a TEI Model 42 was used. The instrument was calibrated over a nominal range of 0-50 ppm.

Results from the test were reported in mass per unit of production. All NOx (NO + NO_2) was converted to NO_2 as required by IDNR.

At the beginning of the test the NOx system was calibrated using zero, 25 and 45 ppm USEPA Protocol gas standards. At the completion of each test run the system was checked at zero and 25 ppm.

The sampling system is shown in Figure 3-1.

Data from the NOx analyzer was recorded using a computerized data logging system. The data recorder took a reading each second and averaged these readings into 1 minute data points. All test data is included in the appendix section of this report.

Table 2-1

OXIDES OF NITROGEN SYSTEM PERFORMANCE SPECIFICATIONS METHOD 7E VS THERMO ENVIRONMENTAL INSTRUMENTS MODEL 42		
	METHOD 7E	TEI 42
Calibration error zero, mid and high gases	Less than ±2% span	±1% of full scale
Sampling system bias for zero, mid and high gases	Less than ±5% span	±1% of full scale
Zero Drift	Less than ±3% of span over the run period	Negligible
Calibration Drift	Less than ±3% of span over the run period	±1% of full scale

3.0 PROCESS DESCRIPTION

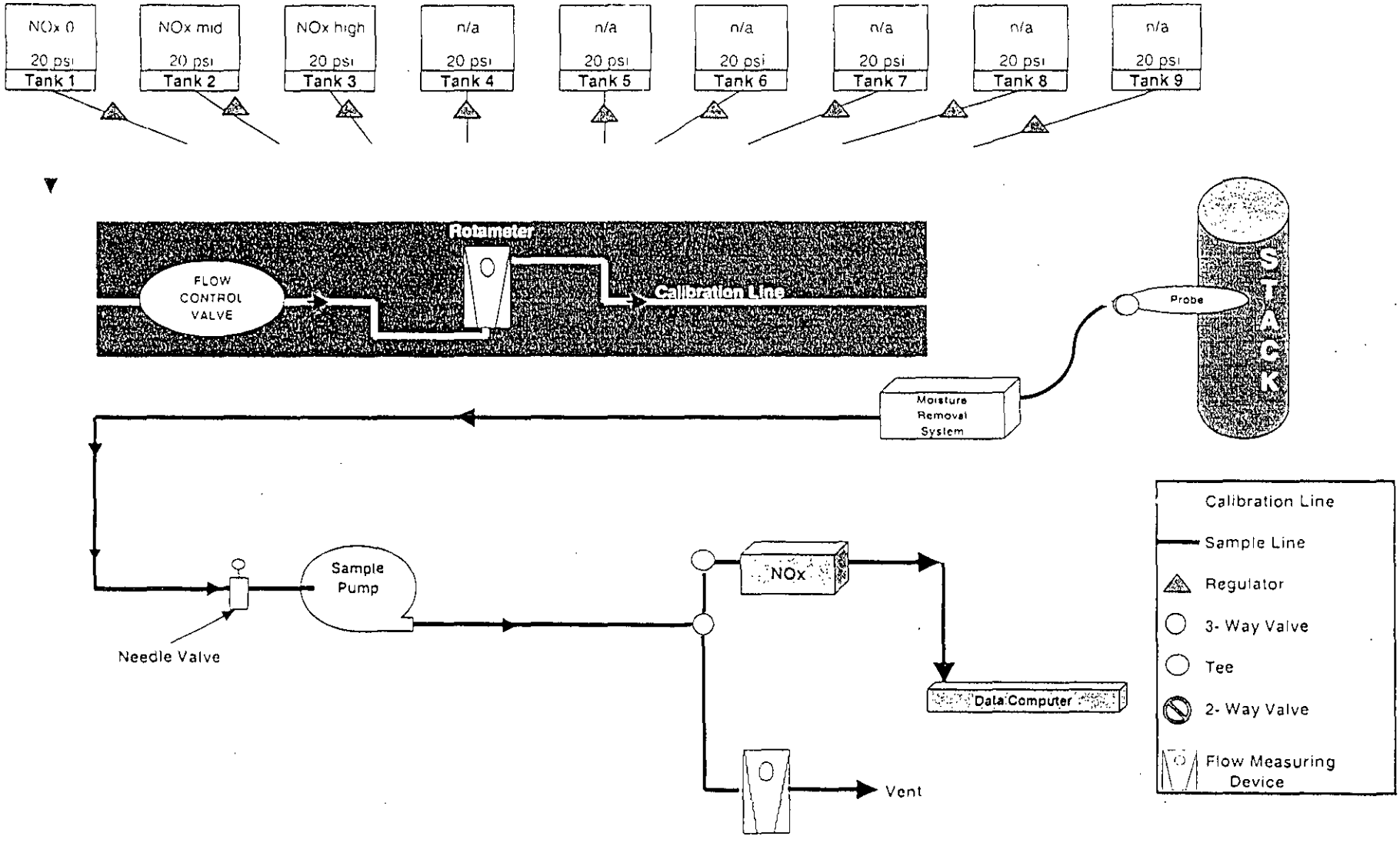
Electric arc furnaces (EAF) are used to produce carbon and alloy steels. The input material to an EAF is typically 100 percent scrap. Cylindrical, refractory lined EAF's are equipped with carbon electrodes to be raised or lowered through the furnace roof. With electrodes retracted, the furnace roof can be rotated aside to permit the charge of scrap steel by overhead crane. Lime and charge carbon are added to the charge buckets, alloying agents and materials are added during the tapping process. Electric current of the opposite polarity electrodes generates heat between the electrodes and through the scrap. After melting and refining periods, the slag and steel are poured from the furnace by tilting.

The production of steel in an EAF is a batch process. Cycles, or "heats", range from about 45 to 90 minutes to produce carbon steel. Scrap steel is charged to begin a cycle, and alloying agents and slag materials are added for refining. Stages of each cycle normally are charging and melting operations, refining (which usually includes oxygen blowing), and tapping.

SAMPLE SYSTEM SCHEMATIC

(Not To Scale)

Figure 3-1



4.0 RESULTS

The results from this testing demonstrate compliance with the permit limitations at the time of testing on October 09, 2003.

The results are summarized in Table 4-1.

Table 4 - 1

AASI

Oxides of Nitrogen (NO_X) Emissions Summary
USEPA Method 7E (40 CFR Part 60 Appendix A)
Ipsco Steel (Iowa), Inc.
Montpeliar, Iowa
IDNR Permit Number 94-A-548-S3
October 9, 2003

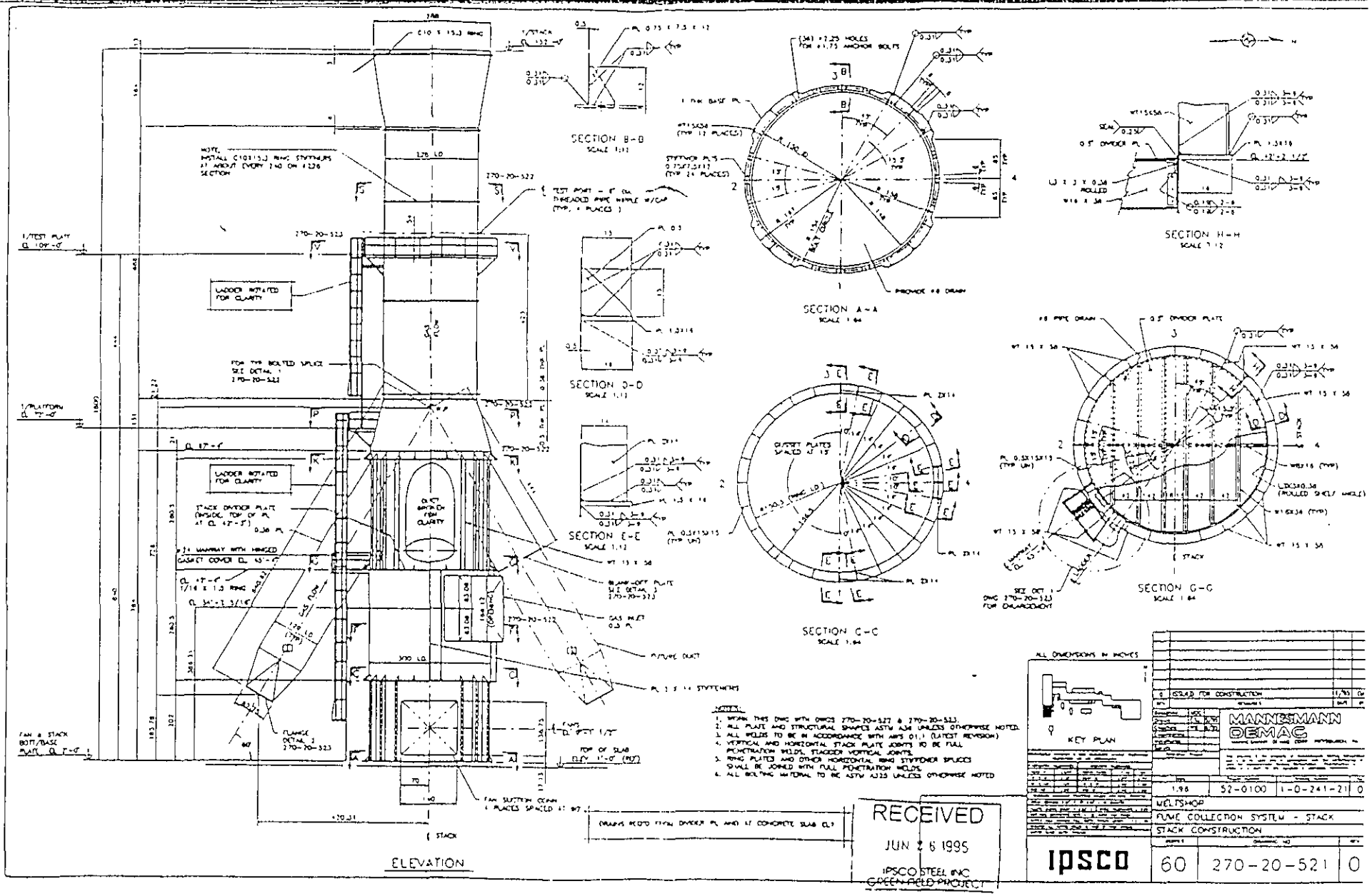
Run			Concentration	Volumetric Flow Rates	Production	Mass Emissions (as NO_2)	
Date	Number	Time (CDT)	ppm-v/v	SCFM-Dry	Tons per Hour	Pounds per Hour	Pounds per Ton
10/9/2003	1	7:15 9:25	5.0	761614	152.9	27.24	0.18
10/9/2003	2	11:00 13:01	5.6	854049	151.5	34.09	0.23
10/9/2003	3	13:16 15:50	4.8	818363	147.9	28.39	0.19
Average			**5.1**	**811342**	**150.7**	**29.91**	**0.20**

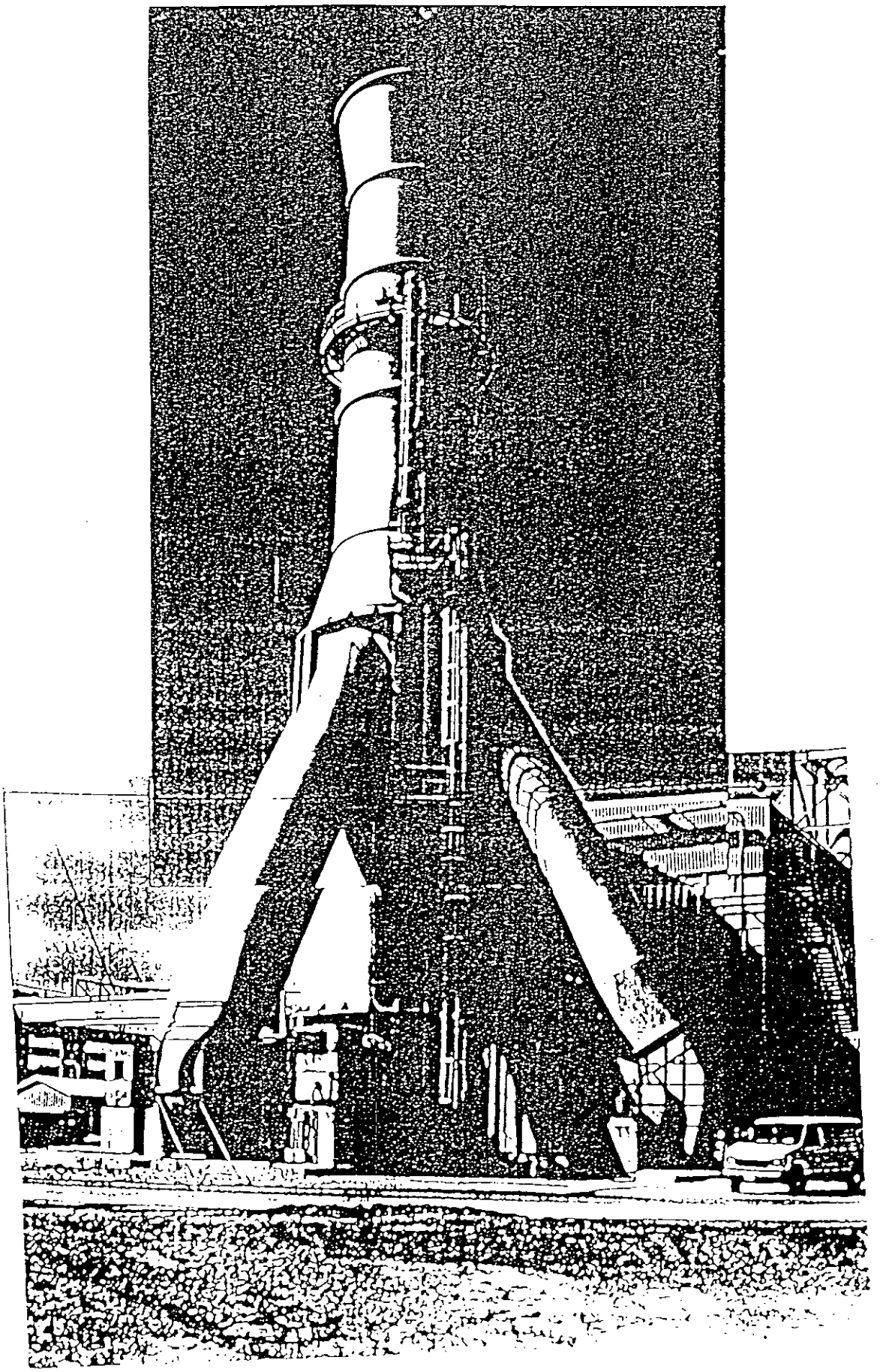
APPENDICES

Appendix A	Stack Diagram - EAF/LMF
Appendix B	Directions and Map to site IDNR Pre-test Questions and Test Protocol
Appendix C	Flow Information
Appendix D	NOx Data
Appendix E	Facility Operating Data

APPENDIX A

Stack Diagram-EAF/LMF


ELEVATION
SECTION B-B
SECTION A-A
SECTION H-H
SECTION D-D
SECTION E-E
SECTION C-C
SECTION G-G
KEY PLAN
NOTES:
1. WORK THIS DWG WITH DWGS 270-20-522 & 270-20-523.
2. ALL PLATE AND STRUCTURAL SHAPES ASTM A36 UNLESS OTHERWISE NOTED.
3. ALL WELDS TO BE IN ACCORDANCE WITH AWS D1.1 (LATEST REVISION)
4. VERTICAL AND HORIZONTAL STACK PLATE JOINTS TO BE FULL PENETRATION WELDS, STAGGER VERTICAL JOINTS.
5. RING PLATES AND OTHER HORIZONTAL RING STIFFENER SPLICES SHALL BE JOINED WITH FULL PENETRATION WELDS.
6. ALL BOLTING MATERIAL TO BE ASTM A325 UNLESS OTHERWISE NOTED
RECEIVED
JUN 26 1995
IPSCO STEEL INC
GREEN FIELD PROJECT
ALL DIMENSIONS IN INCHES
ISSUED FOR CONSTRUCTION
MANNESMANN DEMAG
1.96
52-0100
1-0-241-21
0
WELDSHOP
FUME COLLECTION SYSTEM - STACK
STACK CONSTRUCTION
ipsco
60
270-20-521
0



APPENDIX B

Directions and Map to site
IDNR Pretest Questions and Test Protocol

Directions to IPSCO

From Quad City Airport:

From Airport exit, turn right and follow signs to I-74 North

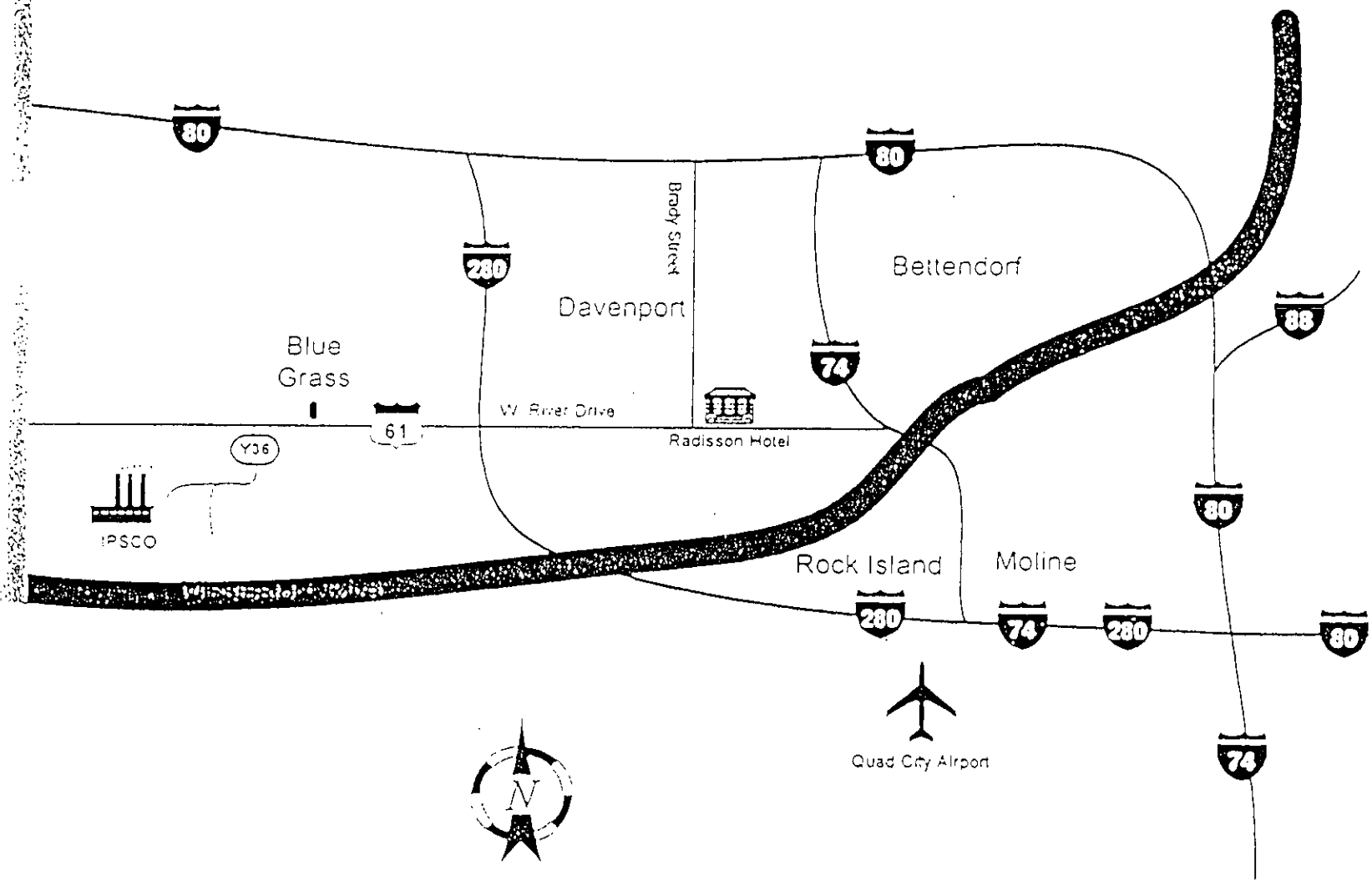
Take I-74 North to I-280 exit; proceed west to Highway 61 South exit

Proceed on Highway 61 to Y-36 (Zachary Av) - 5 miles; see following note

From Highway 61:

Proceed south on Y-36 (Zachary Av) 2-3 miles

Do not turn where Y-36 branches to the south; proceed straight to gate for auto entrance



PROPOSED TEST PLAN PROTOCOL

Company Name: IPSCO Steel (Plant Number 70-08-002)

Address: 1770 Bill Sharp Boulevard, Muscatine, IA 52761

Name and Title of Contact: Stephanie Kreiter

Address of Contact: 1770 Bill Sharp Boulevard, Muscatine, IA 52761

Telephone Number of Contact: (563) 381-5338

Proposed Test Date: Quarterly Starting March 5, 2003, April 30, 2003, July 9, 2003 and October 8,2003.

Source Information

Type of Source: EAF/LMF Baghouse Exhaust Stack

Identification of Source to be tested: Baghouse Exhaust Stack

Permit Number of Source: 94-A-548-S3

Address of Source: 1770 Zachary Avenue

Initial Startup Date: 1998

Testing Firm Information

Name of Firm: Ambient Air Services, Inc.

Address: 106 Ambient Air Way, Starke, Florida 32091

Name and Title of Contact: Joseph L. Cooksey, President

Telephone Number: (904) 964-8440

Number of Employees of Firm: 17

Number of Employees engaged in Air Pollution Source Testing (Including Support Personnel): 17

Location and Description of Laboratory Facilities: 106 Ambient Air Way, Starke, Florida
(Metals by Ppb Environmental Laboratories, 6821 S.W. Archer Road, Gainesville, FL)

Subcontractor(s) Utilized by firm for Source Testing Activities: None

Number of Air Pollution Sources Previously Tested by Firm: Testing since 1973

Types of Sources Previously Tested by Firm: Many different source types including heavy experience in Steel Industry.

PERFORMANCE TEST INFORMATION

List all pollutants to be sampled. 94-A-548-S3 - EAF / LMF Baghouse

	Pollutant	Number of Sampling Points	Total Time per Test Run	Number of Test Runs	Test Methods to be Used
1	NOx	1	2 heats	3	M 7E
2	Flow	24	N/A	3	1-4*
3*	VE	Meltshop Building	180 minutes	1	9

***VE Test will be conducted on March 5, 2003 only.**

For EPA Reference Method 5 or Iowa Method 5 tests, indicate the length of each run to collect 50 milligrams of sample. Use the estimated emissions after control as the stack gas concentration.

If the permitted emission standard or expected concentration of particulate is equal to or less than 0.005 grains per dry standard cubic foot (gr/dscf), an extended sampling time must be considered. When calculating the sample time, the length of each run should be such that a sample catch of 50 milligrams will be colleted. Should the sample catch be less than 10 milligrams after applying the above method, the test may be subject to rejection or a 10 milligrams sample weight may be assumed.

Include a description of any test procedures to be used in the conduct of the performance tests which differ from the specified method(s).

* Moisture using wet bulb/dry bulb

PROTOCOL SUPPLEMENT - OPERATING DATA

This form is to be filled out and returned with the test protocol.

Maximum Continuous Process Weight (Manufacturer's Rating): Existing - 164 TPH
Phase 1 - 200 TPH (Target Production for Test is Phase 1)
Phase 2 - 230 TPH

Historical Average Process Weight: Not yet established however plant is capable of up to 200 TPH but to date has achieved this for only short time periods.

Historical Maximum Process Weight:

Product Recycling Capability: Yes ____ (Heel) No X

Type of Sources of Fuels Normally Burned: Electric arc 420 KWH, 200 cu.ft. natural gas, 400 cu.ft. oxygen + 1200-1400 cu.ft. oxygen per liquid ton of steel.

Type of Control Equipment: Baghouse

Range of Pressure Drop Across Control Equipment: 4-6 Currently operating at Inches of Water

Person Responsible For This Data: Stephanie Kreiter

Person Responsible For Collecting Process Data During Actual Testing: Stephanie Kreiter

Complete and submit one of these forms for each test to be conducted. This information is especially important the determine to operating conditions of the equipment under which the tests will be conducted. The tests must be conducted while operating at maximum capacity or the highest capacity which this source will be operated. Failure to test at the permitted capacity may result in derating this source.

This information is also required to be submitted on the forms found at the end of the protocol package. These two forms, the Compliance Emission Test Operating Data and the Air Pollution Control Equipment Operating Data forms, must be filled out with the data collected on the actual date of the tests. Failure to complete the forms on the day of the testing may be cause for rejecting the tests.

Ambient Air Services, Inc.

106 Ambient Airway • Starke, FL 32091 • (904) 964-8440 • Fax (904) 964-6675

January 7, 2003

Mr. Mark Stone
Stack Testing Coordinator
Air Quality Bureau
Iowa Department of Natural Resources
7900 Hickman Road, Suite 1
Urbandale, Iowa 50322

Dear Mark:

Attached is the IDNR test protocol form completed for the quarterly NOx testing at IPSCO Steel's Montpelier Works facility.

The tentative date for conducting the testing for the First Quarter of 2003 is March 5.

A brief synopsis of the testing planned is as follows:

Oxides of Nitrogen (NOx):	3 test runs, each run 2 heats (nominally 1.5 - 2.0 hours) in duration. Instrument range 0-50 ppm, calibration gases nominally 0, 25 ppm and 45 ppm. Test in accordance with USEPA Method 7E.
Flow:	3 flow traverses, one for each NOx test run. Moisture by wet bulb/dry bulb. O2 and CO2 are expected to be 21% and 0% and will be confirmed using a fyrite analyzer.
VE:	Visible Emission Testing (VE) will be conducted on the Meltshop Building. The VE test will be conducted on March 5, 2003 only. The VE test will be used to re-establish the NSPS AAa requirments for establishment of control device fan amp, damper positions, and furnace pressure operating ranges.

For planning purposes IPSCO has selected the following dates for the remaining calendar quarters for 2003:

Second Quarter	April 30, 2003
Third Quarter	July 9, 2003
Fourth Quarter	October 8, 2003

Please note that these dates are tentative only. As each date approaches we will confirm production schedules and confirm dates and test start times.

Please let me know if you have any questions.

Sincerely,

Joseph L. Cooksey

JLC:las

cc: Stephanie Kreiter, IPSCO Montpelier Works
Joseph Wesselman, IPSCO Corporate

ipsco

February 6, 2003

Iowa Department of Natural Resources
Air Quality Bureau
Stack Test Coordinator
7900 Hickman Road
Suite 1
Des Moines, IA 50322

Re: Quarterly NOx Test
Pre-Test Meeting Requirements

Mr. Stone:

As per our conversation on Thursday, February 6, 2003, I am hereby confirming by way of letter that a pre-test meeting for the quarterly NOx testing requirements will not be required for the tests scheduled in the calendar year 2003. If this information is incorrect, please give me a call at (563)381-5584. Thank you.

Sincerely,
IPSCO Steel Inc.

Stephanie J. Kreiter
Environmental Coordinator

Cc: Joe Wesselman - IPSCO
Joe Cooksey - Ambient Air

ipsco steel inc.

1770 Bill Sharp Boulevard, Muscatine, Iowa 52761
Phone (563) 381-5300 Fax (563) 381-5329

APPENDIX C

Flow Information
Data Printouts
Field Data Sheets
Pitot Tube Calibration
Thermocouple Calibration
Magnehelic Calibration

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

PM Summary Run 1

Facility	IPSCO Steel (Iowa) Inc.	Impinger Condensate	N/A
Location	Montpeliar, Iowa	Silica Gel Condensate	N/A
Stack	EAF Baghouse	Volume Metered	N/A
Run Date	10/9/2003	Meter Temp (Deg R)	460.0
Run Number	1	CO2 %	0.0
Start Time	7:45	O2 %	20.9
Finish Time	8:00	CO %	0.0
Weather	ovc, 65 deg F	N %	79.1
Total Time (min.)	N/A	Condensate Volume	N/A
Barometric Pressure	29.12	Delta H (inches H2O)	N/A
Stack Diameter (in.)	228.00	Stack Pressure	29.072
Stack Area sq. ft.	283.529	Stack Temp (Deg R)	634.6
Nozzle Area sq. ft.	N/A	Filter Weight (gm)	N/A
Number of Points	24	Prefilter Weight (gm)	N/A
Avg of SQRT of V.H.	0.9041	Total Particulate (gm)	N/A
Meter Correction (Y)	N/A		
Nozzle Diameter	N/A		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		N/A
Gas Volume Sampled, STPD		N/A
Total Volume, STP		N/A
Moisture in stack gas, volume fraction		0.024
Dry Stack Gas, volume fraction		0.976
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		28.58
Specific gravity of Stack Gas Relative to Air		0.986
Excess Air (%)		14864.9
Average Stack Velocity, FPM		3404.4
Actual Stack Gas Flow Rate, ACFM		965246
Actual Stack Gas Flow Rate, (Dry) ACFMD		942080
Stack Gas Flow Rate, SCFMD		761614
Stack Gas Flow Rate Wet, SCFMW		780342
Percent Isokinetic		N/A
Stack Emissions:	Grains/DSCF	N/A
	Lbs/Hr	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
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(904) 964-8440

PM Summary Run 2

Facility	IPSCO Steel (Iowa) Inc.	Impinger Condensate	N/A
Location	Montpeliar, Iowa	Silica Gel Condensate	N/A
Stack	EAF Baghouse	Volume Metered	N/A
Run Date	10/9/2003	Meter Temp (Deg R)	N/A
Run Number	2	CO2 %	0.0
Start Time	11:25	O2 %	21.0
Finish Time	11:40	CO %	0.0
Weather	Ovc, 65 deg	N %	79.0
Total Time (min.)	N/A	Condensate Volume	N/A
Barometric Pressure	29.12	Delta H (inches H2O)	N/A
Stack Diameter (in.)	228.00	Stack Pressure	29.069
Stack Area sq. ft.	283.529	Stack Temp (Deg R)	595.0
Nozzle Area sq. ft.	N/A	Filter Weight (gm)	N/A
Number of Points	24	Prefilter Weight (gm)	N/A
Avg of SQRT of V.H.	0.9826	Total Particulate (gm)	N/A
Meter Correction (Y)	N/A		
Nozzle Diameter	N/A		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		N/A
Gas Volume Sampled, STPD		N/A
Total Volume, STP		N/A
Moisture in stack gas, volume fraction		0.025
Dry Stack Gas, volume fraction		0.975
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		28.57
Specific gravity of Stack Gas Relative to Air		0.986
Excess Air (%)		150000.0
Average Stack Velocity, FPM		3583.4
Actual Stack Gas Flow Rate, ACFM		1015998
Actual Stack Gas Flow Rate, (Dry) ACFMD		990598
Stack Gas Flow Rate, SCFMD		854049
Stack Gas Flow Rate Wet, SCFMW		875948
Percent Isokinetic		N/A
Stack Emissions:	Grains/DSCF	N/A
	Lbs/Hr	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

PM Summary Run 3

Facility	IPSCO Steel (Iowa) Inc.	Impinger Condensate	N/A
Location	Montpeliar, Iowa	Silica Gel Condensate	N/A
Stack	EAF Baghouse	Volume Metered	N/A
Run Date	10/9/2003	Meter Temp (Deg R)	N/A
Run Number	3	CO2 %	0.0
Start Time	15:35	O2 %	20.9
Finish Time	15:45	CO %	0.0
Weather	0	N %	79.1
Total Time (min.)	N/A	Condensate Volume	N/A
Barometric Pressure	29.12	Delta H (inches H2O)	N/A
Stack Diameter (in.)	228.00	Stack Pressure	29.076
Stack Area sq. ft.	283.529	Stack Temp (Deg R)	587.8
Nozzle Area sq. ft.	N/A	Filter Weight (gm)	N/A
Number of Points	24	Prefilter Weight (gm)	N/A
Avg of SQRT of V.H.	0.9357	Total Particulate (gm)	N/A
Meter Correction (Y)	N/A		
Nozzle Diameter	N/A		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF	N/A
Gas Volume Sampled, STPD	N/A
Total Volume, STP	N/A
Moisture in stack gas, volume fraction	0.025
Dry Stack Gas, volume fraction	0.975
Molecular Weight of Stack Gas (Dry Basis)	28.84
Molecular Weight of Stack Gas (Stack conditions)	28.57
Specific gravity of Stack Gas Relative to Air	0.986
Excess Air (%)	14864.9
Average Stack Velocity, FPM	3391.3
Actual Stack Gas Flow Rate, ACFM	961532
Actual Stack Gas Flow Rate, (Dry) ACFMD	937494
Stack Gas Flow Rate, SCFMD	818363
Stack Gas Flow Rate Wet, SCFMW	839347
Percent Isokinetic	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

Data Request Entry Area	PM Run 1
Facility	IPSCO Steel (Iowa) Inc.
Location	Montpeliar, Iowa
Source	EAF Baghouse
Date	10/09/03
Run Number	1
Start Time	7:45
Finish Time	8:00
Weather	ovc, 65 deg F
Total Time (min)	N/A
Number of Points	24
Barometric Pressure	29.12
Static Pressure ("H20)	-0.65
Stack Diameter (inches)	228.00
Nozzle Diameter (in.)	N/A
Meter Y Factor	N/A
Pitot Factor	0.84
Final Meter Reading	N/A
Initial Meter Reading	N/A
Condensate (ml)	N/A
Silica Gel Weight (gm)	N/A
CO2	0.0
O2	20.9
CO	0.0
N2	79.1
Filter Weight (gm)	N/A
Prefilter Weight (gm)	N/A
Meter Factor	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Field Data Points - PM Run 1

Port	Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter In ' F	Meter Out 'F	Sq Rt VH
1	1	0.8		161			0.8944
	2	0.9		162			0.9487
	3	1		163			1.0000
	4	1.1		163			1.0488
	5	1		163			1.0000
	6	0.8		158			0.8944
2	1	1.1		181			1.0488
	2	1		175			1.0000
	3	1		167			1.0000
	4	1.13		162			1.0630
	5	1.45		162			1.2042
	6	1.35		160			1.1619
3	1	0.55		188			0.7416
	2	0.55		189			0.7416
	3	0.53		189			0.7280
	4	0.7		187			0.8367
	5	0.6		184			0.7746
	6	0.6		180			0.7746
4	1	0.42		177			0.6481
	2	0.55		181			0.7416
	3	0.7		183			0.8367
	4	0.62		185			0.7874
	5	0.72		186			0.8485
	6	0.95		185			0.9747

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Data Request Entry Area	PM Run 2
Facility	IPSCO Steel (Iowa) Inc.
Location	Montpeliar, Iowa
Source	EAF Baghouse
Date	10/09/03
Run Number	2
Start Time	11:25
Finish Time	11:40
Weather	Ovc, 65 deg
Total Time (min)	N/A
Number of Points	24
Barometric Pressure	29.12
Static Pressure ("H20)	-0.70
Stack Diameter (inches)	228.00
Nozzle Diameter (in.)	N/A
Meter Y Factor	N/A
Pitot Factor	0.84
Final Meter Reading	N/A
Initial Meter Reading	N/A
Condensate (ml)	N/A
Silica Gel Weight (gm)	N/A
CO2	0.0
O2	21.0
CO	0.0
N2	79.0
Filter Weight (gm)	N/A
Prefilter Weight (gm)	N/A
Meter Factor	N/A

Ambient Air Services, Inc.
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Starke, FL. 32091
(904) 964-8440

Field Data Points - PM Run 2

Port	Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter In ' F	Meter Out 'F	Sq Rt VH
1	1	1.25		129			1.1180
	2	1.3		129			1.1402
	3	1.3		129			1.1402
	4	1.25		129			1.1180
	5	0.78		129			0.8832
	6	1		128			1.0000
2	1	1.3		140			1.1402
	2	1.5		138			1.2247
	3	1.7		137			1.3038
	4	1.7		136			1.3038
	5	1.6		135			1.2649
	6	1.3		129			1.1402
3	1	0.85		138			0.9220
	2	0.75		138			0.8660
	3	0.62		139			0.7874
	4	0.55		140			0.7416
	5	0.45		140			0.6708
	6	0.5		140			0.7071
4	1	0.78		135			0.8832
	2	0.85		136			0.9220
	3	0.75		136			0.8660
	4	0.8		136			0.8944
	5	0.7		137			0.8367
	6	0.5		137			0.7071

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

Data Request Entry Area	PM Run 3
Facility	IPSCO Steel (Iowa) Inc.
Location	Montpeliar, Iowa
Source	EAF Baghouse
Date	10/09/03
Run Number	3
Start Time	15:35
Finish Time	15:45
Weather	
Total Time (min)	N/A
Number of Points	24
Barometric Pressure	29.12
Static Pressure ("H20)	-0.60
Stack Diameter (inches)	228.00
Nozzle Diameter (in.)	N/A
Meter Y Factor	N/A
Pitot Factor	0.84
Final Meter Reading	N/A
Initial Meter Reading	N/A
Condensate (ml)	N/A
Silica Gel Weight (gm)	N/A
CO2	0.0
O2	20.9
CO	0.0
N2	79.1
Filter Weight (gm)	N/A
Prefilter Weight (gm)	N/A
Meter Factor	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

Field Data Points - PM Run 3							
Port	Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter In ' F	Meter Out 'F	Sq Rt VH
1	1	0.8		132			0.8944
	2	0.75		133			0.8660
	3	0.82		133			0.9055
	4	1.05		133			1.0247
	5	0.75		133			0.8660
	6	0.55		132			0.7416
2	1	0.85		132			0.9220
	2	1.1		130			1.0488
	3	1.15		130			1.0724
	4	1.3		130			1.1402
	5	1.2		130			1.0954
	6	0.85		130			0.9220
3	1	0.72		129			0.8485
	2	0.75		127			0.8660
	3	0.88		127			0.9381
	4	0.82		126			0.9055
	5	0.85		125			0.9220
	6	0.7		125			0.8367
4	1	1.1		122			1.0488
	2	0.95		122			0.9747
	3	0.91		122			0.9539
	4	0.95		122			0.9747
	5	0.8		122			0.8944
	6	0.63		121			0.7937

Ambient Air Services, Inc.
106 Ambient Air Way
Starke, FL
(904) 964-8440

Velocity Traverse

Plant: IPSCO Iowa Date: 10/9/03

Source: Bashaw Stack Barometric Pressure: 29.12

Stack Diameter: 228 Pitot ID 10' Thermocouple ID 10

97/158 = 2.4% Magnehelic HA22 Atkins 396-2

Run 1			Run 2 140/95			Run 3 133/94		
Static Pressure		-0.65	Static Pressure		-0.70	Static Pressure		0.60
Start	0745		Start	11:30		Start	15:35	
Stop	0800		Stop	11:40		Stop	15:45	
Traverse Point No.	Velocity Head	Stack Temp Deg F	Traverse Point No.	Velocity Head	Stack Temp Deg F	Traverse Point No.	Velocity Head	Stack Temp Deg F
1-1	0.80	161		1.25	129		0.8	132
2	0.90	162		1.3	129		0.75	133
3	1.0	163		1.3	129		0.82	133
4	1.1	163		1.25	129		1.05	133
5	1	163		0.75	129		0.75	132
6	0.8	158		1	128		0.55	132
2-1	1.1	181		1.3	140		0.85	130
2	1	175		1.5	138		1.1	130
3	1	167		1.7	137		1.15	130
4	1.13	162		1.7	136		1.3	130
5	1.45	162		1.6	135		1.2	130
6	1.35	160		1.3	129		0.85	130
3-1	0.55	188		0.85	138		0.72	129
2	0.55	189		0.75	138		0.75	127
3	0.53	189		0.62	139		0.88	127
4	0.70	187		0.55	140		0.82	126
5	0.6	184		0.45	140		0.85	125
6	0.6	180		0.50	140		0.70	125
4-1	0.42	177		0.78	135		1.1	122
2	0.55	181		0.85	136		0.75	122
3	0.70	183		0.75	136		0.91	122
4	0.62	185		0.80	136		0.95	122
5	0.72	186		0.70	137		0.80	122
6	0.95	185		0.50	137		0.63	121
	2.4%			2.5			2.5	

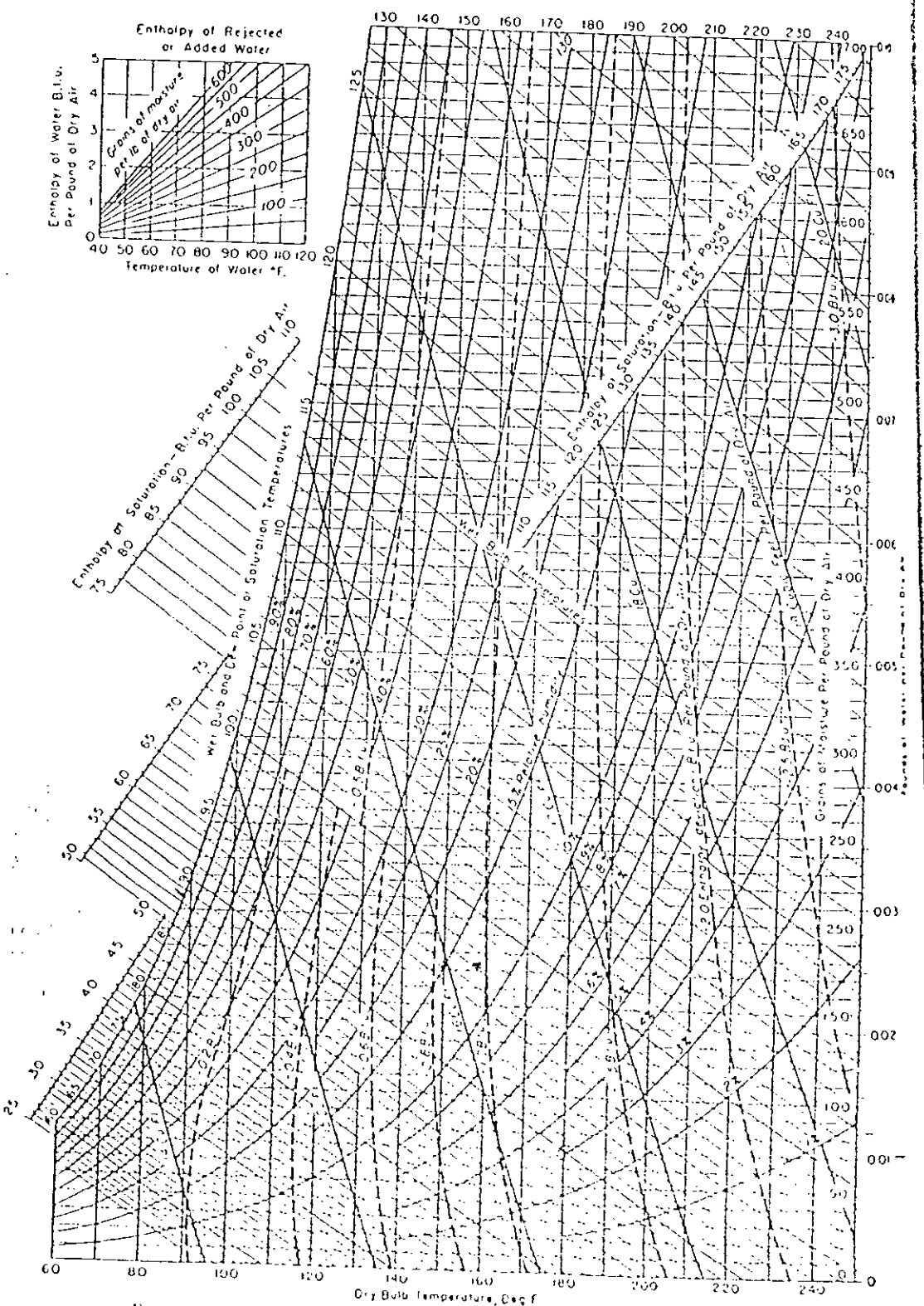


FIG. 4.4. Psychrometric chart—high temperatures. Barometric pressure, 29.92 in. of Hg.

Pounds of water per pound of dry Air

138
150/94

91
130

APPENDIX D

NOx Data

Summary of Equipment used
Calibration Summary
Data Logger Printout and Test Summary
Calibration Gas Certificates
25.1 NOx
45.1 NOx

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

October 9, 2003

Equipment List

Oxides of Nitrogen Instrument: **Manufacturer -** Thermo Environmental Instruments **Model -** 42

Serial Number - 33584-245

NOx Range - zero to 50 ppm

Calibration Gas Standards		Concentration	Manufacturer	Cylinder Number	Expiration Date	PSI
Zero	Zero	0.00	Air Gas UHP Air	N/A	N/A	1100
Mid	NOx	25.10	Spectra Gases	CC 135361	Feb-05	1800
High	NOx	45.10	Spectra Gases	CC 85252	Feb-05	1800

Description of Sampling System :

8' 1/4" SS probe to Tee to H_2O condenser to 200 feet 1/4" Teflon sample line to SS/Teflon pump to instruments

all calibration gases injected direct to probe Tee location

Sampling probe positioned in Baghouse Stack at test platform location.

Test Participants :

NOx Testing - Joe Cooksey - Ambient Air Services, Inc.

Stephanie Kreiter - Ipsco Steel Environmental Coordinator

Other Comments :

Ipsco Steel - Montpelier, Iowa
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Calibration Sheet

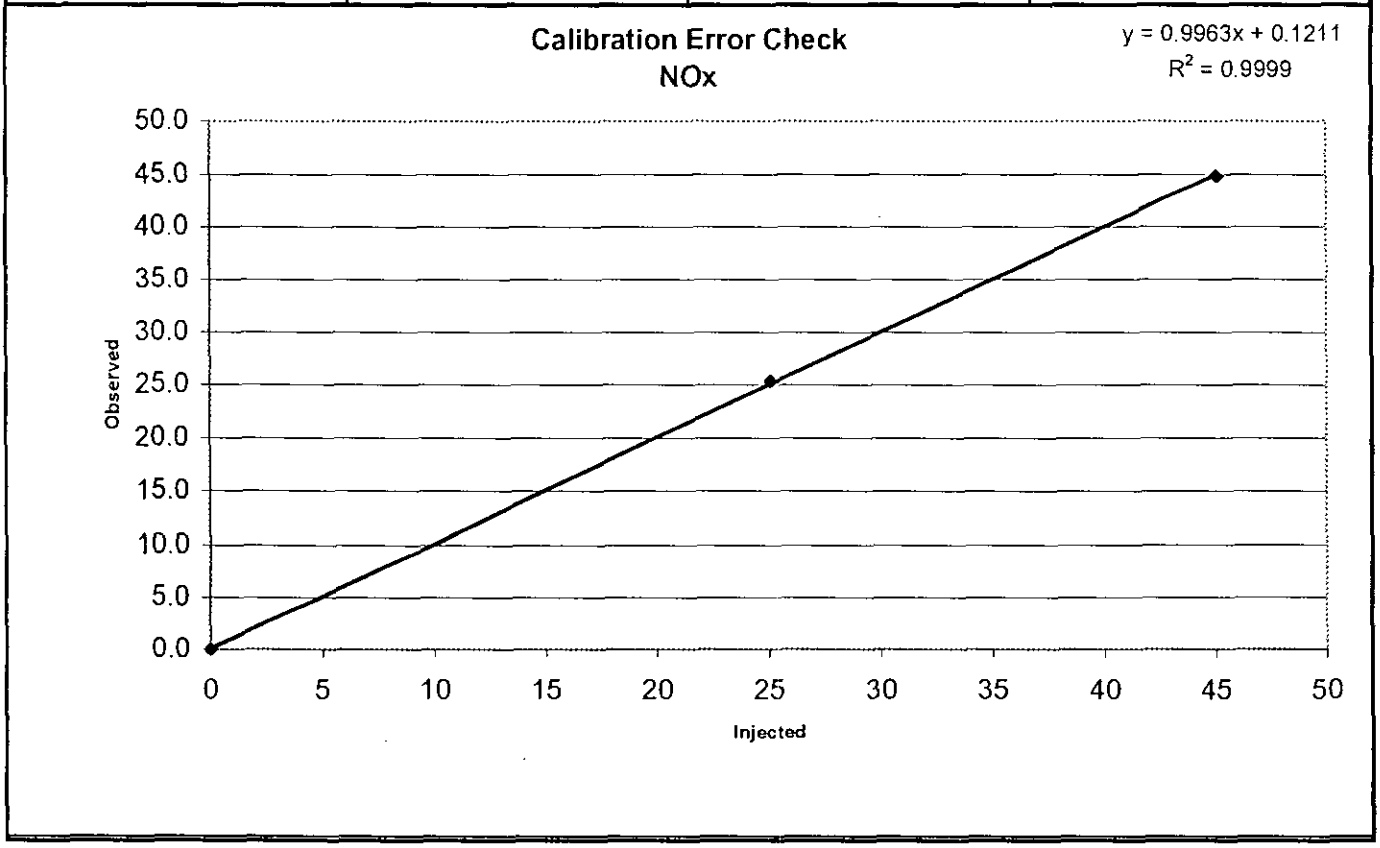
Initial Calibration

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0		0.0
NOx	25.1		25.4
NOx	45.1		44.9

% Error of Range Table

Inject (ppm)		Time	% Error of Range
Gas	Conc.		NOx
Zero	0	0:00	0.00%
NOx	25.1	0:00	0.60%
NOx	45.1	0:00	-0.40%



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Calibration Sheet

Calibration - Post Run 1

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0		0.3
NOx	25.1		25.7

Drift Analysis From Initial Calibrations to the End of Run 1

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		NOx
Zero	0	0:00	0.60%
NOx	25.1	0:00	0.60%

Drift Variables for Run 1

Variable	NOx	
Co	0.15	
Cm	25.55	
Cma	25.10	

Calibration - Post Run 2

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0		0.00
NOx	25.1		24.30

Drift Analysis From Initial Calibrations to the End of Run 2

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		NOx
Zero	0	0:00	0.00%
NOx	25.1	0:00	-2.20%

Drift Variables for Run 2

Variable	NOx	
Co	0.15	
Cm	25.00	
Cma	25.1	

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Calibration Sheet

Calibration - Post Run 3

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0		0
NOx	25.1		25.7

Drift Analysis From Initial Calibrations to the End of Run 3

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		NOx
Zero	0	0:00	0.00%
NOx	25.1	0:00	0.60%

Drift Variables for Run 3

Variable	NOx	
Co	0.00	
Cm	25.00	
Cma	25.1	

Ipsco Steel - Montpelier, Iowa

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DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_g	NOx C_w	NOx C_{wa}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Nox, Pounds per Ton
10/9/2003 6:25	4.9																		
10/9/2003 6:26	0.5																		
10/9/2003 6:27	-0.1																		
10/9/2003 6:28	-0.1																		
10/9/2003 6:29	2.6																		
10/9/2003 6:30	23.5																		
10/9/2003 6:31	23.4																		
10/9/2003 6:32	24.4																		
10/9/2003 6:33	29.0																		
10/9/2003 6:34	35.2																		
10/9/2003 6:35	44.8																		
10/9/2003 6:36	44.7																		
10/9/2003 6:37	44.9											45.1 ppm Cal							
10/9/2003 6:38	44.9											45.1 ppm Cal							
10/9/2003 6:39	28.4																		
10/9/2003 6:40	13.6																		
10/9/2003 6:41	0.7																		
10/9/2003 6:42	0.0																		
10/9/2003 6:43	0.0																		
10/9/2003 6:44	0.0											0 ppm Cal							
10/9/2003 6:45	0.4																		
10/9/2003 6:46	5.8																		
10/9/2003 6:47	22.4																		
10/9/2003 6:48	25.4											25.1 ppm Cal							
10/9/2003 6:49	25.7											25.1 ppm Cal							
10/9/2003 6:50	25.1											25.1 ppm Cal							
10/9/2003 6:51	14.6																		
10/9/2003 6:52	1.8																		
10/9/2003 6:53	0.4																		
10/9/2003 6:54	3.0																		
10/9/2003 6:55	5.7																		
10/9/2003 6:56	3.9																		
10/9/2003 6:57	2.9																		
10/9/2003 6:58	2.3																		
10/9/2003 6:59	2.2																		
10/9/2003 7:00	2.9																		
10/9/2003 7:01	3.6																		
10/9/2003 7:02	4.3																		
10/9/2003 7:03	4.5																		
10/9/2003 7:04	2.5																		
10/9/2003 7:05	2.1																		
10/9/2003 7:06	1.9																		
10/9/2003 7:07	1.7																		
10/9/2003 7:08	2.1																		
10/9/2003 7:09	2.1																		
10/9/2003 7:10	2.2																		
10/9/2003 7:11	3.7																		
10/9/2003 7:12	7.0																		
10/9/2003 7:13	25.4																		
10/9/2003 7:14	31.3																		

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IDNR Permit Number 94-A-548-S3

October 9, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_s	NOx C_w	NOx C_{wA}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Nox, Pounds per Ton
10/9/2003 7:15	30.4	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	29.9	761614	163.05	1.084
10/9/2003 7:16	30.1	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	29.5	761614	161.60	1.074
10/9/2003 7:17	30.5	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	30.0	761614	163.77	1.088
10/9/2003 7:18	26.2	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	25.8	761614	140.61	0.934
10/9/2003 7:19	8.2	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	8.0	761614	43.59	0.290
10/9/2003 7:20	18.8	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	18.5	761614	100.79	0.670
10/9/2003 7:21	20.2	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	19.8	761614	108.27	0.720
10/9/2003 7:22	8.4	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	8.1	761614	44.32	0.295
10/9/2003 7:23	5.1	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	4.8	761614	26.46	0.176
10/9/2003 7:24	4.2	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	4.0	761614	21.87	0.145
10/9/2003 7:25	4.2	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	4.0	761614	21.64	0.144
10/9/2003 7:26	3.4	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	3.2	761614	17.53	0.117
10/9/2003 7:27	3.9	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	3.7	761614	20.18	0.134
10/9/2003 7:28	3.8	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	3.7	761614	19.95	0.133
10/9/2003 7:29	3.3	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	3.1	761614	17.05	0.113
10/9/2003 7:30	2.4	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	2.2	761614	12.22	0.081
10/9/2003 7:31	2.1	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	2.0	761614	10.77	0.072
10/9/2003 7:32	2.1	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	1.9	761614	10.29	0.068
10/9/2003 7:33	1.8	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	1.7	761614	9.08	0.060
10/9/2003 7:34	1.5	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	1.4	761614	7.40	0.049
10/9/2003 7:35	1.6	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	1.4	761614	7.88	0.052
10/9/2003 7:36	1.8	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	1.6	761614	8.85	0.059
10/9/2003 7:37	1.6	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	1.4	761614	7.64	0.051
10/9/2003 7:38	1.5	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	1.3	761614	7.15	0.048
10/9/2003 7:39	3.5	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	3.3	761614	18.25	0.121
10/9/2003 7:40	15.5	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	15.1	761614	82.69	0.550
10/9/2003 7:41	25.7	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	25.2	761614	137.71	0.915
10/9/2003 7:42	13.2	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	12.9	761614	70.38	0.468
10/9/2003 7:43	6.5	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	6.3	761614	34.42	0.229
10/9/2003 7:44	7.1	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	6.9	761614	37.56	0.250
10/9/2003 7:45	7.6	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	7.3	761614	39.97	0.266
10/9/2003 7:46	6.7	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	6.5	761614	35.39	0.235
10/9/2003 7:47	6.1	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	5.9	761614	32.01	0.213
10/9/2003 7:48	4.2	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	4.0	761614	21.64	0.144
10/9/2003 7:49	2.9	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	2.7	761614	14.63	0.097
10/9/2003 7:50	1.4	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	1.3	761614	6.92	0.046
10/9/2003 7:51	8.2	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	8.0	761614	43.59	0.290
10/9/2003 7:52	8.4	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	8.1	761614	44.32	0.295
10/9/2003 7:53	6.0	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	5.7	761614	31.29	0.208
10/9/2003 7:54	3.9	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	3.7	761614	20.18	0.134
10/9/2003 7:55	3.6	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	3.4	761614	18.50	0.123
10/9/2003 7:56	2.7	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	2.5	761614	13.91	0.092
10/9/2003 7:57	2.3	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	2.2	761614	11.74	0.078
10/9/2003 7:58	2.3	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	2.2	761614	11.74	0.078
10/9/2003 7:59	2.4	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	2.2	761614	12.22	0.081
10/9/2003 8:00	2.6	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	2.4	761614	12.95	0.086
10/9/2003 8:01	2.2	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	2.0	761614	11.01	0.073
10/9/2003 8:02	2.3	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	2.1	761614	11.50	0.076
10/9/2003 8:03	2.3	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	2.2	761614	11.74	0.078
10/9/2003 8:04	2.6	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	2.5	761614	13.43	0.089

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

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DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_o	NOx C_{gas}	NOx C_{wet}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Nox, Pounds per Ton
10/9/2003 8:05	3.4	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	3.2	761614	17.53	0.117
10/9/2003 8:06	3.2	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	3.0	761614	16.56	0.110
10/9/2003 8:07	3.0	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	2.8	761614	15.36	0.102
10/9/2003 8:08	3.0	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	2.8	761614	15.12	0.100
10/9/2003 8:09	2.6	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	2.5	761614	13.43	0.089
10/9/2003 8:10	2.5	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	2.3	761614	12.70	0.084
10/9/2003 8:11	2.1	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	1.9	761614	10.29	0.068
10/9/2003 8:12	1.8	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	1.6	761614	8.85	0.059
10/9/2003 8:13	2.8	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	2.6	761614	14.15	0.094
10/9/2003 8:14	16.2	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	15.8	761614	86.31	0.574
10/9/2003 8:15	8.9	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	8.6	761614	46.97	0.312
10/9/2003 8:16	3.6	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	3.6	761614	19.70	0.131
10/9/2003 8:17	1.9	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	1.7	761614	9.33	0.062
10/9/2003 8:18	1.8	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	1.6	761614	8.85	0.059
10/9/2003 8:19	1.0	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	0.9	761614	4.74	0.032
10/9/2003 8:20	1.5	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	1.3	761614	7.15	0.048
10/9/2003 8:21	1.3	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	1.1	761614	6.19	0.041
10/9/2003 8:22	1.3	1	A3J103	158	63	150.48		0.00	1	0.00	150.48	Run 1	0.2	25.6	25.1	1.1	761614	5.95	0.040
10/9/2003 8:23	1.2	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	1.0	761614	5.46	0.035
10/9/2003 8:24	1.3	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	1.1	761614	5.95	0.038
10/9/2003 8:25	1.2	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	1.0	761614	5.71	0.037
10/9/2003 8:26	1.4	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	1.3	761614	6.92	0.044
10/9/2003 8:27	1.2	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	1.0	761614	5.71	0.037
10/9/2003 8:28	3.0	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	2.8	761614	15.36	0.099
10/9/2003 8:29	3.7	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	3.5	761614	18.98	0.122
10/9/2003 8:30	5.2	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	5.0	761614	27.42	0.176
10/9/2003 8:31	4.5	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	4.3	761614	23.32	0.150
10/9/2003 8:32	3.7	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	3.5	761614	19.22	0.124
10/9/2003 8:33	4.3	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	4.1	761614	22.12	0.142
10/9/2003 8:34	4.7	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	4.4	761614	24.29	0.156
10/9/2003 8:35	3.9	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	3.7	761614	20.43	0.131
10/9/2003 8:36	3.7	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	3.5	761614	18.98	0.122
10/9/2003 8:37	2.1	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	2.0	761614	10.77	0.069
10/9/2003 8:38	1.2	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	1.0	761614	5.46	0.035
10/9/2003 8:39	1.3	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	1.1	761614	5.95	0.038
10/9/2003 8:40	1.3	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	1.1	761614	5.95	0.038
10/9/2003 8:41	1.3	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	1.1	761614	5.95	0.038
10/9/2003 8:42	1.3	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	1.1	761614	5.95	0.038
10/9/2003 8:43	1.6	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	1.4	761614	7.64	0.049
10/9/2003 8:44	2.8	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	2.6	761614	14.15	0.091
10/9/2003 8:45	6.2	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	6.0	761614	32.49	0.209
10/9/2003 8:46	21.3	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	20.9	761614	114.30	0.735
10/9/2003 8:47	18.0	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	17.7	761614	96.44	0.621
10/9/2003 8:48	8.5	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	8.3	761614	45.04	0.290
10/9/2003 8:49	6.2	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	6.0	761614	32.49	0.209
10/9/2003 8:50	7.4	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	7.2	761614	39.25	0.253
10/9/2003 8:51	8.1	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	7.8	761614	42.63	0.274
10/9/2003 8:52	8.0	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	7.8	761614	42.39	0.273
10/9/2003 8:53	7.0	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	6.8	761614	37.08	0.239
10/9/2003 8:54	3.9	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	3.7	761614	20.43	0.131

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Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_o	NOx C_m	NOx C_{ma}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Nox, Pounds per Ton
10/9/2003 8:55	2.5	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	2.3	761614	12.70	0.082
10/9/2003 8:56	6.3	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	6.1	761614	33.22	0.214
10/9/2003 8:57	4.4	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	4.2	761614	23.08	0.149
10/9/2003 8:58	3.4	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	3.3	761614	17.77	0.114
10/9/2003 8:59	2.5	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	2.3	761614	12.47	0.080
10/9/2003 9:00	2.5	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	2.3	761614	12.70	0.082
10/9/2003 9:01	2.5	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	2.3	761614	12.70	0.082
10/9/2003 9:02	2.9	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	2.7	761614	14.88	0.096
10/9/2003 9:03	2.7	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	2.5	761614	13.91	0.090
10/9/2003 9:04	2.1	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	2.0	761614	10.77	0.069
10/9/2003 9:05	2.2	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	2.1	761614	11.26	0.072
10/9/2003 9:06	1.9	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	1.7	761614	9.33	0.060
10/9/2003 9:07	1.7	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	1.5	761614	8.36	0.054
10/9/2003 9:08	1.8	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	1.7	761614	9.08	0.058
10/9/2003 9:09	2.1	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	2.0	761614	10.77	0.069
10/9/2003 9:10	2.0	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	1.8	761614	9.81	0.063
10/9/2003 9:11	3.3	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	3.1	761614	16.81	0.108
10/9/2003 9:12	2.9	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	2.7	761614	14.63	0.094
10/9/2003 9:13	1.8	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	1.7	761614	9.08	0.058
10/9/2003 9:14	2.4	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	2.2	761614	11.98	0.077
10/9/2003 9:15	11.3	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	11.0	761614	60.00	0.386
10/9/2003 9:16	14.2	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	13.9	761614	75.69	0.487
10/9/2003 9:17	3.4	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	3.2	761614	17.53	0.113
10/9/2003 9:18	1.6	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	1.4	761614	7.66	0.051
10/9/2003 9:19	1.0	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	0.8	761614	4.50	0.029
10/9/2003 9:20	2.6	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	2.5	761614	13.43	0.086
10/9/2003 9:21	4.0	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	3.8	761614	20.91	0.135
10/9/2003 9:22	2.0	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	1.8	761614	10.05	0.065
10/9/2003 9:23	2.0	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	1.8	761614	10.05	0.065
10/9/2003 9:24	2.0	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	1.8	761614	9.81	0.063
10/9/2003 9:25	1.8	1		0	1	0.00	B3J567	158.00	61	155.41	155.41	Run 1	0.2	25.6	25.1	1.7	761614	9.08	0.058
10/9/2003 9:26	1.4										152.85					4.99	761614	27.25	0.179
10/9/2003 9:27	0.4																		
10/9/2003 9:28	0.4																		
10/9/2003 9:29	0.3											0 ppm Cal							
10/9/2003 9:30	0.9																		
10/9/2003 9:31	17.9																		
10/9/2003 9:32	24.7																		
10/9/2003 9:33	25.0																		
10/9/2003 9:34	25.7											25.1 ppm Cal							
10/9/2003 9:35	20.8																		
10/9/2003 9:36	5.8																		
10/9/2003 9:37	2.2																		
10/9/2003 9:38	1.6											Wait on Caster							
10/9/2003 9:39	1.6											Wait on Caster							
10/9/2003 9:40	1.4											Wait on Caster							
10/9/2003 9:41	1.5											Wait on Caster							
10/9/2003 9:42	1.5											Wait on Caster							
10/9/2003 9:43	1.6											Wait on Caster							
10/9/2003 9:44	1.4											Wait on Caster							

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10/9/2003 9:45	1.2											Wait on Caster							
10/9/2003 9:46	0.7											Wait on Caster							
10/9/2003 9:47	1.4											Wait on Caster							
10/9/2003 9:48	1.1											Wait on Caster							
10/9/2003 9:49	0.9											Wait on Caster							
10/9/2003 9:50	1.2											Wait on Caster							
10/9/2003 9:51	1.2											Wait on Caster							
10/9/2003 9:52	1.2											Wait on Caster							
10/9/2003 9:53	1.2											Wait on Caster							
10/9/2003 9:54	0.4											Wait on Caster							
10/9/2003 9:55	0.2											Wait on Caster							
10/9/2003 9:56	0.3											Wait on Caster							
10/9/2003 9:57	1.2											Wait on Caster							
10/9/2003 9:58	2.5											Wait on Caster							
10/9/2003 9:59	1.3											Wait on Caster							
10/9/2003 10:00	1.5											Wait on Caster							
10/9/2003 10:01	1.0											Wait on Caster							
10/9/2003 10:02	1.4											Wait on Caster							
10/9/2003 10:03	1.0											Wait on Caster							
10/9/2003 10:04	1.3											Wait on Caster							
10/9/2003 10:05	1.1											Wait on Caster							
10/9/2003 10:06	1.2											Wait on Caster							
10/9/2003 10:07	1.7											Wait on Caster							
10/9/2003 10:08	1.4											Wait on Caster							
10/9/2003 10:09	1.3											Wait on Caster							
10/9/2003 10:10	1.4											Wait on Caster							
10/9/2003 10:11	1.4											Wait on Caster							
10/9/2003 10:12	1.4											Wait on Caster							
10/9/2003 10:13	1.4											Wait on Caster							
10/9/2003 10:14	1.4											Wait on Caster							
10/9/2003 10:15	1.3											Wait on Caster							
10/9/2003 10:16	1.3											Wait on Caster							
10/9/2003 10:17	1.2											Wait on Caster							
10/9/2003 10:18	0.2											Wait on Caster							
10/9/2003 10:19	1.0											Wait on Caster							
10/9/2003 10:20	0.5											Wait on Caster							
10/9/2003 10:21	0.3											Wait on Caster							
10/9/2003 10:22	1.3											Wait on Caster							
10/9/2003 10:23	1.3											Wait on Caster							
10/9/2003 10:24	1.2											Wait on Caster							
10/9/2003 10:25	1.2											Wait on Caster							
10/9/2003 10:26	1.2											Wait on Caster							
10/9/2003 10:27	1.2											Wait on Caster							
10/9/2003 10:28	1.2											Wait on Caster							
10/9/2003 10:29	1.1											Wait on Caster							
10/9/2003 10:30	1.1											Wait on Caster							
10/9/2003 10:31	1.1											Wait on Caster							
10/9/2003 10:32	1.0											Wait on Caster							
10/9/2003 10:33	1.0											Wait on Caster							
10/9/2003 10:34	1.0											Wait on Caster							

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10/9/2003 10:35	1.0											Wait on Caster							
10/9/2003 10:36	0.9											Wait on Caster							
10/9/2003 10:37	0.9											Wait on Caster							
10/9/2003 10:38	0.9											Wait on Caster							
10/9/2003 10:39	0.9											Wait on Caster							
10/9/2003 10:40	0.8											Wait on Caster							
10/9/2003 10:41	0.8											Wait on Caster							
10/9/2003 10:42	0.8											Wait on Caster							
10/9/2003 10:43	0.7											Wait on Caster							
10/9/2003 10:44	0.7											Wait on Caster							
10/9/2003 10:45	0.7											Wait on Caster							
10/9/2003 10:46	1.3											Wait on Caster							
10/9/2003 10:47	1.3											Wait on Caster							
10/9/2003 10:48	1.2											Wait on Caster							
10/9/2003 10:49	1.2											Wait on Caster							
10/9/2003 10:50	1.2											Wait on Caster							
10/9/2003 10:51	1.2											Wait on Caster							
10/9/2003 10:52	1.2											Wait on Caster							
10/9/2003 10:53	1.1											Wait on Caster							
10/9/2003 10:54	1.1											Wait on Caster							
10/9/2003 10:55	1.1											Wait on Caster							
10/9/2003 10:56	1.9											Wait on Caster							
10/9/2003 10:57	1.7											Wait on Caster							
10/9/2003 10:58	1.4											Wait on Caster							
10/9/2003 10:59	0.8											Wait on Caster							
10/9/2003 11:00	1.7	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	1.5	854049	9.36	0.073
10/9/2003 11:01	1.3	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	1.2	854049	7.37	0.058
10/9/2003 11:02	1.8	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	1.7	854049	10.24	0.080
10/9/2003 11:03	2.1	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	1.9	854049	11.90	0.093
10/9/2003 11:04	2.3	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	2.2	854049	13.56	0.106
10/9/2003 11:05	4.8	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	4.7	854049	28.95	0.226
10/9/2003 11:06	5.2	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	5.1	854049	31.27	0.244
10/9/2003 11:07	4.7	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	4.6	854049	28.26	0.221
10/9/2003 11:08	4.3	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	4.2	854049	25.63	0.200
10/9/2003 11:09	4.1	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	4.0	854049	24.30	0.190
10/9/2003 11:10	3.9	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	3.8	854049	22.97	0.179
10/9/2003 11:11	2.6	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	2.5	854049	15.34	0.120
10/9/2003 11:12	2.0	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	1.9	854049	11.35	0.089
10/9/2003 11:13	1.3	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	1.2	854049	7.04	0.055
10/9/2003 11:14	4.2	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	4.1	854049	25.29	0.197
10/9/2003 11:15	7.8	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	7.7	854049	47.20	0.368
10/9/2003 11:16	3.2	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	3.1	854049	18.99	0.148
10/9/2003 11:17	5.7	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	5.6	854049	34.25	0.267
10/9/2003 11:18	2.8	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	2.7	854049	16.66	0.130
10/9/2003 11:19	1.8	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	1.6	854049	10.02	0.078
10/9/2003 11:20	3.2	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	3.0	854049	18.66	0.146
10/9/2003 11:21	11.3	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	11.2	854049	68.77	0.537
10/9/2003 11:22	4.6	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	4.5	854049	27.29	0.213
10/9/2003 11:23	5.0	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	4.9	854049	29.94	0.234
10/9/2003 11:24	22.5	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	22.6	854049	138.48	1.081

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

October 9, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_d	NOx C_w	NOx C_{wa}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Nox, Pounds per Ton
10/9/2003 11:25	29.7	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	29.8	854049	182.63	1.426
10/9/2003 11:26	13.4	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	13.4	854049	81.72	0.638
10/9/2003 11:27	6.5	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	6.5	854049	39.57	0.309
10/9/2003 11:28	4.6	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	4.5	854049	27.62	0.216
10/9/2003 11:29	4.4	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	4.3	854049	26.29	0.205
10/9/2003 11:30	4.8	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	4.7	854049	28.62	0.223
10/9/2003 11:31	6.1	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	6.0	854049	36.58	0.286
10/9/2003 11:32	6.3	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	6.2	854049	37.90	0.296
10/9/2003 11:33	6.9	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	6.8	854049	41.56	0.324
10/9/2003 11:34	5.4	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	5.3	854049	32.60	0.254
10/9/2003 11:35	3.4	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	3.3	854049	19.99	0.156
10/9/2003 11:36	2.6	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	2.5	854049	15.34	0.120
10/9/2003 11:37	2.8	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	2.7	854049	16.33	0.127
10/9/2003 11:38	4.1	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	4.0	854049	24.63	0.192
10/9/2003 11:39	2.4	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	2.3	854049	14.01	0.109
10/9/2003 11:40	2.2	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	2.1	854049	12.68	0.099
10/9/2003 11:41	2.0	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	1.9	854049	11.68	0.091
10/9/2003 11:42	2.3	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	2.1	854049	13.01	0.102
10/9/2003 11:43	2.3	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	2.1	854049	13.01	0.102
10/9/2003 11:44	2.0	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	1.9	854049	11.68	0.091
10/9/2003 11:45	4.2	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	4.1	854049	24.97	0.195
10/9/2003 11:46	3.0	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	2.8	854049	17.33	0.135
10/9/2003 11:47	2.7	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	2.6	854049	15.67	0.122
10/9/2003 11:48	2.3	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	2.1	854049	13.01	0.102
10/9/2003 11:49	2.0	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	1.9	854049	11.35	0.089
10/9/2003 11:50	1.2	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	1.1	854049	6.71	0.052
10/9/2003 11:51	2.6	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	2.5	854049	15.00	0.117
10/9/2003 11:52	5.9	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	5.8	854049	35.58	0.278
10/9/2003 11:53	5.8	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	5.7	854049	34.92	0.273
10/9/2003 11:54	4.5	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	4.4	854049	26.95	0.210
10/9/2003 11:55	4.0	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	3.9	854049	23.96	0.187
10/9/2003 11:56	4.3	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	4.2	854049	25.98	0.203
10/9/2003 11:57	3.7	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	3.5	854049	21.64	0.169
10/9/2003 11:58	5.6	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	5.5	854049	33.93	0.265
10/9/2003 11:59	8.5	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	8.5	854049	51.84	0.405
10/9/2003 12:00	9.9	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	9.9	854049	60.48	0.472
10/9/2003 12:01	7.7	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	7.7	854049	46.87	0.366
10/9/2003 12:02	8.2	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	8.1	854049	49.86	0.389
10/9/2003 12:03	11.3	2	A3J104	158	74	128.11		0.00	1	0.00	128.11	Run 2	0.2	25.0	25.1	11.2	854049	68.77	0.537
10/9/2003 12:04	24.8	2	A3J104	158	74	128.11	B3J568	158.00	62	152.90	281.01	Run 2	0.2	25.0	25.1	24.8	854049	152.09	0.541
10/9/2003 12:05	14.9	2	A3J104	158	74	128.11	B3J568	158.00	62	152.90	281.01	Run 2	0.2	25.0	25.1	14.9	854049	91.02	0.324
10/9/2003 12:06	15.0	2	A3J104	158	74	128.11	B3J568	158.00	62	152.90	281.01	Run 2	0.2	25.0	25.1	15.0	854049	91.66	0.326
10/9/2003 12:07	9.0	2	A3J104	158	74	128.11	B3J568	158.00	62	152.90	281.01	Run 2	0.2	25.0	25.1	9.0	854049	54.83	0.195
10/9/2003 12:08	6.2	2	A3J104	158	74	128.11	B3J568	158.00	62	152.90	281.01	Run 2	0.2	25.0	25.1	6.1	854049	37.58	0.134
10/9/2003 12:09	4.5	2	A3J104	158	74	128.11	B3J568	158.00	62	152.90	281.01	Run 2	0.2	25.0	25.1	4.3	854049	26.62	0.095
10/9/2003 12:10	3.5	2	A3J104	158	74	128.11	B3J568	158.00	62	152.90	281.01	Run 2	0.2	25.0	25.1	3.4	854049	20.65	0.073
10/9/2003 12:11	4.3	2	A3J104	158	74	128.11	B3J568	158.00	62	152.90	281.01	Run 2	0.2	25.0	25.1	4.2	854049	25.63	0.091
10/9/2003 12:12	4.9	2	A3J104	158	74	128.11	B3J568	158.00	62	152.90	281.01	Run 2	0.2	25.0	25.1	4.8	854049	29.28	0.104
10/9/2003 12:13	4.8	2	A3J104	158	74	128.11	B3J568	158.00	62	152.90	281.01	Run 2	0.2	25.0	25.1	4.7	854049	28.62	0.102
10/9/2003 12:14	3.4	2	A3J104	158	74	128.11	B3J568	158.00	62	152.90	281.01	Run 2	0.2	25.0	25.1	3.3	854049	20.31	0.072

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

October 9, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_o	NOx C_w	NOx C_{wa}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Nox, Pounds per Ton
10/9/2003 12:15	2.7	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	2.6	854049	15.67	0.102
10/9/2003 12:16	2.4	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	2.3	854049	14.01	0.092
10/9/2003 12:17	2.3	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	2.1	854049	13.01	0.085
10/9/2003 12:18	2.4	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	2.3	854049	14.01	0.092
10/9/2003 12:19	2.6	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	2.5	854049	15.00	0.098
10/9/2003 12:20	2.6	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	2.5	854049	15.00	0.098
10/9/2003 12:21	2.8	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	2.7	854049	16.33	0.107
10/9/2003 12:22	5.5	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	5.4	854049	32.93	0.215
10/9/2003 12:23	26.0	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	26.1	854049	159.72	1.045
10/9/2003 12:24	22.1	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	22.2	854049	135.82	0.888
10/9/2003 12:25	10.5	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	10.5	854049	64.13	0.419
10/9/2003 12:26	10.6	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	10.5	854049	64.46	0.422
10/9/2003 12:27	11.1	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	11.1	854049	67.78	0.443
10/9/2003 12:28	10.2	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	10.2	854049	62.13	0.406
10/9/2003 12:29	9.0	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	9.0	854049	54.83	0.359
10/9/2003 12:30	8.1	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	8.0	854049	48.86	0.320
10/9/2003 12:31	6.1	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	6.0	854049	36.91	0.241
10/9/2003 12:32	2.4	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	2.3	854049	14.01	0.092
10/9/2003 12:33	7.9	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	7.9	854049	48.19	0.315
10/9/2003 12:34	9.3	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	9.2	854049	56.50	0.369
10/9/2003 12:35	4.9	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	4.8	854049	29.28	0.191
10/9/2003 12:36	3.6	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	3.5	854049	21.31	0.139
10/9/2003 12:37	3.0	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	2.9	854049	17.66	0.115
10/9/2003 12:38	2.5	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	2.4	854049	14.67	0.096
10/9/2003 12:39	2.7	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	2.6	854049	15.67	0.102
10/9/2003 12:40	3.5	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	3.4	854049	20.98	0.137
10/9/2003 12:41	2.8	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	2.7	854049	16.33	0.107
10/9/2003 12:42	2.7	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	2.6	854049	15.67	0.102
10/9/2003 12:43	2.9	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	2.8	854049	17.00	0.111
10/9/2003 12:44	2.8	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	2.7	854049	16.33	0.107
10/9/2003 12:45	2.6	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	2.5	854049	15.00	0.098
10/9/2003 12:46	3.0	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	2.9	854049	17.66	0.115
10/9/2003 12:47	2.5	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	2.4	854049	14.67	0.096
10/9/2003 12:48	2.6	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	2.5	854049	15.00	0.098
10/9/2003 12:49	4.6	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	4.5	854049	27.29	0.178
10/9/2003 12:50	3.0	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	2.9	854049	17.66	0.115
10/9/2003 12:51	3.0	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	2.9	854049	17.66	0.115
10/9/2003 12:52	2.6	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	2.5	854049	15.34	0.100
10/9/2003 12:53	3.3	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	3.2	854049	19.32	0.126
10/9/2003 12:54	3.3	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	3.2	854049	19.32	0.126
10/9/2003 12:55	1.8	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	1.6	854049	10.02	0.066
10/9/2003 12:56	2.4	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	2.3	854049	14.01	0.092
10/9/2003 12:57	9.4	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	9.3	854049	57.16	0.374
10/9/2003 12:58	21.5	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	21.5	854049	131.84	0.862
10/9/2003 12:59	7.6	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	7.5	854049	46.21	0.302
10/9/2003 13:00	4.9	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	4.8	854049	29.61	0.194
10/9/2003 13:01	3.6	2		0	1	0.00	B3J568	158.00	62	152.90	152.90	Run 2	0.2	25.0	25.1	3.5	854049	21.31	0.139
10/9/2003 13:02	2.3										151.45					5.57	854049	34.07	0.229
10/9/2003 13:03	1.9																		
10/9/2003 13:04	1.9																		

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

October 9, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_0	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Nox, Pounds per Ton
10/9/2003 13:05	7.7																		
10/9/2003 13:06	-0.9																		
10/9/2003 13:07	1.4																		
10/9/2003 13:08	1.4																		
10/9/2003 13:09	0.0											0 NOx Cal							
10/9/2003 13:10	2.7																		
10/9/2003 13:11	19.5																		
10/9/2003 13:12	23.9																		
10/9/2003 13:13	24.3											25.1 NOx Cal							
10/9/2003 13:14	19.3																		
10/9/2003 13:15	4.5																		
10/9/2003 13:16	6.7	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	6.7	818363	39.52	0.250
10/9/2003 13:17	5.6	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	5.6	818363	32.88	0.208
10/9/2003 13:18	5.1	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	5.1	818363	30.03	0.190
10/9/2003 13:19	9.4	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	9.4	818363	55.32	0.350
10/9/2003 13:20	5.8	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	5.8	818363	34.14	0.216
10/9/2003 13:21	3.5	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	3.5	818363	20.55	0.130
10/9/2003 13:22	3.7	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	3.7	818363	21.50	0.136
10/9/2003 13:23	4.5	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	4.5	818363	26.24	0.166
10/9/2003 13:24	4.7	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	4.7	818363	27.50	0.174
10/9/2003 13:25	3.4	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	3.4	818363	19.92	0.126
10/9/2003 13:26	3.3	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	3.3	818363	19.60	0.124
10/9/2003 13:27	2.2	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	2.2	818363	12.96	0.082
10/9/2003 13:28	1.8	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	1.8	818363	10.43	0.066
10/9/2003 13:29	2.0	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	2.0	818363	12.01	0.076
10/9/2003 13:30	1.4	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	1.5	818363	8.54	0.054
10/9/2003 13:31	1.3	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	1.3	818363	7.59	0.048
10/9/2003 13:32	1.1	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	1.1	818363	6.64	0.042
10/9/2003 13:33	0.8	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	0.8	818363	4.74	0.030
10/9/2003 13:34	0.8	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	0.8	818363	4.42	0.028
10/9/2003 13:35	3.3	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	3.3	818363	19.60	0.124
10/9/2003 13:36	16.7	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	16.8	818363	98.32	0.622
10/9/2003 13:37	20.5	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	20.6	818363	120.76	0.764
10/9/2003 13:38	9.1	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	9.1	818363	53.43	0.338
10/9/2003 13:39	4.3	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	4.4	818363	25.61	0.162
10/9/2003 13:40	3.6	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	3.6	818363	21.18	0.134
10/9/2003 13:41	5.6	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	5.6	818363	32.88	0.208
10/9/2003 13:42	6.3	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	6.4	818363	37.30	0.236
10/9/2003 13:43	5.9	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	5.9	818363	34.46	0.218
10/9/2003 13:44	3.4	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	3.4	818363	19.92	0.126
10/9/2003 13:45	1.8	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	1.8	818363	10.43	0.066
10/9/2003 13:46	1.8	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	1.8	818363	10.43	0.066
10/9/2003 13:47	9.6	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	9.6	818363	56.59	0.358
10/9/2003 13:48	7.2	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	7.3	818363	42.68	0.270
10/9/2003 13:49	3.4	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	3.4	818363	19.92	0.126
10/9/2003 13:50	1.6	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	1.6	818363	9.17	0.058
10/9/2003 13:51	1.8	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	1.8	818363	10.75	0.068
10/9/2003 13:52	2.0	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	2.0	818363	12.01	0.076
10/9/2003 13:53	2.2	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	2.2	818363	12.96	0.082
10/9/2003 13:54	2.4	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	2.4	818363	13.91	0.088

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

October 9, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_o	NOx C_w	NOx C_{wA}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Nox, Pounds per Ton
10/9/2003 13:55	2.6	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	2.6	818363	15.17	0.096
10/9/2003 13:56	2.7	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	2.7	818363	15.81	0.100
10/9/2003 13:57	1.9	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	1.9	818363	11.38	0.072
10/9/2003 13:58	2.1	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	2.2	818363	12.65	0.080
10/9/2003 13:59	2.1	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	2.1	818363	12.33	0.078
10/9/2003 14:00	1.7	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	1.7	818363	10.12	0.064
10/9/2003 14:01	1.8	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	1.8	818363	10.75	0.068
10/9/2003 14:02	1.9	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	1.9	818363	11.07	0.070
10/9/2003 14:03	1.7	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	1.7	818363	9.80	0.062
10/9/2003 14:04	2.1	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	2.1	818363	12.33	0.078
10/9/2003 14:05	5.8	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	5.8	818363	34.14	0.216
10/9/2003 14:06	23.2	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	23.3	818363	136.89	0.866
10/9/2003 14:07	25.4	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	25.5	818363	149.54	0.946
10/9/2003 14:08	15.5	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	15.5	818363	91.05	0.576
10/9/2003 14:09	8.6	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	8.7	818363	50.90	0.322
10/9/2003 14:10	4.1	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	4.2	818363	24.34	0.154
10/9/2003 14:11	3.2	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	3.2	818363	18.66	0.118
10/9/2003 14:12	2.8	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	2.9	818363	16.75	0.106
10/9/2003 14:13	3.1	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	3.1	818363	18.34	0.116
10/9/2003 14:14	3.8	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	3.8	818363	22.13	0.140
10/9/2003 14:15	4.8	3	A3J105	158	60	158.00		0.00	1	0.00	158.00	Run 3	0.0	25.0	25.1	4.8	818363	28.46	0.180
10/9/2003 14:16	2.7	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	2.7	818363	15.81	0.112
10/9/2003 14:17	1.2	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	1.2	818363	7.27	0.051
10/9/2003 14:18	1.0	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	1.0	818363	6.01	0.042
10/9/2003 14:19	0.7	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	0.7	818363	4.11	0.029
10/9/2003 14:20	0.4	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	0.4	818363	2.21	0.016
10/9/2003 14:21	0.3	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	0.3	818363	1.89	0.013
10/9/2003 14:22	0.6	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	0.6	818363	3.79	0.027
10/9/2003 14:23	8.3	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	8.4	818363	49.01	0.346
10/9/2003 14:24	7.7	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	7.8	818363	45.52	0.322
10/9/2003 14:25	18.1	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	18.2	818363	106.86	0.755
10/9/2003 14:26	12.0	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	12.1	818363	70.82	0.501
10/9/2003 14:27	17.2	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	17.3	818363	101.48	0.717
10/9/2003 14:28	19.1	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	19.1	818363	112.23	0.793
10/9/2003 14:29	8.5	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	8.5	818363	49.95	0.353
10/9/2003 14:30	4.5	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	4.5	818363	26.56	0.188
10/9/2003 14:31	3.0	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	3.0	818363	17.39	0.123
10/9/2003 14:32	1.9	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	1.9	818363	11.38	0.080
10/9/2003 14:33	1.7	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	1.7	818363	9.80	0.069
10/9/2003 14:34	1.7	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	1.7	818363	10.12	0.072
10/9/2003 14:35	2.0	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	2.0	818363	12.01	0.085
10/9/2003 14:36	2.1	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	2.2	818363	12.65	0.089
10/9/2003 14:37	2.1	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	2.1	818363	12.33	0.087
10/9/2003 14:38	2.0	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	2.0	818363	12.01	0.085
10/9/2003 14:39	7.2	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	7.3	818363	42.68	0.302
10/9/2003 14:40	4.8	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	4.8	818363	28.14	0.199
10/9/2003 14:41	2.7	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	2.7	818363	16.13	0.114
10/9/2003 14:42	1.8	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Furnace Delay							
10/9/2003 14:43	1.3	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Furnace Delay							
10/9/2003 14:44	1.1	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Furnace Delay							

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

October 9, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Nox, Pounds per Ton
10/9/2003 14:45	1.0	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Furnace Delay							
10/9/2003 14:46	1.3	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Furnace Delay							
10/9/2003 14:47	1.5	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Furnace Delay							
10/9/2003 14:48	1.6	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Furnace Delay							
10/9/2003 14:49	1.6	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Furnace Delay							
10/9/2003 14:50	1.6	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Furnace Delay							
10/9/2003 14:51	1.5	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Furnace Delay							
10/9/2003 14:52	1.4	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Furnace Delay							
10/9/2003 14:53	1.2	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Furnace Delay							
10/9/2003 14:54	0.8	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Furnace Delay							
10/9/2003 14:55	0.8	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Furnace Delay							
10/9/2003 14:56	0.9	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Furnace Delay							
10/9/2003 14:57	1.1	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Furnace Delay							
10/9/2003 14:58	1.4	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Furnace Delay							
10/9/2003 14:59	1.5	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Furnace Delay							
10/9/2003 15:00	1.6	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Furnace Delay							
10/9/2003 15:01	1.7	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Furnace Delay							
10/9/2003 15:02	1.7	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Furnace Delay							
10/9/2003 15:03	2.1	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Furnace Delay							
10/9/2003 15:04	2.6	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Furnace Delay							
10/9/2003 15:05	2.7	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Furnace Delay							
10/9/2003 15:06	2.8	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Furnace Delay							
10/9/2003 15:07	3.5	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Furnace Delay							
10/9/2003 15:08	4.1	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	4.1	818363	24.03	0.170
10/9/2003 15:09	4.6	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	4.6	818363	27.19	0.192
10/9/2003 15:10	4.4	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	4.4	818363	25.93	0.183
10/9/2003 15:11	5.8	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	5.8	818363	34.14	0.241
10/9/2003 15:12	5.5	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	5.6	818363	32.56	0.230
10/9/2003 15:13	4.2	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	4.3	818363	24.97	0.176
10/9/2003 15:14	2.2	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	2.2	818363	12.96	0.092
10/9/2003 15:15	1.0	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	1.0	818363	6.01	0.042
10/9/2003 15:16	0.8	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	0.8	818363	4.74	0.034
10/9/2003 15:17	3.0	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	3.0	818363	17.39	0.123
10/9/2003 15:18	5.9	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	5.9	818363	34.46	0.244
10/9/2003 15:19	8.7	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	8.7	818363	51.22	0.362
10/9/2003 15:20	9.8	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	9.8	818363	57.53	0.407
10/9/2003 15:21	13.7	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	13.7	818363	80.61	0.570
10/9/2003 15:22	6.8	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	6.8	818363	39.83	0.282
10/9/2003 15:23	2.0	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	2.0	818363	12.01	0.085
10/9/2003 15:24	1.1	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	1.1	818363	6.64	0.047
10/9/2003 15:25	1.3	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	1.3	818363	7.59	0.054
10/9/2003 15:26	1.7	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	1.7	818363	10.12	0.072
10/9/2003 15:27	1.8	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	1.8	818363	10.75	0.076
10/9/2003 15:28	2.4	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	2.4	818363	13.91	0.098
10/9/2003 15:29	1.8	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	1.8	818363	10.75	0.076
10/9/2003 15:30	1.3	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	1.3	818363	7.90	0.056
10/9/2003 15:31	1.5	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	1.5	818363	8.85	0.063
10/9/2003 15:32	2.1	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	2.2	818363	12.65	0.089
10/9/2003 15:33	3.0	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	3.0	818363	17.39	0.123
10/9/2003 15:34	3.5	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	3.5	818363	20.55	0.145

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

October 9, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_s	NOx C_{ss}	NOx $C_{ss,A}$	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Nox, Pounds per Ton
10/9/2003 15:35	3.4	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	3.4	818363	19.92	0.141
10/9/2003 15:36	2.9	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	2.9	818363	17.07	0.121
10/9/2003 15:37	3.7	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	3.7	818363	21.50	0.152
10/9/2003 15:38	4.4	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	4.4	818363	25.93	0.183
10/9/2003 15:39	4.2	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	4.2	818363	24.66	0.174
10/9/2003 15:40	4.3	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	4.3	818363	25.29	0.179
10/9/2003 15:41	18.8	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	18.9	818363	110.96	0.784
10/9/2003 15:42	14.3	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	14.3	818363	84.10	0.594
10/9/2003 15:43	2.8	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	2.9	818363	16.75	0.118
10/9/2003 15:44	2.3	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	2.3	818363	13.28	0.094
10/9/2003 15:45	2.7	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	2.7	818363	15.81	0.112
10/9/2003 15:46	2.9	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	2.9	818363	17.07	0.121
10/9/2003 15:47	3.2	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	3.2	818363	18.66	0.132
10/9/2003 15:48	3.5	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	3.5	818363	20.55	0.145
10/9/2003 15:49	3.7	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	3.7	818363	21.50	0.152
10/9/2003 15:50	6.4	3		0	1	0.00	B3J569	158.00	67	141.49	141.49	Run 3	0.0	25.0	25.1	6.5	818363	37.94	0.268
10/9/2003 15:51	18.7										147.88					4.84	818363	28.38	0.190
10/9/2003 15:52	21.4																		
10/9/2003 15:53	24.1																		
10/9/2003 15:54	25.7											25.1 ppm Cal							
10/9/2003 15:55	2.4																		
10/9/2003 15:56	2.3																		
10/9/2003 15:57	0.0											0.0 ppm Cal							
10/9/2003 15:58	0.1																		
10/9/2003 15:59	-16.4																		
10/9/2003 16:00	-21.1																		
10/9/2003 16:01	-25.8																		

SPECTRA GASES INC.
3434 Route 22 West • Branchburg, NJ 08876 USA Tel.: (908) 252-9300 • (800) 932-0624 • Fax: (908) 252-0811
Shipped From: 80 Industrial Drive • Alpha, NJ 08865



CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: IPSCO Steel, Inc.
SGI ORDER # : 0033156
ITEM# : 1
P.O.# : VERBAL-DAVID

CYLINDER # : CC-135361
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 2/18/2003
EXPIRATION DATE: 2/18/2005

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	2/10/2003 2/18/2003	24.94 ppm 25.04 ppm	25.0 ppm	+/- 1%
NOx			25.1 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	NTRM-82660	CC-133646	99.5 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	CAI-400-CLD	6L09004	Chemi	1/28/2003

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

ANALYST: _____ DATE: 2/18/2003
FRED PIKULA

SPECTRA GASES INC.
3434 Route 22 West • Branchburg, NJ 08876 USA Tel.: (908) 252-9300 • (800) 932-0624 • Fax: (908) 252-0811
Shipped From: 80 Industrial Drive • Alpha, NJ 08865



CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE
PROCEDURE # : G1

CUSTOMER: IPSCO Steel, Inc.
SGI ORDER # : 0033156
ITEM# : 2
P.O.# : VERBAL-DAVID

CYLINDER # : CC-85252
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 2/18/2003
EXPIRATION DATE: 2/18/2005

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	2/10/2003 2/18/2003	44.81 ppm 44.91 ppm	44.9 ppm	+/- 1%
NOx			45.1 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	NTRM-82660	CC-133646	99.5 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	CAI-400-CLD	6L09004	Chemi	1/28/2003

THIS STANDARD IS NIST TRACEABLE. IT 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

DATE: 2/18/2003

APPENDIX E

Facility Operating Data

EAF Heat Sheet 09-Oct-2003 09:59:12

IPSCO STEEL INC.
Montpelier Works

HEAT: B3J567 *MSP: 64155*

Start Time: 09-Oct-2003 07:24:09
End Time : 09-Oct-2003 09:26:53
TapToTap Time : 122 (min)

Heat Order : 0720601
Grade : J55
Ladle #: 6 CrewID: 2 OperatorID: 8

START	DUR	DELAY REASON
09:21:51	0005	Operational, Tap
09:19:39	0002	Operational, Slagoff
09:13:03	0006	Operational, Blow Carbon
08:56:52	0001	Operational, Pack scrap
08:44:37	0004	Operational, Charge
08:14:50	0012	Down Stream Processes, Waiting on Caste
07:24:56	0049	Operational, Charge Run A

CHARGES	AMOUNT
Charge 1 :	225100
Charge 2 :	110550
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0002000
FeMn	0000350
4oz AL Con	0000600
FeCb	0000100
LSR	0004400
Carbon	0001450
Dololime	0004085
HiCal Lime	0002300

122
- 49

73
- 12

61

15d / 61 = 155.4 TPH

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	56500	24700	31800	0	0	0
O2 Burner	SCF	64	20	44	0	0	0
Gas Burner	SCF	35	11	24	0	0	0
O2 Lance	SCF	851	147	704	0	0	0
Carbon Lance	LBS	1842	1578	264	0	0	0
TIMES							
Melting Tm	MIN	122	80	41	0	0	0
Power on Tm	MIN	40	17	23	0	0	0
Burner On Tm	MIN	48	14	34	0	0	0
O2Lance On Tm	MIN	43	11	31	0	0	0
CLance On Tm	MIN	8	0	7	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	370.3	219.5	336.7	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	34769.2	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.6	001.3	005.1	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	012.1	014.0	011.0	000.0	000.0	000.0

COMMENTS

pack on A DERRICK

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.17000	0.95000	0.02000	0.01000	0.20000	0.04000	0.00000	0.01500	0.00000	0.37600	0.50000	0.20000	0.20000	0.05000	0.05000	0.00400	0.04500	0.00000	0.02500	0.00000	0.00000	0.00000
MIN	0.15500	0.65000	0.00000	0.00000	0.10000	0.01800	0.01500	0.00000	0.00150	0.32900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00000	0.01500	0.00000	0.00000	0.00000
AIM	0.16000	0.00000	0.00000	0.00000	0.13000	0.02500	0.00000	0.00000	0.00000	0.34800	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.04000	0.00000	0.02000	0.00000	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: B3J567 MSP: 64155

---------- EVENTS ----------

TIME	KWH	Description
09:27:58	0000000	Heat End
09:27:00	0056500	Ladle Weigth
09:26:55	0056500	End Tapping
09:21:44	0056500	Start Tapping
09:19:42	0056500	Burners Off
09:18:54	0056500	Temperature <3040> O2 <9050> C <88>
09:14:32	0056500	Temperature <3018> O2 <4650> C <39>
09:13:25	0056500	Temperature <3019> O2 <12620> C <39>
09:13:02	0056500	Power Off
09:04:29	0044100	Material Addition
08:57:52	0034800	Power On
08:56:51	0034800	Power Off
08:48:37	0024700	Power On
08:45:28	0024700	Charge
08:44:35	0024700	Power Off
08:33:31	0007800	Power On
08:33:28	0007800	Power Off
08:33:27	0007800	Power On
08:33:26	0007800	Power Off
08:31:06	0004400	Burners On
08:26:59	0000000	Melting
08:26:57	0000000	Power On
08:13:16	0000000	Material Addition
08:12:35	0000000	Material Addition
08:11:05	0000000	Material Addition
07:49:24	0000000	Charge
07:24:11	0000000	TurnAround

EAF Heat Sheet 09-Oct-2003 09:59:12

IPSCO STEEL INC.
Montpelier Works

HEAT: B3J567 MSP: 64155

Start Time: 09-Oct-2003 07:24:09
End Time : 09-Oct-2003 09:26:53
TapToTap Time : 122 (min)

Heat Order : 0720601
Grade : J55
Ladle #: 6 CrewID: 2 OperatorID: 8

START	DUR	DELAY REASON
09:21:51	0005	Operational, Tap
09:19:39	0002	Operational, Slagoff
09:13:03	0006	Operational, Blow Carbon
08:56:52	0001	Operational, Pack scrap
08:44:37	0004	Operational, Charge
08:14:50	0012	Down Stream Processes, Waiting on Caste
07:24:56	0049	Operational, Charge Run A

CHARGES	AMOUNT
Charge 1 :	225100
Charge 2 :	110550
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0002000
FeMn	0000350
4oz AL Con	0000600
FeCb	0000100
LSR	0004400
Carbon	0001450
Dololime	0004085
HiCal Lime	0002300

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	56500	24700	31800	0	0	0
O2 Burner	SCF	64	20	44	0	0	0
Gas Burner	SCF	35	11	24	0	0	0
O2 Lance	SCF	851	147	704	0	0	0
Carbon Lance	LBS	1842	1578	264	0	0	0
TIMES							
Melting Tm	MIN	122	80	41	0	0	0
Power on Tm	MIN	40	17	23	0	0	0
Burner On Tm	MIN	48	14	34	0	0	0
O2Lance On Tm	MIN	43	11	31	0	0	0
CLance On Tm	MIN	8	0	7	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	370.3	219.5	336.7	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	34769.2	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.6	001.3	005.1	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	012.1	014.0	011.0	000.0	000.0	000.0

COMMENTS

pack on A DERRICK

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.17000	0.95000	0.02000	0.01000	0.20000	0.04000	0.00000	0.01500	0.00000	0.37600	0.50000	0.20000	0.20000	0.05000	0.05000	0.00400	0.04500	0.00000	0.02500	0.00000	0.00000	0.00000
MIN	0.15500	0.65000	0.00000	0.00000	0.10000	0.01800	0.01500	0.00000	0.00150	0.32900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00000	0.01500	0.00000	0.00000	0.00000
AIM	0.16000	0.00000	0.00000	0.00000	0.13000	0.02500	0.00000	0.00000	0.00000	0.34800	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.04000	0.00000	0.02000	0.00000	0.00000	0.00000

EAF Heat Sheet 09-Oct-2003 09:59:12

IPSCO STEEL INC.
Montpelier Works

HEAT: B3J567 MSP: 64155

---------- EVENTS ----------

TIME	KWH	Description
09:27:58	0000000	Heat End
09:27:00	0056500	Ladle Weigth
09:26:55	0056500	End Tapping
09:21:44	0056500	Start Tapping
09:19:42	0056500	Burners Off
09:18:54	0056500	Temperature <3040> O2 <9050> C <88>
09:14:32	0056500	Temperature <3018> O2 <4650> C <39>
09:13:25	0056500	Temperature <3019> O2 <12620> C <39>
09:13:02	0056500	Power Off
09:04:29	0044100	Material Addition
08:57:52	0034800	Power On
08:56:51	0034800	Power Off
08:48:37	0024700	Power On
08:45:28	0024700	Charge
08:44:35	0024700	Power Off
08:33:31	0007800	Power On
08:33:28	0007800	Power Off
08:33:27	0007800	Power On
08:33:26	0007800	Power Off
08:31:06	0004400	Burners On
08:26:59	0000000	Melting
08:26:57	0000000	Power On
08:13:16	0000000	Material Addition
08:12:35	0000000	Material Addition
08:11:05	0000000	Material Addition
07:49:24	0000000	Charge
07:24:11	0000000	TurnAround

EAF Heat Sheet 09-Oct-2003 08:23:02

IPSCO STEEL INC.
Montpelier Works

HEAT: A3J103 *MSP: 16131*

Start Time: 09-Oct-2003 06:34:18
End Time : 09-Oct-2003 08:22:46
TapToTap Time : 107 (min)

Heat Order : 0810303
Grade : A656-70-T7
Ladle #: 0 CrewID: 3 OperatorID: 24

START	DUR	DELAY REASON
08:12:56	0000	Operational, Slagoff
07:55:35	0000	Operational, Sidewall RTD trip
07:54:01	0000	Operational, Sidewall RTD trip
07:51:21	0001	Operational, Pack scrap
07:38:40	0004	Operational, Charge
07:11:11	0008	Operational, Charge run B
06:35:05	0036	Operational, Charge run B

Power On 7:19
8:22
63 mins.

CHARGES	AMOUNT
Charge 1 :	227200
Charge 2 :	129600
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
FeMn	0003000
LC FeMn	0001100
4oz AL Con	0000600
FeVan	0000150
LSR	0004550
Carbon	0001140
Dololime	0008145
HiCal Lime	0004585

158 / 63 =

150.5 TPH

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	61700	25500	36200	0	0	0
O2 Burner	SCF	72	32	40	0	0	0
Gas Burner	SCF	31	14	17	0	0	0
O2 Lance	SCF	812	126	686	0	0	0
Carbon Lance	LBS	3762	3832	-70	0	0	0
TIMES							
Melting Tm	MIN	107	65	42	0	0	0
Power on Tm	MIN	44	18	26	0	0	0
Burner On Tm	MIN	61	28	33	0	0	0
O2Lance On Tm	MIN	44	13	31	0	0	0
CLance On Tm	MIN	16	3	12	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	380.4	224.5	345.9	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	39410.9	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.0	001.1	004.6	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	023.2	033.7	021.1	000.0	000.0	000.0

COMMENTS

pack on B p27

ELEM	C	Mn	P	S	SI	Al	SA	N	CA	CQ	Cu	NI	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.16400	1.30000	0.02000	0.01000	0.05000	0.03900	0.00000	0.01500	0.00000	0.44800	0.40000	0.20000	0.20000	0.05000	0.02000	0.00400	0.04500	0.08500	0.01000	0.00000	0.00000	0.00000
MIN	0.14400	1.20000	0.00000	0.00000	0.00000	0.01800	0.00000	0.00000	0.00070	0.41000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.07500	0.00600	0.00000	0.00000	0.00000
AIM	0.15000	1.25000	0.00000	0.00000	0.00000	0.02500	0.00000	0.00000	0.00000	0.42500	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.04000	0.08000	0.00700	0.00000	0.00000	0.00000

HEAT: A3J103 MSP: 16131

EVENTS

TIME	KWH	Description
08:22:52	0061700	Ladle Weigth
08:22:50	0061700	End Tapping
08:21:06	0061700	Start Tapping
08:13:37	0061700	Burners Off
08:12:54	0061700	Power Off
08:12:42	0061400	Temperature <2988> O2 <7220> C <47>
08:11:30	0059800	Temperature <2937> O2 <7030> C <54>
07:57:23	0038800	Material Addition
07:56:34	0037800	Power On
07:55:33	0037800	Power Off
07:54:34	0036500	Power On
07:53:59	0036500	Power Off
07:52:34	0034700	Power On
07:51:19	0034700	Power Off
07:48:13	0030200	Power On
07:47:58	0030200	Power Off
07:43:24	0025500	Power On
07:40:18	0025500	Charge
07:38:38	0025500	Power Off
07:24:57	0005200	Burners On
07:19:15	0000000	Melting
07:19:14	0000000	Power On
07:07:45	0000000	Material Addition
06:48:50	0000000	Charge
06:47:33	0000000	Burners Off
06:34:20	0000000	TurnAround

EAF Heat Sheet 09-Oct-2003 08:23:02

IPSCO STEEL INC.
Montpelier Works

HEAT: A3J103 *MSP: 16131*

Start Time: 09-Oct-2003 06:34:18
End Time : 09-Oct-2003 08:22:46
TapToTap Time : 107 (min)

Heat Order : 0810303
Grade : A656-70-T7
Ladle #: 0 CrewID: 3 OperatorID: 24

START	DUR	DELAY REASON
08:12:56	0000	Operational, Slagoff
07:55:35	0000	Operational, Sidewall RTD trip
07:54:01	0000	Operational, Sidewall RTD trip
07:51:21	0001	Operational, Pack scrap
07:38:40	0004	Operational, Charge
07:11:11	0008	Operational, Charge run B
06:35:05	0036	Operational, Charge run B

CHARGES	AMOUNT
Charge 1 :	227200
Charge 2 :	129600
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
FeMn	0003000
LC FeMn	0001100
4oz AL Con	0000600
FeVan	0000150
LSR	0004550
Carbon	0001140
Dololime	0008145
HiCal Lime	0004585

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	61700	25500	36200	0	0	0
O2 Burner	SCF	72	32	40	0	0	0
Gas Burner	SCF	31	14	17	0	0	0
O2 Lance	SCF	812	126	686	0	0	0
Carbon Lance	LBS	3762	3832	-70	0	0	0
TIMES							
Melting Tm	MIN	107	65	42	0	0	0
Power on Tm	MIN	44	18	26	0	0	0
Burner On Tm	MIN	61	28	33	0	0	0
O2Lance On Tm	MIN	44	13	31	0	0	0
CLance On Tm	MIN	16	3	12	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	380.4	224.5	345.9	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	39410.9	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.0	001.1	004.6	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	023.2	033.7	021.1	000.0	000.0	000.0

COMMENTS

pack on B p27

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.16400	1.30000	0.02000	0.01000	0.05000	0.03900	0.00000	0.01500	0.00000	0.44800	0.40000	0.20000	0.20000	0.05000	0.02000	0.00400	0.04500	0.08500	0.01000	0.00000	0.00000	0.00000
MIN	0.14400	1.20000	0.00000	0.00000	0.00000	0.01800	0.00000	0.00000	0.00070	0.41000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.07500	0.00600	0.00000	0.00000	0.00000
AIM	0.15000	1.25000	0.00000	0.00000	0.00000	0.02500	0.00000	0.00000	0.00000	0.42500	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.04000	0.08000	0.00700	0.00000	0.00000	0.00000

HEAT: A3J103 MSP: 16131

---------- EVENTS ----------

TIME	KWH	Description
08:22:52	0061700	Ladle Weigth
08:22:50	0061700	End Tapping
08:21:06	0061700	Start Tapping
08:13:37	0061700	Burners Off
08:12:54	0061700	Power Off
08:12:42	0061400	Temperature <2988> O2 <7220> C <47>
08:11:30	0059800	Temperature <2937> O2 <7030> C <54>
07:57:23	0038800	Material Addition
07:56:34	0037800	Power On
07:55:33	0037800	Power Off
07:54:34	0036500	Power On
07:53:59	0036500	Power Off
07:52:34	0034700	Power On
07:51:19	0034700	Power Off
07:48:13	0030200	Power On
07:47:58	0030200	Power Off
07:43:24	0025500	Power On
07:40:18	0025500	Charge
07:38:38	0025500	Power Off
07:24:57	0005200	Burners On
07:19:15	0000000	Melting
07:19:14	0000000	Power On
07:07:45	0000000	Material Addition
06:48:50	0000000	Charge
06:47:33	0000000	Burners Off
06:34:20	0000000	TurnAround

EAF Heat Sheet 09-Oct-2003 12:14:40

IPSCO STEEL INC.
Montpelier Works

HEAT: A3J104 MSP: 64155

Start Time: 09-Oct-2003 08:23:51
End Time : 09-Oct-2003 12:14:07
TapToTap Time : 229 (min)

Heat Order : 0720602
Grade : J55
Ladle #: 10 CrewID: 3 OperatorID: 24

START	DUR	DELAY REASON
12:09:32	0000	Operational, Tap
12:07:32	0002	Operational, Rebar Taphole
12:03:14	0004	Operational, Slagoff
11:33:19	0010	Other, New Other
11:24:34	0003	Operational, Pack scrap
11:22:34	0002	Operational, Charge
11:19:43	0001	Operational, Sidewall RTD trip
11:15:51	0000	Operational, Sidewall RTD trip
09:17:02	0103	Down Stream Processes, Waiting on Caste
08:24:38	0052	Operational, Charge run B

CHARGES	AMOUNT
Charge 1 :	226650
Charge 2 :	135600
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0002000
FeMn	0000350
4oz AL Con	0000600
FeCb	0000100
LSR	0004400
Carbon	0001475
Dololime	0008160
HiCal Lime	0004600
Kwikflux 6	0001475
MW13	0008160

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	61600	28100	33500	0	0	0
O2 Burner	SCF	64	17	47	0	0	0
Gas Burner	SCF	26	7	19	0	0	0
O2 Lance	SCF	634	166	468	0	0	0
Carbon Lance	LBS	950	280	670	0	0	0
TIMES							
Melting Tm	MIN	229	179	50	0	0	0
Power on Tm	MIN	44	20	23	0	0	0
Burner On Tm	MIN	59	18	40	0	0	0
O2Lance On Tm	MIN	39	16	23	0	0	0
CLance On Tm	MIN	15	5	10	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	374.1	248.0	340.1	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	18498.5	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	003.9	001.5	003.5	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.1	000.0	000.0	000.0
Carbon Ton	LBS/Ton	005.8	002.5	005.2	000.0	000.0	000.0

229
- 10
- 103
- 52
64

158/64 = 148.1 TPH

COMMENTS

lost main breaker r9 chad

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.17000	0.95000	0.02000	0.01000	0.20000	0.04000	0.00000	0.01500	0.00000	0.37600	0.50000	0.20000	0.20000	0.05000	0.05000	0.00400	0.04500	0.00000	0.02500	0.00000	0.00000	0.00000
MIN	0.15500	0.65000	0.00000	0.00000	0.10000	0.01800	0.01500	0.00000	0.00150	0.32900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00000	0.01500	0.00000	0.00000	0.00000
AIM	0.16000	0.00000	0.00000	0.00000	0.13000	0.02500	0.00000	0.00000	0.00000	0.34800	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.04000	0.00000	0.02000	0.00000	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: A3J104 MSP: 64155

---------- EVENTS ----------

TIME	KWH	Description
12:14:13	0061600	Ladle Weigth
12:14:09	0061600	End Tapping
12:07:59	0061600	Start Tapping
12:03:49	0061600	Burners Off
12:03:18	0061600	Temperature <2974> O2 <7440> C <52>
12:03:12	0061600	Power Off
12:02:12	0060100	Temperature <2936> O2 <7220> C <52>
11:44:06	0033700	Power On
11:42:53	0033700	Material Addition
11:33:18	0033700	Power Off
11:28:27	0028100	Power On
11:23:32	0028100	Charge
11:22:32	0028100	Power Off
11:20:45	0025500	Power On
11:19:41	0025500	Power Off
11:16:34	0020800	Power On
11:15:49	0020800	Power Off
11:04:45	0003900	Burners On
11:00:37	0000000	Melting
11:00:36	0000000	Power On
09:37:44	0000000	Material Addition
08:54:19	0000000	Charge
08:23:53	0000000	TurnAround

EAF Heat Sheet 09-Oct-2003 12:14:40

IPSCO STEEL INC.
Montpelier Works

HEAT: A3J104 *MSP: 64155*

Start Time: 09-Oct-2003 08:23:51
End Time : 09-Oct-2003 12:14:07
TapToTap Time : 229 (min)

Heat Order : 0720602
Grade : J55
Ladle #: 10 CrewID: 3 OperatorID: 24

START	DUR	DELAY REASON
12:09:32	0000	Operational, Tap
12:07:32	0002	Operational, Rebar Taphole
12:03:14	0004	Operational, Slagoff
11:33:19	0010	Other, New Other
11:24:34	0003	Operational, Pack scrap
11:22:34	0002	Operational, Charge
11:19:43	0001	Operational, Sidewall RTD trip
11:15:51	0000	Operational, Sidewall RTD trip
09:17:02	0103	Down Stream Processes, Waiting on Caste
08:24:38	0052	Operational, Charge run B

CHARGES	AMOUNT
Charge 1	226650
Charge 2	135600
Charge 3	0
Charge 4	0
Charge 5	0

ADDITIONS	LBS
SiMn	0002000
FeMn	0000350
4oz AL Con	0000600
FeCb	0000100
LSR	0004400
Carbon	0001475
Dololime	0008160
HiCal Lime	0004600
Kwikflux 6	0001475
MW13	0008160

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	61600	28100	33500	0	0	0
O2 Burner	SCF	64	17	47	0	0	0
Gas Burner	SCF	26	7	19	0	0	0
O2 Lance	SCF	634	166	468	0	0	0
Carbon Lance	LBS	950	280	670	0	0	0
TIMES							
Melting Tm	MIN	229	179	50	0	0	0
Power on Tm	MIN	44	20	23	0	0	0
Burner On Tm	MIN	59	18	40	0	0	0
O2Lance On Tm	MIN	39	16	23	0	0	0
CLance On Tm	MIN	15	5	10	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	374.1	248.0	340.1	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	18498.5	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	003.9	001.5	003.5	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.1	000.0	000.0	000.0
Carbon Ton	LBS/Ton	005.8	002.5	005.2	000.0	000.0	000.0

COMMENTS

lost main breaker r9 chad

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.17000	0.95000	0.02000	0.01000	0.20000	0.04000	0.00000	0.01500	0.00000	0.37600	0.50000	0.20000	0.20000	0.05000	0.05000	0.00400	0.04500	0.00000	0.02500	0.00000	0.00000	0.00000
MIN	0.15500	0.65000	0.00000	0.00000	0.10000	0.01800	0.01500	0.00000	0.00150	0.32900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00000	0.01500	0.00000	0.00000	0.00000
AIM	0.16000	0.00000	0.00000	0.00000	0.13000	0.02500	0.00000	0.00000	0.00000	0.34800	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.04000	0.00000	0.02000	0.00000	0.00000	0.00000

EAF Heat Sheet 09-Oct-2003 12:14:41

IPSCO STEEL INC.
Montpelier Works

HEAT: A3J104 MSP: 64155

---------- EVENTS ----------

TIME	KWH	Description
12:14:13	0061600	Ladle Weigth
12:14:09	0061600	End Tapping
12:07:59	0061600	Start Tapping
12:03:49	0061600	Burners Off
12:03:18	0061600	Temperature <2974> O2 <7440> C <52>
12:03:12	0061600	Power Off
12:02:12	0060100	Temperature <2936> O2 <7220> C <52>
11:44:06	0033700	Power On
11:42:53	0033700	Material Addition
11:33:18	0033700	Power Off
11:28:27	0028100	Power On
11:23:32	0028100	Charge
11:22:32	0028100	Power Off
11:20:45	0025500	Power On
11:19:41	0025500	Power Off
11:16:34	0020800	Power On
11:15:49	0020800	Power Off
11:04:45	0003900	Burners On
11:00:37	0000000	Melting
11:00:36	0000000	Power On
09:37:44	0000000	Material Addition
08:54:19	0000000	Charge
08:23:53	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: B3J568 *MSP: 64155*

Start Time: 09-Oct-2003 09:27:56
End Time : 09-Oct-2003 13:06:56
TapToTap Time : 218 (min)

Heat Order : 0720603
Grade : J55
Ladle #: 7 CrewID: 2 OperatorID: 8

START	DUR	DELAY REASON
13:01:27	0000	Operational, Tap
12:56:09	0005	Operational, Slagoff
12:40:15	0000	Operational, Pack scrap
12:36:45	0001	Operational, Sidewall RTD trip
12:34:38	0000	Operational, Sidewall RTD trip
12:21:28	0004	Operational, Charge
09:28:44	0156	Operational, Charge Run A

218
− 156
62

156/62 = 152.9 TPH

CHARGES	AMOUNT
Charge 1 :	226300
Charge 2 :	225150
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0002000
FeMn	0000350
4oz AL Con	0000600
FeCb	0000100
LSR	0004400
Carbon	0002915
Dololime	0008170
HiCal Lime	0004605
Kwikflux 6	0002915
MW13	0008170

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	57200	31700	25500	0	0	0
O2 Burner	SCF	64	37	27	0	0	0
Gas Burner	SCF	35	21	14	0	0	0
O2 Lance	SCF	889	202	687	0	0	0
Carbon Lance	LBS	1303	1253	50	0	0	0
TIMES							
Melting Tm	MIN	218	183	34	0	0	0
Power on Tm	MIN	44	23	21	0	0	0
Burner On Tm	MIN	48	23	24	0	0	0
O2Lance On Tm	MIN	45	20	24	0	0	0
CLance On Tm	MIN	13	2	11	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	278.7	280.2	253.4	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	16005.0	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.3	001.8	003.9	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.2	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	006.3	011.1	005.8	000.0	000.0	000.0

COMMENTS

pack on A chad

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.17000	0.95000	0.02000	0.01000	0.20000	0.04000	0.00000	0.01500	0.00000	0.37600	0.50000	0.20000	0.20000	0.05000	0.05000	0.00400	0.04500	0.00000	0.02500	0.00000	0.00000	0.00000
MIN	0.15500	0.65000	0.00000	0.00000	0.10000	0.01800	0.01500	0.00000	0.00150	0.32900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00000	0.01500	0.00000	0.00000	0.00000
AIM	0.16000	0.00000	0.00000	0.00000	0.13000	0.02500	0.00000	0.00000	0.00000	0.34800	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.04000	0.00000	0.02000	0.00000	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: B3J568 MSP: 64155

---------- EVENTS ----------

TIME	KWH	Description
13:07:02	0057200	Ladle Weigth
13:06:58	0057200	End Tapping
13:01:49	0057200	Start Tapping
12:57:26	0057200	Temperature <3071> O2 <10740> C <48>
12:57:05	0057200	Burners Off
12:56:07	0057200	Power Off
12:56:05	0057200	Temperature <3037> O2 <9050> C <48>
12:55:34	0056700	Power On
12:55:26	0056700	Power Off
12:40:35	0039300	Power On
12:40:13	0039300	Power Off
12:40:06	0039200	Material Addition
12:37:50	0036800	Power On
12:36:43	0036700	Power Off
12:35:31	0035400	Power On
12:34:37	0035400	Power Off
12:32:08	0031700	Charge
12:25:28	0023700	Power On
12:21:27	0023700	Power Off
12:09:00	0004500	Burners On
12:04:53	0000000	Melting
12:04:52	0000000	Power On
09:55:54	0000000	Material Addition
09:32:30	0000000	Charge
09:27:59	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: B3J568 *MSP: 64155*

Start Time: 09-Oct-2003 09:27:56
End Time : 09-Oct-2003 13:06:56
TapToTap Time : 218 (min)

Heat Order : 0720603
Grade : J55
Ladle #: 7 CrewID: 2 OperatorID: 8

START	DUR	DELAY REASON
13:01:27	0000	Operational, Tap
12:56:09	0005	Operational, Slagoff
12:40:15	0000	Operational, Pack scrap
12:36:45	0001	Operational, Sidewall RTD trip
12:34:38	0000	Operational, Sidewall RTD trip
12:21:28	0004	Operational, Charge
09:28:44	0156	Operational, Charge Run A

CHARGES	AMOUNT
Charge 1 :	226300
Charge 2 :	225150
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0002000
FeMn	0000350
4oz AL Con	0000600
FeCb	0000100
LSR	0004400
Carbon	0002915
Dololime	0008170
HiCal Lime	0004605
Kwikflux 6	0002915
MW13	0008170

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	57200	31700	25500	0	0	0
O2 Burner	SCF	64	37	27	0	0	0
Gas Burner	SCF	35	21	14	0	0	0
O2 Lance	SCF	889	202	687	0	0	0
Carbon Lance	LBS	1303	1253	50	0	0	0
TIMES							
Melting Tm	MIN	218	183	34	0	0	0
Power on Tm	MIN	44	23	21	0	0	0
Burner On Tm	MIN	48	23	24	0	0	0
O2Lance On Tm	MIN	45	20	24	0	0	0
CLance On Tm	MIN	13	2	11	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	278.7	280.2	253.4	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	16005.0	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.3	001.8	003.9	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.2	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	006.3	011.1	005.8	000.0	000.0	000.0

COMMENTS

pack on A chad

ELEM	C	Mn	P	S	SI	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.17000	0.95000	0.02000	0.01000	0.20000	0.04000	0.00000	0.01500	0.00000	0.37600	0.50000	0.20000	0.20000	0.05000	0.05000	0.00400	0.04500	0.00000	0.02500	0.00000	0.00000	0.00000
MIN	0.15500	0.65000	0.00000	0.00000	0.10000	0.01800	0.01500	0.00000	0.00150	0.32900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00000	0.01500	0.00000	0.00000	0.00000
AIM	0.16000	0.00000	0.00000	0.00000	0.13000	0.02500	0.00000	0.00000	0.00000	0.34800	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.04000	0.00000	0.02000	0.00000	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: B3J568 MSP: 64155

---------- EVENTS ----------

TIME	KWH	Description
13:07:02	0057200	Ladle Weigth
13:06:58	0057200	End Tapping
13:01:49	0057200	Start Tapping
12:57:26	0057200	Temperature <3071> O2 <10740> C <48>
12:57:05	0057200	Burners Off
12:56:07	0057200	Power Off
12:56:05	0057200	Temperature <3037> O2 <9050> C <48>
12:55:34	0056700	Power On
12:55:26	0056700	Power Off
12:40:35	0039300	Power On
12:40:13	0039300	Power Off
12:40:06	0039200	Material Addition
12:37:50	0036800	Power On
12:36:43	0036700	Power Off
12:35:31	0035400	Power On
12:34:37	0035400	Power Off
12:32:08	0031700	Charge
12:25:28	0023700	Power On
12:21:27	0023700	Power Off
12:09:00	0004500	Burners On
12:04:53	0000000	Melting
12:04:52	0000000	Power On
09:55:54	0000000	Material Addition
09:32:30	0000000	Charge
09:27:59	0000000	TurnAround

EAF Heat Sheet 09-Oct-2003 14:14:48

IPSCO STEEL INC.
Montpelier Works

HEAT: A3J105 *MSP: 64155*

Start Time: 09-Oct-2003 12:15:10
End Time : 09-Oct-2003 14:14:31
TapToTap Time : 119 (min)

Heat Order : 0720604
Grade : J55
Ladle #: 8 CrewID: 3 OperatorID: 24

START	DUR	DELAY REASON
14:09:49	0000	Operational, Tap
14:08:43	0001	Operational, Slagoff
14:04:37	0004	Operational, Blow Carbon
13:48:22	0000	Operational, Sidewall RTD trip
13:45:57	0000	Operational, Sidewall RTD trip
13:34:33	0004	Operational, Charge
13:19:00	0001	Operational, Pack scrap
12:56:15	0019	Operational, Charge run B
12:15:57	0040	Operational, Charge run B

CHARGES	AMOUNT
Charge 1 :	110050
Charge 2 :	109550
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0002000
FeMn	0000350
4oz AL Con	0000600
FeCb	0000100
Carbon	0002335
Dololime	0008155
HiCal Lime	0004600
Kwikflux 6	0002335
MW13	0008155

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	58700	27400	31300	0	0	0
O2 Burner	SCF	60	30	30	0	0	0
Gas Burner	SCF	26	13	13	0	0	0
O2 Lance	SCF	753	129	624	0	0	0
Carbon Lance	LBS	3135	667	2468	0	0	0
TIMES							
Melting Tm	MIN	119	86	32	0	0	0
Power on Tm	MIN	41	19	21	0	0	0
Burner On Tm	MIN	46	20	26	0	0	0
O2Lance On Tm	MIN	41	14	26	0	0	0
CLance On Tm	MIN	16	2	14	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	588.1	498.0	534.6	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	31315.9	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	007.5	002.3	006.9	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.3	000.2	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	031.4	012.1	028.6	000.0	000.0	000.0

119
− 19
− 40
60

$\frac{NT}{60} = 158$ TPH

COMMENTS

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.17000	0.95000	0.02000	0.01000	0.20000	0.04000	0.00000	0.01500	0.00000	0.37600	0.50000	0.20000	0.20000	0.05000	0.05000	0.00400	0.04500	0.00000	0.02500	0.00000	0.00000	0.00000
MIN	0.15500	0.65000	0.00000	0.00000	0.10000	0.01800	0.01500	0.00000	0.00150	0.32900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00000	0.01500	0.00000	0.00000	0.00000
AIM	0.16000	0.00000	0.00000	0.00000	0.13000	0.02500	0.00000	0.00000	0.00000	0.34800	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.04000	0.00000	0.02000	0.00000	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: A3J105 MSP: 64155

Start Time: 09-Oct-2003 12:15:10
End Time : 09-Oct-2003 14:14:31
TapToTap Time : 119 (min)

Heat Order : 0720604
Grade : J55
Ladle #: 8 CrewID: 3 OperatorID: 24

START	DUR	DELAY REASON
14:09:49	0000	Operational, Tap
14:08:43	0001	Operational, Slagoff
14:04:37	0004	Operational, Blow Carbon
13:48:22	0000	Operational, Sidewall RTD trip
13:45:57	0000	Operational, Sidewall RTD trip
13:34:33	0004	Operational, Charge
13:19:00	0001	Operational, Pack scrap
12:56:15	0019	Operational, Charge run B
12:15:57	0040	Operational, Charge run B

CHARGES	AMOUNT
Charge 1 :	110050
Charge 2 :	109550
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0002000
FeMn	0000350
4oz AL Con	0000600
FeCb	0000100
Carbon	0002335
Dololime	0008155
HiCal Lime	0004600
Kwikflux 6	0002335
MW13	0008155

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	58700	27400	31300	0	0	0
O2 Burner	SCF	60	30	30	0	0	0
Gas Burner	SCF	26	13	13	0	0	0
O2 Lance	SCF	753	129	624	0	0	0
Carbon Lance	LBS	3135	667	2468	0	0	0
TIMES							
Melting Tm	MIN	119	86	32	0	0	0
Power on Tm	MIN	41	19	21	0	0	0
Burner On Tm	MIN	46	20	26	0	0	0
O2Lance On Tm	MIN	41	14	26	0	0	0
CLance On Tm	MIN	16	2	14	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	588.1	498.0	534.6	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	31315.9	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	007.5	002.3	006.9	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.3	000.2	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	031.4	012.1	028.6	000.0	000.0	000.0

COMMENTS

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.17000	0.95000	0.02000	0.01000	0.20000	0.04000	0.00000	0.01500	0.00000	0.37600	0.50000	0.20000	0.20000	0.05000	0.05000	0.00400	0.04500	0.00000	0.02500	0.00000	0.00000	0.00000
MIN	0.15500	0.65000	0.00000	0.00000	0.10000	0.01800	0.01500	0.00000	0.00150	0.32900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00000	0.01500	0.00000	0.00000	0.00000
AIM	0.16000	0.00000	0.00000	0.00000	0.13000	0.02500	0.00000	0.00000	0.00000	0.34800	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.04000	0.00000	0.02000	0.00000	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: A3J105 MSP: 64155

---------- EVENTS ----------

TIME	KWH	Description
14:14:37	0058700	Ladle Weigth
14:14:33	0058700	End Tapping
14:12:18	0058700	Start Tapping
14:08:00	0058700	Burners Off
14:07:59	0058700	Temperature <3055> O2 <6730> C <67>
14:05:39	0058700	Temperature <3054> O2 <5830> C <49>
14:04:37	0058700	Temperature <3036> O2 <7440> C <49>
14:04:36	0058700	Power Off
13:50:25	0038000	Material Addition
13:48:56	0036000	Power On
13:48:21	0036000	Power Off
13:46:31	0033500	Power On
13:45:55	0033500	Power Off
13:41:52	0027400	Charge
13:39:14	0024300	Power On
13:34:32	0024300	Power Off
13:25:40	0010700	Power On
13:25:39	0010700	Power Off
13:25:38	0010700	Power On
13:25:27	0010700	Power Off
13:20:59	0004400	Burners On
13:20:40	0004000	Power On
13:20:39	0004000	Power Off
13:20:37	0004000	Power On
13:20:30	0004000	Power Off
13:20:29	0004000	Power On
13:18:58	0004000	Power Off
13:15:19	0000000	Melting
13:15:18	0000000	Power On
12:52:36	0000000	Material Addition
12:51:26	0000000	Material Addition
12:22:03	0000000	Charge
12:15:12	0000000	TurnAround

HEAT: A3J105 MSP: 64155

---------- EVENTS ----------

TIME	KWH	Description
14:14:37	0058700	Ladle Weigth
14:14:33	0058700	End Tapping
14:12:18	0058700	Start Tapping
14:08:00	0058700	Burners Off
14:07:59	0058700	Temperature <3055> O2 <6730> C <67>
14:05:39	0058700	Temperature <3054> O2 <5830> C <49>
14:04:37	0058700	Temperature <3036> O2 <7440> C <49>
14:04:36	0058700	Power Off
13:50:25	0038000	Material Addition
13:48:56	0036000	Power On
13:48:21	0036000	Power Off
13:46:31	0033500	Power On
13:45:55	0033500	Power Off
13:41:52	0027400	Charge
13:39:14	0024300	Power On
13:34:32	0024300	Power Off
13:25:40	0010700	Power On
13:25:39	0010700	Power Off
13:25:38	0010700	Power On
13:25:27	0010700	Power Off
13:20:59	0004400	Burners On
13:20:40	0004000	Power On
13:20:39	0004000	Power Off
13:20:37	0004000	Power On
13:20:30	0004000	Power Off
13:20:29	0004000	Power On
13:18:58	0004000	Power Off
13:15:19	0000000	Melting
13:15:18	0000000	Power On
12:52:36	0000000	Material Addition
12:51:26	0000000	Material Addition
12:22:03	0000000	Charge
12:15:12	0000000	TurnAround

EAF Heat Sheet 09-Oct-2003 15:51:17

IPSCO STEEL INC.
Montpelier Works

HEAT: B3J569 *MSP: 64155*

Start Time: 09-Oct-2003 13:07:59
End Time : 09-Oct-2003 15:50:41
TapToTap Time : 162 (min)

Heat Order : 0720605
Grade : J55
Ladle #: 0 CrewID: 2 OperatorID: 8

START	DUR	DELAY REASON
15:40:07	0000	Operational, Slagoff
15:39:07	0001	Operational, Sidewall RTD trip
15:18:54	0001	Operational, Sidewall RTD trip
15:16:34	0000	Operational, Sidewall RTD trip
14:29:21	0038	Mechanical, Change Burner Injector Lanc
14:25:21	0004	Operational, Charge
14:23:41	0000	Operational, Sidewall RTD trip
14:21:40	0001	Operational, Sidewall RTD trip
13:08:46	0057	Operational, Charge Run A

CHARGES	AMOUNT
Charge 1 :	225850
Charge 2 :	110150
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0002000
FeMn	0000350
4oz AL Con	0000610
FeCb	0000100
Carbon	0003325
Dololime	0008160
HiCal Lime	0002300

162
− 38
− 57
67

$\frac{158}{67} = 141.5$ TPH

COMMENTS

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	53600	19800	33800	0	0	0
O2 Burner	SCF	93	21	72	0	0	0
Gas Burner	SCF	51	12	39	0	0	0
O2 Lance	SCF	645	128	517	0	0	0
Carbon Lance	LBS	2036	3	2033	0	0	0
TIMES							
Melting Tm	MIN	162	79	82	0	0	0
Power on Tm	MIN	45	17	28	0	0	0
Burner On Tm	MIN	88	15	73	0	0	0
O2Lance On Tm	MIN	44	12	31	0	0	0
CLance On Tm	MIN	17	0	16	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	351.0	175.3	319.0	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	20844.8	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.2	001.1	003.8	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.3	000.1	000.3	000.0	000.0	000.0
Carbon Ton	LBS/Ton	013.3	000.0	012.1	000.0	000.0	000.0

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.17000	0.95000	0.02000	0.01000	0.20000	0.04000	0.00000	0.01500	0.00000	0.37600	0.50000	0.20000	0.20000	0.05000	0.05000	0.00400	0.04500	0.00000	0.02500	0.00000	0.00000	0.00000
MIN	0.15500	0.65000	0.00000	0.00000	0.10000	0.01800	0.01500	0.00000	0.00150	0.32900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00000	0.01500	0.00000	0.00000	0.00000
AIM	0.16000	0.00000	0.00000	0.00000	0.13000	0.02500	0.00000	0.00000	0.00000	0.34800	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.04000	0.00000	0.02000	0.00000	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: B3J569 MSP: 64155

---------- EVENTS ----------

TIME	KWH	Description
15:50:47	0053600	Ladle Weigth
15:50:43	0053600	End Tapping
15:47:31	0053600	Start Tapping
15:40:54	0053600	Temperature <3044> O2 <9580> C <43>
15:40:51	0053600	Burners Off
15:39:47	0053600	Temperature <3041> O2 <10740> C <43>
15:39:05	0053600	Power Off
15:20:02	0030800	Power On
15:18:52	0030800	Power Off
15:17:31	0029100	Power On
15:16:33	0029100	Power Off
15:08:19	0019800	Power On
14:41:23	0019800	Material Addition
14:27:43	0019800	Charge
14:25:19	0019800	Power Off
14:24:37	0018900	Power On
14:23:39	0018900	Power Off
14:22:43	0017700	Power On
14:21:38	0017700	Power Off
14:12:23	0003800	Burners On
14:06:08	0000000	Melting
14:06:07	0000000	Power On
13:34:58	0000000	Material Addition
13:16:25	0000000	Charge
13:08:01	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: B3J569 *MSP: 64155*

Start Time: 09-Oct-2003 13:07:59
End Time : 09-Oct-2003 15:50:41
TapToTap Time : 162 (min)

Heat Order : 0720605
Grade : J55
Ladle #: 0 CrewID: 2 OperatorID: 8

START	DUR	DELAY REASON
15:40:07	0000	Operational, Slagoff
15:39:07	0001	Operational, Sidewall RTD trip
15:18:54	0001	Operational, Sidewall RTD trip
15:16:34	0000	Operational, Sidewall RTD trip
14:29:21	0038	Mechanical, Change Burner Injector Lanc
14:25:21	0004	Operational, Charge
14:23:41	0000	Operational, Sidewall RTD trip
14:21:40	0001	Operational, Sidewall RTD trip
13:08:46	0057	Operational, Charge Run A

CHARGES	AMOUNT
Charge 1 : 225850	
Charge 2 : 110150	
Charge 3 : 0	
Charge 4 : 0	
Charge 5 : 0	

ADDITIONS	LBS
SiMn	0002000
FeMn	0000350
4oz AL Con	0000610
FeCb	0000100
Carbon	0003325
Dololime	0008160
HiCal Lime	0002300

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	53600	19800	33800	0	0	0
O2 Burner	SCF	93	21	72	0	0	0
Gas Burner	SCF	51	12	39	0	0	0
O2 Lance	SCF	645	128	517	0	0	0
Carbon Lance	LBS	2036	3	2033	0	0	0
TIMES							
Melting Tm	MIN	162	79	82	0	0	0
Power on Tm	MIN	45	17	28	0	0	0
Burner On Tm	MIN	88	15	73	0	0	0
O2Lance On Tm	MIN	44	12	31	0	0	0
CLance On Tm	MIN	17	0	16	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	351.0	175.3	319.0	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	20844.8	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.2	001.1	003.8	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.3	000.1	000.3	000.0	000.0	000.0
Carbon Ton	LBS/Ton	013.3	000.0	012.1	000.0	000.0	000.0

COMMENTS

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.17000	0.95000	0.02000	0.01000	0.20000	0.04000	0.00000	0.01500	0.00000	0.37600	0.50000	0.20000	0.20000	0.05000	0.05000	0.00400	0.04500	0.00000	0.02500	0.00000	0.00000	0.00000
MIN	0.15500	0.65000	0.00000	0.00000	0.10000	0.01800	0.01500	0.00000	0.00150	0.32900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00000	0.01500	0.00000	0.00000	0.00000
AIM	0.16000	0.00000	0.00000	0.00000	0.13000	0.02500	0.00000	0.00000	0.00000	0.34800	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.04000	0.00000	0.02000	0.00000	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: B3J569 MSP: 64155

---------- EVENTS ----------

TIME	KWH	Description
15:50:47	0053600	Ladle Weigth
15:50:43	0053600	End Tapping
15:47:31	0053600	Start Tapping
15:40:54	0053600	Temperature <3044> O2 <9580> C <43>
15:40:51	0053600	Burners Off
15:39:47	0053600	Temperature <3041> O2 <10740> C <43>
15:39:05	0053600	Power Off
15:20:02	0030800	Power On
15:18:52	0030800	Power Off
15:17:31	0029100	Power On
15:16:33	0029100	Power Off
15:08:19	0019800	Power On
14:41:23	0019800	Material Addition
14:27:43	0019800	Charge
14:25:19	0019800	Power Off
14:24:37	0018900	Power On
14:23:39	0018900	Power Off
14:22:43	0017700	Power On
14:21:38	0017700	Power Off
14:12:23	0003800	Burners On
14:06:08	0000000	Melting
14:06:07	0000000	Power On
13:34:58	0000000	Material Addition
13:16:25	0000000	Charge
13:08:01	0000000	TurnAround

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 10/9/2003 06:00:00 to 10/9/2003 17:00:00

Issue Date	: 10/10/200 11:06:51
Issued By	: Operations Planning
PBL Name	:3 scrap_consumption.pbl Created Date : 03/26/0
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0810301	10/09/2003	04:25:10	A3J102	0000000003	01	FRAG	019100	9.55
					02	2BN	007250	3.63
					03	BEACH IRON	024900	12.45
					04	CAST FE	012500	6.25
					06	FRAG	054750	27.38
					07	HM1	049050	24.53
					08	PITSCRAP	010550	5.28
					09	PROCREVERT	030150	15.08
					10	FRAG	011900	5.95
						0000000003 Total	**220150**	**110.08**
0810301	10/09/2003	05:23:02	A3J102	0000000003	01	HM2	067300	33.65
					02	PROCREVERT	009150	4.58
					04	FRAG	028500	14.25
					05	FRAG	047700	23.85
						0000000003 Total	**152650**	**76.33**
						A3J102 Total	**372800**	**186.40**
0782201	10/01/2003	22:35:22	A3J103	0000000004	05	MXTN	051100	25.55
					06	HM1	048650	24.33
						0000000004 Total	**99750**	**49.88**
0810303	10/09/2003	06:48:50	A3J103	0000000003	01	FRAG	019800	9.90
					02	2BN	008650	4.33
					03	BEACH IRON	019550	9.78
					04	CAST FE	016450	8.23
					06	FRAG	051900	25.95
					07	HM1	048650	24.33
					08	PITSCRAP	012400	6.20
					09	PROCREVERT	029900	14.95
					10	FRAG	014150	7.08
						0000000003 Total	**221450**	**110.73**
0810303	10/09/2003	07:40:17	A3J103	0000000003	01	HM2	066600	33.30
					02	PROCREVERT	008250	4.13
					04	FRAG	028600	14.30
					05	FRAG	020000	10.00
						0000000003 Total	**123450**	**61.72**
						A3J103 Total	**444650**	**222.33**
0720602	10/09/2003	08:54:18	A3J104	0000000003	01	FRAG	015150	7.58
					02	2BN	006600	3.30
					03	BEACH IRON	021050	10.53
					04	CAST FE	015250	7.63
					06	FRAG	052250	26.13
					07	HM1	047350	23.68
					08	PITSCRAP	013300	6.65
					09	PROCREVERT	010600	5.30
					10	HM2	039200	19.60
						0000000003 Total	**220750**	**110.38**
0720602	10/09/2003	11:23:32	A3J104	0000000003	01	HM2	065500	32.75

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 10/9/2003 06:00:00 to 10/9/2003 17:00:00

Issue Date	: 10/10/200 11:06:51
Issued By	: Operations Planning
PBL Name	:3 scrap_consumption.pbl Created Date : 03/26/0
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0720602	10/09/2003	11:23:32	A3J104	0000000003	02	PROCREVERT	004600	2.30
					04	FRAG	026600	13.30
					05	HM2	033750	16.88
						0000000003 Total	**130450**	**65.22**
						A3J104 Total	**351200**	**175.60**
0720603	10/09/2003	12:22:02	A3J105	0000000005	01	HM2	064550	32.28
					02	PROCREVERT	007350	3.68
					04	FRAG	024550	12.28
					05	HM2	008400	4.20
						0000000005 Total	**104850**	**52.43**
0720604	10/09/2003	13:41:52	A3J105	0000000003	01	HM2	065150	32.58
					02	PROCREVERT	005000	2.50
					04	FRAG	024350	12.18
					05	HM2	009650	4.83
						0000000003 Total	**104150**	**52.08**
						A3J105 Total	**209000**	**104.50**
0720606	10/09/2003	14:37:25	A3J106	0000000002	01	FRAG	014200	7.10
					02	2BN	006750	3.38
					03	BEACH IRON	019900	9.95
					04	BEACH IRON	014700	7.35
					06	FRAG	052450	26.23
					07	HM1	044200	22.10
					08	PITSCRAP	012350	6.18
					09	PROCREVERT	012950	6.48
					10	HM2	044500	22.25
						0000000002 Total	**222000**	**111.00**
0720606	10/09/2003	16:02:34	A3J106	0000000003	01	HM2	065500	32.75
					02	PROCREVERT	004250	2.13
					04	FRAG	026800	13.40
					05	HM2	028450	14.23
						0000000003 Total	**125000**	**62.50**
						A3J106 Total	**347000**	**173.50**
0810302	10/09/2003	05:44:50	B3J566	0000000004	01	FRAG	021050	10.53
					02	2BN	009500	4.75
					03	BEACH IRON	023050	11.53
					04	CAST FE	015300	7.65
					06	FRAG	050550	25.28
					07	HM1	046200	23.10
					08	PITSCRAP	009650	4.83
					09	PROCREVERT	030450	15.23
					10	FRAG	016450	8.23
						0000000004 Total	**222200**	**111.10**
0810302	10/09/2003	06:31:49	B3J566	0000000005	01	HM2	066550	33.28
					02	PROCREVERT	006900	3.45
					04	FRAG	027850	13.93

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 10/9/2003 06:00:00 to 10/9/2003 17:00:00

Issue Date	: 10/10/200 11:06:51
Issued By	: Operations Planning
PBL Name	:3 scrap_consumption.pbl Created Date : 03/26/0
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0810302	10/09/2003	06:31:49	B3J566	0000000005	05	FRAG	025150	12.58
						0000000005 Total	**126450**	**63.23**
						B3J566 Total	**348650**	**174.33**
0720601	10/09/2003	07:49:23	B3J567	0000000004	01	FRAG	015050	7.53
					02	2BN	005100	2.55
					03	BEACH IRON	021850	10.93
					04	CAST FE	013050	6.53
					06	FRAG	051350	25.68
					07	HM1	048150	24.08
					08	PITSCRAP	011150	5.58
					09	PROCREVERT	010200	5.10
					10	HM2	042250	21.13
						0000000004 Total	**218150**	**109.08**
0720601	10/09/2003	08:45:28	B3J567	0000000005	01	HM2	067100	33.55
					02	PROCREVERT	007700	3.85
					04	FRAG	020800	10.40
					05	HM2	007350	3.68
						0000000005 Total	**102950**	**51.47**
						B3J567 Total	**321100**	**160.55**
0720603	10/09/2003	09:32:29	B3J568	0000000005	01	FRAG	015350	7.68
					02	2BN	007350	3.68
					03	BEACH IRON	022350	11.18
					04	CAST FE	015950	7.98
					06	FRAG	050650	25.33
					07	HM1	050450	25.23
					08	PITSCRAP	009500	4.75
					09	PROCREVERT	013850	6.93
					10	HM2	034650	17.33
						0000000005 Total	**220100**	**110.05**
0720604	10/09/2003	12:32:08	B3J568	0000000003	01	FRAG	015200	7.60
					02	2BN	008100	4.05
					03	BEACH IRON	021900	10.95
					04	CAST FE	014700	7.35
					06	FRAG	055350	27.68
					07	HM1	044000	22.00
					08	PITSCRAP	010800	5.40
					09	PROCREVERT	010850	5.43
					10	HM2	039050	19.52
						0000000003 Total	**219950**	**109.98**
						B3J568 Total	**440050**	**220.03**
0720605	10/09/2003	13:16:24	B3J569	0000000005	01	FRAG	014400	7.20
					02	2BN	006400	3.20
					03	BEACH IRON	024100	12.05
					04	CAST FE	017100	8.55
					06	FRAG	050450	25.23

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 10/9/2003 06:00:00 to 10/9/2003 17:00:00

Issue Date	: 10/10/20(11:06:51
Issued By	: Operations Planning
PBL Name	:3 scrap_consumption.pbl Created Date : 03/26/0
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0720605	10/09/2003	13:16:24	B3J569	0000000005	07	HM1	044500	22.25
					08	PITSCRAP	012850	6.43
					09	PROCREVERT	010950	5.48
					10	HM2	038850	19.43
						0000000005 Total	**219600**	**109.80**
0720605	10/09/2003	14:27:43	B3J569	0000000005	01	HM2	064950	32.48
					02	PROCREVERT	006800	3.40
					04	FRAG	022150	11.08
					05	HM2	011050	5.53
						0000000005 Total	**104950**	**52.48**
						B3J569 Total	**324550**	**162.28**

Total Heats 9 **Total Weight for Time Period** 3159000 **Pounds** 1579.50 **Tons**

Meltshop Production

From)8/2003 23:00:00 to 10/09/2003 23:00:0(

Issue Date : 10/10/20(03:58:37
Issued By : Operations Planning
PBL Name :003 Production_Reporting.pbl Created Date : 03/19/2
Report Name :r_prod_a_meltshop_new Version : 2.0

Seq Id	Heat Id	Heat Order Id	Grade	Melt Practice	Tap Complete Time	Charge Weight	Slab Wgt.	Ht Abort Flag	Pourback Heat Id	Pourback Heat Wgt
J30029	B3J562	0806506	J55	64155	10/08/2003 23:09:23	173.90	157.48	Yes		
J30029	A3J099	0806507	J55	64155	10/09/2003 00:06:30	173.15	146.93	Yes		

Percent Yield:	86.4%	Total Scrap Charged:	1,439.60	Average Scrap Charge:	179.95
Heats in Sequence:	2	Total Tons Tapped:	1,243.54	Average Tap Weight:	155.44
Slabs Cast:	46	Tundish Skull:	3.79	Crop Loss:	1.73
Slab Weights:	1,235.17	Pit Scrap:	2.60	Kerf / Sample Loss:	0.25

J30030	B3J563	0804601	A414-G	75191	10/09/2003 01:21:32	172.45	156.99	Yes		
J30030	A3J100	0814401	1E0650	15140	10/09/2003 02:00:13	172.60	172.57	Yes		
J30030	B3J564	0814402	A572-50XF	15140	10/09/2003 03:14:02	177.73	137.67	Yes		

Percent Yield:	91.2%	Total Scrap Charged:	522.78	Average Scrap Charge:	174.26
Heats in Sequence:	3	Total Tons Tapped:	476.57	Average Tap Weight:	158.86
Slabs Cast:	18	Tundish Skull:	3.07	Crop Loss:	2.12
Slab Weights:	467.23	Pit Scrap:	3.90	Kerf / Sample Loss:	0.25

J30031	A3J101	0778301	A572-65-T3	16131	10/09/2003 04:17:29	177.03	153.51	Yes		
J30031	B3J565	0778302	A572-65-T3	16131	10/09/2003 05:15:32	177.70	168.08	Yes		

Percent Yield:	92.8%	Total Scrap Charged:	354.73	Average Scrap Charge:	166.61
Heats in Sequence:	2	Total Tons Tapped:	329.34	Average Tap Weight:	164.67
Slabs Cast:	15	Tundish Skull:	3.00	Crop Loss:	1.90
Slab Weights:	321.59	Pit Scrap:	2.60	Kerf / Sample Loss:	0.25

J30032	A3J102	0810301	A656-70-T7	16131	10/09/2003 06:33:13	186.40	181.55	Yes		
J30032	B3J566	0810302	A656-70-T7	16131	10/09/2003 07:23:06	174.33	154.30	Yes		
J30032	A3J103	0810303	A656-70-T7	16131	10/09/2003 08:22:46	172.45	152.69	Yes		

Percent Yield:	93.4%	Total Scrap Charged:	533.17	Average Scrap Charge:	177.73
Heats in Sequence:	3	Total Tons Tapped:	498.02	Average Tap Weight:	166.01
Slabs Cast:	17	Tundish Skull:	3.16	Crop Loss:	2.17
Slab Weights:	488.54	Pit Scrap:	3.90	Kerf / Sample Loss:	0.25

J30033	B3J567	0720601	J55	64155	10/09/2003 09:26:53	160.55	158.65	Yes		
J30033	A3J104	0720602	J55	64155	10/09/2003 12:14:07	175.60	158.70	Yes		
J30033	B3J568	0720603	J55	64155	10/09/2003 13:06:56	162.48	158.67	Yes		
J30033	A3J105	0720604	J55	64155	10/09/2003 14:14:31	162.05	158.71	Yes		
J30033	B3J569	0720605	J55	64155	10/09/2003 15:50:41	162.28	158.73	Yes		
J30033	A3J106	0720606	J55	64155	10/09/2003 16:44:51	173.50	174.38	Yes		

Percent Yield:	98.7%	Total Scrap Charged:	996.45	Average Scrap Charge:	166.08
Heats in Sequence:	6	Total Tons Tapped:	983.44	Average Tap Weight:	163.91
Slabs Cast:	31	Tundish Skull:	5.97	Crop Loss:	1.58
Slab Weights:	967.84	Pit Scrap:	7.80	Kerf / Sample Loss:	0.25

J30034	B3J570	0737801	A53-B-TE	14162	10/09/2003 18:27:51	163.57	162.40	Yes		
J30034	A3J107	0737802	A53-B-TE	14162	10/09/2003 19:20:06	165.60	162.48	Yes		
J30034	B3J571	0737803	A53-B-TE	14162	10/09/2003 20:30:03	177.13	140.62	Yes		

Percent Yield:	91.9%	Total Scrap Charged:	506.30	Average Scrap Charge:	168.77
Heats in Sequence:	3	Total Tons Tapped:	465.50	Average Tap Weight:	155.25
Slabs Cast:	15	Tundish Skull:	0.00	Crop Loss:	0.00
Slab Weights:	465.50	Pit Scrap:	0.00	Kerf / Sample Loss:	0.00

J30035	B3J572	0737902	X52	64052	10/09/2003 22:29:44	173.40	163.10	Yes		

Percent Yield:	94.1%	Total Scrap Charged:	173.40	Average Scrap Charge:	173.40
Heats in Sequence:	1	Total Tons Tapped:	163.10	Average Tap Weight:	163.35
Slabs Cast:	5	Tundish Skull:	0.00	Crop Loss:	0.00
Slab Weights:	163.10	Pit Scrap:	0.00	Kerf / Sample Loss:	0.00

Meltshop Production

From)8/2003 23:00:00 to 10/09/2003 23:00:0(

Issue Date : 10/10/20(03:58:37
Issued By : Operations Planning
PBL Name :003 Production_Reporting.pbl Created Date : 03/19/2
Report Name :r_prod_a_meltshop_new Version : 2.0

Seq Id	Heat Id	Heat Order Id	Grade	Melt Practice	Tap Complete Time	Charge Weight	Slab Wgt.	Ht Abort Flag	Pourback Heat Id	Pourback Heat Wgt
Z99999	A3J108	0737901	X52	64052	10/09/2003 22:01:18	175.65	150.00*	Yes		

Percent Yield:	807.6%	Total Scrap Charged:	871.28	Average Scrap Charge:	1.00
Heats in Sequence:	1	Total Tons Tapped:	7,036.06	Average Tap Weight:	8.61
Slabs Cast:	246	Tundish Skull:	0.00	Crop Loss:	0.00
Slab Weights:	7,036.06	Pit Scrap:	0.00	Kerf / Sample Loss:	0.00

Production Period Summary:

Percent Yield:	93.75%	Total Scrap Charged:	3,609.53	Average Scrap Charge:	170.86
Total Heats Tapped:	21	Total Liquid Metal Tapped:	3,383.95	Average Tap Weight:	161.14
		Total Caster Losses:	55.74		
Total Slab Casts:	114	Total Tundish Loss:	18.99	Total Pit Scrap Loss:	26.00
Total Slab Weights:	3328.21	Total Crop Loss:	9.50	Total Sample / Kerf Loss:	1.25

* Estimated - heats have not been cast.

R. SERIES / Initials Con 10-1 / MS
FACILITY ID 70-08-002
WK ACT / Doc Code ST / TR

EMISSION TEST REPORT

IPSCO STEEL, INC.
Montpelier, Iowa TEST

Third Quarter 2005
Oxides of Nitrogen and Sulfur Dioxide Test

August 10, 2005

R. SERIES/ Initials Con 10-1 / KLA
FACILITY ID 70-08-002
WK ACT/ Doc Code ST / TR
Permit # 94-A-548-S3
Date Rec. 9-13-05

Prepared By:

AAS Inc.

Ambient Air Services, Inc.

106 Ambient Airway • Starke, FL 32091 • (904) 964-8440 • Fax (904) 964-6675

LELAP Accredited Laboratory Certification Number 04064

LELAP Agency Interest Number 100329

ipsco

12 September 2005

Iowa Department of Natural Resources
Air Quality Bureau
Stack Test Coordinator
7900 Hickman Road
Suite 1
Urbandale, IA 50322

Re: Ipsco Steel Inc.-Montpelier, Iowa
Permit #94-A-548-S3
3rd Quarter NOx and SOx Test

Dear Mr. Mark Stone:

Attached are two copies of the 2005 third quarter NOx and SOx stack test report. This report is being provided in compliance with the above referenced permit. A copy of this report will also be forwarded to the USEPA Region VII.

If you have any questions regarding this information, please feel free to contact me at (563) 381-5584.

Sincerely,
Ipsco Steel Inc.

Matthew G. Cox
Environmental Manager

Cc: Richard Acquaviva-w/o attachments
Jeryl Olson-w/o attachments

ipsco steel inc.

1770 Bill Sharp Boulevard, Muscatine, Iowa 52761
Phone (563) 381-5300 Fax (563) 381-5329

EMISSION TEST REPORT

IPSCO STEEL, INC.
Montpelier, Iowa

Third Quarter 2005 Oxides of Nitrogen and Sulfur Dioxide Test

August 10, 2005

IDNR Permit Number(s)

EAF/LMF Meltshop Stack 94-A-548-S3

Prepared by:
AMBIENT AIR SERVICES, INC.
106 AMBIENT AIRWAY
STARKE, FLORIDA 32091
(904) 964-8440
LELAP Accredited Laboratory Certification Number: 04064
LELAP Agency Interest Number: 100329

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Revision History

Revision Number	Comments	Issue Date
0	Original issue to Matt Cox	August 26, 2005

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CERTIFICATION

Ambient Air Services, Inc. of Starke, Florida, has completed the testing as described in this report for IPSCO Steel Inc.'s Montpelier Works facility. To the best of our knowledge and abilities, all information, facts, and test data are true and correct. Information supplied to AASI for use in this report from IPSCO Steel is perceived to be accurate and is used as such where necessary.

This report contains pages 1 through 66.

This report was reviewed by:

Joseph L. Cooksey, Technical Director — Date: 8/29/05

David C. Sholtes, Quality Assurance Manager — Date: 8/29/05

Questions and or comments regarding this report or process conditions should be directed to:

Mr. Matt Cox
IPSCO Steel
1770 Bill Sharp Blvd.
Muscatine, IA 52761
Phone: 563-381-5584
Fax: 563-381-5406
Email: mcox@ipsco.com

Mr. Joseph L. Cooksey
Ambient Air Services, Inc.
106 Ambient Airway
Starke, FL 32091
Phone: 904-964-8440
Fax: 904-964-6675
Email: joecooksey@ambientairservices.com

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EXECUTIVE SUMMARY

Ambient Air Services, Inc. (AASI) conducted emission testing at the IPSCO Steel (Iowa) facility located in Montpelier, Iowa in order to satisfy specific requirements for quarterly testing as required in permit number IDNR-94-A-548-53. The testing included the determination of oxides of nitrogen (NO_x) and sulfur dioxide (SO_2) emissions from the EAF/LMF Baghouse Stack.

The results, summarized in Table 1, demonstrate compliance with the facilities oxides of nitrogen and sulfur dioxide emission limitations.

TABLE 1

EXECUTIVE SUMMARY IPSCO STEEL (IOWA), INC. MONTPELIER, IOWA AUGUST 10, 2005			
SOURCES	**PARAMETER(S)**	**ALLOWABLE EMISSIONS**	**TEST RESULTS**
EAF/LMF Baghouse Stack	Oxides of Nitrogen (NO_x) (reported as NO_2)	0.80 lbs/ton 700.8 tons/year	0.39 lbs/ton 251.0 tons/year*
	Sulfur Dioxide (SO_2)	0.70 lbs/ton 613.2 tons/year	0.35 lbs/ton 218.8 tons/year*

* Tons per year based on 24 hours per day, 365 days per year at the tested production and emission rate.

1.0 INTRODUCTION

1.1 General

IPSCO Steel (Iowa), Inc. contracted with Ambient Air Services, Inc. (AASI) to conduct emission testing on their EAF/LMF Baghouse Stack. The testing involved the determination of oxides of nitrogen (NO_x) and sulfur dioxide (SO_2) emissions.

The purpose of the testing was to satisfy specific requirements of the IDNR issued permit number 94-A-548-S3 for quarterly NO_x and SO_2 testing.

Prior to testing Mr. Mark Stone of IDNR was provided a Test Protocol and notified of the test dates. IDNR approved the protocol prior to testing. The testing conducted is summarized in Table 1-1-1.

Table 1-1-1

SUMMARY OF TESTING CONDUCTED
IPSCO Steel (Iowa), Inc.
Montpelier, Iowa

August 10, 2005

Source	Parameters Tested	EPA Reference Method [1]	Duration of Test
EAF/LMF Baghouse Stack	Oxides of Nitrogen (NO_x)	7E	3 runs, 2 heats each
	Sulfur Dioxide (SO_2)	6C	3 runs, 2 heats each

[1] As published in 40 CFR, Part 60, Appendix A.

1.2 Test Participants

The personnel indicated in Table 1-2-1 participated in this project:

TABLE 1-2-1

NAME	AFFILIATION	RESPONSIBILITY
Joseph L. Cooksey	Ambient Air Services, Inc.	Technical Director, Field Testing
David C. Sholtes	Ambient Air Services, Inc.	Quality Assurance Manager
Matt Cox	IPSCO	Environmental Coordinator, Flow Testing
Doug Belan	IPSCO	Flow Testing
Mark Stone	IDNR	State Inspector

2.0 METHODOLOGY

2.1 Sample System

A fully extractive sample system was utilized to convey the stack gas to the analytical instruments. The sample system consisted of the following components; a stainless steel probe, calibration tee, water condenser system, particulate filter, 200 feet of sample line (teflon), a sample pump and a sample manifold to distribute the sample gas to the analytical instruments.

The system was designed so that all calibration gases were injected at the probe and passed through the same system as the sample gas. A schematic of the sampling system is shown in Figure 2-1.

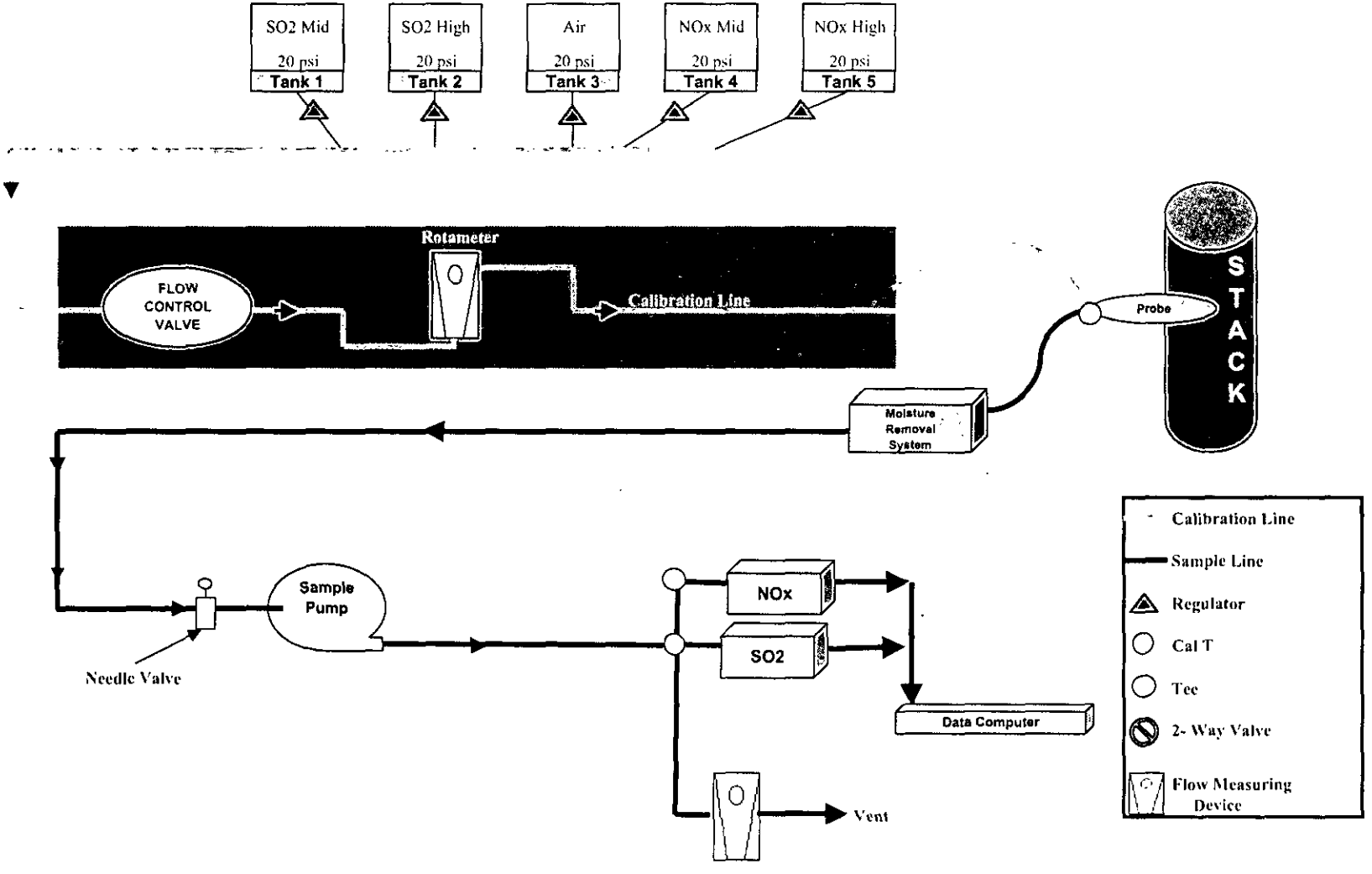
2.2 Method 6C: Sulfur Dioxide

The concentration of SO_2 was determined using USEPA Test Method 6C as published in 40 CFR, Part 60, Appendix A. A Thermo Environmental Instruments (TEI) Model 43H pulsed fluorescence analyzer was used.

2.3 Method 7E: Oxides of Nitrogen

The concentration of NO_x was determined using USEPA Method 7E as published in 40 CFR, Part 60, Appendix A. A Thermo Environmental Instruments (TEI) Model 42 chemiluminescence analyzer was used. All NO_x emissions were reported as nitrogen dioxide (NO_2).

SAMPLE SYSTEM SCHEMATIC
Figure 2-1



2.4 Flow

2.4.1 Method 1: Sample and Velocity Traverse

The location of the traverse points used to determine the velocity of the stack gas within the circular stack source was based on the relation of the stack diameter to the upstream and downstream distances. The sample points used for the velocity traverse were determined from Figure 1-2 and Table 1-2 of this method. The sampling points used are shown in Section 5.0 Sample Point Location.

2.4.2 Method 2: Velocity and Volumetric Flow Rate

The average gas velocity in the stack was determined from the measurement of the velocity heads with an "S" type pitot tube. Gas temperature was measured using a type K thermocouple. A calibration was performed to verify the face opening alignments, external tubing diameter, and base-to-opening plane distances. A base-line coefficient value of 0.84 was assigned to the pitot tube. Verification of these measurements are detailed in the Appendix B of this report.

2.4.3 Method 3: Moisture Content

The moisture content of the stack gas was determined using a wet bulb/dry bulb technique. From the wet bulb and dry bulb temperatures the moisture was calculated. An example calculation is shown in Appendix B.

2.4.4 Oxygen and Carbon Dioxide:

The oxygen (O_2) and carbon dioxide (CO_2) concentrations in the baghouse effluent gas were assumed to be ambient (20.9 % O_2, 0.0 % CO_2) and not measured. This assumption is supported by long term historical data from this facility.

3.0 PROCESS DESCRIPTION

Electric arc furnaces (EAF) are used to produce carbon and alloy steels. The input material to an EAF is typically 100 percent scrap. Cylindrical, refractory lined EAF's are equipped with carbon electrodes to be raised or lowered through the furnace roof. With electrodes retracted, the furnace roof can be rotated aside to permit the charge of scrap steel by overhead crane. Lime and charge carbon are added to the charge buckets, alloying agents and materials are added during the tapping process. Electric current of the opposite polarity electrodes generates heat between the electrodes and through the scrap. After melting and refining periods, the slag and steel are poured from the furnace by tilting.

The production of steel in an EAF is a batch process. Cycles, or "heats", range from about 45 to 90 minutes to produce carbon steel. Scrap steel is charged to begin a cycle, and alloying agents and slag materials are added for refining. Stages of each cycle normally are charging and melting operations, refining (which usually includes oxygen blowing), and tapping.

4.0 RESULTS

The results from all testing conducted August 10, 2005 demonstrate compliance with the permitted emission limits. The results are summarized in the following tables:

Table 4-1 Summary of Test Results
Table 4-2 Oxides of Nitrogen (NO_x) Emissions
Table 4-3 Sulfur Dioxide (SO_2) Emissions

TABLE 4-1

SUMMARY OF TEST RESULTS IPSCO STEEL (IOWA), INC. MONTPELIER, IOWA AUGUST 10, 2005			
SOURCES	**PARAMETER(S)**	**ALLOWABLE EMISSIONS**	**TEST RESULTS**
EAF/LMF Baghouse Stack	Oxides of Nitrogen (NO_x) (reported as NO_2)	0.80 lbs/ton 700.8 tons/year	0.39 lbs/ton 251.0 tons/year*
	Sulfur Dioxide (SO_2)	0.70 lbs/ton 613.2 tons/year	0.35 lbs/ton 218.8 tons/year*

* Tons per year based on 24 hours per day, 365 days per year at the tested production and emission rate.

Table 4 - 2

AASI

Oxides of Nitrogen (NO_X) Emissions Summary
USEPA Method 7E (40 CFR Part 60 Appendix A)
Ipsco Steel (Iowa), Inc.
Montpeliar, Iowa
IDNR Permit Number 94-A-548-S3
August 10, 2005

Run			Concentration	Volumetric Flow Rates	Production	Mass Emissions (as NO_2)	
Date	Number	Time (CDT)	ppm-v/v	SCFM-Dry	Tons per Hour	Pounds per Hour	Pounds per Ton
8/10/2005	1	7:58 10:04	10.9	692712	148.5	54.11	0.36
8/10/2005	2	10:26 12:30	15.9	602651	151.9	68.67	0.45
8/10/2005	3	12:48 14:48	11.5	596245	137.1	49.14	0.36
Average			**12.8**	**630536**	**145.8**	**57.31**	**0.39**

Table 4 - 3

AASI

Sulfur Dioxide (SO_2) Emissions Summary
USEPA Method 6C (40 CFR Part 60 Appendix A)
Ipsco Steel (Iowa), Inc.
Montpeliar, Iowa
IDNR Permit Number 94-A-548-S3
August 10, 2005

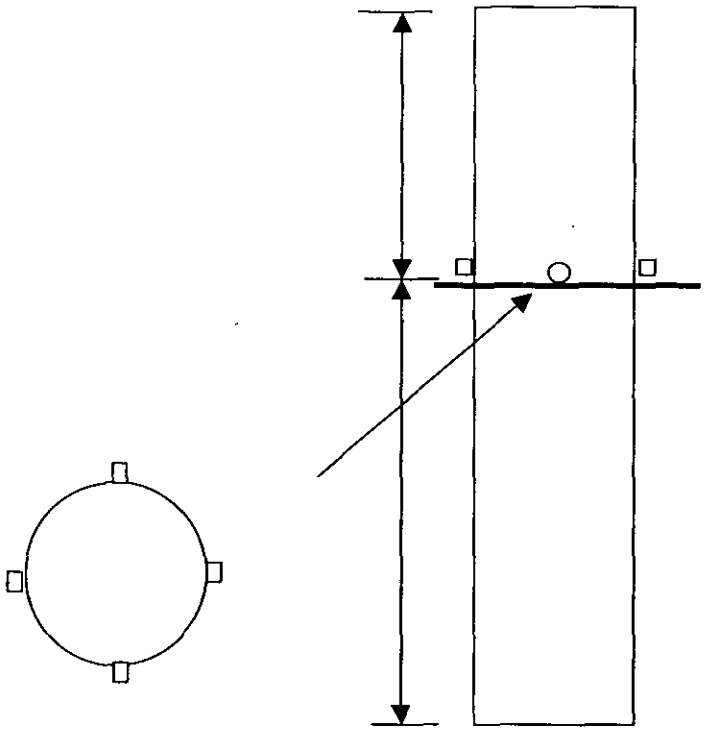
Run			Concentration	Volumetric Flow Rates	Production	Mass Emissions	
Date	Number	Time (CDT)	ppm-v/v	SCFM-Dry	Tons per Hour	Pounds per Hour	Pounds per Ton
8/10/2005	1	7:58 10:04	3.8	692712	148.5	26.25	0.18
8/10/2005	2	10:26 12:30	8.9	602651	151.9	53.48	0.35
8/10/2005	3	12:48 14:48	11.8	596245	137.1	70.16	0.51
Average			**8.2**	**630536**	**145.8**	**49.96**	**0.35**

5.0 SAMPLING POINT LOCATION

IPSCO Steel (Iowa), Inc.
Montpelier, Iowa
EAF/LMF Baghouse Stack

		Flow Sampling Points (inches)	
Diameters Upstream:	>1.5		
Diameters Downstream	>0.5	1	4.8"
Stack diameter	228"	2	15.3"
Drawing Date	March 10, 2005	3	26.9"
		4	40.4"
		5	57.0"
		6	81.2"

Drawing Not to Scale



Note: Four equal distances, ninety-degree ports. Four ports with 6 points per port, 24 total points All distances are approximate.

Ambient Air Services, Inc.
106 Ambient Airway
Starke, Florida 32091
(904) 964-8440

APPENDICES

APPENDIX A	Oxides of Nitrogen (NO_x) and Sulfur Dioxide (SO_2)
APPENDIX B	Flow and Moisture
APPENDIX C	Test Protocol
APPENDIX D	Plant Operating Data

APPENDIX A

Oxides of Nitrogen (NO_X) and Sulfur Dioxide (SO_2)

-Equipment List
-Instrument Calibration Data
-Data Printout and Test Log
-Sample Calculations
-Calibration Gas Certificates

NO_x	23.5	ppm
	45.7	ppm
SO_2	15.19	ppm
	25.10	ppm

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen and Sulfur Dioxide Test

IDNR Permit Number 94-A-548-S3

August 10, 2005

Equipment List

Sulfur Dioxide Instrument: **Manufacturer -** Thermo Environmental Instruments **Model -** 43HL

Serial Number - 25471-221

SO2 Range - zero to 30 ppm

Oxides of Nitrogen Instrument: **Manufacturer -** Thermo Environmental Instruments **Model -** 42

Serial Number - 33584-245

NOx Range - zero to 50 ppm

Calibration Gas Standards		Concentration	Manufacturer	Cylinder Number	Expiration Date	PSI
Zero	Zero	0.00	Plant Air (filtered)	N/A	N/A	80
High	SO2	25.10	Spectra Gases	cc 131018	Aug-05	1800
Mid	SO2	15.19	Spectra Gases	cc 20020	Aug-05	1800
High	NOx	45.70	Spectra Gases	cc 133648	Feb-07	1800
Mid	NOx	23.50	Spectra Gases	cc 110112	Feb-07	1800

Description of Sampling System :

8' 1/4" SS probe to Tee to H_2O condenser to 200 feet 1/4" Teflon sample line to SS/Teflon pump to instruments

all calibration gases injected direct to probe Tee location

Sampling probe positioned in Baghouse Stack at test platform location.

Test Participants :

NOx/SO2 Testing - Joe Cooksey - Ambient Air Services, Inc., Matt Cox and Doug Belean - Ipsco, Mark Stone IDNR

Other Comments :

Ipsco Steel - Montpelier, Iowa
Meltshop Baghouse - Quarterly Oxides of Nitrogen and Sulfur Dioxide Test
IDNR Permit Number 94-A-548-S3
August 10, 2005
Calibration Sheet

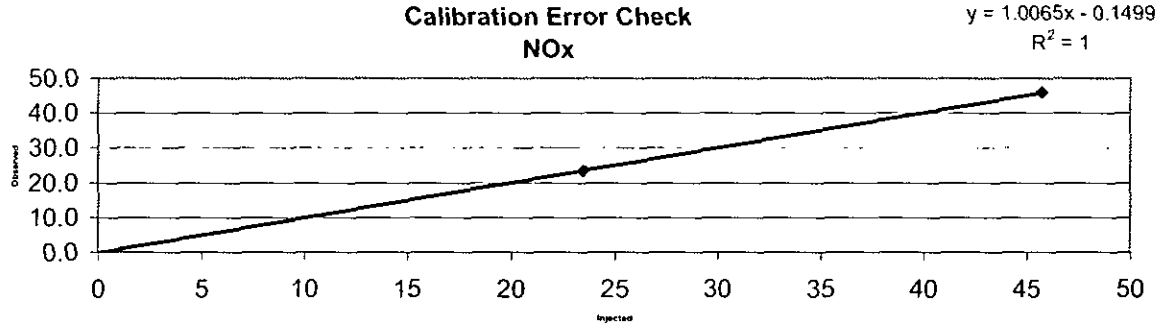
Initial Calibration

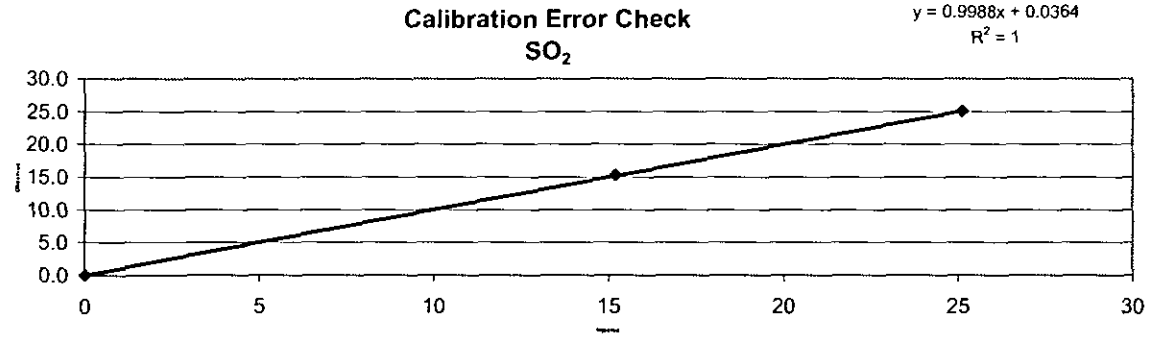
Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		
NOx	0		-0.1
NOx	45.7		45.9
NOx	23.5		23.4
SO2	0		0.0
SO2	25.10		25.1
SO2	15.19		15.3

% Error of Range Table

Inject (ppm)		Time	% Error of Range
Gas	Conc.		
NOx	0		-0.20%
NOx	45.7		0.40%
NOx	23.5		-0.20%
SO2	0		0.00%
SO2	25.1		-0.10%
SO2	15.19		0.22%





Ipsco Steel - Montpelier, Iowa
Meltshop Baghouse - Quarterly Oxides of Nitrogen and Sulfur Dioxide Test
IDNR Permit Number 94-A-548-S3
August 10, 2005
Calibration Sheet

Calibration - Post Run 1

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		
NOx	0		-0.1
NOx	45.7		45.6
SO2	0		0.3
SO2	25.10		25.3

Drift Analysis From Initial Calibrations to the End of Run 1

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		
NOx	0		0.00%
NOx	45.7		-0.60%
SO2	0		1.00%
SO2	25.1		0.83%

Drift Variables for Run 1

Variable	NOx	SO2
Co	-0.10	0.15
Cm	45.75	25.18
Cma	45.70	25.10

Calibration - Post Run 2

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		
NOx	0		-0.10
NOx	45.7		44.80
SO2	0		0.10
SO2	25.1		25.70

Drift Analysis From Initial Calibrations to the End of Run 2

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		
NOx	0		0.00%
NOx	45.7		-2.20%
SO2	0		0.33%
SO2	25.1		2.17%

Drift Variables for Run 2

Variable	NOx	SO2
Co	-0.10	0.20
Cm	45.20	25.50
Cma	45.7	25.10

Ipsco Steel - Montpelier, Iowa
Meltshop Baghouse - Quarterly Oxides of Nitrogen and Sulfur Dioxide Test
IDNR Permit Number 94-A-548-S3
August 10, 2005

Calibration Sheet

Calibration - Post Run 3

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		
NOx	0		-0.1
NOx	45.7		45.9
SO2	0		0.2
SO2	25.1		25.3

Drift Analysis From Initial Calibrations to the End of Run 3

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		
NOx	0		0.00%
NOx	45.7		0.00%
SO2	0		0.67%
SO2	25.1		0.83%

Drift Variables for Run 3

Variable	NOx	SO2
Co	-0.10	0.15
Cm	45.35	25.50
Cma	45.7	25.10

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen and Sulfur Dioxide Test

IDNR Permit Number 94-A-548-S3

August 10, 2005

DATA RECORDER PRINTOUT and TEST SUMMARY

Time (CDT)	NOx, ppm	SO2, ppm	Run Number	COMMENTS	NOx C_o	NOx C_w	NOx C_{wA}	SO_2 C_o	SO_2 C_w	SO_2 C_{wA}	NOx, ppm Drift Corrected	SO_2, ppm Drift Corrected
8/10/2005 7:00	---	---										
8/10/2005 7:04	-0.1	0.0		zero cal								
	-0.1	0.0		zero cal Average								
8/10/2005 7:05	0.1	0.1										
8/10/2005 7:06	22.0	0.6										
8/10/2005 7:07	32.1	1.3										
8/10/2005 7:08	32.2	2.7										
8/10/2005 7:09	38.1	3.3										
8/10/2005 7:10	44.0	3.6										
8/10/2005 7:11	45.9	3.8		45.7 Nox								
8/10/2005 7:12	45.9	3.9		45.7 Nox								
	45.9	3.9		45.7 Nox Average								
8/10/2005 7:13	44.0	3.2										
8/10/2005 7:14	7.3	13.7										
8/10/2005 7:15	0.0	22.2										
8/10/2005 7:16	0.0	24.2										
8/10/2005 7:17	-0.1	24.6										
8/10/2005 7:18	-0.1	24.9										
8/10/2005 7:19	-0.1	25.0		25.1 SO2								
8/10/2005 7:20	-0.1	25.1		25.1 SO2								
	-0.1	25.1		25.1 SO2 Average								
8/10/2005 7:21	-0.1	23.9										
8/10/2005 7:22	-0.1	17.6										
8/10/2005 7:23	-0.1	15.4										
8/10/2005 7:24	-0.1	15.2										
8/10/2005 7:25	-0.1	15.3		15.2 SO2								
8/10/2005 7:26	-0.1	15.3		15.2 SO2								
	-0.1	15.3		15.2 SO2 Average								
8/10/2005 7:27	18.7	9.8										
8/10/2005 7:28	23.4	3.5		23.5 Nox								
8/10/2005 7:29	23.4	2.4		23.5 Nox								
	23.4	3.0		23.5 Nox Average								
8/10/2005 7:30	19.8	2.6										
8/10/2005 7:31	9.8	4.6										
8/10/2005 7:32	3.3	5.1										
8/10/2005 7:33	1.1	4.8										
8/10/2005 7:34	0.4	4.4										
8/10/2005 7:35	0.3	3.8										
8/10/2005 7:36	0.2	3.4										
8/10/2005 7:37	0.2	3.0										
8/10/2005 7:38	0.2	2.7										
8/10/2005 7:39	0.2	2.4										
8/10/2005 7:40	0.1	2.1										
8/10/2005 7:41	0.1	1.9										
8/10/2005 7:42	0.1	1.8										
8/10/2005 7:43	0.2	1.6										
8/10/2005 7:44	0.2	1.5										
8/10/2005 7:45	0.1	1.4										
8/10/2005 7:46	0.1	1.3										
8/10/2005 7:47	0.1	1.2										
8/10/2005 7:48	0.1	1.1										
8/10/2005 7:49	0.1	1.0										
8/10/2005 7:50	0.1	1.0										
8/10/2005 7:51	0.1	0.9										
8/10/2005 7:52	0.2	0.9										
8/10/2005 7:53	0.5	0.8										
8/10/2005 7:54	0.8	0.8										
8/10/2005 7:55	1.0	0.8										
8/10/2005 7:56	1.8	0.7										
8/10/2005 7:57	3.6	0.7										
8/10/2005 7:58	3.0	0.7	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	3.1	0.6
8/10/2005 7:59	2.9	0.6	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	3.0	0.5
8/10/2005 8:00	5.3	0.6	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	5.4	0.5
8/10/2005 8:01	14.7	0.6	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	14.8	0.5
8/10/2005 8:02	16.3	0.6	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	16.3	0.5
8/10/2005 8:03	13.7	0.6	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	13.8	0.5
8/10/2005 8:04	11.1	0.6	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	11.2	0.5
8/10/2005 8:05	10.1	0.6	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	10.2	0.5

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen and Sulfur Dioxide Test

IDNR Permit Number 94-A-548-S3

August 10, 2005

DATA RECORDER PRINTOUT and TEST SUMMARY

Time (CDT)	NOx, ppm	SO2, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	SO_2 C_o	SO_2 C_M	SO_2 C_{MA}	NOx, ppm Drift Corrected	SO_2, ppm Drift Corrected
8/10/2005 8:06	10.4	0.6	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	10.5	0.5
8/10/2005 8:07	10.2	0.6	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	10.3	0.5
8/10/2005 8:08	6.4	0.5	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	6.5	0.4
8/10/2005 8:09	3.5	0.5	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	3.6	0.4
8/10/2005 8:10	2.3	0.5	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	2.4	0.4
8/10/2005 8:11	1.9	0.6	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	2.0	0.5
8/10/2005 8:12	1.7	0.8	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	1.8	0.7
8/10/2005 8:13	1.9	0.9	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	2.0	0.8
8/10/2005 8:14	2.1	1.1	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	2.2	1.0
8/10/2005 8:15	1.9	1.4	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	2.0	1.3
8/10/2005 8:16	1.9	1.7	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	2.0	1.6
8/10/2005 8:17	3.2	2.0	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	3.3	1.9
8/10/2005 8:18	8.7	2.1	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	8.8	2.0
8/10/2005 8:19	15.4	2.0	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	15.4	1.9
8/10/2005 8:20	12.4	1.9	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	12.5	1.8
8/10/2005 8:21	7.3	1.9	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	7.4	1.8
8/10/2005 8:22	5.6	1.8	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	5.7	1.7
8/10/2005 8:23	6.2	1.7	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	6.3	1.6
8/10/2005 8:24	4.7	1.7	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	4.8	1.6
8/10/2005 8:25	3.3	2.1	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	3.4	2.0
8/10/2005 8:26	3.0	2.8	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	3.1	2.7
8/10/2005 8:27	4.2	3.6	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	4.3	3.5
8/10/2005 8:28	4.6	4.3	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	4.7	4.2
8/10/2005 8:29	4.4	5.1	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	4.5	5.0
8/10/2005 8:30	4.5	6.1	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	4.6	6.0
8/10/2005 8:31	3.9	6.8	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	4.0	6.7
8/10/2005 8:32	3.3	7.1	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	3.4	7.0
8/10/2005 8:33	2.5	7.1	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	2.6	7.0
8/10/2005 8:34	2.0	7.0	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	2.1	6.9
8/10/2005 8:35	1.8	6.8	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	1.9	6.7
8/10/2005 8:36	1.7	6.5	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	1.8	6.4
8/10/2005 8:37	1.7	6.1	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	1.8	6.0
8/10/2005 8:38	1.8	5.6	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	1.9	5.5
8/10/2005 8:39	1.8	5.3	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	1.9	5.2
8/10/2005 8:40	1.6	5.2	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	1.7	5.1
8/10/2005 8:41	1.5	5.3	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	1.6	5.2
8/10/2005 8:42	1.7	5.2	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	1.8	5.1
8/10/2005 8:43	1.8	5.1	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	1.9	5.0
8/10/2005 8:44	2.0	5.0	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	2.1	4.9
8/10/2005 8:45	2.1	4.8	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	2.2	4.7
8/10/2005 8:46	2.3	4.8	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	2.4	4.7
8/10/2005 8:47	2.4	5.0	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	2.5	4.9
8/10/2005 8:48	2.1	5.2	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	2.2	5.1
8/10/2005 8:49	1.9	5.3	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	2.0	5.2
8/10/2005 8:50	2.0	5.2	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	2.1	5.1
8/10/2005 8:51	4.3	4.8	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	4.4	4.7
8/10/2005 8:52	14.0	4.4	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	14.1	4.3
8/10/2005 8:53	23.1	4.1	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	23.1	4.0
8/10/2005 8:54	29.2	4.0	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	29.2	3.9
8/10/2005 8:55	32.3	4.0	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	32.3	3.9
8/10/2005 8:56	34.4	4.0	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	34.4	3.9
8/10/2005 8:57	34.1	4.1	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	34.1	4.0
8/10/2005 8:58	27.0	4.1	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	27.0	4.0
8/10/2005 8:59	12.3	4.4	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	12.4	4.3
8/10/2005 9:00	5.0	5.1	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	5.1	5.0
8/10/2005 9:01	4.2	5.9	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	4.3	5.8
8/10/2005 9:02	10.9	6.1	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	11.0	6.0
8/10/2005 9:03	20.2	5.8	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	20.2	5.7
8/10/2005 9:04	29.8	5.4	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	29.8	5.3
8/10/2005 9:05	35.2	5.2	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	35.2	5.1
8/10/2005 9:06	37.7	5.1	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	37.7	5.0
8/10/2005 9:07	40.5	5.0	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	40.5	4.9
8/10/2005 9:08	42.4	4.9	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	42.4	4.8
8/10/2005 9:09	42.5	4.8	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	42.5	4.7
8/10/2005 9:10	41.3	4.9	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	41.3	4.8
8/10/2005 9:11	40.8	5.0	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	40.8	4.9
8/10/2005 9:12	40.0	5.0	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	40.0	4.9
8/10/2005 9:13	39.2	5.0	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	39.2	4.9

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen and Sulfur Dioxide Test

IDNR Permit Number 94-A-548-S3

August 10, 2005

DATA RECORDER PRINTOUT and TEST SUMMARY

Time (CDT)	NOx, ppm	SO2, ppm	Run Number	COMMENTS	NOx C_o	NOx C_{ma}	NOx C_{ma}	SO_2 C_o	SO_2 C_{ma}	SO_2 C_{ma}	NOx, ppm Drift Corrected	SO_2, ppm Drift Corrected
8/10/2005 9:14	37.4	5.0	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	37.4	4.9
8/10/2005 9:15	33.7	5.0	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	33.7	4.9
8/10/2005 9:16	33.5	5.0	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	33.5	4.9
8/10/2005 9:17	35.2	5.0	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	35.2	4.9
8/10/2005 9:18	24.1	4.7	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	24.1	4.6
8/10/2005 9:19	14.0	4.3	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	14.1	4.2
8/10/2005 9:20	*8.7*	*3.9*	*1*	*Run 1*	*-0.1*	*45.8*	*45.7*	*0.15*	*25.18*	*25.1*	*8.8*	*3.8*
8/10/2005 9:21	8.1	3.6	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	8.2	3.5
8/10/2005 9:22	9.0	3.4	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	9.1	3.3
8/10/2005 9:23	6.6	3.4	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	6.7	3.3
8/10/2005 9:24	3.9	3.5	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	4.0	3.4
8/10/2005 9:25	2.9	3.7	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	3.0	3.6
8/10/2005 9:26	3.0	4.2	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	3.1	4.1
8/10/2005 9:27	3.0	4.8	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	3.1	4.7
8/10/2005 9:28	2.4	5.3	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	2.5	5.2
8/10/2005 9:29	2.2	5.6	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	2.3	5.5
8/10/2005 9:30	2.3	5.9	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	2.4	5.8
8/10/2005 9:31	2.9	6.1	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	3.0	6.0
8/10/2005 9:32	3.2	6.2	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	3.3	6.1
8/10/2005 9:33	3.1	6.2	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	3.2	6.1
8/10/2005 9:34	3.3	6.1	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	3.4	6.0
8/10/2005 9:35	*4.0*	*5.9*	*1*	*Run 1*	*-0.1*	*45.8*	*45.7*	*0.15*	*25.18*	*25.1*	*4.1*	*5.8*
8/10/2005 9:36	5.3	5.6	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	5.4	5.5
8/10/2005 9:37	6.2	5.2	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	6.3	5.1
8/10/2005 9:38	7.0	4.7	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	7.1	4.6
8/10/2005 9:39	5.2	4.2	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	5.3	4.1
8/10/2005 9:40	2.5	3.8	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	2.6	3.7
8/10/2005 9:41	2.0	3.6	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	2.1	3.5
8/10/2005 9:42	2.2	3.7	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	2.3	3.6
8/10/2005 9:43	2.2	3.7	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	2.3	3.6
8/10/2005 9:44	2.3	3.6	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	2.4	3.5
8/10/2005 9:45	2.6	3.5	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	2.7	3.4
8/10/2005 9:46	*3.1*	*3.4*	*1*	*Run 1*	*-0.1*	*45.8*	*45.7*	*0.15*	*25.18*	*25.1*	*3.2*	*3.3*
8/10/2005 9:47	4.0	3.3	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	4.1	3.2
8/10/2005 9:48	5.0	3.3	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	5.1	3.2
8/10/2005 9:49	4.6	3.3	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	4.7	3.2
8/10/2005 9:50	3.8	3.4	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	3.9	3.3
8/10/2005 9:51	3.6	3.6	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	3.7	3.5
8/10/2005 9:52	3.7	3.9	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	3.8	3.8
8/10/2005 9:53	3.9	4.2	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	4.0	4.1
8/10/2005 9:54	9.0	4.3	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	9.1	4.2
8/10/2005 9:55	10.9	4.3	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	11.0	4.2
8/10/2005 9:56	11.0	4.1	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	11.1	4.0
8/10/2005 9:57	12.4	3.9	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	12.5	3.8
8/10/2005 9:58	14.7	3.8	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	14.8	3.7
8/10/2005 9:59	17.2	3.8	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	17.2	3.7
8/10/2005 10:00	17.7	3.7	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	17.7	3.6
8/10/2005 10:01	*17.8*	*3.5*	*1*	*Run 1*	*-0.1*	*45.8*	*45.7*	*0.15*	*25.18*	*25.1*	*17.8*	*3.4*
8/10/2005 10:02	17.9	3.3	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	17.9	3.2
8/10/2005 10:03	18.2	3.2	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	18.2	3.1
8/10/2005 10:04	18.4	2.9	1	Run 1	-0.1	45.8	45.7	0.15	25.18	25.1	18.4	2.8
	10.8	3.9		**Run 1 Average**							10.9	3.8
8/10/2005 10:05	18.4	2.8										
8/10/2005 10:06	18.4	2.5										
8/10/2005 10:07	18.0	2.4										
8/10/2005 10:08	21.0	1.6										
8/10/2005 10:09	38.1	1.2										
8/10/2005 10:10	45.5	2.3										
8/10/2005 10:11	45.6	3.3		45.7 Nox								
8/10/2005 10:12	45.6	3.7		45.7 Nox								
	45.6	3.5		**45.7 Nox Average**								
8/10/2005 10:13	25.8	7.4										
8/10/2005 10:14	*0.1*	*19.9*										
8/10/2005 10:15	0.0	24.1										
8/10/2005 10:16	-0.1	24.9										
8/10/2005 10:17	-0.1	25.1										
8/10/2005 10:18	-0.1	25.3		25.1 SO2								
	-0.1	25.3		**25.1 SO2 Average**								

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen and Sulfur Dioxide Test

IDNR Permit Number 94-A-548-S3

August 10, 2005

DATA RECORDER PRINTOUT and TEST SUMMARY

Time (CDT)	NOx, ppm	SO2, ppm	Run Number	COMMENTS	NOx C_s	NOx C_w	NOx C_{wA}	SO_2 C_o	SO_2 C_w	SO_2 C_{wA}	NO_x, ppm Drift Corrected	SO_2, ppm Drift Corrected
8/10/2005 10:19	-0.1	15.8										
8/10/2005 10:20	-0.1	3.3										
8/10/2005 10:21	-0.1	0.8										
8/10/2005 10:22	-0.1	0.4										
8/10/2005 10:23	-0.1	0.3		zero air								
	-0.1	0.3		zero air Average								
8/10/2005 10:24	0.2	0.4										
8/10/2005 10:25	6.0	1.7										
8/10/2005 10:26	12.9	2.7	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	13.1	2.5
8/10/2005 10:27	17.6	3.0	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	17.9	2.8
8/10/2005 10:28	20.3	2.9	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	20.6	2.7
8/10/2005 10:29	21.4	2.8	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	21.7	2.6
8/10/2005 10:30	22.3	2.6	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	22.6	2.4
8/10/2005 10:31	23.8	2.4	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	24.1	2.2
8/10/2005 10:32	24.4	2.4	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	24.7	2.2
8/10/2005 10:33	24.0	2.3	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	24.3	2.1
8/10/2005 10:34	23.3	2.3	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	23.6	2.1
8/10/2005 10:35	21.8	2.3	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	22.1	2.1
8/10/2005 10:36	21.0	2.4	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	21.3	2.2
8/10/2005 10:37	21.7	2.6	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	22.0	2.4
8/10/2005 10:38	22.5	2.9	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	22.8	2.7
8/10/2005 10:39	22.5	3.4	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	22.8	3.2
8/10/2005 10:40	25.5	3.9	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	25.8	3.7
8/10/2005 10:41	28.7	4.5	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	29.1	4.3
8/10/2005 10:42	30.6	5.1	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	31.0	4.9
8/10/2005 10:43	27.3	5.1	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	27.6	4.9
8/10/2005 10:44	22.6	4.6	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	22.9	4.4
8/10/2005 10:45	18.2	4.1	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	18.5	3.9
8/10/2005 10:46	17.6	3.7	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	17.9	3.5
8/10/2005 10:47	17.3	3.3	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	17.6	3.1
8/10/2005 10:48	18.5	3.0	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	18.8	2.8
8/10/2005 10:49	19.1	2.8	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	19.4	2.6
8/10/2005 10:50	18.2	2.6	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	18.5	2.4
8/10/2005 10:51	19.6	2.5	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	19.9	2.3
8/10/2005 10:52	23.1	2.4	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	23.4	2.2
8/10/2005 10:53	26.0	2.7	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	26.3	2.5
8/10/2005 10:54	25.7	3.2	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	26.0	3.0
8/10/2005 10:55	25.5	3.6	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	25.8	3.4
8/10/2005 10:56	26.1	3.8	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	26.4	3.6
8/10/2005 10:57	27.1	4.0	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	27.4	3.8
8/10/2005 10:58	27.7	4.1	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	28.0	3.9
8/10/2005 10:59	27.0	4.2	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	27.3	4.0
8/10/2005 11:00	25.6	4.3	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	25.9	4.1
8/10/2005 11:01	21.8	4.5	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	22.1	4.3
8/10/2005 11:02	15.0	4.7	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	15.2	4.5
8/10/2005 11:03	9.0	4.8	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	9.2	4.6
8/10/2005 11:04	6.3	5.1	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	6.5	4.9
8/10/2005 11:05	6.4	5.3	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	6.6	5.1
8/10/2005 11:06	7.0	5.5	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	7.2	5.3
8/10/2005 11:07	7.2	5.6	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	7.4	5.4
8/10/2005 11:08	7.3	5.9	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	7.5	5.7
8/10/2005 11:09	6.2	6.3	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	6.4	6.1
8/10/2005 11:10	5.5	6.8	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	5.6	6.5
8/10/2005 11:11	6.4	7.2	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	6.6	6.9
8/10/2005 11:12	15.0	7.5	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	15.2	7.2
8/10/2005 11:13	16.2	7.3	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	16.4	7.0
8/10/2005 11:14	10.3	7.2	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	10.5	6.9
8/10/2005 11:15	6.6	7.3	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	6.8	7.0
8/10/2005 11:16	4.2	7.4	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	4.3	7.1
8/10/2005 11:17	2.9	7.3	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	3.0	7.0
8/10/2005 11:18	2.2	7.0	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	2.3	6.7
8/10/2005 11:19	2.1	6.7	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	2.2	6.4
8/10/2005 11:20	2.5	6.5	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	2.6	6.3
8/10/2005 11:21	3.4	6.5	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	3.5	6.3
8/10/2005 11:22	4.3	7.1	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	4.4	6.8
8/10/2005 11:23	10.4	8.2	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	10.6	7.9
8/10/2005 11:24	20.6	8.7	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	20.9	8.4
8/10/2005 11:25	31.7	8.6	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	32.1	8.3

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen and Sulfur Dioxide Test

IDNR Permit Number 94-A-548-S3

August 10, 2005

DATA RECORDER PRINTOUT and TEST SUMMARY

Time (CDT)	NOx, ppm	SO2, ppm	Run Number	COMMENTS	NOx C_o	NOx C_{ma}	NOx C_{adj}	SO_2 C_o	SO_2 C_{ma}	SO_2 C_{adj}	NOx, ppm Drift Corrected	SO_2, ppm Drift Corrected
8/10/2005 11:26	40 6	8.1	2	Run 2	-0 1	45.2	45 7	0.2	25.5	25.1	41.1	7.8
8/10/2005 11:27	34 4	7.7	2	Run 2	-0.1	45 2	45.7	0 2	25 5	25.1	34 8	7 4
8/10/2005 11:28	26 9	7 4	2	Run 2	-0.1	45 2	45 7	0 2	25 5	25.1	27.2	7.1
8/10/2005 11:29	27.2	7 4	2	Run 2	-0.1	45 2	45.7	0 2	25.5	25.1	27.5	7.1
8/10/2005 11:30	32.3	7.7	2	Run 2	-0.1	45 2	45 7	0 2	25.5	25.1	32.7	7 4
8/10/2005 11:31	35 5	8 3	2	Run 2	-0.1	45 2	45.7	0 2	25 5	25 1	35 9	8 0
8/10/2005 11:32	36 0	9 0	2	Run 2	-0.1	45 2	45.7	0 2	25 5	25.1	36.4	8.7
8/10/2005 11 33	36.1	9.6	2	Run 2	-0 1	45 2	45 7	0 2	25 5	25.1	36 5	9.3
8/10/2005 11:34	40 6	9 5	2	Run 2	-0.1	45 2	45 7	0 2	25 5	25 1	41.1	9 2
8/10/2005 11:35	38 9	9 4	2	Run 2	-0.1	45 2	45.7	0.2	25.5	25.1	39 3	9.1
8/10/2005 11:36	27.9	9.6	2	Run 2	-0 1	45 2	45.7	0.2	25.5	25 1	28.2	9.3
8/10/2005 11:37	21 8	9.7	2	Run 2	-0.1	45 2	45.7	0 2	25.5	25.1	22.1	9 4
8/10/2005 11:38	24 9	9 9	2	Run 2	-0 1	45.2	45.7	0 2	25 5	25.1	25 2	9 6
8/10/2005 11:39	29 3	10 3	2	Run 2	-0 1	45 2	45.7	0 2	25.5	25 1	29 7	10 0
8/10/2005 11 40	28 3	11.1	2	Run 2	-0.1	45 2	45 7	0 2	25 5	25 1	28.7	10 8
8/10/2005 11:41	22.7	11 0	2	Run 2	-0 1	45 2	45.7	0.2	25.5	25.1	23 0	10 7
8/10/2005 11 42	21 2	10 0	2	Run 2	-0.1	45 2	45 7	0 2	25 5	25.1	21 5	9 7
8/10/2005 11 43	21.7	9 2	2	Run 2	-0.1	45.2	45 7	0 2	25.5	25.1	22 0	8 9
8/10/2005 11:44	22.6	8 8	2	Run 2	-0.1	45 2	45.7	0 2	25.5	25.1	22.9	8.5
8/10/2005 11:45	22 8	8 6	2	Run 2	-0.1	45 2	45.7	0 2	25 5	25.1	23.1	8 3
8/10/2005 11 46	24.6	8 4	2	Run 2	-0.1	45 2	45 7	0 2	25 5	25 1	24.9	8 1
8/10/2005 11 47	29 6	8 8	2	Run 2	-0 1	45 2	45.7	0 2	25.5	25.1	30 0	8 5
8/10/2005 11:48	32 8	10.0	2	Run 2	-0.1	45 2	45 7	0.2	25.5	25.1	33 2	9.7
8/10/2005 11 49	30 4	12.0	2	Run 2	-0.1	45 2	45.7	0 2	25.5	25.1	30 8	11.7
8/10/2005 11:50	21 0	13 5	2	Run 2	-0 1	45 2	45.7	0 2	25.5	25.1	21.3	13.2
8/10/2005 11:51	13 0	14.5	2	Run 2	-0.1	45 2	45 7	0.2	25.5	25 1	13.2	14.2
8/10/2005 11:52	9 5	15 6	2	Run 2	-0.1	45 2	45.7	0 2	25 5	25.1	9.7	15 3
8/10/2005 11:53	8 6	16 9	2	Run 2	-0.1	45.2	45 7	0.2	25 5	25.1	8 8	16.6
8/10/2005 11 54	7.2	18.7	2	Run 2	-0.1	45 2	45.7	0 2	25.5	25 1	7 4	18 4
8/10/2005 11:55	5 5	20 6	2	Run 2	-0 1	45 2	45.7	0 2	25.5	25.1	5 6	20.2
8/10/2005 11:56	4 4	22.1	2	Run 2	-0.1	45.2	45 7	0 2	25 5	25.1	4.5	21.7
8/10/2005 11:57	3 8	22.7	2	Run 2	-0.1	45 2	45 7	0 2	25 5	25.1	3 9	22.3
8/10/2005 11:58	3 3	23 4	2	Run 2	-0.1	45 2	45.7	0 2	25.5	25.1	3 4	23 0
8/10/2005 11:59	3 0	23 3	2	Run 2	-0.1	45 2	45 7	0 2	25 5	25.1	3.1	22.9
8/10/2005 12:00	2.5	21.7	2	Run 2	-0.1	45.2	45 7	0.2	25 5	25.1	2.6	21.3
8/10/2005 12:01	1 5	19 6	2	Run 2	-0 1	45.2	45.7	0 2	25.5	25.1	1 6	19 2
8/10/2005 12:02	0.9	17.7	2	Run 2	-0.1	45.2	45.7	0.2	25.5	25.1	1.0	17.4
8/10/2005 12 03	1.0	16.4	2	Run 2	-0.1	45.2	45.7	0 2	25 5	25.1	1.1	16 1
8/10/2005 12:04	1 7	16 4	2	Run 2	-0 1	45 2	45.7	0 2	25.5	25.1	1.8	16 1
8/10/2005 12 05	2 2	16.7	2	Run 2	-0.1	45 2	45.7	0.2	25.5	25.1	2 3	16 4
8/10/2005 12.06	2 6	16 9	2	Run 2	-0 1	45 2	45.7	0 2	25 5	25.1	2 7	16 6
8/10/2005 12 07	2 8	17 0	2	Run 2	-0 1	45 2	45.7	0 2	25.5	25.1	2.9	16 7
8/10/2005 12.08	2 8	16.7	2	Run 2	-0.1	45 2	45 7	0.2	25.5	25 1	2.9	16 4
8/10/2005 12.09	2.7	16 2	2	Run 2	-0 1	45 2	45 7	0 2	25.5	25.1	2 8	15.9
8/10/2005 12:10	2.8	15 4	2	Run 2	-0 1	45 2	45.7	0 2	25.5	25.1	2.9	15.1
8/10/2005 12.11	3 0	14.7	2	Run 2	-0.1	45 2	45.7	0 2	25 5	25 1	3.1	14 4
8/10/2005 12:12	3 6	14.9	2	Run 2	-0 1	45 2	45 7	0 2	25.5	25.1	3.7	14 6
8/10/2005 12:13	4.0	15 3	2	Run 2	-0 1	45 2	45.7	0 2	25.5	25.1	4.1	15 0
8/10/2005 12.14	4.1	15.7	2	Run 2	-0.1	45 2	45 7	0.2	25 5	25 1	4 2	15 4
8/10/2005 12:15	4 4	15 9	2	Run 2	-0 1	45 2	45 7	0 2	25.5	25.1	4 5	15 6
8/10/2005 12:16	4.3	15 8	2	Run 2	-0.1	45 2	45.7	0 2	25 5	25.1	4.4	15 5
8/10/2005 12:17	2.9	15.1	2	Run 2	-0.1	45 2	45 7	0.2	25 5	25 1	3.0	14.8
8/10/2005 12:18	1.8	14 0	2	Run 2	-0.1	45 2	45.7	0 2	25.5	25.1	1.9	13.7
8/10/2005 12:19	1.4	12.9	2	Run 2	-0.1	45 2	45.7	0 2	25.5	25.1	1.5	12 6
8/10/2005 12.20	1.5	12.1	2	Run 2	-0.1	45.2	45 7	0 2	25 5	25 1	1.6	11.8
8/10/2005 12:21	1.6	11.5	2	Run 2	-0 1	45 2	45.7	0 2	25.5	25.1	1.7	11.2
8/10/2005 12.22	1.7	11.2	2	Run 2	-0 1	45 2	45.7	0 2	25 5	25.1	1.8	10 9
8/10/2005 12.23	2.5	11.2	2	Run 2	-0.1	45 2	45 7	0.2	25.5	25.1	2 6	10.9
8/10/2005 12:24	3 8	11 2	2	Run 2	-0.1	45.2	45 7	0 2	25.5	25.1	3.9	10.9
8/10/2005 12.25	6 2	11 6	2	Run 2	-0.1	45 2	45.7	0 2	25.5	25.1	6 4	11 3
8/10/2005 12.26	7.9	12.0	2	Run 2	-0.1	45 2	45 7	0 2	25.5	25 1	8.1	11.7
8/10/2005 12:27	9.0	12.1	2	Run 2	-0.1	45 2	45.7	0 2	25.5	25.1	9 2	11.8
8/10/2005 12:28	11 3	12.0	2	Run 2	-0.1	45 2	45.7	0 2	25.5	25.1	11.5	11.7
8/10/2005 12 29	17.7	11.8	2	Run 2	-0.1	45 2	45 7	0 2	25.5	25 1	18 0	11.5
8/10/2005 12:30	22.0	11 4	2	Run 2	-0 1	45 2	45 7	0 2	25 5	25.1	22 3	11.1
	15 6	9 2		Run 2 Average							15 9	8 9
8/10/2005 12:31	5 8	7 2										
8/10/2005 12.32	0 0	1 5										

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen and Sulfur Dioxide Test

IDNR Permit Number 94-A-548-S3

August 10, 2005

DATA RECORDER PRINTOUT and TEST SUMMARY

Time (CDT)	NOx, ppm	SO2, ppm	Run Number	COMMENTS	NO_x C_o	NO_x C_M	NO_x C_{MA}	SO_2 C_o	SO_2 C_M	SO_2 C_{MA}	NO_x, ppm Drift Corrected	SO_2, ppm Drift Corrected
8/10/2005 12:33	-0.1	0.3										
8/10/2005 12:34	-0.1	0.1										
8/10/2005 12:35	-0.1	0.1		zero cal								
	-0.1	0.1		zero cal Average								
8/10/2005 12:36	-0.1	6.3										
8/10/2005 12:37	-0.1	20.8										
8/10/2005 12:38	-0.1	24.7										
8/10/2005 12:39	-0.1	25.4										
8/10/2005 12:40	-0.1	25.6										
8/10/2005 12:41	-0.1	25.7		25.1 SO2								
8/10/2005 12:42	-0.1	25.7		25.1 SO2								
	-0.1	25.7		25.1 SO2 Average								
8/10/2005 12:43	31.6	17.0										
8/10/2005 12:44	44.7	5.6										
8/10/2005 12:45	44.8	4.2		45.7 Nox								
	44.8	4.2		45.7 Nox Average								
8/10/2005 12:46	42.5	3.7										
8/10/2005 12:47	32.4	4.2										
8/10/2005 12:48	22.4	6.1	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	22.6	5.9
8/10/2005 12:49	18.3	6.8	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	18.5	6.6
8/10/2005 12:50	19.3	6.8	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	19.5	6.6
8/10/2005 12:51	21.8	6.9	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	22.0	6.7
8/10/2005 12:52	23.1	7.4	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	23.3	7.2
8/10/2005 12:53	24.3	8.4	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	24.5	8.2
8/10/2005 12:54	25.5	9.2	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	25.7	9.0
8/10/2005 12:55	26.5	9.9	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	26.7	9.7
8/10/2005 12:56	26.1	10.0	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	26.3	9.8
8/10/2005 12:57	25.9	10.7	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	26.1	10.4
8/10/2005 12:58	26.2	12.4	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	26.4	12.1
8/10/2005 12:59	26.2	13.8	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	26.4	13.5
8/10/2005 13:00	25.7	14.3	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	25.9	14.0
8/10/2005 13:01	24.7	14.2	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	24.9	13.9
8/10/2005 13:02	23.0	13.9	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	23.2	13.6
8/10/2005 13:03	22.8	13.3	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	23.0	13.0
8/10/2005 13:04	22.6	13.0	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	22.8	12.7
8/10/2005 13:05	22.1	13.2	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	22.3	12.9
8/10/2005 13:06	24.1	13.9	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	24.3	13.6
8/10/2005 13:07	27.7	13.5	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	28.0	13.2
8/10/2005 13:08	26.9	12.6	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	27.1	12.3
8/10/2005 13:09	23.4	11.8	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	23.6	11.5
8/10/2005 13:10	22.6	11.1	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	22.8	10.8
8/10/2005 13:11	23.0	10.2	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	23.2	10.0
8/10/2005 13:12	25.2	9.3	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	25.4	9.1
8/10/2005 13:13	27.5	8.4	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	27.8	8.2
8/10/2005 13:14	30.2	7.9	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	30.5	7.7
8/10/2005 13:15	30.2	7.9	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	30.5	7.7
8/10/2005 13:16	30.2	7.9	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	30.5	7.7
8/10/2005 13:17	32.4	7.7	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	32.7	7.5
8/10/2005 13:18	35.5	7.4	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	35.8	7.2
8/10/2005 13:19	35.9	7.4	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	36.2	7.2
8/10/2005 13:20	32.8	8.1	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	33.1	7.9
8/10/2005 13:21	25.0	9.3	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	25.2	9.1
8/10/2005 13:22	17.0	10.6	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	17.2	10.3
8/10/2005 13:23	11.2	11.2	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	11.4	10.9
8/10/2005 13:24	7.7	11.6	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	7.8	11.3
8/10/2005 13:25	6.6	12.2	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	6.7	11.9
8/10/2005 13:26	10.2	12.1	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	10.4	11.8
8/10/2005 13:27	9.5	11.6	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	9.7	11.3
8/10/2005 13:28	7.3	10.7	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	7.4	10.4
8/10/2005 13:29	5.7	10.1	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	5.8	9.9
8/10/2005 13:30	4.5	10.2	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	4.6	10.0
8/10/2005 13:31	4.1	11.6	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	4.2	11.3
8/10/2005 13:32	3.9	12.4	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	4.0	12.1
8/10/2005 13:33	2.9	12.4	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	3.0	12.1
8/10/2005 13:34	2.6	13.0	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	2.7	12.7
8/10/2005 13:35	3.2	13.3	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	3.3	13.0
8/10/2005 13:36	3.5	13.2	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	3.6	12.9
8/10/2005 13:37	2.9	13.2	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	3.0	12.9

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen and Sulfur Dioxide Test

IDNR Permit Number 94-A-548-S3

August 10, 2005

DATA RECORDER PRINTOUT and TEST SUMMARY

Time (CDT)	NOx, ppm	SO_2, ppm	Run Number	*COMMENTS*	NOx C_o	NOx C_a	NOx C_{adj}	SO_2 C_o	SO_2 C_a	SO_2 C_{adj}	NOx, ppm Drift Corrected	SO_2, ppm Drift *Corrected*
8/10/2005 13:38	4 6	13 0	3	Run 3	-0.1	45 4	45.7	0.15	25 5	25 1	4 7	12.7
8/10/2005 13:39	8 8	13 1	3	Run 3	-0.1	45.4	45.7	0.15	25 5	25 1	8 9	12 8
8/10/2005 13 40	8 1	13 5	3	Run 3	-0 1	45 4	45.7	0 15	25 5	25.1	8 2	13 2
8/10/2005 13 41	4.7	13.1	3	Run 3	-0 1	45 4	45.7	0.15	25 5	25 1	4 8	12.8
8/10/2005 13 42	3 9	13 0	3	Run 3	-0.1	45.4	45.7	0.15	25 5	25 1	4 0	12.7
8/10/2005 13 43	14 0	12.7	3	Run 3	-0.1	45 4	45.7	0 15	25 5	25.1	14 2	12 4
8/10/2005 13 44	19 0	11 8	3	Run 3	-0 1	45 4	45.7	0 15	25 5	25 1	19 2	11.5
8/10/2005 13 45	25 6	11.1	3	Run 3	-0.1	45 4	45.7	0.15	25 5	25 1	25 8	10 8
8/10/2005 13:46	33 4	10.7	3	Run 3	-0 1	45 4	45 7	0 15	25 5	25.1	33 7	10 4
8/10/2005 13 47	35 3	10.7	3	Run 3	-0.1	45 4	45.7	0 15	25 5	25 1	35 6	10.4
8/10/2005 13 48	23 1	11 0	3	Run 3	-0.1	45 4	45.7	0.15	25 5	25.1	23 3	10 7
8/10/2005 13 49	12 6	11 4	3	Run 3	-0 1	45 4	45.7	0.15	25 5	25.1	12.8	11.1
8/10/2005 13 50	8 6	11.9	3	Run 3	-0.1	45 4	45.7	0 15	25.5	25 1	8 7	11.6
8/10/2005 13 51	7 3	12.1	3	Run 3	-0.1	45 4	45.7	0.15	25 5	25.1	7 4	11.8
8/10/2005 13 52	6 6	11.9	3	Run 3	-0.1	45 4	45 7	0.15	25 5	25.1	6.7	11.6
8/10/2005 13 53	5.7	12 0	3	Run 3	-0 1	45 4	45.7	0 15	25 5	25 1	5 8	11.7
8/10/2005 13:54	4 6	12.3	3	Run 3	-0.1	45.4	45.7	0.15	25 5	25 1	4.7	12.0
8/10/2005 13 55	3 5	12 6	3	Run 3	-0.1	45 4	45 7	0.15	25.5	25 1	3 6	12.3
8/10/2005 13 56	2 4	13.0	3	Run 3	-0 1	45 4	45.7	0 15	25 5	25.1	2.5	12.7
8/10/2005 13.57	3 6	12 5	3	Run 3	-0.1	45.4	45.7	0.15	25 5	25 1	3.7	12.2
8/10/2005 13 58	4 3	12 0	3	Run 3	-0.1	45 4	45 7	0.15	25 5	25 1	4 4	11.7
8/10/2005 13:59	4.1	11.7	3	Run 3	-0 1	45 4	45.7	0 15	25 5	25.1	4 2	11 4
8/10/2005 14 00	3 7	10.7	3	Run 3	-0.1	45 4	45.7	0.15	25 5	25 1	3 8	10.4
8/10/2005 14 01	4 0	9.5	3	Run 3	-0.1	45 4	45 7	0.15	25 5	25 1	4.1	9.3
8/10/2005 14 02	3.7	8 5	3	Run 3	-0 1	45 4	45.7	0 15	25.5	25.1	3 8	8 3
8/10/2005 14:03	2.9	7.7	3	Run 3	-0.1	45 4	45 7	0.15	25 5	25 1	3 0	7.5
8/10/2005 14 04	2.9	7 0	3	Run 3	-0.1	45 4	45.7	0.15	25 5	25 1	3 0	6 8
8/10/2005 14 05	5 3	6 6	3	Run 3	-0.1	45 4	45.7	0 15	25 5	25.1	5.4	6 4
8/10/2005 14:06	7 2	6 9	3	Run 3	-0.1	45.4	45.7	0.15	25 5	25 1	7 3	6 7
8/10/2005 14 07	7.0	7 4	3	Run 3	-0.1	45 4	45.7	0.15	25 5	25 1	7.1	7 2
8/10/2005 14 08	6.1	8 2	3	Run 3	-0.1	45 4	45.7	0 15	25 5	25.1	6.2	8.0
8/10/2005 14:09	4.9	9 5	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25 1	5 0	9.3
8/10/2005 14:10	3 5	11.2	3	Run 3	-0.1	45.4	45 7	0 15	25 5	25 1	3 6	10 9
8/10/2005 14.11	2.8	12.3	3	Run 3	-0.1	45 4	45 7	0.15	25 5	25.1	2.9	12.0
8/10/2005 14:12	3 2	12.6	3	Run 3	-0.1	45.4	45.7	0.15	25 5	25.1	3.3	12.3
8/10/2005 14:13	2.9	12 0	3	Run 3	-0.1	45 4	45 7	0 15	25 5	25 1	3 0	11.7
8/10/2005 14:14	2.3	10.9	3	Run 3	-0.1	45 4	45.7	0.15	25.5	25.1	2.4	10 6
8/10/2005 14:15	2.1	10 0	3	Run 3	-0 1	45 4	45.7	0.15	25 5	25 1	2 2	9 8
8/10/2005 14:16	2 2	9 5	3	Run 3	-0.1	45.4	45.7	0.15	25 5	25 1	2.3	9.3
8/10/2005 14:17	3 3	9 2	3	Run 3	-0.1	45 4	45 7	0 15	25 5	25 1	3 4	9.0
8/10/2005 14.18	4.3	9 0	3	Run 3	-0 1	45 4	45.7	0.15	25 5	25.1	4 4	8.8
8/10/2005 14:19	2 5	8 8	3	Run 3	-0.1	45 4	45.7	0.15	25 5	25.1	2 6	8 6
8/10/2005 14 20	1.3	8.1	3	Run 3	-0.1	45 4	45 7	0.15	25 5	25 1	1 4	7.9
8/10/2005 14 21	0.9	7.2	3	Run 3	-0.1	45 4	45.7	0.15	25.5	25.1	1.0	7.0
8/10/2005 14.22	0 9	6.7	3	Run 3	-0 1	45 4	45.7	0 15	25 5	25.1	1 0	6.5
8/10/2005 14.23	1.1	7 0	3	Run 3	-0.1	45 4	45 7	0.15	25 5	25 1	1.2	6 8
8/10/2005 14.24	1.5	7.6	3	Run 3	-0.1	45 4	45.7	0 15	25.5	25.1	1.6	7.4
8/10/2005 14:25	1 7	8.4	3	Run 3	-0.1	45 4	45.7	0 15	25 5	25.1	1 8	8 2
8/10/2005 14:26	1 4	9.3	3	Run 3	-0.1	45 4	45 7	0.15	25.5	25 1	1.5	9.1
8/10/2005 14:27	1.1	9.9	3	Run 3	-0.1	45 4	45.7	0.15	25.5	25 1	1.2	9.7
8/10/2005 14:28	0 9	10.7	3	Run 3	-0.1	45.4	45.7	0.15	25 5	25.1	1 0	10.4
8/10/2005 14 29	0 8	10 9	3	Run 3	-0.1	45 4	45.7	0.15	25 5	25.1	0.9	10 6
8/10/2005 14:30	1.2	10.5	3	Run 3	-0.1	45 4	45.7	0.15	25.5	25 1	1.3	10 2
8/10/2005 14:31	2.2	11.3	3	Run 3	-0 1	45.4	45.7	0.15	25 5	25.1	2.3	11.0
8/10/2005 14:32	2 8	15 4	3	Run 3	-0.1	45 4	45.7	0.15	25 5	25.1	2.9	15 1
8/10/2005 14:33	3.1	20.9	3	Run 3	-0.1	45.4	45.7	0 15	25 5	25 1	3.2	20 5
8/10/2005 14:34	3 8	25.2	3	Run 3	-0.1	45.4	45.7	0.15	25 5	25 1	3 9	24.8
8/10/2005 14:35	3.9	27.1	3	Run 3	-0.1	45 4	45.7	0.15	25 5	25 1	4.0	26.7
8/10/2005 14:36	4.0	26 8	3	Run 3	-0.1	45 4	45 7	0.15	25 5	25.1	4.1	26 4
8/10/2005 14:37	3 0	25 6	3	Run 3	-0.1	45 4	45.7	0.15	25 5	25.1	3 1	25 2
8/10/2005 14:38	2 2	23.8	3	Run 3	-0.1	45 4	45.7	0.15	25 5	25.1	2.3	23 4
8/10/2005 14:39	2.7	22.6	3	Run 3	-0.1	45 4	45 7	0 15	25.5	25 1	2.8	22.2
8/10/2005 14.40	3.1	22 2	3	Run 3	-0 1	45.4	45.7	0.15	25 5	25.1	3 2	21 8
8/10/2005 14 41	2 2	21.4	3	Run 3	-0.1	45 4	45 7	0.15	25 5	25.1	2.3	21.0
8/10/2005 14 42	1.3	19 6	3	Run 3	-0.1	45 4	45 7	0 15	25 5	25 1	1 4	19.3
8/10/2005 14 43	1.7	18 4	3	Run 3	-0 1	45 4	45.7	0.15	25.5	25.1	1.8	18.1
8/10/2005 14:44	2 7	18.7	3	Run 3	-0.1	45 4	45.7	0.15	25 5	25.1	2 8	18 4
8/10/2005 14 45	3 4	19 5	3	Run 3	-0.1	45 4	45 7	0 15	25 5	25 1	3.5	19 2

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen and Sulfur Dioxide Test

IDNR Permit Number 94-A-548-S3

August 10, 2005

DATA RECORDER PRINTOUT and TEST SUMMARY

Time (CDT)	NOx, ppm	SO2, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	SO_2 C_o	SO_2 C_M	SO_2 C_{MA}	NOx, ppm Drift Corrected	SO_2, ppm Drift Corrected
8/10/2005 14:46	3.7	20.2	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	3.8	19.9
8/10/2005 14:47	4.2	19.4	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	4.3	19.1
8/10/2005 14:48	3.9	16.2	3	Run 3	-0.1	45.4	45.7	0.15	25.5	25.1	4.0	15.9
8/10/2005 14:49												
8/10/2005 14:50	1.1	7.8										
8/10/2005 14:51	0.4	5.8										
8/10/2005 14:52	0.1	4.2										
	11.1	11.9		**Run 3 Average**							11.5	11.8
8/10/2005 14:53	0.0	3.1										
8/10/2005 14:54	-0.1	2.6										
8/10/2005 14:55	-0.1	2.2										
8/10/2005 14:56	-0.1	1.8										
8/10/2005 14:57	-0.1	1.4										
8/10/2005 14:58	-0.1	1.0										
8/10/2005 14:59	-0.1	0.9										
8/10/2005 15:00	-0.1	0.8										
8/10/2005 15:01	15.5	0.7										
8/10/2005 15:02	45.6	1.0										
8/10/2005 15:03	45.9	2.2		45.7 Nox								
8/10/2005 15:04	45.9	3.3		45.7 Nox								
	45.9	2.8		**45.7 Nox Average**								
8/10/2005 15:05	46.0	3.7										
8/10/2005 15:06	46.0	3.9										
8/10/2005 15:07	44.7	3.6										
8/10/2005 15:08	19.2	7.9										
8/10/2005 15:09	0.1	20.3										
8/10/2005 15:10	0.0	24.3										
8/10/2005 15:11	-0.1	25.0										
8/10/2005 15:12	-0.1	25.3		25.1 SO2								
8/10/2005 15:13	-0.1	25.3		25.1 SO2								
	-0.1	25.3		**25.1 SO2 Average**								
8/10/2005 15:14	-0.1	24.7										
8/10/2005 15:15	-0.1	10.7										
8/10/2005 15:16	-0.1	2.1										
8/10/2005 15:17	-0.1	0.6										
8/10/2005 15:18	-0.1	0.4										
8/10/2005 15:19	-0.1	0.3										
8/10/2005 15:20	-0.1	0.2		zero air								
8/10/2005 15:21	-0.1	0.2		zero air								
	-0.1	0.2		**zero air Average**								
	11.9	8.1		**Test Average**							12.7	8.1

EXAMPLE CALCULATIONS FOR GASEOUS EMISSIONS

Calculations for Run 1 of the Oxides of Nitrogen Test

Correction of NOx Concentrations for Instrument Drift

EPA Method 6C provides an equation for correcting the measured gaseous *concentrations over a valid test run for instrument drift during the test run.*

The EPA equation presented in Section 8 of EPA Method 6C is:

Cgas = (Cavg - Co)(Cma / (Cm - Co))

Where:

Cgas = Effluent gas concentration, dry basis, ppm.

Cavg = Average gas concentration indicated by the gas analyzer, ppm.

Co = Average of initial and final system calibration bias check responses for the zero gas, ppm.

Cm = Average of initial and final system calibration bias check responses for the upscale calibration gas, ppm.

Cma = Actual concentration of the upscale calibration gas, ppm.

Using the average for Run 1 of the NOx test:

Cavg = 10.8

From the Pre test / post test calibration

	Pre test +	Post Test	/ 2	
Co =	-0.1	-0.1	2	-0.1 ppm
Cm =	45.9	45.6	2	45.75 ppm
Cma =	45.7	ppm		

Cgas = (Cavg - Co)(Cma / (Cm - Co))

	Cavg	*Co*	*Cma*	*Cm*	*Co*
Cgas =	10.8	-0.1	45.7	45.75	-0.1

Cgas = 10.9

Calculation of the Mass of NOx Emissions During the Test Run

The stack gas flow rate for each sampling run was measured using EPA Methods 1 through 3. Flow data in the appendix section presents the measured stack gas parameters and calculation of the stack gas flow rates.

The average mass emission rate of a pollutant over a sampling run was calculated by using the following equation:

$$M = \frac{Cgas(avg) \times MW \times Q \times 60}{385.1 \times 10^{6}}$$

Where:

M = Average mass emission rate of the pollutant over the sampling run in lbs/hr.

Cgas(avg)	=	Average concentration of the stack gas during the sampling run in ppm. This concentration is expressed on a dry stack basis.
MW	=	Molecular weight of the pollutant in lbs/lb-mole.
Q	=	Stack gas flow rate during the sampling run in dry *standard cubic feet per minute (dscfm).*
385.1	=	Number of cubic feet occupied by one pound of gas at standard conditions (68° F and 29.92 in. Hg), assuming ideal gas behavior.
10^6	=	Conversion constant for parts per million to cubic feet of pollutant (1 ppm = 10^{-6} ft^3 pollutant / ft^3 stack gas)
60	=	Conversion constant for minutes to hours (1 hr = 60 Minutes)

Example Calculation:

For the NOx test:

Cgas(avg) = 10.9 ppm

MW = 46 = 14 + 16 + 16

Flow SCFMD Avg:

Q = 692712 SCFMD

$$\frac{Cgas(avg) \times MW \times Q \times 60}{385.1 \times 10^6}$$

M	=	Cgas(avg)	MW	Q	
		10.904209	46	692712	60
			3.85E+08		

M = 54.1 lbs/hr

NOx pounds per hour to pounds per ton

Production 148.5 tons/hour (from production records, see appendix section)

NOx 54.1 pounds/hour

pounds per ton = (pounds/hour)/(tons/hour)

Pounds per ton = 0.36

NOx pounds per hour to tons per year

NOx 57.3 pounds per hour (3 run average)

8760 operating hours per year (24 X 365)

2000 pounds = 1 ton

NOx pounds per hour X 8760 operating hours per year / 2000 pounds/ton

NOx 251.0 tons per year

EXAMPLE CALCULATIONS FOR GASEOUS EMISSIONS

Calculations for Run 1 of the Sulfur Dioxide Test

Correction of SO2 Concentrations for Instrument Drift

EPA Method 6C provides an equation for correcting the measured gaseous concentrations over a valid test run for instrument drift during the test run.

The EPA equation presented in Section 8 of EPA Method 6C is:

$$Cgas = (Cavg - Co)(Cma / (Cm - Co))$$

Where:

Cgas = Effluent gas concentration, dry basis, ppm.

Cavg = Average gas concentration indicated by the gas analyzer, ppm.

Co = Average of initial and final system calibration bias check responses for the zero gas, ppm.

Cm = Average of initial and final system calibration bias check responses for the upscale calibration gas, ppm.

Cma = Actual concentration of the upscale calibration gas, ppm.

Using the average for Run 1 of the SO2 test:

Cavg = 3.9

From the Pre test / post test calibration

	Pre test +	Post Test	/ 2	
Co =	0	0.3	2	0.15 ppm
Cm =	25.05	25.3	2	25.175 ppm

Cma = 25.10 ppm

Cgas = (Cavg - Co)(Cma / (Cm - Co))

	Cavg	Co	Cma	Cm	Co
Cgas =	3.9	0.15	25.1	25.175	0.15

Cgas = 3.8

Calculation of the Mass of SO2 Emissions During the Test Run

The stack gas flow rate for each sampling run was measured using EPA Methods 1 through 3. Flow data in the appendix section presents the measured stack gas parameters and calculation of the stack gas flow rates.

The average mass emission rate of a pollutant over a sampling run was calculated by using the following equation:

$$M = \frac{Cgas(avg) \times MW \times Q \times 60}{385.1 \times 10^{6}}$$

Where:

M = Average mass emission rate of the pollutant over the sampling run in lbs/hr.

Cgas(avg) = Average concentration of the stack gas during the sampling run in ppm. This concentration is expressed on a dry stack basis.

MW	=	Molecular weight of the pollutant in lbs/lb-mole.
Q	=	Stack gas flow rate during the sampling run in dry standard cubic feet per minute (dscfm).
385.1	=	Number of cubic feet occupied by one pound of gas at standard conditions (68° F and 29.92 in. Hg), assuming ideal gas behavior.
10^6	=	Conversion constant for parts per million to cubic feet of *pollutant (1 ppm = 10^{-6} ft^3 pollutant / ft^3 stack gas)*
60	=	Conversion constant for minutes to hours *(1 hr = 60 Minutes)*

Example Calculation:

For the SO2 test:

Cgas(avg) = 3.8 ppm

MW = 64 = 32 + 16 + 16

Flow SCFMD Avg:

Q = 692712 SCFMD

$$\frac{Cgas(avg) \times MW \times Q \times 60}{385.1 \times 10^6}$$

$$M = \frac{Cgas(avg)\ MW\ Q}{3.85E+08} = \frac{3.8 \quad 64 \quad 692712 \quad 60}{3.85E+08}$$

M = 26.25 lbs/hr

NOx pounds per hour to pounds per ton

Production 148.5 tons/hour (from production records, see appendix section)

SO2 26.3 pounds/hour

pounds per ton = (pounds/hour)/(tons/hour)

Pounds per ton = 0.18

SO2 pounds per hour to tons per year

SO2 50.0 pounds per hour (3 run average)

8760 operating hours per year (24 X 365)

2000 pounds = 1 ton

SO2 pounds per hour X 8760 operating hours per year / 2000 pounds/ton

SO2 218.8 tons per year

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CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER:	IPSCO Steel	CYLINDER # :	CC-110112
SGI ORDER # :	0065427	CYLINDER PRES:	2000 PSIG
ITEM# :	1	CGA OUTLET:	660
P.O.# :	223081		

CERTIFICATION DATE: 2/8/2005
EXPIRATION DATE: 2/8/2007

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	1/25/2005 2/8/2005	23.49 ppm 23.49 ppm	23.5 ppm	+/- 1%
NOx			23.5 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	NTRM-81684	CC-133648	99.5 ppm

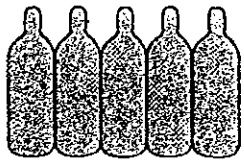
INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	CAI-400-CLD	6L09004	Chemi	1/18/2005

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

ANALYST: _____ DATE: 2/8/2005
FRED PIKULA

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CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER:	IPSCO Steel	**CYLINDER # :**	CC-133116
SGI ORDER # :	0065427	**CYLINDER PRES:**	2000 PSIG
ITEM# :	2	**CGA OUTLET:**	660
P.O.# :	223081		

CERTIFICATION DATE: 2/8/2005
EXPIRATION DATE: 2/8/2007

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	1/25/2005 2/8/2005	45 51 ppm 45.62 ppm	45.6 ppm	+/- 1%
NOx			45.7 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	NTRM-81684	CC-133648	99.5 ppm

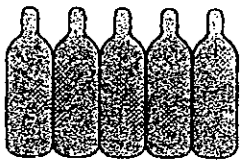
INSTRUMENTATION

COMPONENT	*MAKE/MODEL*	*SERIAL #*	*DETECTOR*	*CALIBRATION DATE(S)*
Nitric Oxide	CAI-400-CLD	6L09004	Chemi	1/18/2005

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

ANALYST: _____ DATE: 2/8/2005
FRED PIKULA

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CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE
PROCEDURE # : G1

CUSTOMER: IPSCO Steel
SGI ORDER # : 0065427
ITEM# : 3
P.O.# : 223081

CYLINDER # : CC-20020
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 2/22/2005
EXPIRATION DATE: 8/22/2005

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Sulfur Dioxide	2/2/2005 2/22/2005	15.25 ppm 15.13 ppm	15.19 ppm	+/- 1%

BALANCE Air

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Sulfur Dioxide	GMIS-1	CC-133555	20.15 ppm

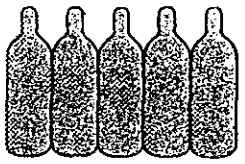
INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Sulfur Dioxide	Thermo 43C	43C-70456-365	UV	2/2/2005

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

ANALYST: _____ DATE: 2/22/2005
FRED PIKULA

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CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER:	IPSCO Steel	CYLINDER # :	CC-131018
SGI ORDER # :	0065427	CYLINDER PRES:	2000 PSIG
ITEM# :	4	CGA OUTLET:	660
P.O.# :	223081		

CERTIFICATION DATE: 2/22/2005
EXPIRATION DATE: 8/22/2005

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Sulfur Dioxide	2/3/2005 2/22/2005	25.03 ppm 25.14 ppm	25.1 ppm	+/- 1%

BALANCE Air

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Sulfur Dioxide	NTRM-81694	CC-162874	96.1 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Sulfur Dioxide	Horiba VIA-510	851221093	NDIR	2/22/2005

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

ANALYST: _____ DATE: 2/22/2005
FRED PIKULA

APPENDIX B

Flow and Moisture

-Flow Run Summaries
-Flow Calculation Data
-Moisture Calculations
-Field Data Sheets
-Pitot Calibrations
-Thermocouple Calibrations
-Magnehelic Calibration

Ambient Air Services, Inc.
Environmental Consultants
106 Ambient Airway Starke, Florida 32091 (904) 964-8440

AASI USEPA Method 1,2,3 - Rev 3,3-10-05

Volumetric Flow Calculations Worksheet

Data Request Entry Area	Flow Run 1
Facility	Ipsco Steel Iowa Inc
Location	Montpelier, Iowa
Source	EAF Baghouse
Date	08/10/05
Run Number	1
Start Time	8:45
Finish Time	9:00
Weather	clr - few
Total Time (minutes) (Θ)	15.0
Number of Points (n)	24
Barometric Pressure (inches Hg) (P_{bar})	29.35
Dry Bulb Temperature	182
Wet Bulb Temperature	104
Static Pressure (inches H_2O) (P_g)	-1.10
Stack Diameter (inches) (D)	228.00
Pitot Factor (C_p)	0.84
Carbon Dioxide %	0.0
Oxygen %	20.9
Carbon Monoxide %	0.0
Nitrogen %	79.1

Field Data Points - Flow Run 1

Port	Trav. Pt.	Vel. Head		Stack F			Sq Rt VH
1	1	0.53		206			0.7280
	2	0.65		209			0.8062
	3	0.72		211			0.8485
	4	0.71		211			0.8426
	5	0.62		210			0.7874
	6	0.76		209			0.8718
2	1	0.85		193			0.9220
	2	1.3		195			1.1402
	3	1.32		194			1.1489
	4	1.31		192			1.1446
	5	1.29		190			1.1358
	6	1.2		188			1.0954
3	1	0.44		164			0.6633
	2	0.68		163			0.8246
	3	0.72		153			0.8485
	4	0.7		153			0.8367
	5	0.73		161			0.8544
	6	0.82		160			0.9055
4	1	0.23		160			0.4796
	2	0.3		163			0.5477
	3	0.41		165			0.6403
	4	0.44		166			0.6633
	5	0.46		168			0.6782
	6	0.46		169			0.6782

Flow Summary Run 1

Facility	Ipsco Steel Iowa Inc	Stack	EAF Baghouse
Location	Montpelier, Iowa	Run Date	8/10/2005
Start Time	8:45	Weather	clr - few
Finish Time	9:00	Total Time (min.)	15
(P_{bar}) Barometric Pressure (in Hg)	29.35	Carbon Dioxide %	0.0
(D) Stack Diameter (inches)	228.00	Oxygen %	20.9
(A) Stack Area (ft^2)	283.529	Carbon Monoxide %	0.0
(n) Number of Points	24	Nitrogen %	79.1
(Δp_{avg}) Avg of SQRT of V,H	0.8372	(P_s)Stack Pressure (inches Hg)	29.27
(Cp) Pitot Correction Factor	0.84	(T_{stack}) Stack Temp (°R)	641.4
(B_{ws}) Moisture in stack gas, volume fraction			0.043
(B_{wd}) Dry Stack Gas, volume fraction			0.957
(M_d) Molecular Weight of Stack Gas (Dry Basis)			28.84
(M_s) Molecular Weight of Stack Gas (Stack conditions)			28.37
(G_s) Specific gravity of Stack Gas Relative to Air			0.979
(v_s) Average Stack Velocity, FPM			3170.3
(Q_a) Actual Stack Gas Flow Rate, ACFM			898872
(Q_a) Actual Stack Gas Flow Rate, ACFMD			860204
($Q_{d(std)}$) Stack Gas Flow Rate, SCFMD			692712
($Q_{s(std)}$) Stack Gas Flow Rate Wet, SCFMW			723851

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AASI USEPA Method 1,2,3 - Rev 3,3-10-05

Volumetric Flow Calculations Worksheet

Data Request Entry Area	Flow Run 2
Facility	Ipsco Steel Iowa Inc
Location	Montpelier, Iowa
Source	EAF Baghouse
Date	08/10/05
Run Number	2
Start Time	11:10
Finish Time	11:25
Weather	clr
Total Time (minutes) (Θ)	15.0
Number of Points (n)	24
Barometric Pressure (inches Hg) (P_{bar})	29.35
Dry Bulb Temperature	210
Wet Bulb Temperature	107
Static Pressure (inches H_2O) (P_g)	-0.92
Stack Diameter (inches) (D)	228.00
Pitot Factor (C_p)	0.84
Carbon Dioxide %	0.0
Oxygen %	20.9
Carbon Monoxide %	0.0
Nitrogen %	79.1

Field Data Points - Flow Run 2

Port	Trav. Pt.	Vel. Head		Stack T F			Sq Rt VH
1	1	0.8		216			0.8944
	2	0.71		212			0.8426
	3	0.68		211			0.8246
	4	0.63		209			0.7937
	5	0.6		207			0.7746
	6	0.48		206			0.6928
2	1	0.34		202			0.5831
	2	0.34		205			0.5831
	3	0.32		206			0.5657
	4	0.33		207			0.5745
	5	0.37		208			0.6083
	6	0.34		208			0.5831
3	1	0.56		208			0.7483
	2	0.63		212			0.7937
	3	0.72		214			0.8485
	4	0.74		215			0.8602
	5	0.76		216			0.8718
	6	0.62		215			0.7874
4	1	0.51		215			0.7141
	2	0.61		220			0.7810
	3	0.66		222			0.8124
	4	0.68		222			0.8246
	5	0.68		223			0.8246
	6	0.54		222			0.7348

Flow Summary Run 2

Facility	Ipsco Steel Iowa Inc	Stack	EAF Baghouse
Location	Montpelier, Iowa	Run Date	8/10/2005
Start Time	11:10	Weather	clr
Finish Time	11:25	Total Time (min.)	15
(P_{bar}) Barometric Pressure (in Hg)	29.35	Carbon Dioxide %	0.0
(D) Diameter (inches)	228.00	Oxygen %	20.9
(A) Stack Area (ft^2)	283.529	Carbon Monoxide %	0.0
(n) Number of Points	24	Nitrogen %	79.1
(Δp_{avg}) Avg of SQRT of V.H.	0.7468	(P_s) Stack Pressure (inches Hg)	29.28
(Cp) Pitot Correction Factor	0.84	($T_{s(abs)}$) Stack Temp (°R)	672.5
(B_{ws}) Moisture in stack gas, volume fraction			0.045
(B_{wd}) Dry Stack Gas, volume fraction			0.955
(M_d) Molecular Weight of Stack Gas (Dry Basis)			28.84
(M_s) Molecular Weight of Stack Gas (Stack conditions)			28.35
(G_s) Specific gravity of Stack Gas Relative to Air			0.978
(v_s) Average Stack Velocity, FPM			2896.1
(Q_s) Actual Stack Gas Flow Rate, ACFM			821128
(Q_d) Actual Stack Gas Flow Rate, ACFMD			784305
($Q_{d(std)}$) Stack Gas Flow Rate, SCFMD			602651
($Q_{s(std)}$) Stack Gas Flow Rate Wet, SCFMW			630945

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AASI USEPA Method 1,2,3 - Rev 3,3-10-05

Volumetric Flow Calculations Worksheet

Data Request Entry Area	Flow Run 3
Facility	Ipsco Steel Iowa Inc.
Location	Montpelier, Iowa
Source	EAF Baghouse
Date	08/10/05
Run Number	3
Start Time	14:30
Finish Time	14:45
Weather	clr
Total Time (minutes) (θ)	15.0
Number of Points (n)	24
Barometric Pressure (inches Hg) (P_{bar})	29.35
Dry Bulb Temperature	195.00
Wet Bulb Temperature	105.00
Static Pressure (inches H_2O) (P_g)	-0.73
Stack Diameter (inches) (D)	228.00
Pitot Factor (C_p)	0.84
Carbon Dioxide %	0.0
Oxygen %	20.9
Carbon Monoxide %	0.0
Nitrogen %	79.1

Field Data Points - Flow Run 3

Port	Trav. Pt.	Vel. Head		Stack F			Sq Rt VH
1	1	0.58		170			0.7616
	2	0.59		173			0.7681
	3	0.66		176			0.8124
	4	0.69		178			0.8307
	5	0.69		180			0.8307
	6	0.59		181			0.7681
2	1	0.57		185			0.7550
	2	0.68		189			0.8246
	3	0.69		190			0.8307
	4	0.72		192			0.8485
	5	0.76		194			0.8718
	6	0.65		194			0.8062
3	1	0.52		204			0.7211
	2	0.49		205			0.7000
	3	0.46		206			0.6782
	4	0.49		206			0.7000
	5	0.5		207			0.7071
	6	0.43		206			0.6557
4	1	0.4		205			0.6325
	2	0.41		210			0.6403
	3	0.38		212			0.6164
	4	0.35		213			0.5916
	5	0.35		215			0.5916
	6	0.32		215			0.5657

Flow Summary Run 3

Facility	Ipsco Steel Iowa Inc	Stack	EAF Baghouse
Location	Montpelier, Iowa	Run Date	8/10/2005
Start Time	14:30	Weather	clr
Finish Time	14:45	Total Time (min.)	15
(P_{bar}) Barometric Pressure (in Hg)	29.35	Carbon Dioxide %	0.0
(D) Diameter (Inches)	228.00	Oxygen %	20.9
(A) Stack Area (ft^2)	283.529	Carbon Monoxide %	0.0
(n) Number of Points	24	Nitrogen %	79.1
(ΔP_{avg}) Avg of SQRT of V.H.	0.7295	(P_s) Stack Pressure (inches Hg)	29.30
(Cp) Pitot Correction Factor	0.84	($T_{s(abs)}$) Stack Temp (°R)	656.1

(B_{ws}) Moisture in stack gas, volume fraction	0.045
(B_{wd}) Dry Stack Gas, volume fraction	0.955
(M_d) Molecular Weight of Stack Gas (Dry Basis)	28.84
(M_s) Molecular Weight of Stack Gas (Stack conditions)	28.36
(G_s) Specific gravity of Stack Gas Relative to Air	0.978
(v_s) Average Stack Velocity, FPM	2793.2
(Q_s) Actual Stack Gas Flow Rate, ACFM	791953
(Q_d) Actual Stack Gas Flow Rate, ACFMD	756683
($Q_{s(std)}$) Stack Gas Flow Rate, SCFMD	596245
($Q_{s(std)}$) Stack Gas Flow Rate Wet, SCFMW	624037

Ambient Air Services, Inc.
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AASI USEPA Method 1,2, WB/DB - Rev 3,3-10-05

Facility	**Ipsco Steel Iowa Inc**	**Source**	**EAF Baghouse**
Location	**Muscatine, Iowa**	**Date**	**August 10, 2005**

Moisture Calculations

Time	W_b Wet Bulb (° F)	D_b Dry Bulb (° F)	P_{bar} Barometric Pres. ("Hg)	P_g Static Pres ("H2O)	P_s Stack Pres. ("Hg)	e @ Saturation	B_{ws} % Moisture	K	C
R1	104	192	29.35	-1.1	29.27	2.154	**4.30**	0.8954	1.2591
R2	107	210	29.35	-0.92	29.28	2.355	**4.48**	1.0423	1.3131
R3	105	195	29.35	-0.73	29.30	2.220	**4.45**	0.9149	1.3047

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AASI USEPA Method 5 24 Point Template - Rev 5/3-3-2005

Example Calculations, Moisture

Facility	Ipsco Steel Iowa Inc	**Source**	EAF Baghouse
Location	Muscatine, Iowa	**Date**	August 10, 2005

1. **Stack Pressure (P_s)**

$$P_s = P_{bar} + (P_g / 13.6)$$

Example.	P_{bar}	=	29.35	P_s	=	**29.27**	in. Hg.
	P_g	=	-1.1				

2. **e @ Saturation**

$$(0.00000608764 \times W_b^3) - (0.0010043 \times W_b^2) + (0.0756026 \times W_b) - 1.6933$$

Example.	W_b	=	104.0	e @	=	**2.154**

3. **K**

$$((Ps - e@) \times (Db - Wb)) / (2800 - (1.3 \times Wb))$$

Example.	e @	=	2.154	**K**	=	**0.895**
	P_s	=	29.27			
	Db	=	192.0			
	Wb	=	104.0			

4. **C**

$$e @ - K$$

Example.	e @	=	2.154	**C**	=	**1.259**	**SCF**
	K	=	0.895				

5. **Moisture in stack gas, volume fraction (B_{ws})**

$$(C / Ps) \times 100$$

Example.	C	=	1.259	B_{ws}	=	**0.043**	
	Ps	=	29.269				

e @	=	Saturation	P_{bar}	=	Barometric Pressure (inches Hg)
B_{ws}	=	Moisture in stack gas, volume fraction	P_g	=	Static Pressure
D_b	=	Dry Bulb Temperature	P_s	=	Stack Pressure (inches Hg)
K	=	Moisture in stack gas, volume fraction	W_b	=	Wet Bulb Temperature

Ambient Air Services, Inc.
106 Ambient Air Way
Starke, FL
(904) 964-8440

Velocity Traverse

Plant: IPSCO Steel Date: 3/10/05

Source: EAF Stack 5 Barometric Pressure: 29.55" Hg

Stack Diameter: 22.0' Pitot ID _____ Thermocouple ID _____

Run 1			Run 2			Run 3		
Static Pressure		-1.1"	Static Pressure		-0.92	Static Pressure		-0.73
Start	0845		Start			Start	1430	
Stop			Stop			Stop		
Traverse Point No.	Velocity Head	Stack Temp Deg F	Traverse Point No.	Velocity Head	Stack Temp Deg F	Traverse Point No.	Velocity Head	Stack Temp Deg F
1-1(E)	0.53	206	1-1	0.80	216	1-1	0.58	170
2	0.65	209	2	0.71	212	2	0.57	173
3	0.72	211	3	0.68	211	3	0.66	176
4	0.71	211	4	0.63	209	4	0.69	178
5	0.82	210	5	0.60	207	5	0.69	180
6	0.76	209	6	0.48	204	6-1	0.59	181
2-1(N)	0.85	193	3-1	0.34	202	2-1	0.57	185
2	1.30	195	2	0.34	205	2	0.68	189
3	1.32	199	3	0.32	206	3	0.69	190
4	1.31	192	4	0.33	207	4	0.72	192
5	1.29	190	5	0.37	208	5	0.76	194
6	1.20	188	6	0.34	208	6	0.65	194
3-1(W)	0.44	164	2-1	0.56	208	3-1	0.52	204
2	0.68	163	2	0.63	212	2	0.49	205
3	0.72	153	3	0.72	214	3	0.46	206
4	0.70	153	4	0.74	215	4	0.49	205
5	0.73	161	5	0.76	216	5	0.50	207
6	0.82	160	6	0.62	215	6	0.43	206
4-1(S)	0.23	160	1-1	0.51	215	4-1	0.40	205
2	0.30	163	2	0.61	220	2	0.41	210
3	0.41	165	3	0.66	222	3	0.38	212
4	0.44	166	4	0.68	222	4	0.35	213
5	0.46	168	5	0.68	223	5	0.35	215
6	0.46	169	6	0.54	222	6	0.32	215

Attns 396 - 1115 24 1330

AAS Inc. AMBIENT AIR SERVICES INCORPORATED
ENVIRONMENTAL CONSULTANTS

PITOT TUBE CALIBRATION MEASUREMENTS

DATE CALIBRATED 7-18-05 PITOT TUBE S-3

Technician name: J. Elliott

Pitot tube assembly level ? ✓ Yes _____ No

Pitot tube openings damaged? _____ Yes (explain below) ✓ NO

a1 = 0° degrees (< 10 deg) a2 = 2° degrees (< 10 deg)

b2 = 1° degrees (<5 deg) b1 = 2° degrees (<5 deg)

Y = 1° degrees θ = 10° degrees A = 1.50 inches = (Pa + Pb)

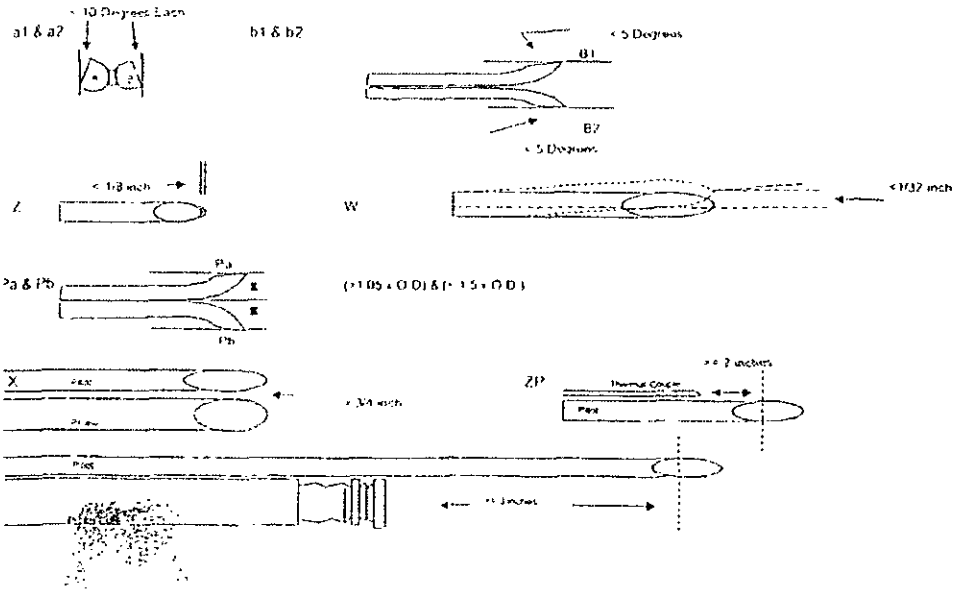
Pa = .175 Pb = .175 Dt = .375

z = A sin Y = 0.026 inches ; *I* < 1/8 inches

w = A sin θ = 0.026 inches ; *I* < 1/32 inches

Calibration required ? _____ Yes ✓ No Technician signature J. Elliott

Quality Assurance Review by: _____ QA date 7/18/05



AMBIENT AIR SERVICES, INC.
106 Ambient Air Way
Starke, Florida

THERMOCOUPLE CALIBRATION FORM

Date 8/24/05 Time 1700
Ambient Temperature 87° F Source Std therm.
Barometric Pressure 29.83 Source Hg B-1
Technician's Signature J. Jory

Standard Thermometer Type Mercurial
Manufacturer HB USA
Serial Number 122004-1
Pyrometer Manufacturer Atkins Model 396K
Serial Number 111504030 Meter Box N/A

TEMPERATURE SOURCE (A)		Ice Water			Ambient Water			Boiling Water					
REFERENCE THERMOMETER	Actual Reading	34°			87°			211°					
	Corrected Temperature												
CALIBRATED THERMOCOUPLE		Indicated Temp.	Difference (B)	Percent Diff. (C)	Indicated Temp.	Difference	Percent Diff.	Indicated Temp.	Difference	Percent Diff.	Indicated Temp.	Difference	Percent Diff.
Serial Number	Location												
8-7	Stack	34°	0		87°	0		211°	0				
	Filter												
	Impinger												
	Meter In												
	Meter Out												

Comments:

Calibration Tolerances Stack = 1.5% of value, Filter Box = ±5.4°F, Impinger = ±2°F, Meter = ±5.4°F (40CFR Pt 60, App. A Method 5, and QA Handbook Section 3.4, Method 5, page 13, Rev. 0)

(A) Type of calibration system used (B) Reference - Indicated = Difference

(C) $\left[\frac{\text{(ref. temp. °F + 460) - (indicated temp. °F + 460)}}{\text{(reference temp. °F + 460)}}\right] \times 100$

AASI 68A

Ambient Air Services, Inc.
Magnehelic Calibration

Date: 8/24/2005

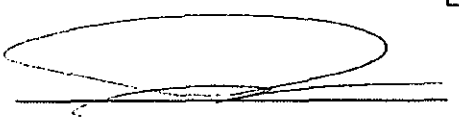
Magnehelic serial number AN 41

Standard Manometer ID: IM 3

Calibration Technician: J Jory

Manometer (Audit value)	**Magnehelic** (Display value) **Positive**	**Magnehelic** (Display value) **Negative**	**Percent Difference Positive**	**Percent Difference Negative**
0.1	0.1	0.1	0.0	0.0
0.2	0.2	0.2	0.0	0.0
0.3	0.3	0.3	0.0	0.0
0.4	0.4	0.4	0.0	0.0
0.5	0.5	0.5	0.0	0.0
0.6	0.6	0.6	0.0	0.0
0.7	0.7	0.7	0.0	0.0
0.8	0.79	0.79	1.3	1.3
0.9	0.89	0.89	1.1	1.1
1	0.98	0.98	2.0	2.0

Average % Difference	0.4	0.4

Technician Signature: 

Quality Assurance Review: _____ QA date: _____

Ambient Air Services, Inc.
Magnehelic Calibration

Date: 8/24/2005

Magnehelic serial number T101

Standard Manometer ID: IM 3

Calibration Technician: J Jory

Manometer (Audit value)	**Magnehelic** (Display value) **Positive**	**Magnehelic** (Display value) **Negative**	**Percent Difference Positive**	**Percent Difference Negative**
0	0	0	0.0	0.0
0.5	0.5	0.5	0.0	0.0
1	1	1	0.0	0.0
1.25	1.25	1.25	0.0	0.0
1.5	1.5	1.5	0.0	0.0
2	2	2	0.0	0.0
			0	0
			0	0
			0	0
			0	0

Average % Difference	0.0	0.0

Technician Signature: _____

Quality Assurance Review: _____ QA date: _____

APPENDIX C

Test Protocol

Ambient Air Services, Inc.

106 Ambient Airway • Starke, FL 32091 • (904) 964-8440 • Fax (904) 964-6675

December 22, 2004

(Revision 1: 020205)

Mr. Mark Stone
Stack Testing Coordinator
Air Quality Bureau
Iowa Department of Natural Resources
7900 Hickman Road, Suite 1
Urbandale, Iowa 50322

Dear Mark:

Attached is the IDNR test protocol form completed for the quarterly testing at IPSCO Steel's Montpelier Works facility.

A brief synopsis of the testing planned is as follows:

Oxides of Nitrogen (NO_x):	3 test runs, each run 2 heats (nominally 1.5 - 2.0 hours) in duration. Instrument range 0-50 ppm, calibration gases nominally 0, 25 ppm and 45 ppm. Test in accordance with USEPA Method 7E.
Sulfur Dioxide (SO_2):	3 test runs, each run 2 heats (nominally 1.5 - 2.0 hours) in duration. Instrument range 0-30 ppm, calibration gases nominally 0, 15 and 25 ppm. Test in accordance with USEPA Method 6C.
Flow:	3 flow traverses, one for each NO_x / SO_2 test run. Moisture by wet bulb/dry bulb. O_2 and CO_2 are assumed to be 21% and 0% and will not be measured.

IPSCO has selected the following dates for the conducting the testing for 2005:

First Quarter	March 9, 2005
Second Quarter	April 27, 2005
Third Quarter	July 20, 2005
Fourth Quarter	October 5, 2005

Please note that these dates are our best estimates. As each date approaches we will confirm production schedules and confirm dates and test start times.

Please let me know if you have any questions.

Sincerely,

Joseph L. Cooksey

JLC:las

cc: Jim Prochaska, IPSCO Montpelier Works
Joseph Wesselman, IPSCO Corporate

PROPOSED TEST PLAN PROTOCOL

Company Name: IPSCO Steel (Plant Number 70-08-002)

Address: 1770 Bill Sharp Boulevard, Muscatine, IA 52761

Name and Title of Contact: Jim Prochaska

Address of Contact: 1770 Bill Sharp Boulevard, Muscatine, IA 52761

Telephone Number of Contact: (563) 381-5338

Proposed Test Date: Quarterly Starting March 5, 2003, April 30, 2003, July 9, 2003 and October 8,2003.

Source Information

Type of Source: EAF/LMF Baghouse Exhaust Stack

Identification of Source to be tested: Baghouse Exhaust Stack

Permit Number of Source: 94-A-548-S3

Address of Source: 1770 Zachary Avenue

Initial Startup Date: 1998

Testing Firm Information

Name of Firm: Ambient Air Services, Inc.

Address: 106 Ambient Airway, Starke, Florida 32091

Name and Title of Contact: Joseph L. Cooksey, President

Telephone Number: (904) 964-8440

Number of Employees of Firm: 17

Number of Employees engaged in Air Pollution Source Testing (Including Support Personnel): 17

Location and Description of Laboratory Facilities: 106 Ambient Airway, Starke, Florida

Subcontractor(s) Utilized by firm for Source Testing Activities: None

Number of Air Pollution Sources Previously Tested by Firm: Testing since 1973

Types of Sources Previously Tested by Firm: Many different source types including heavy experience in Steel Industry.

PERFORMANCE TEST INFORMATION

List all pollutants to be sampled. 94-A-548-S3 - EAF / LMF Baghouse

	Pollutant	Number of Sampling Points	Total Time per Test Run	Number of Test Runs	Test Methods to be Used
1	NOx	1	2 heats	3	M 7E
2	Flow	24	N/A	3	1-4*
3	SO_2	1	2 heats	3	6C

For EPA Reference Method 5 or Iowa Method 5 tests, indicate the length of each run to collect 50 milligrams of sample. Use the estimated emissions after control as the stack gas concentration.

If the permitted emission standard or expected concentration of particulate is equal to or less than 0.005 grains per dry standard cubic foot (gr/dscf), an extended sampling time must be considered. When calculating the sample time, the length of each run should be such that a sample catch of 50 milligrams will be colleted. Should the sample catch be less than 10 milligrams after applying the above method, the test may be subject to rejection or a 10 milligrams sample weight may be assumed.

Include a description of any test procedures to be used in the conduct of the performance tests which differ from the specified method(s).

* Moisture using wet bulb/dry bulb

PROTOCOL SUPPLEMENT - OPERATING DATA

This form is to be filled out and returned with the test protocol.

Maximum Continuous Process Weight (Manufacturer's Rating): Existing - 164 TPH Phase 1 - 200 TPH (Target Production for Test is Phase 1) Phase 2 - 230 TPH

Historical Average Process Weight: Not yet established

Historical Maximum Process Weight: Plant is capable of up to 200 TPH but to date has achieved this for only short time periods.

Product Recycling Capability: Yes ____ (Heel) No X

Type of Sources of Fuels Normally Burned: Electric arc 420 KWH, 200 cu.ft. natural gas, 400 cu.ft. oxygen + 1200-1400 cu.ft. oxygen per liquid ton of steel.

Type of Control Equipment: Baghouse

Range of Pressure Drop Across Control Equipment: 4-6 Inches of Water Currently operating at

Person Responsible For This Data: Jim Prochaska

Person Responsible For Collecting Process Data During Actual Testing: Jim Prochaska

Complete and submit one of these forms for each test to be conducted. This information is especially important the determine to operating conditions of the equipment under which the tests will be conducted. The tests must be conducted while operating at maximum capacity or the highest capacity which this source will be operated. Failure to test at the permitted capacity may result in derating this source.

This information is also required to be submitted on the forms found at the end of the protocol package. These two forms, the Compliance Emission Test Operating Data and the Air Pollution Control Equipment Operating Data forms, must be filled out with the data collected on the actual date of the tests. Failure to complete the forms on the day of the testing may be cause for rejecting the tests.

APPENDIX D

Plant Operating Data

Note – Information in this section was provided by Ipsco Steel.

164.54 TT

HEAT: A5H104 MSP: 24210

Start Time: 10-Aug-2005 00:45:30
End Time : 10-Aug-2005 09:19:31
TapToTap Time : 513 (min)

Heat Order 0857802
Grade J55
Ladle #: 0 CrewID: 2 OperatorID: 4

START	DUR	DELAY REASON
09:14:59	0000	Operational, Tap
09:08:11	0006	Operational, Lance Taphole
09:03:53	0004	Operational, Slagoff
09:02:35	0001	Operational, Temp
08:51:29	0008	Operational, Temp
08:37:56	0000	Operational, Sidewall RTD trip
08:18:23	0005	Operational, Charge
08:04:27	0004	Operational, Sidewall RTD trip
08:03:07	0000	Operational, Sidewall RTD trip
08:01:34	0000	Operational, Sidewall RTD trip
07:41:29	0016	Electrical, PLC Problems
06:44:17	0057	Other, New Other
03:21:17	0203	Other, New Other
00:56:17	0145	Operational, Charge run B
00:46:17	0010	Operational, Charge run B

CHARGES	AMOUNT
Charge 1	227650
Charge 2	131050
Charge 3	0
Charge 4	0
Charge 5	0

ADDITIONS	LBS
SiMn	0002300
FeMn	0000200
4oz AL Con	0000450
Carbon	0001990
Dololime	0008445
HiCal Lime	0003450
ESM	0001200
MW13	0003300
40 # Syn G	0000120
Fluorspar	0000200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	59500	19300	40200	0	0	0
O2 Burner	SCF	82	22	60	0	0	0
Gas Burner	SCF	36	10	26	0	0	0
O2 Lance	SCF	705	80	625	0	0	0
Carbon Lance	LBS	5682	2701	2981	0	0	0
TIMES							
Melting Tm	MIN	513	453	60	0	0	0
Power on Tm	MIN	44	15	29	0	0	0
Burner On Tm	MIN	214	155	59	0	0	0
O2Lance On Tm	MIN	53	11	42	0	0	0
CLance On Tm	MIN	39	8	31	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	331.8	189.6	331.8	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	7562.0	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	003.9	000.7	003.9	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	031.7	023.7	031.7	000.0	000.0	000.0

COMMENTS

chg motor gear box on ladle car

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.21000	0.80000	0.02000	0.00600	0.24000	0.04000	0.00000	0.01500	0.00000	0.40300	0.50000	0.20000	0.20000	0.05000	0.05000	0.00400	0.00000	0.00000	0.01000	0.00000	0.00000	0.00000
MIN	0.19000	0.70000	0.00000	0.00000	0.14000	0.01800	0.01500	0.00000	0.00100	0.36600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00600	0.00000	0.00000	0.00000
AIM	0.20000	0.75000	0.00000	0.00000	0.14000	0.02500	0.00000	0.00000	0.00000	0.38400	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00700	0.00000	0.00000	0.00000

161.54 TT

IPSCO STEEL INC.
Montpelier Works

HEAT: B5H603 MSP: 24210

Start Time: 10-Aug-2005 03:24:24
End Time : 10-Aug-2005 10:11.50
TapToTap Time : 407 (min)

Heat Order : 0857803
Grade : J55
Ladle #: 10 CrewID: 4 OperatorID: 4

START	DUR	DELAY REASON
10:08:46	0000	Operational, Tap
10:02:16	0006	Operational, Lance Taphole
09:59:22	0002	Operational, Slagoff
09:55:10	0004	Operational, Blow Carbon
09:36:37	0005	Other, Let baghouse catch up
09:18:20	0004	Operational, Charge
08:05.00	0059	Operational, Run A
06:45:00	0080	Other, New Other
03:35:00	0190	Other, New Other
03:31:00	0004	Operational, Charge
03:29:42	0001	Operational, Charge
03:25:12	0004	Operational, Turnaround

CHARGES	AMOUNT
Charge 1 : 231000	
Charge 2 : 106350	
Charge 3 : 0	
Charge 4 : 0	
Charge 5 : 0	

ADDITIONS	LBS
SiMn	0002300
FeMn	0000200
4oz AL Con	0000450
Carbon	0001985
Dololime	0008445
HiCal Lime	0003455
ESM	0001200
MW13	0003300
40 # Syn G	0000120
Fluorspar	0000200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	66000	21200	44800	0	0	0
O2 Burner	SCF	65	17	48	0	0	0
Gas Burner	SCF	35	9	26	0	0	0
O2 Lance	SCF	880	91	789	0	0	0
Carbon Lance	LBS	3025	1818	1207	0	0	0
TIMES							
Melting Tm	MIN	407	355	52	0	0	0
Power on Tm	MIN	40	13	27	0	0	0
Burner On Tm	MIN	77	25	52	0	0	0
O2Lance On Tm	MIN	45	10	35	0	0	0
CLance On Tm	MIN	20	0	20	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	391.3	183.5	391.3	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	35262.7	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.2	000.8	005.2	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	017.9	015.7	017.9	000.0	000.0	000.0

COMMENTS

change east motor and gearbox on ladle car dan cody

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.21000	0.80000	0.02000	0.00600	0.24000	0.04000	0.00000	0.01500	0.00000	0.40300	0.50000	0.20000	0.20000	0.05000	0.05000	0.00400	0.00000	0.00000	0.01000	0.00000	0.00000	0.00000
MIN	0.19000	0.70000	0.00000	0.00000	0.14000	0.01800	0.01500	0.00000	0.00100	0.36600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00600	0.00000	0.00000	0.00000
AIM	0.20000	0.75000	0.00000	0.00000	0.14000	0.02500	0.00000	0.00000	0.00000	0.38400	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00700	0.00000	0.00000	0.00000

HEAT: B5H603 MSP: 24210

---------- EVENTS ----------

TIME	KWH	Description
10:11:56	0066000	Ladle Weigth
10:11:52	0066000	End Tapping
10:10:42	0066000	Start Tapping
09:59:28	0066000	Temperature <3054> O2 <1083> C <41>
09:55:09	0066000	Power Off
09:55:04	0065900	Temperature <3025> O2 <629> C <66>
09:52:58	0062100	Temperature <2856> O2 <275> C <96>
09:41:44	0042500	Power On
09:37:54	0042500	Material Addition
09:36:35	0042500	Power Off
09:22:46	0021200	Power On
09:19:47	0021200	Charge
09:18:18	0021200	Power Off
09:07:10	0002900	Burners On
09:04:53	0000000	Melting
09:04:52	0000000	Power On
08:19:33	0000000	Charge
03:37:35	0000000	Burners Off
03:24:26	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: A5H105 MSP: 24210

Start Time: 10-Aug-2005 09:20:34
End Time : 10-Aug-2005 11:31:45
TapToTap Time : 130 (min)

Heat Order : 0857804
Grade : J55
Ladle # 0 CrewID: 2 OperatorID: 4

START	DUR	DELAY REASON
11:27:54	0000	Operational, Tap
11:24:18	0003	Operational, Slagoff
11:12:41	0003	Other, Pack On B
11:00:06	0000	Other, Scrap Cave
10:46:12	0007	Operational, Pack scrap
10:43:18	0002	Operational, Charge
10:41:11	0000	Operational, Sidewall RTD trip
10:32:49	0000	Other, Scrap Cave
09:56:34	0031	Other, New Other
09:21:22	0035	Operational, Charge run B

CHARGES	AMOUNT
Charge 1 : 215650	
Charge 2 : 160300	
Charge 3 : 0	
Charge 4 : 0	
Charge 5 : 0	

ADDITIONS	LBS
SiMn	0002300
FeMn	0000200
4oz AL Con	0000450
Carbon	0002645
Dololime	0008450
HiCal Lime	0003445
ESM	0001200
MW13	0003300
40 # Syn G	0000120
Fluorspar	0000200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	62500	21500	41000	0	0	0
O2 Burner	SCF	69	21	48	0	0	0
Gas Burner	SCF	30	9	21	0	0	0
O2 Lance	SCF	844	115	729	0	0	0
Carbon Lance	LBS	2780	2540	240	0	0	0
TIMES							
Melting Tm	MIN	130	85	45	0	0	0
Power on Tm	MIN	41	14	27	0	0	0
Burner On Tm	MIN	61	16	45	0	0	0
O2Lance On Tm	MIN	45	12	33	0	0	0
CLance On Tm	MIN	20	1	18	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	332.5	199.4	332.5	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	32069.6	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.5	001.1	004.5	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	014.8	023.6	014.8	000.0	000.0	000.0

COMMENTS

below sand stack test dan

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.21000	0.80000	0.02000	0.00600	0.24000	0.04000	0.00000	0.01500	0.00000	0.40300	0.50000	0.20000	0.20000	0.05000	0.05000	0.00400	0.00000	0.00000	0.01000	0.00000	0.00000	0.00000
MIN	0.19000	0.70000	0.00000	0.00000	0.14000	0.01800	0.01500	0.00000	0.00100	0.36600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00600	0.00000	0.00000	0.00000
AIM	0.20000	0.75000	0.00000	0.00000	0.14000	0.02500	0.00000	0.00000	0.00000	0.38400	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00700	0.00000	0.00000	0.00000

HEAT: A5H105 MSP: 24210

---------- EVENTS ----------

TIME	KWH	Description
11:31:51	0062500	Ladle Weigth
11:31:47	0062500	End Tapping
11:30:20	0062500	Start Tapping
11:24:25	0062500	Temperature <2946> O2 <960> C <35>
11:24:16	0062500	Power Off
11:24:08	0062400	Material Addition
11:23:01	0060500	Temperature <2895> O2 <807> C <2917>
11:15:46	0050800	Power On
11:12:39	0050800	Power Off
11:00:40	0030900	Power On
11:00:39	0030900	Power Off
11:00:38	0030900	Power On
11:00:04	0030900	Power Off
10:53:31	0021600	Power On
10:46:37	0021500	Charge
10:43:17	0021500	Power Off
10:41:48	0019800	Power On
10:41:09	0019800	Power Off
10:33:05	0006700	Power On
10:32:47	0006600	Power Off
10:30:25	0002800	Burners On
10:27:54	0000000	Melting
10:27:52	0000000	Power On
09:34:49	0000000	Charge
09:20:36	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: B5H604 MSP: 24210

Start Time: 10-Aug-2005 10:12:53
End Time : 10-Aug-2005 12:35:46
TapToTap Time : 142 (min)

Heat Order : 0857805
Grade : J55
Ladle #: 1 CrewID: 4 OperatorID: 4

START	DUR	DELAY REASON
12:32:46	0000	Operational, Tap
12:29:22	0003	Operational, Slagoff
12:17:52	0011	Operational, Blow Carbon
12:00:19	0003	Other, Pack On A
11:54:34	0000	Other, Scrap Cave
11:43:41	0004	Operational, Pack scrap
11:40:59	0002	Operational, Charge
10:45:46	0040	Operational, Charge Run A
10:13:40	0032	Other, New Other

CHARGES	AMOUNT
Charge 1	229900
Charge 2	134500
Charge 3	0
Charge 4	0
Charge 5	0

ADDITIONS	LBS
SiMn	0002300
FeMn	0000200
4oz AL Con	0000450
Carbon	0001985
Dololime	0008450
HiCal Lime	0003450
ESM	0001200
MW13	0003300
40 # Syn G	0000120
Fluorspar	0000200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	63400	21200	42200	0	0	0
O2 Burner	SCF	102	49	53	0	0	0
Gas Burner	SCF	52	23	29	0	0	0
O2 Lance	SCF	1013	93	920	0	0	0
Carbon Lance	LBS	3198	2463	735	0	0	0
TIMES							
Melting Tm	MIN	142	89	53	0	0	0
Power on Tm	MIN	39	14	25	0	0	0
Burner On Tm	MIN	142	89	53	0	0	0
O2Lance On Tm	MIN	56	13	43	0	0	0
CLance On Tm	MIN	22	0	21	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	348.0	184.4	348.0	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	32448.1	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.6	000.8	005.6	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.3	000.2	000.3	000.0	000.0	000.0
Carbon Ton	LBS/Ton	017.6	021.4	017.6	000.0	000.0	000.0

COMMENTS

Calibration for NoX test. at the sand dan coidy

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.21000	0.80000	0.02000	0.00600	0.24000	0.04000	0.00000	0.01500	0.00000	0.40300	0.50000	0.20000	0.20000	0.05000	0.05000	0.00400	0.00000	0.00000	0.01000	0.00000	0.00000	0.00000
MIN	0.19000	0.70000	0.00000	0.00000	0.14000	0.01800	0.01500	0.00000	0.00100	0.36600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00600	0.00000	0.00000	0.00000
AIM	0.20000	0.75000	0.00000	0.00000	0.14000	0.02500	0.00000	0.00000	0.00000	0.38400	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00700	0.00000	0.00000	0.00000

HEAT: B5H604 MSP: 24210

EVENTS

TIME	KWH	Description
12:35:52	0063400	Ladle Weigth
12:35:48	0063400	End Tapping
12:34:32	0063400	Start Tapping
12:29:41	0063400	Temperature <3012> O2 <795> C <51>
12:27:06	0063400	Temperature <3002> O2 <629> C <62>
12:22:00	0063400	Temperature <2931> O2 <172> C <189>
12:18:11	0063400	Temperature <2872> O2 <98> C <278>
12:17:50	0063400	Power Off
12:06:34	0043500	Material Addition
12:04:17	0039700	Power On
12:00:18	0039700	Power Off
11:54:55	0030200	Power On
11:54:32	0030200	Power Off
11:48:10	0021200	Power On
11:42:13	0021200	Charge
11:40:58	0021200	Power Off
11:40:18	0020400	Power On
11:40:15	0020400	Power Off
11:40:15	0020400	Power On
11:40:03	0020400	Power Off
11:26:35	0000000	Melting
11:26:34	0000000	Power On
10:38:32	0000000	Charge
10:12:55	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: A5H106 MSP: 24210

Start Time: 10-Aug-2005 11:32:48
End Time : 10-Aug-2005 13:53:43
TapToTap Time : 140 (min)

Heat Order : 0857806
Grade : J55
Ladle #: 0 CrewID: 2 OperatorID: 4

START	DUR	DELAY REASON
13:50:04	0000	Operational, Tap
13:46:28	0003	Operational, Lance Taphole
13:43:58	0002	Operational, Slagoff
13:27:34	0003	Other, Pack On B
13:07:16	0005	Operational, Charge
12:19:05	0032	Other, New Other
11:33:35	0045	Operational, Charge run B

CHARGES	AMOUNT
Charge 1 :	215950
Charge 2 :	146800
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0002300
FeMn	0000200
4oz AL Con	0000450
Carbon	0001990
Dololime	0008450
HiCal Lime	0003445
ESM	0001200
MW13	0003300
40 # Syn G	0000120
Fluorspar	0000200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	59900	21100	38800	0	0	0
O2 Burner	SCF	65	30	35	0	0	0
Gas Burner	SCF	28	13	15	0	0	0
O2 Lance	SCF	789	167	622	0	0	0
Carbon Lance	LBS	3472	1787	1685	0	0	0
TIMES							
Melting Tm	MIN	140	95	44	0	0	0
Power on Tm	MIN	41	14	26	0	0	0
Burner On Tm	MIN	73	33	39	0	0	0
O2Lance On Tm	MIN	46	13	32	0	0	0
CLance On Tm	MIN	22	2	20	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	330.3	195.4	330.3	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	40786.8	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.4	001.5	004.4	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	019.1	016.6	019.1	000.0	000.0	000.0

COMMENTS

at the sand stack test dan

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.21000	0.80000	0.02000	0.00600	0.24000	0.04000	0.00000	0.01500	0.00000	0.40300	0.50000	0.20000	0.20000	0.05000	0.05000	0.00400	0.00000	0.00000	0.01000	0.00000	0.00000	0.00000
MIN	0.19000	0.70000	0.00000	0.00000	0.14000	0.01800	0.01500	0.00000	0.00100	0.36600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00600	0.00000	0.00000	0.00000
AIM	0.20000	0.75000	0.00000	0.00000	0.14000	0.02500	0.00000	0.00000	0.00000	0.38400	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00700	0.00000	0.00000	0.00000

HEAT: A5H106 MSP: 24210

EVENTS		
TIME	KWH	Description
13:53:49	0059900	Ladle Weigth
13:53:45	0059900	End Tapping
13:52:34	0059900	Start Tapping
13:48:46	0059900	Burners Off
13:44:02	0059900	Temperature <2899> O2 <734> C <40>
13:43:56	0059900	Power Off
13:42:50	0058500	Temperature <2890> O2 <605> C <48>
13:41:29	0056700	Temperature <2880> O2 <0> C <0>
13:31:53	0043700	Material Addition
13:31:16	0042700	Power On
13:27:32	0042600	Power Off
13:21:36	0032100	Power On
13:21:28	0032100	Power Off
13:20:36	0031000	Power On
13:20:21	0031000	Power Off
13:13:13	0021100	Power On
13:08:55	0021100	Charge
13:07:14	0021100	Power Off
12:59:42	0008500	Power On
12:59:32	0008500	Power Off
12:59:19	0008400	Power On
12:59:10	0008300	Power Off
12:58:58	0008200	Power On
12:58:49	0008100	Power Off
12:58:36	0007900	Power On
12:58:24	0007900	Power Off
12:58:09	0007700	Power On
12:57:56	0007700	Power Off
12:57:42	0007500	Power On
12:57:40	0007500	Power Off
12:57:39	0007500	Power On
12:57:38	0007500	Power Off
12:57:35	0007500	Power On
12:57:33	0007500	Power Off

EVENTS		
TIME	KWH	Description
12:57:32	0007500	Power On
12:57:27	0007500	Power Off
12:56:13	0005900	Power On
12:56:10	0005900	Power Off
12:52:59	0000900	Burners On
12:51:32	0000000	Melting
12:51:30	0000000	Power On
12:25:35	0000000	Charge
11:50:49	0000000	Burners Off
11:32:50	0000000	TurnAround

Meltshop Production

Issue Date : 8/17/2005 10:54:26
Issued By : Operations Planning
PBL Name :
Created Date :
Report Name :?
Version :

From: 08/09/05 23:00:00 To: 08/10/05 23:00:00

Seq Id	Heat Id	Heat Order Id	Grade	Melt Practice	Tap Complete Time	Charge Weight	Slab Wgt.	Ht Abort Flag	Pourback Heat Id	Pourback Heat Wgt
H50028	B5H601	0825403	J55	64155	08/09/2005 23:48:37	163.23	170.11	Yes		
H50028	A5H103	0825404	J55	64155	08/10/2005 00:44:26	172.15	137.32	Yes		
	Percent Yield:	94.3%	Total Scrap Charged:	335.38	Average Scrap Charge:	167.69	Re-Id Intermix Wgt:	0.00		
	Heats in Sequence:	2	Total Tons Tapped:	316.39	Average Tap Weight:	158.20				
	Slabs Cast:	10	Tundish Skull:	3.97	Crop Loss:	2.14				
	Slab Weights:	307.43	Pit Scrap:	2.60	Kerf / Sample Loss:	0.25				
H50029	B5H602	0857801	J55	24210	08/10/2005 03:23:21	171.35	152.65	Yes		
	Percent Yield:	93.4%	Total Scrap Charged:	171.35	Average Scrap Charge:	171.35	Re-Id Intermix Wgt:	0.00		
	Heats in Sequence:	1	Total Tons Tapped:	160.05	Average Tap Weight:	160.05				
	Slabs Cast:	5	Tundish Skull:	3.77	Crop Loss:	2.08				
	Slab Weights:	152.65	Pit Scrap:	1.30	Kerf / Sample Loss:	0.25				
H50030	A5H104	0857802	J55	24210	08/10/2005 09:19:31	172.55	165.51	Yes		
H50030	B5H603	0857803	J55	24210	08/10/2005 10:11:50	162.13	165.46	Yes		
H50030	A5H105	0857804	J55	24210	08/10/2005 11:31:45	181.05	165.50	Yes		
H50030	B5H604	0857805	J55	24210	08/10/2005 12:35:46	174.83	165.52	Yes		
H50030	A5H106	0857806	J55	24210	08/10/2005 13:53:43	175.43	165.54	Yes		
H50030	B5H605	0857807	J55	24210	08/10/2005 15:12:16	174.80	165.53	Yes		
H50030	A5H107	0857808	J55	24210	08/10/2005 16:05:14	173.05	132.44	Yes		
H50030	B5H606	0857809	J55	24210	08/10/2005 17:07:12	175.15	173.53	Yes		
	Percent Yield:	94.8%	Total Scrap Charged:	1,388.98	Average Scrap Charge:	173.62	Re-Id Intermix Wgt:	0.00		
	Heats in Sequence:	8	Total Tons Tapped:	1,316.34	Average Tap Weight:	164.54				
	Slabs Cast:	40	Tundish Skull:	4.58	Crop Loss:	2.08				
	Slab Weights:	1,299.03	Pit Scrap:	10.40	Kerf / Sample Loss:	0.25				
H50031	A5H108	0794601	H40	22201	08/10/2005 17:55:39	174.10	166.90	Yes		
H50031	B5H607	0794602	H40	22201	08/10/2005 18:50:39	170.15	166.89	Yes		
H50031	A5H109	0794603	H40	22201	08/10/2005 19:45:27	173.50	133.43	Yes		
H50031	B5H608	0794604	H40	22201	08/10/2005 20:37:16	172.08	166.91	Yes		
H50031	A5H110	0794605	H40	22201	08/10/2005 21:39:18	171.93	133.52	Yes		
	Percent Yield:	89.8%	Total Scrap Charged:	861.75	Average Scrap Charge:	172.35	Re-Id Intermix Wgt:	0.00		
	Heats in Sequence:	5	Total Tons Tapped:	774.15	Average Tap Weight:	154.83				
	Slabs Cast:	23	Tundish Skull:	0.00	Crop Loss:	0.00				
	Slab Weights:	767.65	Pit Scrap:	6.50	Kerf / Sample Loss:	0.00				

Production Period Summary:

Percent Yield:	92.95%	Total Scrap Charged:	2,757.45	Average Scrap Charge:	172.34
Total Heats Tapped:	16	Total Liquid Metal Tapped:	2,563.04	Average Tap Weight:	160.19
		Total Caster Losses:	36.28		
Total Slab Casts:	78	Total Tundish Loss:	12.32	Total Pit Scrap Loss:	16.90
Total Slab Weights:	2,526.76	Total Crop Loss:	6.31	Total Sample / Kerf Loss:	0.75
				Re-Id Intermix Wgt:	0.00

* Estimated - heats have not been cast.

Page 1 of 1

R. SERIES/ Initials Con 10-1 / KLA
FACILITY ID 70-08-002
WK ACT/ Doc Code ST / TR
Permit # 94-A-548-S3
Date Rec. 6-6-05

EMISSION TEST REPORT

IPSCO STEEL, INC.
Montpelier, Iowa

Second Quarter 2005 Oxides of Nitrogen and Sulfur Dioxide Test

April 28, 2005

TEST

IDNR Permit Number(s)

EAF/LMF Meltshop Stack 94-A-548-S3

R. SERIES / Initials Con 10-1 / mj
FACILITY ID 70-08-002
WK ACT / Doc Code ST / TR

Prepared By:

AAS Inc.

Ambient Air Services, Inc.

106 Ambient Airway • Starke, FL 32091 • (904) 964-8440 • Fax (904) 964-6675

LELAP Accredited Laboratory Certification Number 04064
LELAP Agency Interest Number 100329

ipsco

June 3, 2005

RECEIVED

JUN 0 6 2005

Iowa Department of Natural Resources
Air Quality Bureau
Stack Test Coordinator
7900 Hickman Road
Suite 1
Urbandale, IA 50322

Re: IPSCO Steel Inc.-Montpelier, Iowa
Permit #94-A-548-S3
2nd Quarter NOx and SOx Test

Mr. Stone:

Attached please find the 2005 second quarter NOx and SOx stack test report. This report is being provided in compliance with the above reference permit. A copy of this report will also be forwarded to USEPA Region VII.

If you have any questions please feel free to contact me at 630-810-4738.

Sincerely,
Ipsco Steel Inc.

Joseph C. Wesselman
Corporate Environmental Director

cc: Richard Acquaviva-w/o attachments
Jeryl Olson-w/o attachments

ipsco steel inc.

1770 Bill Sharp Boulevard, Muscatine, Iowa 52761
Phone (563) 381-5300 Fax (563) 381-5329

EMISSION TEST REPORT

IPSCO STEEL, INC.
Montpelier, Iowa

Second Quarter 2005 Oxides of Nitrogen and Sulfur Dioxide Test

April 28, 2005

IDNR Permit Number(s)

EAF/LMF Meltshop Stack 94-A-548-S3

RECEIVED
JUN 0 6 2005

Prepared by:
AMBIENT AIR SERVICES, INC.
106 AMBIENT AIRWAY
STARKE, FLORIDA 32091
(904) 964-8440
LELAP Accredited Laboratory Certification Number: 04064
LELAP Agency Interest Number: 100329

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Revision History

Revision Number	Comments	Issue Date
0	Original issue to Jim Prochaska	May 10, 2005
1	Corrected Table 1 in Executive Summary Issued to Joseph C. Wesselman	May 27, 2005

CERTIFICATION

Ambient Air Services, Inc. of Starke, Florida, has completed the testing as described in this report for IPSCO Steel Inc.'s Montpelier Works facility. To the best of our knowledge and abilities, all information, facts, and test data are true and correct. Information supplied to AASI for use in this report from IPSCO Steel is perceived to be accurate and is used as such where necessary.

This report contains pages 1 through 73.

This report was reviewed by:

Joseph L. Cooksey, Technical Director — Date: 5/27/05

David C. Sholtes, Quality Assurance Manager — Date: 5/27/05

Questions and or comments regarding this report or process conditions should be directed to:

Mr. Jim Prochaska
IPSCO Steel
1770 Bill Sharp Blvd.
Muscatine, IA 52761
Phone: 563-381-5584
Fax: 563-381-5406
Email: jprochaska@ipsco.com

Mr. Joseph L. Cooksey
Ambient Air Services, Inc.
106 Ambient Airway
Starke, FL 32091
Phone: 904-964-8440
Fax: 904-964-6675
Email:joecooksey@ambientairservices.com

EXECUTIVE SUMMARY

Ambient Air Services, Inc. (AASI) conducted emission testing at the IPSCO Steel (Iowa) facility located in Montpelier, Iowa. The testing included the determination of oxides of nitrogen (NO_x) and sulfur dioxide (SO_2) emissions from the EAF/LMF Baghouse Stack.

The results, shown in Table 1, demonstrate compliance with the facilities oxides of nitrogen and sulfur dioxide emission limitation as listed in permit number IDNR-94-A-548-S3.

TABLE 1

EXECUTIVE SUMMARY IPSCO STEEL (IOWA), INC. MONTPELIER, IOWA APRIL 28, 2005			
SOURCES	**PARAMETER(S)**	**ALLOWABLE EMISSIONS**	**TEST RESULTS**
EAF/LMF Baghouse Stack	Oxides of Nitrogen (NO_x) (reported as NO_2)	0.80 lbs/ton 700.8 tons/year	0.27 lbs/ton 188.3 tons/year*
	Sulfur Dioxide (SO_2)	0.70 lbs/ton 613.2 tons/year	0.69 lbs/ton 480.1 tons/year*

* Tons per year based on 24 hours per day, 365 days per year at the tested production rate.

1.0 INTRODUCTION

1.1 General

IPSCO Steel (Iowa), Inc. contracted with Ambient Air Services, Inc. (AASI) to conduct emission testing on their EAF/LMF Baghouse Stack. The testing involved the determination of oxides of nitrogen (NO_x) and sulfur dioxide (SO_2) emissions.

The purpose of the testing was to satisfy specific requirements of the IDNR issued permit number 94-A-548-S3 for quarterly NO_x and SO_2 testing.

Prior to testing Mr. Mark Stone of IDNR was provided a Test Protocol and notified of the test dates. IDNR approved the protocol prior to testing. The testing conducted is summarized in Table 1-1-1.

Table 1-1-1

SUMMARY OF TESTING CONDUCTED
IPSCO Steel (Iowa), Inc.
Montpelier, Iowa

April 28, 2005

Source	Parameters Tested	EPA Reference Method [1]	Duration of Test
EAF/LMF Baghouse Stack	Oxides of Nitrogen (NO_x)	7E	3 runs, 2 heats each
	Sulfur Dioxide (SO_2)	6C	3 runs, 2 heats each

[1] As published in 40 CFR, Part 60, Appendix A.

1.2 Test Participants

The personnel indicated in Table 1-2-1 participated in this project:

TABLE 1-2-1

NAME	AFFILIATION	RESPONSIBILITY
Joseph L. Cooksey	Ambient Air Services, Inc.	Technical Director, Field Testing
David C. Sholtes	Ambient Air Services, Inc.	Quality Assurance Manager
Jim Prochaska	IPSCO	Environmental Coordinator
Doug Belan	IPSCO	Flow Testing

Note: No State of Iowa personnel were on-site during the testing activities.

2.0 METHODOLOGY

2.1 Sample System

A fully extractive sample system was utilized to convey the stack gas to the analytical instruments. The sample system consisted of the following components; a stainless steel probe, calibration tee, water condenser system, particulate filter, 200 feet of sample line (teflon), a sample pump and a sample manifold to distribute the sample gas to the analytical instruments.

The system was designed so that all calibration gases were injected at the probe and passed through the same system as the sample gas. A schematic of the sampling system is shown in Figure 2-1.

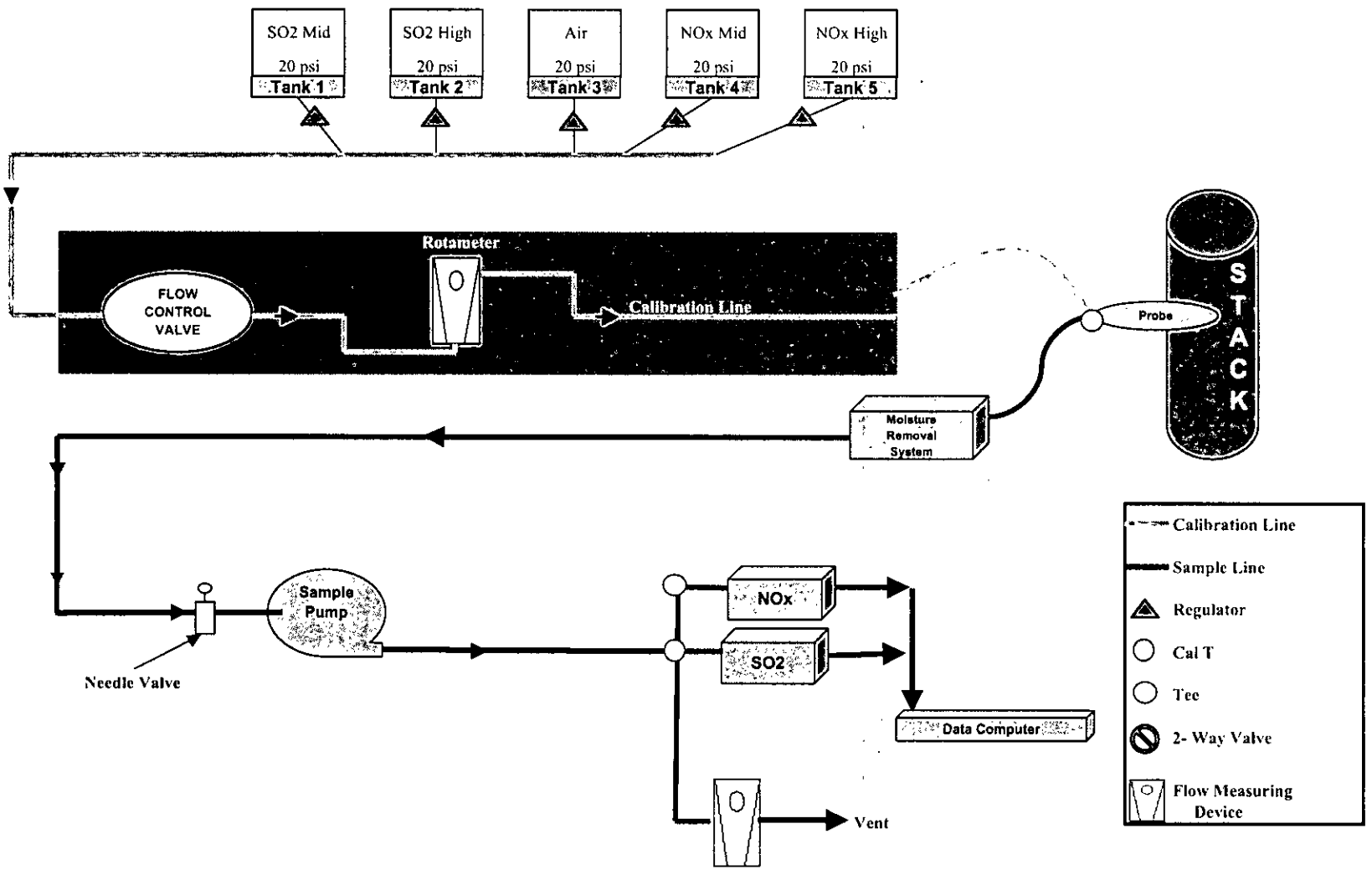
2.2 Method 6C: Sulfur Dioxide

The concentration of SO_2 was determined using USEPA Test Method 6C as published in 40 CFR, Part 60, Appendix A. A Thermo Environmental Instruments (TEI) Model 43H pulsed fluorescence analyzer was used.

2.3 Method 7E: Oxides of Nitrogen

The concentration of NO_x was determined using USEPA Method 7E as published in 40 CFR, Part 60, Appendix A. A Thermo Enviromental Instruments (TEI) Model 42 chemiluminescence analyzer was used. All NO_x emissions were reported as nitrogen dioxide (NO_2).

SAMPLE SYSTEM SCHEMATIC
Figure 2-1



2.4 Flow

2.4.1 Method 1: Sample and Velocity Traverse

The location of the traverse points used to determine the velocity of the stack gas within the circular stack source was based on the relation of the stack diameter to the upstream and downstream distances. The traverse points used for the velocity traverse were determined from Figure 1-2 and Table 1-2 of this method. The sampling points used are shown in Section 5.0 Sample Point Location.

2.4.2 Method 2: Velocity and Volumetric Flow Rate

The average gas velocity in the stack was determined from measurement of the velocity heads with an "S" type Pitot tube. Gas temperature was also measured using a type K thermocouple. Calibration was performed to verify the face opening alignments, external tubing diameter, and base-to-opening plane distances. A base-line coefficient value of 0.84 was assigned to the pitot tube. Verification of these measurements are detailed in the Appendix B of this report.

2.4.3 Method 3: Moisture Content

The moisture content of the stack gas was determined using a wet bulb/dry bulb technique. From the wet bulb and dry bulb temperatures the moisture was calculated. An example calculation is shown in Appendix B.

2.4.4 Oxygen and Carbon Dioxide:

The oxygen (O_2) and carbon dioxide (CO_2) concentrations in the baghouse effluent gas were assumed to be ambient (20.9 % O_2, 0.0 % CO_2) and not measured. This assumption is supported by long term historical data from this facility.

3.0 PROCESS DESCRIPTION

Electric arc furnaces (EAF) are used to produce carbon and alloy steels. The input material to an EAF is typically 100 percent scrap. Cylindrical, refractory lined EAF's are equipped with carbon electrodes to be raised or lowered through the furnace roof. With electrodes retracted, the furnace roof can be rotated aside to permit the charge of scrap steel by overhead crane. Lime and charge carbon are added to the charge buckets, alloying agents and materials are added during the tapping process. Electric current of the opposite polarity electrodes generates heat between the electrodes and through the scrap. After melting and refining periods, the slag and steel are poured from the furnace by tilting.

The production of steel in an EAF is a batch process. Cycles, or "heats", range from about 45 to 90 minutes to produce carbon steel. Scrap steel is charged to begin a cycle, and alloying agents and slag materials are added for refining. Stages of each cycle normally are charging and melting operations, refining (which usually includes oxygen blowing), and tapping.

4.0 RESULTS

The results from all testing conducted April 28, 2005 demonstrate compliance with the permitted emission limits. The results are summarized in the following tables:

Table 4-1 Summary of Test Results
Table 4-2 Oxides of Nitrogen (NO_x) Emissions
Table 4-3 Sulfur Dioxide (SO_2) Emissions

TABLE 4-1

SUMMARY OF TEST RESULTS IPSCO STEEL (IOWA), INC. MONTPELIER, IOWA APRIL 28, 2005			
SOURCES	**PARAMETER(S)**	**ALLOWABLE EMISSIONS**	**TEST RESULTS**
EAF/LMF Baghouse Stack	Oxides of Nitrogen (NO_x) (reported as NO_2)	0.80 lbs/ton 700.8 tons/year	0.27 lbs/ton 188.3 tons/year*
	Sulfur Dioxide (SO_2)	0.70 lbs/ton 613.2 tons/year	0.69 lbs/ton 480.1 tons/year*

* Tons per year based on 24 hours per day, 365 days per year at the tested production rate.

Table 4 - 2

AASI

Oxides of Nitrogen (NO_X) Emissions Summary

USEPA Method 7E (40 CFR Part 60 Appendix A)

Ipsco Steel (Iowa), Inc.

Montpeliar, Iowa

IDNR Permit Number 94-A-548-S3

April 28, 2005

Run			Concentration	Volumetric Flow Rates	Production	Mass Emissions (as NO_2)	
Date	Number	Time (CDT)	ppm-v/v	SCFM-Dry	Tons per Hour	Pounds per Hour	Pounds per Ton
4/28/2005	1	10:55 12:53	13.9	700494	154.8	69.78	0.45
4/28/2005	2	13:30 15:13	7.0	609075	179.8	30.56	0.17
4/28/2005	3	15:30 17:39	7.0	570370	143.6	28.61	0.20
Average			**9.3**	**626646**	**159.4**	**42.99**	**0.27**

Table 4 - 3

AASI

Sulfur Dioxide (SO_2) Emissions Summary
USEPA Method 6C (40 CFR Part 60 Appendix A)
Ipsco Steel (Iowa), Inc.
Montpeliar, Iowa
IDNR Permit Number 94-A-548-S3
April 28, 2005

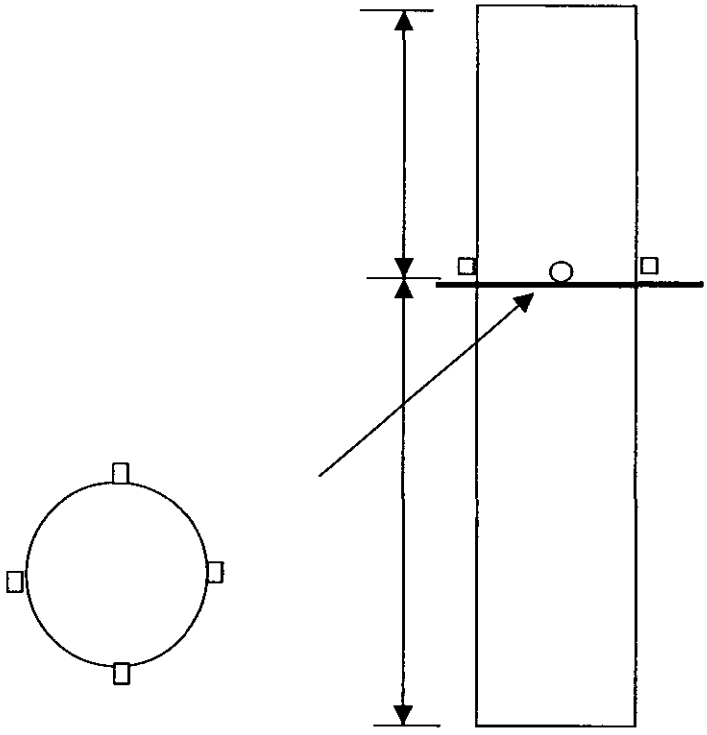
Run			Concentration	Volumetric Flow Rates	Production	Mass Emissions	
Date	Number	Time (CDT)	ppm-v/v	SCFM-Dry	Tons per Hour	Pounds per Hour	Pounds per Ton
4/28/2005	1	10:55 12:53	17.9	700494	154.8	125.03	0.81
4/28/2005	2	13:30 15:13	16.8	609075	179.8	102.03	0.57
4/28/2005	3	15:30 17:39	17.9	570370	143.6	101.80	0.71
Average			**17.5**	**626646**	**159.4**	**109.62**	**0.69**

5.0 SAMPLING POINT LOCATION

IPSCO Steel (Iowa), Inc.
Montpelier, Iowa
EAF/LMF Baghouse Stack

Diameters Upstream:	>1.5
Diameters Downstream	>0.5
Stack diameter	228"
Drawing Date	March 10, 2005

Drawing Not to Scale



Flow Sampling Points (inches)	
1	4.8"
2	15.3"
3	26.9"
4	40.4"
5	57.0"
6	81.2"

Note: Four equal distances, ninety-degree ports. Four ports with 6 points per port, 24 total points All distances are approximate.

Ambient Air Services, Inc.
106 Ambient Airway
Starke, Florida 32091
(904) 964-8440

APPENDICES

APPENDIX A	Oxides of Nitrogen (NO_x) and Sulfur Dioxide (SO_2)
APPENDIX B	Flow and Moisture
APPENDIX C	Test Protocol
APPENDIX D	Plant Operating Data

APPENDIX A

Oxides of Nitrogen (NO_X) and Sulfur Dioxide (SO_2)

-Equipment List
-Instrument Calibration Data
-Data Printout and Test Log
-Sample Calculations
-Calibration Gas Certificates

NO_x	23.5	ppm
	45.7	ppm
SO_2	15.19	ppm
	25.10	ppm

Ipsco Steel - Montpelier, Iowa
Meltshop Baghouse - Quarterly Oxides of Nitrogen and Sulfur Dioxide Test
IDNR Permit Number 94-A-548-S3
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Equipment List

Sulfur Dioxide Instrument: **Manufacturer -** Thermo Environmental Instruments **Model -** 43HL
Serial Number - 25471-221
SO2 Range - zero to 30 ppm

Oxides of Nitrogen Instrument: **Manufacturer -** Thermo Environmental Instruments **Model -** 42
Serial Number - 33584-245
NOx Range - zero to 50 ppm

Calibration Gas Standards		Concentration	Manufacturer	Cylinder Number	Expiration Date	PSI
Zero	Zero	0.00	Air Gas UHP Air	N/A	N/A	400
Mid	SO2	25.10	Spectra Gases	cc 131018	Aug-05	1800
High	SO2	15.19	Spectra Gases	cc 20020	Aug-05	1800
High	NOx	45.70	Spectra Gases	cc 133648	Feb-07	1800
Mid	NOx	23.50	Spectra Gases	cc 110112	Feb-07	1800

Description of Sampling System :
8' 1/4" SS probe to Tee to H_2O condenser to 200 feet 1/4" Teflon sample line to SS/Teflon pump to instruments
all calibration gases injected direct to probe Tee location
Sampling probe positioned in Baghouse Stack at test platform location.

Test Participants :
NOx/SO2 Testing - Joe Cooksey - Ambient Air Services, Inc.

Other Comments :

Ipsco Steel - Montpelier, Iowa
Meltshop Baghouse - Quarterly Oxides of Nitrogen and Sulfur Dioxide Test
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Calibration Sheet

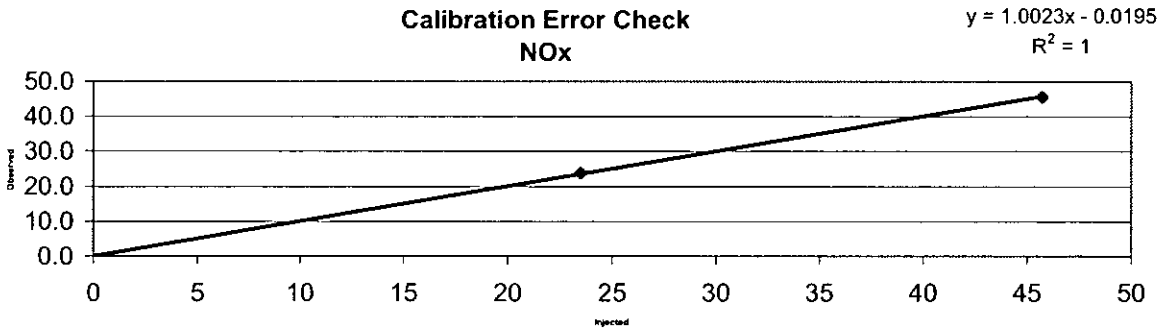
Initial Calibration

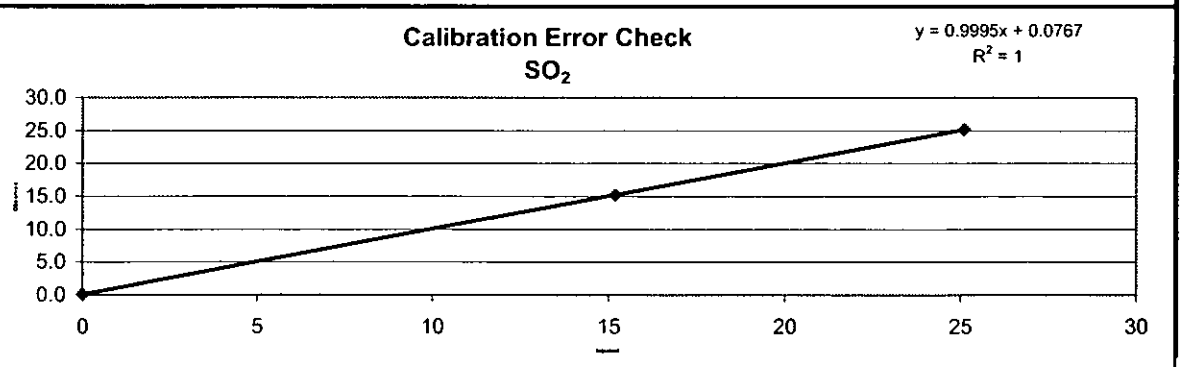
Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
NOx	0		-0.1
NOx	45.7		45.7
NOx	23.5		23.7
SO2	0		0.1
SO2	25.10		25.2
SO2	15.19		15.2

% Error of Range Table

Inject (ppm)		Time	% Error of Range
Gas	Conc.		NOx
NOx	0		-0.20%
NOx	45.7		0.00%
NOx	23.5		0.40%
SO2	0		0.20%
SO2	25.1		0.20%
SO2	15.19		0.02%





Ipsco Steel - Montpelier, Iowa
Meltshop Baghouse - Quarterly Oxides of Nitrogen and Sulfur Dioxide Test
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Calibration Sheet

Calibration - Post Run 1

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
NOx	0		-0.1
NOx	45.7		46.4
SO2	0		0.2
SO2	25.10		25.2

Drift Analysis From Initial Calibrations to the End of Run 1

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		NOx
NOx	0		0.00%
NOx	45.7		1.40%
SO2	0		0.33%
SO2	25.1		0.00%

Drift Variables for Run 1

Variable	NOx	SO2
Co	-0.10	0.15
Cm	46.05	25.20
Cma	45.70	25.10

Calibration - Post Run 2

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
NOx	0		-0.10
NOx	45.7		45.30
SO2	0		0.20
SO2	25.1		25.40

Drift Analysis From Initial Calibrations to the End of Run 2

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		NOx
NOx	0		0.00%
NOx	45.7		-0.80%
SO2	0		0.33%
SO2	25.1		0.67%

Drift Variables for Run 2

Variable	NOx	SO2
Co	-0.10	0.20
Cm	45.85	25.30
Cma	45.7	25.10

Ipsco Steel - Montpelier, Iowa
Meltshop Baghouse - Quarterly Oxides of Nitrogen and Sulfur Dioxide Test
IDNR Permit Number 94-A-548-S3
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Calibration Sheet

Calibration - Post Run 3

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
NOx	0		-0.1
NOx	45.7		46.4
SO2	0		0.3
SO2	25.1		25.1

Drift Analysis From Initial Calibrations to the End of Run 3

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		
NOx	0		0.00%
NOx	45.7		1.40%
SO2	0		0.67%
SO2	25.1		-0.33%

Drift Variables for Run 3

Variable	NOx	SO2
Co	-0.10	0.25
Cm	45.85	25.25
Cma	45.7	25.10

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen and Sulfur Dioxide Test

IDNR Permit Number 94-A-548-S3

April 28, 2005

DATA RECORDER PRINTOUT and TEST SUMMARY

Time (CDT)	NOx, ppm	SO2, ppm	Run Number	COMMENTS	NOx C_o	NOx C_w	NOx C_{adj}	SO_2 C_o	SO_2 C_w	SO_2 C_{adj}	NO_x, ppm Drift Corrected	SO_2, ppm Drift Corrected
4/28/2005 10:00	5.6	5.0										
4/28/2005 10:01	5.5	5.0										
4/28/2005 10:02	5.4	5.2										
4/28/2005 10:03	5.6	5.7										
4/28/2005 10:04	5.7	6.1										
4/28/2005 10:05	5.7	6.1										
4/28/2005 10:06	5.7	6.1										
4/28/2005 10:07	5.7	6.1										
4/28/2005 10:08	5.7	6.1										
4/28/2005 10:09	5.7	6.1										
4/28/2005 10:10	5.7	6.0										
4/28/2005 10:11	5.7	5.9										
4/28/2005 10:12	5.6	5.8										
4/28/2005 10:13	5.6	5.8										
4/28/2005 10:14	5.6	5.7										
4/28/2005 10:15	5.6	5.7										
4/28/2005 10:16	5.6	5.7										
4/28/2005 10:17	5.4	5.5										
4/28/2005 10:18	5.6	5.2										
4/28/2005 10:19	5.7	4.8										
4/28/2005 10:20	5.7	4.5										
4/28/2005 10:21	1.4	2.7										
4/28/2005 10:22	-0.1	0.5										
4/28/2005 10:23	-0.1	0.2										
4/28/2005 10:24	-0.1	0.1		0 Cal								
4/28/2005 10:25	-0.1	0.1		0 Cal								
	-0.1	0.1		**0 Cal Average**								
4/28/2005 10:26	2.3	0.1										
4/28/2005 10:27	18.9	0.9										
4/28/2005 10:28	33.9	3.4										
4/28/2005 10:29	45.8	4.8		45.7 Nox								
4/28/2005 10:30	45.6	5.0		45.7 Nox								
	45.7	4.9		**45.7 Nox Average**								
4/28/2005 10:31	38.5	3.4										
4/28/2005 10:32	23.8	2.2		23.5 Nox								
4/28/2005 10:33	23.6	2.5		23.5 Nox								
4/28/2005 10:34	23.7	2.6		23.5 Nox								
	23.7	2.4		**23.5 NOx Average**								
4/28/2005 10:35	9.6	9.0										
4/28/2005 10:36	-0.1	20.5										
4/28/2005 10:37	-0.1	23.6										
4/28/2005 10:38	-0.1	24.3										
4/28/2005 10:39	-0.1	25.1										
4/28/2005 10:40	-0.1	25.1										
4/28/2005 10:41	-0.1	25.2		25.1 SO2								
4/28/2005 10:42	0.3	25.2		25.1 SO2								
	0.1	25.2		**25.1 SO2 Average**								
4/28/2005 10:43	-0.1	18.6										
4/28/2005 10:44	-0.1	15.5										
4/28/2005 10:45	-0.1	15.2										
4/28/2005 10:46	-0.1	15.2										
4/28/2005 10:47	-0.1	15.2										
4/28/2005 10:48	-0.1	15.2		15.2 SO2								
4/28/2005 10:49	-0.1	15.2		15.2 SO2								
	-0.1	15.2		**15.2 SO2 Average**								
4/28/2005 10:50	-0.1	15.6										
4/28/2005 10:51	2.6	15.8										
4/28/2005 10:52	4.6	12.2										
4/28/2005 10:53	3.2	9.7										
4/28/2005 10:54	6.0	8.5										
4/28/2005 10:55	19.9	8.0	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	19.8	7.9
4/28/2005 10:56	17.9	7.7	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	17.8	7.6
4/28/2005 10:57	19.8	7.3	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	19.7	7.2
4/28/2005 10:58	16.6	7.0	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	16.5	6.9
4/28/2005 10:59	12.1	6.8	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	12.1	6.7
4/28/2005 11:00	13.7	7.2	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	13.7	7.1
4/28/2005 11:01	9.5	7.7	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	9.5	7.6
4/28/2005 11:02	6.0	7.4	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	6.0	7.3

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen and Sulfur Dioxide Test

IDNR Permit Number 94-A-548-S3

April 28, 2005

DATA RECORDER PRINTOUT and TEST SUMMARY

Time (CDT)	NOx, ppm	SO2, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	SO_2 C_o	SO_2 C_M	SO_2 C_{MA}	NOx, ppm Drift Corrected	SO_2, ppm Drift Corrected
4/28/2005 11:03	13.9	6.8	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	13.9	6.7
4/28/2005 11:04	20.7	6.8	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	20.6	6.7
4/28/2005 11:05	19.3	7.4	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	19.2	7.3
4/28/2005 11:06	13.9	8.5	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	13.9	8.4
4/28/2005 11:07	10.4	10.5	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	10.4	10.4
4/28/2005 11:08	8.7	13.1	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	8.7	13.0
4/28/2005 11:09	9.5	15.6	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	9.5	15.5
4/28/2005 11:10	17.4	17.2	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	17.3	17.1
4/28/2005 11:11	10.1	17.9	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	10.1	17.8
4/28/2005 11:12	4.8	18.1	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	4.9	18.0
4/28/2005 11:13	7.5	18.9	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	7.5	18.8
4/28/2005 11:14	11.1	17.9	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	11.1	17.8
4/28/2005 11:15	9.2	16.6	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	9.2	16.5
4/28/2005 11:16	6.4	15.4	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	6.4	15.3
4/28/2005 11:17	5.7	13.1	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	5.7	13.0
4/28/2005 11:18	4.2	11.6	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	4.3	11.5
4/28/2005 11:19	3.2	11.7	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	3.3	11.6
4/28/2005 11:20	2.6	13.3	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	2.7	13.2
4/28/2005 11:21	2.2	16.4	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	2.3	16.3
4/28/2005 11:22	2.5	22.8	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	2.6	22.7
4/28/2005 11:23	3.3	31.7	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	3.4	31.6
4/28/2005 11:24	3.7	34.1	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	3.8	34.0
4/28/2005 11:25	3.6	34.4	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	3.7	34.3
4/28/2005 11:26	3.3	36.1	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	3.4	36.0
4/28/2005 11:27	3.5	37.5	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	3.6	37.4
4/28/2005 11:28	4.1	38.8	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	4.2	38.7
4/28/2005 11:29	4.7	38.7	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	4.8	38.6
4/28/2005 11:30	8.3	38.6	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	8.3	38.5
4/28/2005 11:31	9.4	38.5	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	9.4	38.4
4/28/2005 11:32	5.7	38.4	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	5.7	38.3
4/28/2005 11:33	4.7	38.0	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	4.8	37.9
4/28/2005 11:34	4.5	37.6	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	4.6	37.5
4/28/2005 11:35	4.4	37.2	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	4.5	37.1
4/28/2005 11:36	4.6	36.8	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	4.7	36.7
4/28/2005 11:37	5.0	36.9	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	5.1	36.8
4/28/2005 11:38	5.5	36.7	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	5.5	36.6
4/28/2005 11:39	6.1	36.5	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	6.1	36.4
4/28/2005 11:40	6.5	36.4	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	6.5	36.3
4/28/2005 11:41	6.6	36.2	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	6.6	36.1
4/28/2005 11:42	6.8	34.1	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	6.8	34.0
4/28/2005 11:43	5.8	34.1	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	5.8	34.0
4/28/2005 11:44	5.6	34.1	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	5.6	34.0
4/28/2005 11:45	3.3	29.6	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	3.4	29.5
4/28/2005 11:46	2.8	25.3	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	2.9	25.2
4/28/2005 11:47	5.3	25.7	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	5.3	25.6
4/28/2005 11:48	7.3	25.0	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	7.3	24.9
4/28/2005 11:49	7.7	23.3	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	7.7	23.2
4/28/2005 11:50	4.6	23.6	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	4.7	23.5
4/28/2005 11:51	4.8	23.9	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	4.9	23.8
4/28/2005 11:52	23.4	24.1	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	23.3	24.0
4/28/2005 11:53	33.4	21.3	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	33.2	21.2
4/28/2005 11:54	47.3	17.8	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	46.9	17.7
4/28/2005 11:55	48.7	15.9	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	48.3	15.8
4/28/2005 11:56	49.6	15.3	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	49.2	15.2
4/28/2005 11:57	50.8	15.5	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	50.4	15.4
4/28/2005 11:58	52.0	16.4	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	51.6	16.3
4/28/2005 11:59	53.1	16.8	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	52.7	16.7
4/28/2005 12:00	54.3	16.8	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	53.9	16.7
4/28/2005 12:01	55.4	17.0	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	55.0	16.9
4/28/2005 12:02	56.6	16.8	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	56.1	16.7
4/28/2005 12:03	48.7	15.9	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	48.3	15.8
4/28/2005 12:04	49.9	15.0	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	49.5	14.9
4/28/2005 12:05	51.1	14.2	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	50.7	14.1
4/28/2005 12:06	52.3	13.9	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	51.9	13.8
4/28/2005 12:07	45.4	14.2	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	45.1	14.1
4/28/2005 12:08	34.3	14.7	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	34.1	14.6
4/28/2005 12:09	33.4	14.2	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	33.2	14.1
4/28/2005 12:10	31.5	14.1	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	31.3	14.0

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen and Sulfur Dioxide Test

IDNR Permit Number 94-A-548-S3

April 28, 2005

DATA RECORDER PRINTOUT and TEST SUMMARY

Time (CDT)	NOx, ppm	SO2, ppm	Run Number	COMMENTS	NOx C_S	NOx C_M	NOx C_{MA}	SO_2 C_S	SO_2 C_M	SO_2 C_{MA}	NOx, ppm Drift Corrected	SO_2, ppm Drift Corrected
4/28/2005 12:11	34.3	14.1	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	34.1	14.0
4/28/2005 12:12	36.7	13.3	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	36.4	13.2
4/28/2005 12:13	35.5	13.0	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	35.3	12.9
4/28/2005 12:14	23.5	14.5	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	23.4	14.4
4/28/2005 12:15	13.6	17.0	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	13.6	16.9
4/28/2005 12:16	5.6	20.5	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	5.6	20.4
4/28/2005 12:17	2.4	23.0	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	2.5	22.9
4/28/2005 12:18	1.7	22.7	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	1.8	22.6
4/28/2005 12:19	2.6	20.8	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	2.7	20.7
4/28/2005 12:20	3.6	19.3	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	3.7	19.2
4/28/2005 12:21	3.4	18.5	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	3.5	18.4
4/28/2005 12:22	2.9	18.4	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	3.0	18.3
4/28/2005 12:23	2.7	17.7	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	2.8	17.6
4/28/2005 12:24	2.5	16.0	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	2.6	15.9
4/28/2005 12:25	2.4	14.5	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	2.5	14.4
4/28/2005 12:26	2.3	13.3	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	2.4	13.2
4/28/2005 12:27	2.1	12.2	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	2.2	12.1
4/28/2005 12:28	1.9	11.4	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	2.0	11.3
4/28/2005 12:29	1.8	10.8	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	1.9	10.7
4/28/2005 12:30	1.9	10.7	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	2.0	10.6
4/28/2005 12:31	2.0	10.6	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	2.1	10.5
4/28/2005 12:32	1.8	10.5	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	1.9	10.4
4/28/2005 12:33	1.8	10.7	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	1.9	10.6
4/28/2005 12:34	2.0	11.4	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	2.1	11.3
4/28/2005 12:35	2.6	12.3	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	2.7	12.2
4/28/2005 12:36	2.3	12.9	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	2.4	12.8
4/28/2005 12:37	2.4	13.0	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	2.5	12.9
4/28/2005 12:38	2.2	12.3	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	2.3	12.2
4/28/2005 12:39	3.0	11.4	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	3.1	11.3
4/28/2005 12:40	10.0	10.5	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	10.0	10.4
4/28/2005 12:41	8.5	9.5	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	8.5	9.4
4/28/2005 12:42	10.1	8.3	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	10.1	8.2
4/28/2005 12:43	12.5	7.2	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	12.5	7.1
4/28/2005 12:44	14.0	6.3	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	14.0	6.2
4/28/2005 12:45	16.0	5.7	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	15.9	5.6
4/28/2005 12:46	17.5	5.3	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	17.4	5.2
4/28/2005 12:47	17.9	5.1	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	17.8	5.0
4/28/2005 12:48	15.2	4.8	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	15.2	4.7
4/28/2005 12:49	6.2	4.6	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	6.2	4.5
4/28/2005 12:50	2.0	4.6	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	2.1	4.5
4/28/2005 12:51	1.1	4.6	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	1.2	4.5
4/28/2005 12:52	2.0	4.8	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	2.1	4.7
4/28/2005 12:53	2.1	5.3	1	Run 1	-0.1	46.1	45.7	0.15	25.2	25.1	2.2	5.2
	14.0	18.0		**Run 1 Average**							13.9	17.9
4/28/2005 12:54	1.4	5.3										
4/28/2005 12:55	1.0	5.1										
4/28/2005 12:56	0.0	4.2										
4/28/2005 12:57	-0.1	1.1										
4/28/2005 12:58	-0.1	0.3										
4/28/2005 12:59	-0.1	0.3										
4/28/2005 13:00	-0.1	0.3										
4/28/2005 13:01	-0.1	0.2		**0 Cal**								
	-0.1	0.2		**0 Cal Average**								
4/28/2005 13:02	28.0	0.5										
4/28/2005 13:03	46.4	1.9		**45.7 Nox**								
4/28/2005 13:04	46.4	4.1		**45.7 Nox**								
	46.4	3.0		**45.7 Nox Average**								
4/28/2005 13:05	33.9	5.5										
4/28/2005 13:06	0.9	17.5										
4/28/2005 13:07	0.0	23.5										
4/28/2005 13:08	-0.1	24.8										
4/28/2005 13:09	-0.1	25.2		**25.1 SO2**								
4/28/2005 13:10	-0.1	25.2		**25.1 SO2**								
	-0.1	25.2		**25.1 SO2 Average**								
4/28/2005 13:11	0.7	25.1										
4/28/2005 13:12	1.4	18.4										
4/28/2005 13:13	1.6	12.1										
4/28/2005 13:14	1.4	9.0										

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen and Sulfur Dioxide Test

IDNR Permit Number 94-A-548-S3

April 28, 2005

DATA RECORDER PRINTOUT and TEST SUMMARY

Time (CDT)	NOx, ppm	SO2, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	SO_2 C_o	SO_2 C_M	SO_2 C_{MA}	NOx, ppm Drift Corrected	SO_2, ppm Drift Corrected
4/28/2005 13:15	1.4	7.3										
4/28/2005 13:16	1 5	6 1										
4/28/2005 13:17	1.3	5.7										
4/28/2005 13:18	1 0	5 6										
4/28/2005 13:19	0.9	5 6										
4/28/2005 13:20	0.8	5 8										
4/28/2005 13:21	0 7	6 1										
4/28/2005 13:22	0 6	6 4										
4/28/2005 13:23	0 7	6.8										
4/28/2005 13:24	0.7	7.1										
4/28/2005 13:25	0 7	7.3										
4/28/2005 13:26	0.7	7 4										
4/28/2005 13:27	0 8	7.2										
4/28/2005 13:28	0.9	6 8										
4/28/2005 13:29	1.4	6 2										
4/28/2005 13:30	1.7	5 5	2	Run 2	-0 1	45 9	45.7	0 2	25.3	25.1	1 8	5 3
4/28/2005 13:31	10.6	5 6	2	Run 2	-0.1	45.9	45.7	0 2	25.3	25 1	10 6	5 4
4/28/2005 13:32	22.6	5 9	2	Run 2	-0 1	45 9	45.7	0 2	25.3	25 1	22 6	5 7
4/28/2005 13:33	12.7	6 2	2	Run 2	-0 1	45 9	45.7	0.2	25.3	25 1	12.7	6 0
4/28/2005 13:34	5.6	6 4	2	Run 2	-0.1	45.9	45.7	0 2	25.3	25 1	5 7	6 2
4/28/2005 13:35	4.6	6 4	2	Run 2	-0.1	45.9	45.7	0.2	25 3	25.1	4.7	6.2
4/28/2005 13:36	6.1	6.6	2	Run 2	-0.1	45.9	45.7	0 2	25 3	25 1	6.2	6.4
4/28/2005 13:37	4.1	7 0	2	Run 2	-0.1	45 9	45.7	0.2	25.3	25.1	4 2	6 8
4/28/2005 13:38	2.1	8.0	2	Run 2	-0.1	45.9	45.7	0 2	25.3	25.1	2.2	7.8
4/28/2005 13:39	1.6	9 9	2	Run 2	-0.1	45 9	45.7	0 2	25.3	25 1	1.7	9 7
4/28/2005 13:40	1 6	12.4	2	Run 2	-0.1	45 9	45.7	0 2	25 3	25.1	1.7	12.2
4/28/2005 13:41	2.0	15 4	2	Run 2	-0.1	45 9	45 7	0 2	25.3	25.1	2.1	15 2
4/28/2005 13:42	2.3	17.9	2	Run 2	-0.1	45 9	45.7	0.2	25 3	25.1	2.4	17.7
4/28/2005 13:43	3 7	19.5	2	Run 2	-0.1	45.9	45 7	0.2	25 3	25.1	3.8	19 3
4/28/2005 13:44	5 4	22.1	2	Run 2	-0.1	45.9	45 7	0.2	25 3	25.1	5.5	21.9
4/28/2005 13:45	6.2	23 3	2	Run 2	-0 1	45 9	45 7	0.2	25.3	25.1	6 3	23.1
4/28/2005 13:46	5.8	20 4	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25 1	5 9	20.2
4/28/2005 13:47	4 5	16 2	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25 1	4.6	16.0
4/28/2005 13:48	4 4	13.0	2	Run 2	-0 1	45 9	45.7	0 2	25.3	25.1	4.5	12.8
4/28/2005 13:49	7.2	11 0	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25 1	7.3	10.8
4/28/2005 13:50	7.7	11 2	2	Run 2	-0.1	45.9	45.7	0 2	25.3	25 1	7 8	11.0
4/28/2005 13:51	4.2	12.8	2	Run 2	-0.1	45.9	45.7	0 2	25.3	25.1	4.3	12.6
4/28/2005 13:52	2.1	15.0	2	Run 2	-0 1	45.9	45.7	0.2	25.3	25.1	2.2	14.8
4/28/2005 13:53	1.9	16 9	2	Run 2	-0.1	45 9	45.7	0.2	25.3	25 1	2.0	16.7
4/28/2005 13:54	2.1	18 0	2	Run 2	-0.1	45.9	45.7	0 2	25.3	25.1	2.2	17.8
4/28/2005 13:55	2.2	18.5	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	2.3	18.3
4/28/2005 13:56	2 2	18 3	2	Run 2	-0.1	45.9	45.7	0 2	25 3	25.1	2.3	18.1
4/28/2005 13:57	2.5	20.7	2	Run 2	-0.1	45.9	45.7	0.2	25 3	25.1	2.6	20.5
4/28/2005 13:58	2.6	24.1	2	Run 2	-0.1	45.9	45 7	0 2	25.3	25.1	2.7	23.9
4/28/2005 13:59	2.7	24 2	2	Run 2	-0.1	45 9	45 7	0.2	25.3	25.1	2 8	24.0
4/28/2005 14:00	2.8	22.7	2	Run 2	-0.1	45.9	45 7	0.2	25.3	25.1	2.9	22.5
4/28/2005 14:01	3.0	21.8	2	Run 2	-0.1	45 9	45 7	0.2	25.3	25 1	3.1	21.6
4/28/2005 14:02	3 4	21.1	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25 1	3.5	20.9
4/28/2005 14:03	4.0	19.9	2	Run 2	-0 1	45 9	45.7	0.2	25.3	25.1	4.1	19.7
4/28/2005 14:04	4.7	18.0	2	Run 2	-0 1	45 9	45.7	0.2	25.3	25.1	4 8	17.8
4/28/2005 14:05	5.2	17.0	2	Run 2	-0 1	45.9	45.7	0.2	25.3	25.1	5.3	16 8
4/28/2005 14:06	5 4	16.8	2	Run 2	-0 1	45 9	45.7	0.2	25.3	25.1	5.5	16.6
4/28/2005 14:07	5.1	16.6	2	Run 2	-0.1	45.9	45.7	0 2	25.3	25 1	5.2	16 4
4/28/2005 14:08	4.8	16.5	2	Run 2	-0 1	45.9	45.7	0 2	25.3	25.1	4 9	16.3
4/28/2005 14:09	4.3	17.1	2	Run 2	-0.1	45.9	45.7	0 2	25.3	25.1	4 4	16.9
4/28/2005 14:10	5.0	18 2	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	5.1	18 0
4/28/2005 14:11	6.7	18.1	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	6.8	17.9
4/28/2005 14:12	4.9	17.5	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	5.0	17.3
4/28/2005 14:13	3.9	16 7	2	Run 2	-0.1	45.9	45.7	0.2	25 3	25.1	4.0	16.5
4/28/2005 14:14	3.7	16.0	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	3 8	15.8
4/28/2005 14:15	3.4	16 3	2	Run 2	-0.1	45 9	45.7	0.2	25 3	25.1	3.5	16.1
4/28/2005 14:16	3.8	16.4	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	3.9	16.2
4/28/2005 14:17	3.3	15 3	2	Run 2	-0.1	45 9	45.7	0.2	25.3	25.1	3.4	15.1
4/28/2005 14:18	8.0	13.5	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	8.1	13.3
4/28/2005 14:19	45.1	12.8	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	45.0	12.6
4/28/2005 14:20	39 4	13.0	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	39 3	12.8
4/28/2005 14:21	26 0	14.4	2	Run 2	-0.1	45 9	45.7	0.2	25.3	25.1	26.0	14.2
4/28/2005 14:22	34.2	17.4	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25 1	34.1	17.2

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Meltshop Baghouse - Quarterly Oxides of Nitrogen and Sulfur Dioxide Test

IDNR Permit Number 94-A-548-S3

April 28, 2005

DATA RECORDER PRINTOUT and TEST SUMMARY

Time (CDT)	NOx, ppm	SO2, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{gas}	SO_2 C_o	SO_2 C_M	SO_2 C_{gas}	NO_x, ppm Drift Corrected	SO_2, ppm Drift Corrected
4/28/2005 14:23	47.7	19.8	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	47.5	19.6
4/28/2005 14:24	47.9	20.4	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	47.7	20.2
4/28/2005 14:25	26.5	22.4	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	26.5	22.2
4/28/2005 14:26	10.0	25.8	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	10.0	25.6
4/28/2005 14:27	5.9	27.4	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	6.0	27.2
4/28/2005 14:28	7.3	27.2	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	7.4	27.0
4/28/2005 14:29	12.4	28.7	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	12.4	28.5
4/28/2005 14:30	15.8	31.3	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	15.8	31.1
4/28/2005 14:31	12.8	31.7	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	12.8	31.5
4/28/2005 14:32	6.1	31.7	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	6.2	31.5
4/28/2005 14:33	7.1	31.7	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	7.2	31.5
4/28/2005 14:34	7.5	29.9	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	7.6	29.7
4/28/2005 14:35	6.3	24.3	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	6.4	24.1
4/28/2005 14:36	4.1	22.6	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	4.2	22.4
4/28/2005 14:37	3.6	22.5	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	3.7	22.3
4/28/2005 14:38	2.6	22.3	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	2.7	22.1
4/28/2005 14:39	2.1	22.6	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	2.2	22.4
4/28/2005 14:40	1.8	23.7	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	1.9	23.5
4/28/2005 14:41	2.9	26.3	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	3.0	26.1
4/28/2005 14:42	4.0	29.4	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	4.1	29.2
4/28/2005 14:43	5.0	30.3	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	5.1	30.1
4/28/2005 14:44	5.2	30.0	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	5.3	29.8
4/28/2005 14:45	4.6	29.9	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	4.7	29.7
4/28/2005 14:46	3.4	30.1	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	3.5	29.9
4/28/2005 14:47	3.1	29.9	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	3.2	29.7
4/28/2005 14:48	2.8	28.6	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	2.9	28.4
4/28/2005 14:49	2.5	25.9	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	2.6	25.7
4/28/2005 14:50	2.3	22.6	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	2.4	22.4
4/28/2005 14:51	2.3	19.5	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	2.4	19.3
4/28/2005 14:52	2.2	17.1	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	2.3	16.9
4/28/2005 14:53	2.0	15.1	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	2.1	14.9
4/28/2005 14:54	2.0	13.4	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	2.1	13.2
4/28/2005 14:55	2.1	12.0	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	2.2	11.8
4/28/2005 14:56	2.4	10.9	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	2.5	10.7
4/28/2005 14:57	2.6	9.9	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	2.7	9.7
4/28/2005 14:58	2.7	9.2	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	2.8	9.0
4/28/2005 14:59	2.9	8.6	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	3.0	8.4
4/28/2005 15:00	3.0	8.1	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	3.1	7.9
4/28/2005 15:01	5.2	7.8	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	5.3	7.6
4/28/2005 15:02	4.7	7.3	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	4.8	7.1
4/28/2005 15:03	2.3	6.7	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	2.4	6.5
4/28/2005 15:04	1.9	6.3	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	2.0	6.1
4/28/2005 15:05	2.3	6.2	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	2.4	6.0
4/28/2005 15:06	2.4	6.0	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	2.5	5.8
4/28/2005 15:07	5.8	6.1	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	5.9	5.9
4/28/2005 15:08	9.2	6.1	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	9.2	5.9
4/28/2005 15:09	8.4	5.9	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	8.5	5.7
4/28/2005 15:10	6.8	6.0	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	6.9	5.8
4/28/2005 15:11	3.9	6.2	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	4.0	6.0
4/28/2005 15:12	3.3	6.2	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	3.4	6.0
4/28/2005 15:13	3.0	6.3	2	Run 2	-0.1	45.9	45.7	0.2	25.3	25.1	3.1	6.1
	6.9	17.0		**Run 2 Average**							7.0	16.8
4/28/2005 15:14	2.2	7.1										
4/28/2005 15:15	1.8	7.3										
4/28/2005 15:16	0.0	5.2										
4/28/2005 15:17	-0.1	1.1										
4/28/2005 15:18	-0.1	0.3										
4/28/2005 15:19	-0.1	0.2		0 Cal								
	-0.1	0.2		**0 Cal Average**								
4/28/2005 15:20	0.1	8.2										
4/28/2005 15:21	-0.1	21.7										
4/28/2005 15:22	-0.1	24.8										
4/28/2005 15:23	-0.1	25.4		25.1 SO2 Cal								
	-0.1	25.4		**25.1 SO2 Cal Average**								
4/28/2005 15:24	26.4	18.9										
4/28/2005 15:25	45.3	6.9		45.7 Nox Cal								
	45.3	6.9		**45.7 Nox Cal Average**								
4/28/2005 15:26	39.6	5.1										

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen and Sulfur Dioxide Test

IDNR Permit Number 94-A-548-S3

April 28, 2005

DATA RECORDER PRINTOUT and TEST SUMMARY

Time (CDT)	NOx, ppm	SO2, ppm	Run Number	COMMENTS	NOx C_o	NOx C_w	NOx C_{wa}	SO_2 C_o	SO_2 C_w	SO_2 C_{wa}	NOx, ppm Drift Corrected	SO_2, ppm Drift Corrected
4/28/2005 15:27	17 8	8 5										
4/28/2005 15 28	6 0	10 2										
4/28/2005 15:29	3 0	13.3										
4/28/2005 15:30	2 4	16.8	3	Run 3	-0 1	45.9	45 7	0 25	24 98	25 25	2.5	16.9
4/28/2005 15:31	4 5	17.3	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	4 6	17.4
4/28/2005 15:32	19 5	16.7	3	Run 3	-0 1	45 9	45.7	0 25	24.98	25 25	19 5	16 8
4/28/2005 15 33	14 8	17 6	3	Run 3	-0.1	45 9	45.7	0 25	24.98	25.25	14 8	17.7
4/28/2005 15.34	6 2	17.9	3	Run 3	-0.1	45.9	45.7	0 25	24.98	25 25	6.3	18.1
4/28/2005 15 35	2.6	17 3	3	Run 3	-0 1	45 9	45 7	0 25	24.98	25.25	2.7	17.4
4/28/2005 15:36	1 7	16 6	3	Run 3	-0.1	45.9	45 7	0 25	24.98	25 25	1.8	16.7
4/28/2005 15.37	1 4	16.3	3	Run 3	-0 1	45 9	45 7	0.25	24.98	25 25	1.5	16 4
4/28/2005 15:38	1.2	16 5	3	Run 3	-0.1	45 9	45.7	0.25	24.98	25.25	1.3	16 6
4/28/2005 15:39	1.4	16.5	3	Run 3	-0.1	45 9	45.7	0 25	24.98	25.25	1 5	16.6
4/28/2005 15:40	6 4	15 5	3	Run 3	-0.1	45 9	45.7	0 25	24 98	25.25	6 5	15.6
4/28/2005 15:41	12.4	14 4	3	Run 3	-0 1	45 9	45.7	0.25	24.98	25 25	12.4	14 4
4/28/2005 15 42	14.5	14 6	3	Run 3	-0 1	45.9	45 7	0 25	24.98	25 25	14.5	14 6
4/28/2005 15 43	17.1	15 7	3	Run 3	-0.1	45 9	45 7	0 25	24.98	25.25	17.1	15.8
4/28/2005 15 44	16 4	17 4	3	Run 3	-0 1	45 9	45.7	0 25	24.98	25.25	16 4	17.5
4/28/2005 15:45	12.8	17 4	3	Run 3	-0.1	45 9	45.7	0.25	24 98	25.25	12.8	17.5
4/28/2005 15.46	6.3	16 0	3	Run 3	-0.1	45.9	45.7	0.25	24 98	25.25	6 4	16 1
4/28/2005 15:47	4.0	14 0	3	Run 3	-0.1	45 9	45.7	0 25	24.98	25 25	4.1	14 0
4/28/2005 15 48	3.1	11.3	3	Run 3	-0.1	45 9	45 7	0 25	24.98	25 25	3 2	11.2
4/28/2005 15 49	3 9	8 8	3	Run 3	-0.1	45.9	45 7	0 25	24.98	25 25	4.0	8.8
4/28/2005 15:50	6 0	7.2	3	Run 3	-0.1	45.9	45.7	0 25	24 98	25 25	6.1	7.1
4/28/2005 15.51	10.1	6 0	3	Run 3	-0.1	45 9	45.7	0.25	24.98	25.25	10 1	5 9
4/28/2005 15:52	15.0	5.7	3	Run 3	-0.1	45.9	45.7	0.25	24 98	25 25	15 0	5.6
4/28/2005 15.53	15.6	6 2	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25 25	15.6	6.1
4/28/2005 15 54	9 5	6.8	3	Run 3	-0.1	45 9	45.7	0 25	24.98	25 25	9 5	6.7
4/28/2005 15 55	4.3	6.7	3	Run 3	-0 1	45.9	45 7	0 25	24.98	25.25	4.4	6.6
4/28/2005 15:56	4.6	6 2	3	Run 3	-0 1	45.9	45 7	0.25	24.98	25 25	4.7	6.1
4/28/2005 15:57	6.9	5.9	3	Run 3	-0.1	45.9	45.7	0 25	24.98	25.25	7.0	5 8
4/28/2005 15:58	6 2	6.2	3	Run 3	-0.1	45 9	45.7	0.25	24 98	25.25	6.3	6 1
4/28/2005 15:59	3.7	7.6	3	Run 3	-0.1	45 9	45.7	0.25	24 98	25.25	3 8	7.5
4/28/2005 16.00	2.2	9 6	3	Run 3	-0.1	45 9	45.7	0 25	24.98	25 25	2.3	9.5
4/28/2005 16:01	2.0	11.9	3	Run 3	-0 1	45.9	45.7	0 25	24.98	25 25	2.1	11.9
4/28/2005 16 02	3.2	14 3	3	Run 3	-0 1	45.9	45 7	0.25	24.98	25.25	3.3	14.3
4/28/2005 16:03	2.9	14.6	3	Run 3	-0.1	45.9	45.7	0 25	24.98	25.25	3.0	14.6
4/28/2005 16:04	1 6	12.1	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	1.7	12.1
4/28/2005 16:05	1.5	9 5	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25 25	1.6	9 5
4/28/2005 16:06	2 0	7 6	3	Run 3	-0.1	45 9	45.7	0 25	24.98	25.25	2 1	7.5
4/28/2005 16:07	2.9	6.7	3	Run 3	-0 1	45 9	45.7	0 25	24.98	25 25	3.0	6.6
4/28/2005 16:08	4.3	7.1	3	Run 3	-0 1	45.9	45.7	0.25	24.98	25 25	4.4	7.0
4/28/2005 16 09	6 3	7.9	3	Run 3	-0.1	45.9	45.7	0 25	24.98	25.25	6.4	7.8
4/28/2005 16:10	7 2	9.1	3	Run 3	-0 1	45 9	45.7	0.25	24.98	25.25	7.3	9.1
4/28/2005 16 11	4.5	11.1	3	Run 3	-0.1	45 9	45.7	0.25	24.98	25 25	4 6	11.0
4/28/2005 16:12	5.1	13 5	3	Run 3	-0.1	45 9	45.7	0.25	24 98	25 25	5 2	13.5
4/28/2005 16:13	7.4	16 4	3	Run 3	-0.1	45 9	45.7	0.25	24.98	25 25	7.5	16.5
4/28/2005 16:14	9 6	20.1	3	Run 3	-0 1	45 9	45 7	0.25	24.98	25 25	9.6	20.2
4/28/2005 16:15	8.2	24.1	3	Run 3	-0.1	45.9	45.7	0 25	24 98	25.25	8.3	24.3
4/28/2005 16.16	8 0	26 3	3	Run 3	-0 1	45.9	45.7	0.25	24.98	25.25	8.1	26 6
4/28/2005 16:17	8.7	26.9	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	8.8	27.2
4/28/2005 16:18	6 6	25 9	3	Run 3	-0.1	45 9	45.7	0.25	24.98	25 25	6 7	26 2
4/28/2005 16:19	4.7	23.8	3	Run 3	-0.1	45 9	45.7	0 25	24 98	25.25	4.8	24 0
4/28/2005 16:20	5.3	21 0	3	Run 3	-0.1	45 9	45.7	0 25	24.98	25.25	5.4	21.2
4/28/2005 16 21	10.6	18.5	3	Run 3	-0.1	45.9	45.7	0 25	24.98	25 25	10.6	18.7
4/28/2005 16:22	17.5	18 0	3	Run 3	-0 1	45.9	45.7	0.25	24.98	25.25	17.5	18.2
4/28/2005 16:23	15.1	19 5	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	15 1	19.7
4/28/2005 16.24	12.9	19 4	3	Run 3	-0.1	45 9	45.7	0 25	24.98	25.25	12.9	19 6
4/28/2005 16.25	13 2	17.6	3	Run 3	-0.1	45 9	45.7	0.25	24.98	25.25	13.2	17.7
4/28/2005 16.26	14.6	15.3	3	Run 3	-0.1	45.9	45.7	0 25	24.98	25.25	14.6	15.4
4/28/2005 16:27	14.4	13.6	3	Run 3	-0.1	45.9	45 7	0.25	24 98	25 25	14.4	13.6
4/28/2005 16.28	11.8	13 5	3	Run 3	-0 1	45.9	45.7	0 25	24.98	25 25	11.8	13.5
4/28/2005 16:29	9 7	14.6	3	Run 3	-0.1	45.9	45 7	0.25	24.98	25 25	9.7	14.6
4/28/2005 16.30	7.1	15.7	3	Run 3	-0.1	45 9	45.7	0.25	24 98	25.25	7.2	15 8
4/28/2005 16:31	5 7	16.0	3	Run 3	-0.1	45 9	45.7	0.25	24.98	25.25	5 8	16.1
4/28/2005 16:32	3 6	15.9	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	3.7	16.0
4/28/2005 16:33	2.8	16 0	3	Run 3	-0.1	45.9	45.7	0 25	24.98	25.25	2.9	16.1
4/28/2005 16:34	4.0	16.1	3	Run 3	-0.1	45.9	45 7	0.25	24.98	25 25	4.1	16.2

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen and Sulfur Dioxide Test

IDNR Permit Number 94-A-548-S3

April 28, 2005

DATA RECORDER PRINTOUT and TEST SUMMARY

Time (CDT)	NOx, ppm	SO2, ppm	Run Number	COMMENTS	NO_x C_o	NO_x C_w	NO_x C_{wA}	SO_2 C_o	SO_2 C_w	SO_2 C_{wA}	NO_x, ppm Drift Corrected	SO_2, ppm Drift Corrected
4/28/2005 16:35	3.9	15.7	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	4.0	15.8
4/28/2005 16:36	3.8	15.3	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	3.9	15.4
4/28/2005 16:37	3.8	15.3	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	3.9	15.4
4/28/2005 16:38	3.8	15.7	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	3.9	15.8
4/28/2005 16:39	3.8	16.2	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	3.9	16.3
4/28/2005 16:40	5.8	16.5	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	5.9	16.6
4/28/2005 16:41	9.2	17.6	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	9.2	17.7
4/28/2005 16:42	15.4	21.0	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	15.4	21.1
4/28/2005 16:43	24.4	26.9	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	24.4	27.2
4/28/2005 16:44	37.2	32.4	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	37.1	32.8
4/28/2005 16:45	35.9	32.6	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	35.8	33.0
4/28/2005 16:46	19.7	29.3	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	19.7	29.7
4/28/2005 16:47	12.4	25.9	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	12.4	26.2
4/28/2005 16:48	9.0	23.8	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	9.1	24.0
4/28/2005 16:49	7.4	22.6	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	7.5	22.8
4/28/2005 16:50	7.4	22.4	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	7.5	22.6
4/28/2005 16:51	7.7	22.0	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	7.8	22.2
4/28/2005 16:52	8.4	21.7	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	8.5	21.9
4/28/2005 16:53	7.2	20.7	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	7.3	20.8
4/28/2005 16:54	5.5	18.4	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	5.6	18.6
4/28/2005 16:55	2.9	16.2	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	3.0	16.3
4/28/2005 16:56	1.2	15.0	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	1.3	15.1
4/28/2005 16:57	0.8	15.1	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	0.9	15.2
4/28/2005 16:58	0.7	15.4	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	0.8	15.5
4/28/2005 16:59	1.1	15.9	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	1.2	16.0
4/28/2005 17:00	1.7	16.2	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	1.8	16.3
4/28/2005 17:01	3.1	15.9	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	3.2	16.0
4/28/2005 17:02	4.0	15.1	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	4.1	15.2
4/28/2005 17:03	4.5	14.4	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	4.6	14.4
4/28/2005 17:04	3.9	13.1	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	4.0	13.1
4/28/2005 17:05	4.4	11.4	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	4.5	11.4
4/28/2005 17:06	4.9	10.5	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	5.0	10.4
4/28/2005 17:07	4.4	10.6	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	4.5	10.5
4/28/2005 17:08	5.8	11.0	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	5.9	10.9
4/28/2005 17:09	6.6	11.3	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	6.7	11.3
4/28/2005 17:10	5.1	11.4	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	5.2	11.4
4/28/2005 17:11	4.1	11.5	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	4.2	11.5
4/28/2005 17:12	5.1	13.1	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	5.2	13.1
4/28/2005 17:13	4.5	15.8	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	4.6	15.9
4/28/2005 17:14	4.6	19.3	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	4.7	19.5
4/28/2005 17:15	4.7	22.3	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	4.8	22.5
4/28/2005 17:16	5.7	24.1	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	5.8	24.3
4/28/2005 17:17	5.1	25.0	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	5.2	25.3
4/28/2005 17:18	3.2	26.4	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	3.3	26.7
4/28/2005 17:19	2.6	27.7	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	2.7	28.1
4/28/2005 17:20	2.4	28.3	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	2.5	28.7
4/28/2005 17:21	2.4	29.7	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	2.5	30.1
4/28/2005 17:22	2.6	31.4	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	2.7	31.8
4/28/2005 17:23	2.7	32.9	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	2.8	33.3
4/28/2005 17:24	2.9	33.1	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	3.0	33.5
4/28/2005 17:25	3.0	31.4	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	3.1	31.8
4/28/2005 17:26	3.1	26.9	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	3.2	27.2
4/28/2005 17:27	3.7	24.2	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	3.8	24.4
4/28/2005 17:28	3.4	23.4	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	3.5	23.6
4/28/2005 17:29	3.1	24.0	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	3.2	24.2
4/28/2005 17:30	3.2	25.7	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	3.3	26.0
4/28/2005 17:31	3.9	27.9	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	4.0	28.3
4/28/2005 17:32	8.2	30.7	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	8.3	31.1
4/28/2005 17:33	15.1	32.5	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	15.1	32.9
4/28/2005 17:34	8.4	30.1	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	8.5	30.4
4/28/2005 17:35	4.8	26.9	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	4.9	27.2
4/28/2005 17:36	4.5	24.8	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	4.6	25.1
4/28/2005 17:37	5.7	23.8	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	5.8	24.0
4/28/2005 17:38	7.5	23.7	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	7.6	23.9
4/28/2005 17:39	8.0	24.2	3	Run 3	-0.1	45.9	45.7	0.25	24.98	25.25	8.1	24.4
	7.0	17.8		**Run 3 Average**							7.0	18.0
4/28/2005 17:40	8.5	24.6										
4/28/2005 17:41	5.9	14.0										

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen and Sulfur Dioxide Test

IDNR Permit Number 94-A-548-S3

April 28, 2005

DATA RECORDER PRINTOUT and TEST SUMMARY

Time (CDT)	NOx, ppm	SO2, ppm	Run Number	COMMENTS	NOx C_s	NOx C_w	NOx C_{wA}	SO_2 C_s	SO_2 C_w	SO_2 C_{wA}	NOx, ppm Drift Corrected	SO_2, ppm Drift Corrected
4/28/2005 17 42	-0.1	3 0										
4/28/2005 17 43	-0 1	0 6										
4/28/2005 17 44	-0.1	0.3		0 Cal								
	-0.1	0 3		**0 Cal Average**								
4/28/2005 17 45	11 9	0.3										
4/28/2005 17 46	46 1	1.3										
4/28/2005 17:47	46.4	3.5		45 7 Nox								
	46.4	3 5		**45.7 Nox Average**								
4/28/2005 17 48	29 8	7.7										
4/28/2005 17.49	0 0	19.7										
4/28/2005 17.50	-0.1	24 3										
4/28/2005 17.51	-0.1	25.3										
4/28/2005 17:52	-0 1	25 6		25.1 SO2 Cal								
4/28/2005 17 53	0.1	24 5		25.1 SO2 Cal								
	0.0	25.1		**25.1 SO2 Cal Average**								
4/28/2005 17.54	-0.1	9 3										
4/28/2005 17 55	3.5	1 0										

EXAMPLE CALCULATIONS FOR GASEOUS EMISSIONS

Calculations for Run 1 of the Oxides of Nitrogen Test

Correction of NOx Concentrations for Instrument Drift

EPA Method 6C provides an equation for correcting the measured gaseous concentrations over a valid test run for instrument drift during the test run.

The EPA equation presented in Section 8 of EPA Method 6C is:

Cgas = (Cavg - Co)(Cma / (Cm - Co))

Where:

Cgas = Effluent gas concentration, dry basis, ppm.

Cavg = Average gas concentration indicated by the gas analyzer, ppm.

Co = Average of initial and final system calibration bias check responses for the zero gas, ppm.

Cm = Average of initial and final system calibration bias check responses for the upscale calibration gas, ppm.

Cma = Actual concentration of the upscale calibration gas, ppm.

Using the average for Run 1 of the NOx test:

Cavg = 14.0

From the Pre test / post test calibration

	Pre test	+ Post Test	/ 2	
Co =	-0.1	-0.1	2	-0.1 ppm
Cm =	45.7	46.4	2	46.05 ppm

Cma = 45.7 ppm

Cgas = (Cavg - Co)(Cma / (Cm - Co))

	Cavg	Co	Cma	Cm	Co
Cgas =	14.0	-0.1	45.7	46.05	-0.1

Cgas = 13.9

Calculation of the Mass of NOx Emissions During the Test Run

The stack gas flow rate for each sampling run was measured using EPA Methods 1 through 3. Flow data in the appendix section presents the measured stack gas parameters and calculation of the stack gas flow rates.

The average mass emission rate of a pollutant over a sampling run was calculated by using the following equation:

$$M = \frac{Cgas(avg) \times MW \times Q \times 60}{385.1 \times 10^{6}}$$

Where:

M = Average mass emission rate of the pollutant over the sampling run in lbs/hr.

Cgas(avg) = Average concentration of the stack gas during the sampling run in ppm. This concentration is expressed on a dry stack basis.

MW	=	Molecular weight of the pollutant in lbs/lb-mole.
Q	=	Stack gas flow rate during the sampling run in dry standard cubic feet per minute (dscfm).
385.1	=	Number of cubic feet occupied by one pound of gas at standard conditions (68° F and 29.92 in. Hg), assuming ideal gas behavior.
10^6	=	Conversion constant for parts per million to cubic feet of pollutant (1 ppm = 10^{-6} ft^3 pollutant / ft^3 stack gas)
60	=	Conversion constant for minutes to hours (1 hr = 60 Minutes)

Example Calculation:

For the NOx test:

Cgas(avg) = 13.9 ppm

MW = 46 = 14 + 16 + 16

Flow SCFMD Avg:

Q = 700494 SCFMD

$$\frac{Cgas(avg) \times MW \times Q \times 60}{385.1 \times 10^6}$$

M =	Cgas(avg)	MW	Q	
	13.913001	46	700494	60
	3.85E+08			

M = 69.8 lbs/hr

NOx pounds per hour to pounds per ton

Production 154.8 tons/hour (from production records, see appendix section)

NOx 69.8 pounds/hour

pounds per ton = (pounds/hour)/(tons/hour)

Pounds per ton = 0.45

NOx pounds per hour to tons per year

NOx 43.0 pounds per hour (3 run average)

8760 operating hours per year (24 X 365)

2000 pounds = 1 ton

NOx pounds per hour X 8760 operating hours per year / 2000 pounds/ton

NOx 188.3 tons per year

EXAMPLE CALCULATIONS FOR GASEOUS EMISSIONS

Calculations for Run 1 of the Sulfur Dioxide Test

Correction of SO2 Concentrations for Instrument Drift

EPA Method 6C provides an equation for correcting the measured gaseous concentrations over a valid test run for instrument drift during the test run.

The EPA equation presented in Section 8 of EPA Method 6C is:

Cgas = (Cavg - Co)(Cma / (Cm - Co))

Where:

Cgas = Effluent gas concentration, dry basis, ppm.

Cavg = Average gas concentration indicated by the gas analyzer, ppm.

Co = Average of initial and final system calibration bias check responses for the zero gas, ppm.

Cm = Average of initial and final system calibration bias check responses for the upscale calibration gas, ppm.

Cma = Actual concentration of the upscale calibration gas, ppm.

Using the average for Run 1 of the SO2 test:

Cavg = 18.0

From the Pre test / post test calibration

	Pre test +	Post Test	/ 2	
Co =	0.1	0.2	2	0.15 ppm
Cm =	25.2	25.2	2	25.2 ppm

Cma = 25.10 ppm

Cgas = (Cavg - Co)(Cma / (Cm - Co))

	Cavg	Co	Cma	Cm	Co
Cgas =	18.0	0.15	25.1	25.2	0.15

Cgas = 17.9

Calculation of the Mass of SO2 Emissions During the Test Run

The stack gas flow rate for each sampling run was measured using EPA Methods 1 through 3. Flow data in the appendix section presents the measured stack gas parameters and calculation of the stack gas flow rates.

The average mass emission rate of a pollutant over a sampling run was calculated by using the following equation:

$$M = \frac{Cgas(avg) \times MW \times Q \times 60}{385.1 \times 10^6}$$

Where:

M = Average mass emission rate of the pollutant over the sampling run in lbs/hr.

Cgas(avg) = Average concentration of the stack gas during the sampling run in ppm. This concentration is expressed on a dry stack basis.

MW	=	Molecular weight of the pollutant in lbs/lb-mole.
Q	=	Stack gas flow rate during the sampling run in dry standard cubic feet per minute (dscfm).
385.1	=	Number of cubic feet occupied by one pound of gas at standard conditions (68° F and 29.92 in. Hg), assuming ideal gas behavior.
10^6	=	Conversion constant for parts per million to cubic feet of pollutant (1 ppm = 10^{-6} ft^3 pollutant / ft^3 stack gas)
60	=	Conversion constant for minutes to hours (1 hr = 60 Minutes)

Example Calculation:

For the SO2 test:

Cgas(avg) = 17.9 ppm

MW = 64 = 32 + 16 + 16

Flow SCFMD Avg:

Q = 700494 SCFMD

$$\frac{Cgas(avg) \times MW \times Q \times 60}{385.1 \times 10^6}$$

$$M = \frac{Cgas(avg)\ MW\ Q}{17.9\quad 64\quad 700494\quad 60} \quad 3.85E+08$$

M = 125.03 lbs/hr

NOx pounds per hour to pounds per ton

Production 154.8 tons/hour (from production records, see appendix section)

SO2 125.0 pounds/hour

pounds per ton = (pounds/hour)/(tons/hour)

Pounds per ton = 0.81

SO2 pounds per hour to tons per year

SO2 109.6 pounds per hour (3 run average)

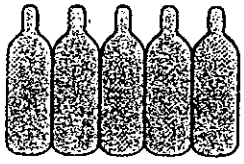
8760 operating hours per year (24 X 365)

2000 pounds = 1 ton

SO2 pounds per hour X 8760 operating hours per year / 2000 pounds/ton

SO2 480.1 tons per year

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Shipped From: 80 Industrial Drive • Alpha, NJ 08865
www.spectra-gases.com



CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER:	IPSCO Steel	CYLINDER # :	CC-110112
SGI ORDER # :	0065427	CYLINDER PRES:	2000 PSIG
ITEM# :	1	CGA OUTLET:	660
P.O.# :	223081		

CERTIFICATION DATE: 2/8/2005
EXPIRATION DATE: 2/8/2007

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	1/25/2005 2/8/2005	23.49 ppm 23.49 ppm	23.5 ppm	+/- 1%
NOx			23.5 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	NTRM-81684	CC-133648	99.5 ppm

INSTRUMENTATION

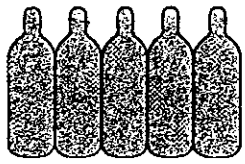
COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	CAI-400-CLD	6L09004	Chemi	1/18/2005

THIS STANDARD IS NIST TRACEABLE. IT 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

DATE: 2/8/2005

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CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER:	IPSCO Steel	CYLINDER # :	CC-133116
SGI ORDER # :	0065427	CYLINDER PRES:	2000 PSIG
ITEM# :	2	CGA OUTLET:	660
P.O.# :	223081		

CERTIFICATION DATE: 2/8/2005
EXPIRATION DATE: 2/8/2007

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	1/25/2005 2/8/2005	45.51 ppm 45.62 ppm	45.6 ppm	+/- 1%
NOx			45.7 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	NTRM-81684	CC-133648	99.5 ppm

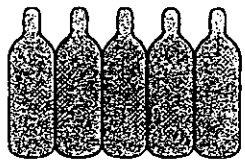
INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	CAI-400-CLD	6L09004	Chemi	1/18/2005

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

ANALYST: _____ DATE: 2/8/2005
FRED PIKULA

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CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE
PROCEDURE # : G1

CUSTOMER: IPSCO Steel
SGI ORDER # : 0065427
ITEM# : 3
P.O.# : 223081

CYLINDER # : CC-20020
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 2/22/2005
EXPIRATION DATE: 8/22/2005

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN *CONCENTRATION*	CERTIFIED *CONCENTRATION*	ANALYTICAL ACCURACY
Sulfur Dioxide	2/2/2005 2/22/2005	15.25 ppm 15.13 ppm	15.19 ppm	+/- 1%

BALANCE Air

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Sulfur Dioxide	GMIS-1	CC-133555	20.15 ppm

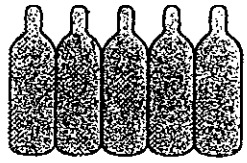
INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Sulfur Dioxide	Thermo 43C	43C-70456-365	UV	2/2/2005

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

ANALYST: _____ DATE: 2/22/2005
FRED PIKULA

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CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE
PROCEDURE # : G1

CUSTOMER:	IPSCO Steel	CYLINDER # :	CC-131018
SGI ORDER # :	0065427	CYLINDER PRES:	2000 PSIG
ITEM# :	4	CGA OUTLET:	660
P.O.# :	223081		

CERTIFICATION DATE: 2/22/2005
EXPIRATION DATE: 8/22/2005

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Sulfur Dioxide	2/3/2005 2/22/2005	25.03 ppm 25.14 ppm	25.1 ppm	+/- 1%

BALANCE Air

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Sulfur Dioxide	NTRM-81694	CC-162874	96.1 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Sulfur Dioxide	Horiba VIA-510	851221093	NDIR	2/22/2005

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

ANALYST: _____ DATE: 2/22/2005
FRED PIKULA

APPENDIX B

Flow and Moisture

-Flow Run Summaries
-Flow Calculation Data
-Moisture Calculations
-Field Data Sheets
-Pitot Calibrations
-Thermocouple Calibrations
-Magnehelic Calibration

Ambient Air Services, Inc.
Environmental Consultants
106 Ambient Airway Starke, Florida 32091 (904) 964-8440

AASI.USEPA Method 1,2,3 - Rev 3,3-10-05

Volumetric Flow Calculations Worksheet

Data Request Entry Area	Flow Run 1
Facility	Ipsco Steel Iowa Inc
Location	Muscatine, Iowa
Source	EAF Baghouse
Date	04/28/05
Run Number	1
Start Time	12:00
Finish Time	12:15
Weather	ovc
Total Time (minutes) (Θ)	15.0
Number of Points (n)	24
Barometric Pressure (inches Hg) (P_{bar})	29.15
Dry Bulb Temperature	185
Wet Bulb Temperature	105
Static Pressure (inches H_2O) (P_g)	-0.50
Stack Diameter (inches) (D)	228.00
Pitot Factor (C_p)	0.84
Carbon Dioxide %	0.0
Oxygen %	20.9
Carbon Monoxide %	0.0
Nitrogen %	79.1

Field Data Points - Flow Run 1

Port	Trav. Pt.	Vel. Head		Stack F			Sq Rt VH
1	1	0.55		194			0.7416
	2	0.67		193			0.8185
	3	0.69		192			0.8307
	4	0.88		192			0.9381
	5	0.79		192			0.8888
	6	0.57		191			0.7550
2	1	1.2		180			1.0954
	2	1.2		181			1.0954
	3	1.4		181			1.1832
	4	1.4		186			1.1832
	5	1.3		189			1.1402
	6	0.9		190			0.9487
3	1	0.65		180			0.8062
	2	0.82		180			0.9055
	3	0.78		180			0.8832
	4	0.8		179			0.8944
	5	0.67		178			0.8185
	6	0.4		177			0.6325
4	1	0.67		179			0.8185
	2	0.38		179			0.6164
	3	0.44		182			0.6633
	4	0.35		182			0.5916
	5	0.43		183			0.6557
	6	0.37		181			0.6083

Flow Summary Run 1

Facility	Ipsco Steel Iowa Inc	Stack	EAF Baghouse
Location	Muscatine, Iowa	Run Date	4/28/2005
Start Time	12:00	Weather	ovc
Finish Time	12:15	Total Time (min.)	15
(P_{bar}) Barometric Pressure (in Hg)	29.15	Carbon Dioxide %	0.0
(D) Stack Diameter (inches)	228.00	Oxygen %	20.9
(A) Stack Area (ft^2)	283.529	Carbon Monoxide %	0.0
(n) Number of Points	24	Nitogen %	79.1
(Δp_{avg}) Avg of SQRT of V.H.	0.8547	(P_s)Stack Pressure (inches Hg)	29.11
(Cp) Pitot Correction Factor	0.84	($T_{s(abs)}$) Stack Temp (°R)	644.2

(B_{ws}) Moisture in stack gas, volume fraction	0.048
(B_{wd}) Dry Stack Gas, volume fraction	0.952
(M_d) Molecular Weight of Stack Gas (Dry Basis)	28.84
(M_s) Molecular Weight of Stack Gas (Stack conditions)	28.31
(G_s) Specific gravity of Stack Gas Relative to Air	0.977
(v_s) Average Stack Velocity, FPM	3255.8
(Q_s) Actual Stack Gas Flow Rate, ACFM	923114
(Q_d) Actual Stack Gas Flow Rate, ACFMD	878346
($Q_{d(std)}$) Stack Gas Flow Rate, SCFMD	700494
($Q_{s(std)}$) Stack Gas Flow Rate Wet, SCFMW	736197

Ambient Air Services, Inc.
Environmental Consultants
106 Ambient Airway Starke, Florida 32091 (904) 964-8440

AASI USEPA Method 1,2,3 - Rev 3,3-10-05

Volumetric Flow Calculations Worksheet

Data Request Entry Area	Flow Run 2
Facility	Ipsco Steel Iowa Inc
Location	Muscatine, Iowa
Source	EAF Baghouse
Date	04/28/05
Run Number	2
Start Time	14:18
Finish Time	14:30
Weather	clr, cool
Total Time (minutes) (Θ)	12.0
Number of Points (n)	24
Barometric Pressure (inches Hg) (P_{bar})	29.15
Dry Bulb Temperature	202
Wet Bulb Temperature	107
Static Pressure (inches H_2O) (P_g)	-0.60
Stack Diameter (inches) (D)	228.00
Pitot Factor (C_p)	0.84
Carbon Dioxide %	0.0
Oxygen %	20.9
Carbon Monoxide %	0.0
Nitrogen %	79.1

Field Data Points - Flow Run 2

Port	Trav. Pt.	Vel. Head		Stack ' F			Sq Rt VH
1	1	0.55		201			0.7416
	2	0.42		201			0.6481
	3	0.35		201			0.5916
	4	0.4		201			0.6325
	5	0.38		194			0.6164
	6	0.45		195			0.6708
2	1	0.45		198			0.6708
	2	0.4		197			0.6325
	3	0.4		200			0.6325
	4	0.45		201			0.6708
	5	0.5		202			0.7071
	6	0.5		198			0.7071
3	1	0.7		199			0.8367
	2	0.72		200			0.8485
	3	0.8		203			0.8944
	4	0.92		203			0.9592
	5	0.95		203			0.9747
	6	0.5		200			0.7071
4	1	0.65		198			0.8062
	2	0.55		200			0.7416
	3	0.75		202			0.8660
	4	0.75		202			0.8660
	5	0.88		203			0.9381
	6	0.48		201			0.6928

Flow Summary Run 2

Facility	Ipsco Steel Iowa Inc	Stack	EAF Baghouse
Location	Muscatine, Iowa	Run Date	4/28/2005
Start Time	14:18	Weather	clr, cool
Finish Time	14:30	Total Time (min.)	12
(P_{bar}) Barometric Pressure (in Hg)	29.15	Carbon Dioxide %	0.0
(D) Diameter (inches)	228.00	Oxygen %	20.9
(A) Stack Area (ft^2)	283.529	Carbon Monoxide %	0.0
(n) Number of Points	24	Nitogen %	79.1
(Δp_{avg}) Avg of SQRT of V.H.	0.7522	(P_s) Stack Pressure (inches Hg)	29.11
(Cp) Pitot Correction Factor	0.84	($T_{s(abs)}$) Stack Temp (°R)	660.1
(B_{ws}) Moisture in stack gas, volume fraction			0.048
(B_{wd}) Dry Stack Gas, volume fraction			0.952
(M_d) Molecular Weight of Stack Gas (Dry Basis)			28.84
(M_s) Molecular Weight of Stack Gas (Stack conditions)			28.32
(G_s) Specific gravity of Stack Gas Relative to Air			0.977
(v_s) Average Stack Velocity, FPM			2900.3
(Q_a) Actual Stack Gas Flow Rate, ACFM			822319
(Q_d) Actual Stack Gas Flow Rate, ACFMD			782754
($Q_{d(std)}$) Stack Gas Flow Rate, SCFMD			609075
($Q_{s(std)}$) Stack Gas Flow Rate Wet, SCFMW			639861

Ambient Air Services, Inc.
Environmental Consultants
106 Ambient Airway Starke, Florida 32091 (904) 964-8440

AASI USEPA Method 1,2,3 - Rev 3,3-10-05

Volumetric Flow Calculations Worksheet

Data Request Entry Area	Flow Run 3
Facility	Ipsco Steel Iowa Inc
Location	Muscatine Iowa
Source	EAF Baghouse
Date	04/28/05
Run Number	3
Start Time	17:07
Finish Time	17:17
Weather	clr, cool
Total Time (minutes) (Θ)	10.0
Number of Points (n)	24
Barometric Pressure (inches Hg) (P_{bar})	29.15
Dry Bulb Temperature	196.00
Wet Bulb Temperature	100.00
Static Pressure (inches H_2O) (P_g)	-0.55
Stack Diameter (inches) (D)	228.00
Pitot Factor (C_p)	0.84
Carbon Dioxide %	0.0
Oxygen %	20.9
Carbon Monoxide %	0.0
Nitrogen %	79.1

Field Data Points - Flow Run 3

Port	Trav. Pt.	Vel. Head		Stack F			Sq Rt VH
1	1	0.65		205			0.8062
	2	0.55		205			0.7416
	3	0.55		207			0.7416
	4	0.62		208			0.7874
	5	0.68		208			0.8246
	6	0.45		207			0.6708
2	1	0.5		205			0.7071
	2	0.45		205			0.6708
	3	0.4		209			0.6325
	4	0.35		209			0.5916
	5	0.38		211			0.6164
	6	0.3		209			0.5477
3	1	0.52		189			0.7211
	2	0.6		202			0.7746
	3	0.65		204			0.8062
	4	0.72		206			0.8485
	5	0.7		207			0.8367
	6	0.45		207			0.6708
4	1	0.48		198			0.6928
	2	0.48		203			0.6928
	3	0.42		206			0.6481
	4	0.55		207			0.7416
	5	0.4		208			0.6325
	6	0.3		207			0.5477

Flow Summary Run 3

Facility	Ipsco Steel Iowa Inc	Stack	EAF Baghouse
Location	Muscatine, Iowa	Run Date	4/28/2005
Start Time	17:07	Weather	clr, cool
Finish Time	17:17	Total Time (min.)	10
(P_{bar}) Barometric Pressure (in Hg)	29.15	Carbon Dioxide %	0.0
(D) Diameter (inches)	228.00	Oxygen %	20.9
(A) Stack Area (ft^2)	283.529	Carbon Monoxide %	0.0
(n) Number of Points	24	Nitogen %	79.1
(Δp_{avg}) Avg of SQRT of V.H.	0.7063	(P_s) Stack Pressure (inches Hg)	29.11
(Cp) Pitot Correction Factor	0.84	($T_{s(abs)}$) Stack Temp (°R)	665.5

(B_{ws}) Moisture in stack gas, volume fraction	0.047
(B_{wo}) Dry Stack Gas, volume fraction	0.953
(M_d) Molecular Weight of Stack Gas (Dry Basis)	28.84
(M_s) Molecular Weight of Stack Gas (Stack conditions)	28.33
(G_s) Specific gravity of Stack Gas Relative to Air	0.977
(v_s) Average Stack Velocity, FPM	2733.8
(Q_s) Actual Stack Gas Flow Rate, ACFM	775112
(Q_d) Actual Stack Gas Flow Rate, ACFMD	738908
($Q_{d(std)}$) Stack Gas Flow Rate, SCFMD	570370
($Q_{s(std)}$) Stack Gas Flow Rate Wet, SCFMW	598316

Ambient Air Services, Inc.
Environmental Consultants
106 Ambient Airway Starke, Florida 32091 (904) 964-8440

AASI USEPA Method 5 24 Point Template - Rev 5/3-3-2005

Example Calculations, Moisture

Facility	Ipsco Steel Iowa Inc	**Source**	EAF Baghouse
Location	Muscatine, Iowa	**Date**	April 28, 2005

1. **Stack Pressure (P_s)**

$$P_s = P_{bar} + (P_g / 13.6)$$

Example.	P_{bar}	=	29.15	P_s	=	**29.11**	in. Hg.
	P_g	=	-0.5				

2. **e @ Saturation**

$$(0.00000608764 \times W_b^3) - (0.0010043 \times W_b^2) + (0.0756026 \times W_b) - 1.6933$$

Example.	W_b	=	105.0	e @	=	**2.220**	

3. **K**

$$((Ps - e@) \times (Db - Wb)) / (2800 - (1.3 \times Wb))$$

Example.	e @	=	2.220	K	=	**0.808**	
	P_s	=	29.11				
	Db	=	185.0				
	Wb	=	105.0				

4. **C**

$$e @ - K$$

Example.	e @	=	2.220	C	=	**1.412**	SCF
	K	=	0.808				

5. **Moisture in stack gas, volume fraction (B_{ws})**

$$(C / Ps) \times 100$$

Example.	C	=	1.412	B_{ws}	=	**0.048**	
	Ps	=	29.113				

e @	=	Saturation	P_{bar}	=	Barometric Pressure (Inches Hg)
B_{ws}	=	Moisture in stack gas, volume fraction	P_g	=	Static Pressure
D_b	=	Dry Bulb Temperature	P_s	=	Stack Pressure (inches Hg)
K	=	Moisture in stack gas, volume fraction	W_b	=	Wet Bulb Temperature

Ambient Air Services, Inc.
106 Ambient Airway
Starke, Florida
(904) 964-8440

Velocity Traverse

Plant: IPSCO Date: 4/28/05

Source: Bosham Stack Barometric Pressure: 29.15

Stack Diameter: 228 Pitot ID 7C Thermocouple ID 7

NB 105 SB 185 WB 107 DB 202 WB 106 DB 198

Run 1			Run 2			Run 3		
Static Pressure		-0.5	Static Pressure		-0.6	Static Pressure		-0.55
Start	12:00		Start	14:18		Start	17:07	
Stop	12:15		Stop	14:30		Stop	17:17	
Traverse Point No.	Velocity Head	Stack Temp Deg F	Traverse Point No.	Velocity Head	Stack Temp Deg F	Traverse Point No.	Velocity Head	Stack Temp Deg F
1-1	0.55	194		0.55	201		0.65	205
2	0.67	193		0.42	201		0.55	205
3	0.69	192		0.35	201		0.55	207
4	0.88	192		0.40	201		0.62	208
5	0.79	192		0.38	194		0.68	208
6	0.57	191		0.45	195		0.45	207
2-1	1.2	180		0.45	198		0.50	205
2	1.2	181		0.40	197		0.45	205
3	1.4	181		0.40	200		0.40	209
4	1.4	186		0.45	201		0.35	209
5	1.3	189		0.50	202		0.38	211
6	0.90	190		0.50	198		0.30	209
3-1	0.65	180		0.70	199		0.52	189
2	0.82	180		0.72	200		0.60	202
3	0.78	180		0.80	203		0.65	204
4	0.80	179		0.92	203		0.72	206
5	0.67	178		0.95	203		0.70	207
6	0.40	177		0.50	200		0.45	207
12:09 sand charge 4-1	0.67	179		0.65	198		0.48	198
2	0.38	179		0.55	200		0.48	203
3	0.44	182		0.75	202		0.42	206
4	0.35	182		0.75	202		0.55	207
5	0.43	183		0.88	203		0.40	208
6	0.37	181		0.48	201		0.30	207

Ambient Air Services, Inc.
Environmental Consultants
106 Ambient Airway Starke, Florida 32091 (904) 964-8440
AASI USEPA Method 1,2, WB/DB - Rev 3,3-10-05

Facility	**Ipsco Steel Iowa Inc**	**Source**	**EAF Baghouse**
Location	**Muscatine, Iowa**	**Date**	**April 28, 2005**

Moisture Calculations

Time	W_b Wet Bulb (° F)	D_b Dry Bulb (° F)	P_{bar} Barometric Pres. ("Hg)	P_g Static Pres ("H2O)	P_s Stack Pres. ("Hg)	e @ Saturation	B_{ws} % Moisture	K	C
R1	105	185	29.15	-0.5	29.11	2.220	**4.85**	0.8078	1.4119
R2	107	202	29.15	-0.6	29.11	2.355	**4.81**	0.9550	1.4004
R3	106	198	29.15	-0.55	29.11	2.287	**4.67**	0.9269	1.3597

4/29/05

Magnehelic Calibration

Standard - 36" V. Manometer located at Ipsco N. Ambient Site

Std	V-53	% difference
0.00	0.00	0 %
1.00	1.00	0 %
2.00	2.01	1 %

Calibration conducted after Stack test completed on 4/28

by [signature]

AMBIENT AIR SERVICES, INC.
106 Ambient Air Way
Starke, Florida

THERMOCOUPLE CALIBRATION FORM

Date 3/11/05 Time _____ Standard Thermometer Type _____ 00100
Ambient Temperature _____ Source _____ Manufacturer _____
Barometric Pressure _____ Source _____ Serial Number _____
Technician's Signature _____ Pyrometer Manufacturer _____ Model _____
Serial Number _____ Meter Box _____

TEMPERATURE SOURCE (A)													
REFERENCE THERMOMETER	Actual Reading	ICE PT			Boiling Water								
	Corrected Temperature	32.0			212.0								
CALIBRATED THERMOCOUPLE													
Serial Number	Location	Indicated Temp.	Difference (B)	Percent Diff. (C)	Indicated Temp.	Difference	Percent Diff.	Indicated Temp.	Difference	Percent Diff.	Indicated Temp.	Difference	Percent Diff.
	(Stack)	32.3	0.3	1%	209.8	2.2	1%						
	Filter												
	Impinger												
	Meter In												
	Meter Out												

Comments:

Calibration Tolerances Stack = 1.5% of value, Filter Box = ±5.4°F, Impinger = ±2°F, Meter = ±5.4°F (40CFR Pt 60, App. A Method 5, and QA Handbook Section 3.4, Method 5, page 13, Rev. 0)

(A) Type of calibration system used (B) Reference - Indicated = Difference

(C) $\left[\frac{\text{(ref. temp. °F + 460) - (indicated temp. °F + 460)}}{\text{(reference temp. °F + 460)}}\right] \times 100$

AASI 68A

AAS Inc. AMBIENT AIR SERVICES INCORPORATED
ENVIRONMENTAL CONSULTANTS

PITOT TUBE CALIBRATION MEASUREMENTS

DATE CALIBRATED 3-11-05 PITOT TUBE 7C

Technician name: Corey

Pitot tube assembly level ? X Yes ____ No

Pitot tube openings damaged? ____ Yes (explain below) X NO

a1 = 0 degrees (< 10 deg) a2 = 1 degrees (< 10 deg)

b2 = 1 degrees (<5 deg) b1 = 0 degrees (<5 deg)

Y = 0.5 degrees θ = 1.5 degrees A = 1.228 inches = (Pa + Pb)

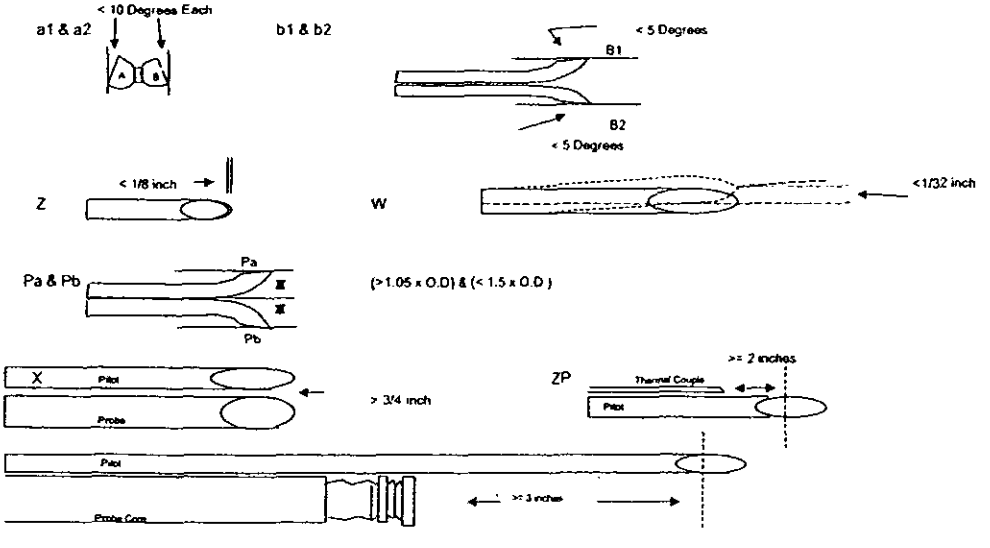
Pa = 0.614 Pb = 0.614 Dt = 0.375

z = A sin Y = 0.01 inches ; / < 1/8 inches

w = A sin θ = 0.03 inches ; / < 1/32 inches

Calibration required ? ____ Yes ✓ No Technician signature

Quality Assurance Review by: _____
QA date



APPENDIX C

Test Protocol

Ambient Air Services, Inc.

106 Ambient Airway • Starke, FL 32091 • (904) 964-8440 • Fax (904) 964-6675

December 22, 2004

(Revision 1: 020205)

Mr. Mark Stone
Stack Testing Coordinator
Air Quality Bureau
Iowa Department of Natural Resources
7900 Hickman Road, Suite 1
Urbandale, Iowa 50322

Dear Mark:

Attached is the IDNR test protocol form completed for the quarterly testing at IPSCO Steel's Montpelier Works facility.

A brief synopsis of the testing planned is as follows:

Oxides of Nitrogen (NO_x):	3 test runs, each run 2 heats (nominally 1.5 - 2.0 hours) in duration. Instrument range 0-50 ppm, calibration gases nominally 0, 25 ppm and 45 ppm. Test in accordance with USEPA Method 7E.
Sulfur Dioxide (SO_2):	3 test runs, each run 2 heats (nominally 1.5 - 2.0 hours) in duration. Instrument range 0-30 ppm, calibration gases nominally 0, 15 and 25 ppm. Test in accordance with USEPA Method 6C.
Flow:	3 flow traverses, one for each NO_x / SO_2 test run. Moisture by wet bulb/dry bulb. O_2 and CO_2 are assumed to be 21% and 0% and will not be measured.

IPSCO has selected the following dates for the conducting the testing for 2005:

First Quarter	March 9, 2005
Second Quarter	April 27, 2005
Third Quarter	July 20, 2005
Fourth Quarter	October 5, 2005

Please note that these dates are our best estimates. As each date approaches we will confirm production schedules and confirm dates and test start times.

Please let me know if you have any questions.

Sincerely,

Joseph L. Cooksey

JLC:las

cc: Jim Prochaska, IPSCO Montpelier Works
Joseph Wesselman, IPSCO Corporate

PROPOSED TEST PLAN PROTOCOL

Company Name: IPSCO Steel (Plant Number 70-08-002)

Address: 1770 Bill Sharp Boulevard, Muscatine, IA 52761

Name and Title of Contact: Jim Prochaska

Address of Contact: 1770 Bill Sharp Boulevard, Muscatine, IA 52761

Telephone Number of Contact: (563) 381-5338

Proposed Test Date: Quarterly Starting March 5, 2003, April 30, 2003, July 9, 2003 and October 8,2003.

Source Information

Type of Source: EAF/LMF Baghouse Exhaust Stack

Identification of Source to be tested: Baghouse Exhaust Stack

Permit Number of Source: 94-A-548-S3

Address of Source: 1770 Zachary Avenue

Initial Startup Date: 1998

Testing Firm Information

Name of Firm: Ambient Air Services, Inc.

Address: 106 Ambient Airway, Starke, Florida 32091

Name and Title of Contact: Joseph L. Cooksey, President

Telephone Number: (904) 964-8440

Number of Employees of Firm: 17

Number of Employees engaged in Air Pollution Source Testing (Including Support Personnel): 17

Location and Description of Laboratory Facilities: 106 Ambient Airway, Starke, Florida

Subcontractor(s) Utilized by firm for Source Testing Activities: None

Number of Air Pollution Sources Previously Tested by Firm: Testing since 1973

Types of Sources Previously Tested by Firm: Many different source types including heavy experience in Steel Industry.

PERFORMANCE TEST INFORMATION

List all pollutants to be sampled. 94-A-548-S3 - EAF / LMF Baghouse

	Pollutant	Number of Sampling Points	Total Time per Test Run	Number of Test Runs	Test Methods to be Used
1	NOx	1	2 heats	3	M 7E
2	Flow	24	N/A	3	1-4*
3	SO_2	1	2 heats	3	6C

For EPA Reference Method 5 or Iowa Method 5 tests, indicate the length of each run to collect 50 milligrams of sample. Use the estimated emissions after control as the stack gas concentration.

If the permitted emission standard or expected concentration of particulate is equal to or less than 0.005 grains per dry standard cubic foot (gr/dscf), an extended sampling time must be considered. When calculating the sample time, the length of each run should be such that a sample catch of 50 milligrams will be colleted. Should the sample catch be less than 10 milligrams after applying the above method, the test may be subject to rejection or a 10 milligrams sample weight may be assumed.

Include a description of any test procedures to be used in the conduct of the performance tests which differ from the specified method(s).

* Moisture using wet bulb/dry bulb

PROTOCOL SUPPLEMENT - OPERATING DATA

This form is to be filled out and returned with the test protocol.

Maximum Continuous Process Weight (Manufacturer's Rating): Existing - 164 TPH Phase 1 - 200 TPH (Target Production for Test is Phase 1) Phase 2 - 230 TPH

Historical Average Process Weight: Not yet established

Historical Maximum Process Weight: Plant is capable of up to 200 TPH but to date has achieved this for only short time periods.

Product Recycling Capability: Yes ____ (Heel) No X

Type of Sources of Fuels Normally Burned: Electric arc 420 KWH, 200 cu.ft. natural gas, 400 cu.ft. oxygen + 1200-1400 cu.ft. oxygen per liquid ton of steel.

Type of Control Equipment: Baghouse

Range of Pressure Drop Across Control Equipment: 4-6 Currently operating at Inches of Water

Person Responsible For This Data: Jim Prochaska

Person Responsible For Collecting Process Data During Actual Testing: Jim Prochaska

Complete and submit one of these forms for each test to be conducted. This information is especially important the determine to operating conditions of the equipment under which the tests will be conducted. The tests must be conducted while operating at maximum capacity or the highest capacity which this source will be operated. Failure to test at the permitted capacity may result in derating this source.

This information is also required to be submitted on the forms found at the end of the protocol package. These two forms, the Compliance Emission Test Operating Data and the Air Pollution Control Equipment Operating Data forms, must be filled out with the data collected on the actual date of the tests. Failure to complete the forms on the day of the testing may be cause for rejecting the tests.

APPENDIX D

Plant Operating Data

A1 1251-1253

EAF Heat Sheet **28-Apr-2005 11:59:48**

IPSCO STEEL INC.
Montpelier Works

HEAT: A5D315 *MSP: 74173*

Start Time: 28-Apr-2005 06:41:16
End Time : 28-Apr-2005 11:59:07
TapToTap Time : 317 (min)

Heat Order : 0633204
Grade : A36
Ladle #: 0 CrewID: 2 OperatorID: 4

START	DUR	DELAY REASON
11:54:32	0000	Operational, Tap
11:51:32	0003	Operational, Lance Taphole
11:48:44	0002	Operational, Slagoff
11:44:06	0001	Operational, Sidewall RTD trip
11:40:13	0002	Operational, Temp
11:23:06	0000	Operational, Sidewall RTD trip
11:09:50	0003	Operational, Charge
11:01:39	0000	Operational, Sidewall RTD trip
10:57:19	0002	Other, New Other
07:19:28	0212	Down Stream Processes, Waiting on Caste
06:42:04	0037	Operational, Charge run B

CHARGES	AMOUNT
Charge 1 :	260900
Charge 2 :	97800
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0003500
4oz AL Con	0000450
FeVan	0000075
Carbon	0001965
Dololime	0008450
HiCal Lime	0003450
ESM	0001200
MW13	0003300
40 # Syn G	0000120
Fluorspar	0000200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	72800	9500	63300	0	0	0
O2 Burner	SCF	95	36	59	0	0	0
Gas Burner	SCF	40	15	25	0	0	0
O2 Lance	SCF	1072	13	1059	0	0	0
Carbon Lance	LBS	4601	0	4601	0	0	0
TIMES							
Melting Tm	MIN	317	261	56	0	0	0
Power on Tm	MIN	45	7	38	0	0	0
Burner On Tm	MIN	94	38	56	0	0	0
O2Lance On Tm	MIN	45	2	43	0	0	0
CLance On Tm	MIN	35	0	35	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	446.5	072.8	405.9	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	14995.7	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	006.6	000.1	006.0	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	028.2	000.0	025.7	000.0	000.0	000.0

COMMENTS

even ding dong damper did not flip chris

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.18400	1.00000	0.02000	0.01000	0.32000	0.03900	0.00000	0.01500	0.00000	0.40900	0.30000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00400	0.04000	0.01000	0.00000	0.00000	0.00000
MIN	0.16500	0.90000	0.00000	0.00000	0.22000	0.01800	0.01500	0.00000	0.00100	0.37100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03000	0.00600	0.00000	0.00000	0.00000
AIM	0.17000	0.95000	0.00000	0.00000	0.27000	0.02500	0.00000	0.00000	0.00000	0.38500	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00700	0.00000	0.00000	0.00000

HEAT: A5D315 MSP: 74173

---------- EVENTS ----------

TIME	KWH	Description
11:59:18	0072800	Ladle Weigth
11:59:09	0072800	End Tapping
11:57:16	0072800	Start Tapping
11:48:48	0072800	Temperature <2987> O2 <509> C <74>
11:48:42	0072800	Power Off
11:46:27	0069000	Temperature <2858> O2 <281> C <94>
11:45:08	0066900	Power On
11:44:04	0066900	Power Off
11:42:33	0064500	Power On
11:41:34	0064500	Temperature <2766> O2 <92> C <218>
11:40:11	0064500	Power Off
11:30:33	0047900	Material Addition
11:23:41	0035800	Power On
11:23:04	0035800	Power Off
11:17:07	0025300	Power On
11:17:05	0025300	Power Off
11:13:32	0021100	Power On
11:09:48	0021100	Power Off
11:02:41	0009500	Charge
11:02:25	0009100	Power On
11:01:38	0009100	Power Off
11:00:11	0007400	Power On
10:57:17	0007400	Power Off
10:55:22	0004800	Burners On
10:51:31	0000000	Melting
10:51:29	0000000	Power On
07:12:06	0000000	Burners Off
07:07:50	0000000	Charge
06:41:19	0000000	TurnAround

R1

EAF Heat Sheet 28-Apr-2005 12:53:42

IPSCO STEEL INC.
Montpelier Works

HEAT: B5D804 MSP: 74173

Start Time: 28-Apr-2005 07:36:22
End Time : 28-Apr-2005 12:53:06
TapToTap Time : 316 (min)

Heat Order : 0633205
Grade : A36
Ladle #: 0 CrewID: 4 OperatorID: 4

START	DUR	DELAY REASON
12:48:37	0000	Operational, Tap
12:45:31	0003	Operational, Slagoff
12:36:19	0009	Operational, Hot Anode #2
12:04:46	0005	Operational, Charge
10:51:10	0059	Operational, Run A
07:37:10	0194	Down Stream Processes, Waiting on Caste

CHARGES	AMOUNT
Charge 1 :	254350
Charge 2 :	103050
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0003460
4oz AL Con	0000450
FeVan	0000070
Carbon	0001965
Dololime	0008450
HiCal Lime	0003445
ESM	0001200
MW13	0003300
40 # Syn G	0000120
Fluorspar	0000200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	65400	0	65400	0	0	0
O2 Burner	SCF	215	157	58	0	0	0
Gas Burner	SCF	111	79	32	0	0	0
O2 Lance	SCF	928	0	928	0	0	0
Carbon Lance	LBS	5210	0	5210	0	0	0
TIMES							
Melting Tm	MIN	316	253	62	0	0	0
Power on Tm	MIN	40	0	40	0	0	0
Burner On Tm	MIN	239	190	49	0	0	0
O2Lance On Tm	MIN	37	0	37	0	0	0
CLance On Tm	MIN	13	0	13	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	402.6	000.0	366.0	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	12680.6	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.7	000.0	005.2	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.7	000.6	000.6	000.0	000.0	000.0
Carbon Ton	LBS/Ton	032.1	000.0	029.2	000.0	000.0	000.0

COMMENTS

even casey even casey

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.18400	1.00000	0.02000	0.01000	0.32000	0.03900	0.00000	0.01500	0.00000	0.40900	0.30000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00400	0.04000	0.01000	0.00000	0.00000	0.00000
MIN	0.16500	0.90000	0.00000	0.00000	0.22000	0.01800	0.01500	0.00000	0.00100	0.37100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03000	0.00600	0.00000	0.00000	0.00000
AIM	0.17000	0.95000	0.00000	0.00000	0.27000	0.02500	0.00000	0.00000	0.00000	0.38500	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00700	0.00000	0.00000	0.00000

HEAT: B5D804 MSP: 74173

---------- EVENTS ----------

TIME	KWH	Description
12:53:11	0065400	Ladle Weigth
12:53:09	0065400	End Tapping
12:50:25	0065400	Start Tapping
12:45:15	0065400	Temperature <3154> O2 <1415> C <40>
12:44:58	0065400	Burners Off
12:44:17	0065400	Temperature <3157> O2 <1483> C <39>
12:36:17	0065400	Power Off
12:23:53	0043800	Material Addition
12:09:47	0021200	Power On
12:04:45	0021200	Power Off
11:55:39	0005500	Burners On
11:50:56	0000000	Melting
11:50:55	0000000	Power On
11:50:36	0000000	Charge
10:47:02	0000000	Burners Off
07:43:39	0000000	Charge
07:36:24	0000000	TurnAround

R2 1328 - 1513 105 min

EAF Heat Sheet **28-Apr-2005 14:27:29**

IPSCO STEEL INC.
Montpelier Works

HEAT: A5D316 *MSP: 74173*

Start Time: 28-Apr-2005 12:00:10
End Time : 28-Apr-2005 14:27:08
TapToTap Time : 146 (min)

Heat Order : 0633206
Grade : A36
Ladle #: 0 CrewID: 2 OperatorID: 4

START	DUR	DELAY REASON
14:22:31	0000	Operational, Tap
14:18:55	0003	Operational, Slagoff
14:13:25	0005	Operational, Soak
13:41:40	0003	Operational, Charge
12:00:58	0087	Down Stream Processes, Waiting on Caste

CHARGES	AMOUNT
Charge 1	254750
Charge 2	103400
Charge 3	0
Charge 4	0
Charge 5	0

ADDITIONS	LBS
SiMn	0003480
4oz AL Con	0000430
FeVan	0000070
Carbon	0001965
Dololime	0008450
HiCal Lime	0003445
ESM	0001200
MW13	0003300
40 # Syn G	0000120
Fluorspar	0000200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	69100	21500	47600	0	0	0
O2 Burner	SCF	65	27	38	0	0	0
Gas Burner	SCF	28	12	16	0	0	0
O2 Lance	SCF	953	133	820	0	0	0
Carbon Lance	LBS	2454	4601	-2147	0	0	0
TIMES							
Melting Tm	MIN	146	105	40	0	0	0
Power on Tm	MIN	41	14	26	0	0	0
Burner On Tm	MIN	57	22	34	0	0	0
O2Lance On Tm	MIN	42	10	32	0	0	0
CLance On Tm	MIN	102	86	16	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	424.5	168.8	385.9	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	30303.3	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.9	001.0	005.3	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	015.1	036.1	013.7	000.0	000.0	000.0

COMMENTS

even chris

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.18400	1.00000	0.02000	0.01000	0.32000	0.03900	0.00000	0.01500	0.00000	0.40900	0.30000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00400	0.04000	0.01000	0.00000	0.00000	0.00000
MIN	0.16500	0.90000	0.00000	0.00000	0.22000	0.01800	0.01500	0.00000	0.00100	0.37100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03000	0.00600	0.00000	0.00000	0.00000
AIM	0.17000	0.95000	0.00000	0.00000	0.27000	0.02500	0.00000	0.00000	0.00000	0.38500	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00700	0.00000	0.00000	0.00000

HEAT: A5D316 MSP: 74173

EVENTS

TIME	KWH	Description
14:27:14	0069100	Ladle Weigth
14:27:10	0069100	End Tapping
14:26:02	0069100	Start Tapping
14:21:27	0069100	Burners Off
14:18:44	0069100	Temperature <2897> O2 <359> C <82>
14:17:37	0069100	Temperature <2894> O2 <0> C <0>
14:13:23	0069100	Power Off
14:02:09	0048900	Material Addition
13:46:26	0021500	Charge
13:45:30	0021000	Power On
13:41:39	0021000	Power Off
13:33:02	0006000	Burners On
13:28:07	0000000	Melting
13:28:05	0000000	Power On
12:10:19	0000000	Charge
12:09:43	0000000	Burners Off
12:00:17	0000000	TurnAround

RL2

EAF Heat Sheet 28-Apr-2005 15:13:26

IPSCO STEEL INC.
Montpelier Works

HEAT: B5D805 MSP: 74173

Start Time: 28-Apr-2005 12:54:10
End Time : 28-Apr-2005 15:13:10
TapToTap Time : 138 (min)

Heat Order : 0633207
Grade : A36
Ladle #: 0 CrewID: 4 OperatorID: 4

START	DUR	DELAY REASON
15:09:05	0000	Operational, Tap
15:03:59	0005	Operational, Slagoff
14:58:07	0002	Other, Open sump door
14:29:54	0004	Operational, Charge
13:27:44	0047	Operational, Run A
12:54:56	0032	Down Stream Processes, Waiting on Caste

CHARGES	AMOUNT
Charge 1 : 258900	
Charge 2 : 101350	
Charge 3 : 0	
Charge 4 : 0	
Charge 5 : 0	

ADDITIONS	LBS
SiMn	0003500
4oz AL Con	0000430
FeVan	0000070
Carbon	0017685
Dololime	0076140
HiCal Lime	0031005
ESM	0001200
MW13	0003300
40 # Syn G	0000120
Fluorspar	0000200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	67300	59200	8100	0	0	0
O2 Burner	SCF	56	48	8	0	0	0
Gas Burner	SCF	30	26	4	0	0	0
O2 Lance	SCF	947	731	216	0	0	0
Carbon Lance	LBS	6355	6086	269	0	0	0
TIMES							
Melting Tm	MIN	138	122	16	0	0	0
Power on Tm	MIN	41	36	4	0	0	0
Burner On Tm	MIN	47	37	9	0	0	0
O2Lance On Tm	MIN	43	35	7	0	0	0
CLance On Tm	MIN	22	19	2	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	411.0	457.3	373.6	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	53744.5	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.8	005.6	005.3	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.2	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	038.8	047.0	035.3	000.0	000.0	000.0

COMMENTS

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.18400	1.00000	0.02000	0.01000	0.32000	0.03900	0.00000	0.01500	0.00000	0.40900	0.30000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00400	0.04000	0.01000	0.00000	0.00000	0.00000
MIN	0.16500	0.90000	0.00000	0.00000	0.22000	0.01800	0.01500	0.00000	0.00100	0.37100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03000	0.00600	0.00000	0.00000	0.00000
AIM	0.17000	0.95000	0.00000	0.00000	0.27000	0.02500	0.00000	0.00000	0.00000	0.38500	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00700	0.00000	0.00000	0.00000

HEAT: B5D805 MSP: 74173

---------- EVENTS ----------

TIME	KWH	Description
15:13:17	0067300	Ladle Weigth
15:13:12	0067300	End Tapping
15:10:46	0067300	Start Tapping
15:06:21	0067300	Burners Off
15:06:08	0067300	Temperature <3023> O2 <581> C <71>
15:03:57	0067300	Power Off
15:00:45	0061700	Material Addition
15:00:42	0061700	Power On
15:00:24	0061700	Temperature <2601> O2 <0> C <0>
14:59:55	0061700	Material Addition
14:58:55	0061700	Material Addition
14:58:06	0061700	Power Off
14:56:42	0059300	Charge
14:54:44	0055900	Material Addition
14:54:04	0054700	Material Addition
14:51:03	0049200	Material Addition
14:49:44	0046800	Material Addition
14:49:22	0046100	Material Addition
14:47:52	0043200	Material Addition
14:34:00	0021200	Power On
14:29:52	0021200	Power Off
14:24:59	0013100	Power On
14:24:50	0013100	Power Off
14:24:25	0012600	Power On
14:24:15	0012600	Power Off
14:24:14	0012600	Power On
14:23:56	0012600	Power Off
14:19:05	0004100	Burners On
14:15:30	0000000	Melting
14:15:28	0000000	Power On
13:58:03	0000000	Charge
12:54:12	0000000	TurnAround

R3 1528- 1730

EAF Heat Sheet **28-Apr-2005 16:48:45**

IPSCO STEEL INC.
Montpelier Works

HEAT: A5D317 *MSP: 74173*

Start Time: 28-Apr-2005 14:28:11
End Time : 28-Apr-2005 16:48:32
TapToTap Time : 140 (min)

Heat Order : 0633208
Grade : A36
Ladle #: 0 CrewID: 2 OperatorID: 4

START	DUR	DELAY REASON
16:43:47	0000	Operational, Tap
16:40:41	0003	Operational, Slagoff
15:59:12	0007	Operational, Swap columns
15:49:43	0003	Operational, Charge
15:43:13	0006	Operational, Wait on Scrap
15:36:36	0000	Other, Pack On B
15:05:52	0022	Other, New Other
14:28:58	0036	Operational, Charge run B

CHARGES AMOUNT
Charge 1 : 256850
Charge 2 : 129050
Charge 3 : 0
Charge 4 : 0
Charge 5 : 0

ADDITIONS	LBS
SiMn	0003500
4oz AL Con	0000420
FeVan	0000070
Carbon	0001960
Dololime	0008460
HiCal Lime	0003440
ESM	0001200
MW13	0003300
40 # Syn G	0000120
Fluorspar	0000200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	74400	21100	53300	0	0	0
O2 Burner	SCF	74	19	55	0	0	0
Gas Burner	SCF	32	8	24	0	0	0
O2 Lance	SCF	1032	0	1032	0	0	0
Carbon Lance	LBS	1367	0	1367	0	0	0
TIMES							
Melting Tm	MIN	140	78	61	0	0	0
Power on Tm	MIN	53	13	40	0	0	0
Burner On Tm	MIN	69	14	54	0	0	0
O2Lance On Tm	MIN	41	0	41	0	0	0
CLance On Tm	MIN	9	0	9	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	424.2	164.3	385.6	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	37117.5	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.9	000.0	005.3	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	007.8	000.0	007.1	000.0	000.0	000.0

COMMENTS

recalibrate for nox test below chris

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.18400	1.00000	0.02000	0.01000	0.32000	0.03900	0.00000	0.01500	0.00000	0.40900	0.30000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00400	0.04000	0.01000	0.00000	0.00000	0.00000
MIN	0.16500	0.90000	0.00000	0.00000	0.22000	0.01800	0.01500	0.00000	0.00100	0.37100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03000	0.00600	0.00000	0.00000	0.00000
AIM	0.17000	0.95000	0.00000	0.00000	0.27000	0.02500	0.00000	0.00000	0.00000	0.38500	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.03500	0.00700	0.00000	0.00000	0.00000

HEAT: A5D317 MSP: 74173

---------- EVENTS ----------

TIME	KWH	Description
16:48:38	0074400	Ladle Weigth
16:48:35	0074400	End Tapping
16:46:26	0074400	Start Tapping
16:42:15	0074400	Burners Off
16:42:02	0074400	Temperature <3115> O2 <837> C <62>
16:40:46	0074400	Temperature <3102> O2 <689> C <3173>
16:40:40	0074400	Power Off
16:15:28	0037400	Material Addition
16:06:31	0029400	Power On
16:06:29	0029400	Power Off
16:06:28	0029400	Power On
15:59:10	0029400	Power Off
15:53:12	0021100	Power On
15:47:18	0021100	Charge
15:43:11	0021100	Power Off
15:37:28	0011400	Power On
15:36:34	0011400	Power Off
15:33:11	0005700	Burners On
15:28:31	0000000	Melting
15:28:30	0000000	Power On
14:48:16	0000000	Charge
14:28:13	0000000	TurnAround

R3

EAF Heat Sheet 28-Apr-2005 17:38:29

IPSCO STEEL INC.
Montpelier Works

HEAT: B5D806 *MSP: 14163*

Start Time: 28-Apr-2005 15:14:13
End Time : 28-Apr-2005 17:38:13
TapToTap Time : 143 (min)

Heat Order : 0622401
Grade : A/SA36A709
Ladle #: 0 CrewID: 4 OperatorID: 4

START	DUR	DELAY REASON
17:33:37	0000	Operational, Tap
17:29:25	0004	Operational, Slagoff
16:58:05	0004	Operational, Charge
15:25:25	0077	Operational, Run A
15:22:25	0003	Operational, Charge
15:15:01	0007	Operational, Charge Run A

CHARGES	AMOUNT
Charge 1 :	231700
Charge 2 :	127350
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
FeMn	0002470
4oz AL Con	0000420
Carbon	0001965
Dololime	0008460
HiCal Lime	0003445
ESM	0001200
MW13	0003300
40 # Syn G	0000120
Fluorspar	0000200

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	69200	24200	45000	0	0	0
O2 Burner	SCF	45	10	35	0	0	0
Gas Burner	SCF	24	5	19	0	0	0
O2 Lance	SCF	953	209	744	0	0	0
Carbon Lance	LBS	8806	5717	3089	0	0	0
TIMES							
Melting Tm	MIN	143	106	37	0	0	0
Power on Tm	MIN	41	14	26	0	0	0
Burner On Tm	MIN	42	12	29	0	0	0
O2Lance On Tm	MIN	38	10	28	0	0	0
CLance On Tm	MIN	21	1	20	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	424.0	208.9	385.5	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	30395.3	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.8	001.8	005.3	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.1	000.0	000.1	000.0	000.0	000.0
Carbon Ton	LBS/Ton	054.0	049.3	049.1	000.0	000.0	000.0

COMMENTS

even casey

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.17400	0.90000	0.02000	0.01000	0.10000	0.03900	0.00000	0.00000	0.00000	0.38000	0.40000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.03200	0.00000	0.00000	0.00000
MIN	0.14500	0.82000	0.00000	0.00000	0.01500	0.01800	0.01500	0.00000	0.00070	0.33400	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01600	0.00000	0.00000	0.00000
AIM	0.16000	0.85000	0.00000	0.00000	0.01600	0.02500	0.00000	0.00000	0.00000	0.35800	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

HEAT: B5D806 MSP: 14163

---------- EVENTS ----------

TIME	KWH	Description
17:38:19	0069200	Ladle Weigth
17:38:15	0069200	End Tapping
17:36:08	0069200	Start Tapping
17:30:39	0069200	Temperature <3102> O2 <667> C <3176>
17:30:28	0069200	Burners Off
17:29:36	0069200	Temperature <3099> O2 <641> C <78>
17:29:24	0069200	Power Off
17:27:39	0066100	Temperature <2319> O2 <0> C <0>
17:16:58	0047800	Material Addition
17:06:56	0029900	Power On
17:06:45	0029900	Power Off
17:02:26	0024200	Power On
17:00:51	0024200	Charge
16:58:03	0024200	Power Off
16:48:12	0006600	Burners On
16:43:11	0000000	Melting
16:43:09	0000000	Power On
15:21:37	0000000	Charge
15:14:15	0000000	TurnAround

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 4/28/2005 10:00:00 to 4/28/2005 18:00:00

Issue Date	: 4/29/2005 07:29:56
Issued By	: Operations Planning
PBL Name	:4 scrap_consumption.pbl Created Date : 10/27/0
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0633204	04/28/2005	07:07:49	A5D315	0000000002	01	FRAG	040750	20.38
					02	MXTN	047700	23.85
					03	BEACH IRON	037600	18.80
					05	HM1	044700	22.35
					06	FRAG	032150	16.08
					07	PITSCRAP	012500	6.25
					08	PROCREVERT	021950	10.98
					09	FRAG	009500	4.75
					0000000002	**Total**	**246850**	**123.43**
0633204	04/28/2005	11:02:40	A5D315	0000000003	01	FRAG	030600	15.30
					02	MXTN	039350	19.68
					03	CAST FE	017150	8.58
					04	FRAG	010700	5.35
					0000000003	**Total**	**97800**	**48.90**
					A5D315	**Total**	**344650**	**172.33**
0633206	04/28/2005	12:10:19	A5D316	0000000002	01	FRAG	040300	20.15
					02	MXTN	045200	22.60
					03	BEACH IRON	036550	18.27
					05	HM1	041350	20.68
					06	FRAG	032300	16.15
					07	PITSCRAP	014100	7.05
					08	PROCREVERT	019750	9.88
					09	FRAG	011200	5.60
					0000000002	**Total**	**240750**	**120.37**
0633206	04/28/2005	13:46:26	A5D316	0000000003	01	FRAG	029750	14.88
					02	MXTN	035850	17.93
					03	CAST FE	016450	8.23
					04	FRAG	021350	10.68
					0000000003	**Total**	**103400**	**51.70**
					A5D316	**Total**	**344150**	**172.08**
0633208	04/28/2005	14:48:16	A5D317	0000000002	01	FRAG	041050	20.53
					02	MXTN	047950	23.98
					03	BEACH IRON	034600	17.30
					05	HM1	045000	22.50
					06	FRAG	028100	14.05
					07	PITSCRAP	014150	7.08
					08	PROCREVERT	024450	12.23
					09	FRAG	008700	4.35
					0000000002	**Total**	**244000**	**122.00**
0633208	04/28/2005	15:47:18	A5D317	0000000002	01	FRAG	033100	16.55
					02	MXTN	038250	19.13
					03	CAST FE	025600	12.80
					04	FRAG	032100	16.05
					0000000002	**Total**	**129050**	**64.52**
					A5D317	**Total**	**373050**	**186.53**

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 4/28/2005 10:00:00 to 4/28/2005 18:00:00

Issue Date	: 4/29/2005 07:29:56
Issued By	: Operations Planning
PBL Name	:4 scrap_consumption.pbl Created Date : 10/27/0
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0633205	04/28/2005	07:43:39	B5D804	0000000005	01	FRAG	036600	18.30
					02	MXTN	049300	24.65
					03	BEACH IRON	032800	16.40
					05	HM1	037300	18.65
					06	FRAG	027200	13.60
					07	PITSCRAP	012550	6.28
					08	PROCREVERT	024100	12.05
					09	FRAG	019050	9.53
					0000000005 Total		**238900**	**119.45**
0633205	04/28/2005	11:50:35	B5D804	0000000005	01	FRAG	030600	15.30
					02	MXTN	038150	19.08
					03	CAST FE	014950	7.48
					04	FRAG	019350	9.68
					0000000005 Total		**103050**	**51.53**
					B5D804 Total		**341950**	**170.98**
0633207	04/28/2005	13:58:03	B5D805	0000000005	01	FRAG	040300	20.15
					02	MXTN	050350	25.18
					03	BEACH IRON	030700	15.35
					05	HM1	040150	20.08
					06	FRAG	034400	17.20
					07	PITSCRAP	010500	5.25
					08	PROCREVERT	022850	11.43
					09	FRAG	016000	8.00
					0000000005 Total		**245250**	**122.63**
0633207	04/28/2005	14:56:41	B5D805	0000000006	01	FRAG	027850	13.93
					02	MXTN	041950	20.98
					03	CAST FE	016200	8.10
					04	FRAG	015350	7.68
					0000000006 Total		**101350**	**50.68**
					B5D805 Total		**346600**	**173.30**
0622401	04/28/2005	15:21:37	B5D806	0000000005	01	HM2	018950	9.48
					02	MXTN	032350	16.18
					03	PITSCRAP	013950	6.98
					05	HM1	011850	5.93
					06	PROCREVERT	017300	8.65
					07	HM1	049050	24.53
					08	MXTN	022800	11.40
					09	HM2	025650	12.83
					10	HM2	024950	12.48
					0000000005 Total		**216850**	**108.43**
0622401	04/28/2005	17:00:50	B5D806	0000000005	01	FRAG	034200	17.10
					02	MXTN	026000	13.00
					03	FRAG	034850	17.43
					04	HM2	016450	8.23

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 4/28/2005 10:00:00 to 4/28/2005 18:00:00

Issue Date	: 4/29/2005 07:29:56
Issued By	: Operations Planning
PBL Name	:4 scrap_consumption.pbl Created Date : 10/27/0
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id		Material Weight(lbs)	Material Weight(tons)
0622401	04/28/2005	17:00:50	B5D806	0000000005	05	FRAG		015850	7.93
						0000000005	**Total**	**127350**	**63.68**
						B5D806	**Total**	**344200**	**172.10**

Total Heats 6 **Total Weight for Time Period** 2094600 **Pounds** 1047.30 **Tons**

ipsco steel

DAILY PRODUCTION REPORT - through 04/28/05

IPSCO STEEL (Iowa) Inc.

	Daily		MTD		YTD		Product Yield		
	Units	Tons	Units	Tons	Units	Tons	Daily	MTD	YTD
Meltshop									
Heats Tapped	20		627		2,633				
Scrap Charge Tons		3,420.5		109,547.8		462,826.7			
Liquid Metal Tapped		3,122.4		100,492.0		420,674.4			
less: Tapped Pourback		0.0		0.0		100.0			
Metal Available to Caster		3,122.4		100,492.0		420,574.4	91.3%	91.7%	90.9%
Caster									
INPUT									
Heats Cast	20		626		2,633				
Heats Aborted	0		0		0				
Total	20	3,113.4	626	100,301.4	2,633	420,108.0			
OUTPUT									
Prime Slabs	108	3,071.3	3,413	98,892.3	14,003	414,160.5	98.6%	98.6%	98.6%
SCRAP									
Scrap Slabs	0	0.0	0	0.0	0	0.0	0.0%	0.0%	0.0%
Process Losses		42.1		1,409.1		5,947.5	1.4%	1.4%	1.4%
Total Scrap		42.1		1,409.1		5,947.5	1.4%	1.4%	1.4%
DIRECT CHARGE									
Direct Chargeable	60	1,758.0	1,888	55,085.8	8,669	259,014.2	57.2%	55.7%	62.5%
Direct Charged	25	777.1	1,303	38,403.2	6,575	198,522.2	44.2%	69.7%	76.6%
CAST SEQUENCES									
Ave. Cast Seq. Length	7.00		7.01		6.91				
Weighted Slab Width	79.01		91.05		93.96				
Rolling Mill - Light Plate									
SLAB INPUT	0	0.0	270	7,967.3	1,383	42,799.4			
OUTPUT									
Semi-Finished Plates	0	0.0	837	7,807.9	4,283	41,943.6		98.0%	98.0%
SCRAP									
Scrap Plates	0	0.0	0	0.0	0	0.0		0.0%	0.0%
Process Losses		0.0		159.4		855.9		2.0%	2.0%
Total Scrap		0.0		159.4		855.9	0.0%	2.0%	2.0%
Rolling Mill - Heavy Plate									
SLAB INPUT	37	1,170.8	1,852	54,222.1	8,549	255,575.7			
OUTPUT									
Semi-Finished Plates	51	1,147.4	2,518	53,040.8	11,976	250,276.6	98.0%	97.8%	97.9%
SCRAP									
Scrap Plates	0	0.0	3	79.9	6	172.3	0.0%	0.1%	0.1%
Process Losses		23.4		1,101.4		5,126.9	2.0%	2.0%	2.0%
Total Scrap		23.4		1,181.3		5,299.1	2.0%	2.2%	2.1%
Rolling Mill - Coil									
SLAB INPUT	23	724.0	1,051	30,588.9	4,134	119,447.3			
OUTPUT									
Hold Coils	2	60.7	127	3,211.9	203	5,378.6	8.4%	10.5%	4.5%
Prime Coils	21	634.9	908	25,932.9	3,880	108,610.1	87.7%	84.8%	90.9%
Prime Sub Total	23	695.6	1,035	29,144.8	4,083	113,988.7	96.1%	95.3%	95.4%
Commercial Coils	0	0.0	9	176.4	31	757.4	0.0%	0.6%	0.6%
Coil Reclaim				152.7		676.9		0.5%	0.6%
Adjusted Prime Coils		695.58		28,992.1		113,311.8	96.1%	94.8%	94.9%
SCRAP									
Scrap Coils	0	0.0	6	137.9	19	511.2	0.0%	0.5%	0.4%
Process Losses		28.4		1,129.8		4,190.1	3.9%	3.7%	3.5%
Total Scrap		28.4		1,420.3		5,378.1	3.9%	4.6%	4.5%
Rolling Mill - Summary									
Total Slabs Rolled	60	1,894.8	3,173	92,778.2	14,066	417,822.5			
Rolling Mill Output		1,843.0		89,993.5		406,208.8			
Average Slab Weight									
Plate		31.6		29.3		30.0			
Coil		31.5		29.1		28.9			
Finished Prime Tons									
Light Plate	0	0.0	6,224	7,641.8	31,556	40,670.1			
Heavy Plate	740	1,142.5	17,544	51,275.5	80,961	240,825.2			
Coil	23	695.6	1,035	29,144.8	4,083	113,988.7			
Total Prime Tons	763	1,838.0	24,803	88,062.1	116,600	395,484.0			

04/29/2005 07:02:19

Meltshop Production

Issue Date : 4/29/2005 13:12:37
Issued By : Operations Planning
PBL Name :
Created Date :
Report Name :?
Version :

From: 04/27/05 23:00:00 To: 04/28/05 23:00:00

Seq Id	Heat Id	Heat Order Id	Grade	Melt Practice	Tap Complete Time	Charge Weight	Slab Wgt.	Ht Abort Flag	Pourback Heat Id	Pourback Heat Wgt
D50095	A5D310	0575206	A252-3	64171	04/27/2005 23:42:58	174.03	157.37	Yes		
D50095	B5D799	0575207	A252-3	64171	04/28/2005 00:33:20	171.98	157.36	Yes		
D50095	A5D311	0575208	A252-3	64171	04/28/2005 01:21:59	161.03	125.89	Yes		
D50095	B5D800	0575209	A252-3	64171	04/28/2005 02:22:40	172.23	161.08	Yes		
Percent Yield:	90.1%	Total Scrap Charged:	679.25	Average Scrap Charge:	169.81	Re-Id Intermix Wgt:	0.00			
Heats in Sequence:	4	Total Tons Tapped:	611.77	Average Tap Weight:	152.94					
Slabs Cast:	19	Tundish Skull:	3.16	Crop Loss:	1.46					
Slab Weights:	601.70	Pit Scrap:	5.20	Kerf / Sample Loss:	0.25					
D50096	A5D312	0599701	A/SA36A709	12203	04/28/2005 03:03:49	162.20	163.60	Yes		
D50096	B5D801	0599702	A/SA36A709	12203	04/28/2005 03:47:30	161.68	137.19	Yes		
D50096	A5D313	0601401	A/SA36A709	12161	04/28/2005 04:56:25	173.10	127.77	Yes		
Percent Yield:	73.2%	Total Scrap Charged:	670.08	Average Scrap Charge:	167.52	Re-Id Intermix Wgt:	25.93			
Heats in Sequence:	4	Total Tons Tapped:	490.59	Average Tap Weight:	116.17					
Slabs Cast:	19	Tundish Skull:	3.00	Crop Loss:	1.72					
Slab Weights:	454.49	Pit Scrap:	5.20	Kerf / Sample Loss:	0.25					
D50097	B5D802	0633201	A572-50	74173	04/28/2005 05:44:07	172.75	158.70	Yes		
D50097	A5D314	0633202	A36	74173	04/28/2005 06:40:13	173.20	168.69	Yes		
D50097	B5D803	0633203	A36	74173	04/28/2005 07:35:19	173.73	148.09	Yes		
D50097	A5D315	0633204	A36	74173	04/28/2005 11:59:07	172.33	145.84	Yes		
D50097	B5D804	0633205	A36	74173	04/28/2005 12:53:06	170.98	172.64	Yes		
D50097	A5D316	0633206	A36	74173	04/28/2005 14:27:08	172.08	126.90	Yes		
D50097	B5D805	0633207	A36	74173	04/28/2005 15:13:10	173.30	170.53	Yes		
D50097	A5D317	0633208	A36	74173	04/28/2005 16:48:32	186.53	150.76	Yes		
Percent Yield:	90.2%	Total Scrap Charged:	1,394.88	Average Scrap Charge:	174.36	Re-Id Intermix Wgt:	0.00			
Heats in Sequence:	8	Total Tons Tapped:	1,258.78	Average Tap Weight:	157.35					
Slabs Cast:	45	Tundish Skull:	3.67	Crop Loss:	2.31					
Slab Weights:	1,242.15	Pit Scrap:	10.40	Kerf / Sample Loss:	0.25					
D50098	B5D806	0622401	A/SA36A709	14163	04/28/2005 17:38:13	172.10	143.42	Yes		
D50098	A5D318	0634101	A/SA36A709	14201	04/28/2005 18:35:37	172.33	122.48	Yes		
D50098	A5D319	0630102	A/SA36A709	24202	04/28/2005 20:24:20	171.73	140.41	Yes		
D50098	A5D320	0630101	44W/A36	24202	04/28/2005 21:29:10	171.83	138.15	Yes		
D50098	A5D321	0630103	A/SA36A709	24202	04/28/2005 22:35:40	161.40	172.17	Yes		
Percent Yield:	80.7%	Total Scrap Charged:	1,021.10	Average Scrap Charge:	170.18	Re-Id Intermix Wgt:	65.39			
Heats in Sequence:	6	Total Tons Tapped:	823.91	Average Tap Weight:	126.42					
Slabs Cast:	23	Tundish Skull:	0.00	Crop Loss:	0.00					
Slab Weights:	750.72	Pit Scrap:	7.80	Kerf / Sample Loss:	0.00					

Production Period Summary:

Percent Yield:	91.29%	Total Scrap Charged:	3,420.47	Average Scrap Charge:	171.02
Total Heats Tapped:	20	Total Liquid Metal Tapped:	3,122.43	Average Tap Weight:	156.12
		Total Caster Losses:	42.07		
Total Slab Casts:	104	Total Tundish Loss:	9.83	Total Pit Scrap Loss:	26.00
Total Slab Weights:	2,989.04	Total Crop Loss:	5.49	Total Sample / Kerf Loss:	0.75
				Re-Id Intermix Wgt:	91.32

* Estimated - heats have not been cast.

Meltshop Production

Issue Date : 4/29/2005 13:15:21
Issued By : Operations Planning
PBL Name : Created Date :
Report Name :? Version :

From: 04/28/05 23:00:00 To: 04/29/05 23:00:00

Seq Id	Heat Id	Heat Order Id	Grade	Melt Practice	Tap Complete Time	Charge Weight	Slab Wgt.	Ht Abort Flag	Pourback Heat Id	Pourback Heat Wgt
D50098	A5D322	0630104	44W/A36	24202	04/28/2005 23:38:33	171.95	137.68	Yes		
D50098	A5D323	0630106	A/SA36A709	24202	04/29/2005 01:06:05	172.68	172.59	Yes		
D50098	B5D807	0630105	A/SA36A709	24202	04/29/2005 01:58:29	105.38	141.39	Yes		
Percent Yield:	102.6%	Total Scrap Charged:	450.00	Average Scrap Charge:	150.00	Re-Id Intermix Wgt:	0.00			
Heats in Sequence:	3	Total Tons Tapped:	461.67	Average Tap Weight:	153.89					
Slabs Cast:	14	Tundish Skull:	3.59	Crop Loss:	2.27					
Slab Weights:	451.66	Pit Scrap:	3.90	Kerf / Sample Loss:	0.25					
D50099	A5D324	0612601	A572-50	74173	04/29/2005 02:48:29	164.43	116.81	Yes		
D50099	B5D808	0636101	44W/A36	74174	04/29/2005 04:11:14	172.90	89.97	Yes		
D50099	A5D325	0632501	A572-50	76194	04/29/2005 04:58:31	172.63	105.82	Yes		
D50099	B5D809	0632502	A572-50	76194	04/29/2005 06:00:38	172.08	173.89	Yes		
D50099	A5D326	0632503	A572-50	76194	04/29/2005 06:43:11	36.73	148.03	Yes		
D50099	B5D810	0622601	A709-50	74170	04/29/2005 07:23:34	175.48	170.36	Yes		
D50099	A5D327	0622602	44W/A36	74170	04/29/2005 08:14:01	172.60	125.22	Yes		
D50099	B5D811	0612201	A572-50	15141	04/29/2005 09:23:57	172.08	192.47	Yes		
Percent Yield:	71.3%	Total Scrap Charged:	2,131.08	Average Scrap Charge:	152.22	Re-Id Intermix Wgt:	185.56			
Heats in Sequence:	14	Total Tons Tapped:	1,518.48	Average Tap Weight:	95.21					
Slabs Cast:	38	Tundish Skull:	3.47	Crop Loss:	2.87					
Slab Weights:	1,308.13	Pit Scrap:	18.20	Kerf / Sample Loss:	0.25					
Z99999	A5D328	0622001		74170	04/29/2005 09:58:06	172.70	150.00 *	Yes		
Z99999	B5D812	0622002		74170	04/29/2005 10:50:38	175.00	150.00 *	Yes		
Z99999	A5D329	0613401		74173	04/29/2005 12:22:08	173.48	150.00 *	Yes		
Z99999	B5D813	0613402		74173	04/29/2005 13:12:18	188.40	150.00 *	Yes		
Percent Yield:	85.3%	Total Scrap Charged:	709.58	Average Scrap Charge:	177.39	Re-Id Intermix Wgt:	0.00			
Heats in Sequence:	4	Total Tons Tapped:	605.20	Average Tap Weight:	151.30					
Slabs Cast:	0	Tundish Skull:	0.00	Crop Loss:	0.00					
Slab Weights:	600.00	Pit Scrap:	5.20	Kerf / Sample Loss:	0.00					

Production Period Summary:

Percent Yield:	99.73%	Total Scrap Charged:	2,398.48	Average Scrap Charge:	159.90
Total Heats Tapped:	15	Total Liquid Metal Tapped:	2,391.99	Average Tap Weight:	159.47
		Total Caster Losses:	32.20		
Total Slab Casts:	46	Total Tundish Loss:	7.06	Total Pit Scrap Loss:	19.50
Total Slab Weights:	2,174.23	Total Crop Loss:	5.14	Total Sample / Kerf Loss:	0.50
				Re-Id Intermix Wgt:	185.56

* Estimated - heats have not been cast.

EMISSION TEST REPORT

IPSCO STEEL, INC.
Muscatine, Iowa

First Quarter 2004 Oxides of Nitrogen Test

March 3, 2004

TEST

IDNR Permit Number(s)

EAF/LMF Meltshop Stack 94-A-548-S3

RECORD COPY

File Name Con 10-1 70-08-002

Senders Initials MS

Prepared By:

AAS Inc.

Ambient Air Services, Inc.

106 Ambient Airway • Starke, FL 32091 • (904) 964-8440 • Fax (904) 964-6675

LELAP Accredited Laboratory Certification Number 04064
LELAP Agency Number 100326

ipsco

April 20, 2004

Iowa Department of Natural Resources
Air Quality Bureau
Stack Test Coordinator
7900 Hickman Road
Suite 1
Urbandale, IA 50322

Re: IPSCO Steel Inc. – Montpelier, Iowa
Permit #94-A-548-S3
1st Quarter NOx Test

Mr. Stone:

Enclosed, please find the first quarter NOx test report as required by the above-mentioned permit. I've recently returned to work from a temporary leave of absence and during this leave the report was not submitted within the 45-day requirement. I apologize for any inconvenience this may have caused. If you have any questions or concerns please feel free to contact me at (563)381-5584.

Sincerely,
IPSCO Steel Inc.

Stephanie J. Kreiter
Environmental Coordinator

Richard Acquaviva – Letter only
Wayne Schmidt – Letter only
Tom Toner – Letter only
Joe Wesselman – Letter only

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APR 21 2004

ipsco steel inc.

1770 Bill Sharp Boulevard, Muscatine, Iowa 52761
Phone (563) 381-5300 Fax (563) 381-5329

CERTIFICATION

Ambient Air Services, Inc. of Starke, Florida, has completed the testing as described in this report for IPSCO Steel Inc.'s Montpelier Works facility. To the best of our knowledge and abilities, all information, facts, and test data are true and correct. Information supplied to AASI for use in this report from IPSCO Steel is perceived to be accurate and is used as such where necessary.

This report contains pages i through iv, and pages 1 through 80.

This report was prepared and reviewed by:

Lisa A Rogers for — 4-12-04

Joseph L. Cooksey, Project Manager — Date

David C. Sholtes — 4-12-04

David C. Sholtes, Report Review — Date

Questions and or comments regarding this report or process conditions should be directed to:

Ms. Stephanie Kreiter
IPSCO Steel
1770 Bill Sharp Blvd.
Muscatine, IA 52761
Phone: 563-381-5584
Fax: 563-381-5406

Mr. Joseph L. Cooksey
Ambient Air Services, Inc.
106 Ambient Airway
Starke, FL 32091
Phone: 904-964-8440
Fax: 904-964-6675
Email: AASI@atlantic.net

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EXECUTIVE SUMMARY

Ambient Air Services, Inc. (AASI) conducted emission testing at the IPSCO Steel (Iowa) Facility located in Montpelier, Iowa. The testing included the determination of Oxides of Nitrogen emissions from the EAF/LMF Baghouse Stack.

The results, shown in Table 1, demonstrate compliance with the facilities oxides of nitrogen emission limitations as listed in permit number IDNR-94-A-548-S3.

TABLE 1

EMISSION TEST RESULTS EXECUTIVE SUMMARY IPSCO STEEL (IOWA), INC. MONTPELIER, IOWA March 3, 2004			
SOURCE	**PARAMETER**	**ALLOWABLE**	**TEST RESULTS**
EAF/LMF Baghouse Stack	Oxides of Nitrogen (NOx) As (NO_2)	0.80 lbs/ton 700.8 tons/year	0.35 lbs/ton 194.0 tons/year*

*Tons per year based on 24 hours per day, 365 days per year at tested production rate.

1.0 INTRODUCTION

1.1 General

IPSCO Steel (Iowa), Inc. contracted with Ambient Air Services, Inc. (AASI) to conduct emission testing on their EAF/LMF Baghouse Stack. The testing involved the determination of oxides of nitrogen (NOx) emissions.

The purpose of the testing was to satisfy specific requirements of the IDNR issued permit number 94-A-548-S3 for quarterly NOx testing.

Prior to the testing Mr. Mark Stone of IDNR was provided a Test Protocol and Notification of test dates. Mr. Stone approved the protocol prior to testing.

Mr. Mark Stone of IDNR was on site for the first two compliance test runs.

1.2 Test Participants

The personnel indicated in Table 1-2 participated in this project:

TABLE 1-2

NAME	AFFILIATION	RESPONSIBILITY
Joseph L. Cooksey	Ambient Air Services, Inc.	Project Manager
David C. Sholtes	Ambient Air Services, Inc.	Report Review
Jim Prochaska	IPSCO	Environmental Coordinator
Mark Stone	IDNR	State of Iowa Observer

1.3 Summary of Testing Conducted

TABLE 1-3

SUMMARY OF TESTING CONDUCTED IPSCO STEEL (IOWA), INC. MONTPELIER, IOWA MARCH 3, 2004			
SOURCE	**PARAMETER**	**USEPA TEST METHODS**	**COMMENTS**
EAF/LMF Baghouse Exhaust Stack	Oxides of Nitrogen (NOx)	40 CFR 60, Appendix A, Method 7E	3 Test Runs, Each Run 2 heats in duration
	Flow	40 CFR 60, Appendix A, Methods 1-4	1 Flow Traverse per NOx Test, Moisture by wet bulb/dry bulb, O_2/CO_2 assumed ambient (21% O_2, 0% CO_2).

2.0 TEST METHODOLOGIES

2.1 Flow and Moisture

Flow and moisture were determined in accordance with USEPA Methods 1-2 as published in 40 CFR 60 Appendix A.

One flow traverse was conducted per NOx test run.

The Oxygen and Carbon Dioxide levels were assumed to be ambient conditions, (O_2 and CO_2 were 21% and 0%).

Moisture was determined using a wet bulb/dry bulb technique. The wet bulb/dry bulb readings were taken once per flow traverse.

2.2 Oxides of Nitrogen

Oxides of Nitrogen from this facility were measured using USEPA Method 7E as published in 40 CFR 60, Appendix A. Table 2-1 shows the specifications of Method 7E compared to those presented by the instrument manufacturer. For this test a TEI Model 42 was used. The instrument was calibrated over a nominal range of 0-50 ppm.

Results from the test were reported in mass per unit of production. All NOx ($NO + NO_2$) was reported as NO_2.

At the beginning of the test the NOx system was calibrated using zero, 25 and 45 ppm USEPA Protocol gas standards. At the completion of each test run the system was checked at zero and 25 ppm.

The sampling system is shown in Figure 3-1.

Data from the NOx analyzer was recorded using a computerized data logging system. The data recorder took a reading each second and averaged these readings into 1 minute data points. All test data is included in the appendix section of this report.

TABLE 2-1

OXIDES OF NITROGEN SYSTEM PERFORMANCE SPECIFICATIONS METHOD 7E VS THERMO ENVIRONMENTAL INSTRUMENTS MODEL 42		
	METHOD 7E	**TEI 42**
Calibration error zero, mid and high gases	Less than ±2% span	±1% of full scale
Sampling system bias for zero, mid and high gases	Less than ±5% span	±1% of full scale
Zero Drift	Less than ±3% of span over the run period	Negligible
Calibration Drift	Less than ±3% of span over the run period	±1% of full scale

3.0 PROCESS DESCRIPTION

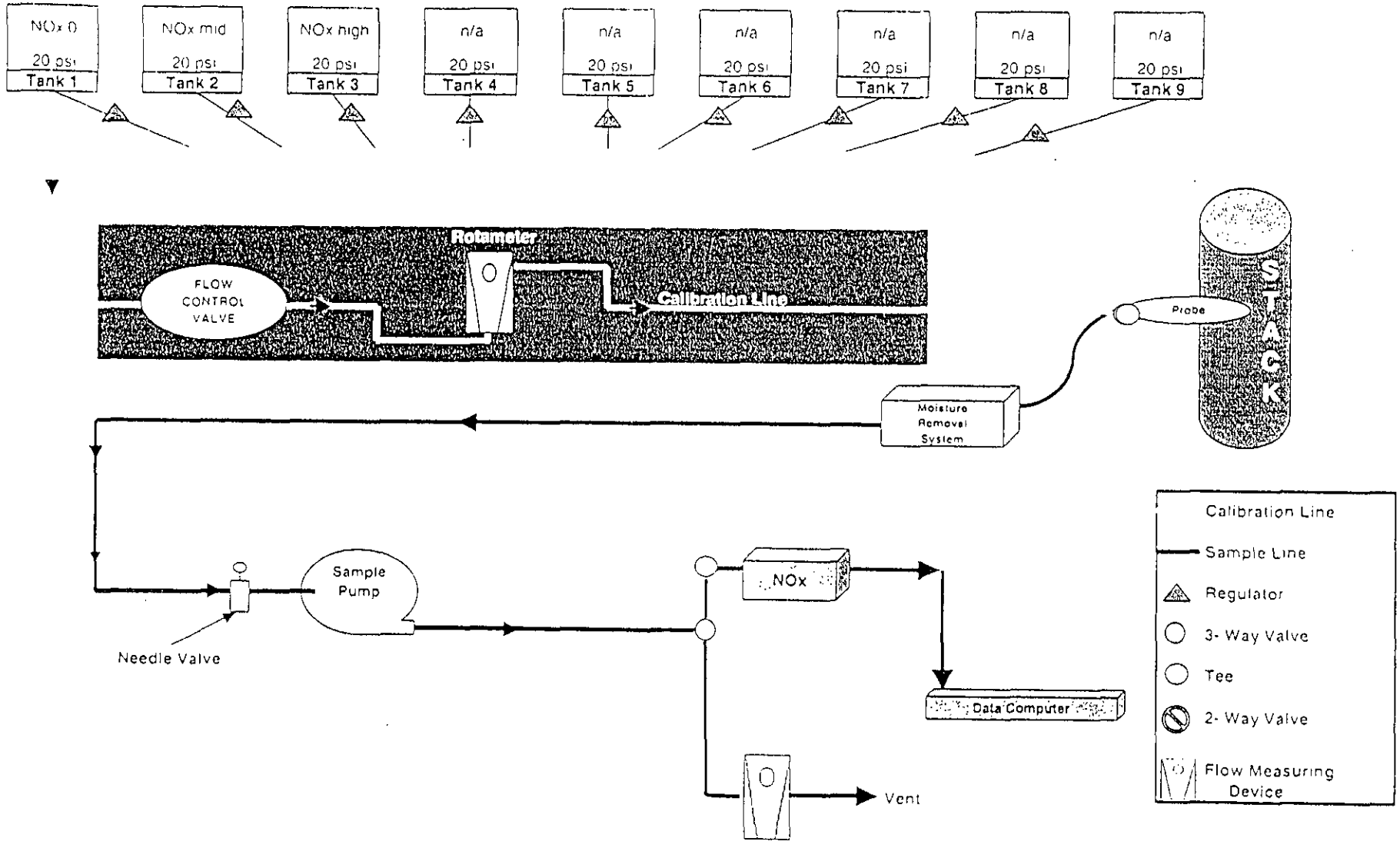
Electric arc furnaces (EAF) are used to produce carbon and alloy steels. The input material to an EAF is typically 100 percent scrap. Cylindrical, refractory lined EAF's are equipped with carbon electrodes to be raised or lowered through the furnace roof. With electrodes retracted, the furnace roof can be rotated aside to permit the charge of scrap steel by overhead crane. Lime and charge carbon are added to the charge buckets, alloying agents and materials are added during the tapping process. Electric current of the opposite polarity electrodes generates heat between the electrodes and through the scrap. After melting and refining periods, the slag and steel are poured from the furnace by tilting.

The production of steel in an EAF is a batch process. Cycles, or "heats", range from about 45 to 90 minutes to produce carbon steel. Scrap steel is charged to begin a cycle, and alloying agents and slag materials are added for refining. Stages of each cycle normally are charging and melting operations, refining (which usually includes oxygen blowing), and tapping.

SAMPLE SYSTEM SCHEMATIC

(Not To Scale)

Figure 3-1



4.0 RESULTS

The results from this testing demonstrate compliance with the permit limitations at the time of testing on March 3, 2004.

The results are summarized in Table 4-1.

Table 4 - 1

AASI

Oxides of Nitrogen (NO_X) Emissions Summary
USEPA Method 7E (40 CFR Part 60 Appendix A)
Ipsco Steel (Iowa), Inc.
Montpeliar, Iowa
IDNR Permit Number 94-A-548-S3
March 3, 2004

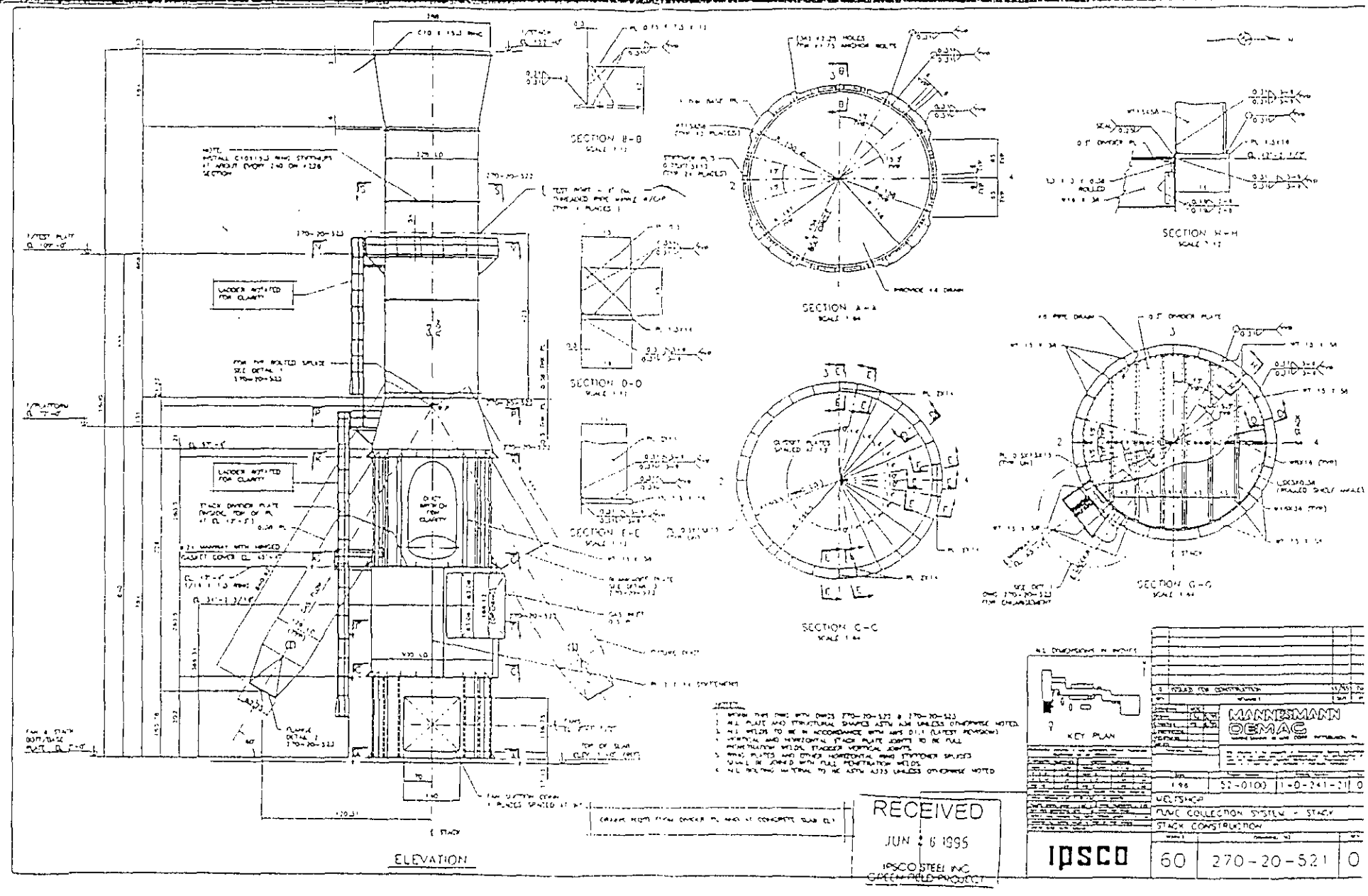
Run			Concentration	Volumetric Flow Rates	Production	Mass Emissions (as NO_2)	
Date	Number	Time (CDT)	ppm-v/v	SCFM-Dry	Tons per Hour	Pounds per Hour	Pounds per Ton
3/3/2004	1	9:30 12:01	10.4	656703	116.1	49.14	0.42
3/3/2004	2	12:23 15:28	7.4	699377	128.7	37.09	0.29
3/3/2004	3	15:45 17:56	10.5	619609	140.6	46.63	0.33
Average			**9.4**	**658563**	**128.5**	**44.29**	**0.35**

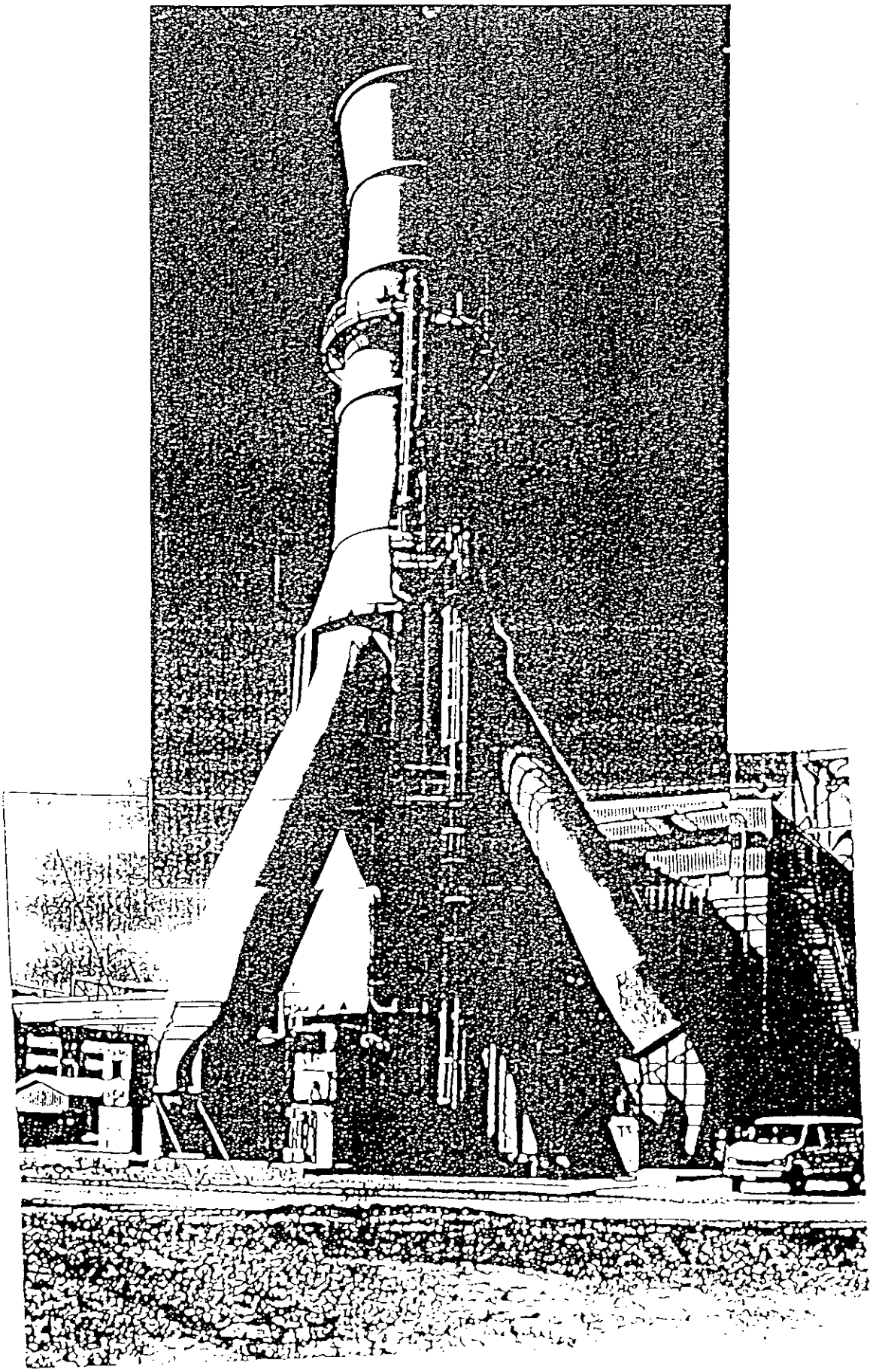
APPENDICES

APPENDIX A	STACK DIAGRAM - EAF/LMF
APPENDIX B	DIRECTIONS AND MAP TO SITE IDNR PRE-TEST QUESTIONS AND TEST PROTOCOL
APPENDIX C	FLOW INFORMATION
APPENDIX D	NOx DATA
APPENDIX E	FACILITY OPERATING DATA

APPENDIX A

STACK DIAGRAM - EAF/LMF


ELEVATION
SECTION B-B
SECTION A-A
SECTION H-H
SECTION D-D
SECTION E-E
SECTION C-C
SECTION G-G
KEY PLAN
RECEIVED
JUN 26 1995
IPSCO STEEL INC
GREEN FIELD PROJECT
MANNESMANN DEMAG
ipsco
DUST COLLECTION SYSTEM - STACK
STACK CONSTRUCTION
60
270-20-521
0



APPENDIX B

DIRECTIONS AND MAP TO SITE
IDNR PRETEST QUESTIONS AND TEST PROTOCOL

Directions to IPSCO

From Quad City Airport:

From Airport exit, turn right and follow signs to I-74 North

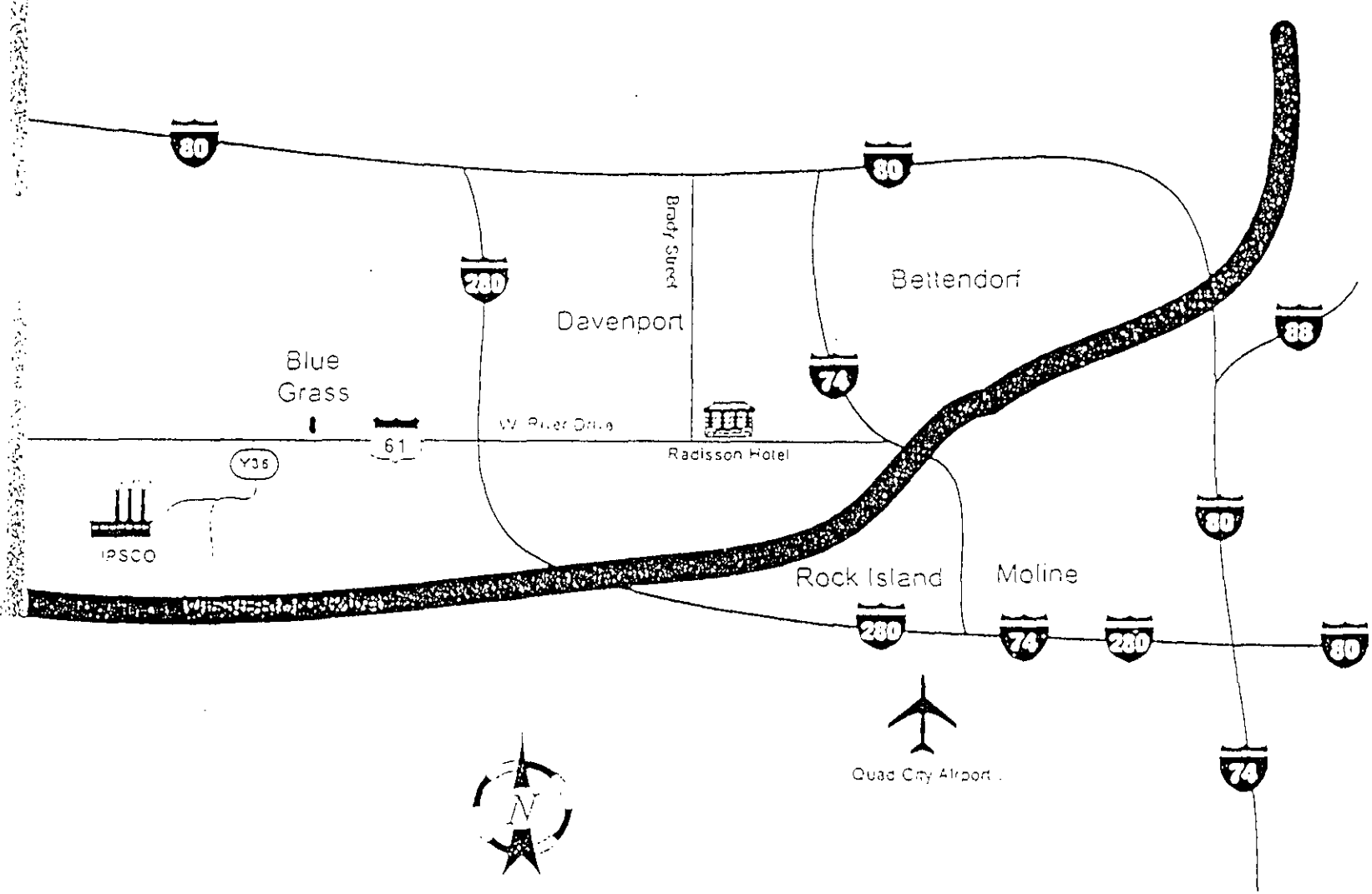
Take I-74 North to I-280 exit; proceed west to Highway 61 South exit

Proceed on Highway 61 to Y-36 (Zachary Av) - 5 miles; see following note

From Highway 61:

Proceed south on Y-36 (Zachary Av) 2-3 miles

Do not turn where Y-36 branches to the south; proceed straight to gate for auto entrance



PROPOSED TEST PLAN PROTOCOL

Company Name: IPSCO Steel (Plant Number 70-08-002)

Address: 1770 Bill Sharp Boulevard, Muscatine, IA 52761

Name and Title of Contact: Stephanie Kreiter

Address of Contact: 1770 Bill Sharp Boulevard, Muscatine, IA 52761

Telephone Number of Contact: (563) 381-5338

Proposed Test Date: Quarterly Starting March 5, 2003, April 30, 2003, July 9, 2003 and October 8,2003.

Source Information

Type of Source: EAF/LMF Baghouse Exhaust Stack

Identification of Source to be tested: Baghouse Exhaust Stack

Permit Number of Source: 94-A-548-S3

Address of Source: 1770 Zachary Avenue

Initial Startup Date: 1998

Testing Firm Information

Name of Firm: Ambient Air Services, Inc.

Address: 106 Ambient Air Way, Starke, Florida 32091

Name and Title of Contact: Joseph L. Cooksey, President

Telephone Number: (904) 964-8440

Number of Employees of Firm: 17

Number of Employees engaged in Air Pollution Source Testing (Including Support Personnel): 17

Location and Description of Laboratory Facilities: 106 Ambient Air Way, Starke, Florida (Metals by Ppb Environmental Laboratories, 6821 S.W. Archer Road, Gainesville, FL)

Subcontractor(s) Utilized by firm for Source Testing Activities: None

Number of Air Pollution Sources Previously Tested by Firm: Testing since 1973

Types of Sources Previously Tested by Firm: Many different source types including heavy experience in Steel Industry.

PERFORMANCE TEST INFORMATION

List all pollutants to be sampled. 94-A-548-S3 - EAF / LMF Baghouse

	Pollutant	Number of Sampling Points	Total Time per Test Run	Number of Test Runs	Test Methods to be Used
1	NOx	1	2 heats	3	M 7E
2	Flow	24	N/A	3	1-4*
3*	VE	Meltshop Building	180 minutes	1	9

***VE Test will be conducted on March 5, 2003 only.**

For EPA Reference Method 5 or Iowa Method 5 tests, indicate the length of each run to collect 50 milligrams of sample. Use the estimated emissions after control as the stack gas concentration.

If the permitted emission standard or expected concentration of particulate is equal to or less than 0.005 grains per dry standard cubic foot (gr/dscf), an extended sampling time must be considered. When calculating the sample time, the length of each run should be such that a sample catch of 50 milligrams will be colleted. Should the sample catch be less than 10 milligrams after applying the above method, the test may be subject to rejection or a 10 milligrams sample weight may be assumed.

Include a description of any test procedures to be used in the conduct of the performance tests which differ from the specified method(s).

* Moisture using wet bulb/dry bulb

PROTOCOL SUPPLEMENT - OPERATING DATA

This form is to be filled out and returned with the test protocol.

Maximum Continuous Process Weight (Manufacturer's Rating): Existing - 164 TPH
Phase 1 - 200 TPH (Target Production for Test is Phase 1)
Phase 2 - 230 TPH

Historical Average Process Weight: Not yet established however plant is capable of up to 200 TPH but to date has achieved this for only short time periods.

Historical Maximum Process Weight:

Product Recycling Capability: Yes ____ (Heel) No X

Type of Sources of Fuels Normally Burned: Electric arc 420 KWH, 200 cu.ft. natural gas, 400 cu.ft. oxygen + 1200-1400 cu.ft. oxygen per liquid ton of steel.

Type of Control Equipment: Baghouse

Range of Pressure Drop Across Control Equipment: 4-6 Currently operating at Inches of Water

Person Responsible For This Data: Stephanie Kreiter

Person Responsible For Collecting Process Data During Actual Testing: Stephanie Kreiter

Complete and submit one of these forms for each test to be conducted. This information is especially important the determine to operating conditions of the equipment under which the tests will be conducted. The tests must be conducted while operating at maximum capacity or the highest capacity which this source will be operated. Failure to test at the permitted capacity may result in derating this source.

This information is also required to be submitted on the forms found at the end of the protocol package. These two forms, the Compliance Emission Test Operating Data and the Air Pollution Control Equipment Operating Data forms, must be filled out with the data collected on the actual date of the tests. Failure to complete the forms on the day of the testing may be cause for rejecting the tests.

Ambient Air Services, Inc.

106 Ambient Airway • Starke, FL 32091 • (904) 964-8440 • Fax (904) 964-6675

January 7, 2003

Mr. Mark Stone
Stack Testing Coordinator
Air Quality Bureau
Iowa Department of Natural Resources
7900 Hickman Road, Suite 1
Urbandale, Iowa 50322

Dear Mark:

Attached is the IDNR test protocol form completed for the quarterly NOx testing at IPSCO Steel's Montpelier Works facility.

The tentative date for conducting the testing for the First Quarter of 2003 is March 5.

A brief synopsis of the testing planned is as follows:

Oxides of Nitrogen (NOx):	3 test runs, each run 2 heats (nominally 1.5 - 2.0 hours) in duration. Instrument range 0-50 ppm, calibration gases nominally 0, 25 ppm and 45 ppm. Test in accordance with USEPA Method 7E.
Flow:	3 flow traverses, one for each NOx test run. Moisture by wet bulb/dry bulb. O2 and CO2 are expected to be 21% and 0% and will be confirmed using a fyrite analyzer.
VE:	Visible Emission Testing (VE) will be conducted on the Meltshop Building. The VE test will be conducted on March 5, 2003 only. The VE test will be used to re-establish the NSPS AAa requirments for establishment of control device fan amp, damper positions, and furnace pressure operating ranges.

For planning purposes IPSCO has selected the following dates for the remaining calendar quarters for 2003:

Second Quarter	April 30, 2003
Third Quarter	July 9, 2003
Fourth Quarter	October 8, 2003

Please note that these dates are tentative only. As each date approaches we will confirm production schedules and confirm dates and test start times

Please let me know if you have any questions

Sincerely,

Joseph L. Cooksey

JLC:las

cc: Stephanie Kreiter, IPSCO Montpelier Works
Joseph Wesselman, IPSCO Corporate

ipsco

February 6, 2003

Iowa Department of Natural Resources
Air Quality Bureau
Stack Test Coordinator
7900 Hickman Road
Suite 1
Des Moines, IA 50322

Re: Quarterly NOx Test
Pre-Test Meeting Requirements

Mr. Stone:

As per our conversation on Thursday, February 6, 2003, I am hereby confirming by way of letter that a pre-test meeting for the quarterly NOx testing requirements will not be required for the tests scheduled in the calendar year 2003. If this information is incorrect, please give me a call at (563)381-5584. Thank you.

Sincerely,
IPSCO Steel Inc

Stephanie J. Kreiter
Environmental Coordinator

Cc: Joe Wesselman - IPSCO
Joe Cooksey - Ambient Air

ipsco steel inc.

1770 Bill Sharp Boulevard, Muscatine, Iowa 52761
Phone (563) 381-5300 Fax (563) 381-5329

APPENDIX C

FLOW INFORMATION

-Data Printouts
-Field Data Sheets
-Pitot Tube Calibration
-Thermocouple Calibration
-Magnehelic Calibration
-Wet Bulb/Dry Bulb Chart

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

PM Summary Run 1

Facility	IPSCO Steel (Iowa) Inc.	Impinger Condensate	N/A
Location	Montpeliar, Iowa	Silica Gel Condensate	N/A
Stack	EAF Baghouse	Volume Metered	N/A
Run Date	3/3/2004	Meter Temp (Deg R)	460.0
Run Number	1	CO2 %	0.0
Start Time	10:26	O2 %	20.9
Finish Time	10:45	CO %	0.0
Weather	ovc, 40 deg F	N %	79.1
Total Time (min.)	N/A	Condensate Volume	N/A
Barometric Pressure	29.32	Delta H (inches H2O)	N/A
Stack Diameter (in.)	228.00	Stack Pressure	29.283
Stack Area sq. ft.	283.529	Stack Temp (Deg R)	663.4
Nozzle Area sq. ft.	N/A	Filter Weight (gm)	N/A
Number of Points	24	Prefilter Weight (gm)	N/A
Avg of SQRT of V.H.	0.7981	Total Particulate (gm)	N/A
Meter Correction (Y)	N/A		
Nozzle Diameter	N/A		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		N/A
Gas Volume Sampled, STPD		N/A
Total Volume, STP		N/A
Moisture in stack gas, volume fraction		0.030
Dry Stack Gas, volume fraction		0.97
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		28.51
Specific gravity of Stack Gas Relative to Air		0.983
Excess Air (%)		14864.9
Average Stack Velocity, FPM		3065.4
Actual Stack Gas Flow Rate, ACFM		869130
Actual Stack Gas Flow Rate, (Dry) ACFMD		843056
Stack Gas Flow Rate, SCFMD		656703
Stack Gas Flow Rate Wet, SCFMW		677013
Percent Isokinetic		N/A
Stack Emissions:	Grains/DSCF	N/A
	Lbs/Hr	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

PM Summary Run 2

Facility	IPSCO Steel (Iowa) Inc.	Impinger Condensate	N/A
Location	Montpeliar, Iowa	Silica Gel Condensate	N/A
Stack	EAF Baghouse	Volume Metered	N/A
Run Date	3/3/2004	Meter Temp (Deg R)	N/A
Run Number	2	CO2 %	0.0
Start Time	13:25	O2 %	21.0
Finish Time	13:40	CO %	0.0
Weather	Ovc, 40 deg	N %	79.0
Total Time (min.)	N/A	Condensate Volume	N/A
Barometric Pressure	29.32	Delta H (inches H2O)	N/A
Stack Diameter (in.)	228.00	Stack Pressure	29.280
Stack Area sq. ft.	283.529	Stack Temp (Deg R)	646.0
Nozzle Area sq. ft.	N/A	Filter Weight (gm)	N/A
Number of Points	24	Prefilter Weight (gm)	N/A
Avg of SQRT of V.H.	0.8388	Total Particulate (gm)	N/A
Meter Correction (Y)	N/A		
Nozzle Diameter	N/A		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		N/A
Gas Volume Sampled, STPD		N/A
Total Volume, STP		N/A
Moisture in stack gas, volume fraction		0.030
Dry Stack Gas, volume fraction		0.97
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		28.51
Specific gravity of Stack Gas Relative to Air		0.983
Excess Air (%)		150000.0
Average Stack Velocity, FPM		3179.3
Actual Stack Gas Flow Rate, ACFM		901424
Actual Stack Gas Flow Rate, (Dry) ACFMD		874381
Stack Gas Flow Rate, SCFMD		699377
Stack Gas Flow Rate Wet, SCFMW		721007
Percent Isokinetic		N/A
Stack Emissions:	Grains/DSCF	N/A
	Lbs/Hr	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

PM Summary Run 3

Facility	IPSCO Steel (Iowa) Inc.	Impinger Condensate	N/A
Location	Montpeliar, Iowa	Silica Gel Condensate	N/A
Stack	EAF Baghouse	Volume Metered	N/A
Run Date	3/3/2004	Meter Temp (Deg R)	N/A
Run Number	3	CO2 %	0.0
Start Time	0:00	O2 %	20.9
Finish Time	0:00	CO %	0.0
Weather	0	N %	79.1
Total Time (min.)	N/A	Condensate Volume	N/A
Barometric Pressure	29.32	Delta H (inches H2O)	N/A
Stack Diameter (in.)	228.00	Stack Pressure	29.277
Stack Area sq. ft.	283.529	Stack Temp (Deg R)	663.0
Nozzle Area sq. ft.	N/A	Filter Weight (gm)	N/A
Number of Points	24	Prefilter Weight (gm)	N/A
Avg of SQRT of V.H.	0.7529	Total Particulate (gm)	N/A
Meter Correction (Y)	N/A		
Nozzle Diameter	N/A		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		N/A
Gas Volume Sampled, STPD		N/A
Total Volume, STP		N/A
Moisture in stack gas, volume fraction		0.030
Dry Stack Gas, volume fraction		0.97
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		28.51
Specific gravity of Stack Gas Relative to Air		0.983
Excess Air (%)		14864.9
Average Stack Velocity, FPM		2891.1
Actual Stack Gas Flow Rate, ACFM		819711
Actual Stack Gas Flow Rate, (Dry) ACFMD		795120
Stack Gas Flow Rate, SCFMD		619609
Stack Gas Flow Rate Wet, SCFMW		638772
Percent Isokinetic		N/A
Stack Emissions:	Grains/DSCF	N/A
	Lbs/Hr	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

Data Request Entry Area	PM Run 1
Facility	IPSCO Steel (Iowa) Inc.
Location	Montpeliar, Iowa
Source	EAF Baghouse
Date	03/03/04
Run Number	1
Start Time	10:26
Finish Time	10:45
Weather	ovc, 40 deg F
Total Time (min)	N/A
Number of Points	24
Barometric Pressure	29.32
Static Pressure ("H20)	-0.50
Stack Diameter (inches)	228.00
Nozzle Diameter (in.)	N/A
Meter Y Factor	N/A
Pitot Factor	0.84
Final Meter Reading	N/A
Initial Meter Reading	N/A
Condensate (ml)	N/A
Silica Gel Weight (gm)	N/A
CO2	0.0
O2	20.9
CO	0.0
N2	79.1
Filter Weight (gm)	N/A
Prefilter Weight (gm)	N/A
Meter Factor	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Field Data Points - PM Run 1							
Port	Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter In ' F	Meter Out 'F	Sq Rt VH
1	1	0.55		215			0.7416
	2	0.68		216			0.8246
	3	0.7		218			0.8367
	4	0.78		219			0.8832
	5	0.75		219			0.8660
	6	0.7		195			0.8367
2	1	1.05		212			1.0247
	2	1.3		211			1.1402
	3	1.35		210			1.1619
	4	1.1		206			1.0488
	5	0.95		204			0.9747
	6	0.83		203			0.9110
3	1	0.5		191			0.7071
	2	0.45		192			0.6708
	3	0.48		193			0.6928
	4	0.4		194			0.6325
	5	0.35		195			0.5916
	6	0.45		195			0.6708
4	1	0.49		195			0.7000
	2	0.38		197			0.6164
	3	0.52		199			0.7211
	4	0.48		201			0.6928
	5	0.35		201			0.5916
	6	0.38		201			0.6164

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Data Request Entry Area	PM Run 2
Facility	IPSCO Steel (Iowa) Inc.
Location	Montpeliar, Iowa
Source	EAF Baghouse
Date	03/03/04
Run Number	2
Start Time	13:25
Finish Time	13:40
Weather	Ovc, 40 deg
Total Time (min)	N/A
Number of Points	24
Barometric Pressure	29.32
Static Pressure ("H20)	-0.55
Stack Diameter (inches)	228.00
Nozzle Diameter (in.)	N/A
Meter Y Factor	N/A
Pitot Factor	0.84
Final Meter Reading	N/A
Initial Meter Reading	N/A
Condensate (ml)	N/A
Silica Gel Weight (gm)	N/A
CO2	0.0
O2	21.0
CO	0.0
N2	79.0
Filter Weight (gm)	N/A
Prefilter Weight (gm)	N/A
Meter Factor	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Field Data Points - PM Run 2

Port	Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter In ' F	Meter Out 'F	Sq Rt VH
1	1	0.45		190			0.6708
	2	0.42		191			0.6481
	3	0.43		192			0.6557
	4	0.45		193			0.6708
	5	0.35		193			0.5916
	6	0.3		192			0.5477
2	1	0.45		190			0.6708
	2	0.45		190			0.6708
	3	0.4		190			0.6325
	4	0.49		191			0.7000
	5	0.42		191			0.6481
	6	0.35		192			0.5916
3	1	0.85		184			0.9220
	2	1.2		184			1.0954
	3	1.15		186			1.0724
	4	1.35		190			1.1619
	5	1.25		190			1.1180
	6	0.95		188			0.9747
4	1	1.1		171			1.0488
	2	0.85		173			0.9220
	3	0.95		175			0.9747
	4	1.15		176			1.0724
	5	1.2		176			1.0954
	6	0.95		176			0.9747

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

Data Request Entry Area	PM Run 3
Facility	IPSCO Steel (Iowa) Inc.
Location	Montpeliar, Iowa
Source	EAF Baghouse
Date	03/03/04
Run Number	3
Start Time	
Finish Time	
Weather	
Total Time (min)	N/A
Number of Points	24
Barometric Pressure	29.32
Static Pressure ("H20)	-0.58
Stack Diameter (inches)	228.00
Nozzle Diameter (in.)	N/A
Meter Y Factor	N/A
Pitot Factor	0.84
Final Meter Reading	N/A
Initial Meter Reading	N/A
Condensate (ml)	N/A
Silica Gel Weight (gm)	N/A
CO2	0.0
O2	20.9
CO	0.0
N2	79.1
Filter Weight (gm)	N/A
Prefilter Weight (gm)	N/A
Meter Factor	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

Field Data Points - PM Run 3

Port	Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter In ' F	Meter Out 'F	Sq Rt VH
1	1	0.82		179			0.9055
	2	0.6		181			0.7746
	3	0.69		184			0.8307
	4	0.85		186			0.9220
	5	0.7		190			0.8367
	6	0.65		191			0.8062
2	1	0.75		202			0.8660
	2	0.8		204			0.8944
	3	0.82		204			0.9055
	4	0.9		205			0.9487
	5	0.73		206			0.8544
	6	0.75		206			0.8660
3	1	0.45		208			0.6708
	2	0.4		207			0.6325
	3	0.38		208			0.6164
	4	0.4		210			0.6325
	5	0.38		210			0.6164
	6	0.35		210			0.5916
4	1	0.5		211			0.7071
	2	0.48		212			0.6928
	3	0.4		214			0.6325
	4	0.38		215			0.6164
	5	0.4		216			0.6325
	6	0.38		214			0.6164

Ambient Air Services, Inc.
106 Ambient Airway
Starke, Florida 32091
(904) 964-8440

Velocity Traverse

Plant: IPSCO Date: 3-3-04

Source: Stack Barometric Pressure:

Stack Diameter: Pitot ID Thermocouple ID

29.32" @ Stack level

Run 1			Run 2			Run 3		
Static Pressure		-0.5	Static Pressure		-0.55	Static Pressure		-0.58
Start	11:26		Start	1325		Start	1715	
Stop			Stop			Stop	1730	
Traverse Point No.	Velocity Head	Stack Temp Deg F	Traverse Point No.	Velocity Head	Stack Temp Deg F	Traverse Point No.	Velocity Head	Stack Temp Deg F
East	0.55	215	South	0.45	190	East	0.82	179
	0.68	216		0.42	191		0.60	181
	0.70	218		0.43	192		0.69	184
	0.78	219		0.45	183		0.85	186
	0.75	219		0.35	193		0.79	170
	0.76	195		0.34	197		0.65	191
North	1.05	212	West	0.45	190	North	0.73	202
	1.3	211		0.45	190		0.80	204
	1.35	210		0.4	[illegible]		0.82	204
	1.1	206		0.49	191		0.90	205
	0.95	204		0.46	191		0.78	206
	0.83	203		0.35	192		0.75	206
West	0.50	191	1	0.35	184	West	0.45	208
	0.45	192	2	1.2	184		0.40	207
	0.48	193	3	1.15	186		0.38	208
	0.40	194	4	1.3	190		0.40	210
	0.35	195	5	1.3	190		0.38	210
	0.45	195	6	0.35	188		0.35	210
5	0.49	195		1.1	7	South	0.50	211
1	0.38	197		0.85	173		0.46	212
3	0.52	199		0.85	175		0.40	214
4	0.48	201		1.0	176		0.38	215
5	0.35	201		1.2	176		0.40	216
6	0.38	201		[illegible]	176		0.38	214

AAS Inc. AMBIENT AIR SERVICES INCORPORATED
ENVIRONMENTAL CONSULTANTS

PITOT TUBE CALIBRATION MEASUREMENTS

DATE CALIBRATED 4.10.14 PITOT TUBE 10A

Pitot tube assembly level ? ✓ Yes ____ No

Pitot tube openings damaged? ____ Yes (explain below) ✓ NO

a1 = 3° degrees (< 10 deg) a2 = 0 degrees (< 10 deg)

b2 = 0 degrees (<5 deg) b1 = 2° degrees (<5 deg)

Y = 1° degrees θ = 1° degrees A = 0.850 inches = (Pa + Pb)

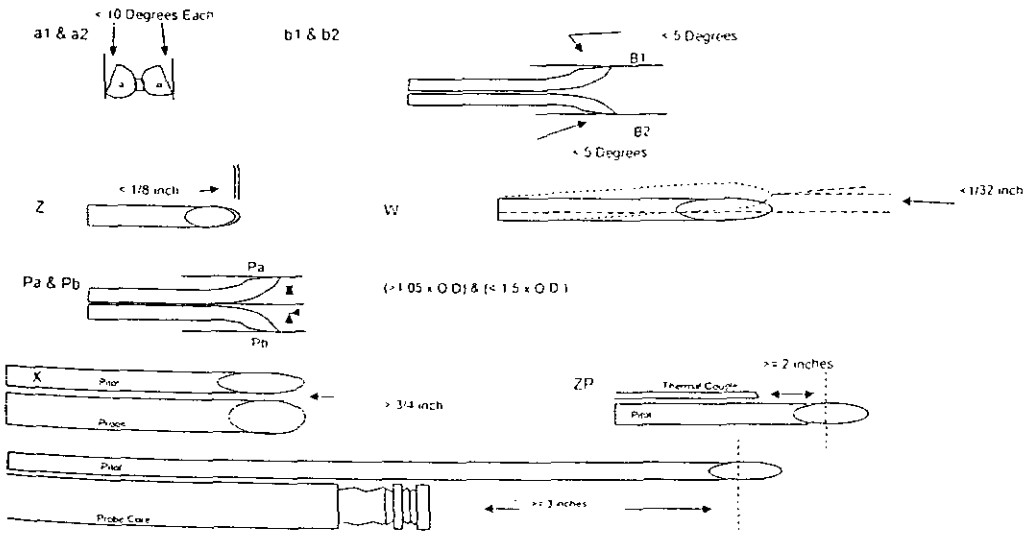
Pa = 0.450 Pb = 0.400 Dt = 0.375

z = A sin Y = 0.015 inches ; ✓ / < 1/8 inches

w = A sin θ = 0.015 inches ; ✓ / < 1/8 inches

Calibration required ? ____ Yes ✓ No

Tech Jory



AMBIENT AIR SERVICES, INC.
106 Ambient Air Way
Starke, Florida

Tpsco

THERMOCOUPLE CALIBRATION FORM

Date 4.10.04 Time 1330
Ambient Temperature 78°F Source Meter box 8
Barometric Pressure 29.65 Source 116-B-1
Technician's Signature [signature]

Standard Thermometer Type Mercury in glass
Manufacturer H3 USA
Serial Number 200310-1
Pyrometer Manufacturer Omega Model K
Serial Number AA52 box 8 Meter Box 8

TEMPERATURE SOURCE (A)		Ice Water			Ambient Water			Boiling Water					
REFERENCE THERMOMETER	Actual Reading	32° F			78° F			212° F					
	Corrected Temperature												
CALIBRATED THERMOCOUPLE		Indicated Temp.	Difference (B)	Percent Diff. (C)	Indicated Temp.	Difference	Percent Diff.	Indicated Temp.	Difference	Percent Diff.	Indicated Temp.	Difference	Percent Diff.
Serial Number	Location												
TC 10-1	Stack	33°	+1°	0.2%	78	0	0	212	0	0			
	Filter												
	Impinger												
	Meter In												
	Meter Out												

Comments:

Calibration Tolerances Stack = 1.5% of value, Filter Box = ±5.4°F, Impinger = ±2°F, Meter = ±5.4°F (40CFR Pt 60, App. A Method 5, and QA Handbook Section 3.4, Method 5, page 13, Rev. 0)

(A) Type of calibration system used (B) Reference - Indicated = Difference

(C) $\left[\frac{\text{(ref. temp. °F + 460) - (indicated temp. °F + 460)}}{\text{(reference temp. °F + 460)}}\right] \times 100$

AASI 68A

AMBIENT AIR SERVICES, INC.

MAGNEHELIC CALIBRATION FORM

MAGNEHELIC ID NO: R95

CALIBRATION MANOMETER ID NO: IN3

DATE: 12 Apr 2004

RECALIBRATION DUE: next use

CALIBRATOR: Jory

MANOMETER (INCHES WATER)	MAGNEHELIC (INCHES WATER) POSITIVE / NEGATIVE		% DIFFERENCE ABS ([(DISPLAYED VALUE - AUDIT VALUE) / AUDIT VALUE]) x 100 POSITIVE / NEGATIVE
0.0	0.0	0.0	0.0
0.5	0.5	0.5	0.0
1.0	1.0	1.0	0.0
1.5	1.5	1.5	0.0
2.0	2.0	2.0	0.0
2.5	2.5	2.5	0.0

Comments: _____

POSITIVE / NEGATIVE

AVERAGE PERCENT DIFFERENCE: 0.0

SIGNATURE: _____

QA REVIEW: David Shelton

AASI.53B

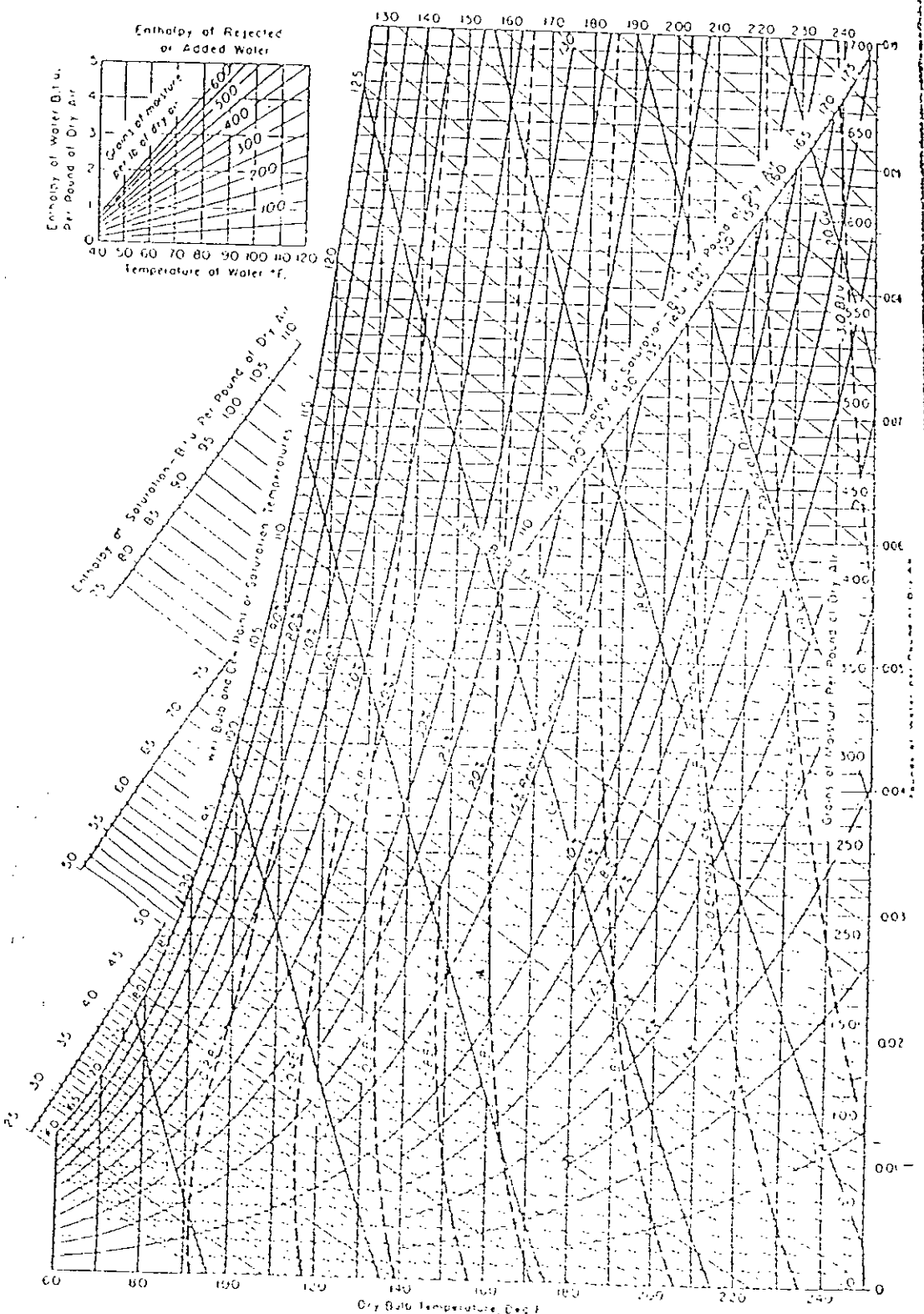


FIG. 4.4. Psychrometric chart—high temperatures. Barometric pressure, 29.92 in. of Hg.

Pounds of water per pound of dry air

138
150/94

9
130

APPENDIX D

NOx DATA

-Summary of Equipment Used
-Calibration Summary
-Data Logger Printout and Test Summary
-Example Calculations
-Calibration Gas Certificates
    25.1 NOx
    45.1 NOx

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

March 3, 2004

Equipment List

Oxides of Nitrogen Instrument: **Manufacturer -** Thermo Environmental Instruments **Model -** 42

Serial Number - 33584-245

NOx Range - zero to 50 ppm

Calibration Gas Standards		Concentration	Manufacturer	Cylinder Number	Expiration Date	PSI
Zero	Zero	0.00	Air Gas UHP Air	N/A	N/A	1100
Mid	NOx	25.10	Spectra Gases	CC 135361	Feb-05	1800
High	NOx	45.10	Spectra Gases	CC 85252	Feb-05	1800

Description of Sampling System :

8' 1/4" SS probe to Tee to H_2O condenser to 200 feet 1/4" Teflon sample line to SS/Teflon pump to instruments

all calibration gases injected direct to probe Tee location

Sampling probe positioned in Baghouse Stack at test platform location.

Test Participants :

NOx Testing - Joe Cooksey - Ambient Air Services, Inc.

Other Comments :

Ipsco Steel - Montpelier, Iowa
Meltshop Baghouse - Quarterly Oxides of Nitrogen Test
IDNR Permit Number 94-A-548-S3
March 3, 2004

Calibration Sheet

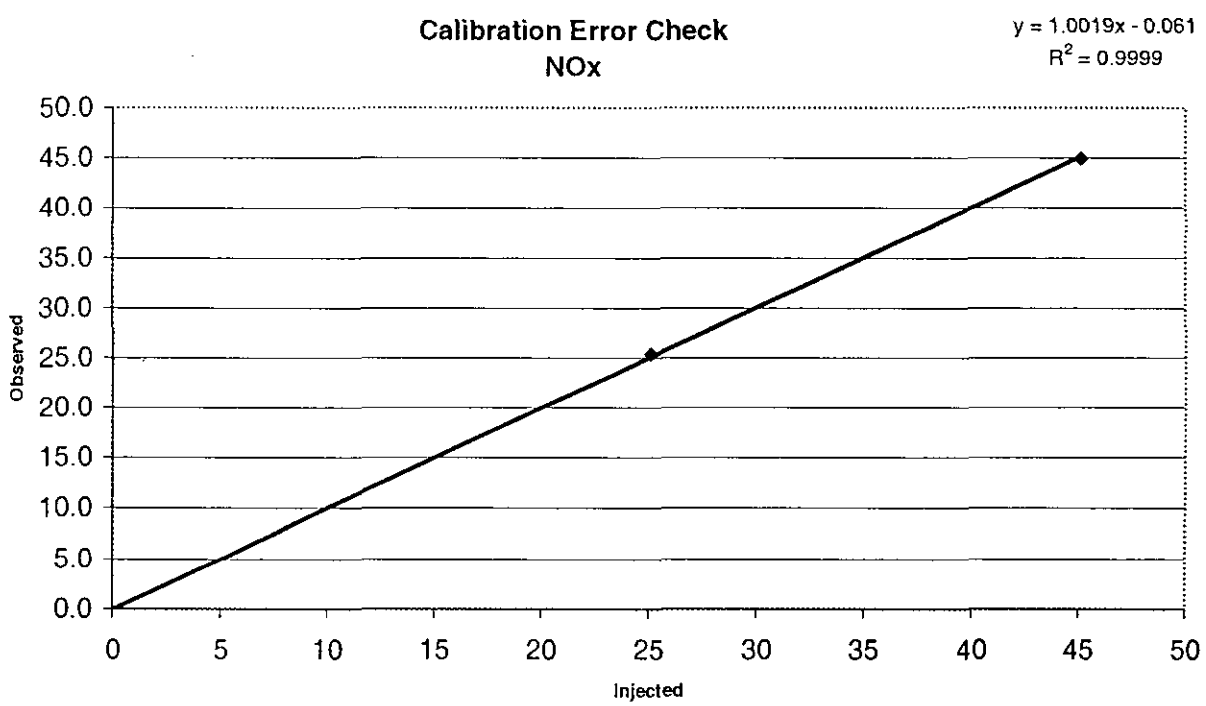
Initial Calibration

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0		-0.2
NOx	25.1		25.4
NOx	45.1		45.0

% Error of Range Table

Inject (ppm)		Time	% Error of Range
Gas	Conc.		NOx
Zero	0	0:00	-0.40%
NOx	25.1	0:00	0.60%
NOx	45.1	0:00	-0.30%



Ipsco Steel - Montpelier, Iowa
Meltshop Baghouse - Quarterly Oxides of Nitrogen Test
IDNR Permit Number 94-A-548-S3
March 3, 2004

Calibration Sheet

Calibration - Post Run 1

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0		-0.2
NOx	25.1		26.4

Drift Analysis From Initial Calibrations to the End of Run 1

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		NOx
Zero	0	0:00	0.00%
NOx	25.1	0:00	2.00%

Drift Variables for Run 1

Variable	NOx	
Co	-0.20	
Cm	25.90	
Cma	25.10	

Calibration - Post Run 2

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0		-0.20
NOx	25.1		25.80

Drift Analysis From Initial Calibrations to the End of Run 2

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		NOx
Zero	0	0:00	0.00%
NOx	25.1	0:00	0.80%

Drift Variables for Run 2

Variable	NOx	
Co	-0.20	
Cm	26.10	
Cma	25.1	

Ipsco Steel - Montpelier, Iowa
Meltshop Baghouse - Quarterly Oxides of Nitrogen Test
IDNR Permit Number 94-A-548-S3
March 3, 2004

Calibration Sheet

Calibration - Post Run 3

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0		-0.2
NOx	25.1		25.7

Drift Analysis From Initial Calibrations to the End of Run 3

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		NOx
Zero	0	0:00	0.00%
NOx	25.1	0:00	0.60%

Drift Variables for Run 3

Variable	NOx	
Co	-0.20	
Cm	25.75	
Cma	25.1	

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

March 3, 2004

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
3/3/2004 8:30	-0.3						
3/3/2004 8:31	-0.3						
3/3/2004 8:32	-0.3						
3/3/2004 8:33	-0.2		0 ppm Cal				
3/3/2004 8:34	-0.2		0 ppm Cal				
3/3/2004 8:35	-0.2		0 ppm Cal				
3/3/2004 8:36	-0.2		0 ppm Cal				
	-0.2		**0 ppm Cal Average**				
3/3/2004 8:37	0.3						
3/3/2004 8:38	15.4						
3/3/2004 8:39	35.4						
3/3/2004 8:40	44.2						
3/3/2004 8:41	45.5						
3/3/2004 8:42	44.8						
3/3/2004 8:43	44.9		45.1 ppm Cal				
3/3/2004 8:44	45.1		45.1 ppm Cal				
3/3/2004 8:45	44.9		45.1 ppm Cal				
	45.0		**45.1 ppm Cal Average**				
3/3/2004 8:46	33.4						
3/3/2004 8:47	28.1						
3/3/2004 8:48	26.7						
3/3/2004 8:49	26.1						
3/3/2004 8:50	25.4		25.1 ppm Cal				
	25.4		**25.1 ppm Cal Average**				
3/3/2004 8:51	14.1						
3/3/2004 8:52	5.5						
3/3/2004 8:53	1.4						
3/3/2004 8:54	0.1						
3/3/2004 8:55	0.1						
3/3/2004 8:56	3.1						
3/3/2004 8:57	4.6		online, wait on furnace				
	4.6		**online, wait on furnace Average**				
3/3/2004 8:58	3.4						
3/3/2004 8:59	-1.4						
3/3/2004 9:00	2.0						
3/3/2004 9:01	---						
3/3/2004 9:02	1.7						
3/3/2004 9:03	1.5						
3/3/2004 9:04	4.9						
3/3/2004 9:05	6.5						
3/3/2004 9:06	10.3						
3/3/2004 9:07	12.3						
3/3/2004 9:08	10.3						
3/3/2004 9:09	14.5						
3/3/2004 9:10	11.1						

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

March 3, 2004

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
3/3/2004 9:11	17.4						
3/3/2004 9:12	31.4						
3/3/2004 9:13	38.4						
3/3/2004 9:14	36.8						
3/3/2004 9:15	32.5						
3/3/2004 9:16	27.9						
3/3/2004 9:17	26.4						
3/3/2004 9:18	23.4						
3/3/2004 9:19	10.7						
3/3/2004 9:20	6.5						
3/3/2004 9:21	6.7						
3/3/2004 9:22	4.0						
3/3/2004 9:23	1.9						
3/3/2004 9:24	2.4						
3/3/2004 9:25	3.2						
3/3/2004 9:26	3.6						
3/3/2004 9:27	3.1						
3/3/2004 9:28	3.3						
3/3/2004 9:29	6.5						
3/3/2004 9:30	9.7	1	Run 1	-0.2	25.9	25.1	9.5
3/3/2004 9:32	8.7	1	Run 1	-0.2	25.9	25.1	8.5
3/3/2004 9:33	12.2	1	Run 1	-0.2	25.9	25.1	11.9
3/3/2004 9:34	14.0	1	Run 1	-0.2	25.9	25.1	13.6
3/3/2004 9:35	15.9	1	Run 1	-0.2	25.9	25.1	15.5
3/3/2004 9:36	13.6	1	Run 1	-0.2	25.9	25.1	13.2
3/3/2004 9:37	8.8	1	Run 1	-0.2	25.9	25.1	8.6
3/3/2004 9:38	8.1	1	Run 1	-0.2	25.9	25.1	8.0
3/3/2004 9:39	9.4	1	Run 1	-0.2	25.9	25.1	9.2
3/3/2004 9:40	10.2	1	Run 1	-0.2	25.9	25.1	10.0
3/3/2004 9:41	9.4	1	Run 1	-0.2	25.9	25.1	9.2
3/3/2004 9:42	8.7	1	Run 1	-0.2	25.9	25.1	8.5
3/3/2004 9:43	7.6	1	Run 1	-0.2	25.9	25.1	7.5
3/3/2004 9:44	6.2	1	Run 1	-0.2	25.9	25.1	6.2
3/3/2004 9:45	5.0	1	Run 1	-0.2	25.9	25.1	5.0
3/3/2004 9:46	4.3	1	Run 1	-0.2	25.9	25.1	4.4
3/3/2004 9:47	3.8	1	Run 1	-0.2	25.9	25.1	3.8
3/3/2004 9:48	3.4	1	Run 1	-0.2	25.9	25.1	3.5
3/3/2004 9:49	4.4	1	Run 1	-0.2	25.9	25.1	4.4
3/3/2004 9:50	8.9	1	Run 1	-0.2	25.9	25.1	8.8
3/3/2004 9:51	11.9	1	Run 1	-0.2	25.9	25.1	11.7
3/3/2004 9:52	7.4	1	Run 1	-0.2	25.9	25.1	7.3
3/3/2004 9:53	4.7	1	Run 1	-0.2	25.9	25.1	4.7
3/3/2004 9:54	7.9	1	Run 1	-0.2	25.9	25.1	7.8
3/3/2004 9:55	6.9	1	Run 1	-0.2	25.9	25.1	6.8
3/3/2004 9:56	4.5	1	Run 1	-0.2	25.9	25.1	4.6

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

March 3, 2004

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	COMMENTS	NOx C_0	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
3/3/2004 9:57	2.9	1	Run 1	-0.2	25.9	25 1	2.9
3/3/2004 9:58	3.9	1	Run 1	-0.2	25 9	25.1	3.9
3/3/2004 9:59	5.2	1	Run 1	-0.2	25.9	25.1	5.2
3/3/2004 10:00	3.3	1	Run 1	-0.2	25.9	25.1	3.4
3/3/2004 10:01	1.7	1	Run 1	-0.2	25.9	25.1	1.8
3/3/2004 10:02	0.8	1	Run 1	-0.2	25.9	25.1	1.0
3/3/2004 10:03	0.6	1	Run 1	-0.2	25.9	25.1	0.7
3/3/2004 10:04	0.7	1	Run 1	-0.2	25.9	25.1	0.8
3/3/2004 10:05	1.8	1	Run 1	-0.2	25.9	25.1	1.9
3/3/2004 10:06	4.8	1	Run 1	-0.2	25.9	25.1	4.8
3/3/2004 10:07	9.2	1	Run 1	-0.2	25.9	25.1	9.0
3/3/2004 10:08	8.0	1	Run 1	-0.2	25.9	25.1	7.9
3/3/2004 10:09	6.6	1	Run 1	-0.2	25.9	25.1	6.6
3/3/2004 10:10	7.9	1	Run 1	-0.2	25.9	25 1	7.8
3/3/2004 10:11	8.7	1	Run 1	-0.2	25.9	25 1	8.6
3/3/2004 10:12	5 4	1	Run 1	-0.2	25.9	25.1	5.4
3/3/2004 10:13	3.4	1	Run 1	-0.2	25.9	25.1	3.5
3/3/2004 10:14	2.4	1	Run 1	-0.2	25.9	25.1	2.5
3/3/2004 10:15	2.1	1	Run 1	-0.2	25.9	25.1	2.2
3/3/2004 10:16	1.5	1	Run 1	-0.2	25.9	25.1	1.6
3/3/2004 10:17	3.7	1	Run 1	-0.2	25.9	25.1	3.8
3/3/2004 10:18	8.3	1	Run 1	-0.2	25.9	25.1	8.1
3/3/2004 10:19	8.9	1	Run 1	-0.2	25.9	25.1	8.7
3/3/2004 10:20	8.4	1	Run 1	-0.2	25.9	25.1	8.3
3/3/2004 10:21	6.8	1	Run 1	-0.2	25.9	25.1	6.7
3/3/2004 10:22	4.5	1	Run 1	-0.2	25.9	25.1	4.6
3/3/2004 10:23	3.6	1	Run 1	-0.2	25.9	25.1	3.6
3/3/2004 10:24	4.1	1	Run 1	-0.2	25.9	25.1	4.1
3/3/2004 10:25	4.5	1	Run 1	-0.2	25.9	25.1	4.5
3/3/2004 10:26	4.3	1	Run 1	-0.2	25.9	25.1	4.4
3/3/2004 10:27	4.6	1	Run 1	-0.2	25.9	25.1	4.6
3/3/2004 10:28	5.2	1	Run 1	-0.2	25.9	25.1	5.2
3/3/2004 10:29	5.4	1	Run 1	-0.2	25.9	25.1	5.4
3/3/2004 10:30	5 2	1	Run 1	-0.2	25.9	25.1	5.2
3/3/2004 10:31	9.6	1	Run 1	-0.2	25.9	25.1	9.4
3/3/2004 10:32	14.0	1	Run 1	-0.2	25.9	25.1	13.7
3/3/2004 10:33	25.6	1	Run 1	-0.2	25.9	25.1	24.8
3/3/2004 10:34	33.4	1	Run 1	-0.2	25.9	25.1	32.4
3/3/2004 10:35	37.9	1	Run 1	-0.2	25.9	25.1	36.7
3/3/2004 10:36	42.3	1	Run 1	-0.2	25 9	25.1	40.9
3/3/2004 10:37	47.9	1	Run 1	-0.2	25.9	25.1	46.3
3/3/2004 10:38	48.2	1	Run 1	-0.2	25.9	25.1	46.5
3/3/2004 10:39	48.2	1	Run 1	-0.2	25.9	25.1	46.5
3/3/2004 10:40	43.4	1	Run 1	-0.2	25.9	25.1	41.9
3/3/2004 10:41	38.0	1	Run 1	-0.2	25.9	25.1	36.7

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Time	NOx, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
3/3/2004 10:42	34.6	1	Run 1	-0.2	25.9	25.1	33.5
3/3/2004 10:43	31.3	1	Run 1	-0.2	25.9	25.1	30.3
3/3/2004 10:44	30.2	1	Run 1	-0.2	25.9	25.1	29.2
3/3/2004 10:45	29.5	1	Run 1	-0.2	25.9	25.1	28.6
3/3/2004 10:46	29.8	1	Run 1	-0.2	25.9	25.1	28.8
3/3/2004 10:47	29.5	1	Run 1	-0.2	25.9	25.1	28.6
3/3/2004 10:48	29.1	1	Run 1	-0.2	25.9	25.1	28.2
3/3/2004 10:49	28.0	1	Run 1	-0.2	25.9	25.1	27.2
3/3/2004 10:50	28.0	1	Run 1	-0.2	25.9	25.1	27.1
3/3/2004 10:51	28.7	1	Run 1	-0.2	25.9	25.1	27.8
3/3/2004 10:52	29.1	1	Run 1	-0.2	25.9	25.1	28.2
3/3/2004 10:53	30.3	1	Run 1	-0.2	25.9	25.1	29.3
3/3/2004 10:54	29.9	1	Run 1	-0.2	25.9	25.1	28.9
3/3/2004 10:55	35.5	1	Run 1	-0.2	25.9	25.1	34.4
3/3/2004 10:56	32.3	1	Run 1	-0.2	25.9	25.1	31.3
3/3/2004 10:57	12.8	1	Run 1	-0.2	25.9	25.1	12.5
3/3/2004 10:58	9.4	1	Run 1	-0.2	25.9	25.1	9.2
3/3/2004 10:59	6.6	1	Run 1	-0.2	25.9	25.1	6.6
3/3/2004 11:00	4.6	1	Run 1	-0.2	25.9	25.1	4.7
3/3/2004 11:01	4.3	1	Run 1	-0.2	25.9	25.1	4.4
3/3/2004 11:02	5.1	1	Run 1	-0.2	25.9	25.1	5.1
3/3/2004 11:03	17.0	1	Run 1	-0.2	25.9	25.1	16.6
3/3/2004 11:04	15.0	1	Run 1	-0.2	25.9	25.1	14.6
3/3/2004 11:05	10.7	1	Run 1	-0.2	25.9	25.1	10.5
3/3/2004 11:06	5.1	1	Run 1	-0.2	25.9	25.1	5.1
3/3/2004 11:07	11.6	1	Run 1	-0.2	25.9	25.1	11.4
3/3/2004 11:08	15.3	1	Run 1	-0.2	25.9	25.1	14.9
3/3/2004 11:09	9.8	1	Run 1	-0.2	25.9	25.1	9.7
3/3/2004 11:10	4.1	1	Run 1	-0.2	25.9	25.1	4.2
3/3/2004 11:11	3.0	1	Run 1	-0.2	25.9	25.1	3.1
3/3/2004 11:12	3.1	1	Run 1	-0.2	25.9	25.1	3.1
3/3/2004 11:13	4.5	1	Run 1	-0.2	25.9	25.1	4.6
3/3/2004 11:14	3.3	1	Run 1	-0.2	25.9	25.1	3.3
3/3/2004 11:15	7.1	1	Run 1	-0.2	25.9	25.1	7.0
3/3/2004 11:16	16.9	1	Run 1	-0.2	25.9	25.1	16.5
3/3/2004 11:17	16.4	1	Run 1	-0.2	25.9	25.1	16.0
3/3/2004 11:18	9.2	1	Run 1	-0.2	25.9	25.1	9.0
3/3/2004 11:19	10.1	1	Run 1	-0.2	25.9	25.1	9.9
3/3/2004 11:20	8.7	1	Run 1	-0.2	25.9	25.1	8.6
3/3/2004 11:21	5.9	1	Run 1	-0.2	25.9	25.1	5.9
3/3/2004 11:22	5.0	1	Run 1	-0.2	25.9	25.1	5.0
3/3/2004 11:23	4.6	1	Run 1	-0.2	25.9	25.1	4.6
3/3/2004 11:24	4.2	1	Run 1	-0.2	25.9	25.1	4.2
3/3/2004 11:25	2.9	1	Run 1	-0.2	25.9	25.1	2.9
3/3/2004 11:26	2.0	1	Run 1	-0.2	25.9	25.1	2.1

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Time	NOx, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
3/3/2004 11:27	2.1	1	Run 1	-0.2	25.9	25.1	2.2
3/3/2004 11:28	2.2	1	Run 1	-0 2	25.9	25.1	2.3
3/3/2004 11:29	2.4	1	Run 1	-0.2	25.9	25.1	2.5
3/3/2004 11:30	1.8	1	Run 1	-0.2	25.9	25.1	1 9
3/3/2004 11:31	3.6	1	Run 1	-0.2	25.9	25.1	3.6
3/3/2004 11:32	6.0	1	Run 1	-0.2	25.9	25.1	5.9
3/3/2004 11:33	5.8	1	Run 1	-0.2	25.9	25 1	5.8
3/3/2004 11:34	4.6	1	Run 1	-0.2	25.9	25.1	4.6
3/3/2004 11:35	3.6	1	Run 1	-0.2	25.9	25.1	3.7
3/3/2004 11:36	3.7	1	Run 1	-0.2	25.9	25.1	3.7
3/3/2004 11:37	3.7	1	Run 1	-0.2	25.9	25.1	3.8
3/3/2004 11 38	4.9	1	Run 1	-0.2	25.9	25.1	4.9
3/3/2004 11:39	4.3	1	Run 1	-0.2	25.9	25.1	4.3
3/3/2004 11:40	3.4	1	Run 1	-0.2	25.9	25.1	3.4
3/3/2004 11:41	3.1	1	Run 1	-0.2	25.9	25.1	3.2
3/3/2004 11:42	3.0	1	Run 1	-0.2	25.9	25.1	3.1
3/3/2004 11:43	2.8	1	Run 1	-0.2	25.9	25.1	2.9
3/3/2004 11:44	2.8	1	Run 1	-0.2	25.9	25.1	2.8
3/3/2004 11:45	2.5	1	Run 1	-0.2	25.9	25.1	2.6
3/3/2004 11:46	3.5	1	Run 1	-0.2	25.9	25.1	3.5
3/3/2004 11:47	4.7	1	Run 1	-0.2	25.9	25.1	4.7
3/3/2004 11:48	5.3	1	Run 1	-0.2	25.9	25.1	5.3
3/3/2004 11:49	6.7	1	Run 1	-0 2	25.9	25.1	6.6
3/3/2004 11:50	13.7	1	Run 1	-0.2	25.9	25.1	13.3
3/3/2004 11:51	8.2	1	Run 1	-0.2	25.9	25.1	8.0
3/3/2004 11:52	4.1	1	Run 1	-0.2	25.9	25.1	4.1
3/3/2004 11:53	4.2	1	Run 1	-0.2	25.9	25.1	4.2
3/3/2004 11:54	5.6	1	Run 1	-0.2	25.9	25.1	5.6
3/3/2004 11:55	6.6	1	Run 1	-0.2	25.9	25.1	6.5
3/3/2004 11:56	6.0	1	Run 1	-0.2	25.9	25.1	6.0
3/3/2004 11:57	4.8	1	Run 1	-0.2	25.9	25.1	4.8
3/3/2004 11:58	3.7	1	Run 1	-0.2	25.9	25.1	3.8
3/3/2004 11:59	3.1	1	Run 1	-0.2	25.9	25.1	3.2
3/3/2004 12:00	3.9	1	Run 1	-0.2	25.9	25.1	3.9
3/3/2004 12:01	3.3	1	Run 1	-0.2	25.9	25.1	3.3
	10.7		**Run 1 Average**				10.4
3/3/2004 12:02	2.0						
3/3/2004 12:03	1.4						
3/3/2004 12:04	0.7						
3/3/2004 12:05	0.0						
3/3/2004 12:06	-0.2		0 ppm Cal				
	-0.2		**0 ppm Cal Average**				
3/3/2004 12:07	3.1						
3/3/2004 12:08	20.4						
3/3/2004 12:09	26.2						

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Time	NOx, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
3/3/2004 12:10	26.4		25.1 ppm Cal				
	26.4		**25.1 ppm Cal Average**				
3/3/2004 12:11	15.2						
3/3/2004 12:12	3.5		Delay				
3/3/2004 12:13	0.9		Delay				
3/3/2004 12:14	0.4		Delay				
3/3/2004 12:15	0.2		Delay				
3/3/2004 12:16	0.2		Delay				
3/3/2004 12:17	0.2		Delay				
3/3/2004 12:18	0.2		Delay				
3/3/2004 12:19	0.2		Delay				
3/3/2004 12:20	0.1		Delay				
3/3/2004 12:21	0.1		Delay				
3/3/2004 12:22	0.2		Delay				
	0.6		**Delay Average**				
3/3/2004 12:23	0.1	2	Run 2	-0.2	26.1	25.1	0.3
3/3/2004 12:24	3.8	2	Run 2	-0.2	26.1	25.1	3.8
3/3/2004 12:25	5.7	2	Run 2	-0.2	26.1	25.1	5.7
3/3/2004 12:26	17.7	2	Run 2	-0.2	26.1	25.1	17.1
3/3/2004 12:27	14.5	2	Run 2	-0.2	26.1	25.1	14.0
3/3/2004 12:28	6.9	2	Run 2	-0.2	26.1	25.1	6.8
3/3/2004 12:29	4.2	2	Run 2	-0.2	26.1	25.1	4.2
3/3/2004 12:30	3.5	2	Run 2	-0.2	26.1	25.1	3.5
3/3/2004 12:31	5.0	2	Run 2	-0.2	26.1	25.1	5.0
3/3/2004 12:32	5.0	2	Run 2	-0.2	26.1	25.1	5.0
3/3/2004 12:33	3.3	2	Run 2	-0.2	26.1	25.1	3.3
3/3/2004 12:34	3.3	2	Run 2	-0.2	26.1	25.1	3.3
3/3/2004 12:35	3.1	2	Run 2	-0.2	26.1	25.1	3.1
3/3/2004 12:36	2.6	2	Run 2	-0.2	26.1	25.1	2.6
3/3/2004 12:37	1.9	2	Run 2	-0.2	26.1	25.1	2.0
3/3/2004 12:38	2.0	2	Run 2	-0.2	26.1	25.1	2.1
3/3/2004 12:39	2.2	2	Run 2	-0.2	26.1	25.1	2.3
3/3/2004 12:40	2.7	2	Run 2	-0.2	26.1	25.1	2.8
3/3/2004 12:41	7.2	2	Run 2	-0.2	26.1	25.1	7.0
3/3/2004 12:42	14.6	2	Run 2	-0.2	26.1	25.1	14.1
3/3/2004 12:43	21.1	2	Run 2	-0.2	26.1	25.1	20.3
3/3/2004 12:44	18.0	2	Run 2	-0.2	26.1	25.1	17.4
3/3/2004 12:45	11.3	2	Run 2	-0.2	26.1	25.1	11.0
3/3/2004 12:46	9.6	2	Run 2	-0.2	26.1	25.1	9.4
3/3/2004 12:47	9.5	2	Run 2	-0.2	26.1	25.1	9.3
3/3/2004 12:48	9.4	2	Run 2	-0.2	26.1	25.1	9.1
3/3/2004 12:49	8.0	2	Run 2	-0.2	26.1	25.1	7.8
3/3/2004 12:50	6.0	2	Run 2	-0.2	26.1	25.1	5.9
3/3/2004 12:51	3.3	2	Run 2	-0.2	26.1	25.1	3.3
3/3/2004 12:52	2.5	2	Run 2	-0.2	26.1	25.1	2.6

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Time	NOx, ppm	Run Number	COMMENTS	NOx C_0	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
3/3/2004 12:53	2.3	2	Run 2	-0.2	26.1	25.1	2.4
3/3/2004 12:54	1.8	2	Run 2	-0.2	26.1	25.1	1.9
3/3/2004 12:55	1.4	2	Run 2	-0.2	26.1	25.1	1.5
3/3/2004 12:56	1.2	2	Run 2	-0.2	26.1	25.1	1.4
3/3/2004 12:57	1.5	2	Run 2	-0.2	26.1	25.1	1.6
3/3/2004 12:58	1.6	2	Run 2	-0.2	26.1	25.1	1.7
3/3/2004 12:59	1.9	2	Run 2	-0.2	26.1	25.1	2.0
3/3/2004 13:00	2.2	2	Run 2	-0.2	26 1	25.1	2.3
3/3/2004 13:01	2.3	2	Run 2	-0.2	26.1	25.1	2.4
3/3/2004 13:02	2.9	2	Run 2	-0.2	26.1	25.1	3 0
3/3/2004 13:03	2.1	2	Run 2	-0.2	26.1	25.1	2.2
3/3/2004 13:04	1.7	2	Run 2	-0.2	26.1	25.1	1.8
3/3/2004 13:05	3.2	2	Run 2	-0.2	26.1	25.1	3.2
3/3/2004 13:06	3.7	2	Run 2	-0.2	26.1	25.1	3.7
3/3/2004 13:07	5.9	2	Run 2	-0.2	26.1	25.1	5 8
3/3/2004 13 08	4.0	2	Run 2	-0.2	26.1	25.1	4.0
3/3/2004 13 09	2 5	2	Run 2	-0.2	26.1	25.1	2.5
3/3/2004 13:10	2.8	2	Run 2	-0.2	26.1	25.1	2.9
3/3/2004 13:11	4.3	2	Run 2	-0.2	26.1	25.1	4.3
3/3/2004 13:12	4.8	2	Run 2	-0.2	26.1	25.1	4.8
3/3/2004 13:13	4.2	2	Run 2	-0.2	26.1	25.1	4.2
3/3/2004 13:14	2 4	2	Run 2	-0.2	26.1	25.1	2.4
3/3/2004 13:15	4.8	2	Run 2	-0.2	26.1	25.1	4.8
3/3/2004 13:16	10.7	2	Run 2	-0.2	26.1	25.1	10.4
3/3/2004 13:17	11.3	2	Run 2	-0.2	26.1	25.1	11.0
3/3/2004 13:18	8.0	2	Run 2	-0.2	26.1	25.1	7.8
3/3/2004 13:19	8.3	2	Run 2	-0.2	26.1	25.1	8.1
3/3/2004 13:20	7.9	2	Run 2	-0.2	26.1	25.1	7.7
3/3/2004 13:21	5.6	2	Run 2	-0.2	26.1	25.1	5.5
3/3/2004 13:22	3.8	2	Run 2	-0.2	26.1	25.1	3.8
3/3/2004 13:23	4.3	2	Run 2	-0.2	26.1	25.1	4.3
3/3/2004 13:24	4.1	2	Run 2	-0.2	26.1	25.1	4.1
3/3/2004 13:25	3.1	2	Run 2	-0.2	26.1	25.1	3.1
3/3/2004 13:26	2.9	2	Run 2	-0.2	26.1	25.1	3.0
3/3/2004 13:27	1.9	2	Run 2	-0.2	26.1	25.1	2.0
3/3/2004 13:28	1.4	2	Run 2	-0.2	26.1	25.1	1.5
3/3/2004 13:29	1.1	2	Run 2	-0.2	26.1	25.1	1.2
3/3/2004 13:30	1.0	2	Run 2	-0.2	26.1	25.1	1.1
3/3/2004 13:31	3.5	2	Run 2	-0.2	26.1	25.1	3.5
3/3/2004 13:32	9.3	2	Run 2	-0.2	26.1	25.1	9.0
3/3/2004 13:33	9.3	2	Run 2	-0.2	26.1	25.1	9.0
3/3/2004 13:34	5.1	2	Run 2	-0.2	26.1	25.1	5.1
3/3/2004 13:35	4.4	2	Run 2	-0.2	26.1	25.1	4.4
3/3/2004 13.36	6.0	2	Run 2	-0.2	26.1	25.1	5.9
3/3/2004 13:37	6.1	2	Run 2	-0.2	26.1	25.1	6.0

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3/3/2004 13:38	5.3	2	Run 2	-0.2	26.1	25.1	5.3
3/3/2004 13:39	4.3	2	Run 2	-0.2	26.1	25.1	4.3
3/3/2004 13:40	4.0	2	Run 2	-0.2	26.1	25.1	4.0
3/3/2004 13:41	9.1	2	Run 2	-0.2	26.1	25.1	8.8
3/3/2004 13:42	12.5	2	Run 2	-0.2	26.1	25.1	12.1
3/3/2004 13:43	5.4	2	Run 2	-0.2	26.1	25.1	5.4
3/3/2004 13:44	5.6	2	Run 2	-0.2	26.1	25.1	5.6
3/3/2004 13:45	8.0	2	Run 2	-0.2	26.1	25.1	7.8
3/3/2004 13:46	5.9	2	Run 2	-0.2	26.1	25.1	5.9
3/3/2004 13:47	6.1	2	Run 2	-0.2	26.1	25.1	6.0
3/3/2004 13:48	6.6	2	Run 2	-0.2	26.1	25.1	6.5
3/3/2004 13:49	7.1	2	Run 2	-0.2	26.1	25.1	6.9
3/3/2004 13:50	6.9	2	Run 2	-0.2	26.1	25.1	6.8
3/3/2004 13:51	6.1	2	Run 2	-0.2	26.1	25.1	6.0
3/3/2004 13:52	4.5	2	Run 2	-0.2	26.1	25.1	4.5
3/3/2004 13:53	2.9	2	Run 2	-0.2	26.1	25.1	3.0
3/3/2004 13:54	1.9	2	Run 2	-0.2	26.1	25.1	2.0
3/3/2004 13:55	1.3	2	Run 2	-0.2	26.1	25.1	1.5
3/3/2004 13:56	1.1	2	Run 2	-0.2	26.1	25.1	1.2
3/3/2004 13:57	0.9	2	Run 2	-0.2	26.1	25.1	1.1
3/3/2004 13:58	0.8	2	Run 2	-0.2	26.1	25.1	0.9
3/3/2004 13:59	0.7	2	Run 2	-0.2	26.1	25.1	0.9
3/3/2004 14:00	1.7	2	Run 2	-0.2	26.1	25.1	1.8
3/3/2004 14:01	4.3	2	Run 2	-0.2	26.1	25.1	4.3
3/3/2004 14:02	4.0	2	Run 2	-0.2	26.1	25.1	4.0
3/3/2004 14:03	5.0	2	Run 2	-0.2	26.1	25.1	5.0
3/3/2004 14:04	6.0	2	Run 2	-0.2	26.1	25.1	5.9
3/3/2004 14:05	6.9	2	Run 2	-0.2	26.1	25.1	6.8
3/3/2004 14:06	7.5	2	Run 2	-0.2	26.1	25.1	7.4
3/3/2004 14:07	9.0	2	Run 2	-0.2	26.1	25.1	8.7
3/3/2004 14:08	10.0	2	Run 2	-0.2	26.1	25.1	9.7
3/3/2004 14:09	11.3	2	Run 2	-0.2	26.1	25.1	11.0
3/3/2004 14:10	13.5	2	Run 2	-0.2	26.1	25.1	13.0
3/3/2004 14:11	14.8	2	Run 2	-0.2	26.1	25.1	14.3
3/3/2004 14:12	14.8	2	Run 2	-0.2	26.1	25.1	14.3
3/3/2004 14:13	13.9	2	Run 2	-0.2	26.1	25.1	13.5
3/3/2004 14:14	13.5	2	Run 2	-0.2	26.1	25.1	13.1
3/3/2004 14:15	13.3	2	Run 2	-0.2	26.1	25.1	12.9
3/3/2004 14:16	13.9	2	Run 2	-0.2	26.1	25.1	13.4
3/3/2004 14:17	14.9	2	Run 2	-0.2	26.1	25.1	14.4
3/3/2004 14:18	16.4	2	Run 2	-0.2	26.1	25.1	15.9
3/3/2004 14:19	16.3	2	Run 2	-0.2	26.1	25.1	15.7
3/3/2004 14:20	15.1	2	Run 2	-0.2	26.1	25.1	14.6
3/3/2004 14:21	8.7	2	Run 2	-0.2	26.1	25.1	8.5
3/3/2004 14:22	8.2	2	Run 2	-0.2	26.1	25.1	8.0

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Time	NOx, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
3/3/2004 14:23	8.5	2	Run 2	-0.2	26.1	25.1	8.3
3/3/2004 14:24	5.6	2	Run 2	-0.2	26.1	25.1	5.6
3/3/2004 14:25	5.1	2	Run 2	-0.2	26.1	25.1	5.0
3/3/2004 14:26	4.3	2	Run 2	-0.2	26.1	25.1	4.3
3/3/2004 14:27	3.0	2	Run 2	-0.2	26.1	25.1	3.1
3/3/2004 14:28	1.8	2	Run 2	-0.2	26.1	25.1	1.9
3/3/2004 14:29	1.1	2	Run 2	-0.2	26.1	25.1	1.2
3/3/2004 14:30	0.9	2	Run 2	-0.2	26.1	25.1	1.1
3/3/2004 14:31	0.7	2	Run 2	-0.2	26.1	25.1	0.9
3/3/2004 14:32	0.7	2	Run 2	-0.2	26.1	25.1	0.9
3/3/2004 14:33	1.0	2	Run 2	-0.2	26.1	25.1	1.2
3/3/2004 14:34	1.1	2	Run 2	-0.2	26.1	25.1	1.3
3/3/2004 14:35	1.5	2	Run 2	-0.2	26.1	25.1	1.6
3/3/2004 14:36	1.6	2	Run 2	-0.2	26.1	25.1	1.7
3/3/2004 14:37	1.4	2	Run 2	-0.2	26.1	25.1	1.5
3/3/2004 14:38	2.0	2	Run 2	-0.2	26.1	25.1	2.1
3/3/2004 14:39	2.0	2	Run 2	-0.2	26.1	25.1	2.1
3/3/2004 14:40	2.1	2	Run 2	-0.2	26.1	25.1	2.2
3/3/2004 14:41	3.7	2	Run 2	-0.2	26.1	25.1	3.7
3/3/2004 14:42	3.6	2	Run 2	-0.2	26.1	25.1	3.6
3/3/2004 14:43	2.2	2	Run 2	-0.2	26.1	25.1	2.3
3/3/2004 14:44	2.9	2	Run 2	-0.2	26.1	25.1	3.0
3/3/2004 14:45	2.6	2	Run 2	-0.2	26.1	25.1	2.7
3/3/2004 14:46	2.6	2	Run 2	-0.2	26.1	25.1	2.7
3/3/2004 14:47	2.1	2	Run 2	-0.2	26.1	25.1	2.2
3/3/2004 14:48	2.0	2	Run 2	-0.2	26.1	25.1	2.1
3/3/2004 14:49	4.9	2	Run 2	-0.2	26.1	25.1	4.9
3/3/2004 14:50	3.1	2	Run 2	-0.2	26.1	25.1	3.1
3/3/2004 14:51	4.6	2	Run 2	-0.2	26.1	25.1	4.6
3/3/2004 14:52	5.1	2	Run 2	-0.2	26.1	25.1	5.0
3/3/2004 14:53	5.4	2	Run 2	-0.2	26.1	25.1	5.4
3/3/2004 14:54	6.7	2	Run 2	-0.2	26.1	25.1	6.6
3/3/2004 14:55	6.7	2	Run 2	-0.2	26.1	25.1	6.6
3/3/2004 14:56	7.3	2	Run 2	-0.2	26.1	25.1	7.1
3/3/2004 14:57	7.3	2	Run 2	-0.2	26.1	25.1	7.2
3/3/2004 14:58	8.6	2	Run 2	-0.2	26.1	25.1	8.4
3/3/2004 14:59	9.0	2	Run 2	-0.2	26.1	25.1	8.7
3/3/2004 15:00	8.3	2	Run 2	-0.2	26.1	25.1	8.1
3/3/2004 15:01	6.7	2	Run 2	-0.2	26.1	25.1	6.6
3/3/2004 15:02	6.2	2	Run 2	-0.2	26.1	25.1	6.1
3/3/2004 15:03	7.0	2	Run 2	-0.2	26.1	25.1	6.8
3/3/2004 15:04	7.7	2	Run 2	-0.2	26.1	25.1	7.5
3/3/2004 15:05	7.2	2	Run 2	-0.2	26.1	25.1	7.1
3/3/2004 15:06	6.6	2	Run 2	-0.2	26.1	25.1	6.5
3/3/2004 15:07	4.4	2	Run 2	-0.2	26.1	25.1	4.4

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Time	NOx, ppm	Run Number	COMMENTS	NOx C_0	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
3/3/2004 15:08	2.7	2	Run 2	-0.2	26.1	25.1	2.7
3/3/2004 15:09	2.6	2	Run 2	-0.2	26.1	25.1	2.7
3/3/2004 15:10	6.7	2	Run 2	-0.2	26.1	25.1	6.6
3/3/2004 15:11	9.7	2	Run 2	-0.2	26.1	25.1	9.5
3/3/2004 15:12	10.7	2	Run 2	-0.2	26.1	25.1	10.4
3/3/2004 15:13	13.3	2	Run 2	-0.2	26.1	25.1	12.9
3/3/2004 15:14	13.6	2	Run 2	-0.2	26.1	25.1	13.2
3/3/2004 15:15	22.0	2	Run 2	-0.2	26.1	25.1	21.2
3/3/2004 15:16	27.6	2	Run 2	-0.2	26.1	25.1	26.5
3/3/2004 15:17	32.6	2	Run 2	-0.2	26.1	25.1	31.3
3/3/2004 15:18	31.5	2	Run 2	-0.2	26.1	25.1	30.3
3/3/2004 15:19	35.3	2	Run 2	-0.2	26.1	25.1	33.9
3/3/2004 15:20	36.5	2	Run 2	-0.2	26.1	25.1	35.0
3/3/2004 15:21	36.4	2	Run 2	-0.2	26.1	25.1	34.9
3/3/2004 15:22	28.7	2	Run 2	-0.2	26.1	25.1	27.6
3/3/2004 15:23	26.3	2	Run 2	-0.2	26.1	25.1	25.3
3/3/2004 15:24	26.6	2	Run 2	-0.2	26.1	25.1	25.5
3/3/2004 15:25	27.6	2	Run 2	-0.2	26.1	25.1	26.6
3/3/2004 15:26	28.0	2	Run 2	-0.2	26.1	25.1	27.0
3/3/2004 15:27	28.6	2	Run 2	-0.2	26.1	25.1	27.5
3/3/2004 15:28	27.8	2	Run 2	-0.2	26.1	25.1	26.8
	7.6		**Run 2 Average**				7.4
3/3/2004 15:29	17.4						
3/3/2004 15:30	24.7						
3/3/2004 15:31	25.8		25.1 ppm Cal				
	25.8		**25.1 ppm Cal Average**				
3/3/2004 15:32	22.1						
3/3/2004 15:33	5.8						
3/3/2004 15:34	1.1						
3/3/2004 15:35	0.0						
3/3/2004 15:36	-0.2		0 ppm Cal				
	-0.2		**0 ppm Cal Average**				
3/3/2004 15:37	0.5						
3/3/2004 15:38	7.9						
3/3/2004 15:39	6.7						
3/3/2004 15:40	6.0						
3/3/2004 15:41	4.0						
3/3/2004 15:42	5.1						
3/3/2004 15:43	9.1						
3/3/2004 15:44	10.3						
3/3/2004 15:45	6.1	3	Run 3	-0.2	25.8	25.1	6.1
3/3/2004 15:46	3.8		Run 3	-0.2	25.8	25.1	3.9
3/3/2004 15:47	4.5		Run 3	-0.2	25.8	25.1	4.6
3/3/2004 15:48	4.3		Run 3	-0.2	25.8	25.1	4.3
3/3/2004 15:49	4.1		Run 3	-0.2	25.8	25.1	4.2

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Time	NOx, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
3/3/2004 15:50	6.2		Run 3	-0.2	25.8	25.1	6.2
3/3/2004 15:51	9.0		Run 3	-0.2	25.8	25.1	8.9
3/3/2004 15:52	8.7		Run 3	-0.2	25.8	25.1	8.6
3/3/2004 15:53	7.4		Run 3	-0.2	25.8	25.1	7.4
3/3/2004 15:54	5.9		Run 3	-0.2	25.8	25.1	5.9
3/3/2004 15:55	8.0		Run 3	-0.2	25.8	25.1	7.9
3/3/2004 15:56	8.6		Run 3	-0.2	25.8	25.1	8.5
3/3/2004 15:57	8.9		Run 3	-0.2	25.8	25.1	8.8
3/3/2004 15:58	9.4		Run 3	-0.2	25.8	25.1	9.3
3/3/2004 15:59	8.2		Run 3	-0.2	25.8	25.1	8.1
3/3/2004 16:00	7.2		Run 3	-0.2	25.8	25.1	7.2
3/3/2004 16:01	6.1		Run 3	-0.2	25.8	25.1	6.1
3/3/2004 16:02	4.3		Run 3	-0.2	25.8	25.1	4.3
3/3/2004 16:03	2.7		Run 3	-0.2	25.8	25.1	2.8
3/3/2004 16:04	4.4		Run 3	-0.2	25.8	25.1	4.5
3/3/2004 16:05	6.1		Run 3	-0.2	25.8	25.1	6.1
3/3/2004 16:06	6.8		Run 3	-0.2	25.8	25.1	6.7
3/3/2004 16:07	8.7		Run 3	-0.2	25.8	25.1	8.6
3/3/2004 16:08	9.3		Run 3	-0.2	25.8	25.1	9.2
3/3/2004 16:09	12.5		Run 3	-0.2	25.8	25.1	12.3
3/3/2004 16:10	10.0		Run 3	-0.2	25.8	25.1	9.9
3/3/2004 16:11	8.5		Run 3	-0.2	25.8	25.1	8.4
3/3/2004 16:12	8.5		Run 3	-0.2	25.8	25.1	8.4
3/3/2004 16:13	8.0		Run 3	-0.2	25.8	25.1	7.9
3/3/2004 16:14	4.3		Run 3	-0.2	25.8	25.1	4.4
3/3/2004 16:15	3.0		Run 3	-0.2	25.8	25.1	3.1
3/3/2004 16:16	2.9		Run 3	-0.2	25.8	25.1	3.0
3/3/2004 16:17	2.0		Run 3	-0.2	25.8	25.1	2.1
3/3/2004 16:18	2.1		Run 3	-0.2	25.8	25.1	2.2
3/3/2004 16:19	4.4		Run 3	-0.2	25.8	25.1	4.4
3/3/2004 16:20	6.9		Run 3	-0.2	25.8	25.1	6.9
3/3/2004 16:21	6.2		Run 3	-0.2	25.8	25.1	6.2
3/3/2004 16:22	5.5		Run 3	-0.2	25.8	25.1	5.5
3/3/2004 16:23	5.1		Run 3	-0.2	25.8	25.1	5.1
3/3/2004 16:24	5.1		Run 3	-0.2	25.8	25.1	5.2
3/3/2004 16:25	5.6		Run 3	-0.2	25.8	25.1	5.6
3/3/2004 16:26	4.2		Run 3	-0.2	25.8	25.1	4.3
3/3/2004 16:27	4.0		Run 3	-0.2	25.8	25.1	4.1
3/3/2004 16:28	4.4		Run 3	-0.2	25.8	25.1	4.4
3/3/2004 16:29	3.5		Run 3	-0.2	25.8	25.1	3.6
3/3/2004 16:30	2.7		Run 3	-0.2	25.8	25.1	2.8
3/3/2004 16:31	2.8		Run 3	-0.2	25.8	25.1	2.9
3/3/2004 16:32	2.8		Run 3	-0.2	25.8	25.1	2.9
3/3/2004 16:33	3.0		Run 3	-0.2	25.8	25.1	3.1
3/3/2004 16:34	4.9		Run 3	-0.2	25.8	25.1	5.0

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Time	NOx, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
3/3/2004 16:35	8.5		Run 3	-0.2	25.8	25.1	8.4
3/3/2004 16:36	8.7		Run 3	-0.2	25.8	25.1	8.6
3/3/2004 16:37	17.0		Run 3	-0.2	25.8	25.1	16.6
3/3/2004 16:38	32.2		Run 3	-0.2	25.8	25.1	31.3
3/3/2004 16:39	35.7		Run 3	-0.2	25.8	25.1	34.7
3/3/2004 16:40	36.0		Run 3	-0.2	25.8	25.1	35.0
3/3/2004 16:41	38.4		Run 3	-0.2	25.8	25.1	37.3
3/3/2004 16:42	40.0		Run 3	-0.2	25.8	25.1	38.9
3/3/2004 16:43	40.6		Run 3	-0.2	25.8	25.1	39.5
3/3/2004 16:44	41.8		Run 3	-0.2	25.8	25.1	40.7
3/3/2004 16:45	43.3		Run 3	-0.2	25.8	25.1	42.1
3/3/2004 16:46	41.1		Run 3	-0.2	25.8	25.1	39.9
3/3/2004 16:47	41.8		Run 3	-0.2	25.8	25.1	40.6
3/3/2004 16:48	42.7		Run 3	-0.2	25.8	25.1	41.5
3/3/2004 16:49	42.9		Run 3	-0.2	25.8	25.1	41.7
3/3/2004 16:50	44.6		Run 3	-0.2	25.8	25.1	43.3
3/3/2004 16:51	46.8		Run 3	-0.2	25.8	25.1	45.4
3/3/2004 16:52	30.2		Run 3	-0.2	25.8	25.1	29.4
3/3/2004 16:53	14.0		Run 3	-0.2	25.8	25.1	13.7
3/3/2004 16:54	9.0		Run 3	-0.2	25.8	25.1	8.9
3/3/2004 16:55	9.2		Run 3	-0.2	25.8	25.1	9.1
3/3/2004 16:56	9.7		Run 3	-0.2	25.8	25.1	9.6
3/3/2004 16:57	6.9		Run 3	-0.2	25.8	25.1	6.8
3/3/2004 16:58	5.4		Run 3	-0.2	25.8	25.1	5.4
3/3/2004 16:59	9.5		Run 3	-0.2	25.8	25.1	9.3
3/3/2004 17:00	8.3		Run 3	-0.2	25.8	25.1	8.2
3/3/2004 17:01	27.9		Run 3	-0.2	25.8	25.1	27.2
3/3/2004 17:02	28.4		Run 3	-0.2	25.8	25.1	27.7
3/3/2004 17:03	26.1		Run 3	-0.2	25.8	25.1	25.4
3/3/2004 17:04	26.8		Run 3	-0.2	25.8	25.1	26.1
3/3/2004 17:05	15.8		Run 3	-0.2	25.8	25.1	15.5
3/3/2004 17:06	10.5		Run 3	-0.2	25.8	25.1	10.4
3/3/2004 17:07	5.3		Run 3	-0.2	25.8	25.1	5.3
3/3/2004 17:08	6.4		Run 3	-0.2	25.8	25.1	6.4
3/3/2004 17:09	8.3		Run 3	-0.2	25.8	25.1	8.2
3/3/2004 17:10	11.7		Run 3	-0.2	25.8	25.1	11.5
3/3/2004 17:11	11.7		Run 3	-0.2	25.8	25.1	11.5
3/3/2004 17:12	7.4		Run 3	-0.2	25.8	25.1	7.4
3/3/2004 17:13	6.4		Run 3	-0.2	25.8	25.1	6.4
3/3/2004 17:14	6.8		Run 3	-0.2	25.8	25.1	6.7
3/3/2004 17:15	6.8		Run 3	-0.2	25.8	25.1	6.8
3/3/2004 17:16	4.2		Run 3	-0.2	25.8	25.1	4.3
3/3/2004 17:17	2.6		Run 3	-0.2	25.8	25.1	2.7
3/3/2004 17:18	2.6		Run 3	-0.2	25.8	25.1	2.7
3/3/2004 17:19	6.5		Run 3	-0.2	25.8	25.1	6.5

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Time	NOx, ppm	Run Number	COMMENTS	NOx C_0	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
3/3/2004 17:20	5.8		Run 3	-0.2	25.8	25.1	5.8
3/3/2004 17:21	4.1		Run 3	-0.2	25.8	25.1	4.2
3/3/2004 17:22	3.9		Run 3	-0.2	25.8	25.1	4.0
3/3/2004 17:23	5.8		Run 3	-0.2	25 8	25 1	5.8
3/3/2004 17:24	6.3		Run 3	-0.2	25.8	25.1	6.3
3/3/2004 17:25	6.1		Run 3	-0.2	25.8	25.1	6.1
3/3/2004 17:26	3.8		Run 3	-0.2	25 8	25.1	3.9
3/3/2004 17:27	3 7		Run 3	-0.2	25.8	25.1	3.7
3/3/2004 17:28	4.5		Run 3	-0.2	25.8	25.1	4.5
3/3/2004 17.29	4.8		Run 3	-0.2	25.8	25.1	4 8
3/3/2004 17:30	5.5		Run 3	-0.2	25.8	25.1	5.5
3/3/2004 17:31	5.5		Run 3	-0.2	25.8	25.1	5.5
3/3/2004 17:32	5.2		Run 3	-0.2	25.8	25.1	5.3
3/3/2004 17:33	5.0		Run 3	-0.2	25.8	25 1	5.1
3/3/2004 17:34	5.0		Run 3	-0.2	25.8	25.1	5.0
3/3/2004 17:35	4.2		Run 3	-0.2	25.8	25.1	4.3
3/3/2004 17:36	4.1		Run 3	-0.2	25.8	25.1	4.2
3/3/2004 17:37	4.3		Run 3	-0.2	25.8	25.1	4.3
3/3/2004 17:38	3.7		Run 3	-0.2	25.8	25.1	3.7
3/3/2004 17.39	11.6		Run 3	-0.2	25.8	25 1	11.4
3/3/2004 17:40	12.5		Run 3	-0.2	25.8	25.1	12.3
3/3/2004 17:41	5 5		Run 3	-0.2	25.8	25.1	5.5
3/3/2004 17:42	4.9		Run 3	-0.2	25.8	25.1	5.0
3/3/2004 17:43	2.2		Run 3	-0.2	25.8	25.1	2.3
3/3/2004 17:44	1.2		Run 3	-0.2	25.8	25.1	1.4
3/3/2004 17:45	1.0		Run 3	-0.2	25.8	25.1	1.1
3/3/2004 17:46	0.9		Run 3	-0.2	25.8	25.1	1.1
3/3/2004 17:47	1.0		Run 3	-0.2	25.8	25.1	1.1
3/3/2004 17:48	1.0		Run 3	-0.2	25.8	25.1	1.2
3/3/2004 17:49	2.0		Run 3	-0.2	25.8	25.1	2.1
3/3/2004 17:50	8.4		Run 3	-0.2	25.8	25.1	8.3
3/3/2004 17:51	12.8		Run 3	-0.2	25.8	25.1	12.6
3/3/2004 17.52	13.6		Run 3	-0.2	25.8	25 1	13.3
3/3/2004 17:53	5.0		Run 3	-0.2	25.8	25.1	5.0
3/3/2004 17:54	4.3		Run 3	-0.2	25.8	25.1	4.4
3/3/2004 17:55	4.7		Run 3	-0.2	25.8	25.1	4.8
3/3/2004 17:56	3.3		Run 3	-0.2	25.8	25.1	3.3
	10.6		**Run 3 Average**				10.5
3/3/2004 17:57	2.3						
3/3/2004 17:58	1.6						
3/3/2004 17.59	0.4						
3/3/2004 18:00	-0.1		0 ppm Cal				
3/3/2004 18:01	-0.3		0 ppm Cal				
3/3/2004 18:02	-0.2		0 ppm Cal				
	-0.2		**0 ppm Cal Average**				

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

March 3, 2004

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
3/3/2004 18:03	12.8						
3/3/2004 18:04	24.2						
3/3/2004 18:05	25.7		25.1 ppm Cal				
	25.7		**25.1 ppm Cal Average**				
3/3/2004 18:06	14.5						
3/3/2004 18:07	-0.3						
	9.7		Test Average				9.3

EXAMPLE CALCULATIONS FOR GASEOUS EMISSIONS

Calculations for Run 1 of the Oxides of Nitrogen Test

Correction of NOx Concentrations for Instrument Drift

EPA Method 6C provides an equation for correcting the measured gaseous concentrations over a valid test run for instrument drift during the test run.

The EPA equation presented in Section 8 of EPA Method 6C is:

$$Cgas = (Cavg - Co)(Cma / (Cm - Co))$$

Where:

Cgas = Effluent gas concentration, dry basis, ppm.

Cavg = Average gas concentration indicated by the gas analyzer, ppm.

Co = Average of initial and final system calibration bias check responses for the zero gas, ppm.

Cm = Average of initial and final system calibration bias check responses for the upscale calibration gas, ppm.

Cma = Actual concentration of the upscale calibration gas, ppm.

Using the average for Run 1 of the NOx test:

Cavg = 10.66

From the Pre test / post test calibration

	Pre test +	Post Test	/ 2	
Co =	-0.2	-0.2	2	-0.2 ppm
Cm =	25.4	26.4	2	25.9 ppm

Cma = 25.1 ppm

Cgas = (Cavg - Co)(Cma / (Cm - Co))

	Cavg	Co	Cma	Cm	Co
Cgas =	10.66	-0.2	25.1	25.9	-0.2

Cgas = 10.44

Calculation of the Mass of NOx Emissions During the Test Run

The stack gas flow rate for each sampling run was measured using EPA Methods 1 through 3. Flow data in the appendix section presents the measured stack gas parameters and calculation of the stack gas flow rates.

The average mass emission rate of a pollutant over a sampling run was calculated by using the following equation:

$$M = \frac{Cgas(avg) \times MW \times Q \times 60}{385.1 \times 10^6}$$

Where:

M = Average mass emission rate of the pollutant over the sampling run in lbs/hr.

Cgas(avg) = Average concentration of the stack gas during the sampling run in ppm. This concentration is expressed on a dry stack basis.

MW	=	Molecular weight of the pollutant in lbs/lb-mole.
Q	=	Stack gas flow rate during the sampling run in dry standard cubic feet per minute (dscfm).
385.1	=	Number of cubic feet occupied by one pound of gas at standard conditions (68º F and 29.92 in. Hg), assuming ideal gas behavior.
10^6	=	Conversion constant for parts per million to cubic feet of pollutant (1 ppm = 10^{-6} ft^3 pollutant / ft^3 stack gas)
60	=	Conversion constant for minutes to hours (1 hr = 60 Minutes)

Example Calculation:

For the NOx test:

Cgas(avg) = 10.44 ppm

MW = 46 = 14 + 16 + 16

Flow SCFMD Avg:

Q = 656703 SCFMD

$$\frac{\text{Cgas(avg)} \times \text{MW} \times \text{Q} \times 60}{385.1 \times 10^6}$$

M =	Cgas(avg)	MW	Q	60
	10.443908	46	656703	
		3.85E+08		

M = 49.2 lbs/hr

Nox pounds per hour to pounds per ton

Production 116.1 tons/hour (from production records, see appendix section)

NOx 49.2 pounds/hour

pounds per ton = (pounds/hour)/(tons/hour)

Pounds per ton = 0.42

SPECTRA GASES INC.
3434 Route 22 West • Branchburg, NJ 08876 USA Tel: (908) 252-9300 • (800) 932-0624 • Fax: (908) 252-0811
Shipped From: 80 Industrial Drive • Alpha, NJ 08865



CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: IPSCO Steel, Inc.
SGI ORDER # : 0033156
ITEM# : 1
P.O.# : VERBAL-DAVID

CYLINDER # : CC-135361
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 2/18/2003
EXPIRATION DATE: 2/18/2005

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	2/10/2003 2/18/2003	24.94 ppm 25.04 ppm	25.0 ppm	+/- 1%
NOx			25.1 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	NTRM-82660	CC-133646	99.5 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	CAI-400-CLD	6L09004	Chemi	1/28/2003

THIS STANDARD IS NIST TRACEABLE. IT 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

DATE: 2/18/2003

SPECTRA GASES INC.

3434 Route 22 West • Branchburg, NJ 08876 USA Tel.: (908) 252-9300 • (800) 932-0624 • Fax (908) 252-0811
Shipped From 80 Industrial Drive • Alpha, NJ 08865



CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: IPSCO Steel, Inc.
SGI ORDER # : 0033156
ITEM# : 2
P.O.# : VERBAL-DAVID

CYLINDER # : CC-85252
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 2/18/2003
EXPIRATION DATE: 2/18/2005

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	2/10/2003 2/18/2003	44.81 ppm 44.91 ppm	44.9 ppm	+/- 1%
NOx			45.1 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	NTRM-82660	CC-133646	99.5 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	CAI-400-CLD	6L09004	Chemi	1/28/2003

THIS STANDARD IS NIST TRACEABLE. IT 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

DATE: 2/18/2003

APPENDIX E

FACILITY OPERATING DATA

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 3/2/04 23:00:00 to 3/3/04 23:00:00

Issue Date : 3/4/04 07:36:00
Issued By : Operations Planning
PBL Name :4 scrap_consumption.pbl Created Date : 01/06/0
Report Name :d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
1110203	03/02/2004	21:19:20	A4C024	0000000003	01	FRAG	052450	26.23
					02	CAST FE	021200	10.60
					03	MXTN	035750	17.88
					04	BEACH IRON	023600	11.80
					06	HM1	043450	21.73
					07	PITSCRAP	009450	4.73
					08	PROCREVERT	009300	4.65
					09	FRAG	026650	13.33
						0000000003 Total	**221850**	**110.93**
1110203	03/02/2004	21:51:40	A4C024	0000000003	01	FRAG	026750	13.38
					02	MXTN	034400	17.20
					04	BEACH IRON	017100	8.55
					05	HM1	022250	11.13
					06	FRAG	058300	29.15
						0000000003 Total	**158800**	**79.40**
						A4C024 Total	**380650**	**190.33**
1110205	03/02/2004	23:56:53	A4C025	0000000003	01	FRAG	053250	26.63
					02	CAST FE	019050	9.53
					03	MXTN	037300	18.65
					04	BEACH IRON	025250	12.63
					06	HM1	044050	22.03
					07	PITSCRAP	011700	5.85
					08	PROCREVERT	010150	5.08
					09	FRAG	019400	9.70
						0000000003 Total	**220150**	**110.07**
1110205	03/03/2004	00:45:33	A4C025	0000000003	01	FRAG	026700	13.35
					02	MXTN	033200	16.60
					04	BEACH IRON	019300	9.65
					05	HM1	022800	11.40
					06	FRAG	057750	28.88
						0000000003 Total	**159750**	**79.88**
						A4C025 Total	**379900**	**189.95**
1082002	03/03/2004	02:08:16	A4C026	0000000003	01	FRAG	023650	11.83
					02	2BN	006650	3.33
					03	HM2	039150	19.58
					04	BEACH IRON	026150	13.08
					06	MXTN	045350	22.68
					07	PITSCRAP	009300	4.65
					08	PROCREVERT	011750	5.88
					09	HM2	036400	18.20
					10	FRAG	022900	11.45
						0000000003 Total	**221300**	**110.65**
1082002	03/03/2004	02:48:18	A4C026	0000000003	01	FRAG	013350	6.68
					02	MXTN	026400	13.20
					04	BEACH IRON	009500	4.75
					05	HM1	049800	24.90

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 3/2/04 23:00:00 to 3/3/04 23:00:00

Issue Date : 3/4/04 07:36:00
Issued By : Operations Planning
PBL Name :4 scrap_consumption.pbl Created Date : 01/06/0
Report Name :d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
1082002	03/03/2004	02:48:18	A4C026	0000000003	06	FRAG	030800	15.40
						0000000003 Total	**129850**	**64.93**
						A4C026 Total	**351150**	**175.58**
1082003	03/03/2004	03:54:28	A4C027	0000000003	01	FRAG	023550	11.78
					02	2BN	007550	3.78
					03	HM2	040350	20.18
					04	BEACH IRON	026150	13.08
					06	MXTN	045550	22.78
					07	PITSCRAP	007550	3.78
					08	PROCREVERT	009550	4.78
					09	HM2	036400	18.20
					10	FRAG	024400	12.20
						0000000003 Total	**221050**	**110.53**
1082003	03/03/2004	05:16:19	A4C027	0000000003	01	FRAG	010900	5.45
					02	MXTN	026850	13.43
					04	BEACH IRON	009000	4.50
					05	HM1	051150	25.58
					06	FRAG	034650	17.33
						0000000003 Total	**132550**	**66.28**
						A4C027 Total	**353600**	**176.80**
1082005	03/03/2004	06:35:54	A4C028	0000000003	01	FRAG	021950	10.98
					02	2BN	007300	3.65
					03	HM2	042650	21.33
					04	BEACH IRON	023300	11.65
					06	MXTN	043300	21.65
					07	FRAG	008950	4.48
					08	PROCREVERT	010800	5.40
					09	HM2	035300	17.65
					10	FRAG	026850	13.43
						0000000003 Total	**220400**	**110.20**
1082005	03/03/2004	07:43:47	A4C028	0000000003	01	FRAG	010700	5.35
					02	MXTN	029950	14.98
					04	BEACH IRON	008900	4.45
					05	HM1	050500	25.25
					06	FRAG	028050	14.03
						0000000003 Total	**128100**	**64.05**
						A4C028 Total	**348500**	**174.25**
1082007	03/03/2004	09:02:41	A4C029	0000000003	01	FRAG	022700	11.35
					02	2BN	009350	4.68
					03	HM2	041050	20.53
					04	BEACH IRON	028750	14.38
					06	MXTN	044500	22.25
					07	PITSCRAP	010650	5.33
					08	PROCREVERT	010400	5.20
					09	HM2	034000	17.00

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 3/2/04 23:00:00 to 3/3/04 23:00:00

Issue Date : 3/4/04 07:36:00
Issued By : Operations Planning
PBL Name :4 scrap_consumption.pbl Created Date : 01/06/0
Report Name :d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
1082007	03/03/2004	09:02:41	A4C029	0000000003	10	FRAG	016700	8.35
						0000000003 Total	**218100**	**109.05**
1082007	03/03/2004	09:53:17	A4C029	0000000003	01	FRAG	012200	6.10
					02	MXTN	025350	12.68
					04	BEACH IRON	009800	4.90
					05	HM1	049650	24.83
					06	FRAG	029350	14.68
						0000000003 Total	**126350**	**63.18**
0000000	03/03/2004	10:09:10	A4C029	0000000003	01	FRAG	044100	22.05
						0000000003 Total	**44100**	**22.05**
						A4C029 Total	**388550**	**194.28**
1120701	03/03/2004	11:31:34	A4C030	0000000003	01	FRAG	022750	11.38
					02	2BN	006700	3.35
					03	HM2	040600	20.30
					04	CAST FE	020800	10.40
					06	MXTN	041650	20.83
					07	PITSCRAP	010900	5.45
					08	PROCREVERT	012250	6.13
					09	HM2	036950	18.48
					10	FRAG	026400	13.20
						0000000003 Total	**219000**	**109.50**
1120701	03/03/2004	12:30:04	A4C030	0000000002	01	FRAG	009700	4.85
					02	MXTN	025550	12.78
					04	BEACH IRON	009550	4.78
					05	HM1	050050	25.03
					06	FRAG	051700	25.85
						0000000002 Total	**146550**	**73.28**
						A4C030 Total	**365550**	**182.78**
1120703	03/03/2004	13:57:14	A4C031	0000000002	01	FRAG	020300	10.15
					02	2BN	008750	4.38
					03	HM2	039600	19.80
					04	BEACH IRON	026100	13.05
					06	MXTN	042800	21.40
					07	PITSCRAP	013500	6.75
					08	PROCREVERT	011900	5.95
					09	HM2	034100	17.05
					10	FRAG	020100	10.05
						0000000002 Total	**217150**	**108.58**
1120703	03/03/2004	14:18:29	A4C031	0000000003	01	FRAG	008850	4.43
					02	MXTN	027500	13.75
					04	BEACH IRON	012000	6.00
					05	HM1	051650	25.83
					06	FRAG	028450	14.23
						0000000003 Total	**128450**	**64.22**
						A4C031 Total	**345600**	**172.80**

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 3/2/04 23:00:00 to 3/3/04 23:00:00

Issue Date : 3/4/04 07:36:00
Issued By : Operations Planning
PBL Name :4 scrap_consumption.pbl Created Date : 01/06/0
Report Name :d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
1120705	03/03/2004	15:49:38	A4C032	0000000002	01	FRAG	025350	12.68
					02	2BN	006900	3.45
					03	HM2	040050	20.02
					04	BEACH IRON	024000	12.00
					06	MXTN	042950	21.48
					07	PITSCRAP	012700	6.35
					08	PROCREVERT	013750	6.88
					09	HM2	034200	17.10
					10	FRAG	020350	10.18
						0000000002 Total	**220250**	**110.12**
1120705	03/03/2004	16:08:46	A4C032	0000000003	01	FRAG	011250	5.63
					02	MXTN	028500	14.25
					04	BEACH IRON	010350	5.18
					05	HM1	053950	26.98
					06	FRAG	038600	19.30
						0000000003 Total	**142650**	**71.33**
						A4C032 Total	**362900**	**181.45**
1120706	03/03/2004	18:32:14	A4C033	0000000002	01	FRAG	023400	11.70
					02	2BN	005550	2.78
					03	HM2	039650	19.83
					04	BEACH IRON	026200	13.10
					06	MXTN	042950	21.48
					07	PITSCRAP	012700	6.35
					08	PROCREVERT	010100	5.05
					09	HM2	035500	17.75
					10	FRAG	018150	9.08
						0000000002 Total	**214200**	**107.10**
1120706	03/03/2004	18:32:16	A4C033	0000000003	01	FRAG	011450	5.73
					02	MXTN	028450	14.23
					04	BEACH IRON	011850	5.93
					05	HM1	051000	25.50
					06	FRAG	022950	11.48
						0000000003 Total	**125700**	**62.85**
0000000	03/03/2004	18:37:48	A4C033	0000000004	01	FRAG	050700	25.35
						0000000004 Total	**50700**	**25.35**
						A4C033 Total	**390600**	**195.30**
1110204	03/02/2004	22:51:20	B4C521	0000000005	01	FRAG	053200	26.60
					02	BEACH IRON	018150	9.08
					03	MXTN	038700	19.35
					04	BEACH IRON	025200	12.60
					06	HM1	042450	21.23
					07	PITSCRAP	009100	4.55
					08	PROCREVERT	009050	4.53
					09	FRAG	023300	11.65
						0000000005 Total	**219150**	**109.58**
1110204	03/02/2004	23:45:04	B4C521	0000000005	01	FRAG	026000	13.00

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 3/2/04 23:00:00 to 3/3/04 23:00:00

Issue Date : 3/4/04 07:36:00
Issued By : Operations Planning
PBL Name :4 scrap_consumption.pbl Created Date : 01/06/0
Report Name :d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
1110204	03/02/2004	23:45:04	B4C521	0000000005	02	MXTN	031850	15.93
					04	BEACH IRON	025550	12.78
					05	HM1	022350	11.18
					06	FRAG	042250	21.13
						0000000005 Total	**148000**	**74.00**
						B4C521 Total	**367150**	**183.58**
1082001	03/03/2004	00:59:17	B4C522	0000000005	01	FRAG	021350	10.68
					02	2BN	005750	2.88
					03	HM2	039450	19.73
					04	BEACH IRON	022850	11.43
					06	MXTN	041050	20.53
					07	PITSCRAP	011100	5.55
					08	PROCREVERT	009150	4.58
					09	HM2	035900	17.95
					10	FRAG	034200	17.10
						0000000005 Total	**220800**	**110.40**
0000000	03/03/2004	02:27:29	B4C522	0000000003	01	HM1	041550	20.78
						0000000003 Total	**41550**	**20.78**
1082001	03/03/2004	04:35:00	B4C522	0000000005	01	FRAG	012800	6.40
					02	MXTN	026500	13.25
					04	BEACH IRON	008900	4.45
					05	HM1	031250	15.63
					06	FRAG	012250	6.13
						0000000005 Total	**91700**	**45.85**
						B4C522 Total	**354050**	**177.03**
1082004	03/03/2004	05:35:09	B4C523	0000000005	01	FRAG	022500	11.25
					02	2BN	006750	3.38
					03	HM2	039050	19.52
					04	BEACH IRON	024200	12.10
					06	MXTN	042800	21.40
					07	FRAG	009300	4.65
					08	PROCREVERT	012500	6.25
					09	HM2	036250	18.13
					10	FRAG	027750	13.88
						0000000005 Total	**221100**	**110.55**
1082004	03/03/2004	06:35:58	B4C523	0000000005	01	FRAG	011000	5.50
					02	MXTN	027500	13.75
					04	BEACH IRON	008750	4.38
					05	HM1	052200	26.10
					06	FRAG	023000	11.50
						0000000005 Total	**122450**	**61.23**
						B4C523 Total	**343550**	**171.78**
1082006	03/03/2004	07:43:59	B4C524	0000000006	01	FRAG	023850	11.93
					02	2BN	006700	3.35
					03	HM2	039900	19.95

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 3/2/04 23:00:00 to 3/3/04 23:00:00

Issue Date : 3/4/04 07:36:00
Issued By : Operations Planning
PBL Name :4 scrap_consumption.pbl Created Date : 01/06/0
Report Name :d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
1082006	03/03/2004	07:43:59	B4C524	0000000006	04	BEACH IRON	025100	12.55
					06	MXTN	043450	21.73
					07	FRAG	012700	6.35
					08	PROCREVERT	010700	5.35
					09	HM2	039450	19.73
					10	FRAG	018750	9.38
					0000000006	**Total**	**220600**	**110.30**
1082006	03/03/2004	08:33:58	B4C524	0000000005	01	FRAG	011700	5.85
					02	MXTN	026300	13.15
					04	BEACH IRON	011800	5.90
					05	HM1	052700	26.35
					06	FRAG	044100	22.05
					0000000005	**Total**	**146600**	**73.30**
					B4C524	**Total**	**367200**	**183.60**
1082008	03/03/2004	11:31:29	B4C525	0000000005	01	FRAG	021200	10.60
					02	2BN	006600	3.30
					03	HM2	039900	19.95
					04	CAST FE	024900	12.45
					06	MXTN	042100	21.05
					07	PITSCRAP	012500	6.25
					08	PROCREVERT	013900	6.95
					09	HM2	036250	18.13
					10	FRAG	021150	10.58
					0000000005	**Total**	**218500**	**109.25**
1082008	03/03/2004	11:31:31	B4C525	0000000006	01	FRAG	010000	5.00
					02	MXTN	026000	13.00
					04	BEACH IRON	012500	6.25
					05	HM1	049700	24.85
					06	FRAG	034250	17.13
					0000000006	**Total**	**132450**	**66.22**
					B4C525	**Total**	**350950**	**175.48**
1120702	03/03/2004	12:23:58	B4C526	0000000004	01	FRAG	020100	10.05
					02	2BN	005800	2.90
					03	HM2	038050	19.02
					04	BEACH IRON	025250	12.63
					06	MXTN	044600	22.30
					07	PITSCRAP	010450	5.23
					08	PROCREVERT	012650	6.33
					09	HM2	036250	18.13
					10	FRAG	024350	12.18
					0000000004	**Total**	**217500**	**108.75**
1120702	03/03/2004	13:57:22	B4C526	0000000005	01	FRAG	011350	5.68
					02	MXTN	027100	13.55
					04	BEACH IRON	009850	4.93
					05	HM1	048400	24.20

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 3/2/04 23:00:00 to 3/3/04 23:00:00

Issue Date : 3/4/04 07:36:00
Issued By : Operations Planning
PBL Name :4 scrap_consumption.pbl Created Date : 01/06/0
Report Name :d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
1120702	03/03/2004	13:57:22	B4C526	0000000005	06	FRAG	028250	14.13
						0000000005 Total	**124950**	**62.48**
						B4C526 Total	**342450**	**171.23**
1120704	03/03/2004	16:13:40	B4C527	0000000006	01	FRAG	022500	11.25
					02	2BN	008150	4.08
					03	HM2	037250	18.63
					04	BEACH IRON	029700	14.85
					06	MXTN	045450	22.73
					07	PITSCRAP	011250	5.63
					08	PROCREVERT	010450	5.23
					09	HM2	030950	15.48
					10	FRAG	017650	8.83
						0000000006 Total	**213350**	**106.68**
1120704	03/03/2004	16:55:58	B4C527	0000000005	01	FRAG	009900	4.95
					02	MXTN	028350	14.18
					04	BEACH IRON	010200	5.10
					05	HM1	051050	25.53
					06	FRAG	031700	15.85
						0000000005 Total	**131200**	**65.60**
						B4C527 Total	**344550**	**172.28**
1034901	03/03/2004	18:52:10	B4C528	0000000005	01	FRAG	022600	11.30
					02	2BN	008250	4.13
					03	HM2	038100	19.05
					04	BEACH IRON	025100	12.55
					06	MXTN	044500	22.25
					07	PITSCRAP	011150	5.58
					08	PROCREVERT	010100	5.05
					09	HM2	033100	16.55
					10	FRAG	019200	9.60
						0000000005 Total	**212100**	**106.05**
1034901	03/03/2004	19:24:48	B4C528	0000000005	01	FRAG	013350	6.68
					02	MXTN	027650	13.83
					04	BEACH IRON	010100	5.05
					05	HM1	051250	25.63
					06	FRAG	030000	15.00
						0000000005 Total	**132350**	**66.18**
						B4C528 Total	**344450**	**172.23**

Total Heats 18 **Total Weight for Time Period** 6481350 **Pounds** 3240.67 **Tons**

006/020

EAF Heat Sheet 03-Mar-2004 13:31:01

IPSCO STEEL INC.
Montpelier Works

HEAT: A4C030 *MSP: 12203*

182.78

Start Time: 03-Mar-2004 11:20:46
End Time : 03-Mar-2004 13:30:46
TapToTap Time : 129 (min)

Heat Order : 1120701
Grade : A/SA36A709
Ladle #: 0 CrewID: 3 OperatorID: 24

START	DUR	DELAY REASON
13:24:06	0000	Operational, Tap
13:21:42	0002	Operational, Slagoff
13:18:06	0003	Operational, Temp
12:44:40	0004	Operational, Charge
11:53:31	0035	Other, New Other
11:21:31	0032	Operational, Charge run B

35
56
101

CHARGES	AMOUNT
Charge 1 :	226800
Charge 2 :	154450
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
FeMn	0001050
4oz AL Con	0000500
Carbon	0002490
Dololime	0008240
HiCal Lime	0004620
Kwikflux 6	0001000
MW13	0003500
50 # Syn G	0000120

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	67000	400	66600	0	0	0
O2 Burner	SCF	59	0	59	0	0	0
Gas Burner	SCF	26	0	26	0	0	0
O2 Lance	SCF	816	0	816	0	0	0
Carbon Lance	LBS	3751	0	3751	0	0	0
TIMES							
Melting Tm	MIN	129	69	60	0	0	0
Power on Tm	MIN	44	1	43	0	0	0
Burner On Tm	MIN	46	0	46	0	0	0
O2Lance On Tm	MIN	42	0	42	0	0	0
CLance On Tm	MIN	9	0	9	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	386.6	003.5	351.5	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	33720.1	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.7	000.0	004.3	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.0	000.1	000.0	000.0	000.0
Carbon Ton	LBS/Ton	021.6	000.0	019.7	000.0	000.0	000.0

COMMENTS

recalibrate for NOx test casey

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.21400	0.60000	0.02000	0.01000	0.10000	0.03900	0.00000	0.01500	0.00000	0.36700	0.40000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.01000	0.00000	0.00000	0.00000
MIN	0.18500	0.50000	0.00000	0.00000	0.01500	0.01800	0.01500	0.00000	0.00070	0.32200	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00600	0.00000	0.00000	0.00000
AIM	0.20000	0.55000	0.00000	0.00000	0.01600	0.02500	0.00000	0.00000	0.00000	0.34500	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00700	0.00000	0.00000	0.00000

IPSCO STEEL INC.
03/25/2004 13:01 FAX 563 381 5406

008/020

EAF Heat Sheet 03-Mar-2004 15:31:38

IPSCO STEEL INC.
Montpelier Works

HEAT: A4C031 MSP: 12203 172.80

Start Time: 03-Mar-2004 13:31:49
End Time : 03-Mar-2004 15:31:20
TapToTap Time : 119 (min)

Heat Order : 1120703
Grade : A/SA36A709
Ladle #: 0 CrewID: 3 OperatorID: 24

START	DUR	DELAY REASON
15:26:09	0000	Operational, Tap
15:23:39	0002	Operational, Slagoff
14:52:08	0024	Operational, Hot Anode#4
14:21:15	0003	Operational, Charge
14:03:15	0018	Operational, Wait on Scrap
13:49:06	0000	Operational, Run B
13:34:36	0014	Operational, Gunning
13:32:36	0002	Operational, Turnaround

CHARGES	AMOUNT
Charge 1 :	225450
Charge 2 :	138650
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
FeMn	0001050
4oz AL Con	0000510
Carbon	0003485
Dololime	0008265
HiCal Lime	0004650
Kwikflux 6	0001000
MW13	0003500
50 # Syn G	0000120

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	69100	19000	50100	0	0	0
O2 Burner	SCF	75	29	46	0	0	0
Gas Burner	SCF	32	12	20	0	0	0
O2 Lance	SCF	1453	69	1384	0	0	0
Carbon Lance	LBS	4882	0	4882	0	0	0
TIMES							
Melting Tm	MIN	119	46	72	0	0	0
Power on Tm	MIN	46	13	33	0	0	0
Burner On Tm	MIN	63	23	39	0	0	0
O2Lance On Tm	MIN	64	8	56	0	0	0
CLance On Tm	MIN	19	0	19	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	417.5	168.6	379.6	000.0	000.0	000.0
Flux	Tons	000.0	000.1	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	44059.5	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	008.8	000.6	008.0	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	029.5	000.0	026.8	000.0	000.0	000.0

1
2.4
18
14
56

COMMENTS

casey

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.21400	0.60000	0.02000	0.01000	0.10000	0.03900	0.00000	0.01500	0.00000	0.36700	0.40000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.01000	0.00000	0.00000	0.00000
MIN	0.18500	0.50000	0.00000	0.00000	0.01500	0.01800	0.01500	0.00000	0.00070	0.32200	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00600	0.00000	0.00000	0.00000
AIM	0.20000	0.55000	0.00000	0.00000	0.01600	0.02500	0.00000	0.00000	0.00000	0.34500	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00700	0.00000	0.00000	0.00000

03/25/2004 13:02 FAX 563 381 5406 IPSCO STEEL INC.

002/020

EAF Heat Sheet 03-Mar-2004 11:20:04

0.905

IPSCO STEEL INC.
Montpelier Works

HEAT: A4C029 MSP: 24202

- 194.28 Tons Charged - (139 min -

Start Time: 03-Mar-2004 08:59:39
End Time : 03-Mar-2004 11:19:42
TapToTap Time : 139 (min)

Heat Order : 1082007
Grade : A/SA36A709
Ladle #: 0 CrewID: 3 OperatorID: 24

START	DUR	DELAY REASON
11:18:07	0000	Operational, Tap
11:11:55	0006	Operational, Slagoff
11:05:31	0006	Operational, Blow Carbon
10:33:17	0024	Operational, Hot Anode#4
10:08:05	0004	Operational, Charge
09:52:15	0004	Operational, Charge
09:00:27	0037	Operational, Charge run B

CHARGES	AMOUNT
Charge 1	227650
Charge 2	133900
Charge 3	44100
Charge 4	0
Charge 5	0

ADDITIONS	LBS
FeMn	0002480
75% Fe Si	0000510
4oz AL Con	0000610
Carbon	0002495
Dololime	0008245
HiCal Lime	0004625
Kwikflux 6	0001000
MW13	0003500
50 # Syn G	0000120

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	75400	19100	15500	40800	0	0
O2 Burner	SCF	93	18	23	52	0	0
Gas Burner	SCF	39	8	10	21	0	0
O2 Lance	SCF	1145	80	146	919	0	0
Carbon Lance	LBS	5678	0	0	5678	0	0
TIMES							
Melting Tm	MIN	139	53	15	70	0	0
Power on Tm	MIN	52	13	10	27	0	0
Burner On Tm	MIN	89	11	15	62	0	0
O2Lance On Tm	MIN	55	9	11	34	0	0
CLance On Tm	MIN	28	0	0	28	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	408.9	167.8	191.4	371.7	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	33017.9	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	006.2	000.7	001.3	005.6	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.1	000.2	000.0	000.0
Carbon Ton	LBS/Ton	030.8	000.0	000.0	028.0	000.0	000.0

COMMENTS

dan

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.21400	0.95000	0.02000	0.01500	0.25000	0.03900	0.00000	0.01500	0.00000	0.42800	0.40000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
MIN	0.18500	0.85000	0.00000	0.00000	0.15000	0.01800	0.01500	0.00000	0.00100	0.37000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
AIM	0.20000	0.90000	0.00000	0.00000	0.20000	0.02500	0.00000	0.00000	0.00000	0.40600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

03/25/2004 12:59 FAX 563 381 5406 IPSCO STEEL INC.

004/020

EAF Heat Sheet 03-Mar-2004 12:07:38

IPSCO STEEL INC.
Montpelier Works

HEAT: B4C525 MSP: 24202 - 175.48 Tons Charged

Start Time: 03-Mar-2004 09:49:39
End Time : 03-Mar-2004 12:07:20
TapToTap Time : 137 (min)

Heat Order : 1082008
Grade : A/SA36A709
Ladle #: 0 CrewID: 2 OperatorID: 18

START	DUR	DELAY REASON
12:01:53	0000	Operational, Tap
11:58:17	0003	Operational, Slagoff
11:52:17	0006	Operational, Blow Carbon
11:32:03	0000	Operational, Sidewall RTD trip
11:18:06	0003	Operational, Charge
11:15:33	0000	Operational, Sidewall RTD trip
10:56:59	0010	Operational, Run A
10:42:11	0014	Operational, Swap columns
10:12:27	0022	Operational, Charge Run A
09:54:27	0018	Operational, Gunning
09:50:27	0004	Operational, Turnaround

CHARGES	AMOUNT
Charge 1 :	227750
Charge 2 :	142150
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
FeMn	0002500
75% Fe Si	0000500
4oz AL Con	0000500
Carbon	0005280
Dololime	0012360
HiCal Lime	0006915
Kwikflux 6	0001000
MW13	0003500
50 # Syn G	0000120

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	67700	34700	33000	0	0	0
O2 Burner	SCF	87	63	24	0	0	0
Gas Burner	SCF	50	36	14	0	0	0
O2 Lance	SCF	1019	278	741	0	0	0
Carbon Lance	LBS	2091	1361	730	0	0	0
TIMES							
Melting Tm	MIN	137	101	35	0	0	0
Power on Tm	MIN	46	26	20	0	0	0
Burner On Tm	MIN	78	51	26	0	0	0
O2Lance On Tm	MIN	49	22	26	0	0	0
CLance On Tm	MIN	12	6	6	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	402.6	304.7	366.0	000.0	000.0	000.0
Flux	Tons	000.0	113.9	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	113305.4	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	006.1	002.4	005.5	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.3	000.3	000.3	000.0	000.0	000.0
Carbon Ton	LBS/Ton	012.4	012.0	011.3	000.0	000.0	000.0

COMMENTS

casey

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.21400	0.95000	0.02000	0.01500	0.25000	0.03900	0.00000	0.01500	0.00000	0.42800	0.40000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
MIN	0.18500	0.85000	0.00000	0.00000	0.15000	0.01800	0.01500	0.00000	0.00100	0.37000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
AIM	0.20000	0.90000	0.00000	0.00000	0.20000	0.02500	0.00000	0.00000	0.00000	0.40600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

IPSCO STEEL INC. 03/25/2004 13:00 FAX 563 381 5406

1532-> 1801

2.5x60

010/020

EAF Heat Sheet 03-Mar-2004 17:13:52

IPSCO STEEL INC.
Montpelier Works

HEAT: A4C032 *MSP: 12203*

Start Time: 03-Mar-2004 15:32:23
End Time : 03-Mar-2004 17:13:39
TapToTap Time : 101 (min)

Heat Order : 1120704
Grade : A/SA36A709
Ladle #: 0 CrewID: 3 OperatorID: 24

START	DUR	DELAY REASON
17:08:54	0000	Operational, Tap
17:07:06	0001	Operational, Slagoff
17:03:36	0003	Operational, Blow Carbon
16:37:57	0017	Operational, Hot Anode#4
16:09:41	0004	Operational, Charge
15:46:11	0007	Operational, Hot Anode#4
15:33:11	0013	Operational, Charge run B

CHARGES	AMOUNT
Charge 1	229250
Charge 2	155100
Charge 3	0
Charge 4	0
Charge 5	0

ADDITIONS	LBS
FeMn	0001080
4oz AL Con	0000520
Carbon	0003605
Dololime	0008355
HiCal Lime	0004695
Kwikflux 6	0001000
MW13	0003500
50 # Syn G	0000120

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	66500	21500	45000	0	0	0
O2 Burner	SCF	81	18	63	0	0	0
Gas Burner	SCF	34	8	26	0	0	0
O2 Lance	SCF	1002	167	835	0	0	0
Carbon Lance	LBS	5451	3017	2434	0	0	0
TIMES							
Melting Tm	MIN	101	36	64	0	0	0
Power on Tm	MIN	48	15	32	0	0	0
Burner On Tm	MIN	70	11	58	0	0	0
O2Lance On Tm	MIN	48	11	37	0	0	0
CLance On Tm	MIN	25	3	22	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	380.6	187.6	346.0	000.0	000.0	000.0
Flux	Tons	000.0	000.1	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	47481.2	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.7	001.5	005.2	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	031.2	026.3	028.4	000.0	000.0	000.0

COMMENTS

shane

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.21400	0.60000	0.02000	0.01000	0.10000	0.03900	0.00000	0.01500	0.00000	0.36700	0.40000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.01000	0.00000	0.00000	0.00000
MIN	0.18500	0.50000	0.00000	0.00000	0.01500	0.01800	0.01500	0.00000	0.00070	0.32200	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00600	0.00000	0.00000	0.00000
AIM	0.20000	0.55000	0.00000	0.00000	0.01600	0.02500	0.00000	0.00000	0.00000	0.34500	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00700	0.00000	0.00000	0.00000

IPSCO STEEL INC.
03/25/2004 13:03 FAX 563 381 5406

012/020

IPSCO STEEL INC.
Montpelier Works

HEAT: B4C527 MSP: 12203

Start Time: 03-Mar-2004 16:05:30
End Time : 03-Mar-2004 18:01:36
TapToTap Time : 115 (min)

Heat Order : 1120705
Grade : A/SA36A709
Ladle #: 0 CrewID: 2 OperatorID: 18

START	DUR	DELAY REASON
17:55:52	0000	Operational, Tap
17:54:10	0001	Operational, Slagoff
17:44:22	0009	Operational, Blow Carbon
17:05:54	0006	Mechanical, Replace Sidewall RTD
16:53:48	0012	Operational, Run A
16:06:17	0033	Operational, Charge Run A

CHARGES	AMOUNT
Charge 1	222800
Charge 2	141900
Charge 3	0
Charge 4	0
Charge 5	0

ADDITIONS	LBS
FeMn	0001030
4oz AL Con	0000530
Carbon	0008000
Dololime	0016600
HiCal Lime	0009380
Kwikflux 6	0001000
MW13	0003500
50 # Syn G	0000120

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	66100	19200	46900	0	0	0
O2 Burner	SCF	80	16	64	0	0	0
Gas Burner	SCF	45	9	36	0	0	0
O2 Lance	SCF	1035	60	975	0	0	0
Carbon Lance	LBS	2746	0	2746	0	0	0
TIMES							
Melting Tm	MIN	115	50	65	0	0	0
Power on Tm	MIN	45	13	31	0	0	0
Burner On Tm	MIN	69	10	58	0	0	0
O2Lance On Tm	MIN	49	7	41	0	0	0
CLance On Tm	MIN	19	0	19	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	398.7	172.4	362.5	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	36750.6	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	006.2	000.5	005.7	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.3	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	016.6	000.0	015.1	000.0	000.0	000.0

COMMENTS

eric

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.21400	0.60000	0.02000	0.01000	0.10000	0.03900	0.00000	0.01500	0.00000	0.36700	0.40000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.01000	0.00000	0.00000	0.00000
MIN	0.18500	0.50000	0.00000	0.00000	0.01500	0.01800	0.01500	0.00000	0.00070	0.32200	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00600	0.00000	0.00000	0.00000
AIM	0.20000	0.55000	0.00000	0.00000	0.01600	0.02500	0.00000	0.00000	0.00000	0.34500	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00700	0.00000	0.00000	0.00000

IPSCO STEEL INC.
03/25/2004 13:04 FAX 563 381 5406

003/020

EAF Heat Sheet 03-Mar-2004 11:20:04

IPSCO STEEL INC.
Montpelier Works

HEAT: A4C029 MSP: 24202

---------- EVENTS ----------

TIME	KWH	Description
11:19:54	0075400	Ladle Weigth
11:19:43	0075400	End Tapping
11:17:28	0075400	Start Tapping
11:11:57	0075400	Temperature <2998> O2 <5460> C <183>
11:11:53	0075400	Burners Off
11:05:33	0075400	Temperature <2906> O2 <1660> C <191>
11:05:29	0075400	Power Off
11:02:36	0070800	Temperature <2770> O2 <1070> C <218>
10:58:06	0065700	Power On
10:44:38	0065700	Temperature <2762> O2 <914> C <245>
10:39:01	0065700	Temperature <2555> O2 <837> C <245>
10:34:45	0065700	Temperature <2772> O2 <837> C <56>
10:33:25	0065700	Temperature <2778> O2 <5010> C <56>
10:33:16	0065700	Power Off
10:31:12	0062400	Material Addition
10:12:55	0034600	Power On
10:09:11	0034600	Charge
10:08:03	0034600	Power Off
10:01:31	0023900	Power On
10:01:23	0023900	Power Off
09:57:38	0019300	Power On
09:57:37	0019300	Power Off
09:57:06	0019100	Power On
09:53:17	0019100	Charge
09:52:13	0019100	Power Off
09:42:08	0003900	Burners On
09:38:10	0000000	Melting
09:38:09	0000000	Power On
09:23:03	0000000	Material Addition
09:02:41	0000000	Charge
08:59:41	0000000	TurnAround

03/25/2004 13:00 FAX 563 381 5406 IPSCO STEEL INC.

007/020

IPSCO STEEL INC.
Montpelier Works

HEAT: A4C030 MSP: 12203

---------- EVENTS ----------

TIME	KWH	Description
13:30:51	0067000	Ladle Weigth
13:30:47	0067000	End Tapping
13:29:00	0067000	Start Tapping
13:20:53	0067000	Temperature <2951> O2 <3770> C <84>
13:19:43	0067000	Burners Off
13:19:14	0067000	Temperature <2962> O2 <4190> C <71>
13:18:05	0067000	Power Off
13:07:40	0049900	Material Addition
12:48:51	0021700	Power On
12:44:39	0021700	Power Off
12:33:07	0004000	Burners On
12:30:04	0000400	Charge
12:28:59	0000000	Melting
12:28:58	0000000	Power On
11:51:25	0000000	Material Addition
11:47:12	0000000	Material Addition
11:31:34	0000000	Charge
11:20:47	0000000	TurnAround

IPSCO STEEL INC.
03/25/2004 13:02 FAX 563 381 5406

009/020

EAF Heat Sheet 03-Mar-2004 15:31:40

IPSCO STEEL INC.
Montpelier Works

HEAT: A4C031 MSP: 12203

---------- EVENTS ----------

TIME	KWH	Description
15:31:26	0069100	Ladle Weigth
15:31:22	0069100	End Tapping
15:29:13	0069100	Start Tapping
15:23:57	0069100	Temperature <3006> O2 <6520> C <198>
15:23:55	0069100	Burners Off
15:23:38	0069100	Power Off
15:22:54	0067900	Burners On
15:17:04	0059300	Power On
15:11:00	0059300	Temperature <2769> O2 <1020> C <225>
15:04:58	0059300	Temperature <2779> O2 <933> C <296>
15:00:56	0059300	Material Addition
14:57:09	0059300	Burners Off
14:53:37	0059300	Temperature <2819> O2 <3770> C <91>
14:52:06	0059300	Power Off
14:25:14	0019100	Power On
14:18:29	0019000	Charge
14:06:17	0019000	Material Addition
14:03:13	0019000	Power Off
13:57:14	0009600	Charge
13:54:37	0005700	Burners On
13:49:52	0000000	Melting
13:49:51	0000000	Power On
13:31:51	0000000	TurnAround

03/25/2004 13:03 FAX 563 381 5406 IPSCO STEEL INC.

03/25/2004 13:04 FAX 563 381 5406 IPSCO STEEL INC. 011/020

IPSCO STEEL INC.
Montpelier Works

HEAT: A4C032 MSP: 12203

---------- EVENTS ----------

TIME	KWH	Description
17:13:45	0066500	Ladle Weigth
17:13:41	0066500	End Tapping
17:11:42	0066500	Start Tapping
17:07:16	0066500	Temperature <2996> O2 <5410> C <182>
17:07:12	0066500	Burners Off
17:03:34	0066500	Power Off
17:03:33	0066500	Temperature <2894> O2 <1610> C <182>
16:55:56	0058000	Power On
16:48:02	0058000	Temperature <2773> O2 <1170> C <61>
16:37:56	0058000	Power Off
16:33:28	0050700	Material Addition
16:13:49	0022900	Power On
16:09:39	0022900	Power Off
16:08:47	0021500	Charge
15:56:59	0004100	Burners On
15:54:06	0000400	Material Addition
15:53:12	0000000	Melting
15:53:10	0000000	Power On
15:49:38	0000000	Charge
15:32:25	0000000	TurnAround

005/020

IPSCO STEEL INC.
Montpelier Works

HEAT: B4C525 MSP: 24202

---------- EVENTS ----------

TIME	KWH	Description
12:07:26	0067700	Ladle Weigth
12:07:23	0067700	End Tapping
12:04:07	0067700	Start Tapping
11:58:13	0067700	Burners Off
11:52:15	0067700	Power Off
11:38:24	0045000	Material Addition
11:32:32	0035500	Power On
11:32:01	0035400	Power Off
11:31:31	0034700	Charge
11:31:29	0034700	Charge
11:21:45	0022100	Power On
11:18:04	0022100	Power Off
11:16:06	0019400	Power On
11:15:31	0019300	Power Off
11:10:58	0012400	Power On
11:10:41	0012400	Power Off
11:07:10	0008200	Power On
10:42:09	0008200	Power Off
10:42:00	0008000	Material Addition
10:40:02	0005000	Burners On
10:39:00	0003300	Material Addition
10:35:12	0000000	Melting
10:35:10	0000000	Power On
09:49:42	0000000	TurnAround

03/25/2004 13:01 FAX 563 381 5406 IPSCO STEEL INC.

03/25/2004 13:05 FAX 563 381 5406 IPSCO STEEL INC. 013/020

IPSCO STEEL INC.
Montpelier Works

HEAT: B4C527 MSP: 12203

EVENTS

TIME	KWH	Description
18:01:41	0066100	Ladle Weigth
18:01:38	0066100	End Tapping
17:56:10	0066100	Start Tapping
17:54:51	0066100	Burners Off
17:44:21	0066100	Power Off
17:17:36	0024100	Power On
17:17:24	0024000	Power Off
17:15:13	0021400	Material Addition
17:12:14	0019200	Power On
16:55:58	0019200	Charge
16:53:46	0019200	Power Off
16:50:33	0014200	Power On
16:50:23	0014200	Power Off
16:45:23	0006800	Burners On
16:43:54	0004500	Material Addition
16:40:24	0000200	Material Addition
16:39:49	0000000	Melting
16:39:47	0000000	Power On
16:38:04	0000000	Material Addition
16:13:41	0000000	Charge
16:05:32	0000000	TurnAround

Meltshop Production

From 3/2/2004 23:00:00 to 3/3/2004 23:00:00

Issue Date : 4/6/2004 08:49:34
Issued By : Operations Planning
PBL Name :003 Production_Reporting.pbl Created Date : 03/19/2
Report Name :r_prod_a_meltshop_new Version : 2.0

Seq Id	Heat Id	Heat Order Id	Grade	Melt Practice	Tap Complete Time	Charge Weight	Slab Wgt.	Ht Abort Flag	Pourback Heat Id	Pourback Heat Wgt
C40005	A4C024	1110203	A/SA36A709	25190	03/02/2004 23:32:32	190.33	157.61	Yes		
C40005	B4C521	1110204	A/SA36A709	25190	03/03/2004 00:52:33	183.58	126.16	Yes		
C40005	A4C025	1110205	A/SA36A709	25190	03/03/2004 02:05:53	189.95	161.51	Yes		
C40005	A4C026	1082002	44W/A36	24202	03/03/2004 03:50:23	175.58	160.35	Yes		
Percent Yield:	83.4%	Total Scrap Charged:	739.43	Average Scrap Charge:	184.86					
Heats in Sequence:	4	Total Tons Tapped:	616.90	Average Tap Weight:	154.23					
Slabs Cast:	19	Tundish Skull:	3.47	Crop Loss:	2.35					
Slab Weights:	605.63	Pit Scrap:	5.20	Kerf / Sample Loss:	0.25					
C40006	B4C522	1082001	A/SA36A709	24202	03/03/2004 05:30:37	177.03	160.98	Yes		
C40006	A4C027	1082003	A/SA36A709	24202	03/03/2004 06:29:38	176.80	171.99	Yes		
C40006	B4C523	1082004	A/SA36A709	24202	03/03/2004 07:24:06	171.78	171.79	Yes		
C40006	A4C028	1082005	A/SA36A709	24202	03/03/2004 08:58:36	174.25	137.44	Yes		
C40006	B4C524	1082006	A/SA36A709	24202	03/03/2004 09:48:36	183.60	134.98	Yes		
C40006	A4C029	1082007	A/SA36A709	24202	03/03/2004 11:19:42	194.28	172.54	Yes		
C40006	B4C525	1082008	A/SA36A709	24202	03/03/2004 12:07:20	175.48	165.14	Yes		
Percent Yield:	90.1%	Total Scrap Charged:	1,253.20	Average Scrap Charge:	179.03					
Heats in Sequence:	7	Total Tons Tapped:	1,129.68	Average Tap Weight:	161.38					
Slabs Cast:	33	Tundish Skull:	3.09	Crop Loss:	2.38					
Slab Weights:	1,114.86	Pit Scrap:	9.10	Kerf / Sample Loss:	0.25					
C40007	A4C030	1120701	A/SA36A709	12203	03/03/2004 13:30:46	182.78	167.75	Yes		
C40007	A4C031	1120703	A/SA36A709	12203	03/03/2004 15:31:20	172.80	167.54	Yes		
C40007	B4C526	1120702	A/SA36A709	12203	03/03/2004 16:04:27	171.23	134.16	Yes		
C40007	A4C032	1120704	A/SA36A709	12203	03/03/2004 17:13:39	181.45	167.64	Yes		
C40007	B4C527	1120705	A/SA36A709	12203	03/03/2004 18:01:36	172.28	158.50	Yes		
C40007	A4C033	1120706	A/SA36A709	12203	03/03/2004 19:57:36	195.30	163.74	Yes		
Percent Yield:	90.4%	Total Scrap Charged:	1,075.83	Average Scrap Charge:	179.30					
Heats in Sequence:	6	Total Tons Tapped:	973.02	Average Tap Weight:	162.17					
Slabs Cast:	30	Tundish Skull:	3.17	Crop Loss:	2.47					
Slab Weights:	959.33	Pit Scrap:	7.80	Kerf / Sample Loss:	0.25					
C40008	B4C528	1034901	X65	97058	03/03/2004 20:45:48	172.23	187.41	Yes		
Percent Yield:	109.6%	Total Scrap Charged:	172.23	Average Scrap Charge:	172.23					
Heats in Sequence:	1	Total Tons Tapped:	188.71	Average Tap Weight:	188.71					
Slabs Cast:	5	Tundish Skull:	0.00	Crop Loss:	0.00					
Slab Weights:	187.41	Pit Scrap:	1.30	Kerf / Sample Loss:	0.00					

Production Period Summary:

Percent Yield:	89.78%	Total Scrap Charged:	3,240.68	Average Scrap Charge:	180.04
Total Heats Tapped:	18	Total Liquid Metal Tapped:	2,909.62	Average Tap Weight:	161.65
		Total Castor Losses:	42.39		
Total Slab Casts:	87	Total Tundish Loss:	9.73	Total Pit Scrap Loss:	24.70
Total Slab Weights:	2,867.23	Total Crop Loss:	7.21	Total Sample / Kerf Loss:	0.75

* Estimated - heats have not been cast.

DAILY PRODUCTION REPORT - through 03/03/04
IPSCO STEEL (Iowa) Inc. - Revised Copy

	Daily		MTD		YTD		Product Yield		
	Units	Tons	Units	Tons	Units	Tons	Daily	MTD	YTD
Meltshop									
Heats Tapped	18		62		1,237				
Scrap Charge Tons		3,240.7		10,755.5		219,474.4			
Liquid Metal Tapped		2,909.6		9,933.4		197,886.3			
less: Tapped Pourback		0.0		0.0		50.0			
Metal Available to Caster		2,909.6		9,933.4		197,836.3	89.8%	92.4%	90.1%
Caster									
INPUT									
Heats Cast	19		64		1,243				
Heats Aborted	0		0		0				
Total	19	3,071.9	64	10,183.3	1,243	197,994.2			
OUTPUT									
Prime Slabs	94	3,029.5	361	10,046.4	6,823	195,010.7	98.6%	98.7%	98.5%
SCRAP									
Scrap Slabs	0	0.0	0	0.0	0	0.0	0.0%	0.0%	0.0%
Process Losses		42.4		136.9		2,983.5	1.4%	1.3%	1.5%
Total Scrap		42.4		136.9		2,983.5	1.4%	1.3%	1.5%
DIRECT CHARGE									
Direct Chargeable	65	2,144.7	240	6,461.9	3,569	104,502.7	70.8%	64.3%	53.6%
Direct Charged	55	1,827.8	145	4,071.1	2,165	63,953.8	85.2%	63.0%	61.2%
Rolling Mill - Light Plate									
SLAB INPUT	0	0.0	11	280.2	543	16,733.8			
OUTPUT									
Semi-Finished Plates	0	0.0	37	274.5	1,637	16,353.8		98.0%	97.7%
SCRAP									
Scrap Plates	0	0.0	0	0.0	2	46.2		0.0%	0.3%
Process Losses		0.0		5.6		333.8		2.0%	2.0%
Total Scrap		0.0		5.6		380.0		2.0%	2.3%
Rolling Mill - Heavy Plate									
SLAB INPUT	135	4,148.3	302	8,771.9	3,154	92,646.3			
OUTPUT									
Semi-Finished Plates	172	4,065.3	374	8,571.0	4,378	90,697.2	98.0%	97.7%	97.9%
SCRAP									
Scrap Plates	0	0.0	1	25.9	4	124.8	0.0%	0.3%	0.1%
Process Losses		83.0		175.0		1,824.3	2.0%	2.0%	2.0%
Total Scrap		83.0		200.9		1,949.1	2.0%	2.3%	2.1%
Rolling Mill - Coil									
SLAB INPUT	0	0.0	66	1,684.5	2,507	71,804.7			
OUTPUT									
Hold Coils	0	0.0	11	277.3	183	4,857.9		16.5%	6.8%
Prime Coils	0	0.0	55	1,337.2	2,304	63,522.2		79.4%	88.5%
Prime Sub Total	0	0.0	66	1,614.5	2,487	68,380.0		95.8%	95.2%
Commercial Coils	0	0.0	0	0.0	4	113.7		0.0%	0.2%
Coil Reclaim				8.8		230.2		0.5%	0.3%
Adjusted Prime Coils		0		1,605.7		68,149.6		95.3%	94.9%
SCRAP									
Scrap Coils	0	0.0	0	0.0	16	402.2		0.0%	0.6%
Process Losses		0.0		70.0		2,908.7		4.2%	4.1%
Total Scrap		0.0		78.8		3,541.2		4.7%	4.9%
Rolling Mill - Summary									
Total Slabs Rolled	135	4,148.3	379	10,736.6	6,204	181,184.8			
Rolling Mill Output		4,065.3		10,460.0		175,431.0			
Average Slab Weight									
Plate		30.7		28.9		29.6			
Coil				25.5		28.6			
Finished Prime Tons									
Light Plate	0	0.0	557	260.8	12,817	15,755.8			
Heavy Plate	1,214	3,865.1	2,795	8,072.6	31,723	86,495.6			
Coil	0	0.0	66	1,614.5	2,487	68,380.0			
Total Prime Tons	1,214	3,865.1	3,418	9,953.9	47,027	170,631.4			

03/03/2004 16:19:34

04-28-04

2.11

EMISSION TEST REPORT

IPSCO STEEL, INC.
Muscatine, Iowa

Second Quarter 2004 Oxides of Nitrogen Test

April 28, 2004

RECORD COPY

File Name C0410-1 TO-04-002

Senders Initials MJ

TEST

Prepared By:

AAS Inc

Ambient Air Services, Inc.

106 Ambient Airway • Starke, FL 32091 • (904) 964-8440 • Fax (904) 964-6675

LELAP Accredited Laboratory Certification Number 04064

LELAP Agency Interest Number 100329

ipsco

May 14, 2004

Iowa Department of Natural Resources
Air Quality Bureau
Stack Test Coordinator
7900 Hickman Road
Suite 1
Urbandale, IA 50322

Re: IPSCO Steel Inc. – Montpelier, Iowa
Permit #94-A-548-S3
2nd Quarter NOx Test

Mr. Stone:

Enclosed, please find the second quarter NOx test report as required by the above-mentioned permit. If you have any questions or concerns please feel free to contact me at (563)381-5584.

Sincerely,
IPSCO Steel Inc.

Stephanie J. Kreiter
Environmental Coordinator

Richard Acquaviva – Letter only
Wayne Schmidt – Letter only
Tom Toner – Letter only
Joe Wesselman – Letter only

ipsco steel inc.

1770 Bill Sharp Boulevard, Muscatine, Iowa 52761
Phone (563) 381-5300 Fax (563) 381-5329

RECEIVED
MAY 17 2004

CERTIFICATION

Ambient Air Services, Inc. of Starke, Florida, has completed the testing as described in this report for IPSCO Steel Inc.'s Montpelier Works facility. To the best of our knowledge and abilities, all information, facts, and test data are true and correct. Information supplied to AASI for use in this report from IPSCO Steel is perceived to be accurate and is used as such where necessary.

This report contains pages i through iv, and pages 1 through 75.

This report was prepared and reviewed by:

Joseph L. Cooksey, Project Manager — Date: 5/11/04

David C. Sholtes, Report Review — Date: 5-11-04

Questions and or comments regarding this report or process conditions should be directed to:

Ms. Stephanie Kreiter
IPSCO Steel
1770 Bill Sharp Blvd.
Muscatine, IA 52761
Phone: 563-381-5584
Fax: 563-381-5406

Mr. Joseph L. Cooksey
Ambient Air Services, Inc.
106 Ambient Airway
Starke, FL 32091
Phone: 904-964-8440
Fax: 904-964-6675
Email: AASI@atlantic.net

RECEIVED
MAY 17 2004

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EXECUTIVE SUMMARY

Ambient Air Services, Inc. (AASI) conducted emission testing at the IPSCO Steel (Iowa) Facility located in Montpelier, Iowa. The testing included the determination of Oxides of Nitrogen emissions from the EAF/LMF Baghouse Stack.

The results, shown in Table 1, demonstrate compliance with the facilities oxides of nitrogen emission limitations as listed in permit number IDNR-94-A-548-S3.

TABLE 1

EMISSION TEST RESULTS
EXECUTIVE SUMMARY
IPSCO STEEL (IOWA), INC.
MONTPELIER, IOWA

April 28, 2004

SOURCE	PARAMETER	ALLOWABLE	TEST RESULTS
EAF/LMF Baghouse Stack	Oxides of Nitrogen (NOx) As (NO_2)	0.80 lbs/ton 700.8 tons/year	0.11 lbs/ton 77.7 tons/year*

*Tons per year based on 24 hours per day, 365 days per year at tested production/emission rate.

1.0 INTRODUCTION

1.1 General

IPSCO Steel (Iowa), Inc. contracted with Ambient Air Services, Inc. (AASI) to conduct emission testing on their EAF/LMF Baghouse Stack. The testing involved the determination of oxides of nitrogen (NOx) emissions.

The purpose of the testing was to satisfy specific requirements of the IDNR issued permit number 94-A-548-S3 for quarterly NOx testing.

Prior to the testing Mr. Mark Stone of IDNR was provided a Test Protocol and Notification of test dates. Mr. Stone approved the protocol prior to testing.

1.2 Test Participants

The personnel indicated in Table 1-2 participated in this project:

TABLE 1-2

NAME	AFFILIATION	RESPONSIBILITY
Joseph L. Cooksey	Ambient Air Services, Inc.	Project Manager
David C. Sholtes	Ambient Air Services, Inc.	Report Review
Jim Prochaska	IPSCO	Environmental Coordinator
Mark Stone	IDNR	State of Iowa Observer

1.3 Summary of Testing Conducted

TABLE 1-3

SUMMARY OF TESTING CONDUCTED
IPSCO STEEL (IOWA), INC.
MONTPELIER, IOWA

APRIL 28, 2004

SOURCE	PARAMETER	USEPA TEST METHODS	COMMENTS
EAF/LMF Baghouse Exhaust Stack	Oxides of Nitrogen (NOx)	40 CFR 60, Appendix A, Method 7E	3 Test Runs, Each Run 2 heats in duration
	Flow	40 CFR 60, Appendix A, Methods 1-4	1 Flow Traverse per NOx Test, Moisture by wet bulb/dry bulb, O_2/CO_2 assumed ambient (21% O_2, 0% CO_2).

2.0 TEST METHODOLOGIES

2.1 Flow and Moisture

Flow and moisture were determined in accordance with USEPA Methods 1-2 as published in 40 CFR 60 Appendix A.

One flow traverse was conducted per NOx test run.

The Oxygen and Carbon Dioxide levels were assumed to be ambient conditions, (O_2 and CO_2 were 21% and 0%).

Moisture was determined using a wet bulb/dry bulb technique. The wet bulb/dry bulb readings were taken once per flow traverse.

2.2 Oxides of Nitrogen

Oxides of Nitrogen from this facility were measured using USEPA Method 7E as published in 40 CFR 60, Appendix A. Table 2-1 shows the specifications of Method 7E compared to those presented by the instrument manufacturer. For this test a TEI Model 42 was used. The instrument was calibrated over a nominal range of 0-50 ppm.

Results from the test were reported in mass per unit of production. All NOx ($NO + NO_2$) was reported as NO_2.

At the beginning of the test the NOx system was calibrated using zero, 25 and 45 ppm USEPA Protocol gas standards. At the completion of each test run the system was checked at zero and 25 ppm.

The sampling system is shown in Figure 3-1.

Data from the NOx analyzer was recorded using a computerized data logging system. The data recorder took a reading each second and averaged these readings into 1 minute data points. All test data is included in the appendix section of this report.

TABLE 2-1

OXIDES OF NITROGEN SYSTEM PERFORMANCE SPECIFICATIONS METHOD 7E VS THERMO ENVIRONMENTAL INSTRUMENTS MODEL 42		
	METHOD 7E	**TEI 42**
Calibration error zero, mid and high gases	Less than ±2% span	±1% of full scale
Sampling system bias for zero, mid and high gases	Less than ±5% span	±1% of full scale
Zero Drift	Less than ±3% of span over the run period	Negligible
Calibration Drift	Less than ±3% of span over the run period	±1% of full scale

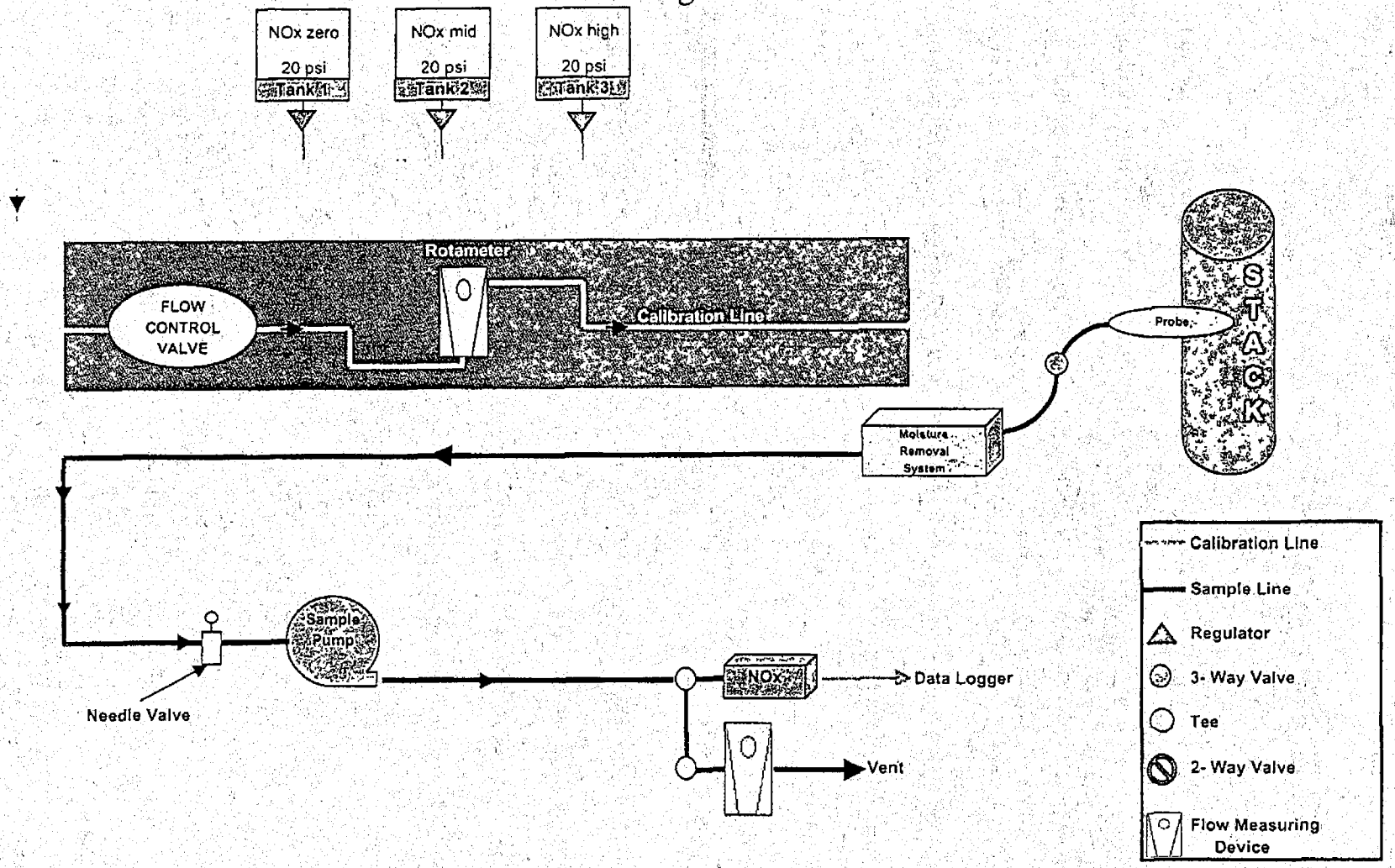
3.0 PROCESS DESCRIPTION

Electric arc furnaces (EAF) are used to produce carbon and alloy steels. The input material to an EAF is typically 100 percent scrap. Cylindrical, refractory lined EAF's are equipped with carbon electrodes to be raised or lowered through the furnace roof. With electrodes retracted, the furnace roof can be rotated aside to permit the charge of scrap steel by overhead crane. Lime and charge carbon are added to the charge buckets, alloying agents and materials are added during the tapping process. Electric current of the opposite polarity electrodes generates heat between the electrodes and through the scrap. After melting and refining periods, the slag and steel are poured from the furnace by tilting.

The production of steel in an EAF is a batch process. Cycles, or "heats", range from about 45 to 90 minutes to produce carbon steel. Scrap steel is charged to begin a cycle, and alloying agents and slag materials are added for refining. Stages of each cycle normally are charging and melting operations, refining (which usually includes oxygen blowing), and tapping.

SAMPLE SYSTEM SCHEMATIC

Figure 3-1



4.0 RESULTS

The results from this testing demonstrate compliance with the permit limitations at the time of testing on April 28, 2004.

The results are summarized in Table 4-1.

Table 4 - 1

AASI

Oxides of Nitrogen (NO_X) Emissions Summary
USEPA Method 7E (40 CFR Part 60 Appendix A)
Ipsco Steel (Iowa), Inc.
Montpeliar, Iowa
IDNR Permit Number 94-A-548-S3
April 28, 2004

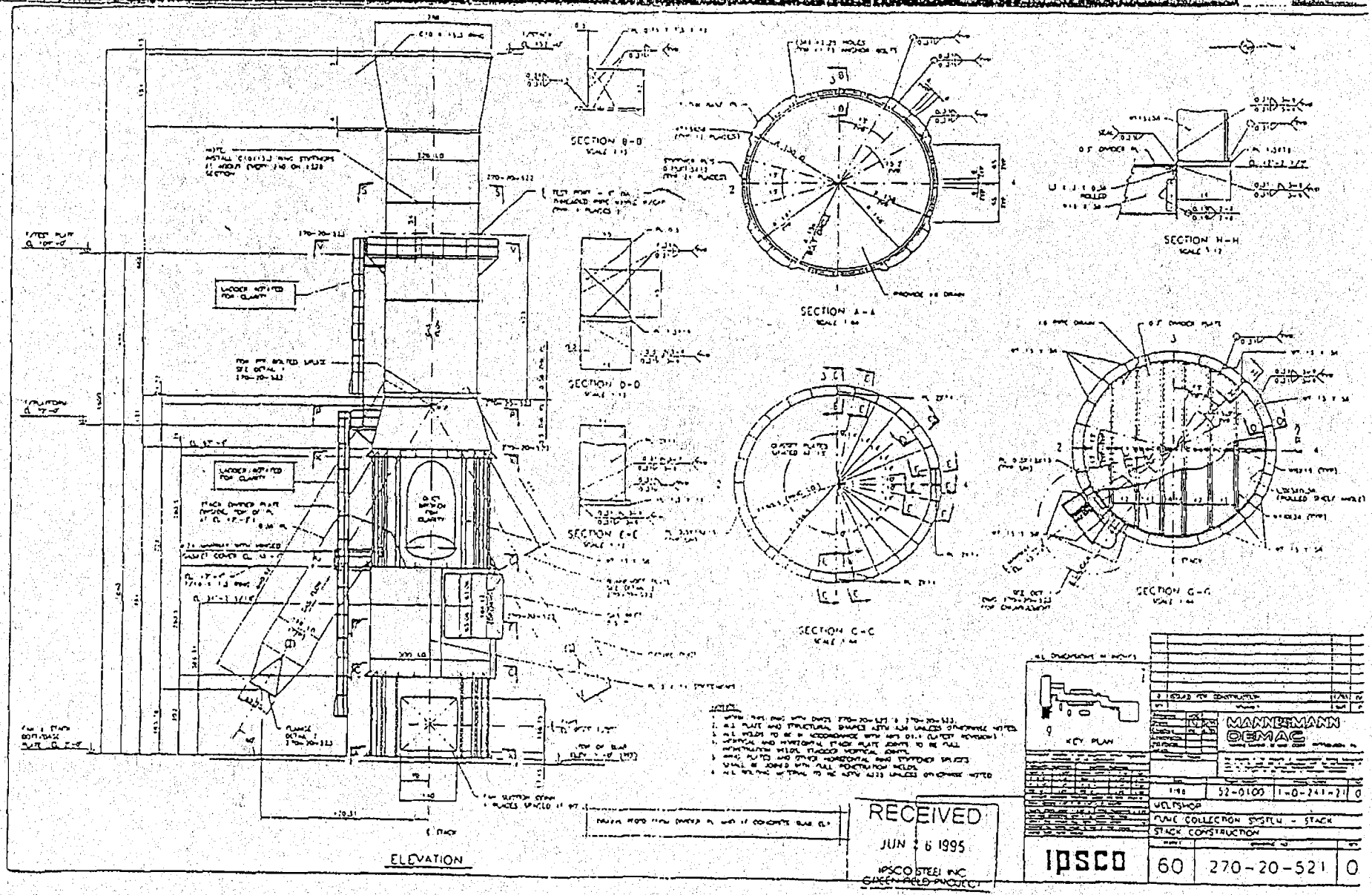
Run			Concentration	Volumetric Flow Rates	Production	Mass Emissions (as NO_2)	
Date	Number	Time (CDT)	ppm-v/v	SCFM-Dry	Tons per Hour	Pounds per Hour	Pounds per Ton
4/28/2004	1	9:45 11:44	3.3	607746	163.2	14.37	0.09
4/28/2004	2	11:58 13:41	4.3	623966	166.8	19.23	0.12
4/28/2004	3	13:52 16:05	4.1	668295	164.5	19.64	0.12
Average			3.9	633336	164.8	17.75	0.11

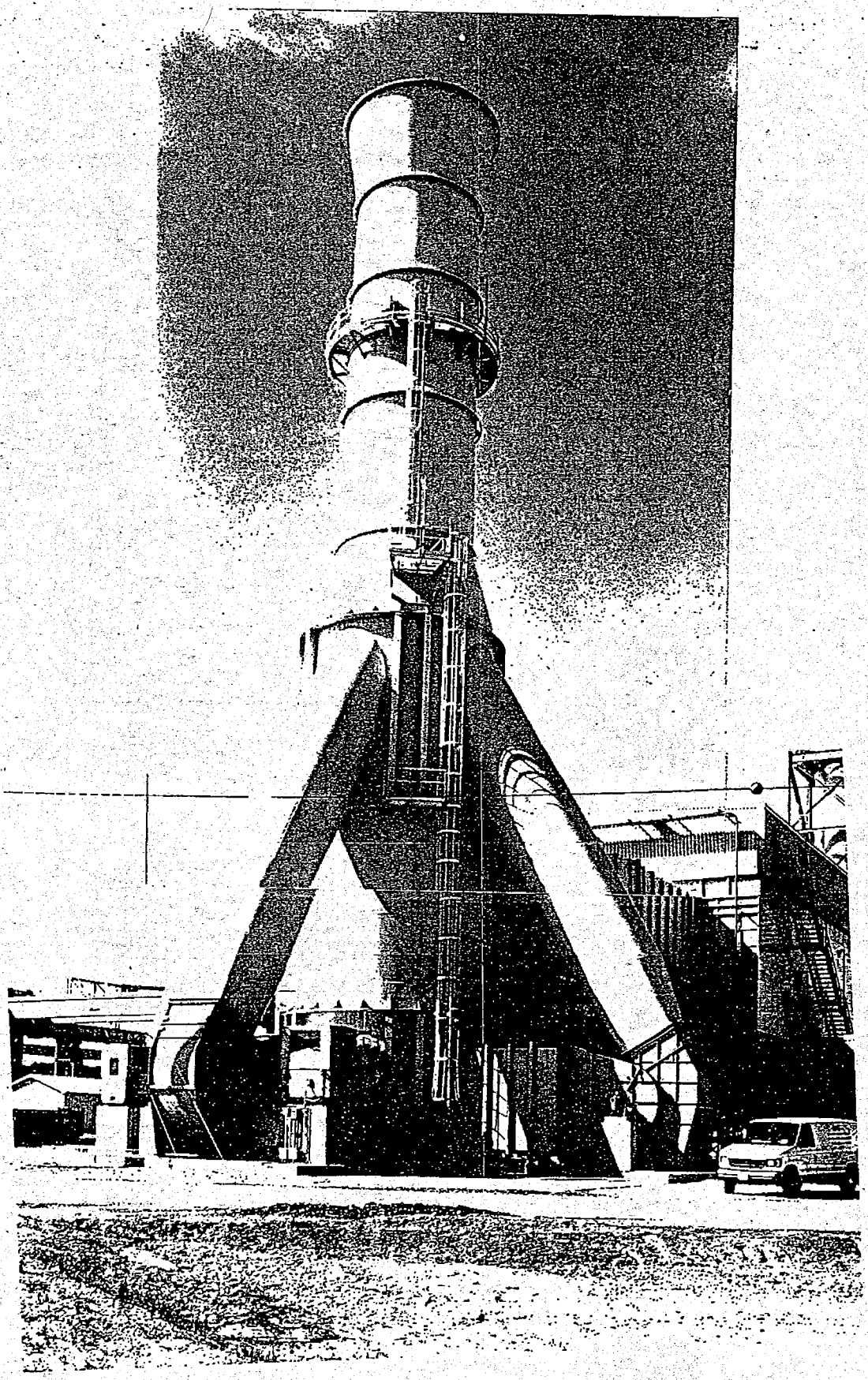
APPENDICES

APPENDIX A	STACK DIAGRAM - EAF/LMF
APPENDIX B	DIRECTIONS AND MAP TO SITE IDNR PRE-TEST QUESTIONS AND TEST PROTOCOL
APPENDIX C	FLOW INFORMATION
APPENDIX D	NOx DATA
APPENDIX E	FACILITY OPERATING DATA

APPENDIX A

STACK DIAGRAM - EAF/LMF


SECTION B-B
SECTION A-A
SECTION H-H
SECTION D-D
SECTION E-E
SECTION C-C
SECTION G-G
ELEVATION
KEY PLAN
RECEIVED
JUN 26 1995
IPSCO STEEL INC
QUEEN CITY PROJECT
MANNESMANN DEMAG
WELDSHOP
DUST COLLECTION SYSTEM - STACK
STACK CONSTRUCTION
ipsco
60
270-20-521
0



APPENDIX B

DIRECTIONS AND MAP TO SITE
IDNR PRETEST QUESTIONS AND TEST PROTOCOL

Directions to IPSCO

From Quad City Airport:

From Airport exit, turn right and follow signs to I-74 North

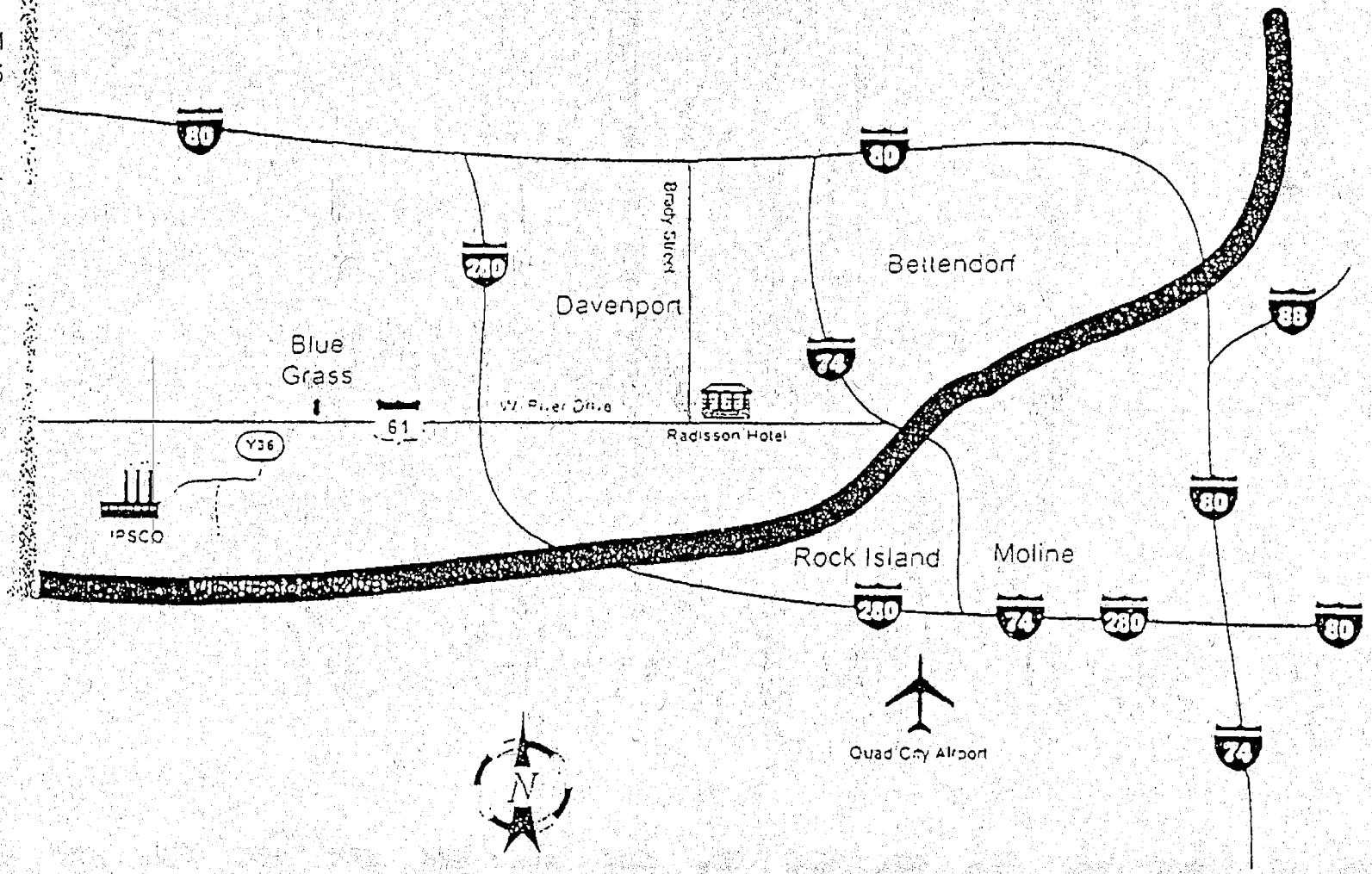
Take I-74 North to I-280 exit; proceed west to Highway 61 South exit

Proceed on Highway 61 to Y-36 (Zachary Av) - 5 miles; see following note

From Highway 61:

Proceed south on Y-36 (Zachary Av) 2-3 miles

Do not turn where Y-36 branches to the south; proceed straight to gate for auto entrance



PROPOSED TEST PLAN PROTOCOL

Company Name: IPSCO Steel (Plant Number 70-08-002)

Address: 1770 Bill Sharp Boulevard, Muscatine, IA 52761

Name and Title of Contact: Stephanie Kreiter

Address of Contact: 1770 Bill Sharp Boulevard, Muscatine, IA 52761

Telephone Number of Contact: (563) 381-5338

Proposed Test Date: Quarterly Starting March 5, 2003, April 30, 2003, July 9, 2003 and October 8,2003.

Source Information

Type of Source: EAF/LMF Baghouse Exhaust Stack

Identification of Source to be tested: Baghouse Exhaust Stack

Permit Number of Source: 94-A-548-S3

Address of Source: 1770 Zachary Avenue

Initial Startup Date: 1998

Testing Firm Information

Name of Firm: Ambient Air Services, Inc.

Address: 106 Ambient Air Way, Starke, Florida 32091

Name and Title of Contact: Joseph L. Cooksey, President

Telephone Number: (904) 964-8440

Number of Employees of Firm: 17

Number of Employees engaged in Air Pollution Source Testing (Including Support Personnel): 17

Location and Description of Laboratory Facilities: 106 Ambient Air Way, Starke, Florida
(Metals by Ppb Environmental Laboratories, 6821 S.W. Archer Road, Gainesville, FL)

Subcontractor(s) Utilized by firm for Source Testing Activities: None

Number of Air Pollution Sources Previously Tested by Firm: Testing since 1973

Types of Sources Previously Tested by Firm: Many different source types including heavy experience in Steel Industry.

PERFORMANCE TEST INFORMATION

List all pollutants to be sampled. 94-A-548-S3 - EAF / LMF Baghouse

	Pollutant	Number of Sampling Points	Total Time per Test Run	Number of Test Runs	Test Methods to be Used
1	NOx	1	2 heats	3	M 7E
2	Flow	24	N/A	3	1-4*
3*	VE	Meltshop Building	180 minutes	1	9

***VE Test will be conducted on March 5, 2003 only.**

For EPA Reference Method 5 or Iowa Method 5 tests, indicate the length of each run to collect 50 milligrams of sample. Use the estimated emissions after control as the stack gas concentration.

If the permitted emission standard or expected concentration of particulate is equal to or less than 0.005 grains per dry standard cubic foot (gr/dscf), an extended sampling time must be considered. When calculating the sample time, the length of each run should be such that a sample catch of 50 milligrams will be colleted. Should the sample catch be less than 10 milligrams after applying the above method, the test may be subject to rejection or a 10 milligrams sample weight may be assumed.

Include a description of any test procedures to be used in the conduct of the performance tests which differ from the specified method(s).

* Moisture using wet bulb/dry bulb

PROTOCOL SUPPLEMENT - OPERATING DATA

This form is to be filled out and returned with the test protocol.

Maximum Continuous Process Weight (Manufacturer's Rating): Existing - 164 TPH
Phase 1 - 200 TPH (Target Production for Test is Phase 1)
Phase 2 - 230 TPH

Historical Average Process Weight: Not yet established however plant is capable of up to 200 TPH but to date has achieved this for only short time periods.

Historical Maximum Process Weight:

Product Recycling Capability: Yes ____ (Heel) No X

Type of Sources of Fuels Normally Burned: Electric arc 420 KWH, 200 cu.ft. natural gas, 400 cu.ft. oxygen + 1200-1400 cu.ft. oxygen per liquid ton of steel.

Type of Control Equipment: Baghouse

Range of Pressure Drop Across Control Equipment: 4-6 Currently operating at Inches of Water

Person Responsible For This Data: Stephanie Kreiter

Person Responsible For Collecting Process Data During Actual Testing: Stephanie Kreiter

Complete and submit one of these forms for each test to be conducted. This information is especially important the determine to operating conditions of the equipment under which the tests will be conducted. The tests must be conducted while operating at maximum capacity or the highest capacity which this source will be operated. Failure to test at the permitted capacity may result in derating this source.

This information is also required to be submitted on the forms found at the end of the protocol package. These two forms, the Compliance Emission Test Operating Data and the Air Pollution Control Equipment Operating Data forms, must be filled out with the data collected on the actual date of the tests. Failure to complete the forms on the day of the testing may be cause for rejecting the tests.

APPENDIX C

FLOW INFORMATION

-Data Printouts
-Field Data Sheets
-Pitot Tube Calibration
-Thermocouple Calibration
-Magnehelic Calibration
-Wet Bulb/Dry Bulb Chart

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

PM Summary Run 1

Facility	IPSCO Steel (Iowa) Inc.	Impinger Condensate	N/A
Location	Montpeliar, Iowa	Silica Gel Condensate	N/A
Stack	EAF Baghouse	Volume Metered	N/A
Run Date	4/28/2004	Meter Temp (Deg R)	460.0
Run Number	1	CO2 %	0.0
Start Time	11:20	O2 %	20.9
Finish Time	11:36	CO %	0.0
Weather	clear and windy	N %	79.1
Total Time (min.)	N/A	Condensate Volume	N/A
Barometric Pressure	28.8	Delta H (inches H2O)	N/A
Stack Diameter (in.)	228.00	Stack Pressure	28.762
Stack Area sq. ft.	283.529	Stack Temp (Deg R)	672.8
Nozzle Area sq. ft.	N/A	Filter Weight (gm)	N/A
Number of Points	24	Prefilter Weight (gm)	N/A
Avg of SQRT of V.H.	0.7443	Total Particulate (gm)	N/A
Meter Correction (Y)	N/A		
Nozzle Diameter	N/A		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		N/A
Gas Volume Sampled, STPD		N/A
Total Volume, STP		N/A
Moisture in stack gas, volume fraction		0.020
Dry Stack Gas, volume fraction		0.98
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		28.62
Specific gravity of Stack Gas Relative to Air		0.987
Excess Air (%)		14864.9
Average Stack Velocity, FPM		2899.3
Actual Stack Gas Flow Rate, ACFM		822036
Actual Stack Gas Flow Rate, (Dry) ACFMD		805595
Stack Gas Flow Rate, SCFMD		607746
Stack Gas Flow Rate Wet, SCFMW		620149
Percent Isokinetic		N/A
Stack Emissions:	Grains/DSCF	N/A
	Lbs/Hr	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

Data Request Entry Area	PM Run 1
Facility	IPSCO Steel (Iowa) Inc.
Location	Montpeliar, Iowa
Source	EAF Baghouse
Date	04/28/04
Run Number	1
Start Time	11:20
Finish Time	11:36
Weather	clear and windy
Total Time (min)	N/A
Number of Points	24
Barometric Pressure	28.80
Static Pressure ("H20)	-0.52
Stack Diameter (inches)	228.00
Nozzle Diameter (in.)	N/A
Meter Y Factor	N/A
Pitot Factor	0.84
Final Meter Reading	N/A
Initial Meter Reading	N/A
Condensate (ml)	N/A
Silica Gel Weight (gm)	N/A
CO2	0.0
O2	20.9
CO	0.0
N2	79.1
Filter Weight (gm)	N/A
Prefilter Weight (gm)	N/A
Meter Factor	N/A

Ambient Air Services, Inc.
Environmental Consultants

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Starke, FL. 32091
(904) 964-8440

Field Data Points - PM Run 1							
Port	Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter In ' F	Meter Out 'F	Sq Rt VH
1	1	0.6		205			0.7746
	2	0.55		208			0.7416
	3	0.68		210			0.8246
	4	0.68		212			0.8246
	5	0.7		213			0.8367
	6	0.62		207			0.7874
2	1	0.6		215			0.7746
	2	0.68		220			0.8246
	3	0.75		221			0.8660
	4	0.78		221			0.8832
	5	0.75		222			0.8660
	6	0.7		220			0.8367
3	1	0.55		210			0.7416
	2	0.42		212			0.6481
	3	0.32		215			0.5657
	4	0.32		215			0.5657
	5	0.41		216			0.6403
	6	0.3		208			0.5477
4	1	0.48		205			0.6928
	2	0.39		212			0.6245
	3	0.66		215			0.8124
	4	0.55		215			0.7416
	5	0.55		210			0.7416
	6	0.49		201			0.7000

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Environmental Consultants

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Starke, FL. 32091
(904) 964-8440

PM Summary Run 2

Facility	IPSCO Steel (Iowa) Inc.	Impinger Condensate	N/A
Location	Montpeliar, Iowa	Silica Gel Condensate	N/A
Stack	EAF Baghouse	Volume Metered	N/A
Run Date	4/28/2004	Meter Temp (Deg R)	N/A
Run Number	2	CO2 %	0.0
Start Time	12:50	O2 %	21.0
Finish Time	13:05	CO %	0.0
Weather	clear, warm, windy	N %	79.0
Total Time (min.)	N/A	Condensate Volume	N/A
Barometric Pressure	28.8	Delta H (inches H2O)	N/A
Stack Diameter (in.)	228.00	Stack Pressure	28.772
Stack Area sq. ft.	283.529	Stack Temp (Deg R)	653.3
Nozzle Area sq. ft.	N/A	Filter Weight (gm)	N/A
Number of Points	24	Prefilter Weight (gm)	N/A
Avg of SQRT of V.H.	0.7529	Total Particulate (gm)	N/A
Meter Correction (Y)	N/A		
Nozzle Diameter	N/A		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		N/A
Gas Volume Sampled, STPD		N/A
Total Volume, STP		N/A
Moisture in stack gas, volume fraction		0.020
Dry Stack Gas, volume fraction		0.98
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		28.62
Specific gravity of Stack Gas Relative to Air		0.987
Excess Air (%)		150000.0
Average Stack Velocity, FPM		2889.4
Actual Stack Gas Flow Rate, ACFM		819229
Actual Stack Gas Flow Rate, (Dry) ACFMD		802844
Stack Gas Flow Rate, SCFMD		623966
Stack Gas Flow Rate Wet, SCFMW		636700
Percent Isokinetic		N/A
Stack Emissions:	Grains/DSCF	N/A
	Lbs/Hr	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

Data Request Entry Area	PM Run 2
Facility	IPSCO Steel (Iowa) Inc.
Location	Montpeliar, Iowa
Source	EAF Baghouse
Date	04/28/04
Run Number	2
Start Time	12:50
Finish Time	13:05
Weather	clear, warm, windy
Total Time (min)	N/A
Number of Points	24
Barometric Pressure	28.80
Static Pressure ("H20)	-0.38
Stack Diameter (inches)	228.00
Nozzle Diameter (in.)	N/A
Meter Y Factor	N/A
Pitot Factor	0.84
Final Meter Reading	N/A
Initial Meter Reading	N/A
Condensate (ml)	N/A
Silica Gel Weight (gm)	N/A
CO2	0.0
O2	21.0
CO	0.0
N2	79.0
Filter Weight (gm)	N/A
Prefilter Weight (gm)	N/A
Meter Factor	N/A

Ambient Air Services, Inc.
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Starke, FL. 32091
(904) 964-8440

Field Data Points - PM Run 2

Port	Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter In ' F	Meter Out 'F	Sq Rt VH
1	1	0.55		198			0.7416
	2	0.52		198			0.7211
	3	0.75		198			0.8660
	4	0.77		198			0.8775
	5	0.88		198			0.9381
	6	0.72		198			0.8485
2	1	0.65		196			0.8062
	2	0.73		197			0.8544
	3	0.85		200			0.9220
	4	0.9		201			0.9487
	5	0.85		201			0.9220
	6	0.95		201			0.9747
3	1	0.49		187			0.7000
	2	0.4		190			0.6325
	3	0.42		191			0.6481
	4	0.39		192			0.6245
	5	0.4		193			0.6325
	6	0.33		193			0.5745
4	1	0.48		183			0.6928
	2	0.45		183			0.6708
	3	0.4		184			0.6325
	4	0.4		185			0.6325
	5	0.38		186			0.6164
	6	0.35		187			0.5916

Ambient Air Services, Inc.
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(904) 964-8440

Volumetric Flow Calculations Worksheet

PM Summary Run 3

Facility	IPSCO Steel (Iowa) Inc.	Impinger Condensate	N/A
Location	Montpeliar, Iowa	Silica Gel Condensate	N/A
Stack	EAF Baghouse	Volume Metered	N/A
Run Date	4/28/2004	Meter Temp (Deg R)	N/A
Run Number	3	CO2 %	0.0
Start Time	15:20	O2 %	20.9
Finish Time	15:35	CO %	0.0
Weather	warm, clear, windy	N %	79.1
Total Time (min.)	N/A	Condensate Volume	N/A
Barometric Pressure	28.75	Delta H (inches H2O)	N/A
Stack Diameter (in.)	228.00	Stack Pressure	28.717
Stack Area sq. ft.	283.529	Stack Temp (Deg R)	658.1
Nozzle Area sq. ft.	N/A	Filter Weight (gm)	N/A
Number of Points	24	Prefilter Weight (gm)	N/A
Avg of SQRT of V.H.	0.8135	Total Particulate (gm)	N/A
Meter Correction (Y)	N/A		
Nozzle Diameter	N/A		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		N/A
Gas Volume Sampled, STPD		N/A
Total Volume, STP		N/A
Moisture in stack gas, volume fraction		0.025
Dry Stack Gas, volume fraction		0.975
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		28.57
Specific gravity of Stack Gas Relative to Air		0.986
Excess Air (%)		14864.9
Average Stack Velocity, FPM		3139.4
Actual Stack Gas Flow Rate, ACFM		890111
Actual Stack Gas Flow Rate, (Dry) ACFMD		867858
Stack Gas Flow Rate, SCFMD		668295
Stack Gas Flow Rate Wet, SCFMW		685431
Percent Isokinetic		N/A
Stack Emissions:	Grains/DSCF	N/A
	Lbs/Hr	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

Data Request Entry Area	PM Run 3
Facility	IPSCO Steel (Iowa) Inc.
Location	Montpeliar, Iowa
Source	EAF Baghouse
Date	04/28/04
Run Number	3
Start Time	15:20
Finish Time	15:35
Weather	warm, clear, windy
Total Time (min)	N/A
Number of Points	24
Barometric Pressure	28.75
Static Pressure ("H20)	-0.45
Stack Diameter (inches)	228.00
Nozzle Diameter (in.)	N/A
Meter Y Factor	N/A
Pitot Factor	0.84
Final Meter Reading	N/A
Initial Meter Reading	N/A
Condensate (ml)	N/A
Silica Gel Weight (gm)	N/A
CO2	0.0
O2	20.9
CO	0.0
N2	79.1
Filter Weight (gm)	N/A
Prefilter Weight (gm)	N/A
Meter Factor	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

Field Data Points - PM Run 3

Port	Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter In ' F	Meter Out 'F	Sq Rt VH
1	1	0.65		208			0.8062
	2	0.75		214			0.8660
	3	0.8		216			0.8944
	4	0.98		216			0.9899
	5	1.05		216			1.0247
	6	0.78		213			0.8832
2	1	1.05		202			1.0247
	2	1.1		204			1.0488
	3	1.1		203			1.0488
	4	0.92		202			0.9592
	5	0.95		201			0.9747
	6	0.9		200			0.9487
3	1	0.75		185			0.8660
	2	0.8		186			0.8944
	3	0.62		186			0.7874
	4	0.45		185			0.6708
	5	0.45		185			0.6708
	6	0.3		185			0.5477
4	1	0.45		186			0.6708
	2	0.38		187			0.6164
	3	0.3		191			0.5477
	4	0.35		193			0.5916
	5	0.35		195			0.5916
	6	0.36		195			0.6000

Ambient Air Services, Inc.
106 Ambient Airway
Starke, Florida 32091
(904) 964-8440

Velocity Traverse

Plant: IPSCO Steel IowA Date: 4/28/04

Source: IPSCO Baghouse Stack Barometric Pressure: 28.80 11:05

Stack Diameter: 228" Pitot ID 7C w/24"extension Thermocouple ID 3

Joe Cooksey / Doug Baker (SP)

Run 1			Run 2			Run 3 (28.75 BP)		
Static Pressure		-0.52	Static Pressure		-0.32 w/wind	Static Pressure		→0.45
Start	11:20		Start	1250		Start	1520	
Stop	11:35		Stop	1305		Stop	1535	
Traverse Point No.	Velocity Head	Stack Temp Deg F	Traverse Point No.	Velocity Head	Stack Temp Deg F	Traverse Point No.	Velocity Head	Stack Temp Deg F
1-1	0.60	205	1-1	0.55	198	1-1	0.65	208
2	0.55	208	2	0.52	198	2	0.75	214
3	0.68	210	3	0.75	198	3	0.80	216
4	0.68	212	4	0.77	198	4	0.98	216
5	0.70	213	5	0.88	198	5	1.05	216
6	0.62	207	6	0.72	198	6	0.78	213
2-1	0.60	215	2-1	0.65	196	2-1	1.05	202
2	0.68	220	2	0.73	197	2	1.10	204
3	0.75	221	3	0.85	200	3	1.10	203
4	0.78	221	4	0.90	201	4	0.92	202
5	0.75	222	5	0.85	201	5	0.95	201
6	0.70	220	6	0.95	201	6	0.90	200
3-1	0.55	210	3-1	0.49	187	3-1	0.75	185
2	0.42	212	2	0.40	190	2	0.80	186
3	0.32	215	3	0.42	191	3	0.62	186
4	0.32	215	4	0.39	192	4	0.45	185
5	0.41	216	5	0.40	193	5	0.45	185
6	0.30	208	6	0.33	193	6	0.30	185
4-1	0.48	205	4-1	0.48	183	4-1	0.45	186
2	0.39	212	2	0.45	183	2	0.38	187
3	0.66	215	3	0.40	184	3	0.30	191
4	0.55	215	4	0.40	185	4	0.35	193
5	0.55	210	5	0.38	186	5	0.35	195
6	0.49	201	6	0.35	187	6	0.36	195

AAS Inc. AMBIENT AIR SERVICES INCORPORATED
ENVIRONMENTAL CONSULTANTS

PITOT TUBE CALIBRATION MEASUREMENTS

DATE CALIBRATED 6-2-03 PITOT TUBE 7C

Pitot tube assembly level ? ✓ Yes ____ No

Pitot tube openings damaged? ____ Yes (explain below) ✓ NO

a1 = 0.6 degrees (< 10 deg) a2 = 0 degrees (< 10 deg)

b2 = 0.1 degrees (<5 deg) b1 = 0.5 degrees (<5 deg)

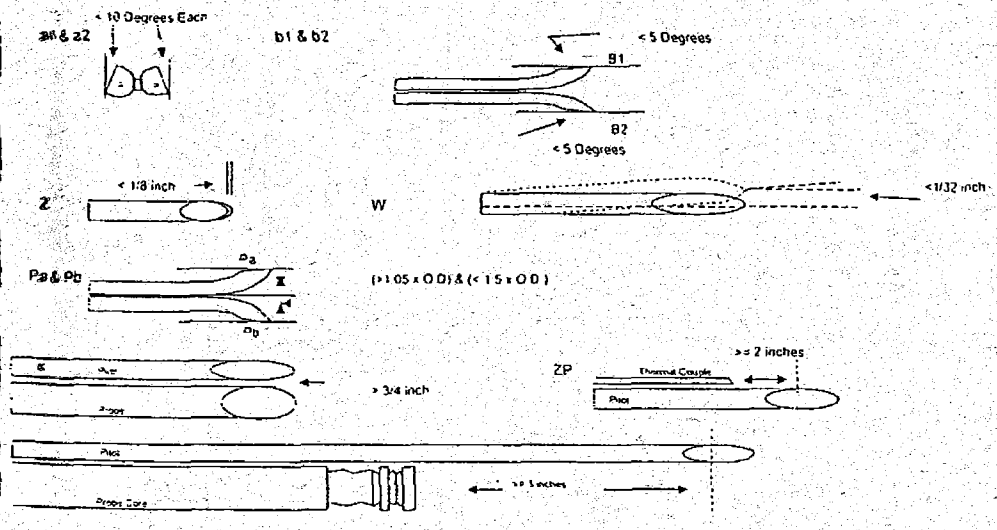
Y = 1.0 degrees θ = 1.2 degrees A = 1.105 inches = (Pa + Pb)

Pa = 0.552 Pb = 0.553 Dt = 0.371

z = A sin Y = 0.019 inches ; : / < 1/8 inches

w = A sin θ = 0.023 inches ; : / < 1/8 inches

Calibration required ? ____ Yes ✓ No



00042

AMBIENT AIR SERVICES, INC.
106 Ambient Air Way
Starke, Florida

THERMOCOUPLE CALIBRATION FORM

00026

Date 6-2-03 Time 1400
Ambient Temperature 82 Source
Barometric Pressure 29.96 Source
Technician's Signature D. Scalter

Standard Thermometer Type Mercury
Manufacturer Fisher
Serial Number 09032
Pyrometer Manufacturer Atkins Model
Serial Number Ambient Meter Box

TEMPERATURE SOURCE (A)		Ice Bath			Ambient			Boiling H2O					
REFERENCE THERMOMETER	Actual Reading	33° F			82° F			212° F					
	Corrected Temperature												
CALIBRATED THERMOCOUPLE Serial Number	Location	Indicated Temp.	Difference (B)	Percent Diff. (C)	Indicated Temp.	Difference	Percent Diff.	Indicated Temp.	Difference	Percent Diff.	Indicated Temp.	Difference	Percent Diff.
7C	Stack	33	0		81	1	0.18	212	0				
HB#5	Filter	33	0		82	0		210	2				
#3 CB	Impinger	34	1		83	1		211	1				
Box 2	Meter In	34	1		82	0		212	0				
Box 2	Meter Out	33	0		82	0		211	1				

Comments:

Calibration Tolerances Stack = 1.5% of value, Filter Box = ±5.4°F, Impinger = ±2°F, Meter = ±5.4°F (40CFR Pt 60, App. A Method 5, and QA Handbook Section 3.4, Method 5, page 13, Rev. O)

(A) Type of calibration system used

(B) Reference - Indicated = Difference

(C) $\left[\frac{\text{(ref. temp. °F + 460) - (indicated temp. °F + 460)}}{\text{(reference temp. °F + 460)}}\right] \times 100$

AASI 68A

AMBIENT AIR SERVICES, INC.

MAGNEHELIC CALIBRATION FORM

MAGNEHELIC ID NO: R95

CALIBRATION MANOMETER ID NO: IN3

DATE: 12 Apr 2004

RECALIBRATION DUE: next use

CALIBRATOR: Jory

MANOMETER (INCHES WATER)	MAGNEHELIC (INCHES WATER) POSITIVE / NEGATIVE		% DIFFERENCE ABS ([(DISPLAYED VALUE - AUDIT VALUE) / AUDIT VALUE]) x 100 POSITIVE / NEGATIVE
0.0	0.0	0.0	0.0
0.5	0.5	0.5	0.0
1.0	1.0	1.0	0.0
1.5	1.5	1.5	0.0
2.0	2.0	2.0	0.0
2.5	2.5	2.5	0.0

Comments: _____

POSITIVE / NEGATIVE

AVERAGE PERCENT DIFFERENCE: 0.0

SIGNATURE: _____

QA REVIEW: David Shelton

AASI.53B

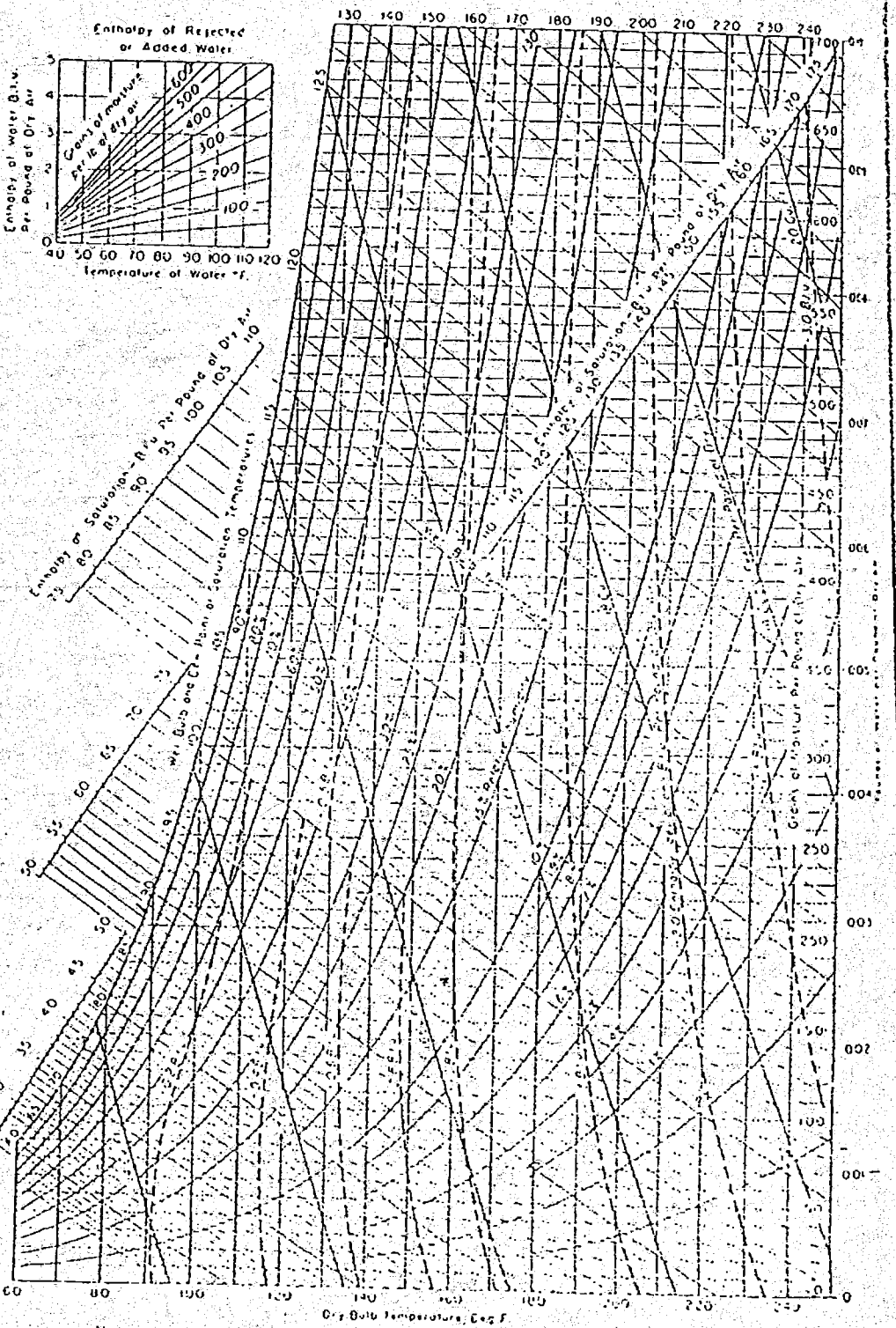


FIG. 4.4 Psychrometric chart—high temperatures. Barometric pressure, 29.92 in. of Hg

Pounds of water per pound of dry air

138
150/94

9/
130

APPENDIX D

NOx DATA

-Summary of Equipment Used
-Calibration Summary
-Data Logger Printout and Test Summary
-Example Calculations
-Calibration Gas Certificates
    25.1 NOx
    45.1 NOx

Ipsco Steel - Montpelier, Iowa
Meltshop Baghouse - Quarterly Oxides of Nitrogen Test
IDNR Permit Number 94-A-548-S3
April 28, 2004

Equipment List

Oxides of Nitrogen Instrument: **Manufacturer -** Thermo Environmental Instruments **Model -** 42
Serial Number - 33584-245
NOx Range - zero to 50 ppm

Calibration Gas Standards		Concentration	Manufacturer	Cylinder Number	Expiration Date	PSI
Zero	Zero	0.00	Air Gas UHP Air	N/A	N/A	1000
Mid	NOx	25.10	Spectra Gases	CC 135361	Feb-05	1700
High	NOx	45.10	Spectra Gases	CC 85252	Feb-05	1800

Description of Sampling System :
8' 1/4" SS probe to Tee to H_2O condenser to 200 feet 1/4" Teflon sample line to SS/Teflon pump to instruments
all calibration gases injected direct to probe Tee location
Sampling probe positioned in Baghouse Stack at test platform location.

Test Participants :
NOx Testing - Joe Cooksey - Ambient Air Services, Inc.

Other Comments :

Ipsco Steel - Montpelier, Iowa
Meltshop Baghouse - Quarterly Oxides of Nitrogen Test
IDNR Permit Number 94-A-548-S3
April 28, 2004

Calibration Sheet

Initial Calibration

Response Table

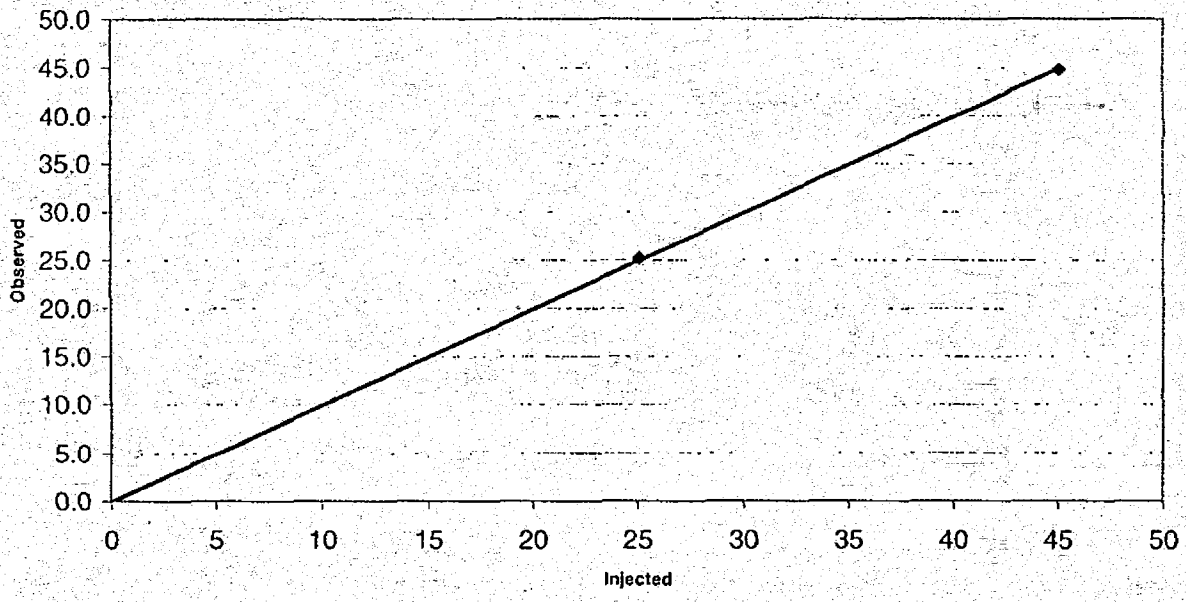
Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0		-0.2
NOx	25.1		25.2
NOx	45.1		44.8

% Error of Range Table

Inject (ppm)		Time	% Error of Range
Gas	Conc.		NOx
Zero	0	0:00	-0.40%
NOx	25.1	0:00	0.20%
NOx	45.1	0:00	-0.60%

Calibration Error Check
NOx

$y = 0.9984x - 0.0953$
$R^2 = 0.9999$



Ipsco Steel - Montpelier, Iowa
Meltshop Baghouse - Quarterly Oxides of Nitrogen Test
IDNR Permit Number 94-A-548-S3
April 28, 2004

Calibration Sheet

Calibration - Post Run 1

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0		-0.2
NOx	25.1		25.4

Drift Analysis From Initial Calibrations to the End of Run 1

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		NOx
Zero	0	0:00	0.00%
NOx	25.1	0:00	0.40%

Drift Variables for Run 1

Variable	NOx	
Co	-0.20	
Cm	25.30	
Cma	25.10	

Calibration - Post Run 2

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0		-0.20
NOx	25.1		25.50

Drift Analysis From Initial Calibrations to the End of Run 2

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		NOx
Zero	0	0:00	0.00%
NOx	25.1	0:00	0.60%

Drift Variables for Run 2

Variable	NOx	
Co	-0.20	
Cm	25.45	
Cma	25.1	

Ipsco Steel - Montpelier, Iowa
Meltshop Baghouse - Quarterly Oxides of Nitrogen Test
IDNR Permit Number 94-A-548-S3
April 28, 2004

Calibration Sheet

Calibration - Post Run 3

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0		-0.2
NOx	25.1		24.7

Drift Analysis From Initial Calibrations to the End of Run 3

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		NOx
Zero	0	0:00	0.00%
NOx	25.1	0:00	-1.00%

Drift Variables for Run 3

Variable	NOx	
Co	-0.20	
Cm	25.10	
Cma	25.1	

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

April 28, 2004

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
4/28/2004 8:03	-0.2		0 ppm cal				
4/28/2004 8:04	-0.2		0 ppm cal				
	-0.2		**0 ppm cal Average**				
4/28/2004 8:05	3.3						
4/28/2004 8:06	20.8						
4/28/2004 8:07	26.5						
4/28/2004 8:08	25.0						
4/28/2004 8:09	25.3						
4/28/2004 8:10	25.7						
4/28/2004 8:11	25.5		25.1 ppm cal				
	25.5		**25.1 ppm cal Average**				
4/28/2004 8:12	19.4						
4/28/2004 8:13	4.2						
4/28/2004 8:14	0.6						
4/28/2004 8:15	0.0						
4/28/2004 8:16	-0.2						
4/28/2004 8:17	-0.2						
4/28/2004 8:18	6.0						
4/28/2004 8:19	34.9						
4/28/2004 8:20	43.3						
4/28/2004 8:21	44.8		45.1 ppm cal				
4/28/2004 8:22	45.0		45.1 ppm cal				
4/28/2004 8:23	44.7		45.1 ppm cal				
	44.8		**45.1 ppm cal Average**				
4/28/2004 8:24	22.0						
4/28/2004 8:25	4.1						
4/28/2004 8:26	1.4						
4/28/2004 8:27	1.4		delay				
4/28/2004 8:28	1.4		delay				
4/28/2004 8:29	1.3		delay				
4/28/2004 8:30	0.4		delay				
4/28/2004 8:31	0.6		delay				
4/28/2004 8:32	1.0		delay				
4/28/2004 8:33	1.0		delay				
4/28/2004 8:34	0.9		delay				
4/28/2004 8:35	0.8		delay				
4/28/2004 8:36	0.9		delay				
4/28/2004 8:37	0.9		delay				
4/28/2004 8:38	0.8		delay				
4/28/2004 8:39	0.7		delay				
4/28/2004 8:40	0.8		delay				
4/28/2004 8:41	0.8		delay				
4/28/2004 8:42	0.8		delay				

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

April 28, 2004

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
4/28/2004 8:43	0.1		delay				
4/28/2004 8:44	0.0		delay				
4/28/2004 8:45	0.0		delay				
4/28/2004 8:46	0.0		delay				
4/28/2004 8:47	0.2		delay				
4/28/2004 8:48	0.3		delay				
4/28/2004 8:49	0.5		delay				
4/28/2004 8:50	0.6		delay				
4/28/2004 8:51	0.2		delay				
4/28/2004 8:52	0.0		delay				
4/28/2004 8:53	0.0		delay				
4/28/2004 8:54	0.0		delay				
4/28/2004 8:55	0.0		delay				
4/28/2004 8:56	0.0		delay				
4/28/2004 8:57	0.0		delay				
4/28/2004 8:58	0.1		delay				
4/28/2004 8:59	0.2		delay				
4/28/2004 9:00	0.1		delay				
4/28/2004 9:01	0.7		delay				
4/28/2004 9:02	0.5		delay				
4/28/2004 9:03	0.2		delay				
4/28/2004 9:04	0.1		delay				
4/28/2004 9:05	0.0		delay				
4/28/2004 9:06	0.2		delay				
4/28/2004 9:07	0.2		delay				
4/28/2004 9:08	0.3		delay				
4/28/2004 9:09	0.4		delay				
4/28/2004 9:10	3.9		delay				
4/28/2004 9:11	4.4		delay				
4/28/2004 9:12	2.2		delay				
4/28/2004 9:13	2.8		delay				
4/28/2004 9:14	3.5		delay				
4/28/2004 9:15	3.9		delay				
4/28/2004 9:16	4.2		delay				
4/28/2004 9:17	3.4		delay				
4/28/2004 9:18	1.8		delay				
4/28/2004 9:19	1.0		delay				
4/28/2004 9:20	0.9		delay				
4/28/2004 9:21	2.9		delay				
4/28/2004 9:22	5.5		delay				
4/28/2004 9:23	4.6		delay				
4/28/2004 9:24	3.2		delay				
4/28/2004 9:25	1.7		delay				

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

April 28, 2004

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
4/28/2004 9:26	1.8		delay				
4/28/2004 9:27	2.0		delay				
4/28/2004 9:28	1.9		delay				
4/28/2004 9:29	1.8		delay				
4/28/2004 9:30	1.6		delay				
4/28/2004 9:31	1.8		delay				
4/28/2004 9:32	2.1		delay				
4/28/2004 9:33	1.8		delay				
4/28/2004 9:34	1.6		delay				
4/28/2004 9:35	1.7		delay				
4/28/2004 9:36	1.5		delay				
4/28/2004 9:37	1.3		delay				
4/28/2004 9:38	7.7		delay				
	1.4		**delay Average**				
4/28/2004 9:39	21.0						
4/28/2004 9:40	25.4						
4/28/2004 9:41	25.3						
4/28/2004 9:42	25.2		25.1 ppm cal				
	25.2		**25.1 ppm cal Average**				
4/28/2004 9:43	13.9						
4/28/2004 9:44	4.0						
4/28/2004 9:45	3.9	1	Run 1	-0.2	25.3	25.1	4.0
4/28/2004 9:46	5.1	1	Run 1	-0.2	25.3	25.1	5.3
4/28/2004 9:47	2.7	1	Run 1	-0.2	25.3	25.1	2.9
4/28/2004 9:48	2.6	1	Run 1	-0.2	25.3	25.1	2.8
4/28/2004 9:49	3.3	1	Run 1	-0.2	25.3	25.1	3.4
4/28/2004 9:50	3.3	1	Run 1	-0.2	25.3	25.1	3.5
4/28/2004 9:51	4.1	1	Run 1	-0.2	25.3	25.1	4.2
4/28/2004 9:52	4.4	1	Run 1	-0.2	25.3	25.1	4.6
4/28/2004 9:53	4.1	1	Run 1	-0.2	25.3	25.1	4.3
4/28/2004 9:54	3.3	1	Run 1	-0.2	25.3	25.1	3.5
4/28/2004 9:55	1.9	1	Run 1	-0.2	25.3	25.1	2.1
4/28/2004 9:56	1.0	1	Run 1	-0.2	25.3	25.1	1.1
4/28/2004 9:57	0.4	1	Run 1	-0.2	25.3	25.1	0.6
4/28/2004 9:58	0.2	1	Run 1	-0.2	25.3	25.1	0.4
4/28/2004 9:59	0.2	1	Run 1	-0.2	25.3	25.1	0.4
4/28/2004 10:00	0.1	1	Run 1	-0.2	25.3	25.1	0.3
4/28/2004 10:01	0.0	1	Run 1	-0.2	25.3	25.1	0.2
4/28/2004 10:02	2.7	1	Run 1	-0.2	25.3	25.1	2.9
4/28/2004 10:03	8.3	1	Run 1	-0.2	25.3	25.1	8.3
4/28/2004 10:04	8.1	1	Run 1	-0.2	25.3	25.1	8.1
4/28/2004 10:05	4.3	1	Run 1	-0.2	25.3	25.1	4.4
4/28/2004 10:06	4.1	1	Run 1	-0.2	25.3	25.1	4.2

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

April 28, 2004

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
4/28/2004 10:07	2.7	1	Run 1	-0.2	25.3	25.1	2.9
4/28/2004 10:08	1.7	1	Run 1	-0.2	25.3	25.1	1.8
4/28/2004 10:09	1.4	1	Run 1	-0.2	25.3	25.1	1.5
4/28/2004 10:10	1.4	1	Run 1	-0.2	25.3	25.1	1.5
4/28/2004 10:11	1.5	1	Run 1	-0.2	25.3	25.1	1.7
4/28/2004 10:12	0.9	1	Run 1	-0.2	25.3	25.1	1.0
4/28/2004 10:13	0.6	1	Run 1	-0.2	25.3	25.1	0.7
4/28/2004 10:14	0.4	1	Run 1	-0.2	25.3	25.1	0.6
4/28/2004 10:15	0.3	1	Run 1	-0.2	25.3	25.1	0.5
4/28/2004 10:16	0.4	1	Run 1	-0.2	25.3	25.1	0.6
4/28/2004 10:17	2.4	1	Run 1	-0.2	25.3	25.1	2.6
4/28/2004 10:18	2.0	1	Run 1	-0.2	25.3	25.1	2.1
4/28/2004 10:19	1.2	1	Run 1	-0.2	25.3	25.1	1.4
4/28/2004 10:20	1.4	1	Run 1	-0.2	25.3	25.1	1.6
4/28/2004 10:21	4.2	1	Run 1	-0.2	25.3	25.1	4.4
4/28/2004 10:22	3.3	1	Run 1	-0.2	25.3	25.1	3.4
4/28/2004 10:23	3.1	1	Run 1	-0.2	25.3	25.1	3.2
4/28/2004 10:24	3.3	1	Run 1	-0.2	25.3	25.1	3.4
4/28/2004 10:25	4.8	1	Run 1	-0.2	25.3	25.1	4.9
4/28/2004 10:26	8.0	1	Run 1	-0.2	25.3	25.1	8.0
4/28/2004 10:27	6.9	1	Run 1	-0.2	25.3	25.1	7.0
4/28/2004 10:28	3.7	1	Run 1	-0.2	25.3	25.1	3.8
4/28/2004 10:29	1.7	1	Run 1	-0.2	25.3	25.1	1.9
4/28/2004 10:30	1.0	1	Run 1	-0.2	25.3	25.1	1.2
4/28/2004 10:31	0.8	1	Run 1	-0.2	25.3	25.1	0.9
4/28/2004 10:32	0.7	1	Run 1	-0.2	25.3	25.1	0.8
4/28/2004 10:33	0.9	1	Run 1	-0.2	25.3	25.1	1.1
4/28/2004 10:34	1.2	1	Run 1	-0.2	25.3	25.1	1.3
4/28/2004 10:35	1.5	1	Run 1	-0.2	25.3	25.1	1.7
4/28/2004 10:36	1.8	1	Run 1	-0.2	25.3	25.1	1.9
4/28/2004 10:37	1.7	1	Run 1	-0.2	25.3	25.1	1.9
4/28/2004 10:38	1.6	1	Run 1	-0.2	25.3	25.1	1.7
4/28/2004 10:39	1.5	1	Run 1	-0.2	25.3	25.1	1.7
4/28/2004 10:40	1.8	1	Run 1	-0.2	25.3	25.1	1.9
4/28/2004 10:41	2.1	1	Run 1	-0.2	25.3	25.1	2.3
4/28/2004 10:42	2.7	1	Run 1	-0.2	25.3	25.1	2.9
4/28/2004 10:43	2.6	1	Run 1	-0.2	25.3	25.1	2.8
4/28/2004 10:44	2.5	1	Run 1	-0.2	25.3	25.1	2.7
4/28/2004 10:45	2.9	1	Run 1	-0.2	25.3	25.1	3.0
4/28/2004 10:46	2.1	1	Run 1	-0.2	25.3	25.1	2.3
4/28/2004 10:47	1.5	1	Run 1	-0.2	25.3	25.1	1.7
4/28/2004 10:48	1.4	1	Run 1	-0.2	25.3	25.1	1.6
4/28/2004 10:49	1.5	1	Run 1	-0.2	25.3	25.1	1.7

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

April 28, 2004

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
4/28/2004 10:50	1.7	1	Run 1	-0.2	25.3	25.1	1.8
4/28/2004 10:51	3.7	1	Run 1	-0.2	25.3	25.1	3.9
4/28/2004 10:52	4.5	1	Run 1	-0.2	25.3	25.1	4.7
4/28/2004 10:53	5.0	1	Run 1	-0.2	25.3	25.1	5.1
4/28/2004 10:54	3.7	1	Run 1	-0.2	25.3	25.1	3.8
4/28/2004 10:55	4.1	1	Run 1	-0.2	25.3	25.1	4.3
4/28/2004 10:56	4.7	1	Run 1	-0.2	25.3	25.1	4.9
4/28/2004 10:57	6.2	1	Run 1	-0.2	25.3	25.1	6.3
4/28/2004 10:58	7.4	1	Run 1	-0.2	25.3	25.1	7.5
4/28/2004 10:59	7.0	1	Run 1	-0.2	25.3	25.1	7.1
4/28/2004 11:00	6.0	1	Run 1	-0.2	25.3	25.1	6.1
4/28/2004 11:01	4.2	1	Run 1	-0.2	25.3	25.1	4.3
4/28/2004 11:02	2.3	1	Run 1	-0.2	25.3	25.1	2.5
4/28/2004 11:03	1.4	1	Run 1	-0.2	25.3	25.1	1.6
4/28/2004 11:04	1.2	1	Run 1	-0.2	25.3	25.1	1.4
4/28/2004 11:05	1.1	1	Run 1	-0.2	25.3	25.1	1.2
4/28/2004 11:06	1.0	1	Run 1	-0.2	25.3	25.1	1.2
4/28/2004 11:07	1.5	1	Run 1	-0.2	25.3	25.1	1.6
4/28/2004 11:08	4.9	1	Run 1	-0.2	25.3	25.1	5.1
4/28/2004 11:09	3.9	1	Run 1	-0.2	25.3	25.1	4.0
4/28/2004 11:10	6.6	1	Run 1	-0.2	25.3	25.1	6.7
4/28/2004 11:11	5.0	1	Run 1	-0.2	25.3	25.1	5.1
4/28/2004 11:12	3.6	1	Run 1	-0.2	25.3	25.1	3.8
4/28/2004 11:13	6.0	1	Run 1	-0.2	25.3	25.1	6.1
4/28/2004 11:14	7.9	1	Run 1	-0.2	25.3	25.1	7.9
4/28/2004 11:15	6.0	1	Run 1	-0.2	25.3	25.1	6.1
4/28/2004 11:16	2.7	1	Run 1	-0.2	25.3	25.1	2.9
4/28/2004 11:17	1.5	1	Run 1	-0.2	25.3	25.1	1.6
4/28/2004 11:18	1.4	1	Run 1	-0.2	25.3	25.1	1.5
4/28/2004 11:19	2.0	1	Run 1	-0.2	25.3	25.1	2.1
4/28/2004 11:20	2.5	1	Run 1	-0.2	25.3	25.1	2.7
4/28/2004 11:21	2.3	1	Run 1	-0.2	25.3	25.1	2.5
4/28/2004 11:22	2.0	1	Run 1	-0.2	25.3	25.1	2.1
4/28/2004 11:23	2.8	1	Run 1	-0.2	25.3	25.1	3.0
4/28/2004 11:24	5.9	1	Run 1	-0.2	25.3	25.1	6.0
4/28/2004 11:25	5.5	1	Run 1	-0.2	25.3	25.1	5.6
4/28/2004 11:26	5.0	1	Run 1	-0.2	25.3	25.1	5.2
4/28/2004 11:27	4.5	1	Run 1	-0.2	25.3	25.1	4.7
4/28/2004 11:28	3.3	1	Run 1	-0.2	25.3	25.1	3.4
4/28/2004 11:29	3.6	1	Run 1	-0.2	25.3	25.1	3.8
4/28/2004 11:30	3.1	1	Run 1	-0.2	25.3	25.1	3.2
4/28/2004 11:31	2.8	1	Run 1	-0.2	25.3	25.1	3.0
4/28/2004 11:32	3.4	1	Run 1	-0.2	25.3	25.1	3.6

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Time	NOx, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
4/28/2004 11:33	4.1	1	Run 1	-0.2	25.3	25.1	4.3
4/28/2004 11:34	3.1	1	Run 1	-0.2	25.3	25.1	3.3
4/28/2004 11:35	5.7	1	Run 1	-0.2	25.3	25.1	5.8
4/28/2004 11:36	4.2	1	Run 1	-0.2	25.3	25.1	4.3
4/28/2004 11:37	2.2	1	Run 1	-0.2	25.3	25.1	2.4
4/28/2004 11:38	7.3	1	Run 1	-0.2	25.3	25.1	7.4
4/28/2004 11:39	9.2	1	Run 1	-0.2	25.3	25.1	9.3
4/28/2004 11:40	7.3	1	Run 1	-0.2	25.3	25.1	7.4
4/28/2004 11:41	6.5	1	Run 1	-0.2	25.3	25.1	6.6
4/28/2004 11:42	4.4	1	Run 1	-0.2	25.3	25.1	4.6
4/28/2004 11:43	2.7	1	Run 1	-0.2	25.3	25.1	2.9
4/28/2004 11:44	2.3	1	Run 1	-0.2	25.3	25.1	2.5
	3.2		Run 1 Average				3.3
4/28/2004 11:45	4.1						
4/28/2004 11:46	18.9						
4/28/2004 11:47	23.7						
4/28/2004 11:48	24.9						
4/28/2004 11:49	25.4		25.1 ppm cal				
	25.4		25.1 ppm cal Average				
4/28/2004 11:50	16.7						
4/28/2004 11:51	3.1						
4/28/2004 11:52	0.4						
4/28/2004 11:53	-0.1						
4/28/2004 11:54	-0.2		0 ppm cal				
	-0.2		0 ppm cal Average				
4/28/2004 11:55	0.0						
4/28/2004 11:56	0.3						
4/28/2004 11:57	11.3						
4/28/2004 11:58	5.6	2	Run 2	-0.2	25.5	25.1	5.6
4/28/2004 11:59	2.6	2	Run 2	-0.2	25.5	25.1	2.7
4/28/2004 12:00	2.5	2	Run 2	-0.2	25.5	25.1	2.7
4/28/2004 12:01	2.7	2	Run 2	-0.2	25.5	25.1	2.8
4/28/2004 12:02	2.5	2	Run 2	-0.2	25.5	25.1	2.7
4/28/2004 12:03	1.8	2	Run 2	-0.2	25.5	25.1	2.0
4/28/2004 12:04	2.4	2	Run 2	-0.2	25.5	25.1	2.5
4/28/2004 12:05	1.5	2	Run 2	-0.2	25.5	25.1	1.6
4/28/2004 12:06	1.1	2	Run 2	-0.2	25.5	25.1	1.3
4/28/2004 12:07	0.5	2	Run 2	-0.2	25.5	25.1	0.6
4/28/2004 12:08	0.6	2	Run 2	-0.2	25.5	25.1	0.8
4/28/2004 12:09	0.8	2	Run 2	-0.2	25.5	25.1	1.0
4/28/2004 12:10	1.3	2	Run 2	-0.2	25.5	25.1	1.5
4/28/2004 12:11	0.7	2	Run 2	-0.2	25.5	25.1	0.9
4/28/2004 12:12	0.8	2	Run 2	-0.2	25.5	25.1	1.0

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4/28/2004 12:13	1.0	2	Run 2	-0.2	25.5	25.1	1.1
4/28/2004 12:14	1.6	2	Run 2	-0.2	25.5	25.1	1.8
4/28/2004 12:15	3.2	2	Run 2	-0.2	25.5	25.1	3.3
4/28/2004 12:16	3.5	2	Run 2	-0.2	25.5	25.1	3.6
4/28/2004 12:17	3.2	2	Run 2	-0.2	25.5	25.1	3.3
4/28/2004 12:18	3.2	2	Run 2	-0.2	25.5	25.1	3.3
4/28/2004 12:19	4.7	2	Run 2	-0.2	25.5	25.1	4.8
4/28/2004 12:20	8.7	2	Run 2	-0.2	25.5	25.1	8.7
4/28/2004 12:21	10.6	2	Run 2	-0.2	25.5	25.1	10.5
4/28/2004 12:22	15.0	2	Run 2	-0.2	25.5	25.1	14.9
4/28/2004 12:23	11.4	2	Run 2	-0.2	25.5	25.1	11.4
4/28/2004 12:24	5.1	2	Run 2	-0.2	25.5	25.1	5.2
4/28/2004 12:25	1.7	2	Run 2	-0.2	25.5	25.1	1.9
4/28/2004 12:26	1.3	2	Run 2	-0.2	25.5	25.1	1.5
4/28/2004 12:27	1.4	2	Run 2	-0.2	25.5	25.1	1.5
4/28/2004 12:28	1.9	2	Run 2	-0.2	25.5	25.1	2.0
4/28/2004 12:29	1.5	2	Run 2	-0.2	25.5	25.1	1.7
4/28/2004 12:30	1.3	2	Run 2	-0.2	25.5	25.1	1.4
4/28/2004 12:31	1.4	2	Run 2	-0.2	25.5	25.1	1.6
4/28/2004 12:32	1.7	2	Run 2	-0.2	25.5	25.1	1.9
4/28/2004 12:33	1.9	2	Run 2	-0.2	25.5	25.1	2.0
4/28/2004 12:34	1.9	2	Run 2	-0.2	25.5	25.1	2.1
4/28/2004 12:35	1.8	2	Run 2	-0.2	25.5	25.1	2.0
4/28/2004 12:36	2.1	2	Run 2	-0.2	25.5	25.1	2.3
4/28/2004 12:37	2.1	2	Run 2	-0.2	25.5	25.1	2.3
4/28/2004 12:38	1.6	2	Run 2	-0.2	25.5	25.1	1.8
4/28/2004 12:39	1.5	2	Run 2	-0.2	25.5	25.1	1.6
4/28/2004 12:40	1.3	2	Run 2	-0.2	25.5	25.1	1.5
4/28/2004 12:41	1.3	2	Run 2	-0.2	25.5	25.1	1.5
4/28/2004 12:42	1.4	2	Run 2	-0.2	25.5	25.1	1.6
4/28/2004 12:43	1.7	2	Run 2	-0.2	25.5	25.1	1.9
4/28/2004 12:44	2.1	2	Run 2	-0.2	25.5	25.1	2.3
4/28/2004 12:45	5.9	2	Run 2	-0.2	25.5	25.1	5.9
4/28/2004 12:46	16.0	2	Run 2	-0.2	25.5	25.1	15.8
4/28/2004 12:47	11.7	2	Run 2	-0.2	25.5	25.1	11.7
4/28/2004 12:48	6.1	2	Run 2	-0.2	25.5	25.1	6.1
4/28/2004 12:49	4.8	2	Run 2	-0.2	25.5	25.1	4.9
4/28/2004 12:50	4.5	2	Run 2	-0.2	25.5	25.1	4.6
4/28/2004 12:51	6.2	2	Run 2	-0.2	25.5	25.1	6.3
4/28/2004 12:52	7.3	2	Run 2	-0.2	25.5	25.1	7.4
4/28/2004 12:53	6.6	2	Run 2	-0.2	25.5	25.1	6.6
4/28/2004 12:54	6.2	2	Run 2	-0.2	25.5	25.1	6.3
4/28/2004 12:55	4.8	2	Run 2	-0.2	25.5	25.1	4.9

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Time	NOx, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
4/28/2004 12:56	3.7	2	Run 2	-0.2	25.5	25.1	3.8
4/28/2004 12:57	2.0	2	Run 2	-0.2	25.5	25.1	2.1
4/28/2004 12:58	0.9	2	Run 2	-0.2	25.5	25.1	1.1
4/28/2004 12:59	0.4	2	Run 2	-0.2	25.5	25.1	0.6
4/28/2004 13:00	0.5	2	Run 2	-0.2	25.5	25.1	0.6
4/28/2004 13:01	0.6	2	Run 2	-0.2	25.5	25.1	0.7
4/28/2004 13:02	0.7	2	Run 2	-0.2	25.5	25.1	0.8
4/28/2004 13:03	0.8	2	Run 2	-0.2	25.5	25.1	0.9
4/28/2004 13:04	3.1	2	Run 2	-0.2	25.5	25.1	3.2
4/28/2004 13:05	7.2	2	Run 2	-0.2	25.5	25.1	7.2
4/28/2004 13:06	11.0	2	Run 2	-0.2	25.5	25.1	11.0
4/28/2004 13:07	12.3	2	Run 2	-0.2	25.5	25.1	12.2
4/28/2004 13:08	15.4	2	Run 2	-0.2	25.5	25.1	15.2
4/28/2004 13:09	14.1	2	Run 2	-0.2	25.5	25.1	14.0
4/28/2004 13:10	6.1	2	Run 2	-0.2	25.5	25.1	6.2
4/28/2004 13:11	3.8	2	Run 2	-0.2	25.5	25.1	3.9
4/28/2004 13:12	5.9	2	Run 2	-0.2	25.5	25.1	6.0
4/28/2004 13:13	9.3	2	Run 2	-0.2	25.5	25.1	9.3
4/28/2004 13:14	9.4	2	Run 2	-0.2	25.5	25.1	9.4
4/28/2004 13:15	9.9	2	Run 2	-0.2	25.5	25.1	9.9
4/28/2004 13:16	10.3	2	Run 2	-0.2	25.5	25.1	10.2
4/28/2004 13:17	9.2	2	Run 2	-0.2	25.5	25.1	9.2
4/28/2004 13:18	5.5	2	Run 2	-0.2	25.5	25.1	5.6
4/28/2004 13:19	3.3	2	Run 2	-0.2	25.5	25.1	3.4
4/28/2004 13:20	1.9	2	Run 2	-0.2	25.5	25.1	2.0
4/28/2004 13:21	1.9	2	Run 2	-0.2	25.5	25.1	2.1
4/28/2004 13:22	2.2	2	Run 2	-0.2	25.5	25.1	2.3
4/28/2004 13:23	2.4	2	Run 2	-0.2	25.5	25.1	2.6
4/28/2004 13:24	2.1	2	Run 2	-0.2	25.5	25.1	2.3
4/28/2004 13:25	2.1	2	Run 2	-0.2	25.5	25.1	2.3
4/28/2004 13:26	3.5	2	Run 2	-0.2	25.5	25.1	3.6
4/28/2004 13:27	6.1	2	Run 2	-0.2	25.5	25.1	6.1
4/28/2004 13:28	6.1	2	Run 2	-0.2	25.5	25.1	6.1
4/28/2004 13:29	7.1	2	Run 2	-0.2	25.5	25.1	7.1
4/28/2004 13:30	4.7	2	Run 2	-0.2	25.5	25.1	4.8
4/28/2004 13:31	4.7	2	Run 2	-0.2	25.5	25.1	4.8
4/28/2004 13:32	5.2	2	Run 2	-0.2	25.5	25.1	5.3
4/28/2004 13:33	5.5	2	Run 2	-0.2	25.5	25.1	5.5
4/28/2004 13:34	4.3	2	Run 2	-0.2	25.5	25.1	4.4
4/28/2004 13:35	3.2	2	Run 2	-0.2	25.5	25.1	3.3
4/28/2004 13:36	2.1	2	Run 2	-0.2	25.5	25.1	2.3
4/28/2004 13:37	2.1	2	Run 2	-0.2	25.5	25.1	2.3
4/28/2004 13:38	1.9	2	Run 2	-0.2	25.5	25.1	2.0

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Time	NOx, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
4/28/2004 13:39	4.0	2	Run 2	-0.2	25.5	25.1	4.1
4/28/2004 13:40	5.4	2	Run 2	-0.2	25.5	25.1	5.5
4/28/2004 13:41	4.7	2	Run 2	-0.2	25.5	25.1	4.8
	4.2		Run 2 Average				4.3
4/28/2004 13:42	2.7						
4/28/2004 13:43	0.5						
4/28/2004 13:44	-0.1						
4/28/2004 13:45	-0.2		0 ppm cal				
	-0.2		0 ppm cal Average				
4/28/2004 13:46	11.2						
4/28/2004 13:47	22.5						
4/28/2004 13:48	24.7						
4/28/2004 13:49	25.5		25.1 ppm cal				
	25.5		25.1 ppm cal Average				
4/28/2004 13:50	23.3						
4/28/2004 13:51	7.2						
4/28/2004 13:52	3.2	3	Run 3	-0.2	25.1	25.1	3.3
4/28/2004 13:53	5.0	3	Run 3	-0.2	25.1	25.1	5.2
4/28/2004 13:54	2.7	3	Run 3	-0.2	25.1	25.1	2.9
4/28/2004 13:55	2.4	3	Run 3	-0.2	25.1	25.1	2.6
4/28/2004 13:56	2.3	3	Run 3	-0.2	25.1	25.1	2.5
4/28/2004 13:57	2.5	3	Run 3	-0.2	25.1	25.1	2.7
4/28/2004 13:58	2.2	3	Run 3	-0.2	25.1	25.1	2.4
4/28/2004 13:59	2.1	3	Run 3	-0.2	25.1	25.1	2.3
4/28/2004 14:00	2.0	3	Run 3	-0.2	25.1	25.1	2.2
4/28/2004 14:01	1.5	3	Run 3	-0.2	25.1	25.1	1.7
4/28/2004 14:02	1.4	3	Run 3	-0.2	25.1	25.1	1.6
4/28/2004 14:03	0.7	3	Run 3	-0.2	25.1	25.1	0.9
4/28/2004 14:04	0.7	3	Run 3	-0.2	25.1	25.1	0.9
4/28/2004 14:05	1.7	3	Run 3	-0.2	25.1	25.1	1.9
4/28/2004 14:06	2.0	3	Run 3	-0.2	25.1	25.1	2.2
4/28/2004 14:07	2.2	3	Run 3	-0.2	25.1	25.1	2.4
4/28/2004 14:08	2.1	3	Run 3	-0.2	25.1	25.1	2.3
4/28/2004 14:09	2.3	3	Run 3	-0.2	25.1	25.1	2.5
4/28/2004 14:10	4.4	3	Run 3	-0.2	25.1	25.1	4.6
4/28/2004 14:11	7.9	3	Run 3	-0.2	25.1	25.1	8.0
4/28/2004 14:12	6.5	3	Run 3	-0.2	25.1	25.1	6.7
4/28/2004 14:13	10.0	3	Run 3	-0.2	25.1	25.1	10.2
4/28/2004 14:14	9.4	3	Run 3	-0.2	25.1	25.1	9.6
4/28/2004 14:15	5.9	3	Run 3	-0.2	25.1	25.1	6.1
4/28/2004 14:16	4.7	3	Run 3	-0.2	25.1	25.1	4.9
4/28/2004 14:17	4.4	3	Run 3	-0.2	25.1	25.1	4.6
4/28/2004 14:18	4.6	3	Run 3	-0.2	25.1	25.1	4.8

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Time	NOx, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
4/28/2004 14:19	4.3	3	Run 3	-0.2	25.1	25.1	4.5
4/28/2004 14:20	3.8	3	Run 3	-0.2	25.1	25.1	4.0
4/28/2004 14:21	2.3	3	Run 3	-0.2	25.1	25.1	2.5
4/28/2004 14:22	1.6	3	Run 3	-0.2	25.1	25.1	1.8
4/28/2004 14:23	2.0	3	Run 3	-0.2	25.1	25.1	2.2
4/28/2004 14:24	1.6	3	Run 3	-0.2	25.1	25.1	1.8
4/28/2004 14:25	1.1	3	Run 3	-0.2	25.1	25.1	1.3
4/28/2004 14:26	1.2	3	Run 3	-0.2	25.1	25.1	1.4
4/28/2004 14:27	0.7	3	Run 3	-0.2	25.1	25.1	0.9
4/28/2004 14:28	0.8	3	Run 3	-0.2	25.1	25.1	1.0
4/28/2004 14:29	0.7	3	Run 3	-0.2	25.1	25.1	0.9
4/28/2004 14:30	1.4	3	Run 3	-0.2	25.1	25.1	1.6
4/28/2004 14:31	2.3	3	Run 3	-0.2	25.1	25.1	2.5
4/28/2004 14:32	3.8	3	Run 3	-0.2	25.1	25.1	4.0
4/28/2004 14:33	3.7	3	Run 3	-0.2	25.1	25.1	3.9
4/28/2004 14:34	3.3	3	Run 3	-0.2	25.1	25.1	3.4
4/28/2004 14:35	3.3	3	Run 3	-0.2	25.1	25.1	3.5
4/28/2004 14:36	3.5	3	Run 3	-0.2	25.1	25.1	3.6
4/28/2004 14:37	2.7	3	Run 3	-0.2	25.1	25.1	2.9
4/28/2004 14:38	2.8	3	Run 3	-0.2	25.1	25.1	3.0
4/28/2004 14:39	2.8	3	Run 3	-0.2	25.1	25.1	3.0
4/28/2004 14:40	2.8	3	Run 3	-0.2	25.1	25.1	3.0
4/28/2004 14:41	2.8	3	Run 3	-0.2	25.1	25.1	3.0
4/28/2004 14:42	3.2	3	Run 3	-0.2	25.1	25.1	3.4
4/28/2004 14:43	4.1	3	Run 3	-0.2	25.1	25.1	4.3
4/28/2004 14:44	7.1	3	Run 3	-0.2	25.1	25.1	7.2
4/28/2004 14:45	6.2	3	Run 3	-0.2	25.1	25.1	6.3
4/28/2004 14:46	6.7	3	Run 3	-0.2	25.1	25.1	6.8
4/28/2004 14:47	6.1	3	Run 3	-0.2	25.1	25.1	6.2
4/28/2004 14:48	7.3	3	Run 3	-0.2	25.1	25.1	7.4
4/28/2004 14:49	3.9	3	Run 3	-0.2	25.1	25.1	4.1
4/28/2004 14:50	3.4	3	Run 3	-0.2	25.1	25.1	3.6
4/28/2004 14:51	4.6	3	Run 3	-0.2	25.1	25.1	4.8
4/28/2004 14:52	6.2	3	Run 3	-0.2	25.1	25.1	6.3
4/28/2004 14:53	7.1	3	Run 3	-0.2	25.1	25.1	7.2
4/28/2004 14:54	6.1	3	Run 3	-0.2	25.1	25.1	6.2
4/28/2004 14:55	5.8	3	Run 3	-0.2	25.1	25.1	5.9
4/28/2004 14:56	1.9	3	Run 3	-0.2	25.1	25.1	2.1
4/28/2004 14:57	0.9	3	Run 3	-0.2	25.1	25.1	1.1
4/28/2004 14:58	0.5	3	Run 3	-0.2	25.1	25.1	0.7
4/28/2004 14:59	0.7	3	Run 3	-0.2	25.1	25.1	0.9
4/28/2004 15:00	1.8	3	Run 3	-0.2	25.1	25.1	2.0
4/28/2004 15:01	2.0	3	Run 3	-0.2	25.1	25.1	2.2

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

April 28, 2004

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
4/28/2004 15:02	1.8	3	Run 3	-0.2	25.1	25.1	2.0
4/28/2004 15:03	1.3	3	Run 3	-0.2	25.1	25.1	1.5
4/28/2004 15:04	1.2	3	Run 3	-0.2	25.1	25.1	1.4
4/28/2004 15:05	5.6	3	Run 3	-0.2	25.1	25.1	5.8
4/28/2004 15:06	12.2	3	Run 3	-0.2	25.1	25.1	12.3
4/28/2004 15:07	7.3	3	Run 3	-0.2	25.1	25.1	7.5
4/28/2004 15:08	5.0	3	Run 3	-0.2	25.1	25.1	5.2
4/28/2004 15:09	4.5	3	Run 3	-0.2	25.1	25.1	4.7
4/28/2004 15:10	5.1	3	Run 3	-0.2	25.1	25.1	5.3
4/28/2004 15:11	6.6	3	Run 3	-0.2	25.1	25.1	6.7
4/28/2004 15:12	8.1	3	Run 3	-0.2	25.1	25.1	8.2
4/28/2004 15:13	5.9	3	Run 3	-0.2	25.1	25.1	6.0
4/28/2004 15:14	4.6	3	Run 3	-0.2	25.1	25.1	4.7
4/28/2004 15:15	3.0	3	Run 3	-0.2	25.1	25.1	3.1
4/28/2004 15:16	3.0	3	Run 3	-0.2	25.1	25.1	3.1
4/28/2004 15:17	8.0	3	Run 3	-0.2	25.1	25.1	8.1
4/28/2004 15:18	9.4	3	Run 3	-0.2	25.1	25.1	9.6
4/28/2004 15:19	9.3	3	Run 3	-0.2	25.1	25.1	9.4
4/28/2004 15:20	8.3	3	Run 3	-0.2	25.1	25.1	8.4
4/28/2004 15:21	10.4	3	Run 3	-0.2	25.1	25.1	10.5
4/28/2004 15:22	13.7	3	Run 3	-0.2	25.1	25.1	13.8
4/28/2004 15:23	12.5	3	Run 3	-0.2	25.1	25.1	12.6
4/28/2004 15:24	12.7	3	Run 3	-0.2	25.1	25.1	12.8
4/28/2004 15:25	15.6	3	Run 3	-0.2	25.1	25.1	15.6
4/28/2004 15:26	16.2	3	Run 3	-0.2	25.1	25.1	16.3
4/28/2004 15:27	9.2	3	Run 3	-0.2	25.1	25.1	9.3
4/28/2004 15:28	6.3	3	Run 3	-0.2	25.1	25.1	6.5
4/28/2004 15:29	5.9	3	Run 3	-0.2	25.1	25.1	6.0
4/28/2004 15:30	4.4	3	Run 3	-0.2	25.1	25.1	4.6
4/28/2004 15:31	3.5	3	Run 3	-0.2	25.1	25.1	3.6
4/28/2004 15:32	3.0	3	Run 3	-0.2	25.1	25.1	3.2
4/28/2004 15:33	2.4	3	Run 3	-0.2	25.1	25.1	2.6
4/28/2004 15:34	2.4	3	Run 3	-0.2	25.1	25.1	2.6
4/28/2004 15:35	2.9	3	Run 3	-0.2	25.1	25.1	3.0
4/28/2004 15:36	2.7	3	Run 3	-0.2	25.1	25.1	2.9
4/28/2004 15:37	3.3	3	Run 3	-0.2	25.1	25.1	3.4
4/28/2004 15:38	3.6	3	Run 3	-0.2	25.1	25.1	3.8
4/28/2004 15:39	3.7	3	Run 3	-0.2	25.1	25.1	3.8
4/28/2004 15:40	2.8	3	Run 3	-0.2	25.1	25.1	3.0
4/28/2004 15:41	2.1	3	Run 3	-0.2	25.1	25.1	2.3
4/28/2004 15:42	2.1	3	Run 3	-0.2	25.1	25.1	2.3
4/28/2004 15:43	1.7	3	Run 3	-0.2	25.1	25.1	1.9
4/28/2004 15:44	1.5	3	Run 3	-0.2	25.1	25.1	1.7

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

April 28, 2004

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	COMMENTS	NOx C_0	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected
4/28/2004 15:45	1.4	3	Run 3	-0.2	25.1	25.1	1.6
4/28/2004 15:46	1.5	3	Run 3	-0.2	25.1	25.1	1.7
4/28/2004 15:47	1.7	3	Run 3	-0.2	25.1	25.1	1.9
4/28/2004 15:48	2.5	3	Run 3	-0.2	25.1	25.1	2.7
4/28/2004 15:49	1.7	3	Run 3	-0.2	25.1	25.1	1.9
4/28/2004 15:50	1.5	3	Run 3	-0.2	25.1	25.1	1.7
4/28/2004 15:51	1.2	3	Run 3	-0.2	25.1	25.1	1.4
4/28/2004 15:52	1.0	3	Run 3	-0.2	25.1	25.1	1.2
4/28/2004 15:53	0.9	3	Run 3	-0.2	25.1	25.1	1.1
4/28/2004 15:54	0.8	3	Run 3	-0.2	25.1	25.1	1.0
4/28/2004 15:55	1.0	3	Run 3	-0.2	25.1	25.1	1.2
4/28/2004 15:56	1.7	3	Run 3	-0.2	25.1	25.1	1.9
4/28/2004 15:57	3.2	3	Run 3	-0.2	25.1	25.1	3.4
4/28/2004 15:58	3.1	3	Run 3	-0.2	25.1	25.1	3.3
4/28/2004 15:59	2.2	3	Run 3	-0.2	25.1	25.1	2.4
4/28/2004 16:00	2.0	3	Run 3	-0.2	25.1	25.1	2.2
4/28/2004 16:01	2.7	3	Run 3	-0.2	25.1	25.1	2.9
4/28/2004 16:02	2.4	3	Run 3	-0.2	25.1	25.1	2.6
4/28/2004 16:02	2.4	3	Run 3	-0.2	25.1	25.1	2.6
4/28/2004 16:03	1.8	3	Run 3	-0.2	25.1	25.1	2.0
4/28/2004 16:04	1.4	3	Run 3	-0.2	25.1	25.1	1.6
4/28/2004 16:05	0.5	3	Run 3	-0.2	25.1	25.1	0.7
	3.9		Run 3 Average				4.1
4/28/2004 16:06	0.6						
4/28/2004 16:07	11.8						
4/28/2004 16:08	22.5						
4/28/2004 16:09	24.5						
4/28/2004 16:10	24.7		25.1 ppm cal				
4/28/2004 16:11	24.7		25.1 ppm cal				
	24.7		25.1 ppm cal Average				
4/28/2004 16:12	16.6						
4/28/2004 16:13	3.3						
4/28/2004 16:14	-0.1						
4/28/2004 16:15	-0.2		0 ppm cal				
	-0.2		0 ppm cal Average				
			Test Average				3.9

EXAMPLE CALCULATIONS FOR GASEOUS EMISSIONS

Calculations for Run 1 of the Oxides of Nitrogen Test

Correction of NOx Concentrations for Instrument Drift

EPA Method 6C provides an equation for correcting the measured gaseous concentrations over a valid test run for instrument drift during the test run.

The EPA equation presented in Section 8 of EPA Method 6C is:

$$Cgas = (Cavg - Co)(Cma / (Cm - Co))$$

Where:

Cgas = Effluent gas concentration, dry basis, ppm.

Cavg = Average gas concentration indicated by the gas analyzer, ppm.

Co = Average of initial and final system calibration bias check responses for the zero gas, ppm.

Cm = Average of initial and final system calibration bias check responses for the upscale calibration gas, ppm.

Cma = Actual concentration of the upscale calibration gas, ppm.

Using the average for Run 1 of the NOx test:

Cavg = 3.2

From the Pre test / post test calibration

	Pre test +	Post Test	/ 2	
Co =	-0.2	-0.2	2	-0.2 ppm
Cm =	25.2	25.4	2	25.3 ppm

Cma = 25.1 ppm

Cgas = (Cavg - Co)(Cma / (Cm - Co))

	Cavg	Co	Cma	Cm	Co
Cgas =	3.17	-0.2	25.1	25.3	-0.2

Cgas = 3.3

Calculation of the Mass of NOx Emissions During the Test Run

The stack gas flow rate for each sampling run was measured using EPA Methods 1 through 3. Flow data in the appendix section presents the measured stack gas parameters and calculation of the stack gas flow rates.

The average mass emission rate of a pollutant over a sampling run was calculated by using the following equation:

$$M = \frac{Cgas(avg) \times MW \times Q \times 60}{385.1 \times 10^{6}}$$

Where:

M = Average mass emission rate of the pollutant over the sampling run in lbs/hr.

Cgas(avg) = Average concentration of the stack gas during the sampling run in ppm. This concentration is expressed on a dry stack basis.

MW = Molecular weight of the pollutant in lbs/lb-mole.

Q = Stack gas flow rate during the sampling run in dry standard cubic feet per minute (dscfm).

385.1 = Number of cubic feet occupied by one pound of gas at standard conditions (68° F and 29.92 in. Hg), assuming ideal gas behavior.

10^6 = Conversion constant for parts per million to cubic feet of pollutant (1 ppm = 10^{-6} ft^3 pollutant / ft^3 stack gas)

60 = Conversion constant for minutes to hours (1 hr = 60 Minutes)

Example Calculation:

For the NOx test:

Cgas(avg) = 3.32 ppm

MW = 46 = 14 + 16 + 16

Flow SCFMD Avg:

Q = 607746 SCFMD

$$\frac{Cgas(avg) \times MW \times Q \times 60}{385.1 \times 10^6}$$

$$M = \frac{Cgas(avg)\ MW\ Q}{3.3171373\ \ 46\ \ 607746\ \ 60} \quad 3.85E+08$$

M = 14.4 lbs/hr

NOx pounds per hour to pounds per ton

Production 163.2 tons/hour (from production records, see appendix section)

NOx 14.4 pounds/hour

pounds per ton = (pounds/hour)/(tons/hour)

Pounds per ton = 0.09

NOx pounds per hour to tons per year

NOx 17.7 pounds per hour (3 run average)

8760 operating hours per year (24 X 365)

2000 pounds = 1 ton

NOx pounds per hour X 8760 operating hours per year / 2000 pounds/ton

NOx 77.7 tons per year

SPECTRA GASES INC.

3434 Route 22 West • Branchburg, NJ 08876 USA Tel.: (908) 252-9300 • (800) 932-0624 • Fax: (908) 252-0811
Shipped From: 80 Industrial Drive • Alpha, NJ 08865



CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: IPSCO Steel, Inc.
SGI ORDER # : 0033156
ITEM# : 1
P.O.# : VERBAL-DAVID

CYLINDER # : CC-135361
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 2/18/2003
EXPIRATION DATE: 2/18/2005

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	2/10/2003 2/18/2003	24.94 ppm 25.04 ppm	25.0 ppm	+/- 1%
NOx			25.1 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	NTRM-82660	CC-133646	99.5 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	CAI-400-CLD	6L09004	Chemi	1/28/2003

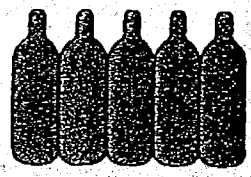
THIS STANDARD IS NIST TRACEABLE. IT WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: FRED PIKULA

DATE: 2/18/2003

SPECTRA GASES INC.

3434 Route 22 West • Branchburg, NJ 08876 USA Tel.: (908) 252-9300 • (800) 932-0624 • Fax: (908) 252-0811
Shipped From: 80 Industrial Drive • Alpha, NJ 08865



CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: IPSCO Steel, Inc.
SGI ORDER # : 0033156
ITEM# : 2
P.O.# : VERBAL-DAVID

CYLINDER # : CC-85252
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 2/18/2003
EXPIRATION DATE: 2/18/2005

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	2/10/2003 2/18/2003	44.81 ppm 44.91 ppm	44.9 ppm	+/- 1%
NOx			45.1 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	NTRM-82660	CC-133646	99.5 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	CAI-400-CLD	6L09004	Chemi	1/28/2003

THIS STANDARD IS NIST TRACEABLE. IT 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

DATE: 2/18/2003

APPENDIX E

FACILITY OPERATING DATA

Meltshop Production

From 27/2004 23:00:00 to 4/28/2004 23:00:00

Issue Date : 4/29/200[illegible] 09:32:24
Issued By : Operations Planning
PBL Name :003 Production_Reporting.pbl Created Date : 03/19/2
Report Name :r_prod_a_meltshop_new Version : 2.1

Seq Id	Heat Id	Heat Order Id	Grade	Melt Practice	Tap Complete Time	Charge Weight	Slab Wgt.	Ht Abort Flag	Pourback Heat Id	Pourback Heat Wgt
D40100	A4D286	1240702	A572-50	16061	04/27/2004 23:12:59	162.50	158.62	Yes		
D40100	B4D781	1226201	A572-50-T1	16060	04/28/2004 00:07:05	171.70	162.96	Yes		
D40100	A4D287	1226202	A572-50-T1	16060	04/28/2004 00:54:04	160.82	135.80	Yes		
D40100	B4D782	1200301	A656-50	15060	04/28/2004 01:47:05	172.25	159.86	Yes		
D40100	A4D288	1200302	A572-50	15060	04/28/2004 03:45:22	163.10	160.75	Yes		
D40100	B4D783	1200303	A572-50	15060	04/28/2004 04:36:20	160.75	162.23	Yes		
D40100	A4D289	1200304	A572-50	15060	04/28/2004 05:29:09	172.08	162.23	Yes		
D40100	B4D784	1200401	A57250/50W	14051	04/28/2004 06:28:12	172.85	151.45	Yes		
D40100	A4D290	1200402	A/SA36A709	14051	04/28/2004 07:19:34	172.60	159.11	Yes		

Percent Yield:	94.8%	Total Scrap Charged:	1,508.65	Average Scrap Charge:	167.63
Heats in Sequence:	9	Total Tons Tapped:	1,429.95	Average Tap Weight:	158.88
Slabs Cast:	56	Tundish Skull:	3.16	Crop Loss:	1.83
Slab Weights:	1,413.01	Pit Scrap:	11.70	Kerf / Sample Loss:	0.25

Seq Id	Heat Id	Heat Order Id	Grade	Melt Practice	Tap Complete Time	Charge Weight	Slab Wgt.	Ht Abort Flag	Pourback Heat Id	Pourback Heat Wgt
D40101	B4D785	1228401	A572-50	72140	04/28/2004 09:50:20	169.65	158.88	Yes		
D40101	A4D291	1228402	A572-50	72140	04/28/2004 11:01:07	173.43	158.84	Yes		
D40101	B4D786	1228301	A36 MODMN	14150	04/28/2004 11:51:50	171.78	158.83	Yes		
D40101	A4D292	1228302	A36 MODMN	14150	04/28/2004 12:57:11	166.00	136.20	Yes		
D40101	B4D787	1228001	A/SA36A709	12203	04/28/2004 13:48:47	171.90	166.28	Yes		
D40101	A4D293	1228002	A/SA36A709	12203	04/28/2004 14:56:02	172.65	147.87	Yes		
D40101	B4D788	1228101	A/SA36A709	25190	04/28/2004 16:05:41	172.60	161.97	Yes		

Percent Yield:	92.1%	Total Scrap Charged:	1,198.00	Average Scrap Charge:	171.14
Heats in Sequence:	7	Total Tons Tapped:	1,103.03	Average Tap Weight:	157.58
Slabs Cast:	51	Tundish Skull:	3.28	Crop Loss:	1.53
Slab Weights:	1,088.87	Pit Scrap:	9.10	Kerf / Sample Loss:	0.25

Seq Id	Heat Id	Heat Order Id	Grade	Melt Practice	Tap Complete Time	Charge Weight	Slab Wgt.	Ht Abort Flag	Pourback Heat Id	Pourback Heat Wgt
D40102	A4D294	1221401	A709-50T2	15141	04/28/2004 17:29:21	162.78	154.13	Yes		
D40102	B4D789	1221402	A709-50T2	15141	04/28/2004 18:54:47	171.50	178.87	Yes		
D40102	B4D790	1221403	A709-50T2	15141	04/28/2004 20:33:40	171.58	150.84	Yes		
D40102	B4D791	1242301	A709-50T2	15141	04/28/2004 22:04:59	172.40	153.10	Yes		

Percent Yield:	95.5%	Total Scrap Charged:	678.25	Average Scrap Charge:	169.56
Heats in Sequence:	4	Total Tons Tapped:	647.60	Average Tap Weight:	160.54
Slabs Cast:	21	Tundish Skull:	3.26	Crop Loss:	1.95
Slab Weights:	636.94	Pit Scrap:	5.20	Kerf / Sample Loss:	0.25

Production Period Summary:

Percent Yield:	94.09%	Total Scrap Charged:	3,384.90	Average Scrap Charge:	169.25
Total Heats Tapped:	20	Total Liquid Metal Tapped:	3,184.86	Average Tap Weight:	159.24
		Total Caster Losses:	46.04		
Total Slab Casts:	128	Total Tundish Loss:	11.50	Total Pit Scrap Loss:	28.60
Total Slab Weights:	3,138.82	Total Crop Loss:	5.19	Total Sample / Kerf Loss:	0.75

*Estimated - heats have not been cast.

DAILY PRODUCTION REPORT - through 04/28/04

IPSCO STEEL (Iowa) Inc.

	Daily		MTD		YTD		Product Yield		
	Units	Tons	Units	Tons	Units	Tons	Daily	MTD	YTD
Meltshop									
Heats Tapped	20		585		2,415				
Scrap Charge Tons		3,384.9		100,658.2		424,473.9			
Liquid Metal Tapped		3,184.9		92,505.3		384,770.7			
less: Tapped Pourback		0.0		225.0		275.0			
Metal Available to Caster		3,184.9		92,280.3		384,495.7	94.1%	91.7%	90.6%
Caster									
INPUT									
Heats Cast	22		587		2,422				
Heats Aborted	0		0		0				
Total	22	3,496.1	587	92,598.7	2,422	384,567.6			
OUTPUT									
Prime Slabs	137	3,450.1	3,167	91,234.5	13,239	378,847.1	98.7%	98.5%	98.5%
SCRAP									
Scrap Slabs	0	0.0	0	0.0	0	0.0	0.0%	0.0%	0.0%
Process Losses		46.0		1,364.2		5,720.5	1.3%	1.5%	1.5%
Total Scrap		46.0		1,364.2		5,720.5	1.3%	1.5%	1.5%
DIRECT CHARGE									
Direct Chargeable	110	2,723.6	1,987	58,292.5	7,218	211,929.0	78.9%	63.9%	55.9%
Direct Charged	84	2,019.9	1,422	41,517.7	4,734	139,733.2	74.2%	71.2%	65.9%
Rolling Mill - Light Plate									
SLAB INPUT	7	183.6	280	8,220.6	1,182	36,437.7			
OUTPUT									
Semi-Finished Plates	21	179.9	886	8,022.0	3,505	35,582.8	98.0%	97.6%	97.7%
SCRAP									
Scrap Plates	0	0.0	1	34.9	6	152.7	0.0%	0.4%	0.4%
Process Losses		3.7		163.7		702.1	2.0%	2.0%	1.9%
Total Scrap		3.7		198.6		854.9	2.0%	2.4%	2.3%
Rolling Mill - Heavy Plate									
SLAB INPUT	31	648.9	1,181	34,803.6	5,629	164,551.2			
OUTPUT									
Semi-Finished Plates	62	636.0	1,703	33,981.5	7,949	161,011.8	98.0%	97.6%	97.8%
SCRAP									
Scrap Plates	0	0.0	4	127.3	9	278.9	0.0%	0.4%	0.2%
Process Losses		13.0		694.7		3,260.4	2.0%	2.0%	2.0%
Total Scrap		13.0		822.0		3,539.3	2.0%	2.4%	2.2%
Rolling Mill - Coil									
SLAB INPUT	95	2,641.7	1,626	46,858.4	5,470	157,016.4			
OUTPUT									
Hold Coils	2	45.9	57	1,594.2	278	7,480.9	1.7%	3.4%	4.8%
Prime Coils	91	2,428.5	1,558	43,333.0	5,149	142,500.7	91.9%	92.5%	90.8%
Prime Sub Total	93	2,474.4	1,615	44,927.2	5,427	149,981.5	93.7%	95.9%	95.5%
Commercial Coils	2	56.3	7	155.8	18	436.1	2.1%	0.3%	0.3%
Coil Reclaim				155.8		760.2		0.3%	0.5%
Adjusted Prime Coils		2474.4		44,771.4		149,221.3	93.7%	95.5%	95.0%
SCRAP									
Scrap Coils	0	0.0	4	119.6	22	576.3	0.0%	0.3%	0.4%
Process Losses		111.0		1,655.9		6,022.5	4.2%	3.5%	3.8%
Total Scrap		111.0		1,931.2		7,359.0	4.2%	4.1%	4.7%
Rolling Mill - Summary									
Total Slabs Rolled	133	3,474.3	3,087	89,882.5	12,281	358,005.3			
Rolling Mill Output		3,290.3		86,930.7		346,576.2			
Average Slab Weight									
Plate		21.9		29.4		29.5			
Coil		27.8		28.8		28.7			
Finished Prime Tons									
Light Plate	247	175.7	7,094	7,832.6	27,351	34,169.6			
Heavy Plate	540	497.3	12,954	32,177.7	59,135	153,171.3			
Coil	93	2,474.4	1,615	44,927.2	5,427	149,981.5			
Total Prime Tons	880	3,147.4	21,663	84,937.4	91,913	337,322.4			

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 4/27/04 23:00:00 to 4/28/04 23:00:00

Issue Date : 4/29/04 12:29:00
Issued By : Operations Planning
PBL Name :4 scrap_consumption.pbl Created Date : 04/26/0
Report Name :d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
1240702	04/27/2004	21:42:33	A4D286	0000000002	01	HM2	022600	11.30
					02	2BN	008450	4.23
					03	HM1	021900	10.95
					04	BEACH IRON	023950	11.98
					06	MXTN	042100	21.05
					07	PITSCRAP	017700	8.85
					08	PROCREVERT	015700	7.85
					09	HM2	054350	27.18
					10	FRAG	013100	6.55
						0000000002 Total	**219850**	**109.92**
1240702	04/27/2004	22:20:09	A4D286	0000000003	01	HM2	025050	12.53
					02	HM1	035550	17.77
					04	MXTN	026600	13.30
					05	HM2	017950	8.98
						0000000003 Total	**105150**	**52.58**
						A4D286 Total	**325000**	**162.50**
1226202	04/27/2004	23:34:43	A4D287	0000000002	01	HM2	023450	11.73
					02	2BN	008150	4.08
					03	HM1	021550	10.78
					04	BEACH IRON	019600	9.80
					06	MXTN	041950	20.98
					07	PITSCRAP	015300	7.65
					08	PROCREVERT	013300	6.65
					09	HM2	053800	26.90
					10	FRAG	020850	10.43
						0000000002 Total	**217950**	**108.98**
1226202	04/28/2004	00:01:40	A4D287	0000000003	01	HM2	027200	13.60
					02	HM1	036950	18.48
					04	MXTN	026200	13.10
					05	HM2	013350	6.68
						0000000003 Total	**103700**	**51.85**
						A4D287 Total	**321650**	**160.83**
1200302	04/28/2004	01:12:25	A4D288	0000000002	01	HM2	021050	10.53
					02	2BN	007250	3.63
					03	HM1	023650	11.83
					04	BEACH IRON	018750	9.38
					06	MXTN	045250	22.63
					07	PITSCRAP	014350	7.18
					08	PROCREVERT	015150	7.58
					09	HM2	052350	26.18
					10	FRAG	022800	11.40
						0000000002 Total	**220600**	**110.30**
1200302	04/28/2004	01:47:58	A4D288	0000000003	01	HM2	023650	11.83
					02	HM1	037250	18.63
					04	MXTN	027500	13.75

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 4/27/04 23:00:00 to 4/28/04 23:00:00

Issue Date	: 4/29/04 12:29:00
Issued By	: Operations Planning
PBL Name	:4 scrap_consumption.pbl Created Date : 04/26/0
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
1200302	04/28/2004	01:47:58	A4D288	0000000003	05	HM2	017200	8.60
						0000000003 Total	**105600**	**52.80**
						A4D288 Total	**326200**	**163.10**
1200304	04/28/2004	03:57:20	A4D289	0000000003	01	HM2	020150	10.08
					02	2BN	006850	3.43
					03	HM1	022000	11.00
					04	BEACH IRON	019200	9.60
					06	MXTN	043600	21.80
					07	PITSCRAP	016400	8.20
					08	PROCREVERT	017300	8.65
					09	HM2	053350	26.68
					10	FRAG	021150	10.58
						0000000003 Total	**220000**	**110.00**
1200304	04/28/2004	04:25:44	A4D289	0000000003	01	HM2	026050	13.03
					02	HM1	036650	18.33
					04	MXTN	032250	16.13
					05	HM2	029200	14.60
						0000000003 Total	**124150**	**62.08**
						A4D289 Total	**344150**	**172.08**
1200402	04/28/2004	05:39:39	A4D290	0000000002	01	HM2	030500	15.25
					02	2BN	007950	3.98
					03	PROCREVERT	014450	7.23
					04	HM2	020300	10.15
					06	MXTN	046750	23.38
					07	HM1	061750	30.88
					08	FRAG	039150	19.58
						0000000002 Total	**220850**	**110.43**
1200402	04/28/2004	06:04:42	A4D290	0000000003	01	HM2	010700	5.35
					03	MXTN	044550	22.28
					04	HM2	069100	34.55
						0000000003 Total	**124350**	**62.18**
						A4D290 Total	**345200**	**172.60**
1228402	04/28/2004	07:38:40	A4D291	0000000003	01	HM2	028500	14.25
					02	2BN	007850	3.93
					03	PROCREVERT	013850	6.93
					04	HM2	021000	10.50
					06	MXTN	044100	22.05
					07	HM1	064650	32.33
					08	FRAG	040550	20.27
						0000000003 Total	**220500**	**110.25**
1228402	04/28/2004	10:14:50	A4D291	0000000003	01	HM2	012050	6.03
					03	MXTN	044650	22.33

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 4/27/04 23:00:00 to 4/28/04 23:00:00

Issue Date	: 4/29/04 12:29:00
Issued By	: Operations Planning
PBL Name	:4 scrap_consumption.pbl Created Date : 04/26/0
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
1228402	04/28/2004	10:14:50	A4D291	0000000003	04	HM2	069650	34.83
						0000000003 Total	**126350**	**63.18**
						A4D291 Total	**346850**	**173.43**
1228302	04/28/2004	11:18:32	A4D292	0000000002	01	HM2	029450	14.73
					02	2BN	006800	3.40
					03	PROCREVERT	016000	8.00
					04	HM2	019000	9.50
					06	MXTN	041300	20.65
					07	HM1	065350	32.67
					08	FRAG	044700	22.35
						0000000002 Total	**222600**	**111.30**
1228302	04/28/2004	12:13:01	A4D292	0000000003	01	HM2	011000	5.50
					02	HM1	006100	3.05
					03	MXTN	041950	20.98
					04	HM2	050350	25.18
						0000000003 Total	**109400**	**54.70**
						A4D292 Total	**332000**	**166.00**
1228002	04/28/2004	13:42:37	A4D293	0000000003	01	HM2	020900	10.45
					02	2BN	006350	3.18
					03	HM1	021000	10.50
					04	BEACH IRON	023100	11.55
					06	MXTN	042150	21.08
					07	PITSCRAP	011400	5.70
					08	PROCREVERT	009950	4.98
					09	HM2	065200	32.60
					10	FRAG	020050	10.03
						0000000003 Total	**220100**	**110.05**
1228002	04/28/2004	14:03:11	A4D293	0000000002	01	HM2	025900	12.95
					02	HM1	037650	18.83
					04	MXTN	027400	13.70
					05	HM2	034250	17.13
						0000000002 Total	**125200**	**62.60**
						A4D293 Total	**345300**	**172.65**
1221401	04/28/2004	15:17:59	A4D294	0000000002	01	FRAG	022450	11.23
					02	HM1	022650	11.33
					03	BEACH IRON	021400	10.70
					05	MXTN	044250	22.13
					06	PITSCRAP	015450	7.73
					07	PROCREVERT	014400	7.20
					08	HM2	033850	16.93
					09	FRAG	048200	24.10
						0000000002 Total	**222650**	**111.32**
1221401	04/28/2004	16:30:51	A4D294	0000000002	01	HM2	024100	12.05
					02	BEACH IRON	015050	7.53
					03	HM1	022700	11.35

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 4/27/04 23:00:00 to 4/28/04 23:00:00

Issue Date	: 4/29/04 12:29:00
Issued By	: Operations Planning
PBL Name	:4 scrap_consumption.pbl Created Date : 04/26/0
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
1221401	04/28/2004	16:30:51	A4D294	0000000002	05	MXTN	028300	14.15
					06	HM2	012750	6.38
						0000000002 Total	**102900**	**51.45**
						A4D294 Total	**325550**	**162.77**
1226201	04/27/2004	22:41:56	B4D781	0000000005	01	HM2	022750	11.38
					02	2BN	008650	4.33
					03	HM1	020900	10.45
					04	BEACH IRON	021200	10.60
					06	MXTN	042700	21.35
					07	PITSCRAP	012300	6.15
					08	PROCREVERT	019200	9.60
					09	HM2	054200	27.10
					10	FRAG	018000	9.00
						0000000005 Total	**219900**	**109.95**
1226201	04/27/2004	23:15:27	B4D781	0000000005	01	HM2	023400	11.70
					02	HM1	034650	17.33
					04	MXTN	027950	13.98
					05	HM2	037500	18.75
						0000000005 Total	**123500**	**61.75**
						B4D781 Total	**343400**	**171.70**
1200301	04/28/2004	00:17:34	B4D782	0000000005	01	HM2	019250	9.63
					02	2BN	006900	3.45
					03	HM1	019800	9.90
					04	BEACH IRON	024450	12.23
					06	MXTN	042250	21.13
					07	PITSCRAP	010000	5.00
					08	PROCREVERT	011700	5.85
					09	HM2	066250	33.13
					10	FRAG	019350	9.68
						0000000005 Total	**219950**	**109.98**
1200301	04/28/2004	00:45:40	B4D782	0000000005	01	HM2	025500	12.75
					02	HM1	035800	17.90
					04	MXTN	029400	14.70
					05	HM2	033850	16.93
						0000000005 Total	**124550**	**62.27**
						B4D782 Total	**344500**	**172.25**
1200303	04/28/2004	02:00:08	B4D783	0000000005	01	HM2	019000	9.50
					02	2BN	006800	3.40
					03	HM1	021650	10.83
					04	BEACH IRON	024350	12.18
					06	MXTN	042300	21.15
					07	PITSCRAP	018050	9.03
					08	PROCREVERT	009900	4.95
					09	HM2	053650	26.83

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 4/27/04 23:00:00 to 4/28/04 23:00:00

Issue Date	: 4/29/04 12:29:00
Issued By	: Operations Planning
PBL Name	:4 scrap_consumption.pbl Created Date : 04/26/0
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
1200303	04/28/2004	02:00:08	B4D783	0000000005	10	FRAG	023700	11.85
						0000000005 Total	**219400**	**109.70**
1200303	04/28/2004	03:33:47	B4D783	0000000005	01	HM2	022800	11.40
					02	HM1	036650	18.33
					04	MXTN	025150	12.58
					05	HM2	017500	8.75
						0000000005 Total	**102100**	**51.05**
						B4D783 Total	**321500**	**160.75**
1200401	04/28/2004	04:46:04	B4D784	0000000005	01	HM2	032400	16.20
					02	2BN	009050	4.53
					03	PROCREVERT	016800	8.40
					04	HM2	020700	10.35
					06	MXTN	043750	21.88
					07	HM1	061500	30.75
					08	FRAG	034900	17.45
						0000000005 Total	**219100**	**109.55**
1200401	04/28/2004	05:17:16	B4D784	0000000005	01	HM2	009650	4.83
					03	MXTN	041500	20.75
					04	HM2	075450	37.73
						0000000005 Total	**126600**	**63.30**
						B4D784 Total	**345700**	**172.85**
1228401	04/28/2004	06:52:42	B4D785	0000000005	01	HM2	029200	14.60
					02	2BN	006900	3.45
					03	PROCREVERT	014550	7.28
					04	HM2	020200	10.10
					06	MXTN	041150	20.58
					07	HM1	063650	31.83
					08	FRAG	038800	19.40
						0000000005 Total	**214450**	**107.23**
1228401	04/28/2004	07:15:48	B4D785	0000000006	01	HM2	009400	4.70
					03	MXTN	043850	21.93
					04	HM2	071600	35.80
						0000000006 Total	**124850**	**62.43**
						B4D785 Total	**339300**	**169.65**
1228301	04/28/2004	10:14:56	B4D786	0000000005	01	HM2	030050	15.03
					02	2BN	006800	3.40
					03	PROCREVERT	010800	5.40
					04	HM2	022700	11.35
					06	MXTN	045650	22.83
					07	HM1	061750	30.88
					08	FRAG	042650	21.33
						0000000005 Total	**220400**	**110.20**
1228301	04/28/2004	11:13:32	B4D786	0000000005	01	HM2	012200	6.10
					03	MXTN	042450	21.23

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 4/27/04 23:00:00 to 4/28/04 23:00:00

Issue Date	: 4/29/04 12:29:00
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PBL Name	:4 scrap_consumption.pbl Created Date : 04/26/0
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
1228301	04/28/2004	11:13:32	B4D786	0000000005	04	HM2	068500	34.25
						0000000005 Total	**123150**	**61.58**
						B4D786 Total	**343550**	**171.78**
1228001	04/28/2004	13:02:31	B4D787	0000000005	01	HM2	020200	10.10
					02	2BN	008600	4.30
					03	HM1	022200	11.10
					04	BEACH IRON	020100	10.05
					06	MXTN	044500	22.25
					07	PITSCRAP	009650	4.83
					08	PROCREVERT	010750	5.38
					09	HM2	063850	31.93
					10	FRAG	019900	9.95
						0000000005 Total	**219750**	**109.88**
1228001	04/28/2004	13:06:51	B4D787	0000000004	01	HM2	025000	12.50
					02	HM1	037100	18.55
					04	MXTN	027000	13.50
					05	HM2	034950	17.48
						0000000004 Total	**124050**	**62.03**
						B4D787 Total	**343800**	**171.90**
1228101	04/28/2004	14:26:16	B4D788	0000000005	01	FRAG	051150	25.58
					02	BEACH IRON	019600	9.80
					03	MXTN	036650	18.33
					04	BEACH IRON	027300	13.65
					06	HM1	045900	22.95
					07	FRAG	010600	5.30
					08	PROCREVERT	012050	6.03
					09	FRAG	016750	8.38
						0000000005 Total	**220000**	**110.00**
1228101	04/28/2004	15:03:15	B4D788	0000000005	01	FRAG	025300	12.65
					02	MXTN	030500	15.25
					04	BEACH IRON	020150	10.08
					05	HM1	028750	14.38
					06	FRAG	020500	10.25
						0000000005 Total	**125200**	**62.60**
						B4D788 Total	**345200**	**172.60**
1221402	04/28/2004	16:35:50	B4D789	0000000005	01	FRAG	024250	12.13
					02	HM1	021600	10.80
					03	BEACH IRON	023300	11.65
					05	MXTN	042900	21.45
					06	PITSCRAP	012850	6.43
					07	PROCREVERT	010650	5.33
					08	HM2	048650	24.33
					09	FRAG	035150	17.58
						0000000005 Total	**219350**	**109.68**
1221402	04/28/2004	17:26:27	B4D789	0000000005	01	HM2	024600	12.30

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 4/27/04 23:00:00 to 4/28/04 23:00:00

Issue Date	: 4/29/04 12:29:00
Issued By	: Operations Planning
PBL Name	:4 scrap_consumption.pbl Created Date : 04/26/0
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
1221402	04/28/2004	17:26:27	B4D789	0000000005	02	BEACH IRON	014150	7.08
					03	HM1	023200	11.60
					05	MXTN	028750	14.38
					06	HM2	032950	16.48
						0000000005 Total	**123650**	**61.83**
						B4D789 Total	**343000**	**171.50**
1242301	04/28/2004	19:02:01	B4D790	0000000005	01	REVERT	023500	11.75
					02	HM1	024000	12.00
					03	BEACH IRON	018600	9.30
					05	MXTN	042850	21.43
					06	PITSCRAP	011550	5.78
					07	PROCREVERT	014950	7.48
					08	HM2	051500	25.75
					09	FRAG	033100	16.55
						0000000005 Total	**220050**	**110.03**
1221403	04/28/2004	19:41:28	B4D790	0000000005	01	HM2	023500	11.75
					02	BEACH IRON	013800	6.90
					03	HM1	021000	10.50
					05	MXTN	026200	13.10
					06	HM2	038600	19.30
						0000000005 Total	**123100**	**61.55**
						B4D790 Total	**343150**	**171.58**
1221501	04/28/2004	20:52:48	B4D791	0000000005	01	FRAG	023200	11.60
					02	HM1	022450	11.23
					03	BEACH IRON	020800	10.40
					05	MXTN	043300	21.65
					06	PITSCRAP	011950	5.98
					07	PROCREVERT	012400	6.20
					08	HM2	049050	24.53
					09	FRAG	037000	18.50
						0000000005 Total	**220150**	**110.07**
1221501	04/28/2004	21:12:27	B4D791	0000000006	01	HM2	025700	12.85
					02	BEACH IRON	014100	7.05
					03	HM1	023200	11.60
					05	MXTN	027200	13.60
					06	HM2	034450	17.23
						0000000006 Total	**124650**	**62.33**
						B4D791 Total	**344800**	**172.40**

Total Heats 20 **Total Weight for Time Period** 6769800 **Pounds** 3384.90 **Tons**

EAF Heat Sheet 28-Apr-2004 11:01:44

IPSCO STEEL INC.
Montpelier Works

HEAT: A4D291 MSP: 72140

Start Time: 28-Apr-2004 07:20:37
End Time : 28-Apr-2004 11:01:07
TapToTap Time : 220 (min)

Heat Order : 1228402
Grade : A572-50
Ladle #: 0 CrewID: 1 OperatorID: 20

START	DUR	DELAY REASON
10:57:34	0000	Operational, Tap
10:55:34	0002	Operational, Lance Taphole
10:51:16	0004	Operational, Slagoff
10:48:11	0000	Operational, Temp
10:35:51	0000	Operational, Sidewall RTD trip
10:09:37	0013	Mechanical, Check for Water Leaks
10:06:37	0003	Operational, Pack scrap
10:04:13	0002	Operational, Charge
09:11:24	0036	Operational, Run B
07:21:24	0110	Down Stream Processes, Waiting on Caste

CHARGES	AMOUNT
Charge 1 :	227250
Charge 2 :	133050
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
FeMn	0001200
4oz AL Con	0000500
Carbon	0001995
Dololime	0008145
HiCal Lime	0004560
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	64700	21900	42800	0	0	0
O2 Burner	SCF	57	25	32	0	0	0
Gas Burner	SCF	24	11	13	0	0	0
O2 Lance	SCF	673	109	564	0	0	0
Carbon Lance	LBS	4346	2147	2199	0	0	0
TIMES							
Melting Tm	MIN	220	174	46	0	0	0
Power on Tm	MIN	44	16	27	0	0	0
Burner On Tm	MIN	47	20	26	0	0	0
O2Lance On Tm	MIN	38	11	26	0	0	0
CLance On Tm	MIN	26	0	25	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	395.1	192.7	359.1	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	19175.1	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.1	001.0	003.7	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.1	000.1	000.1	000.0	000.0	000.0
Carbon Ton	LBS/Ton	026.5	018.9	024.1	000.0	000.0	000.0

COMMENTS

casey

ELEM	C	Mn	P	S	SI	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.16000	0.60000	0.02000	0.01000	0.15000	0.03900	0.00000	0.01500	0.00000	0.32100	0.50000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.02500	0.01000	0.00000	0.00000	0.00000
MIN	0.14000	0.50000	0.00000	0.00000	0.00000	0.01800	0.01500	0.00000	0.00100	0.26300	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01500	0.00000	0.00000	0.00000	0.00000
AIM	0.15000	0.55000	0.00000	0.00000	0.00000	0.02500	0.00000	0.00000	0.00000	0.28600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01700	0.00000	0.00000	0.00000	0.00000

EAF Heat Sheet 28-Apr-2004 11:01:45

IPSCO STEEL INC.
Montpelier Works

HEAT: A4D291 MSP: 72140

EVENTS

TIME	KWH	Description
11:01:16	0064700	Ladle Weigth
11:01:08	0064700	End Tapping
10:59:06	0064700	Start Tapping
10:53:29	0064700	Temperature <3017> O2 <8960> C <45>
10:52:30	0064700	Burners Off
10:52:27	0064700	Temperature <3012> O2 <7860> C <3053>
10:51:14	0064700	Power Off
10:48:31	0060500	Power On
10:48:10	0060500	Power Off
10:36:15	0041200	Power On
10:35:50	0041200	Power Off
10:26:01	0025500	Burners On
10:25:45	0025100	Material Addition
10:22:39	0021900	Power On
10:14:50	0021900	Charge
10:12:47	0021900	Burners Off
10:04:11	0021900	Power Off
09:56:27	0010300	Power On
09:56:16	0010300	Power Off
09:55:36	0009600	Power On
09:55:34	0009600	Power Off
09:52:08	0004800	Burners On
09:47:32	0000000	Melting
09:47:31	0000000	Power On
08:19:59	0000000	Material Addition
08:18:09	0000000	Material Addition
08:16:39	0000000	Material Addition
08:11:47	0000000	Material Addition
08:10:37	0000000	Material Addition
08:00:34	0000000	Material Addition
07:38:41	0000000	Charge
07:20:49	0000000	Material Addition
07:20:39	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

EAF Heat Sheet **28-Apr-2004 11:52:09**

HEAT: B4D786 *MSP: 14150*

Start Time: 28-Apr-2004 09:51:24
End Time : 28-Apr-2004 11:51:50
TapToTap Time : 120 (min)

Heat Order : 1228301
Grade : A36 MODMN
Ladle #: 0 CrewID: 1 OperatorID: 20

START	DUR	DELAY REASON
11:46:48	0000	Operational, Tap
11:45:06	0001	Operational, Slagoff
11:40:12	0004	Operational, Blow Carbon
11:36:34	0001	Operational, Temp
11:11:10	0003	Operational, Charge
09:52:11	0061	Operational, Charge Run A

CHARGES	AMOUNT
Charge 1 :	227250
Charge 2 :	130200
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
FeMn	0002500
4oz AL Con	0000450
Carbon	0008960
Dololime	0036675
HiCal Lime	0020500
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	59700	22900	36800	0	0	0
O2 Burner	SCF	54	19	35	0	0	0
Gas Burner	SCF	30	11	19	0	0	0
O2 Lance	SCF	765	109	656	0	0	0
Carbon Lance	LBS	1549	0	1549	0	0	0
TIMES							
Melting Tm	MIN	120	82	38	0	0	0
Power on Tm	MIN	40	17	23	0	0	0
Burner On Tm	MIN	45	15	30	0	0	0
O2Lance On Tm	MIN	42	12	29	0	0	0
CLance On Tm	MIN	12	0	12	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	367.4	201.5	334.0	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	36965.9	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.7	001.0	004.3	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	009.5	000.0	008.7	000.0	000.0	000.0

COMMENTS

shane

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.16500	0.90000	0.02000	0.01000	0.10000	0.03900	0.00000	0.00000	0.00000	0.37400	0.50000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.01000	0.00000	0.00000	0.00000
MIN	0.14500	0.80000	0.00000	0.00000	0.01500	0.01800	0.01500	0.00000	0.00070	0.33800	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00600	0.00000	0.00000	0.00000
AIM	0.15000	0.85000	0.00000	0.00000	0.01600	0.02500	0.00000	0.00000	0.00000	0.35100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00700	0.00000	0.00000	0.00000

EAF Heat Sheet 28-Apr-2004 11:52:09

IPSCO STEEL INC.
Montpelier Works

HEAT: B4D786 MSP: 14150

EVENTS

TIME	KWH	Description
11:51:56	0059700	Ladle Weigth
11:51:52	0059700	End Tapping
11:49:21	0059700	Start Tapping
11:48:45	0059700	Material Addition
11:44:22	0059700	Temperature <3007> O2 <6460> C <61>
11:44:14	0059700	Burners Off
11:40:20	0059700	Temperature <2947> O2 <3100> C <109>
11:40:10	0059700	Power Off
11:38:03	0057000	Temperature <2874> O2 <1740> C <159>
11:38:01	0057000	Power On
11:36:32	0057000	Power Off
11:14:47	0022900	Power On
11:13:32	0022900	Charge
11:11:08	0022900	Power Off
10:58:24	0003900	Burners On
10:54:01	0000000	Melting
10:54:00	0000000	Power On
10:44:45	0000000	Material Addition
10:43:04	0000000	Material Addition
10:42:14	0000000	Material Addition
10:40:34	0000000	Material Addition
10:35:44	0000000	Material Addition
10:32:13	0000000	Material Addition
10:31:12	0000000	Material Addition
10:30:42	0000000	Material Addition
10:14:56	0000000	Charge
09:51:25	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

EAF Heat Sheet 28-Apr-2004 12:57:25

HEAT: A4D292 MSP: 14150

Start Time: 28-Apr-2004 11:02:10
End Time : 28-Apr-2004 12:57:11
TapToTap Time : 114 (min)

Heat Order : 1228302
Grade : A36 MODMN
Ladle #: 0 CrewID: 1 OperatorID: 20

START	DUR	DELAY REASON
12:52:09	0000	Operational, Tap
12:49:27	0002	Operational, Slagoff
12:47:03	0002	Operational, Temp
12:31:17	0000	Operational, Sidewall RTD trip
12:17:51	0003	Operational, Pack scrap
12:15:51	0002	Operational, Charge
12:11:51	0000	Operational, Sidewall RTD trip
11:02:57	0056	Operational, Charge run B

CHARGES	AMOUNT
Charge 1 :	193000
Charge 2 :	109400
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
FeMn	0002490
4oz AL Con	0000440
Carbon	0002090
Dololime	0008155
HiCal Lime	0004555
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	60000	18100	41900	0	0	0
O2 Burner	SCF	57	16	41	0	0	0
Gas Burner	SCF	24	7	17	0	0	0
O2 Lance	SCF	733	102	631	0	0	0
Carbon Lance	LBS	6767	4296	2471	0	0	0
TIMES							
Melting Tm	MIN	114	70	44	0	0	0
Power on Tm	MIN	41	13	27	0	0	0
Burner On Tm	MIN	47	11	35	0	0	0
O2Lance On Tm	MIN	42	11	30	0	0	0
CLance On Tm	MIN	65	46	18	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	436.5	187.6	396.8	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	36492.6	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.3	001.1	004.8	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	049.2	044.5	044.8	000.0	000.0	000.0

COMMENTS

adam

ELEM	C	Mn	P	S	SI	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.16500	0.90000	0.02000	0.01000	0.10000	0.03900	0.00000	0.00000	0.00000	0.37400	0.50000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.01000	0.00000	0.00000	0.00000
MIN	0.14500	0.80000	0.00000	0.00000	0.01500	0.01800	0.01500	0.00000	0.00070	0.33800	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00600	0.00000	0.00000	0.00000
AIM	0.15000	0.85000	0.00000	0.00000	0.01600	0.02500	0.00000	0.00000	0.00000	0.35100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00700	0.00000	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: A4D292 MSP: 14150

EVENTS

TIME	KWH	Description
12:57:15	0060000	Ladle Weigth
12:57:12	0060000	End Tapping
12:55:17	0060000	Start Tapping
12:49:47	0060000	Temperature <3004> O2 <5400> C <73>
12:48:46	0060000	Burners Off
12:48:46	0060000	Temperature <3011> O2 <5250> C <76>
12:47:29	0060000	Temperature <2971> O2 <0> C <0>
12:47:01	0060000	Power Off
12:36:07	0042200	Material Addition
12:31:55	0035700	Power On
12:31:15	0035700	Power Off
12:21:11	0021300	Power On
12:15:49	0021300	Power Off
12:13:01	0018100	Charge
12:12:08	0017200	Power On
12:11:50	0017200	Power Off
12:06:20	0008800	Power On
12:06:19	0008800	Power Off
12:06:10	0008800	Power On
12:06:08	0008700	Power Off
12:01:14	0001700	Burners On
11:58:58	0000000	Melting
11:58:56	0000000	Power On
11:35:07	0000000	Material Addition
11:18:32	0000000	Charge
11:02:11	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: B4D787 MSP: 12203

Start Time: 28-Apr-2004 11:52:53
End Time : 28-Apr-2004 13:48:47
TapToTap Time : 115 (min)

Heat Order : 1228001
Grade : A/SA36A709
Ladle #: 0 CrewID: 1 OperatorID: 20

START	DUR	DELAY REASON
13:44:12	0000	Operational, Tap
13:41:12	0003	Operational, Slagoff
13:09:53	0003	Operational, Charge
13:06:11	0003	Operational, Wait on Scrap
11:53:41	0055	Operational, Charge Run A

CHARGES	AMOUNT
Charge 1 :	227200
Charge 2 :	131650
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
FeMn	0001320
4oz AL Con	0000470
Carbon	0002990
Dololime	0012205
HiCal Lime	0006870
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	66100	24100	42000	0	0	0
O2 Burner	SCF	56	19	37	0	0	0
Gas Burner	SCF	31	10	21	0	0	0
O2 Lance	SCF	661	110	551	0	0	0
Carbon Lance	LBS	1843	0	1843	0	0	0
TIMES							
Melting Tm	MIN	115	73	41	0	0	0
Power on Tm	MIN	44	17	27	0	0	0
Burner On Tm	MIN	48	13	34	0	0	0
O2Lance On Tm	MIN	41	12	28	0	0	0
CLance On Tm	MIN	14	0	14	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	405.2	212.1	368.4	000.0	000.0	000.0
Flux	Tons	000.0	000.4	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	85720.5	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.1	001.0	003.7	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	011.3	000.0	010.3	000.0	000.0	000.0

COMMENTS

shane

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.21400	0.60000	0.02000	0.01000	0.10000	0.03900	0.00000	0.01500	0.00000	0.36700	0.40000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.01000	0.00000	0.00000	0.00000
MIN	0.18500	0.50000	0.00000	0.00000	0.01500	0.01800	0.01500	0.00000	0.00070	0.32200	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00600	0.00000	0.00000	0.00000
AIM	0.20000	0.55000	0.00000	0.00000	0.01600	0.02500	0.00000	0.00000	0.00000	0.34500	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00700	0.00000	0.00000	0.00000

HEAT: B4D787 MSP: 12203

EVENTS

TIME	KWH	Description
13:48:54	0066100	Ladle Weigth
13:48:50	0066100	End Tapping
13:46:24	0066100	Start Tapping
13:41:20	0066100	Temperature <3026> O2 <3570> C <117>
13:41:13	0066100	Burners Off
13:41:10	0066100	Power Off
13:39:35	0063500	Temperature <2873> O2 <1710> C <2973>
13:37:51	0060600	Temperature <2822> O2 <0> C <0>
13:13:35	0024100	Power On
13:06:51	0024100	Charge
13:06:09	0024100	Power Off
13:02:31	0018400	Charge
12:56:57	0010500	Material Addition
12:54:06	0006100	Material Addition
12:52:58	0004200	Burners On
12:48:54	0000000	Melting
12:48:53	0000000	Power On
11:55:26	0000000	Material Addition
11:52:56	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: A4D293 MSP: 12203

Start Time: 28-Apr-2004 12:58:14
End Time : 28-Apr-2004 14:56:02
TapToTap Time : 117 (min)

Heat Order : 1228002
Grade : A/SA36A709
Ladle #: 0 CrewID: 1 OperatorID: 20

START	DUR	DELAY REASON
14:51:55	0000	Operational, Tap
14:47:25	0004	Operational, Slagoff
14:30:45	0000	Operational, Sidewall RTD trip
14:28:44	0000	Operational, Sidewall RTD trip
14:11:58	0003	Operational, Charge
14:06:23	0000	Operational, Sidewall RTD trip
12:59:01	0055	Operational, Charge run B

CHARGES	AMOUNT
Charge 1	227300
Charge 2	132350
Charge 3	0
Charge 4	0
Charge 5	0

ADDITIONS	LBS
FeMn	0001250
4oz AL Con	0000470
Carbon	0002000
Dololime	0008140
HiCal Lime	0004570
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	68400	11300	57100	0	0	0
O2 Burner	SCF	51	10	41	0	0	0
Gas Burner	SCF	21	5	16	0	0	0
O2 Lance	SCF	937	26	911	0	0	0
Carbon Lance	LBS	3812	0	3812	0	0	0
TIMES							
Melting Tm	MIN	117	64	52	0	0	0
Power on Tm	MIN	47	8	38	0	0	0
Burner On Tm	MIN	49	4	44	0	0	0
O2Lance On Tm	MIN	45	4	41	0	0	0
CLance On Tm	MIN	25	0	25	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	418.4	099.4	380.4	000.0	000.0	000.0
Flux	Tons	000.0	000.1	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	55887.4	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.7	000.2	005.2	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.1	000.0	000.1	000.0	000.0	000.0
Carbon Ton	LBS/Ton	023.3	000.0	021.2	000.0	000.0	000.0

COMMENTS

casey

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.21400	0.60000	0.02000	0.01000	0.10000	0.03900	0.00000	0.01500	0.00000	0.36700	0.40000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.01000	0.00000	0.00000	0.00000
MIN	0.18500	0.50000	0.00000	0.00000	0.01500	0.01800	0.01500	0.00000	0.00070	0.32200	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00600	0.00000	0.00000	0.00000
AIM	0.20000	0.55000	0.00000	0.00000	0.01600	0.02500	0.00000	0.00000	0.00000	0.34500	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00700	0.00000	0.00000	0.00000

1354 - 1605

HEAT: A4D293 MSP: 12203

---------- EVENTS ----------

TIME	KWH	Description
14:56:08	0068400	Ladle Weigth
14:56:04	0068400	End Tapping
14:54:15	0068400	Start Tapping
14:47:57	0068400	Temperature <3047> O2 <4630> C <95>
14:47:53	0068400	Burners Off
14:47:23	0068400	Power Off
14:45:21	0065100	Temperature <2881> O2 <1520> C <186>
14:37:14	0051800	Material Addition
14:31:26	0044200	Power On
14:30:43	0044200	Power Off
14:29:33	0042500	Power On
14:28:43	0042500	Power Off
14:15:49	0024000	Power On
14:15:48	0024000	Power Off
14:15:47	0024000	Power On
14:11:57	0024000	Power Off
14:06:43	0016200	Power On
14:06:21	0016200	Power Off
14:03:11	0011400	Charge
13:58:16	0003900	Burners On
13:54:26	0000000	Melting
13:54:25	0000000	Power On
13:47:41	0000000	Material Addition
13:42:37	0000000	Charge
12:58:15	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: B4D788 MSP: 25190

Start Time: 28-Apr-2004 13:49:51
End Time : 28-Apr-2004 16:05:41
TapToTap Time : 135 (min)

Heat Order : 1228101
Grade : A/SA36A709
Ladle #: 0 CrewID: 1 OperatorID: 20

START	DUR	DELAY REASON
16:01:15	0000	Operational, Tap
15:58:27	0002	Operational, Slagoff
15:50:15	0008	Operational, Blow Carbon
15:46:34	0000	Operational, Temp
15:23:55	0004	Other, Let baghouse catch up
15:09:49	0003	Other, Let baghouse catch up
15:06:49	0003	Operational, Charge
15:03:55	0000	Operational, Sidewall RTD trip
13:50:38	0058	Operational, Charge Run A

CHARGES	AMOUNT
Charge 1 : 226400	
Charge 2 : 132500	
Charge 3 : 0	
Charge 4 : 0	
Charge 5 : 0	

ADDITIONS	LBS
SiMn	0003920
4oz AL Con	0000440
Carbon	0006075
Dololime	0024420
HiCal Lime	0013660
Kwikflux 6	0001000
MW13	0003500
40 # Syn G	0000120

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	70400	18000	52400	0	0	0
O2 Burner	SCF	69	15	54	0	0	0
Gas Burner	SCF	38	8	30	0	0	0
O2 Lance	SCF	1147	77	1070	0	0	0
Carbon Lance	LBS	4903	0	4903	0	0	0
TIMES							
Melting Tm	MIN	135	73	62	0	0	0
Power on Tm	MIN	48	13	34	0	0	0
Burner On Tm	MIN	64	9	55	0	0	0
O2Lance On Tm	MIN	52	8	43	0	0	0
CLance On Tm	MIN	22	0	22	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	431.5	159.0	392.3	000.0	000.0	000.0
Flux	Tons	000.0	000.1	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	42480.7	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	007.0	000.7	006.4	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	030.1	000.0	027.3	000.0	000.0	000.0

COMMENTS

shane

	ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
	MAX	0.20400	1.10000	0.02000	0.01000	0.32000	0.03900	0.00000	0.01500	0.00000	0.43900	0.30000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.01000	0.00000	0.00000	0.00000
	MIN	0.17500	1.00000	0.00000	0.00000	0.22000	0.01800	0.01500	0.00000	0.00100	0.39300	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00600	0.00000	0.00000	0.00000
	AIM	0.19000	1.05000	0.00000	0.00000	0.27000	0.02500	0.00000	0.00000	0.00000	0.41600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00700	0.00000	0.00000	0.00000
16:02:26	E1	0.08300	0.25000	0.01900	0.08500	0.00100	0.19400	0.15700	0.00620	0.00070	0.18600	0.22000	0.09000	0.18000	0.03000	0.00900	0.00200	0.00300	0.00100	0.00100	0.00025	2773.09	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: B4D788 MSP: 25190

EVENTS

TIME	KWH	Description
16:05:47	0070400	Ladle Weigth
16:05:43	0070400	End Tapping
16:03:20	0070400	Start Tapping
16:02:26	0000000	Chemical Analysis Received
15:58:29	0070400	Burners Off
15:58:26	0070400	Temperature <3054> O2 <3180> C <141>
15:57:18	0070400	Temperature <3051> O2 <0> C <0>
15:55:55	0070400	Temperature <3047> O2 <1880> C <233>
15:52:16	0070400	Temperature <3055> O2 <1090> C <413>
15:50:23	0070400	Temperature <3035> O2 <816> C <523>
15:50:13	0070400	Power Off
15:49:07	0068600	Temperature <2860> O2 <0> C <0>
15:46:53	0065200	Power On
15:46:32	0065200	Power Off
15:28:33	0035800	Power On
15:26:54	0035700	Material Addition
15:23:53	0035700	Power Off
15:13:43	0022500	Power On
15:06:47	0022500	Power Off
15:04:21	0019000	Power On
15:03:54	0018900	Power Off
15:03:16	0018100	Charge
14:58:15	0010400	Material Addition
14:57:15	0008800	Material Addition
14:53:46	0003900	Burners On
14:51:04	0000700	Material Addition
14:50:14	0000300	Material Addition
14:49:26	0000000	Melting
14:49:25	0000000	Power On
14:26:16	0000000	Charge
14:11:34	0000000	Material Addition
13:49:53	0000000	TurnAround

RECORD COPY
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File Name
Senders Initials MS

EMISSION TEST REPORT

IPSCO STEEL, INC.
MUSCATINE, IOWA

TEST

FIRST QUARTER 2003 OXIDES OF NITROGEN TEST

APRIL 30, 2003

IDNR Permit Number(s)
EAF/LMF Meltshop Stack 94-A-548-S3

Prepared By:

AAS Inc.

Ambient Air Services, Inc.

106 Ambient Airway • Starke, FL 32091 • (904) 964-8440 • Fax (904) 964-6675

ipsco

June 9, 2003

Iowa Department of Natural Resources
Air Quality Bureau
Stack Test Coordinator
7900 Hickman Road
Suite 1
Urbandale, IA 50322

Re: IPSCO Steel Inc. – Montpelier
Permit #94-A-548-S3
2nd Quarter NOx Test

Mr. Stone:

Enclosed, please find the second quarter NOx report as required by the above-mentioned permit. As provided earlier, the third quarter NOx test is scheduled July 9, 2003. If you have any questions, please feel free to contact me at (563)381-5584. Thank you.

Sincerely,
IPSCO Steel Inc.

Stephanie J. Kreiter
Environmental Coordinator

Cc: Richard Acquaviva – letter only
Wayne Schmidt – letter only
Tom Toner – letter only
Joe Wesselman – letter only

RECEIVED
JUN 10 2003

ipsco steel inc.

1770 Bill Sharp Boulevard, Muscatine, Iowa 52761
Phone (563) 381-5300 Fax (563) 381-5329

EMISSION TEST REPORT

IPSCO STEEL, INC.
Muscatine, Iowa

Second Quarter 2003 Oxides of Nitrogen Test
April 30, 2003

IDNR Permit Number(s)

EAF/LMF Meltshop Stack 94-A-548-S3

Prepared By:

Ambient Air Services, Inc.
106 Ambient Air Way
Starke, FL 32091

RECEIVED
JUN 10 2003

CERTIFICATION PAGE

Ambient Air Services, Inc. of Starke, Florida, has completed the testing described in this report for IPSCO Steel Inc.'s Montpelier Works facility. To the best of our knowledge and abilities we certify that all information, facts and test data are true and correct. Information supplied to AASI for use in this report from IPSCO Steel is perceived to be accurate and is used as such where necessary. This report was prepared and certified by:

David C. Sholtes, Report Review

Joseph L. Cooksey, Project Manager

Questions and or comments regarding this report or process conditions should be directed to:

Ms. Stephanie Kreiter
IPSCO Steel
1770 Bill Sharp Blvd.
Muscatine, IA 52761
Phone: 563-381-5584
Fax: 563-381-5406

Mr. Joseph L. Cooksey
Ambient Air Services
106 Ambient Air Way
Starke, FL 32091
Phone: 904-964-8440
Fax: 904-964-6675
Email: AASI@atlantic.net

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EXECUTIVE SUMMARY

Ambient Air Services, Inc. (AASI) conducted emission testing at the IPSCO Steel (Iowa) Facility located in Montpelier, Iowa. The testing included the determination of Oxides of Nitrogen emissions from the EAF/LMF Baghouse Stack.

The results, shown in Table 1.1 demonstrate compliance with the facilities oxides of nitrogen emission limitations as listed in permit number IDNR-94-A-548-S3

TABLE 1-1

EMISSION TEST RESULTS
EXECUTIVE SUMMARY
IPSCO STEEL, INC.
MONTPELIER, IOWA

April 30, 2003

SOURCE	PARAMETER	ALLOWABLE	TEST RESULTS
EAF/LMF Baghouse Stack	Oxides of Nitrogen (NOx) As (NO_2)	0.80 lbs/ton 700.8 tons/year	0.36 lbs/ton 191.7*

*Tons per year based on 24 hours per day, 365 days per year at Tested Production Rate

1.0 INTRODUCTION

1.1 General

IPSCO Steel (Iowa), Inc. contracted with Ambient Air Services, Inc. (AASI) to conduct emission testing on their EAF/LMF Baghouse Stack. The testing involved the determination of Oxides of Nitrogen (NOx) Emissions.

The purpose of the testing was to satisfy specific requirements of the IDNR issued permit number 94-A-548-S3, for Quarterly NOx testing.

Prior to the testing Mr. Mark Stone of IDNR was provided a Test Protocol and Notification of test dates. Mr. Stone approved the protocol prior to testing

1.2 Test Participants

Ms. Stephanie Kreiter	IPSCO	Environmental Coordinator
Mr. Dain Netland	IDNR	State of Iowa Observer
Mr. Joseph Cooksey	AASI	Project Manager
Mr. David Sholtes	AASI	Report Review

1.3 Summary of Testing Conducted

Table 1-2

Summary of Testing Conducted IPSCO Steel, (Iowa), Inc. Montpelier, Iowa April 30, 2003			
SOURCE	**PARAMETER**	**USEPA TEST METHODS**	**COMMENTS**
EAF/LMF Baghouse Exhaust Stack	Oxides of Nitrogen (NOx)	40 CFR 60 Appendix A Method 7E	3 Test Runs, Each Run nominally 2 heats in duration
	Flow	40 CFR 60 Appendix A Methods 1-4	1 Flow Traverse per NOx Test, Moisture by wet bulb/dry bulb

2.0 TEST METHODOLOGIES

2.1 Flow and Moisture

Flow and moisture were determined in accordance with USEPA Methods 1-4 as published in 40 CFR 60 Appendix A.

One flow traverse was conducted per NOx test run.

The Oxygen and Carbon Dioxide levels were determined in Run 1 using a fyrite analyzer. It was confirmed that the levels of O_2 and CO_2 were 21% and 0% (ambient conditions). Further analysis was deemed unnecessary.

Moisture was determined using a wet bulb/dry bulb technique. The wet bulb/dry bulb readings were taken once per flow traverse.

2.2 Oxides of Nitrogen

Oxides of Nitrogen from this facility were measured using USEPA Method 7E as published in 40 CFR 60 Appendix A. Table 2.2.1 shows the specifications of Method 7E compared to those presented by the instrument manufacture. For this test a TEI Model 42 was used. The instrument was calibrated over a nominal range of 0-50 ppm.

Results from the test were reported in mass per unit of production. All NOx (NO + NO_2) was converted to NO_2 as required by IDNR.

At the beginning of the test the NOx system was calibrated using zero, 25 and 45 ppm USEPA Protocol gas standards. At the completion of each test run the system was checked at zero and 25 ppm.

The sampling system is shown in Figure 3.1

Data from the NOx analyzer was recorded using a computerized data logging system. The data recorder took a reading each second and averaged these readings into 1 minute data points. All test data is included in the appendix section of this report.

Table 2.2.1

OXIDES OF NITROGEN SYSTEM PERFORMANCE SPECIFICATIONS METHOD 7E VS THERMO ENVIRONMENTAL INSTRUMENTS MODEL 42		
	METHOD 7E	TEI 42
Calibration error zero, mid and high gases	Less than ±2% span	±1% of full scale
Sampling system bias for zero, mid and high gases	Less than ±5% span	±1% of full scale
Zero Drift	Less than ±3% of span over the run period	Negligible
Calibration Drift	Less than ±3% of span over the run period	±1% of full scale

3.0 PROCESS DESCRIPTION

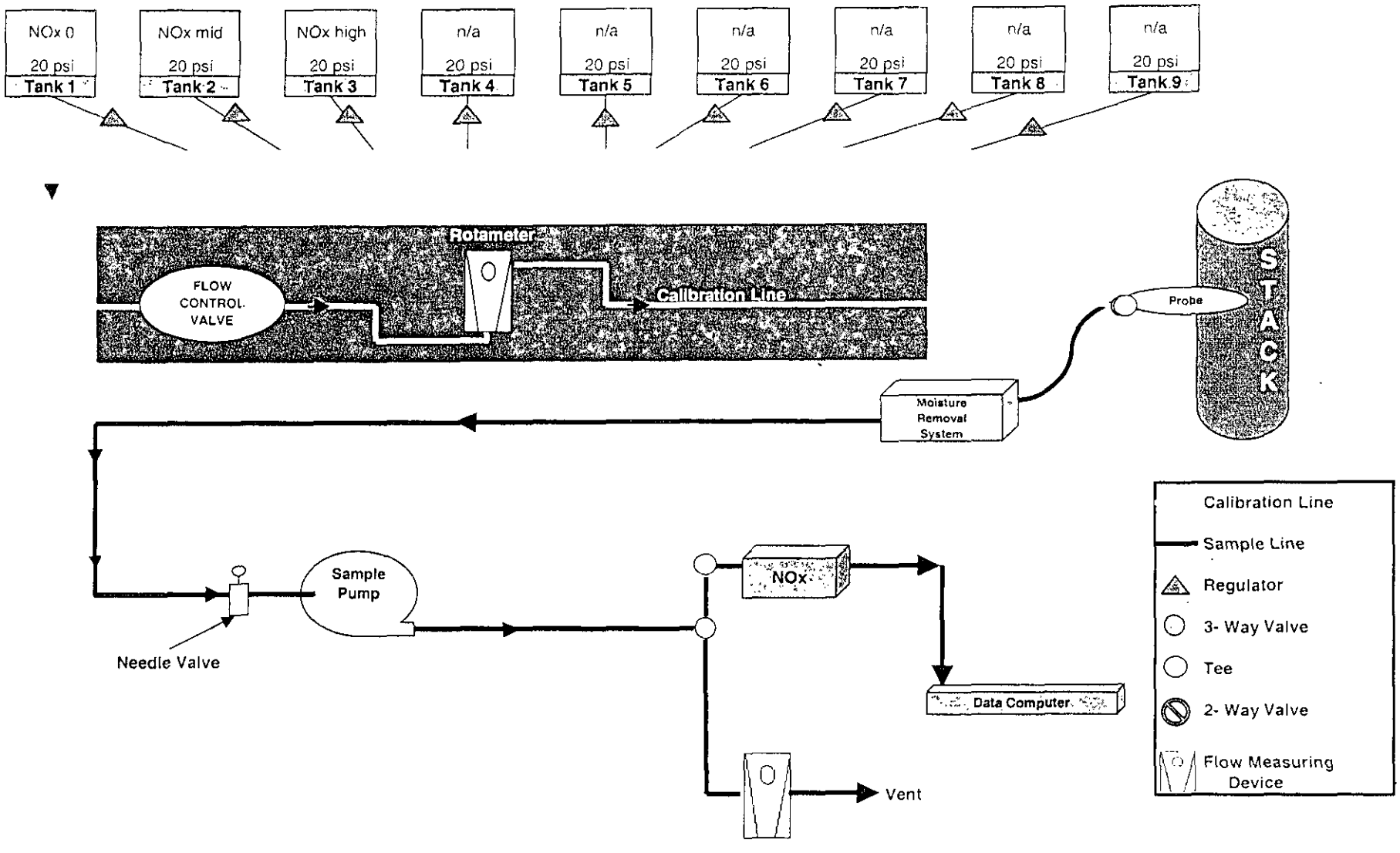
Electric arc furnaces (EAF) are used to produce carbon and alloy steels. The input material to an EAF is typically 100 percent scrap. Cylindrical, refractory lined EAF's are equipped with carbon electrodes to be raised or lowered through the furnace roof. With electrodes retracted, the furnace roof can be rotated aside to permit the charge of scrap steel by overhead crane. Lime and charge carbon are added to the charge buckets, alloying agents and materials are added during the tapping process. Electric current of the opposite polarity electrodes generates heat between the electrodes and through the scrap. After melting and refining periods, the slag and steel are poured from the furnace by tilting.

The production of steel in an EAF is a batch process. Cycles, or "heats", range from about 45 to 90 minutes to produce carbon steel. Scrap steel is charged to begin a cycle, and alloying agents and slag materials are added for refining. Stages of each cycle normally are charging and melting operations, refining (which usually includes oxygen blowing), and tapping.

SAMPLE SYSTEM SCHEMATIC

(Not To Scale)

Figure 3-1



4.0 RESULTS

The results from this testing demonstrate compliance with the permit limitations at the time of testing on April 30, 2003.

The results are summarized in Table 4-1.

Table 4 - 1

AASI

Oxides of Nitrogen (NO_X) Emissions Summary

USEPA Method 7E (40 CFR Part 60 Appendix A)

Ipsco Steel (Iowa), Inc.

Montpeliar, Iowa

IDNR Permit Number 94-A-548-S3

April 30, 2003

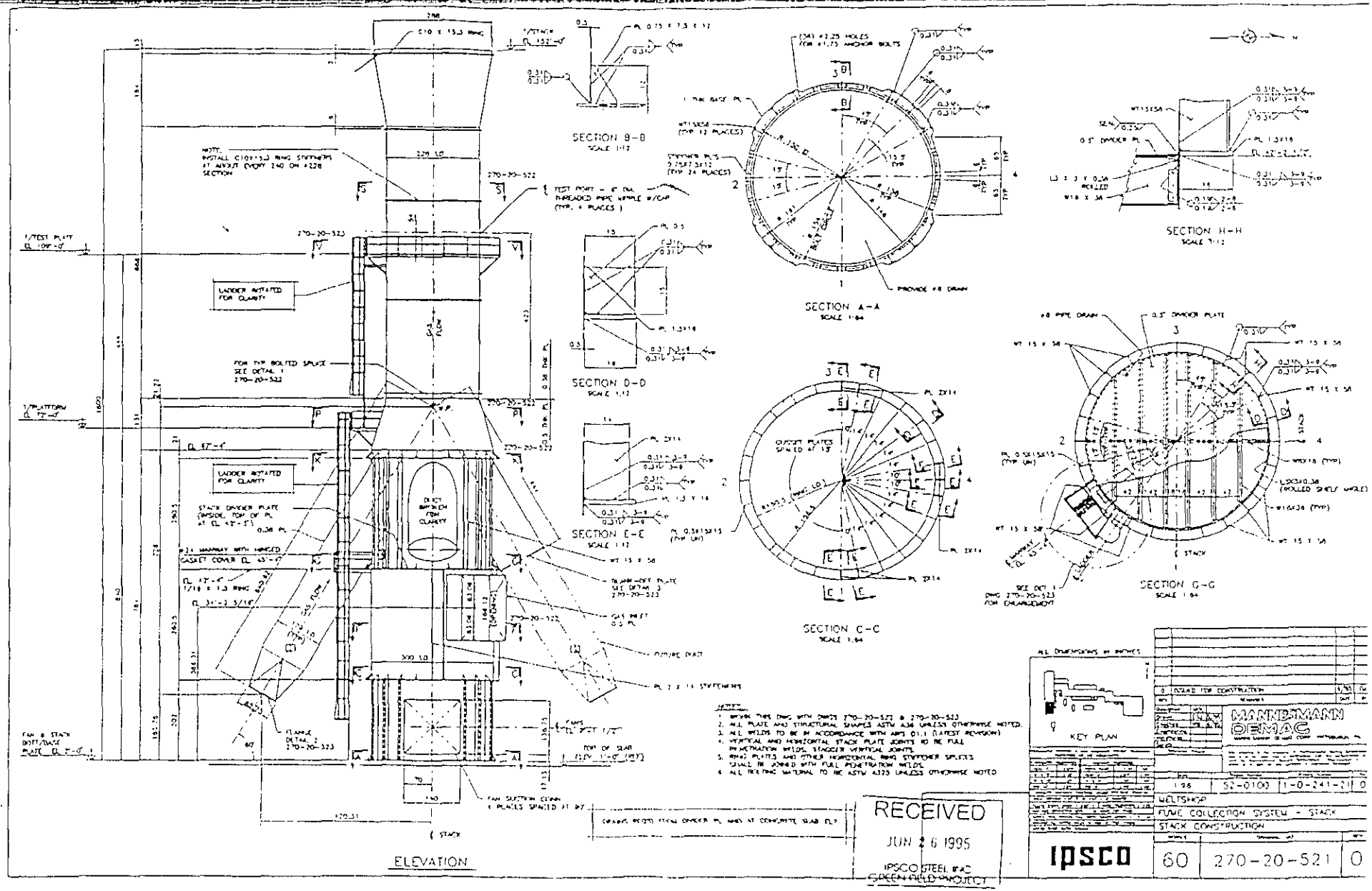
Run			Concentration	Volumetric Flow Rates	Production	Mass Emissions (as NO_2)	
Date	Number	Time (CDT)	ppm-v/v	SCFM-Dry	Tons per Hour	Pounds per Hour	Pounds per Ton
4/30/2003	1	10:41 12:51	6.40	778220	90.5	35.70	0.39
4/30/2003	2	15:15 17:14	7.90	681939	145.4	38.61	0.27
4/30/2003	3	17:44 21:16	11.40	666751	129.0	54.48	0.42
Average			**8.57**	**708970**	**121.6**	**42.93**	**0.36**

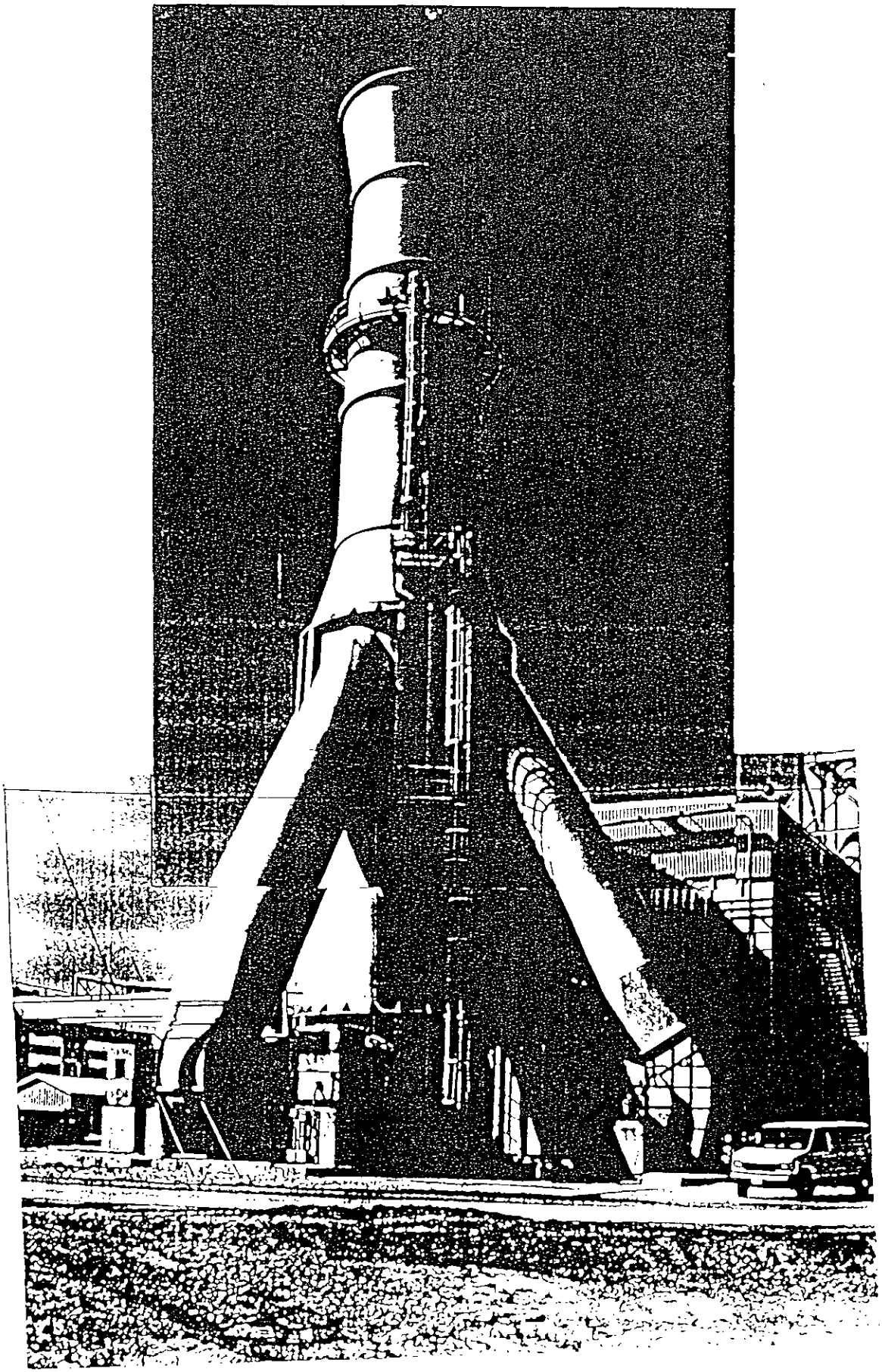
APPENDICES

Appendix A	Stack Diagram - EAF/LMF
Appendix B	Directions and Map to site IDNR Pre-test Questions and Test Protocol
Appendix C	Flow Information
Appendix D	NOx Data
Appendix E	Facility Operating Data

APPENDIX A

Stack Diagram-EAF/LMF


ELEVATION
SECTION A-A
SECTION B-B
SECTION C-C
SECTION D-D
SECTION E-E
SECTION G-G
SECTION H-H
KEY PLAN
NOTES:
1. WELDING TYPES ENGD WITH SHEETS 270-20-521 & 270-20-523
2. ALL PLATE AND STRUCTURAL SHAPES ASTM A36 UNLESS OTHERWISE NOTED.
3. ALL WELDS TO BE IN ACCORDANCE WITH AWS D1.1 (LATEST REVISION)
4. VERTICAL AND HORIZONTAL STACK PLATE JOINTS TO BE FULL PENETRATION WELDS. STAGGER VERTICAL JOINTS.
5. RING PLATES AND OTHER HORIZONTAL RING STIFFENER SPLICES SHALL BE JOINED WITH FULL PENETRATION WELDS.
6. ALL TESTING MATERIAL TO BE ASTM A325 UNLESS OTHERWISE NOTED
RECEIVED
JUN 26 1995
IPSCO STEEL INC.
GREEN FIELD PROJECT
MANNESMANN DEMAG
WELTSHOP
FUME COLLECTION SYSTEM - STACK
STACK CONSTRUCTION
ipsco
60
270-20-521
0



APPENDIX B

Directions and Map to site
IDNR Pretest Questions and Test Protocol

Directions to IPSCO

From Quad City Airport:

From Airport exit, turn right and follow signs to I-74 North

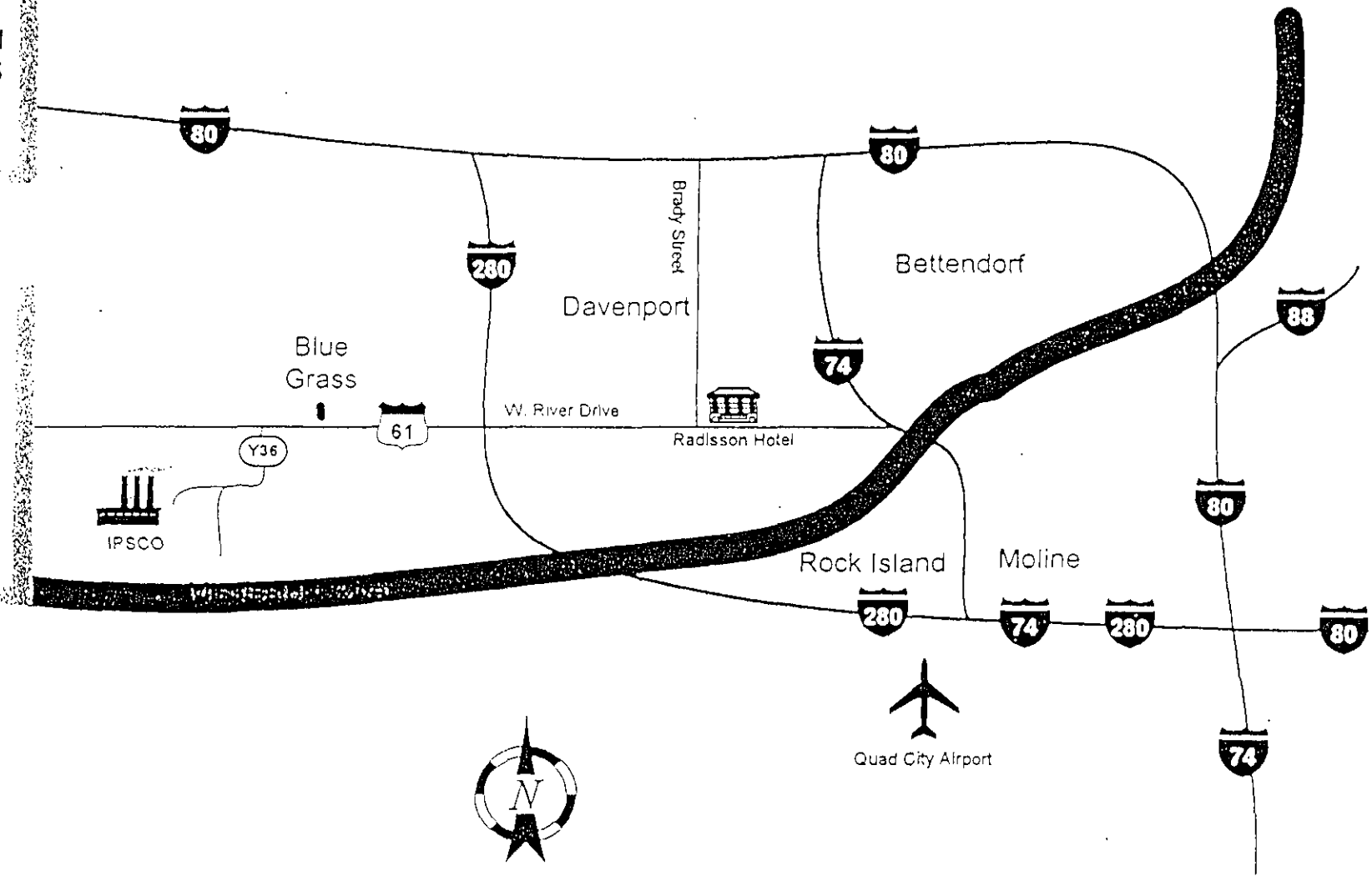
Take I-74 North to I-280 exit; proceed west to Highway 61 South exit

Proceed on Highway 61 to Y-36 (Zachary Av) - 5 miles; see following note

From Highway 61:

Proceed south on Y-36 (Zachary Av) 2-3 miles

Do not turn where Y-36 branches to the south; proceed straight to gate for auto entrance



PROPOSED TEST PLAN PROTOCOL

Company Name: IPSCO Steel (Plant Number 70-08-002)

Address: 1770 Bill Sharp Boulevard, Muscatine, IA 52761

Name and Title of Contact: Stephanie Kreiter

Address of Contact: 1770 Bill Sharp Boulevard, Muscatine, IA 52761

Telephone Number of Contact: (563) 381-5338

Proposed Test Date: Quarterly Starting March 5, 2003, April 30, 2003, July 9, 2003 and October 8,2003.

Source Information

Type of Source: EAF/LMF Baghouse Exhaust Stack

Identification of Source to be tested: Baghouse Exhaust Stack

Permit Number of Source: 94-A-548-S3

Address of Source: 1770 Zachary Avenue

Initial Startup Date: 1998

Testing Firm Information

Name of Firm: Ambient Air Services, Inc.

Address: 106 Ambient Air Way, Starke, Florida 32091

Name and Title of Contact: Joseph L. Cooksey, President

Telephone Number: (904) 964-8440

Number of Employees of Firm: 17

Number of Employees engaged in Air Pollution Source Testing (Including Support Personnel): 17

Location and Description of Laboratory Facilities: 106 Ambient Air Way, Starke, Florida (Metals by Ppb Environmental Laboratories, 6821 S.W. Archer Road, Gainesville, FL)

Subcontractor(s) Utilized by firm for Source Testing Activities: None

Number of Air Pollution Sources Previously Tested by Firm: Testing since 1973

Types of Sources Previously Tested by Firm: Many different source types including heavy experience in Steel Industry.

PERFORMANCE TEST INFORMATION

List all pollutants to be sampled. 94-A-548-S3 - EAF / LMF Baghouse

	Pollutant	Number of Sampling Points	Total Time per Test Run	Number of Test Runs	Test Methods to be Used
1	NOx	1	2 heats	3	M 7E
2	Flow	24	N/A	3	1-4*
3*	VE	Meltshop Building	180 minutes	1	9

***VE Test will be conducted on March 5, 2003 only.**

For EPA Reference Method 5 or Iowa Method 5 tests, indicate the length of each run to collect 50 milligrams of sample. Use the estimated emissions after control as the stack gas concentration.

If the permitted emission standard or expected concentration of particulate is equal to or less than 0.005 grains per dry standard cubic foot (gr/dscf), an extended sampling time must be considered. When calculating the sample time, the length of each run should be such that a sample catch of 50 milligrams will be collected. Should the sample catch be less than 10 milligrams after applying the above method, the test may be subject to rejection or a 10 milligrams sample weight may be assumed.

Include a description of any test procedures to be used in the conduct of the performance tests which differ from the specified method(s).

* Moisture using wet bulb/dry bulb

PROTOCOL SUPPLEMENT - OPERATING DATA

This form is to be filled out and returned with the test protocol.

Maximum Continuous Process Weight (Manufacturer's Rating): Existing - 164 TPH
Phase 1 - 200 TPH (Target Production for Test is Phase 1)
Phase 2 - 230 TPH

Historical Average Process Weight: Not yet established however plant is capable of up to 200 TPH but to date has achieved this for only short time periods.

Historical Maximum Process Weight:

Product Recycling Capability: Yes ___ (Heel) No X

Type of Sources of Fuels Normally Burned: Electric are 420 KWH, 200 cu.ft. natural gas, 400 cu.ft. oxygen + 1200-1400 cu.ft. oxygen per liquid ton of steel.

Type of Control Equipment: Baghouse

Range of Pressure Drop Across Control Equipment: 4-6 Currently operating at Inches of Water

Person Responsible For This Data: Stephanie Kreiter

Person Responsible For Collecting Process Data During Actual Testing: Stephanie Kreiter

Complete and submit one of these forms for each test to be conducted. This information is especially important the determine to operating conditions of the equipment under which the tests will be conducted. The tests must be conducted while operating at maximum capacity or the highest capacity which this source will be operated. Failure to test at the permitted capacity may result in derating this source.

This information is also required to be submitted on the forms found at the end of the protocol package. These two forms, the Compliance Emission Test Operating Data and the Air Pollution Control Equipment Operating Data forms, must be filled out with the data collected on the actual date of the tests. Failure to complete the forms on the day of the testing may be cause for rejecting the tests.

Ambient Air Services, Inc.

106 Ambient Airway • Starke, FL 32091 • (904) 964-8440 • Fax (904) 964-6675

January 7, 2003

Mr. Mark Stone
Stack Testing Coordinator
Air Quality Bureau
Iowa Department of Natural Resources
7900 Hickman Road, Suite 1
Urbandale, Iowa 50322

Dear Mark:

Attached is the IDNR test protocol form completed for the quarterly NOx testing at IPSCO Steel's Montpelier Works facility.

The tentative date for conducting the testing for the First Quarter of 2003 is March 5.

A brief synopsis of the testing planned is as follows:

Oxides of Nitrogen (NOx):	3 test runs, each run 2 heats (nominally 1.5 - 2.0 hours) in duration. Instrument range 0-50 ppm, calibration gases nominally 0, 25 ppm and 45 ppm. Test in accordance with USEPA Method 7E.
Flow:	3 flow traverses, one for each NOx test run. Moisture by wet bulb/dry bulb. O2 and CO2 are expected to be 21% and 0% and will be confirmed using a fyrite analyzer.
VE:	Visible Emission Testing (VE) will be conducted on the Meltshop Building. The VE test will be conducted on March 5, 2003 only. The VE test will be used to re-establish the NSPS AAa requirments for establishment of control device fan amp, damper positions, and furnace pressure operating ranges.

For planning purposes IPSCO has selected the following dates for the remaining calendar quarters for 2003:

Second Quarter	April 30, 2003
Third Quarter	July 9, 2003
Fourth Quarter	October 8, 2003

Please note that these dates are tentative only. As each date approaches we will confirm production schedules and confirm dates and test start times.

Please let me know if you have any questions.

Sincerely,

Joseph L. Cooksey

JLC:las

cc: Stephanie Kreiter, IPSCO Montpelier Works
Joseph Wesselman, IPSCO Corporate

ipsco

February 6, 2003

Iowa Department of Natural Resources
Air Quality Bureau
Stack Test Coordinator
7900 Hickman Road
Suite 1
Des Moines, IA 50322

Re: Quarterly NOx Test
Pre-Test Meeting Requirements

Mr. Stone:

As per our conversation on Thursday, February 6, 2003, I am hereby confirming by way of letter that a pre-test meeting for the quarterly NOx testing requirements will not be required for the tests scheduled in the calendar year 2003. If this information is incorrect, please give me a call at (563)381-5584. Thank you.

Sincerely,
IPSCO Steel Inc.

Stephanie J. Kreiter
Environmental Coordinator

Cc: Joe Wesselman - IPSCO
Joe Cooksey – Ambient Air

ipsco steel inc.

1770 Bill Sharp Boulevard, Muscatine, Iowa 52761
Phone (563) 381-5300 Fax (563) 381-5329

APPENDIX C

Flow Information

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

Data Request Entry Area	PM Run 1
Facility	IPSCO Steel (Iowa) Inc.
Location	Montpeliar, Iowa
Source	EAF Baghouse
Date	04/30/03
Run Number	1
Start Time	11:30
Finish Time	12:00
Weather	Ovc, lt rain
Total Time (min)	N/A
Number of Points	24
Barometric Pressure	29.30
Static Pressure ("H20)	-1.10
Stack Diameter (inches)	228.00
Nozzle Diameter (in.)	N/A
Meter Y Factor	N/A
Pitot Factor	0.84
Final Meter Reading	N/A
Initial Meter Reading	N/A
Condensate (ml)	N/A
Silica Gel Weight (gm)	N/A
Orsat CO2	0.0
Orsat O2	20.9
Orsat CO	0.0
Orsat N2	79.1
Filter Weight (gm)	N/A
Prefilter Weight (gm)	N/A
Meter Factor	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Field Data Points - PM Run 1							
Port	Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter In ' F	Meter Out 'F	Sq Rt VH
1	1	0.55		172			0.7416
	2	0.72		180			0.8485
	3	0.7		184			0.8367
	4	0.7		190			0.8367
	5	0.52		193			0.7211
	6	0.7		188			0.8367
2	1	1		184			1.0000
	2	1.15		186			1.0724
	3	1.3		188			1.1402
	4	1.5		188			1.2247
	5	1.52		188			1.2329
	6	1.45		187			1.2042
3	1	0.95		176			0.9747
	2	0.82		179			0.9055
	3	0.72		179			0.8485
	4	0.62		180			0.7874
	5	0.8		180			0.8944
	6	0.75		179			0.8660
4	1	0.95		165			0.9747
	2	0.85		166			0.9220
	3	0.72		167			0.8485
	4	0.66		167			0.8124
	5	0.7		167			0.8367
	6	0.62		164			0.7874

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

PM Summary Run 1

Facility	IPSCO Steel (Iowa) Inc.	Impinger Condensate	N/A
Location	Montpeliar, Iowa	Silica Gel Condensate	N/A
Stack	EAF Baghouse	Volume Metered	N/A
Run Date	4/30/2003	Meter Temp (Deg R)	460.0
Run Number	1	Orsat CO2 %	0.0
Start Time	11:30	Orsat O2 %	20.9
Finish Time	12:00	Orsat CO %	0.0
Weather	Ovc, lt rain	Orsat N %	79.1
Total Time (min.)	N/A	Condensate Volume	N/A
Barometric Pressure	29.3	Delta H (inches H2O)	N/A
Stack Diameter (in.)	228.00	Stack Pressure	29.219
Stack Area sq. ft.	283.529	Stack Temp (Deg R)	639.0
Nozzle Area sq. ft.	N/A	Filter Weight (gm)	N/A
Number of Points	24	Prefilter Weight (gm)	N/A
Avg of SQRT of V.H.	0.9231	Total Particulate (gm)	N/A
Meter Correction (Y)	N/A		
Nozzle Diameter	N/A		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		N/A
Gas Volume Sampled, STPD		N/A
Total Volume, STP		N/A
Moisture in stack gas, volume fraction		0.022
Dry Stack Gas, volume fraction		0.978
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		28.6
Specific gravity of Stack Gas Relative to Air		0.987
Excess Air (%)		14864.9
Average Stack Velocity, FPM		3478.0
Actual Stack Gas Flow Rate, ACFM		986114
Actual Stack Gas Flow Rate, (Dry) ACFMD		964419
Stack Gas Flow Rate, SCFMD		778220
Stack Gas Flow Rate Wet, SCFMW		795726
Percent Isokinetic		N/A
Stack Emissions:	Grains/DSCF	N/A
	Lbs/Hr	N/A

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(904) 964-8440

Data Request Entry Area	PM Run 2
Facility	IPSCO Steel (Iowa) Inc.
Location	Montpeliar, Iowa
Source	EAF Baghouse
Date	04/30/02
Run Number	2
Start Time	15:45
Finish Time	16:10
Weather	cloudy
Total Time (min)	N/A
Number of Points	24
Barometric Pressure	29.08
Static Pressure ("H20)	-0.75
Stack Diameter (inches)	228.00
Nozzle Diameter (in.)	N/A
Meter Y Factor	N/A
Pitot Factor	0.84
Final Meter Reading	N/A
Initial Meter Reading	N/A
Condensate (ml)	N/A
Silica Gel Weight (gm)	N/A
Orsat CO2	0.0
Orsat O2	21.0
Orsat CO	0.0
Orsat N2	79.0
Filter Weight (gm)	N/A
Prefilter Weight (gm)	N/A
Meter Factor	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

Data Request Entry Area	PM Run 3
Facility	IPSCO Steel (Iowa) Inc.
Location	Montpeliar, Iowa
Source	EAF Baghouse
Date	04/30/03
Run Number	3
Start Time	18:10
Finish Time	18:30
Weather	rain and wind
Total Time (min)	N/A
Number of Points	24
Barometric Pressure	29.08
Static Pressure ("H20)	-0.75
Stack Diameter (inches)	228.00
Nozzle Diameter (in.)	N/A
Meter Y Factor	N/A
Pitot Factor	0.84
Final Meter Reading	N/A
Initial Meter Reading	N/A
Condensate (ml)	N/A
Silica Gel Weight (gm)	N/A
Orsat CO2	0.0
Orsat O2	20.9
Orsat CO	0.0
Orsat N2	79.1
Filter Weight (gm)	N/A
Prefilter Weight (gm)	N/A
Meter Factor	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

Field Data Points - PM Run 3							
Port	Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter In ' F	Meter Out 'F	Sq Rt VH
1	1	0.52		150			0.7211
	2	0.65		156			0.8062
	3	0.62		155			0.7874
	4	0.7		160			0.8367
	5	0.8		158			0.8944
	6	0.72		166			0.8485
2	1	0.72		154			0.8485
	2	0.65		154			0.8062
	3	0.92		155			0.9592
	4	1.1		158			1.0488
	5	1		160			1.0000
	6	0.75		160			0.8660
3	1	0.5		155			0.7071
	2	0.45		165			0.6708
	3	0.4		166			0.6325
	4	0.45		171			0.6708
	5	0.6		175			0.7746
	6	0.5		179			0.7071
4	1	0.55		165			0.7416
	2	0.55		168			0.7416
	3	0.6		166			0.7746
	4	0.45		169			0.6708
	5	0.5		172			0.7071
	6	0.4		178			0.6325

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

Data Request Entry Area	PM Run 3
Facility	IPSCO Steel (Iowa) Inc.
Location	Montpeliar, Iowa
Source	EAF Baghouse
Date	04/30/03
Run Number	3
Start Time	18:10
Finish Time	18:30
Weather	rain and wind
Total Time (min)	N/A
Number of Points	24
Barometric Pressure	29.08
Static Pressure ("H20)	-0.75
Stack Diameter (inches)	228.00
Nozzle Diameter (in.)	N/A
Meter Y Factor	N/A
Pitot Factor	0.84
Final Meter Reading	N/A
Initial Meter Reading	N/A
Condensate (ml)	N/A
Silica Gel Weight (gm)	N/A
Orsat CO2	0.0
Orsat O2	20.9
Orsat CO	0.0
Orsat N2	79.1
Filter Weight (gm)	N/A
Prefilter Weight (gm)	N/A
Meter Factor	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

Field Data Points - PM Run 3							
Port	Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter In ' F	Meter Out 'F	Sq Rt VH
1	1	0.52		150			0.7211
	2	0.65		156			0.8062
	3	0.62		155			0.7874
	4	0.7		160			0.8367
	5	0.8		158			0.8944
	6	0.72		166			0.8485
2	1	0.72		154			0.8485
	2	0.65		154			0.8062
	3	0.92		155			0.9592
	4	1.1		158			1.0488
	5	1		160			1.0000
	6	0.75		160			0.8660
3	1	0.5		155			0.7071
	2	0.45		165			0.6708
	3	0.4		166			0.6325
	4	0.45		171			0.6708
	5	0.6		175			0.7746
	6	0.5		179			0.7071
4	1	0.55		165			0.7416
	2	0.55		168			0.7416
	3	0.6		166			0.7746
	4	0.45		169			0.6708
	5	0.5		172			0.7071
	6	0.4		178			0.6325

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

PM Summary Run 3

Facility	IPSCO Steel (Iowa) Inc.	Impinger Condensate	N/A
Location	Montpeliar, Iowa	Silica Gel Condensate	N/A
Stack	EAF Baghouse	Volume Metered	N/A
Run Date	4/30/2003	Meter Temp (Deg R)	N/A
Run Number	3	Orsat CO2 %	0.0
Start Time	18:10	Orsat O2 %	20.9
Finish Time	18:30	Orsat CO %	0.0
Weather	rain and wind	Orsat N %	79.1
Total Time (min.)	N/A	Condensate Volume	N/A
Barometric Pressure	29.08	Delta H (inches H2O)	N/A
Stack Diameter (in.)	228.00	Stack Pressure	29.025
Stack Area sq. ft.	283.529	Stack Temp (Deg R)	623.1
Nozzle Area sq. ft.	N/A	Filter Weight (gm)	N/A
Number of Points	24	Prefilter Weight (gm)	N/A
Avg of SQRT of V.H.	0.7856	Total Particulate (gm)	N/A
Meter Correction (Y)	N/A		
Nozzle Diameter	N/A		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF	N/A
Gas Volume Sampled, STPD	N/A
Total Volume, STP	N/A
Moisture in stack gas, volume fraction	0.025
Dry Stack Gas, volume fraction	0.975
Molecular Weight of Stack Gas (Dry Basis)	28.84
Molecular Weight of Stack Gas (Stack conditions)	28.57
Specific gravity of Stack Gas Relative to Air	0.986
Excess Air (%)	14864.9
Average Stack Velocity, FPM	2934.1
Actual Stack Gas Flow Rate, ACFM	831902
Actual Stack Gas Flow Rate, (Dry) ACFMD	811104
Stack Gas Flow Rate, SCFMD	666751
Stack Gas Flow Rate Wet, SCFMW	683847
Percent Isokinetic	N/A

AAS Inc AMBIENT AIR SERVICES INCORPORATED
ENVIRONMENTAL CONSULTANTS

PITOT TUBE CALIBRATION MEASUREMENTS

DATE CALIBRATED 1-20-03 PITOT TUBE 7C

Pitot tube assembly level ? (Yes) ____ No

Pitot tube openings damaged? ____ Yes (explain below) ✓ (NO)

a1 = 0.0 degrees (< 10 deg) a2 = 0.0 degrees (< 10 deg)

b2 = 0.5 degrees (<5 deg) b1 = 1.0 degrees (<5 deg)

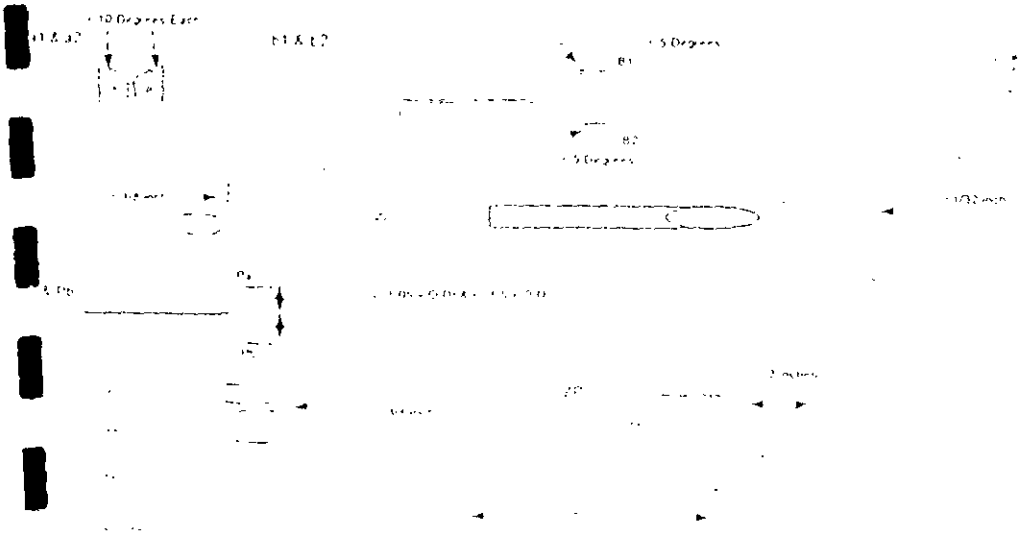
Y = 1.0 degrees θ = 0.5 degrees A = 0.867 inches = (Pa + Pb)

Pa = 0.433 Pb = 0.434 Dt = 0.375

z = A sin Y = 0.015 inches < 0.32 / < 1/8 inches

w = A sin θ = 0.008 inches < 0.32 / < 1/8 inches

Calibration required ? Yes (No)



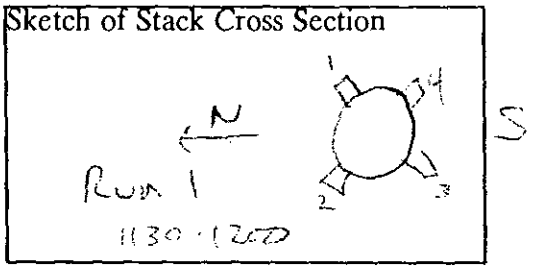
PITOT TRAVERSE FORM

Plant IPSCO IOWA Stack EAF Baghouse

Date 4/30/13

Stack Dimensions _____ Stack Area(ft.²) _____

Sketch of Stack Cross Section



Pitot Corr. Factor 0.84

DB _____ °F WB _____ °F DP _____ °F

V.P. at DP _____ "Hg Fract. D.A. _____

Density Factor _____ Stack Pres. _____

Weather _____

Temp _____ °F Pressure ~~27.08~~ 27.30 ↓ "Hg

Wind Direction _____ Vel. _____

Wet 109°F
Dry 170°F
Moist 2.2%

PITOT TRAVERSE

Point Number	Equal Area Radius	Distance from Stack Wall	Distance from End of Port	Port #1		Port #2		Port #3		Port #4	
				H	Velocity	H	Velocity	H	Velocity	H	Velocity
1				172	0.58	191	1.00	176	0.75	165	0.75
2				180	0.72	186	1.15	171	0.82	166	0.85
3				151	0.70	188	1.30	177	0.72	167	0.72
4				170	0.70	185	1.50	180	0.62	167	0.66
5				173	0.52	183	1.52	180	0.80	167	0.70
6				178	0.70	187	1.45	179	0.75	167	0.62
7											
8											
9					STATIC		-1.1 "H2O				
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											

Average: $\sqrt{\Delta P}$ = _____

$$U = (174)\ (CP)\ (\sqrt{\Delta P})\ \sqrt{\left\{\frac{T_s + 460}{GS} \times \frac{29.92}{PS}\right\}} = _____ \text{ ft/min.}$$

RSSWP.50

PITOT TRAVERSE FORM

Plant IPSCO Iowa Stack EAF Baghouse

Date 4/30/03

Stack Dimensions _____ Stack Area(ft.²) _____

Sketch of Stack Cross Section

Pitot Corr. Factor _____

DB _____ °F WB _____ °F DP _____ °F

V.P. at DP _____ "Hg Fract. D.A. _____

Density Factor _____ Stack Pres. _____

Weather _____

Temp _____ °F Pressure _____ "Hg

Wind Direction _____ Vel. _____

BP 29.08

PITOT TRAVERSE

Point Number	Equal Area Radius	Distance from Stack Wall	Distance from End of Port	Port #1		Port #2		Port #3		Port #4	
				H	Velocity	H	Velocity	H	Velocity	H	Velocity
1				130	0.70	168	0.65	183	0.70	192	0.48
2				183	0.72	172	0.75	183	0.75	188	0.40
3				142	0.71	195	0.70	195	0.62	201	0.45
4				155	0.80	183	1.0	200	0.72	205	0.45
5				153	0.75	196	1.1	203	0.80	205	0.40
6				160	0.70	185	0.9	209	0.55	205	0.35
7											
8					STATIC -0.8						
9	DRY	145			= 2% H₂O						
10	WET	147									
11											
12											
13				150	0.52	194	0.72	155	0.50	165	0.35
14				156	0.65	194	0.65	165	0.45	165	0.35
15				155	0.62	155	0.72	166	0.40	166	0.60
16				160	0.70	185	1.10	171	0.45	169	0.45
17				158	0.80	180	1.00	175	0.60	172	0.50
18				166	0.72	160	0.75	179	0.50	178	0.40
19											
20											
21											
22											
23			WET	114							
24			DRY	167	2%						

RUN 2 1540-1610

RUN 3 18:10-18:30

Stat. 1.2 -0.75

Average: $\sqrt{\Delta P}$ = _____

$$U = (174)\ (CP)\ (\sqrt{\Delta P})\ \sqrt{\left\{\frac{T_s + 460}{GS} \times \frac{29.92}{PS}\right\}} = _____ \text{ft/min.}$$

RSSWP.50

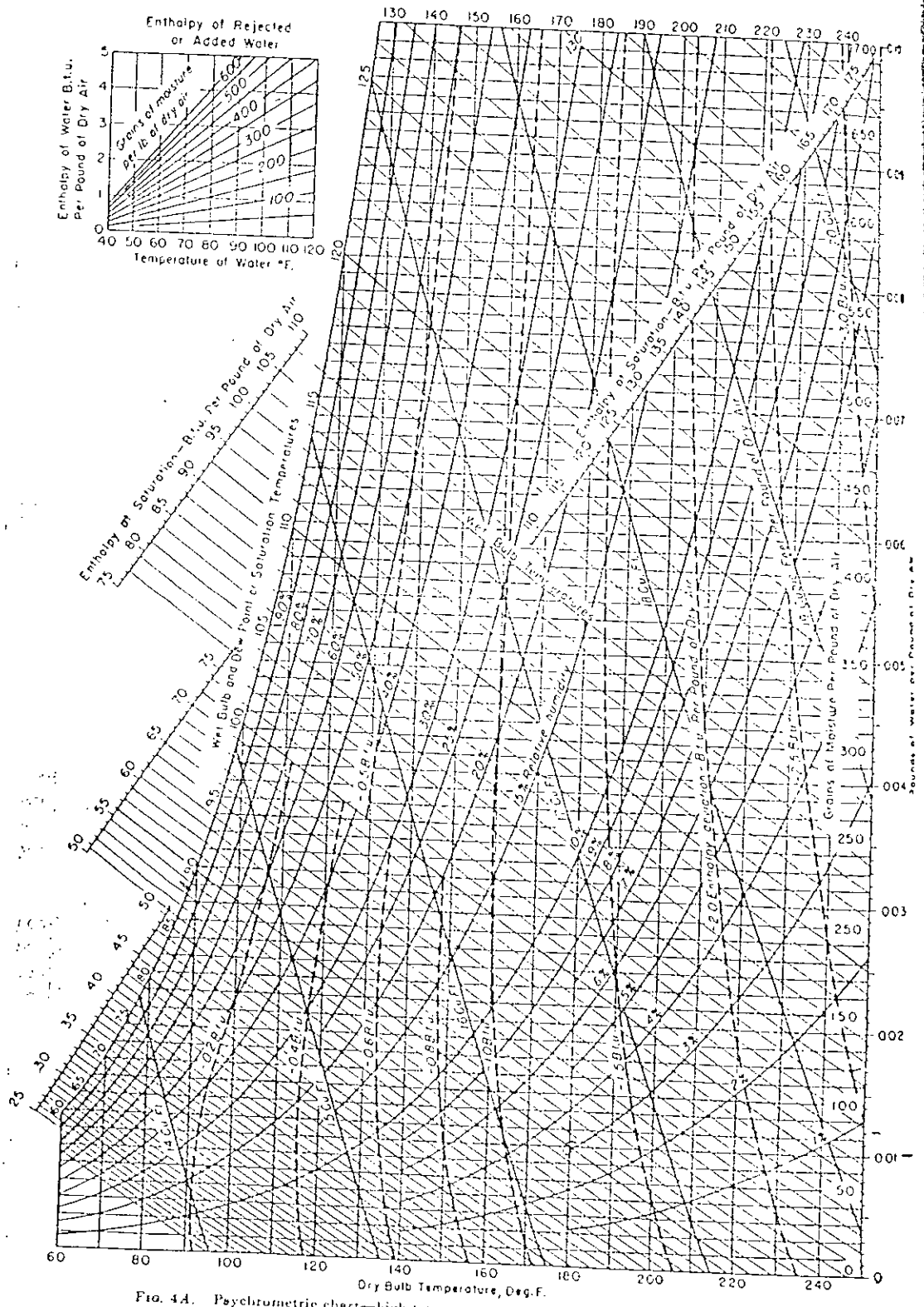


FIG. 4A. Psychrometric chart—high temperatures. Barometric pressure, 29.92 in. of Hg.

APPENDIX D

NOx Data

Summary of Equipment used
Calibration Summary
Data Printout and Test Summary
Calibration Gas Certificates
25.1 NOx
45.1 NOx

Ipsco Steel - Montpelier, Iowa
Meltshop Baghouse - Quarterly Oxides of Nitrogen Test
IDNR Permit Number 94-A-548-S3
April 30, 2003

Equipment List

Oxides of Nitrogen Instrument: **Manufacturer** - Thermo Environmental Instruments **Model** - 42
Serial Number - 33584-245
NOx Range - zero to 50 ppm

Calibration Gas Standards		Concentration	Manufacturer	Cylinder Number	Expiration Date	PSI
Zero	Zero	0.00	Air Gas UHP Air	N/A	N/A	1200
Mid	NOx	25.10	Spectra Gases	CC 135361	Feb-05	1900
High	NOx	45.10	Spectra Gases	CC 85252	Feb-05	1900

Description of Sampling System :
8' 1/4" SS probe to Tee to H_2O condenser to 200 feet 1/4" Teflon sample line to SS/Teflon pump to instruments
all calibration gases injected direct to probe Tee location
Sampling probe positioned in Baghouse Stack at test platform location.

Test Participants :
NOx Testing - Joe Cooksey - Ambient Air Services, Inc. Dain Netland - IDNR Representative
Stephanie Kreiter - Ipsco Steel Environmental Coordinator

Other Comments :

Ipsco Steel - Montpelier, Iowa
Meltshop Baghouse - Quarterly Oxides of Nitrogen Test
IDNR Permit Number 94-A-548-S3
April 30, 2003

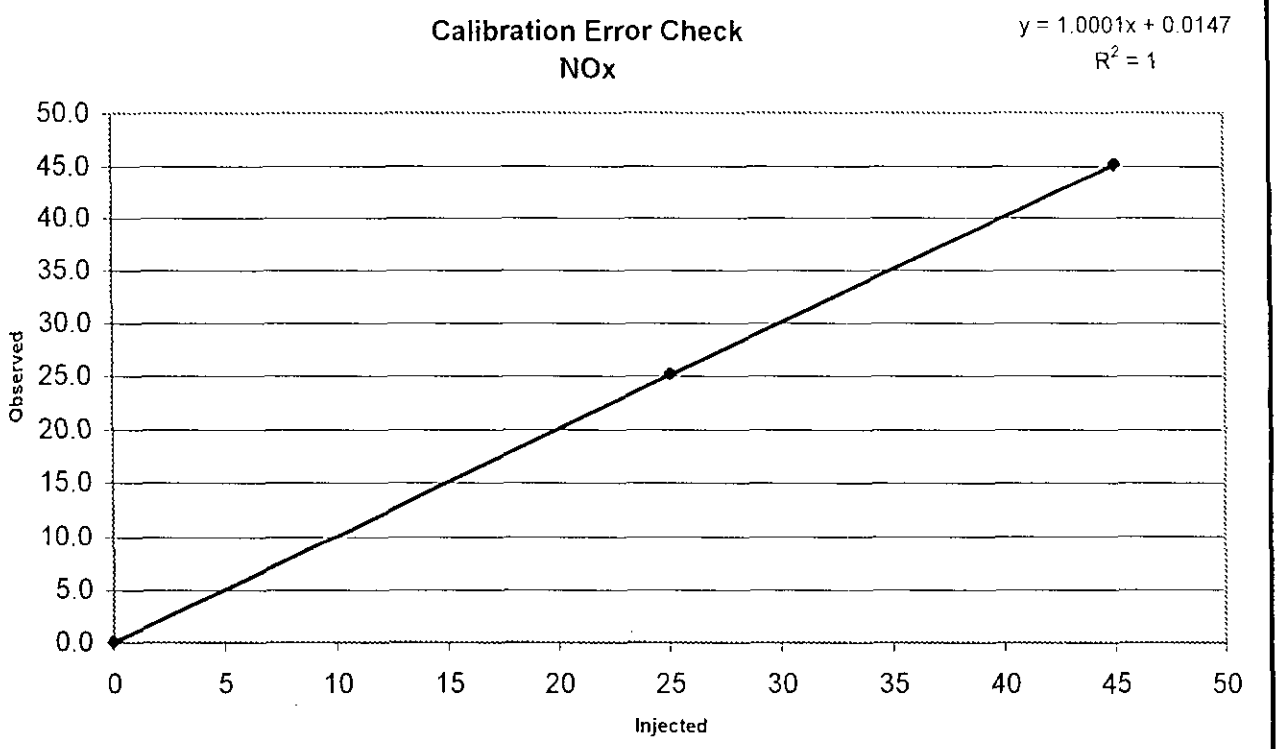
Calibration Sheet

Initial Calibration
Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0	8:15 - 9:00	0.0
NOx	25.1	8:15 - 9:00	25.2
NOx	45.1	8:15 - 9:00	45.1

% Error of Range Table

Inject (ppm)		Time	% Error of Range
Gas	Conc.		NOx
Zero	0	8:15 - 9:00	0.00%
NOx	25.1	8:15 - 9:00	0.10%
NOx	45.1	8:15 - 9:00	0.00%



Ipsco Steel - Montpelier, Iowa
Meltshop Baghouse - Quarterly Oxides of Nitrogen Test
IDNR Permit Number 94-A-548-S3
April 30, 2003

Calibration Sheet

Calibration - Post Run 1

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0		0.0
NOx	25.1		25.4

Drift Analysis From Initial Calibrations to the End of Run 1

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		NOx
Zero	0	0:00	0.00%
NOx	25.1	0:00	0.50%

Drift Variables for Run 1

Variable	NOx	
Co	0.00	
Cm	25.28	
Cma	25.10	

Calibration - Post Run 2

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0		0.00
NOx	25.1		25.40

Drift Analysis From Initial Calibrations to the End of Run 2

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		NOx
Zero	0	0:00	0.00%
NOx	25.1	0:00	0.50%

Drift Variables for Run 2

Variable	NOx	
Co	0.00	
Cm	25.40	
Cma	25.1	

Ipsco Steel - Montpelier, Iowa
Meltshop Baghouse - Quarterly Oxides of Nitrogen Test
IDNR Permit Number 94-A-548-S3
April 30, 2003

Calibration Sheet

Calibration - Post Run 3

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0		0
NOx	25.1		25.3

Drift Analysis From Initial Calibrations to the End of Run 3

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		NOx
Zero	0	0:00	0.00%
NOx	25.1	0:00	0.30%

Drift Variables for Run 3

Variable	NOx	
Co	0.00	
Cm	25.35	
Cma	25.1	

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

April 30, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_d	NOx C_w	NOx C_{ma}	NOx, ppm Drift Corrected	Flow SCFM-Dry	Nox, pounds per hour	Nox, Pounds per Ton
4/30/2003 8:00	0.0																		
4/30/2003 8:01	0.0																		
4/30/2003 8:02	0.0																		
4/30/2003 8:03	0.0																		
4/30/2003 8:04	0.0																		
4/30/2003 8:05	0.0																		
4/30/2003 8:06	0.0																		
4/30/2003 8:07	0.0																		
4/30/2003 8:08	0.0																		
4/30/2003 8:09	0.0																		
4/30/2003 8:10	0.0																		
4/30/2003 8:11	0.0																		
4/30/2003 8:12	0.0																		
4/30/2003 8:13	0.0																		
4/30/2003 8:14	0.0																		
4/30/2003 8:15	0.0																		
4/30/2003 8:16	0.0																		
4/30/2003 8:17	0.0											0 ppm NOx							
4/30/2003 8:18	0.0											0 ppm NOx							
4/30/2003 8:19	0.0											0 ppm NOx							
4/30/2003 8:20	0.0											0 ppm NOx							
4/30/2003 8:21	0.0											0 ppm NOx							
	0.0											0 ppm NOx Average							
4/30/2003 8:22	14.0																		
4/30/2003 8:23	38.8																		
4/30/2003 8:24	44.0																		
4/30/2003 8:25	44.8																		
4/30/2003 8:26	45.0																		
4/30/2003 8:27	45.0																		
4/30/2003 8:28	45.0																		
4/30/2003 8:29	45.1											45.1 ppm NOx							
4/30/2003 8:30	45.1											45.1 ppm NOx							
4/30/2003 8:31	45.1											45.1 ppm NOx							
	45.1											45.1 ppm NOx Average							
4/30/2003 8:32	30.0																		
4/30/2003 8:33	5.9																		
4/30/2003 8:34	14.8																		
4/30/2003 8:35	5.8																		
4/30/2003 8:36	1.7																		
4/30/2003 8:37	0.2																		
4/30/2003 8:38	0.0											0 ppm NOx							
4/30/2003 8:39	0.0											0 ppm NOx							
4/30/2003 8:40	0.0											0 ppm NOx							
	0.0											0 ppm NOx Average							
4/30/2003 8:41	6.8																		
4/30/2003 8:42	3.7																		
4/30/2003 8:43	9.7																		
4/30/2003 8:44	7.2																		
4/30/2003 8:45	6.7																		
4/30/2003 8:46	8.3																		
4/30/2003 8:47	21.1																		
4/30/2003 8:48	24.6																		
4/30/2003 8:49	25.2											25.1 ppm NOx							
4/30/2003 8:50	25.1											25.1 ppm NOx							
	25.1											25.1 ppm NOx Average							
4/30/2003 8:51	24.6																		
4/30/2003 8:52	21.9																		
4/30/2003 8:53	7.9											Standby							
4/30/2003 8:54	3.6											Standby							
4/30/2003 8:55	3.0											Standby							
4/30/2003 8:56	5.2											Standby							
4/30/2003 8:57	4.3											Standby							
4/30/2003 8:58	3.3											Standby							
4/30/2003 8:59	2.8											Standby							
4/30/2003 9:00	2.8											Standby							
4/30/2003 9:01	2.6											Standby							
4/30/2003 9:02	2.6											Standby							
4/30/2003 9:03	2.6											Standby							
4/30/2003 9:04	2.8											Standby							
4/30/2003 9:05	19.1											Standby							
4/30/2003 9:06	39.4											Standby							
4/30/2003 9:07	46.4											Standby							

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

April 30, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_h	NOx C_w	NOx C_{dw}	NOx, ppm Drift Corrected	Flow SCFM-Dry	Nox, pounds per hour	Nox, Pounds per Ton
4/30/2003 9:08	35.2											Standby							
4/30/2003 9:08	32.0											Standby							
4/30/2003 9:10	30.6											Standby							
4/30/2003 9:11	32.1											Standby							
4/30/2003 9:12	31.1											Standby							
4/30/2003 9:13	31.2											Standby							
4/30/2003 9:14	30.4											Standby							
4/30/2003 9:15	29.1											Standby							
4/30/2003 9:16	30.0											Standby							
4/30/2003 9:17	29.8											Standby							
4/30/2003 9:18	13.7											Standby							
4/30/2003 9:19	2.9											Standby							
4/30/2003 9:20	1.0											Standby							
4/30/2003 9:21	0.8											Standby							
4/30/2003 9:22	0.9											Standby							
4/30/2003 9:23	0.7											Standby							
4/30/2003 9:24	0.6											Standby							
4/30/2003 9:25	0.8											Standby							
4/30/2003 9:26	1.1											Standby							
4/30/2003 9:27	1.2											Standby							
4/30/2003 9:28	1.4											Standby							
4/30/2003 9:29	1.6											Standby							
4/30/2003 9:30	1.7											Standby							
4/30/2003 9:31	2.3											Standby							
4/30/2003 9:32	2.3											Standby							
4/30/2003 9:33	1.9											Standby							
4/30/2003 9:34	1.9											Standby							
4/30/2003 9:35	1.8											Standby							
4/30/2003 9:36	1.7											Standby							
4/30/2003 9:37	1.7											Standby							
4/30/2003 9:38	1.3											Standby							
4/30/2003 9:39	1.0											Standby							
4/30/2003 9:40	1.0											Standby							
4/30/2003 9:41	1.0											Standby							
4/30/2003 9:42	1.1											Standby							
4/30/2003 9:43	1.4											Standby							
4/30/2003 9:44	6.9											Standby							
4/30/2003 9:45	6.6											Standby							
4/30/2003 9:46	4.8											Standby							
4/30/2003 9:47	3.4											Standby							
4/30/2003 9:48	2.5											Standby							
4/30/2003 9:49	2.2											Standby							
4/30/2003 9:50	2.0											Standby							
4/30/2003 9:51	1.9											Standby							
4/30/2003 9:52	1.8											Standby							
4/30/2003 9:53	1.8											Standby							
4/30/2003 9:54	1.8											Standby							
4/30/2003 9:55	1.9											Standby							
4/30/2003 9:56	2.0											Standby							
4/30/2003 9:57	2.0											Standby							
4/30/2003 9:58	2.0											Standby							
4/30/2003 9:59	2.1											Standby							
4/30/2003 10:00	2.3											Standby							
4/30/2003 10:01	3.3											Standby							
4/30/2003 10:02	2.5											Standby							
4/30/2003 10:03	2.0											Standby							
4/30/2003 10:04	2.0											Standby							
4/30/2003 10:05	2.0											Standby							
4/30/2003 10:06	1.8											Standby							
4/30/2003 10:07	1.4											Standby							
4/30/2003 10:08	1.4											Standby							
4/30/2003 10:09	1.8											Standby							
4/30/2003 10:10	1.9											Standby							
4/30/2003 10:11	2.1											Standby							
4/30/2003 10:12	2.3											Standby							
4/30/2003 10:13	2.3											Standby							
4/30/2003 10:14	2.0											Standby							
4/30/2003 10:15	2.1											Standby							
4/30/2003 10:16	2.0											Standby							
4/30/2003 10:17	1.8											Standby							
4/30/2003 10:18	1.5											Standby							
4/30/2003 10:19	1.4											Standby							

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

April 30, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_f	NOx C_{sd}	NOx C_{wd}	NOx, ppm Dr.ft Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Nox, Pounds per Ton
4/30/2003 10:20	1.3											Standby							
4/30/2003 10:21	1.2											Standby							
4/30/2003 10:22	1.3											Standby							
4/30/2003 10:23	1.4											Standby							
4/30/2003 10:24	1.6											Standby							
4/30/2003 10:25	1.7											Standby							
4/30/2003 10:26	1.5											Standby							
4/30/2003 10:27	1.4											Standby							
4/30/2003 10:28	1.0											Standby							
4/30/2003 10:29	1.4											Standby							
4/30/2003 10:30	2.1											Standby							
4/30/2003 10:31	1.2											Standby							
4/30/2003 10:32	1.0											Standby							
4/30/2003 10:33	1.3											Standby							
4/30/2003 10:34	5.1											Standby							
4/30/2003 10:35	4.5											Standby							
4/30/2003 10:36	3.2											Standby							
4/30/2003 10:37	3.1											Standby							
4/30/2003 10:38	3.4											Standby							
4/30/2003 10:39	4.4											Standby							
4/30/2003 10:40	3.8											Standby							
	6.0											**Standby Average**							
4/30/2003 10:41	3.5	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	3.5	778220.0	19.46	0.202
4/30/2003 10:42	2.6	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	2.5	778220.0	14.22	0.148
4/30/2003 10:43	1.3	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	1.3	778220.0	7.24	0.075
4/30/2003 10:44	1.1	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	1.1	778220.0	6.07	0.063
4/30/2003 10:45	1.1	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	1.1	778220.0	6.07	0.063
4/30/2003 10:46	1.1	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	1.1	778220.0	6.36	0.066
4/30/2003 10:47	1.1	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	1.1	778220.0	6.07	0.063
4/30/2003 10:48	1.0	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	1.0	778220.0	5.49	0.057
4/30/2003 10:49	0.9	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	0.9	778220.0	5.20	0.054
4/30/2003 10:50	1.0	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	1.0	778220.0	5.49	0.057
4/30/2003 10:51	4.3	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	4.3	778220.0	23.83	0.247
4/30/2003 10:52	15.2	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	15.1	778220.0	84.37	0.875
4/30/2003 10:53	15.2	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	15.1	778220.0	84.08	0.872
4/30/2003 10:54	7.1	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	7.1	778220.0	39.55	0.410
4/30/2003 10:55	4.3	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	4.3	778220.0	23.83	0.247
4/30/2003 10:56	3.6	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	3.5	778220.0	19.75	0.205
4/30/2003 10:57	4.5	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	4.5	778220.0	24.99	0.259
4/30/2003 10:58	7.5	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	7.5	778220.0	41.58	0.431
4/30/2003 10:59	10.6	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	10.5	778220.0	58.76	0.609
4/30/2003 11:00	10.8	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	10.7	778220.0	59.82	0.622
4/30/2003 11:01	8.4	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	8.3	778220.0	46.24	0.480
4/30/2003 11:02	4.8	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	4.7	778220.0	26.45	0.274
4/30/2003 11:03	2.8	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	2.8	778220.0	15.39	0.160
4/30/2003 11:04	1.9	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	1.9	778220.0	10.73	0.111
4/30/2003 11:05	1.7	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	1.7	778220.0	9.56	0.099
4/30/2003 11:06	1.9	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	1.9	778220.0	10.44	0.108
4/30/2003 11:07	2.3	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	2.3	778220.0	12.77	0.132
4/30/2003 11:08	3.7	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	3.6	778220.0	20.33	0.211
4/30/2003 11:09	4.0	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	4.0	778220.0	22.37	0.232
4/30/2003 11:10	4.4	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	4.4	778220.0	24.41	0.253
4/30/2003 11:11	4.7	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	4.7	778220.0	26.15	0.271
4/30/2003 11:12	5.1	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	5.1	778220.0	28.19	0.292
4/30/2003 11:13	7.7	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	7.7	778220.0	42.75	0.443
4/30/2003 11:14	6.5	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	6.4	778220.0	35.76	0.371
4/30/2003 11:15	5.4	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	5.4	778220.0	29.94	0.311
4/30/2003 11:16	4.8	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	4.8	778220.0	26.74	0.277
4/30/2003 11:17	4.2	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	4.2	778220.0	23.25	0.241
4/30/2003 11:18	3.6	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	3.6	778220.0	20.05	0.208
4/30/2003 11:19	3.3	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	3.2	778220.0	18.01	0.187
4/30/2003 11:20	3.9	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	3.9	778220.0	21.50	0.223
4/30/2003 11:21	7.0	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	6.9	778220.0	38.67	0.401
4/30/2003 11:22	5.1	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	5.1	778220.0	28.19	0.292
4/30/2003 11:23	3.9	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	3.9	778220.0	21.79	0.226
4/30/2003 11:24	12.7	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	12.6	778220.0	70.40	0.730
4/30/2003 11:25	28.4	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	28.2	778220.0	157.14	1.630
4/30/2003 11:26	39.8	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	39.5	778220.0	220.30	2.285
4/30/2003 11:27	31.0	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	30.8	778220.0	171.68	1.781
4/30/2003 11:28	7.9	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	7.9	778220.0	43.91	0.456
4/30/2003 11:29	2.7	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	2.7	778220.0	15.10	0.157
4/30/2003 11:30	6.9	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.26	25.10	6.9	778220.0	38.36	0.398

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

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April 30, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	$NO_x C_o$	$NO_x C_w$	$NO_x C_{ww}$	NO_x ppm Drift Corrected	Flow, SCFM-Dry	NO_x, pounds per hour	NO_x, Pounds per Ton
4/30/2003 11:31	8.6	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.28	25.10	8.6	778220.0	47.70	0.495
4/30/2003 11:32	7.6	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.28	25.10	7.5	778220.0	41.88	0.434
4/30/2003 11:33	15.1	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.28	25.10	15.0	778220.0	83.50	0.866
4/30/2003 11:34	7.3	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.28	25.10	7.2	778220.0	40.42	0.419
4/30/2003 11:35	4.4	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.28	25.10	4.4	778220.0	24.41	0.253
4/30/2003 11:36	4.1	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.28	25.10	4.1	778220.0	22.67	0.235
4/30/2003 11:37	5.1	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.28	25.10	5.1	778220.0	28.19	0.292
4/30/2003 11:38	4.7	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.28	25.10	4.7	778220.0	26.15	0.271
4/30/2003 11:39	3.4	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.28	25.10	3.3	778220.0	18.59	0.193
4/30/2003 11:40	2.5	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.28	25.10	2.5	778220.0	13.93	0.145
4/30/2003 11:41	3.2	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.28	25.10	3.2	778220.0	17.72	0.184
4/30/2003 11:42	2.7	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.28	25.10	2.7	778220.0	15.10	0.157
4/30/2003 11:43	2.3	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.28	25.10	2.3	778220.0	12.77	0.132
4/30/2003 11:44	2.3	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.28	25.10	2.2	778220.0	12.48	0.129
4/30/2003 11:45	2.1	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.28	25.10	2.1	778220.0	11.60	0.120
4/30/2003 11:46	1.5	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.28	25.10	1.5	778220.0	8.40	0.087
4/30/2003 11:47	1.0	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.28	25.10	1.0	778220.0	5.78	0.060
4/30/2003 11:48	1.9	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.28	25.10	1.9	778220.0	10.44	0.108
4/30/2003 11:49	2.6	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.28	25.10	2.5	778220.0	14.22	0.148
4/30/2003 11:50	2.0	1	A3D286	135.09	144	56.29	B3D760	145.08	217	40.11	96.40	Run 1	0.00	25.28	25.10	2.0	778220.0	11.31	0.117
4/30/2003 11:51	9.5	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	9.4	778220.0	52.64	0.629
4/30/2003 11:52	13.9	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	13.8	778220.0	77.10	0.921
4/30/2003 11:53	7.2	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	7.2	778220.0	40.13	0.479
4/30/2003 11:54	4.2	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	4.2	778220.0	23.25	0.278
4/30/2003 11:55	3.5	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	3.5	778220.0	19.46	0.232
4/30/2003 11:56	3.0	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	3.0	778220.0	16.55	0.198
4/30/2003 11:57	3.0	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	3.0	778220.0	16.84	0.201
4/30/2003 11:58	3.8	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	3.8	778220.0	21.50	0.257
4/30/2003 11:59	5.3	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	5.3	778220.0	29.36	0.351
4/30/2003 12:00	8.0	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	8.0	778220.0	44.50	0.531
4/30/2003 12:01	9.7	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	9.6	778220.0	53.52	0.639
4/30/2003 12:02	9.9	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	9.9	778220.0	54.97	0.656
4/30/2003 12:03	7.9	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	7.8	778220.0	43.52	0.521
4/30/2003 12:04	5.4	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	5.4	778220.0	29.94	0.358
4/30/2003 12:05	5.3	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	5.3	778220.0	29.38	0.351
4/30/2003 12:06	3.7	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	3.6	778220.0	20.33	0.243
4/30/2003 12:07	3.3	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	3.3	778220.0	18.30	0.218
4/30/2003 12:08	3.1	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	3.1	778220.0	17.42	0.208
4/30/2003 12:09	3.0	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	3.0	778220.0	16.55	0.198
4/30/2003 12:10	2.8	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	2.8	778220.0	15.38	0.184
4/30/2003 12:11	2.8	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	2.8	778220.0	15.66	0.187
4/30/2003 12:12	2.9	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	2.9	778220.0	15.97	0.191
4/30/2003 12:13	4.6	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	4.5	778220.0	25.29	0.302
4/30/2003 12:14	8.3	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	8.2	778220.0	45.95	0.549
4/30/2003 12:15	14.1	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	14.0	778220.0	77.97	0.931
4/30/2003 12:16	11.8	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	11.7	778220.0	65.45	0.782
4/30/2003 12:17	7.7	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	7.6	778220.0	42.46	0.507
4/30/2003 12:18	6.7	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	6.7	778220.0	37.22	0.444
4/30/2003 12:19	4.5	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	4.4	778220.0	24.70	0.295
4/30/2003 12:20	2.7	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	2.7	778220.0	14.80	0.177
4/30/2003 12:21	3.2	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	3.2	778220.0	17.72	0.212
4/30/2003 12:22	3.3	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	3.3	778220.0	18.30	0.218
4/30/2003 12:23	2.7	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	2.7	778220.0	14.80	0.177
4/30/2003 12:24	6.1	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	6.1	778220.0	34.01	0.406
4/30/2003 12:25	8.6	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	8.5	778220.0	47.40	0.566
4/30/2003 12:26	8.6	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	8.6	778220.0	47.70	0.570
4/30/2003 12:27	7.4	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	7.3	778220.0	40.71	0.486
4/30/2003 12:28	5.7	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	5.7	778220.0	31.69	0.378
4/30/2003 12:29	5.5	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	5.4	778220.0	30.23	0.361
4/30/2003 12:30	3.7	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	3.6	778220.0	20.33	0.243
4/30/2003 12:31	2.9	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	2.9	778220.0	15.97	0.191
4/30/2003 12:32	2.7	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	2.7	778220.0	15.10	0.180
4/30/2003 12:33	7.1	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	7.1	778220.0	39.55	0.472
4/30/2003 12:34	10.0	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	9.9	778220.0	55.28	0.660
4/30/2003 12:35	10.3	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	10.2	778220.0	57.01	0.681
4/30/2003 12:36	9.1	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	9.0	778220.0	50.32	0.601
4/30/2003 12:37	5.0	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	5.0	778220.0	27.90	0.333
4/30/2003 12:38	4.0	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	4.0	778220.0	22.32	0.267
4/30/2003 12:39	5.0	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	5.0	778220.0	27.61	0.330
4/30/2003 12:40	4.5	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	4.5	778220.0	24.99	0.298
4/30/2003 12:41	5.1	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	5.1	778220.0	28.49	0.340
4/30/2003 12:42	28.7	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	28.5	778220.0	158.88	1.897

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

April 30, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_f	NOx C_w	NOx C_{wc}	NOx, ppm Dry Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Nox, Pounds per Ton
4/30/2003 12:43	38.2	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	37.9	778220.0	211.26	2.523
4/30/2003 12:44	21.8	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	21.5	778220.0	119.88	1.431
4/30/2003 12:45	8.1	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	8.0	778220.0	44.78	0.535
4/30/2003 12:46	5.8	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	5.8	778220.0	32.27	0.385
4/30/2003 12:47	5.8	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	5.7	778220.0	31.98	0.382
4/30/2003 12:48	6.4	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	6.3	778220.0	35.18	0.420
4/30/2003 12:49	6.0	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	6.0	778220.0	33.43	0.398
4/30/2003 12:50	3.7	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	3.7	778220.0	20.63	0.246
4/30/2003 12:51	3.3	1	A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	Run 1	0.00	25.28	25.10	3.2	778220.0	18.01	0.215
	6.4										80.51	Run 1 Average				6.4	778220.0	35.62	0.398
4/30/2003 12:52	2.5		A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75								
4/30/2003 12:53	1.7		A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75								
4/30/2003 12:54	1.2		A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75								
4/30/2003 12:55	3.0		A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75								
4/30/2003 12:56	2.5		A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75								
4/30/2003 12:57	0.4		A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75								
4/30/2003 12:58	0.1		A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75								
4/30/2003 12:59	0.0		A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	0 NOx Cal							
4/30/2003 13:00	0.0		A3D287	160.72	221	43.64	B3D760	145.08	217	40.11	83.75	0 NOx Cal							
	0.0										83.75	0 NOx Cal Average							
4/30/2003 13:01	9.3		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:02	22.6		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:03	24.9		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:04	25.3		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25	25.1 NOx Cal							
4/30/2003 13:05	25.5		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25	25.1 NOx Cal							
	25.4										136.25	25.1 NOx Cal Average							
4/30/2003 13:06	21.2		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:07	14.9		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:08	13.3		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:09	7.2		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:10	4.9		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:11	3.6		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:12	3.1		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:13	2.7		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:14	2.3		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:15	2.0		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:16	1.7		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:17	1.5		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:18	1.6		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:19	2.0		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:20	1.7		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:21	1.4		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:22	1.1		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:23	1.4		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:24	1.4		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:25	1.4		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:26	1.4		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:27	1.3		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:28	5.1		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:29	4.5		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:30	3.4		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:31	2.9		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:32	2.3		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:33	2.1		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:34	2.8		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:35	4.3		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:36	4.7		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:37	4.6		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:38	4.9		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:39	5.6		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:40	8.6		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:41	9.1		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:42	5.5		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:43	5.1		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:44	7.4		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:45	3.8		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:46	3.1		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:47	7.9		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:48	9.1		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:49	5.0		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:50	6.0		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:51	6.6		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

April 30, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NO_x C_f	NO_x C_w	NO_x C_{dw}	NO_x, ppm, Dry Corrected	Flow, SCFM-Dry	NO_x, pounds per hour	NO_x, Pounds per Ton
4/30/2003 13:52	2.9		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:53	4.7		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:54	13.2		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:55	10.0		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:56	4.7		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:57	3.6		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:58	3.4		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 13:59	4.2		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:00	5.6		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:01	6.1		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:02	6.2		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:03	6.4		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:04	4.7		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:05	3.8		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:06	3.4		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:07	3.7		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:08	3.2		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:09	2.0		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:10	1.4		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:11	1.5		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:12	2.1		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:13	3.5		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:14	4.0		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:15	4.2		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:16	3.3		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:17	3.6		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:18	4.3		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:19	4.3		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:20	5.1		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:21	4.7		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:22	4.0		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:23	4.0		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:24	4.5		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:25	4.4		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:26	4.9		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:27	6.4		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:28	15.8		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:29	22.4		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:30	14.4		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:31	10.8		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:32	11.8		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:33	31.5		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:34	20.3		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:35	5.3		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:36	1.9		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:37	1.5		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:38	1.5		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:39	1.2		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:40	1.0		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:41	0.8		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:42	0.8		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:43	0.6		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:44	0.7		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:45	0.8		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:46	1.0		A3D287	160.72	221	43.64	B3D761	162.08	105	92.62	136.25								
4/30/2003 14:47	1.5		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 14:48	1.9		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 14:49	11.1		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 14:50	9.0		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 14:51	6.3		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 14:52	6.2		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 14:53	8.8		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 14:54	5.5		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 14:55	8.2		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 14:56	5.6		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 14:57	5.2		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 14:58	3.2		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 14:59	3.5		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 15:00	6.6		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 15:01	5.5		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 15:02	3.8		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 15:03	2.8		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

April 30, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NO_x, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	$NO_x C_a$	$NO_x C_w$	$NO_x C_{dw}$	NO_x, ppm Dry Corrected	Flow, SCFM-Dry	NO_x, pounds per hour	NO_x, Pounds per Ton
4/30/2003 15:04	4.7		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 15:05	5.0		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 15:06	8.7		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 15:07	7.6		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 15:08	4.8		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 15:09	5.5		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 15:10	5.7		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 15:11	5.1		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 15:12	5.3		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 15:13	6.1		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 15:14	10.6		A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51								
4/30/2003 15:15	15.0	2	A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51	Run 2	0.00	25.40	25.10	14.8	681939.0	72.57	0.560
4/30/2003 15:16	20.9	2	A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51	Run 2	0.00	25.40	25.10	20.6	681939.0	100.75	0.778
4/30/2003 15:17	33.3	2	A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51	Run 2	0.00	25.40	25.10	32.9	681939.0	160.91	1.242
4/30/2003 15:18	38.0	2	A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51	Run 2	0.00	25.40	25.10	36.8	681939.0	180.58	1.456
4/30/2003 15:19	36.3	2	A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51	Run 2	0.00	25.40	25.10	35.9	681939.0	175.38	1.354
4/30/2003 15:20	37.9	2	A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51	Run 2	0.00	25.40	25.10	37.5	681939.0	183.25	1.415
4/30/2003 15:21	15.5	2	A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51	Run 2	0.00	25.40	25.10	15.3	681939.0	74.85	0.578
4/30/2003 15:22	7.5	2	A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51	Run 2	0.00	25.40	25.10	7.4	681939.0	36.01	0.278
4/30/2003 15:23	5.9	2	A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51	Run 2	0.00	25.40	25.10	5.8	681939.0	28.40	0.219
4/30/2003 15:24	5.7	2	A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51	Run 2	0.00	25.40	25.10	5.6	681939.0	27.38	0.211
4/30/2003 15:25	4.6	2	A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51	Run 2	0.00	25.40	25.10	4.6	681939.0	22.30	0.172
4/30/2003 15:26	3.8	2	A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51	Run 2	0.00	25.40	25.10	3.8	681939.0	18.50	0.143
4/30/2003 15:27	5.1	2	A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51	Run 2	0.00	25.40	25.10	5.0	681939.0	24.58	0.190
4/30/2003 15:28	5.0	2	A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51	Run 2	0.00	25.40	25.10	4.9	681939.0	24.08	0.186
4/30/2003 15:29	3.5	2	A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51	Run 2	0.00	25.40	25.10	3.5	681939.0	16.97	0.131
4/30/2003 15:30	2.1	2	A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51	Run 2	0.00	25.40	25.10	2.1	681939.0	10.37	0.080
4/30/2003 15:31	1.3	2	A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51	Run 2	0.00	25.40	25.10	1.2	681939.0	6.06	0.047
4/30/2003 15:32	1.9	2	A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51	Run 2	0.00	25.40	25.10	1.9	681939.0	8.10	0.070
4/30/2003 15:33	2.4	2	A3D287	160.72	221	43.64	B3D762	147.42	103	85.88	129.51	Run 2	0.00	25.40	25.10	2.3	681939.0	11.39	0.088
4/30/2003 15:34	2.3	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	2.3	681939.0	11.14	0.072
4/30/2003 15:35	2.0	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	2.0	681939.0	9.61	0.062
4/30/2003 15:36	0.9	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	0.9	681939.0	4.28	0.028
4/30/2003 15:37	0.7	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	0.7	681939.0	3.28	0.021
4/30/2003 15:38	0.7	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	0.7	681939.0	3.52	0.023
4/30/2003 15:39	1.1	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	1.1	681939.0	5.30	0.034
4/30/2003 15:40	8.3	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	8.2	681939.0	40.07	0.258
4/30/2003 15:41	23.1	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	22.8	681939.0	111.56	0.719
4/30/2003 15:42	27.9	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	27.6	681939.0	134.76	0.867
4/30/2003 15:43	29.4	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	29.1	681939.0	142.12	0.915
4/30/2003 15:44	22.0	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	21.7	681939.0	106.07	0.683
4/30/2003 15:45	13.4	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	13.3	681939.0	64.95	0.418
4/30/2003 15:46	6.2	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	6.2	681939.0	30.16	0.194
4/30/2003 15:47	5.4	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	5.3	681939.0	25.86	0.166
4/30/2003 15:48	5.9	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	5.8	681939.0	28.40	0.183
4/30/2003 15:49	5.8	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	5.8	681939.0	28.14	0.181
4/30/2003 15:50	4.3	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	4.2	681939.0	20.51	0.132
4/30/2003 15:51	4.5	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	4.4	681939.0	21.55	0.139
4/30/2003 15:52	4.6	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	4.5	681939.0	22.05	0.142
4/30/2003 15:53	4.9	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	4.8	681939.0	23.57	0.152
4/30/2003 15:54	4.1	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	4.1	681939.0	20.02	0.129
4/30/2003 15:55	6.7	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	6.6	681939.0	32.20	0.207
4/30/2003 15:56	5.6	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	5.6	681939.0	27.13	0.175
4/30/2003 15:57	5.8	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	5.7	681939.0	21.89	0.180
4/30/2003 15:58	6.8	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	6.7	681939.0	32.71	0.211
4/30/2003 15:59	6.0	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	6.0	681939.0	29.16	0.188
4/30/2003 16:00	5.4	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	5.3	681939.0	26.11	0.168
4/30/2003 16:01	5.0	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	5.0	681939.0	24.34	0.157
4/30/2003 16:02	7.0	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	7.0	681939.0	33.98	0.219
4/30/2003 16:03	8.1	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	8.0	681939.0	39.06	0.251
4/30/2003 16:04	5.6	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	5.6	681939.0	27.13	0.175
4/30/2003 16:05	4.5	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	4.4	681939.0	21.55	0.139
4/30/2003 16:06	7.8	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	7.7	681939.0	37.79	0.243
4/30/2003 16:07	9.7	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	9.5	681939.0	46.87	0.300
4/30/2003 16:08	10.1	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	10.0	681939.0	48.71	0.313
4/30/2003 16:09	7.9	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	7.8	681939.0	38.04	0.245
4/30/2003 16:10	6.1	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	6.0	681939.0	29.41	0.189
4/30/2003 16:11	10.0	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	9.9	681939.0	48.45	0.312
4/30/2003 16:12	26.3	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	26.0	681939.0	127.15	0.818
4/30/2003 16:13	16.9	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	16.7	681939.0	81.70	0.526
4/30/2003 16:14	6.6	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	6.5	681939.0	31.95	0.206
4/30/2003 16:15	7.4	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	7.3	681939.0	35.76	0.230

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

April 30, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	$NOx\ C_1$	$NOx\ C_2$	$NOx\ C_{ma}$	NOx, ppm Dry Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Nox, Pounds per Ton
4/30/2003 16:16	30.0	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 1	0.00	25.40	25.10	29.6	681939.0	144.66	0.931
4/30/2003 16:17	34.4	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	34.0	681939.0	165.99	1.068
4/30/2003 16:18	13.1	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	13.0	681939.0	63.43	0.408
4/30/2003 16:19	7.2	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	7.1	681939.0	34.74	0.224
4/30/2003 16:20	5.4	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	5.3	681939.0	25.86	0.166
4/30/2003 16:21	5.9	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	5.8	681939.0	28.40	0.183
4/30/2003 16:22	6.3	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	6.2	681939.0	30.43	0.196
4/30/2003 16:23	4.7	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	4.7	681939.0	22.81	0.147
4/30/2003 16:24	4.5	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	4.4	681939.0	21.55	0.139
4/30/2003 16:25	4.5	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	4.4	681939.0	21.55	0.139
4/30/2003 16:26	3.8	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	3.7	681939.0	18.24	0.117
4/30/2003 16:27	2.1	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	2.1	681939.0	10.12	0.065
4/30/2003 16:28	0.9	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	0.9	681939.0	4.54	0.029
4/30/2003 16:29	0.7	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	0.7	681939.0	3.26	0.021
4/30/2003 16:30	0.7	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	0.7	681939.0	3.26	0.021
4/30/2003 16:31	0.8	2	A3D288	129.73	112	69.50	B3D762	147.42	103	85.88	155.37	Run 2	0.00	25.40	25.10	0.8	681939.0	4.03	0.026
4/30/2003 16:32	0.9	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	0.9	681939.0	4.28	0.031
4/30/2003 16:33	0.9	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	0.9	681939.0	4.28	0.031
4/30/2003 16:34	1.2	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	1.2	681939.0	5.81	0.042
4/30/2003 16:35	1.9	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	1.9	681939.0	9.10	0.066
4/30/2003 16:36	2.7	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	2.6	681939.0	12.91	0.093
4/30/2003 16:37	5.2	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	5.1	681939.0	25.10	0.181
4/30/2003 16:38	4.3	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	4.2	681939.0	20.53	0.148
4/30/2003 16:39	8.7	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	8.6	681939.0	42.11	0.303
4/30/2003 16:40	11.1	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	11.0	681939.0	53.53	0.386
4/30/2003 16:41	6.4	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	6.3	681939.0	30.68	0.221
4/30/2003 16:42	4.7	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	4.7	681939.0	22.81	0.164
4/30/2003 16:43	5.0	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	4.9	681939.0	24.08	0.173
4/30/2003 16:44	6.1	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	6.0	681939.0	29.41	0.212
4/30/2003 16:45	4.5	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	4.5	681939.0	21.80	0.157
4/30/2003 16:46	4.1	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	4.1	681939.0	20.02	0.144
4/30/2003 16:47	3.8	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	3.7	681939.0	18.24	0.131
4/30/2003 16:48	2.7	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	2.6	681939.0	12.91	0.093
4/30/2003 16:49	2.0	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	2.0	681939.0	9.81	0.069
4/30/2003 16:50	2.7	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	2.7	681939.0	13.17	0.095
4/30/2003 16:51	3.3	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	3.2	681939.0	15.71	0.113
4/30/2003 16:52	3.3	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	3.2	681939.0	15.71	0.113
4/30/2003 16:53	3.3	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	3.2	681939.0	15.71	0.113
4/30/2003 16:54	3.7	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	3.6	681939.0	17.73	0.128
4/30/2003 16:55	3.5	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	3.4	681939.0	16.72	0.120
4/30/2003 16:56	2.5	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	2.4	681939.0	11.80	0.086
4/30/2003 16:57	2.3	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	2.3	681939.0	11.14	0.080
4/30/2003 16:58	2.8	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	2.7	681939.0	13.42	0.097
4/30/2003 16:59	7.1	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	7.1	681939.0	34.49	0.248
4/30/2003 17:00	6.1	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	6.0	681939.0	29.41	0.212
4/30/2003 17:01	5.5	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	5.4	681939.0	26.37	0.190
4/30/2003 17:02	5.2	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	5.2	681939.0	25.35	0.183
4/30/2003 17:03	4.5	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	4.4	681939.0	21.55	0.155
4/30/2003 17:04	4.7	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	4.6	681939.0	22.58	0.163
4/30/2003 17:05	5.2	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	5.1	681939.0	25.10	0.181
4/30/2003 17:06	4.0	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	4.0	681939.0	19.53	0.141
4/30/2003 17:07	4.5	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	4.4	681939.0	21.55	0.155
4/30/2003 17:08	4.2	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	4.1	681939.0	20.28	0.146
4/30/2003 17:09	7.0	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	6.9	681939.0	33.73	0.243
4/30/2003 17:10	12.4	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	12.2	681939.0	62.99	0.605
4/30/2003 17:11	8.8	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	8.7	681939.0	42.36	0.305
4/30/2003 17:12	6.8	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	6.7	681939.0	32.97	0.237
4/30/2003 17:13	14.6	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	14.8	681939.0	71.55	0.515
4/30/2003 17:14	23.4	2	A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83	Run 2	0.00	25.40	25.10	23.2	681939.0	113.16	0.815
	8.0										145.35	Run 2 Average				7.9	681939.0	38.50	0.266
4/30/2003 17:15	12.2		A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83								
4/30/2003 17:16	7.5		A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83								
4/30/2003 17:17	5.8		A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83								
4/30/2003 17:18	4.8		A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83								
4/30/2003 17:19	5.1		A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83								
4/30/2003 17:20	5.6		A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83								
4/30/2003 17:21	7.1		A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83								
4/30/2003 17:22	4.9		A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83								
4/30/2003 17:23	2.7		A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83								
4/30/2003 17:24	1.3		A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83								
4/30/2003 17:25	1.9		A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83								
4/30/2003 17:26	1.7		A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83								

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Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

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April 30, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Steel Heat Number	A Production	A Time (min)	A tons/hour	B Steel Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_f	NOx C_w	NOx C_{dw}	NOx, ppm Drift Corrected	Flow, SCFM Dry	Nox, pounds per hour	Nox, Pounds per Ton
4/30/2003 17:27	0.8		A3D288	129.73	112	69.50	B3D763	139.82	121	69.33	138.83								
4/30/2003 17:28	0.7		A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63								
4/30/2003 17:29	1.2		A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63								
4/30/2003 17:30	3.9		A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63								
4/30/2003 17:31	1.0		A3D288	182.80	160	54.30	B3D763	139.82	121	69.33	123.63								
4/30/2003 17:32	0.2		A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63								
4/30/2003 17:33	0.0		A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	0 ppm NOx							
4/30/2003 17:34	0.0		A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	0 ppm NOx							
4/30/2003 17:35	0.0		A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	0 ppm NOx							
	0.0										123.63	0 ppm NOx Average							
4/30/2003 17:36	7.5		A3D288	182.80	160	54.30	B3D763	139.82	121	69.33	123.63								
4/30/2003 17:37	21.8		A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63								
4/30/2003 17:38	24.9		A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63								
4/30/2003 17:39	25.4		A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	25.1 ppm NOx							
4/30/2003 17:40	25.4		A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	25.1 ppm NOx							
	25.4										123.63	25.1 ppm NOx Average							
4/30/2003 17:41	20.9		A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63								
4/30/2003 17:42	12.4		A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63								
4/30/2003 17:43	10.1		A3D288	182.80	160	54.30	B3D763	139.82	121	69.33	123.63								
4/30/2003 17:44	5.6	3	A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	5.6	6667510	25.58	0.215
4/30/2003 17:45	3.0	3	A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	3.0	6667510	14.14	0.114
4/30/2003 17:46	2.7	3	A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	2.7	6667510	12.90	0.104
4/30/2003 17:47	8.5	3	A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	8.4	6667510	40.26	0.326
4/30/2003 17:48	6.8	3	A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	6.8	6667510	32.30	0.261
4/30/2003 17:49	4.7	3	A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	4.6	6667510	22.10	0.179
4/30/2003 17:50	4.4	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	4.3	6667510	20.81	0.167
4/30/2003 17:51	4.4	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	4.4	6667510	20.86	0.169
4/30/2003 17:52	4.7	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	4.6	6667510	22.10	0.179
4/30/2003 17:53	4.8	3	A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	4.5	6667510	21.60	0.175
4/30/2003 17:54	4.8	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	4.8	6667510	22.84	0.185
4/30/2003 17:55	5.2	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	5.2	6667510	24.84	0.201
4/30/2003 17:56	5.2	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	5.1	6667510	24.58	0.199
4/30/2003 17:57	4.7	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	4.6	6667510	22.10	0.179
4/30/2003 17:58	4.5	3	A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	4.4	6667510	21.11	0.171
4/30/2003 17:59	4.4	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	4.4	6667510	20.86	0.169
4/30/2003 18:00	4.8	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	4.8	6667510	22.84	0.185
4/30/2003 18:01	4.9	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	4.9	6667510	23.55	0.189
4/30/2003 18:02	5.0	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	4.9	6667510	23.59	0.191
4/30/2003 18:03	5.0	3	A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	4.9	6667510	23.59	0.191
4/30/2003 18:04	4.2	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	4.2	6667510	19.86	0.161
4/30/2003 18:05	3.2	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	3.2	6667510	15.14	0.122
4/30/2003 18:06	2.7	3	A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	2.7	6667510	12.90	0.104
4/30/2003 18:07	2.7	3	A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	2.6	6667510	12.65	0.102
4/30/2003 18:08	4.1	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	4.1	6667510	19.61	0.158
4/30/2003 18:09	4.8	3	A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	4.8	6667510	23.09	0.187
4/30/2003 18:10	10.6	3	A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	10.5	6667510	50.20	0.406
4/30/2003 18:11	18.1	3	A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	17.9	6667510	85.52	0.692
4/30/2003 18:12	24.0	3	A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	23.7	6667510	113.37	0.917
4/30/2003 18:13	30.0	3	A3D289	182.80	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	29.7	6667510	141.72	1.146
4/30/2003 18:14	34.8	3	A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	34.4	6667510	164.60	1.331
4/30/2003 18:15	37.4	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	37.0	6667510	176.79	1.430
4/30/2003 18:16	39.4	3	A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	39.0	6667510	186.49	1.508
4/30/2003 18:17	38.4	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	38.0	6667510	181.76	1.470
4/30/2003 18:18	40.0	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	39.6	6667510	189.47	1.532
4/30/2003 18:19	38.4	3	A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	38.0	6667510	181.51	1.468
4/30/2003 18:20	24.0	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	23.8	6667510	113.62	0.919
4/30/2003 18:21	7.2	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	7.1	6667510	34.04	0.275
4/30/2003 18:22	3.5	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	3.4	6667510	16.38	0.132
4/30/2003 18:23	2.2	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	2.2	6667510	10.41	0.084
4/30/2003 18:24	1.8	3	A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	1.8	6667510	8.67	0.070
4/30/2003 18:25	1.8	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	1.8	6667510	8.67	0.070
4/30/2003 18:26	1.7	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	1.7	6667510	7.93	0.064
4/30/2003 18:27	2.4	3	A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	2.4	6667510	11.41	0.092
4/30/2003 18:28	12.5	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	12.4	6667510	59.15	0.478
4/30/2003 18:29	15.6	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	15.4	6667510	73.58	0.595
4/30/2003 18:30	15.8	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	15.7	6667510	74.87	0.605
4/30/2003 18:31	10.6	3	A3D288	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	10.5	6667510	49.95	0.404
4/30/2003 18:32	6.8	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	6.7	6667510	32.05	0.259
4/30/2003 18:33	8.5	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	8.4	6667510	40.00	0.324
4/30/2003 18:34	10.1	3	A3D289	182.90	160	54.30	B3D763	139.82	121	69.33	123.63	Run 3	0.00	25.35	25.10	10.0	6667510	47.72	0.386
4/30/2003 18:35	9.4	3	A3D289	182.90	160	54.30	B3D764	150.15	176	51.18		Run 3							
4/30/2003 18:36	6.5	3	A3D288	182.90	160	54.30	B3D764	150.15	176	51.19		Run 3							

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

April 30, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (ton/hour)	COMMENTS	NOx C_f	NOx C_w	NOx C_{wo}	NOx, ppm Dry% Corrected	Flow, SCFM-Dry	Mass, pounds per hour	Mass, Pounds per Ton
4/30/2003 18:37	4.0	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 18:38	2.5	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 18:39	4.5	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 18:40	8.6	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 18:41	6.5	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 18:42	4.1	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 18:43	4.1	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 18:44	4.1	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 18:45	3.6	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 18:46	3.0	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 18:47	2.7	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 18:48	2.7	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 18:49	2.9	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 18:50	3.7	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 18:51	14.7	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 18:52	20.4	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 18:53	22.0	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 18:54	22.6	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 18:55	21.9	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 18:56	20.3	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 18:57	20.3	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 18:58	20.1	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 18:59	19.5	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:00	18.9	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:01	19.2	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:02	19.3	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:03	19.3	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:04	18.5	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:05	18.2	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:06	18.1	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:07	18.4	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:08	18.6	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:09	18.7	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:10	19.2	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:11	19.2	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:12	17.4	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:13	5.9	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:14	1.6	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:15	1.0	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:16	0.9	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:17	0.9	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:18	1.1	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:19	1.2	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:20	2.3	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:21	6.1	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:22	9.5	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:23	13.0	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:24	9.7	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:25	6.4	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:26	5.6	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:27	3.9	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:28	6.5	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:29	4.5	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:30	4.0	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:31	4.7	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:32	5.6	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:33	5.6	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:34	5.2	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:35	4.9	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:36	3.3	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:37	1.7	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:38	1.3	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:39	1.3	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:40	1.4	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:41	1.4	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:42	1.1	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:43	0.8	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:44	0.8	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:45	3.5	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:46	6.5	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:47	5.4	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:48	3.8	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

April 30, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_d	NOx C_w	NOx C_{ww}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Nox, Pounds per Ton
4/30/2003 19:49	2.9	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:50	4.7	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:51	11.0	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:52	5.6	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:53	2.4	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:54	4.1	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:55	4.1	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:56	1.9	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:57	1.7	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:58	1.6	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 19:59	1.5	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:00	1.4	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:01	1.5	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:02	9.2	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:03	14.0	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:04	6.3	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:05	9.0	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:06	20.2	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:07	24.3	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:08	26.0	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:09	28.0	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:10	26.3	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:11	27.2	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:12	26.7	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:13	21.3	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:14	19.2	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:15	17.3	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:16	14.0	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:17	4.3	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:18	1.4	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:19	0.6	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:20	0.7	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:21	0.6	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:22	0.7	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:23	0.7	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:24	0.6	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:25	0.5	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:26	0.4	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:27	0.4	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:28	0.5	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:29	0.7	3	A3D289	162.90	180	54.30	B3D764	150.15	176	51.19		Run 3							
4/30/2003 20:30	0.6	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	0.8	666751.0	3.70	0.027
4/30/2003 20:31	0.6	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	0.8	666751.0	3.95	0.029
4/30/2003 20:32	3.9	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	3.9	666751.0	18.62	0.138
4/30/2003 20:33	8.7	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	8.6	666751.0	41.00	0.304
4/30/2003 20:34	8.0	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	8.0	666751.0	38.02	0.282
4/30/2003 20:35	6.8	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	6.8	666751.0	32.30	0.239
4/30/2003 20:36	6.2	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	6.1	666751.0	29.31	0.217
4/30/2003 20:37	4.6	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	4.6	666751.0	21.65	0.162
4/30/2003 20:38	3.4	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	3.3	666751.0	15.88	0.118
4/30/2003 20:39	2.9	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	2.9	666751.0	13.89	0.103
4/30/2003 20:40	3.0	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	3.0	666751.0	14.14	0.105
4/30/2003 20:41	3.3	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	3.3	666751.0	15.63	0.116
4/30/2003 20:42	3.4	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	3.3	666751.0	15.88	0.118
4/30/2003 20:43	3.1	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	3.1	666751.0	14.89	0.110
4/30/2003 20:44	2.8	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	2.8	666751.0	13.39	0.099
4/30/2003 20:45	2.5	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	2.5	666751.0	11.90	0.088
4/30/2003 20:46	3.3	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	3.3	666751.0	15.63	0.116
4/30/2003 20:47	3.7	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	3.7	666751.0	17.82	0.131
4/30/2003 20:48	3.8	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	3.8	666751.0	18.12	0.134
4/30/2003 20:49	3.6	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	3.6	666751.0	17.13	0.127
4/30/2003 20:50	3.5	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	3.5	666751.0	16.88	0.125
4/30/2003 20:51	3.5	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	3.4	666751.0	16.38	0.121
4/30/2003 20:52	3.4	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	3.4	666751.0	16.13	0.120
4/30/2003 20:53	3.5	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	3.5	666751.0	16.63	0.123
4/30/2003 20:54	3.6	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	3.6	666751.0	17.13	0.127
4/30/2003 20:55	4.0	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	4.0	666751.0	19.12	0.142
4/30/2003 20:56	4.1	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	4.1	666751.0	19.37	0.144
4/30/2003 20:57	4.1	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	4.1	666751.0	19.37	0.144
4/30/2003 20:58	4.5	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	4.5	666751.0	21.35	0.158
4/30/2003 20:59	5.7	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	5.6	666751.0	26.82	0.199
4/30/2003 21:00	6.0	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	5.9	666751.0	28.32	0.210

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

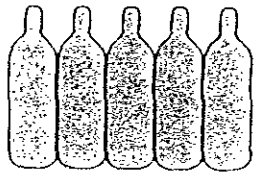
IDNR Permit Number 94-A-548-S3

April 30, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	A Shell Heat Number	A Production	A Time (min)	A tons/hour	B Shell Heat Number	B Production	B Time (min)	B tons/hour	Total Production (tons/hour)	COMMENTS	NOx C_y	NOx C_{ma}	NOx C_{sw}	NOx, ppm Drift Corrected	Flow SCFM,Dry	Nox, pounds per hour	Nox, Pounds per Ton
4/30/2003 21:01	5.6	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	5.5	666751.0	28.33	0.195
4/30/2003 21:02	6.8	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	6.8	666751.0	32.30	0.239
4/30/2003 21:03	13.3	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	13.2	666751.0	62.69	0.466
4/30/2003 21:04	20.6	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	20.4	666751.0	97.45	0.723
4/30/2003 21:05	30.8	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	30.5	666751.0	145.70	1.080
4/30/2003 21:06	36.9	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	36.5	666751.0	174.55	1.294
4/30/2003 21:07	39.5	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	39.1	666751.0	186.98	1.386
4/30/2003 21:08	36.3	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	36.0	666751.0	171.81	1.274
4/30/2003 21:09	30.5	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	30.2	666751.0	144.46	1.071
4/30/2003 21:10	31.3	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	31.0	666751.0	147.94	1.097
4/30/2003 21:11	31.5	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	31.2	666751.0	149.18	1.106
4/30/2003 21:12	32.0	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	31.8	666751.0	151.17	1.121
4/30/2003 21:13	34.5	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	34.1	666751.0	163.11	1.209
4/30/2003 21:14	36.8	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	36.5	666751.0	174.30	1.292
4/30/2003 21:15	37.9	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	37.5	666751.0	179.27	1.329
4/30/2003 21:16	26.2	3	A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	Run 3	0.00	25.35	25.10	26.0	666751.0	124.06	0.920
	10.0										129.02	Run 3 Average				11.4	666751.0	54.57	0.423
4/30/2003 21:17	10.5		A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86								
4/30/2003 21:18	10.1		A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86								
4/30/2003 21:19	18.2		A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86								
4/30/2003 21:20	24.3		A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86								
4/30/2003 21:21	25.3		A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	25.1 ppm NOx							
4/30/2003 21:22	25.5		A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	25.1 ppm NOx							
4/30/2003 21:23	25.1		A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	25.1 ppm NOx							
	25.3										134.86	25.1 ppm NOx Average							
4/30/2003 21:24	10.5		A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86								
4/30/2003 21:25	1.9		A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86								
4/30/2003 21:26	0.4		A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86								
4/30/2003 21:27	0.1		A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86								
4/30/2003 21:28	0.0		A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86	0 ppm NOx							
	0.0										134.86	0 ppm NOx Average							
4/30/2003 21:29	0.4		A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86								
4/30/2003 21:30	1.0		A3D290	145.04	104	83.67	B3D764	150.15	176	51.19	134.86								
											124.18	Test Average				8.31	713814	41.93	0.360

SPECTRA GASES INC.
3434 Route 22 West • Branchburg, NJ 08876 USA Tel (908) 252-9300 • (800) 932-0624 • Fax (908) 252-0811
Shipped From: 80 Industrial Drive • Alpha, NJ 08865



CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: IPSCO Steel, Inc
SGI ORDER # : 0033156
ITEM# : 1
P.O.# : VERBAL-DAVID

CYLINDER # : CC-135361
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 2/18/2003
EXPIRATION DATE: 2/18/2005

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	2/10/2003 2/18/2003	24.94 ppm 25.04 ppm	25.0 ppm	+/- 1%
NO_x			25.1 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	NTRM-82660	CC-133646	99.5 ppm

INSTRUMENTATION

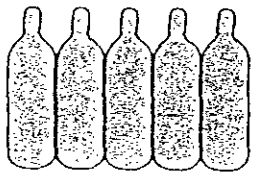
COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	CAI-400-CLD	6L09004	Chemi	1/28/2003

THIS STANDARD IS NIST TRACEABLE. IT 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

DATE: 2/18/2003

SPECTRA GASES INC.
3434 Route 22 West • Branchburg NJ 08876 USA Tel (908) 252-9300 • (800) 932-0624 • Fax (908) 252-0811
Shipped From 80 Industrial Drive • Alpha NJ 08865



CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER:	IPSCO Steel, Inc	CYLINDER # :	CC-85252
SGI ORDER # :	0033156	CYLINDER PRES:	2000 PSIG
ITEM# :	2	CGA OUTLET:	660
P.O.# :	VERBAL-DAVID		

CERTIFICATION DATE: 2/18/2003
EXPIRATION DATE: 2/18/2005

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	2/10/2003 2/18/2003	44.81 ppm 44.91 ppm	44.9 ppm	+/- 1%
NOx			45.1 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	NTRM-82660	CC-133646	99.5 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	CAI-400-CLD	6L09004	Chemi	1/28/2003

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

ANALYST: _____ DATE: 2/18/2003
FRED PIKULA

APPENDIX E

Facility Operating Data

HEAT	Tap Date	Cast Date	Scrap Charged	# Slabs	Tons Heat	Pit Scrap	Crops	Samples	Tundish Skull	Calculated Tap Weight	Notes / Yield	Sequence #	Total Scrap Charge for Sequence	Total Tap Weight for Sequence	Yield for Sequence
A3D279	4/29	4/30	348850	6	162 98	1.31				164 29		D30107-01			
B3D752	4/29	4/30	346600	6	164 22	1.30				165.52		D30107-02			
B3D753	4/29	4/30	368450	7	149 81	1.38	2.2	0.25	3.08	156.72		D30107-03	531.95	486.529625	**91.46%**
A3D280	4/29	4/30	352100	6	167 02	1.32				168.34		D30108-04			
	4/29 MELTSHOP/YEILD		0.00			0				0.00	#######				
	4/29 CASTER/SLABS/WEIGHT					0	0	0							
	4/29 Caster Losses					0.00	0.00	0.00	0.00						
B3D754	4/30	4/30	351650	6	172.67	1.32				173.99		D30108-01			
A3D281	4/30	4/30	346650	6	167.1	1.30				168.40		D30108-02			
B3D755	4/30	4/30	348200	5	144.31	1.31	2.2	0 25	3.08	151.15		D30108-03	699.3	661.87475	**94.65%**
A3D282	4/30	4/30	345950	6	180.02	1.30				181.32		D30109-02			
B3D756	4/30	4/30	370550	5	150.02	1.39				151.41		D30109-01			
A3D283	4/30	4/30	368750	6	153.55	1.38	1.97	0.25	2.97	160.12		D30109-03	542.625	492.849688	**90.83%**
B3D757	4/30	4/30	367800	7	174.45	1.38				175.83		D30110-01			
A3D284	4/30	4/30	367500	6	127.73	1.38				129.11		D30110-02			
B3D758	4/30	4/30	352050	6	153.75	1.32				155.07		D30110-03			
A3D285	4/30	4/30	343150	6	153.43	1.29				154.72		D30110-04			
B3D759	4/30	4/30	346750	6	160.57	1.30				161.87		D30110-05			
A3D286	4/30	4/30	348150	6	149.92	1.31				151.23		D30110-06			
B3D760	4/30	4/30	367100	7	161.03	1 38				162.41		D30110-07			
B3D761	4/30	4/30	343350	7	160.79	1.29				162.08		D30110-08			
A3D287	4/30	4/30	337850	6	178.65	1.27				179.92		D30110-09			
B3D762	4/30	4/30	342150	6	146.14	1.28				147.42		D30110-10			
A3D288	4/30	4/30	345900	5	136.68	1.30	2.03	0.25	4.96	145.22		D30110-11	1930.875	1724.86156	**89.33%**
B3D763	4/30	4/30	346600	7	155.22	1 30				156.52					
A3D289	4/30	4/30	344100	8	181.07	1.29				182.36					
B3D764	4/30		350550	7	168.09	1.31				169.40					
A3D290	4/30		298450	7	161.24	1.12				162.36					
	4/30 MELTSHOP/YEILD		3666.60			21				3381.89	92.24%				
	4/30 CASTER/SLABS/WEIGHT					23	142	3651.13							
	4/30 Caster Losses					30.38	8.40	1.00	14.09						

ELTSHOP RAW MATERIALS REPORT

(By Heat)

From 4/29/2003 23:00:00 to 4/30/2003 23:00:00

Issue Date	: 5/6/2003 14:26:25
Issued By	: Operations Planning
PBL Name	:003 Planning-g.pbl Created Date : 03/26/2
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0502603	04/29/2003	22:56:09	A3D281	0000000003	01	FRAG	022550	11.28
					02	MXTN	020000	10.00
					03	HM2	009800	4.90
					04	BEACH IRON	014950	7.48
					05	HM1	015300	7.65
					07	PROCREVERT	023700	11.85
					08	PITSCRAP	011200	5.60
					09	HM1	036350	18.18
					10	HM2	030400	15.20
					11	FRAG	052050	26.03
						0000000003 Total	**236300**	**118.15**
0502603	04/29/2003	23:45:16	A3D281	0000000003	01	FRAG	015850	7.93
					02	MXTN	035050	17.52
					04	HM1	020400	10.20
					05	HM2	024150	12.08
					06	FRAG	014900	7.45
						0000000003 Total	**110350**	**55.18**
						A3D281 Total	**346650**	**173.32**
0516401	04/30/2003	00:52:00	A3D282	0000000003	01	FRAG	022750	11.38
					02	MXTN	018650	9.33
					03	HM2	008900	4.45
					04	BEACH IRON	016950	8.48
					05	BEACH IRON	015400	7.70
					07	PROCREVERT	020450	10.23
					08	PITSCRAP	010700	5.35
					09	HM1	037450	18.73
					10	HM2	029400	14.70
					11	FRAG	055750	27.88
						0000000003 Total	**236400**	**118.20**
0516401	04/30/2003	02:03:39	A3D282	0000000003	01	FRAG	015850	7.93
					02	MXTN	030750	15.38
					04	HM1	018100	9.05
					05	HM2	023550	11.78
					06	FRAG	021300	10.65
						0000000003 Total	**109550**	**54.78**
						A3D282 Total	**345950**	**172.98**
0516403	04/30/2003	02:41:21	A3D283	0000000002	01	FRAG	021350	10.68
					02	MXTN	018450	9.23
					03	HM2	009150	4.58
					04	BEACH IRON	018300	9.15
					05	HM1	015900	7.95
					07	PROCREVERT	023650	11.83
					08	PITSCRAP	008200	4.10
					09	HM1	037800	18.90
					10	HM2	029300	14.65

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 4/29/2003 23:00:00 to 4/30/2003 23:00:00

Issue Date	: 5/6/2003 14:26:25
Issued By	: Operations Planning
PBL Name	:003 Planning-g.pbl Created Date : 03/26/2
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0516403	04/30/2003	02:41:21	A3D283	0000000002	11	FRAG	055450	27.73
						0000000002 Total	**237550**	**118.78**
0516403	04/30/2003	03:24:45	A3D283	0000000003	01	FRAG	014500	7.25
					02	MXTN	030650	15.33
					04	HM1	017550	8.78
					05	HM2	022700	11.35
					06	FRAG	045800	22.90
						0000000003 Total	**131200**	**65.60**
						A3D283 Total	**368750**	**184.38**
0498002	04/30/2003	04:36:44	A3D284	0000000003	01	FRAG	020700	10.35
					02	MXTN	031800	15.90
					03	HM1	009950	4.98
					04	BEACH IRON	017550	8.78
					05	BEACH IRON	028950	14.48
					07	PROCREVERT	009150	4.58
					08	FRAG	020800	10.40
					09	HM1	036300	18.15
					10	FRAG	060150	30.08
						0000000003 Total	**235350**	**117.68**
0498002	04/30/2003	05:36:58	A3D284	0000000003	01	FRAG	017150	8.58
					02	HM1	017800	8.90
					04	MXTN	032000	16.00
					05	HM1	024550	12.28
					06	FRAG	040650	20.33
						0000000003 Total	**132150**	**66.08**
						A3D284 Total	**367500**	**183.75**
0505002	04/30/2003	06:37:19	A3D285	0000000003	01	FRAG	022750	11.38
					02	MXTN	021100	10.55
					03	HM2	009150	4.58
					04	BEACH IRON	015250	7.63
					05	BEACH IRON	016050	8.03
					07	PROCREVERT	024050	12.03
					08	PITSCRAP	009600	4.80
					09	HM1	038450	19.23
					10	HM2	030700	15.35
					11	FRAG	048100	24.05
						0000000003 Total	**235200**	**117.60**
0505002	04/30/2003	07:42:28	A3D285	0000000003	01	FRAG	016500	8.25
					02	MXTN	033300	16.65
					04	HM1	019050	9.53
					05	HM2	024600	12.30
					06	FRAG	014500	7.25
						0000000003 Total	**107950**	**53.97**
						A3D285 Total	**343150**	**171.58**
0514502	04/30/2003	08:35:40	A3D286	0000000003	01	FRAG	025450	12.73

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 4/29/2003 23:00:00 to 4/30/2003 23:00:00

Issue Date	: 5/6/2003 14:26:25
Issued By	: Operations Planning
PBL Name	:003 Planning-g.pbl Created Date : 03/26/2
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0514502	04/30/2003	08:35:40	A3D286	0000000003	02	2BN	014100	7.05
					03	BEACH IRON	018750	9.38
					04	BEACH IRON	014550	7.28
					06	MXTN	047850	23.93
					07	PROCREVERT	030200	15.10
					08	PITSCRAP	013150	6.58
					09	HM2	060500	30.25
					10	FRAG	013450	6.73
						0000000003 Total	**238000**	**119.00**
0514502	04/30/2003	10:59:11	A3D286	0000000003	01	FRAG	009500	4.75
					02	MXTN	025600	12.80
					04	HM2	075050	37.53
						0000000003 Total	**110150**	**55.08**
						A3D286 Total	**348150**	**174.08**
0514504	04/30/2003	12:31:34	A3D287	0000000003	01	FRAG	020200	10.10
					02	2BN	017200	8.60
					03	BEACH IRON	017750	8.88
					04	BEACH IRON	016800	8.40
					06	MXTN	046850	23.43
					07	PROCREVERT	028550	14.28
					08	PITSCRAP	017700	8.85
					09	HM2	054100	27.05
					10	FRAG	008000	4.00
						0000000003 Total	**227150**	**113.58**
0514504	04/30/2003	13:10:07	A3D287	0000000003	01	FRAG	011200	5.60
					02	MXTN	028750	14.38
					04	HM2	070750	35.38
						0000000003 Total	***110700***	**55.35**
						A3D287 Total	**337850**	**168.93**
0497601	04/30/2003	15:53:57	A3D288	0000000003	01	FRAG	021350	10.68
					02	MXTN	030050	15.03
					03	HM1	012850	6.43
					04	BEACH IRON	013000	6.50
					05	BEACH IRON	026050	13.03
					07	PROCREVERT	011950	5.98
					08	FRAG	019200	9.60
					09	HM1	035300	17.65
					10	FRAG	065900	32.95
						0000000003 Total	**235650**	**117.83**
0497601	04/30/2003	16:37:33	A3D288	0000000003	01	FRAG	016200	8.10
					02	HM1	019250	9.63
					04	MXTN	030700	15.35
					05	HM1	025050	12.53

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 4/29/2003 23:00:00 to 4/30/2003 23:00:00

Issue Date	: 5/6/2003 14:26:25
Issued By	: Operations Planning
PBL Name	:003 Planning-g.pbl Created Date : 03/26/2
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0497601	04/30/2003	16:37:33	A3D288	0000000003	06	FRAG	019050	9.53
						0000000003 Total	**110250**	**55.13**
						A3D288 Total	**345900**	**172.95**
0516302	04/30/2003	17:50:23	A3D289	0000000003	01	FRAG	024100	12.05
					02	MXTN	022300	11.15
					03	HM2	008600	4.30
					04	CAST FE	014600	7.30
					05	CAST FE	016400	8.20
					07	PROCREVERT	027900	13.95
					08	PITSCRAP	015700	7.85
					09	HM1	039150	19.58
					10	HM2	030300	15.15
					11	FRAG	035750	17.88
						0000000003 Total	**234800**	**117.40**
0516302	04/30/2003	18:28:37	A3D289	0000000003	01	FRAG	017050	8.53
					02	MXTN	031600	15.80
					04	HM1	016600	8.30
					05	HM2	024200	12.10
					06	FRAG	019850	9.93
						0000000003 Total	**109300**	**54.65**
						A3D289 Total	**344100**	**172.05**
0516304	04/30/2003	20:35:16	A3D290	0000000003	01	FRAG	025300	12.65
					02	MXTN	018750	9.38
					03	HM2	011150	5.58
					04	CAST FE	013150	6.58
					05	CAST FE	014650	7.33
					07	PROCREVERT	024500	12.25
					08	PITSCRAP	009200	4.60
					09	HM1	037200	18.60
					10	HM2	030900	15.45
					11	FRAG	051100	25.55
						0000000003 Total	**235900**	**117.95**
0516304	04/30/2003	21:12:46	A3D290	0000000003	01	FRAG	016050	8.03
					02	MXTN	030900	15.45
					04	HM1	015300	7.65
					05	HM2	000300	0.15
						0000000003 Total	**62550**	**31.28**
						A3D290 Total	**298450**	**149.23**
0502602	04/29/2003	22:12:23	B3D754	0000000004	01	FRAG	020550	10.28
					02	MXTN	020200	10.10
					03	HM2	012100	6.05
					04	BEACH IRON	018700	9.35
					05	BEACH IRON	013450	6.73
					07	PROCREVERT	020850	10.43
					08	PITSCRAP	009850	4.93

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 4/29/2003 23:00:00 to 4/30/2003 23:00:00

Issue Date	: 5/6/2003 14:26:25
Issued By	: Operations Planning
PBL Name	:003 Planning-g.pbl Created Date : 03/26/2
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0502602	04/29/2003	22:12:23	B3D754	0000000004	09	HM1	036000	18.00
					10	HM2	029250	14.63
					11	FRAG	054850	27.43
						0000000004 Total	**235800**	**117.90**
0502602	04/29/2003	22:44:23	B3D754	0000000005	01	FRAG	018400	9.20
					02	MXTN	032500	16.25
					04	HM1	016050	8.03
					05	HM2	024050	12.03
					06	FRAG	024850	12.43
						0000000005 Total	**115850**	**57.93**
						B3D754 Total	**351650**	**175.83**
0502604	04/30/2003	00:07:30	B3D755	0000000005	01	FRAG	021850	10.93
					02	MXTN	022150	11.08
					03	HM2	009600	4.80
					04	BEACH IRON	016200	8.10
					05	BEACH IRON	014200	7.10
					07	PROCREVERT	023850	11.93
					08	PITSCRAP	010400	5.20
					09	HM1	037100	18.55
					10	HM2	029100	14.55
					11	FRAG	051950	25.98
						0000000005 Total	**236400**	**118.20**
0502604	04/30/2003	00:29:40	B3D755	0000000005	01	FRAG	017000	8.50
					02	MXTN	030700	15.35
					04	HM1	016250	8.13
					05	HM2	023750	11.88
					06	FRAG	024100	12.05
						0000000005 Total	**111800**	**55.90**
						B3D755 Total	**348200**	**174.10**
0516402	04/30/2003	02:03:38	B3D756	0000000005	01	FRAG	022250	11.13
					02	MXTN	020950	10.48
					03	HM2	008850	4.43
					04	BEACH IRON	016050	8.03
					05	BEACH IRON	015900	7.95
					07	PROCREVERT	024650	12.33
					08	PITSCRAP	014650	7.33
					09	HM1	037900	18.95
					10	HM2	030850	15.43
					11	FRAG	044950	22.48
						0000000005 Total	**237000**	**118.50**
0516402	04/30/2003	02:28:28	B3D756	0000000005	01	FRAG	016250	8.13
					02	MXTN	030900	15.45
					04	HM1	020100	10.05
					05	HM2	022450	11.23

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 4/29/2003 23:00:00 to 4/30/2003 23:00:00

Issue Date	: 5/6/2003 14:26:25
Issued By	: Operations Planning
PBL Name	:003 Planning-g.pbl Created Date : 03/26/2
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 2.0

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0516402	04/30/2003	02:28:28	B3D756	0000000005	06	FRAG	043850	21.93
						0000000005 Total	**133550**	**66.78**
						B3D756 Total	**370550**	**185.28**
0498001	04/30/2003	03:50:28	B3D757	0000000005	01	FRAG	023300	11.65
					02	MXTN	030400	15.20
					03	HM1	009400	4.70
					04	BEACH IRON	015050	7.53
					05	BEACH IRON	026150	13.08
					07	REVERT	009150	4.58
					08	FRAG	023350	11.68
					09	HM1	035300	17.65
					10	FRAG	064600	32.30
						0000000005 Total	**236700**	**118.35**
0498001	04/30/2003	04:36:42	B3D757	0000000005	01	FRAG	014550	7.28
					02	HM1	016700	8.35
					04	MXTN	031950	15.98
					05	HM1	022750	11.38
					06	FRAG	045150	22.58
						0000000005 Total	**131100**	**65.55**
						B3D757 Total	**367800**	**183.90**
0505001	04/30/2003	05:36:57	B3D758	0000000005	01	FRAG	021900	10.95
					02	MXTN	019350	9.68
					03	HM2	010350	5.18
					04	BEACH IRON	019000	9.50
					05	BEACH IRON	011350	5.68
					07	PROCREVERT	022100	11.05
					08	PITSCRAP	014300	7.15
					09	HM1	034900	17.45
					10	HM2	031200	15.60
					11	FRAG	051550	25.78
						0000000005 Total	**236000**	**118.00**
0505001	04/30/2003	06:06:31	B3D758	0000000005	01	FRAG	015800	7.90
					02	MXTN	032350	16.18
					04	HM1	017750	8.88
					05	HM2	024150	12.08
					06	FRAG	026000	13.00
						0000000005 Total	**116050**	**58.03**
						B3D758 Total	**352050**	**176.02**
0514501	04/30/2003	07:42:24	B3D759	0000000005	01	FRAG	023200	11.60
					02	2BN	018050	9.03
					03	BEACH IRON	022350	11.18
					04	BEACH IRON	012150	6.08
					06	MXTN	047550	23.78
					07	PROCREVERT	022750	11.38
					08	PITSCRAP	012850	6.43

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Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0514501	04/30/2003	07:42:24	B3D759	0000000005	09	HM2	058050	29.03
					10	FRAG	020550	10.28
						0000000005 Total	**237500**	**118.75**
0514501	04/30/2003	08:35:36	B3D759	0000000005	01	FRAG	011900	5.95
					02	MXTN	028800	14.40
					04	HM2	068550	34.28
						0000000005 Total	**109250**	**54.63**
						B3D759 Total	**346750**	**173.38**
0514503	04/30/2003	09:39:31	B3D760	0000000005	01	FRAG	021600	10.80
					02	2BN	015700	7.85
					03	BEACH IRON	017550	8.78
					04	BEACH IRON	015500	7.75
					06	MXTN	045450	22.73
					07	PROCREVERT	030500	15.25
					08	PITSCRAP	013800	6.90
					09	HM2	060150	30.08
					10	FRAG	014600	7.30
						0000000005 Total	**234850**	**117.43**
0514503	04/30/2003	11:57:16	B3D760	0000000005	01	FRAG	010000	5.00
					02	MXTN	022450	11.23
					04	HM2	099800	49.90
						0000000005 Total	**132250**	**66.13**
						B3D760 Total	**367100**	**183.55**
0498201	04/30/2003	13:29:11	B3D761	0000000005	01	FRAG	021600	10.80
					02	MXTN	050900	25.45
					03	HM2	013850	6.93
					04	BEACH IRON	020550	10.28
					05	BEACH IRON	009950	4.98
					07	PROCREVERT	030600	15.30
					08	PITSCRAP	010100	5.05
					09	HM1	032150	16.08
					10	HM2	029700	14.85
					11	FRAG	015250	7.63
						0000000005 Total	**234650**	**117.32**
0498201	04/30/2003	14:00:44	B3D761	0000000003	01	FRAG	017700	8.85
					02	MXTN	038850	19.43
					04	HM1	016800	8.40
					05	HM2	025350	12.68
					06	HM2	010000	5.00
						0000000003 Total	**108700**	**54.35**
						B3D761 Total	**343350**	**171.68**
0497601	04/30/2003	15:09:40	B3D762	0000000005	01	FRAG	021800	10.90
					02	MXTN	049200	24.60
					03	HM2	013900	6.95
					04	BEACH IRON	018400	9.20

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Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0497601	04/30/2003	15:09:40	B3D762	0000000005	05	BEACH IRON	009700	4.85
					07	PROCREVERT	028250	14.13
					08	PITSCRAP	011700	5.85
					09	HM1	030250	15.13
					10	HM2	034550	17.27
					11	FRAG	017000	8.50
						0000000005 Total	**234750**	**117.38**
0498202	04/30/2003	15:46:12	B3D762	0000000005	01	FRAG	016200	8.10
					02	MXTN	037350	18.68
					04	HM1	015700	7.85
					05	HM2	024500	12.25
					06	HM2	013650	6.83
						0000000005 Total	**107400**	**53.70**
						B3D762 Total	**342150**	**171.08**
0516301	04/30/2003	17:07:19	B3D763	0000000005	01	FRAG	021950	10.98
					02	MXTN	019200	9.60
					03	HM2	009800	4.90
					04	CAST FE	013050	6.53
					05	BEACH IRON	016800	8.40
					07	PROCREVERT	030100	15.05
					08	PITSCRAP	017200	8.60
					09	HM1	036800	18.40
					10	HM2	029800	14.90
					11	FRAG	042250	21.13
						0000000005 Total	**236950**	**118.48**
0516301	04/30/2003	17:43:52	B3D763	0000000005	01	FRAG	014200	7.10
					02	MXTN	029150	14.58
					04	HM1	017600	8.80
					05	HM2	024000	12.00
					06	FRAG	024700	12.35
						0000000005 Total	**109650**	**54.83**
						B3D763 Total	**346600**	**173.30**
0516303	04/30/2003	18:43:11	B3D764	0000000005	01	FRAG	022350	11.18
					02	MXTN	019350	9.68
					03	HM2	008300	4.15
					04	CAST FE	013200	6.60
					05	CAST FE	016450	8.23
					07	PROCREVERT	029600	14.80
					08	PITSCRAP	013450	6.73
					09	HM1	034700	17.35
					10	HM2	029950	14.98
					11	FRAG	047250	23.63
						0000000005 Total	**234600**	**117.30**
0516303	04/30/2003	19:52:04	B3D764	0000000005	01	FRAG	015250	7.63
					02	MXTN	033550	16.77
					04	HM1	018750	9.38

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Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id		Material Weight(lbs)	Material Weight(tons)
0516303	04/30/2003	19:52:04	B3D764	0000000005	05	HM2		024850	12.43
					06	FRAG		023550	11.78
						0000000005	**Total**	**115950**	**57.98**
						B3D764	**Total**	**350550**	**175.28**

Total Heats 21 **Total Weight for Time Period** 7333200 **Pounds** 3666.60 **Tons**

IPSCO STEEL INC.
Montpelier Works

HEAT: B3D764 MSP: 85063

Start Time 30-Apr-2003 18:35:05
End Time : 30-Apr-2003 21:31:45
TapToTap Time 176 (min)

Heat Order : 0516303
Grade A871-65
Ladle # 1 CrewID 4 OperatorID 8

START	DUR	DELAY REASON
21:25:11	0000	Operational, Tap
21:21:11	0004	Operational, Slagoff
21:14:11	0007	Operational, Blow Carbon
21:07:11	0007	Operational, Hot anode#1
20:40:49	0001	Operational, Pack scrap
19:57:31	0041	Mechanical, Welding Roof Panels
19:52:31	0005	Operational, Charge
19:51:31	0001	Operational, Sidewall RTD trip
18:34:51	0049	Operational, Charge Run A
18:35:51	0009	Operational, Run A

CHARGES	AMOUNT
Charge 1	241350
Charge 2	122650
Charge 3	0
Charge 4	0
Charge 5	0

ADDITIONS	LBS
LC SiMn	0003100
LC FeMn	0001100
4oz AL Con	0000600
FeCb	0000100
FeVan	0000225
LSR	0004400
Carbon	0001960
Dololime	0007660
HiCal Lime	0004160

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	59600	22300	37300	0	0	0
O2 Burner	SCF	77	21	56	0	0	0
Gas Burner	SCF	36	11	25	0	0	0
O2 Lance	SCF	889	0	889	0	0	0
Carbon Lance	LBS	3240	0	3240	0	0	0
TIMES							
Melting Tm	MIN	176	76	99	0	0	0
Power on Tm	MIN	44	16	27	0	0	0
Burner On Tm	MIN	61	14	46	0	0	1
O2Lance On Tm	MIN	38	0	38	0	0	0
CLance On Tm	MIN	14	0	14	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	360.2	184.8	327.5	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	21214.2	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	005.4	000.0	004.9	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	019.6	000.0	017.8	000.0	000.0	000.0

COMMENTS

Mike furnace check

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CO	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B
MAX	0.06400	1.15000	0.02000	0.01000	0.40000	0.03000	0.00000	0.01500	0.00000	0.46300	0.40000	0.40000	0.60000	0.05000	0.02000	0.00400	0.04500	0.09000	0.01000	0.00000	0.00000	0.00000
MIN	0.04000	1.05000	0.00000	0.00000	0.30000	0.01800	0.01500	0.00000	0.00150	0.30300	0.30000	0.30000	0.50000	0.00000	0.00000	0.00000	0.03700	0.08200	0.00600	0.00000	0.00000	0.00000
AIM	0.04000	1.10000	0.00000	0.00000	0.35000	0.02500	0.00000	0.00000	0.00000	0.41900	0.32000	0.32000	0.55000	0.00000	0.00000	0.00000	0.04000	0.08500	0.00700	0.00000	0.00000	0.00000

HEAT: B3D764 MSP: 85063

---------- EVENTS ----------

TIME	KWH	Description
21:31:51	0059600	Ladle Weigth
21:31:47	0059600	End Tapping
21:29:13	0059600	Start Tapping
21:22:51	0059600	Burners Off
21:19:54	0059600	Temperature <2904> O2 <7440> C <67>
21:14:31	0059600	Temperature <2864> O2 <4050> C <38>
21:07:09	0059600	Power Off
20:42:07	0023700	Power On
20:42:05	0023700	Power Off
20:42:03	0023700	Power On
20:40:47	0023700	Power Off
20:39:56	0022900	Burners On
20:38:37	0022300	Power On
20:18:58	0022300	Material Addition
19:55:42	0022300	Burners Off
19:52:04	0022300	Charge
19:51:29	0022300	Power Off
19:41:41	0007600	Power On
19:41:33	0007600	Power Off
19:39:54	0005400	Power On
19:39:46	0005400	Power Off
19:39:31	0005400	Power On
19:39:30	0005300	Power Off
19:37:08	0002200	Burners On
19:36:57	0002000	Power On
19:36:52	0002000	Power Off
19:36:49	0002000	Power On
19:36:48	0002000	Power Off
19:34:18	0000000	Melting
19:34:17	0000000	Power On
19:01:58	0000000	Material Addition
18:43:11	0000000	Charge
18:35:07	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: B3D761 MSP: 14150

Start Time 30-Apr-2003 13.00 59
End Time 30-Apr-2003 14 46.17
TapToTap Time : 105 (min)

Heat Order . 0514504
Grade A36 MODMN
Ladle # 0 CrewID 4 OperatorID 8

START	DUR	DELAY REASON
14 41 52	0000	Operational, Tap
14 40 28	0001	Operational, Slagoff
14 33 58	0006	Operational, Blow Carbon
14 09 58	0001	Operational, Dump Alloys
14 02 04	0003	Operational, Pack scrap
13 59 52	0002	Operational, Charge
13 33 46	0007	Operational, Pack scrap
13 01 46	0032	Operational, Charge Run A

CHARGES	AMOUNT
Charge 1	241600
Charge 2	115800
Charge 3	0
Charge 4	0
Charge 5	0

ADDITIONS	LBS
FeMn	0002290
4oz AL Con	0000570
LSR	0004550
Carbon	0000980
Dololime	0003835
HiCal Lime	0002120

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	65400	26700	38700	0	0	0
O2 Burner	SCF	70	20	50	0	0	0
Gas Burner	SCF	34	11	23	0	0	0
O2 Lance	SCF	748	0	748	0	0	0
Carbon Lance	LBS	3697	0	3697	0	0	0
TIMES							
Melting Tm	MIN	105	59	45	0	0	0
Power on Tm	MIN	45	18	26	0	0	0
Burner On Tm	MIN	53	14	39	0	0	0
O2Lance On Tm	MIN	34	0	34	0	0	0
CLance On Tm	MIN	16	0	16	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	402 6	221 0	366 0	000 0	000 0	000 0
Flux	Tons	000 0	000 1	000 0	000 0	000 0	000 0
Average Power	Kwh/hr	50894 9	000 0	000 0	000 0	000 0	000 0
O2 ton	SCF/Ton	004 6	000 0	004 2	000 0	000 0	000 0
Gas Ton	SCF/Ton	000 2	000 1	000 2	000 0	000 0	000 0
Carbon Ton	LBS/Ton	022 8	000 0	020 7	000 0	000 0	000 0

COMMENTS

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B
MAX	0 16500	0 90000	0 02000	0 01000	0 05000	0.03000	0 00000	0 00000	0 00000	0 37400	0 50000	0 20000	0 20000	0 05000	0 02000	0 00400	0.00000	0 00000	0 02500	0 00000	0 00000	0 00000
MIN	0 14500	0 80000	0 00000	0.00000	0 00000	0.01800	0.01500	0 00000	0 00150	0.33800	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 01500	0 00000	0 00000	0 00000
AIM	0 15000	0 85000	0.00000	0.00000	0 00000	0.02500	0.00000	0.00000	0.00000	0.35100	0 00000	0.00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 02000	0 03000	0 00000	0 00000

HEAT: B3D761 MSP: 14150

EVENTS

TIME	KWH	Description
14:46:23	0065400	Ladle Weigth
14:46:19	0065400	End Tapping
14:44:15	0065400	Start Tapping
14:40:37	0065400	Burners Off
14:39:54	0065400	Temperature <2967> O2 <4330> C <99>
14:35:35	0065400	Temperature <2933> O2 <3290> C <53>
14:34:54	0065400	Temperature <2949> O2 <6890> C <53>
14:34:33	0065400	Material Addition
14:33:56	0065400	Power Off
14:11:46	0030400	Power On
14:11:44	0030400	Power Off
14:11:43	0030400	Power On
14:11:42	0030400	Power Off
14:11:38	0030400	Power On
14:09:57	0030400	Power Off
14:05:50	0026700	Power On
14:00:45	0026700	Charge
13:59:51	0026700	Power Off
13:46:38	0006700	Burners On
13:41:03	0000000	Melting
13:41:01	0000000	Power On
13:29:11	0000000	Charge
13:01:02	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: A3D285 MSP: 25191

Start Time 30-Apr-2003 06 19 13
End Time 30-Apr-2003 08.25 14
TapToTap Time 125 (min)

Heat Order 0505002
Grade A/SA516-70
Ladle # 0 CrewID. 2 OperatorID 8

START	DUR	DELAY REASON
08 21 30	0000	Operational, Tap
08 17 24	0004	Operational, Slagoff
08 13 39	0001	Operational, Temp and Sample
07.41 54	0003	Operational, Pack scrap
07.39 06	0002	Operational, Charge
06 20 01	0061	Operational, Charge run B

CHARGES	AMOUNT
Charge 1	242150
Charge 2 :	114950
Charge 3 :	0
Charge 4 :	0
Charge 5 .	0

ADDITIONS	LBS
SiMn	0003640
75% Fe Si	0000100
4oz AL Con	0000590
LSR	0004400
Carbon	0002355
Dololime	0007670
HiCal Lime	0004265

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	67400	24700	42700	0	0	0
O2 Burner	SCF	70	37	33	0	0	0
Gas Burner	SCF	30	16	14	0	0	0
O2 Lance	SCF	788	0	788	0	0	0
Carbon Lance	LBS	1547	0	1547	0	0	0
TIMES							
Melting Tm	MIN	125	83	42	0	0	0
Power on Tm	MIN	48	17	30	0	0	
Burner On Tm	MIN	81	44	36	0	0	0
O2Lance On Tm	MIN	33	0	33	0	0	0
CLance On Tm	MIN	19	0	19	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	415.2	204 0	377 5	000 0	000 0	000 0
Flux	Tons	000 0	000 0	000 0	000 0	000 0	000 0
Average Power	Kwh/hr	37473 4	000 0	000 0	000 0	000 0	000 0
O2 ton	SCF/Ton	004 9	000.0	004 4	000 0	000 0	000 0
Gas Ton	SCF/Ton	000 2	000 1	000 2	000 0	000 0	000 0
Carbon Ton	LBS/Ton	000 5	000 0	008 7	000 0	000 0	000 0

COMMENTS

dan

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CO	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B
MAX	0 20400	1 10000	0 02000	0 01000	0 32000	0.03000	0 00000	0 01500	0 00000	0 43900	0 35000	0 20000	0 20000	0 05000	0 02000	0 00400	0 00000	0 00000	0 02500	0 00050	0 00000	0 00000
MIN	0 17500	1 00000	0 00000	0 00000	0 22000	0 01800	0 01500	0 00000	0 00150	0 39300	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 01500	0 00000	0 00000	0 00000
AIM	0 19000	1 05000	0 00000	0.00000	0 27000	0.02500	0 00000	0 00000	0 00000	0.41600	0 00000	0 00000	0 00000	0.00000	0 00000	0 00000	0 00000	0 00000	0 02000	0 00000	0 00000	0 00000

IPSCO STEEL INC.
Montpelier Works

HEAT: A3D285 MSP: 25191

EVENTS

TIME	KWH	Description
08:25:23	0067400	Ladle Weigth
08:25:16	0067400	End Tapping
08:23:58	0067400	Start Tapping
08:18:54	0067400	Burners Off
08:18:13	0067400	Temperature <3030> O2 <6430> C <79>
08:17:22	0067400	Power Off
08:15:07	0064300	Power On
08:14:24	0064300	Temperature <2870> O2 <3450> C <99>
08:13:38	0064300	Power Off
08:03:25	0049500	Material Addition
07:45:02	0024700	Power On
07:42:28	0024700	Charge
07:39:05	0024700	Power Off
07:25:40	0005100	Power On
07:25:34	0005000	Power Off
07:24:53	0004000	Burners On
07:21:09	0000000	Melting
07:21:07	0000000	Power On
07:03:35	0000000	Material Addition
06:46:22	0000000	Burners Off
06:37:19	0000000	Charge
06:19:17	0000000	TurnAround

EAF Heat Sheet 30-Apr-2003 13:00:30

IPSCO STEEL INC.
Montpelier Works

HEAT: B3D760 MSP: 14150

Start Time 30-Apr-2003 09.22.35
End Time . 30-Apr-2003 12.59.56
TapToTap Time 217 (min)

Heat Order 0514503
Grade A36 MODMN
Ladle # 0 CrewID 4 OperatorID 8

START	DUR	DELAY REASON
12.56.27	0000	Operational, Tap
12.51.33	0004	Operational, Lance Taphole
12.50.57	0000	Operational, Slagoff
12.48.09	0002	Operational, Temp and Sample
12.39.28	0003	Operational, Pack scrap
12.11.41	0010	Operational, Swap columns
11:59.20	0005	Operational, Pack scrap
11.57.08	0002	Operational, Charge
10.40.40	0058	Operational, Run A
09.23.22	0077	Down Stream Processes, Waiting on Caste

CHARGES	AMOUNT
Charge 1	241100
Charge 2	139200
Charge 3	0
Charge 4	0
Charge 5	0

ADDITIONS	LBS
FeMn	0002300
4oz AL Con	0000600
LSR	0004550
Carbon	0001960
Dololime	0005530
HiCal Lime	0002125

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	65200	23900	41300	0	0	0
O2 Burner	SCF	84	21	63	0	0	0
Gas Burner	SCF	39	11	28	0	0	0
O2 Lance	SCF	752	0	752	0	0	0
Carbon Lance	LBS	2457	0	2457	0	0	0
TIMES							
Melting Tm	MIN	217	154	62	0	0	0
Power on Tm	MIN	47	18	29	0	0	0
Burner On Tm	MIN	67	14	53	0	0	0
O2Lance On Tm	MIN	35	0	35	0	0	0
CLance On Tm	MIN	11	0	11	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	377.2	198.3	342.9	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	19517.7	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.4	000.0	004.0	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	014.2	000.0	012.9	000.0	000.0	000.0

COMMENTS

dan

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CO	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B
MAX	0.16500	0.90000	0.02000	0.01000	0.05000	0.03000	0.00000	0.00000	0.00000	0.37400	0.50000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.02500	0.00000	0.00000	0.00000
MIN	0.14500	0.80000	0.00000	0.00000	0.00000	0.01800	0.01500	0.00000	0.00150	0.33800	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01500	0.00000	0.00000	0.00000
AIM	0.15000	0.85000	0.00000	0.00000	0.00000	0.02500	0.00000	0.00000	0.00000	0.35100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.02000	0.00000	0.00000	0.00000

HEAT: B3D760 MSP: 14150

---------- EVENTS ----------

TIME	KWH	Description
13 00 01	0065200	Ladle Weigth
12 59 58	0065200	End Tapping
12 58.09	0065200	Start Tapping
12 50 33	0065200	Temperature <2972> O2 <6890> C <57>
12 50 23	0065200	Burners Off
12 49 57	0065200	Temperature <2970> O2 <6290> C <49>
12 49 15	0065200	Temperature <2979> O2 <259> C <49>
12.48 07	0065200	Power Off
12 42 52	0057200	Power On
12 39.27	0057200	Power Off
12.34.40	0049600	Material Addition
12 22 03	0031800	Power On
12 11 40	0031800	Power Off
12 05 06	0023900	Power On
11 57 16	0023900	Charge
11 57 06	0023900	Power Off
11 51 30	0015400	Power On
11 51.28	0015400	Power Off
11 44 30	0004700	Burners On
11 39 02	0000000	Melting
11 39.02	0000000	Power On
10 12 00	0000000	Material Addition
09 39 31	0000000	Charge
09 24 19	0000000	Burners Off
09 22 37	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: B3D762 MSP: 12203

Start Time 30-Apr-2003 14.47.20
End Time 30-Apr-2003 16:31:06
TapToTap Time : 103 (min)

Heat Order : 0498202
Grade A/SA36A709
Ladle # 0 CrewID 4 OperatorID 8

START	DUR	DELAY REASON
16 27 08	0000	Operational, Tap
16 25 08	0002	Operational, Slagoff
16 22 08	0003	Operational, Temp and Sample
16 18 12	0001	Operational, Temp and Sample
15 49 45	0003	Operational, Charge
15 46 27	0003	Operational, Wait on Scrap
14 51 49	0035	Operational, Charge Run A
14 48 07	0003	Operational, Turnaround

CHARGES	AMOUNT
Charge 1	240950
Charge 2	116850
Charge 3	0
Charge 4	0
Charge 5	0

ADDITIONS	LBS
FeMn	0001060
4oz AL Con	0000600
LSR	0004550
Carbon	0001960
Dololime	0007660
HiCal Lime	0004260

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	69800	27500	42300	0	0	0
O2 Burner	SCF	69	21	48	0	0	0
Gas Burner	SCF	34	11	23	0	0	0
O2 Lance	SCF	649	0	649	0	0	0
Carbon Lance	LBS	3720	0	3720	0	0	0
TIMES							
Melting Tm	MIN	103	58	44	0	0	0
Power on Tm	MIN	46	19	27	0	0	0
Burner On Tm	MIN	52	15	37	0	0	0
O2Lance On Tm	MIN	30	0	30	0	0	0
CLance On Tm	MIN	17	0	17	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	429.2	228.3	390.2	000.0	000.0	000.0
Flux	Tons	000.0	000.1	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	51439.1	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.0	000.0	003.6	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	022.9	000.0	020.8	000.0	000.0	000.0

COMMENTS

dan

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CO	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.21400	0.60000	0.02000	0.01000	0.05000	0.03000	0.00000	0.01500	0.00000	0.36700	0.40000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.02500	0.00000	0.00000	0.00000
MIN	0.18500	0.50000	0.00000	0.00000	0.00000	0.01800	0.01500	0.00000	0.00150	0.32200	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01500	0.00000	0.00000	0.00000
AIM	0.20000	0.55000	0.00000	0.00000	0.00000	0.02500	0.00000	0.00000	0.00000	0.34500	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.02000	0.00000	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: B3D762 MSP: 12203

EVENTS

TIME	KWH	Description
16:31:12	0069800	Ladle Weigth
16:31:09	0069800	End Tapping
16:29:17	0069800	Start Tapping
16:24:12	0069800	Burners Off
16:24:05	0069800	Temperature <3008> O2 <5430> C <76>
16:22:07	0069800	Power Off
16:19:34	0065900	Power On
16:19:03	0065900	Temperature <2771> O2 <2690> C <83>
16:18:10	0065900	Power Off
16:11:44	0055400	Material Addition
15:53:33	0027800	Power On
15:46:25	0027800	Power Off
15:46:12	0027500	Charge
15:35:45	0011700	Material Addition
15:31:10	0004800	Burners On
15:26:51	0000000	Melting
15:26:50	0000000	Power On
15:09:41	0000000	Charge
14:47:22	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: A3D287 MSP: 12203

Start Time 30-Apr-2003 11 51 00
End Time 30-Apr-2003 15.33.18
TapToTap Time 221 (min)

Heat Order . 0498201
Grade A/SA36A709
Ladle # 0 CrewID 2 OperatorID 8

START	DUR	DELAY REASON
15 30 40	0000	Operational Tap
15 26 46	0003	Operational, Slagoff
15.23:28	0003	Operational, Temp and Sample
13 26.10	0089	Mechanical, Welding Roof Panels
13:18:28	0007	Operational, Pack scrap
13 15 28	0003	Operational, Charge
13 06 28	0009	Operational, Wait on Scrap
11 51 48	0058	Operational, Charge run B

CHARGES	AMOUNT
Charge 1 :	234300
Charge 2 .	116450
Charge 3 :	0
Charge 4 :	0
Charge 5 .	0

ADDITIONS	LBS
FeMn	0001020
4oz AL Con	0000580
LSR	0004550
Carbon	0003545
Dololime	0011495
HiCal Lime	0006400

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	63100	21900	41200	0	0	0
O2 Burner	SCF	52	17	35	0	0	0
Gas Burner	SCF	22	8	14	0	0	0
O2 Lance	SCF	542	0	542	0	0	0
Carbon Lance	LBS	174	0	174	0	0	0
TIMES							
Melting Tm	MIN	221	78	143	0	0	0
Power on Tm	MIN	43	15	27	0	0	0
Burner On Tm	MIN	59	15	43	0	0	0
O2Lance On Tm	MIN	26	0	26	0	0	0
CLance On Tm	MIN	0	0	0	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	395 8	186.9	359 8	000 0	000 0	000 0
Flux	Tons	000 0	000 1	000 0	000 0	000 0	000 0
Average Power	Kwh/hr	20832 7	000.0	000 0	000 0	000 0	000 0
O2 ton	SCF/Ton	003 4	000 0	003.1	000 0	000 0	000 0
Gas Ton	SCF/Ton	000 1	000 1	000 1	000 0	000 0	000 0
Carbon Ton	LBS/Ton	001 1	000 0	001 0	000 0	000 0	000 0

COMMENTS

dan

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B
MAX	0 21400	0 60000	0 02000	0 01000	0 05000	0 03000	0 00000	0 01500	0.00000	0 36700	0 40000	0 20000	0 20000	0 05000	0 02000	0 00400	0 00000	0 00000	0 02500	0 00000	0 00000	0 00000
MIN	0 18500	0 50000	0.00000	0 00000	0 00000	0 01800	0 01500	0 00000	0 00150	0 32200	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 01500	0 00000	0 00000	0 00000
AIM	0 20000	0 55000	0.00000	0 00000	0 00000	0.02500	0.00000	0.00000	0 00000	0 34500	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0.00000	0 00000	0 02000	0 00000	0 00000	0 00000

IPSCO STEEL INC.
Montpelier Works

HEAT: A3D287 MSP: 12203

---------- EVENTS ----------

TIME	KWH	Description
15:33:24	0063100	Ladle Weigth
15:33:20	0063100	End Tapping
15:31:50	0063100	Start Tapping
15:27:10	0063100	Burners Off
15:26:40	0063100	Temperature <2944> O2 <6720> C <51>
15:25:34	0063100	Temperature <2939> O2 <6490> C <53>
15:23:26	0063100	Power Off
15:16:13	0051500	Material Addition
14:59:12	0024300	Burners On
14:55:50	0021900	Power On
13:42:26	0021900	Material Addition
13:25:34	0021900	Burners Off
13:10:07	0021900	Charge
13:06:20	0021900	Power Off
12:58:32	0010100	Power On
12:58:26	0010100	Power Off
12:56:38	0007500	Material Addition
12:54:20	0004000	Burners On
12:50:40	0000000	Melting
12:50:38	0000000	Power On
12:31:34	0000000	Charge
11:51:03	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: A3D288 MSP: 22205

Start Time 30-Apr-2003 15 34 21
End Time : 30-Apr-2003 17 27:13
TapToTap Time . 112 (min)

Heat Order 0497601
Grade . A/SA36A709
Ladle # 0 CrewID 2 OperatorID 8

START	DUR	DELAY REASON
17 24 19	0000	Operational, Tap
17 21 55	0002	Operational, Slagoff
17.19 49	0002	Operational, Temp and Sample
17:16 00	0000	Operational, Temp and Sample
16 45.11	0003	Operational, Charge
15:35 08	0050	Operational, Charge run B

CHARGES	AMOUNT
Charge 1 : 242350	
Charge 2 . 117200	
Charge 3 : 0	
Charge 4 : 0	
Charge 5 : 0	

ADDITIONS	LBS
SiMn	0001400
75% Fe Si	0000180
4oz AL Con	0000580
LSR	0004400
Carbon	0002355
Dololime	0007665
HiCal Lime	0004250

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	69300	15100	54200	0	0	0
O2 Burner	SCF	42	4	38	0	0	0
Gas Burner	SCF	18	2	16	0	0	0
O2 Lance	SCF	694	0	694	0	0	0
Carbon Lance	LBS	2	0	2	0	0	0
TIMES							
Melting Tm	MIN	112	63	49	0	0	0
Power on Tm	MIN	49	11	37	0	0	0
Burner On Tm	MIN	49	5	43	0	0	0
O2Lance On Tm	MIN	31	0	31	0	0	0
CLance On Tm	MIN	2	0	2	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	424 0	124.6	385.5	000.0	000 0	000 0
Flux	Tons	000 0	000.0	000 0	000 0	000 0	000 0
Average Power	Kwh/hr	44581 8	000 0	000 0	000 0	000 0	000.0
O2 ton	SCF/Ton	004 2	000.0	003 9	000 0	000 0	000.0
Gas Ton	SCF/Ton	000 1	000 0	000 1	000 0	000 0	000 0
Carbon Ton	LBS/Ton	000 0	000.0	000 0	000 0	000 0	000 0

COMMENTS

dan

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CO	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B
MAX	0 21400	0 60000	0 02000	0.01000	0 25000	0 03000	0.00000	0 01500	0 00000	0 36600	0 30000	0 20000	0 20000	0 05000	0 02000	0 00400	0 00000	0 00000	0 02500	0 00000	0 00000	0 00000
MIN	0 18500	0 50000	0 00000	0 00000	0.15000	0.01800	0 01500	0 00000	0 00150	0.32000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 01500	0 00000	0 00000	0 00000
AIM	0 20000	0 55000	0 00000	0.00000	0.17000	0.02500	0.00000	0.00000	0.00000	0.34400	0.00000	0.00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 02000	0 00000	0 00000	0 00000

IPSCO STEEL INC.
Montpelier Works

HEAT: A3D288 MSP: 22205

EVENTS

TIME	KWH	Description
17 27.20	0069300	Ladle Weigth
17 27 15	0069300	End Tapping
17 25 52	0069300	Start Tapping
17 21 32	0069300	Temperature <2992> O2 <6090> C <2954>
17 20 56	0069300	Burners Off
17 20 35	0069300	Temperature <2957> O2 <6460> C <50>
17 19.48	0069300	Power Off
17 16 56	0065100	Power On
17 15.58	0065100	Power Off
17 07 25	0051500	Material Addition
16 48.59	0026500	Power On
16 45.09	0026500	Power Off
16 37:34	0015100	Charge
16:33 00	0008300	Power On
16 32 51	0008300	Power Off
16:31 34	0006800	Burners On
16.25.28	0000000	Material Addition
16 25.26	0000000	Melting
16 25:24	0000000	Power On
16 24 48	0000000	Material Addition
16.15 26	0000000	Material Addition
15 53 57	0000000	Charge
15 34 23	0000000	TurnAround

IPSCO STEEL INC
Montpelier Works

HEAT: B3D763 *MSP: 85063*

Start Time 30-Apr-2003 16:32:10
End Time 30-Apr-2003 18:34:01
TapToTap Time 121 (min)

Heat Order 0516301
Grade A871-65
Ladle # 4 CrewID 4 OperatorID 8

START	DUR	DELAY REASON
18:29:33	0000	Operational, Tap
18:25:33	0004	Operational, Slagoff
18:14:33	0011	Operational, Blow Carbon
18:11:17	0001	Operational, Temp and Sample
17:56:10	0001	Operational, Pack scrap
17:43:41	0003	Operational, Charge
17:41:41	0002	Operational, Wait on Scrap
16:32:57	0048	Operational, Charge Run A

CHARGES	AMOUNT
Charge 1	243900
Charge 2	116600
Charge 3	0
Charge 4	0
Charge 5	0

ADDITIONS	LBS
LC SiMn	0003100
LC FeMn	0001100
4oz AL Con	0000600
FeCb	0000100
FeVan	0000225
LSR	0004400
Carbon	0001960
Dololime	0007650
HiCal Lime	0004250

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	65400	27500	37900	0	0	0
O2 Burner	SCF	77	24	53	0	0	0
Gas Burner	SCF	36	12	24	0	0	0
O2 Lance	SCF	1054	0	1054	0	0	0
Carbon Lance	LBS	6127	0	6127	0	0	0
TIMES							
Melting Tm	MIN	121	71	50	0	0	0
Power on Tm	MIN	44	19	24	0	0	0
Burner On Tm	MIN	60	18	42	0	0	0
O2Lance On Tm	MIN	40	0	40	0	0	0
CLance On Tm	MIN	12	0	12	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	399 1	225 5	362 8	000 0	000 0	000 0
Flux	Tons	000 0	000 1	000 0	000 0	000 0	000 0
Average Power	Kwh/hr	45253 5	000 0	000 0	000 0	000 0	000 0
O2 ton	SCF/Ton	006 4	000 0	005 8	000 0	000 0	000 0
Gas Ton	SCF/Ton	000 2	000 1	000 2	000 0	000 0	000 0
Carbon Ton	LBS/Ton	037 4	000 0	034 0	000 0	000 0	000 0

COMMENTS

Mike furnace check

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CO	Cu	Ni	Cr	Mo	Sn	Pb	Co	V	Ti	
MAX	0 06400	1.15000	0 02000	0 01000	0 40000	0 03000	0.00000	0 01500	0 00000	0 46300	0 40000	0 40000	0 00000	0 05000	0 02000	0 00400	0 04500	0 09000	0 01000	0 00000
MIN	0 04000	1 05000	0 00000	0 00000	0 30000	0 01800	0.01500	0.00000	0 00150	0 39300	0 30000	0 30000	0 50000	0 00000	0 00000	0 00000	0 03700	0 08200	0 00600	0 00000
AIM	0 04000	1 10000	0.00000	0.00000	0.35000	0.02500	0.00000	0.00000	0.00000	0.41900	0.32000	0.32000	0 55000	0 00000	0 00000	0 00000	0 04000	0.08500	0 00700	0 00000

HEAT: B3D763 MSP: 85063

---------- EVENTS ----------

TIME	KWH	Description
18 34.08	0065400	Ladle Weigth
18 34 04	0065400	End Tapping
18 31 40	0065400	Start Tapping
18 26 44	0065400	Burners Off
18 25 44	0065400	Temperature <2942> O2 <9980> C <2056>
18 21 54	0065400	Temperature <2942> O2 <6160> C <108>
18 15 43	0065400	Temperature <2867> O2 <2510> C <73>
18.14.31	0065400	Power Off
18:12 52	0063000	Power On
18 11 15	0063000	Power Off
18.08.00	0057600	Material Addition
17:57.16	0039800	Power On
17.56 08	0039800	Power Off
17 46.54	0027600	Power On
17.43 52	0027500	Charge
17 41 39	0027500	Power Off
17 32 28	0013800	Power On
17 32 17	0013800	Power Off
17 32:15	0013800	Power On
17.32 13	0013800	Power Off
17 28 47	0008700	Material Addition
17:27 27	0006900	Power On
17 27 25	0006900	Power Off
17 25 50	0004600	Burners On
17 21 57	0000000	Melting
17 21 56	0000000	Power On
17 07 20	0000000	Charge
16 32 12	0000000	TurnAround

EAF Heat Sheet 30-Apr-2003 20:29:48

IPSCO STEEL INC.
Montpelier Works

HEAT: A3D289 MSP: 85063

Start Time 30-Apr-2003 17 28 16
End Time 30-Apr-2003 20 29 23
TapToTap Time 180 (min)

Heat Order 0516302
Grade A871-65
Ladle # 6 CrewID 2 OperatorID 8

START	DUR	DELAY REASON
20 26 11	0000	Operational, Tap
20 22 11	0004	Operational, Slagoff
20 18 11	0004	Operational, Blow Carbon
20 12 11	0006	Operational, Soak
20 08 35	0001	Operational, Temp and Sample
20 00 59	0000	Operational, Sidewall RTD Trip
19 32 48	0023	Operational, Run B
18 57 05	0030	Other, New Other
18 34 27	0005	Operational, Charge
18 22 43	0002	Other, New Other
17 51 03	0025	Operational, Charge run B
17 29 03	0022	Operational, Run B

CHARGES	AMOUNT
Charge 1	241000
Charge 2	116200
Charge 3	0
Charge 4	0
Charge 5	0

ADDITIONS	LBS
LC SiMn	0003100
LC FeMn	0001100
4oz AL Con	0000600
FeCb	0000100
FeVan	0000225
LSR	0004400
Carbon	0002350
Dololime	0007650
HiCal Lime	0004250

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	69400	11400	58000	0	0	0
O2 Burner	SCF	73	13	59	0	0	0
Gas Burner	SCF	31	6	25	0	0	0
O2 Lance	SCF	931	0	931	0	0	0
Carbon Lance	LBS	2690	0	2690	0	0	0
TIMES							
Melting Tm	MIN	180	60	120	0	0	0
Power on Tm	MIN	52	9	42	0	0	0
Burner On Tm	MIN	85	9	76	0	0	0
O2Lance On Tm	MIN	39	0	39	0	0	0
CLance On Tm	MIN	15	0	15	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	427 4	094 6	388 6	000 0	000 0	000 0
Flux	Tons	000 0	000 1	000 0	000 0	000 0	000 0
Average Power	Kwh/hr	26188 7	000.0	000 0	000 0	000 0	000 0
O2 ton	SCF/Ton	005 7	000 0	005 2	000 0	000 0	000 0
Gas Ton	SCF/Ton	000 2	000 0	000 2	000 0	000 0	000 0
Carbon Ton	LBS/Ton	016 6	000 0	015 1	000 0	000 0	000 0

COMMENTS

FS540--Carbon piping problem--Chad furnace check

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CO	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B
MAX	0 06400	1.15000	0 02000	0.01000	0 40000	0 03000	0.00000	0 01500	0 00000	0 46300	0 40000	0 40000	0 60000	0 05000	0 02000	0 00400	0.04500	0 09000	0 01000	0 00000	0 00000	0 00000
MIN	0 04000	1 05000	0 00000	0.00000	0 30000	0 01800	0.01500	0 00000	0 00150	0.39300	0 30000	0 30000	0 50000	0 00000	0 00000	0 00000	0 03700	0 08200	0 00600	0 00000	0 00000	0 00000
AIM	0 04000	1.10000	0 00000	0 00000	0.35000	0.02500	0 00000	0.00000	0 00000	0.41900	0 32000	0 32000	0.55000	0 00000	0.00000	0.00000	0 04000	0 08500	0 00700	0 00000	0 00000	0 00000

HEAT: A3D289 MSP: 85063

EVENTS		
TIME	KWH	Description
20 29 35	0069400	Ladle Weigth
20 29 25	0069400	End Tapping
20 26 18	0069400	Start Tapping
20 22 54	0069400	Burners Off
20 22 27	0069400	Temperature <2994> O2 <9810> C <47>
20 18 21	0069400	Temperature <2948> O2 <7270> C <55>
20 12:58	0069400	Temperature <2717> O2 <297> C <55>
20 12:10	0069400	Power Off
20 09 53	0066000	Power On
20 08.33	0066000	Power Off
20 01:16	0054700	Power On
20.00.57	0054600	Power Off
19.57 16	0050200	Burners On
19:56 37	0049800	Power On
19:32:46	0049800	Power Off
19 27:12	0046000	Power On
19 19 15	0046000	Burners Off
19.16:03	0046000	Material Addition
19 13.12	0046000	Material Addition
19:10 52	0046000	Material Addition
19 03 19	0046000	Material Addition
18 57 03	0046000	Power Off
18 39.29	0020100	Power On
18 34 25	0020100	Power Off
18 28 37	0011400	Charge
18 28:36	0011400	Power On
18 28 21	0011400	Power Off
18 27 01	0009700	Power On
18:26 45	0009700	Power Off
18 24.59	0007200	Power On
18 23 17	0007200	Material Addition
18 22 42	0007200	Power Off
18 22 09	0006500	Power On
18 22 07	0006500	Power Off

EVENTS		
TIME	KWH	Description
18 21 52	0006400	Power On
18 21 45	0006400	Power Off
18 18 52	0002200	Burners On
18 16 20	0000000	Melting
18 16 19	0000000	Power On
18 16 16	0000000	Material Addition
18 13 45	0000000	Material Addition
18 10 54	0000000	Material Addition
17 50 23	0000000	Charge
17.28 18	0000000	TurnAround

EAF Heat Sheet 30-Apr-2003 22:15:11

IPSCO STEEL INC.
Montpelier Works

HEAT: A3D290 MSP: 85063

Start Time 30-Apr-2003 20 30 26
End Time 30-Apr-2003 22 14.57
TapToTap Time . 104 (min)

Heat Order 0516304
Grade A871-65
Ladle # 5 CrewID 2 OperatorID 8

START	DUR	DELAY REASON
22 12 54	0000	Operational, Tap
22 09 24	0003	Operational, Slagoff
22 05 24	0004	Operational, Blow Carbon
22 00:24	0005	Operational, Hot Anode#4
21 57:43	0001	Operational, Temp and Sample
21:38.59	0001	Operational, Pack scrap
21 35 23	0000	Other, Scrap Cave
21 23.53	0004	Operational, Charge
20 37 13	0031	Operational, Charge run B
20 31:13	0006	Operational, Turnaround

CHARGES	AMOUNT
Charge 1 .	243050
Charge 2 :	69350
Charge 3	0
Charge 4	0
Charge 5 .	0

ADDITIONS	LBS
LC SiMn	0003100
LC FeMn	0001100
4oz AL Con	0000600
FeCb	0000100
FeVan	0000225
LSR	0004400
Carbon	0001180
Dololime	0003835
HiCal Lime	0002135

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	60800	3300	57500	0	0	0
O2 Burner	SCF	56	0	56	0	0	0
Gas Burner	SCF	25	0	25	0	0	0
O2 Lance	SCF	892	0	892	0	0	0
Carbon Lance	LBS	483	0	483	0	0	0
TIMES							
Melting Tm	MIN	104	42	62	0	0	0
Power on Tm	MIN	43	3	40	0	0	
Burner On Tm	MIN	62	0	62	0	0	
O2Lance On Tm	MIN	38	0	38	0	0	0
CLance On Tm	MIN	2	0	2	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	428 2	027 2	389 2	000 0	000 0	000 0
Flux	Tons	000 0	000 1	000 0	000 0	000 0	000 0
Average Power	Kwh/hr	36602.0	000.0	000 0	000 0	000 0	000 0
O2 ton	SCF/Ton	006 3	000 0	005 7	000 0	000 0	000 0
Gas Ton	SCF/Ton	000 2	000 0	000 2	000 0	000 0	000 0
Carbon Ton	LBS/Ton	003 4	000 0	003 1	000 0	000 0	000 0

COMMENTS

Chad furnace check

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CO	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	
MAX	0 06400	1 15000	0.02000	0 01000	0.40000	0 03000	0 00000	0 01500	0 00000	0 46300	0 40000	0 40000	0 60000	0 06000	0 02000	0 00400	0 04500	0 09000	0 01000	0 00000	0 00000	0 00000
MIN	0 04000	1 05000	0 00000	0.00000	0 30000	0 01800	0 01500	0 00000	0.00150	0 39300	0 30000	0 30000	0 50000	0 00000	0 00000	0 00000	0 03700	0 08200	0 00600	0 00000	0 00000	0 00000
AIM	0 04000	1 10000	0.00000	0 00000	0 35000	0.02500	0.00000	0.00000	0 00000	0.41000	0 32000	0 32000	0 55000	0.00000	0 00000	0 00000	0 04000	0 08500	0 00700	0 00000	0 00000	0 00000

HEAT: A5D290 MST: 85065

---------- EVENTS ----------

TIME	KWH	Description
22 15 03	0060800	Ladle Weigth
22 14:59	0060800	End Tapping
22:13.16	0060800	Start Tapping
22 10 33	0060800	Temperature <3105> O2 <14500> C <43>
22 04 59	0060800	Temperature <3096> O2 <11460> C <3023
22 00 22	0060800	Power Off
21:59.11	0059400	Power On
21:57.41	0059400	Power Off
21:40 03	0030800	Power On
21.38.57	0030800	Power Off
21:35 41	0025600	Power On
21:35.22	0025600	Power Off
21 27.55	0018600	Power On
21 23 51	0018600	Power Off
21 17 51	0010100	Power On
21.17 50	0010100	Power Off
21 17.46	0010100	Power On
21 17 31	0010100	Power Off
21 17 29	0010100	Power On
21.17:28	0010000	Power Off
21 13 57	0005100	Power On
21 13:56	0005100	Power Off
21 13 55	0005100	Power On
21 13 54	0005000	Power Off
21 12 47	0003400	Charge
21 12.30	0002900	Burners On
21 09 08	0000000	Melting
21 09.07	0000000	Power On
20 54 13	0000000	Material Addition
20:35 17	0000000	Charge
20 30.28	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: A3D290 MSP: 85063

---------- EVENTS ----------

TIME	KWH	Description
22 15 03	0060800	Ladle Weigth
22 14 59	0060800	End Tapping
22 13 16	0060300	Start Tapping
22 10 33	0060800	Temperature <3105> O2 <14500> C <43>
22 04 59	0060800	Temperature <3096> O2 <11460> C <3023
22 00.22	0060800	Power Off
21:59 11	0059400	Power On
21.57 41	0059400	Power Off
21.40 03	0030800	Power On
21:38:57	0030800	Power Off
21:35 41	0025600	Power On
21:35 22	0025600	Power Off
21 27 55	0018600	Power On
21:23:51	0018600	Power Off
21.17 51	0010100	Power On
21:17 50	0010100	Power Off
21 17:46	0010100	Power On
21:17 31	0010100	Power Off
21.17 29	0010100	Power On
21 17 28	0010000	Power Off
21 13 57	0005100	Power On
21 13 56	0005100	Power Off
21 13 55	0005100	Power On
21 13 54	0005000	Power Off
21 12 47	0003400	Charge
21 12.30	0002900	Burners On
21 00 08	0000000	Melting
21 09 07	0000000	Power On
20 54:13	0000000	Material Addition
20 35.17	0000000	Charge
20 30.28	0000000	TurnAround

EMISSION TEST REPORT

IPSCO STEEL, INC.
Muscatine, Iowa

First Quarter 2003
Oxides of Nitrogen Test

March 06, 2003

IDNR Permit Number(s)

EAF/LMF Meltshop Stack 94-A-548-S3



Prepared By:

AAS Inc.

Ambient Air Services, Inc.

106 Ambient Airway • Starke, FL 32091 • (904) 964-8440 • Fax (904) 964-6675

ipsco

RECORD COPY

File Name Con 10-1 70-08-002

Senders Initials MS

File No.

Senders

April 16, 2003

Iowa Department of Natural Resources
Air Quality Bureau
Stack Test Coordinator
7900 Hickman Road
Suite 1
Urbandale, IA 50322

TEST

Re: IPSCO Steel Inc. – Montpelier
Permit #94-A-548-S3
1st Quarter NOx Test

Mr. Stone:

Enclosed, please find the first quarter NOx report as required by the above-mentioned permit. In addition, you will find data for fan amps, damper positions, and furnace pressure. As noted in the test protocol, IPSCO elected to re-establish the facility operating parameters.

If you have any questions, please feel free to contact me at (563)381-5584. Thank you.

Sincerely,
IPSCO Steel Inc.

Stephanie J. Kreiter
Environmental Coordinator

Cc: Richard Acquaviva – letter only
Wayne Schmidt – letter only
Tom Toner – letter only
Joe Wesselman – letter only

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APR 17 2003

ipsco steel inc.

1770 Bill Sharp Boulevard, Muscatine, Iowa 52761
Phone (563) 381-5300 Fax (563) 381-5329

CERTIFICATION PAGE

Ambient Air Services, Inc. of Starke, Florida, has completed the testing described in this report for IPSCO Steel Inc.'s Montpelier Works facility. To the best of our knowledge and abilities we certify that all information, facts and test data are true and correct. Information supplied to AASI for use in this report from IPSCO Steel is perceived to be accurate and is used as such where necessary. This report was prepared and certified by:

David C. Sholtes, Report Review

Joseph L. Cooksey, Project Manger

Questions and or comments regarding this report or process conditions should be directed to:

Ms. Stephanie Kreiten
IPSCO Steel
1770 Bill Sharp Blvd.
Muscatine, Ia. 52761
Phone: 563-381-5584
Fax: 563-381-5406

Mr. Joseph L. Cooksey
Ambient Air Services
106 Ambient Air Way
Starke, Fl. 32091
Phone: 904-964-8440
Fax: 904-964-6675
Email: AASI@atlantic.net

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APR 17 2003

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EXECUTIVE SUMMARY

Ambient Air Services, Inc. (AASI) conducted emission testing at the IPSCO Steel (Iowa) Facility located in Montpelier, Iowa. The testing included the determination of Oxides of Nitrogen emissions from the EAF/LMF Baghouse Stack and Visible Emission Observations on the Meltshop Building.

The results, shown in Table 1.1 demonstrate compliance with the facilities oxides of nitrogen and visible emission limitations as listed in permit number IDNR-94-A-548-S3

TABLE 1-1

EMISSION TEST RESULTS
EXECUTIVE SUMMARY
IPSCO STEEL, INC.
MONTPELIER, IOWA

March 06, 2003

SOURCE	PARAMETER	ALLOWABLE	TEST RESULTS
EAF/LMF Baghouse Stack	Oxides of Nitrogen (NOx) As (NO_2)	0.80 lbs/tons 700.8 tons/year	0.26 lbs/ton 148.4*
Meltshop Building	Opacity (VE)	6% Opacity	0.0 % Opacity

*Tons per year based on 24 hours per day, 365 days per year at Tested Production Rate

1.0 INTRODUCTION

1.1 General

IPSCO Steel (Iowa), Inc. contracted with Ambient Air Services, Inc. (AASI) to conduct emission testing on their EAF/LMF Baghouse Stack. The testing involved the determination of Oxides of Nitrogen (NOx) Emissions.

The purpose of the testing was to satisfy specific requirements of the IDNR issued permit number 94-A-548-S3, for Quarterly NOx testing.

Prior to the testing Mr. Mark Stone of IDNR was provided a Test Protocol and Notification of test dates. Mr. Stone approved the protocol prior to testing

In addition to the required quarterly NOx test IPSCO elected to re-establish their facility operating parameters (fan amps, damper positions, furnace pressure) by conducting visible emission testing on the Meltshop Building.

1.2 Test Participants

Ms. Stephanie Kreiter	IPSCO	Environmental Coordinator
Mr. Mark Stone	IDNR	State of Iowa Observer
Mr. Joseph Cooksey	AASI	Project Manager
Mr. David Sholtes	AASI	Report Review

1.3 Summary of Testing Conducted

Table 1-2

Summary of Testing Conducted IPSCO Steel, (Iowa), Inc. Montpelier, Iowa March 06, 2003			
SOURCE	**PARAMETER**	**USEPA TEST METHODS**	**COMMENTS**
EAF/LMF Baghouse Exhaust Stack	Oxides of Nitrogen (NOx)	40 CFR 60 Appendix A Method 7E	3 Test Runs, Each Run 2 heats in duration
	Flow	40 CFR 60 Appendix A Methods 1-4	1 Flow Traverse per NOx Test, Moisture by wet bulb/dry bulb
Meltshop Building	Visible Emissions	40 CFR 60 Appendix A Method 9	Aggregate total of 3 hours of observations

2.0 TEST METHODOLOGIES

2.1 Flow and Moisture

Flow and moisture were determined in accordance with USEPA Methods 1-4 as published in 40 CFR 60 Appendix A.

One flow traverse was conducted per NOx test run.

The Oxygen and Carbon Dioxide levels were determined in Run 1 using a fyrite analyzer. It was confirmed that the levels of O_2 and CO_2 were 21% and 0% (ambient conditions). Further analysis was deemed unnecessary.

Moisture was determined using a wet bulb/dry bulb technique. The wet bulb/dry bulb readings were taken once per flow traverse.

2.2 Oxides of Nitrogen

Oxides of Nitrogen from this facility were measured using USEPA Method 7E as published in 40 CFR 60 Appendix A. Table 2.2.1 shows the specifications of Method 7E compared to those presented by the instrument manufacture. For this test a TEI Model 42 was used. The instrument was calibrated over a nominal range of 0-50 ppm.

Results from the test were reported in mass per unit of production. All NOx (NO + NO_2) was converted to NO_2 as required by IDNR.

At the beginning of the test the NOx system was calibrated using zero, 25 and 45 ppm USEPA Protocol gas standards. At the completion of each test run the system was checked at zero and 25 ppm.

The sampling system is shown in Figure 2.2.1.

Data from the NOx analyzer was recorded using a computerized data logging system. The data recorder took a reading each second and averaged these readings into 1 minute data points. All test data is included in the appendix section of this report.

Table 2.2.1

OXIDES OF NITROGEN SYSTEM PERFORMANCE SPECIFICATIONS METHOD 7E VS THERMO ENVIRONMENTAL INSTRUMENTS MODEL 42		
	METHOD 7E	TECO 42
Calibration error zero, mid and high gases	Less than ±2% span	±1% of full scale
Sampling system bias for zero, mid and high gases	Less than ±5% span	±1% of full scale
Zero Drift	Less than ±3% of span over the run period	Negligible
Calibration Drift	Less than ±3% of span over the run period	±1% of full scale

3.0 PROCESS DESCRIPTION

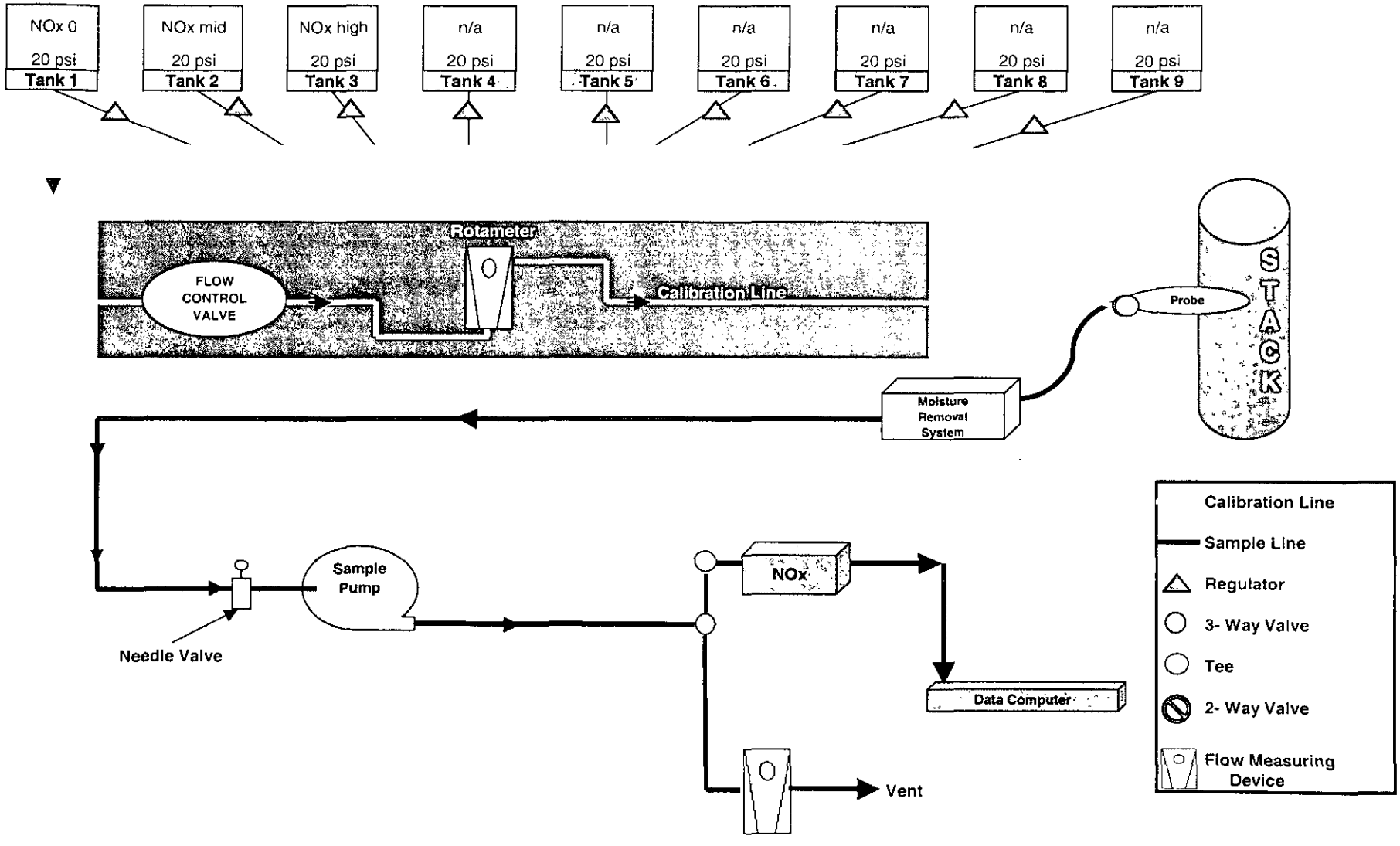
Electric arc furnaces (EAF) are used to produce carbon and alloy steels. The input material to an EAF is typically 100 percent scrap. Cylindrical, refractory lined EAF's are equipped with carbon electrodes to be raised or lowered through the furnace roof. With electrodes retracted, the furnace roof can be rotated aside to permit the charge of scrap steel by overhead crane. Lime and charge carbon are added to the charge buckets, alloying agents and materials are added during the tapping process. Electric current of the opposite polarity electrodes generates heat between the electrodes and through the scrap. After melting and refining periods, the slag and steel are poured from the furnace by tilting.

The production of steel in an EAF is a batch process. Cycles, or "heats", range from about 45 to 90 minutes to produce carbon steel. Scrap steel is charged to begin a cycle, and alloying agents and slag materials are added for refining. Stages of each cycle normally are charging and melting operations, refining (which usually includes oxygen blowing), and tapping.

SAMPLE SYSTEM SCHEMATIC

(Not To Scale)

Figure 3-1



4.0 RESULTS

The results from this testing demonstrate compliance with the permit limitations at the time of testing on March 06, 2003.

The results are summarized in Table 4-1.

TABLE 4-1

AASI

Oxides of Nitrogen (NO_X) Emissions Summary

USEPA Method 7E (40 CFR Part 60 Appendix A)

Ipsco Steel (Iowa), Inc.

Montpeliar, Iowa

IDNR Permit Number 94-A-548-S3

March 6, 2003

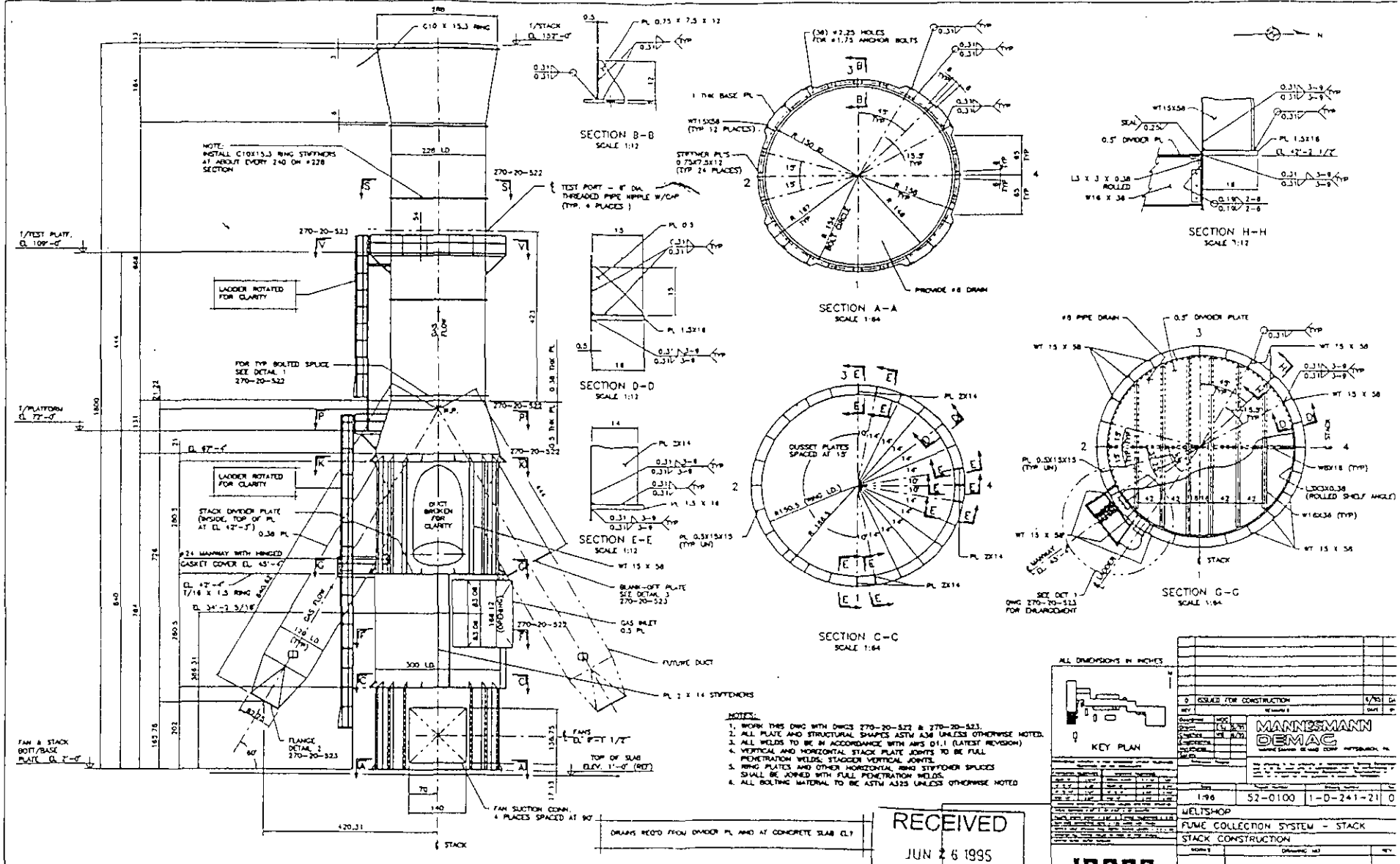
Run			Concentration	Volumetric Flow Rates	Production				Mass Emissions (as NO_2)	
Date	Number	Time (CST)	ppm-v/v	SCFM-Dry	Heat Numbers	Tap to Tap Time (min)	Tons Tapped	Tons per Hour	Pounds per Hour	Pounds per Ton
3/6/2003	1	14:36 17:11	7.00	671729	B3C522 A3C070	155	311.3332	120.5	33.70	0.28
3/6/2003	2	18:01 19:57	8.80	698606	A3C071 B3C524	116	314.3106	162.6	44.06	0.27
3/6/2003	3	21:48 0:10	4.30	775152	A3C073 B3C525	142	248.085	104.8	23.89	0.23
Average			**6.70**	**715162**				**129.3**	**33.88**	**0.26**

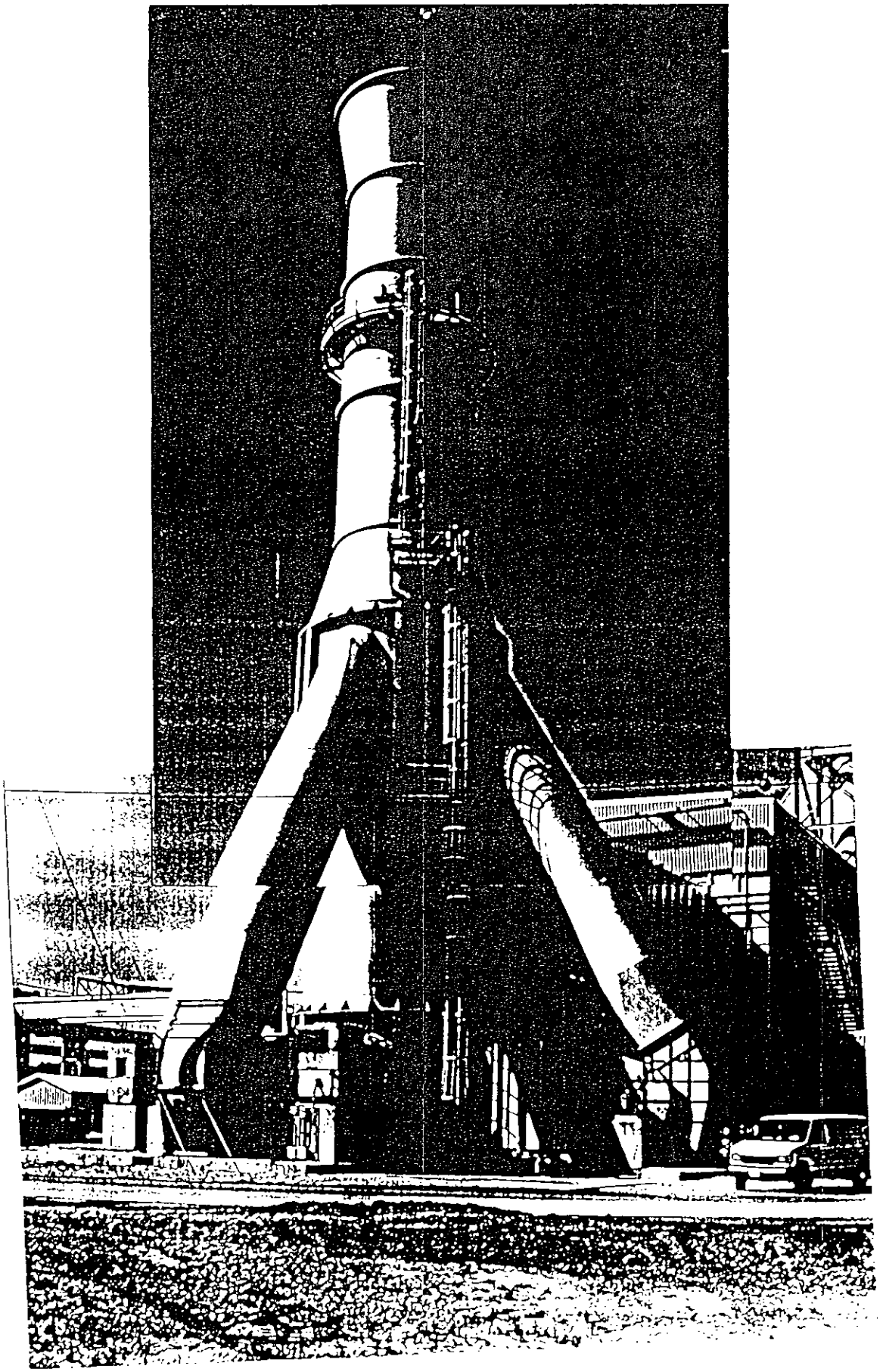
APPENDICES

Appendix A	Stack Diagram - EAF/LMF
Appendix B	Directions and Map to site IDNR Pre-test Questions and Test Protocol
Appendix C	Flow Information
Appendix D	NOx Data
Appendix E	Facility Operating Data

APPENDIX A

Stack Diagram-EAF/LMF


ELEVATION
SECTION B-B
SECTION A-A
SECTION D-D
SECTION E-E
SECTION C-C
SECTION H-H
SECTION G-G
KEY PLAN
NOTES:
1. WORK THIS DWG WITH DWGS 270-20-522 & 270-20-523.
2. ALL PLATE AND STRUCTURAL SHAPES ASTM A36 UNLESS OTHERWISE NOTED.
3. ALL WELDS TO BE IN ACCORDANCE WITH AWS D1.1 (LATEST REVISION)
4. VERTICAL AND HORIZONTAL STACK PLATE JOINTS TO BE FULL PENETRATION WELDS; STAGGER VERTICAL JOINTS.
5. RING PLATES AND OTHER HORIZONTAL RING STIFFENER SPLICES SHALL BE JOINED WITH FULL PENETRATION WELDS.
6. ALL BOLTING MATERIAL TO BE ASTM A325 UNLESS OTHERWISE NOTED
RECEIVED
JUN 26 1995
IPSCO STEEL INC
GREEN FIELD PROJECT
MANNESMANN DEMAG
1-96
52-0100
1-0-241-21
0
WELTSHOP
FUME COLLECTION SYSTEM - STACK
STACK CONSTRUCTION
ipsco
60
270-20-521
0



APPENDIX B

Directions and Map to site
IDNR Pretest Questions and Test Protocol

Directions to IPSCO

From Quad City Airport:

From Airport exit, turn right and follow signs to I-74 North

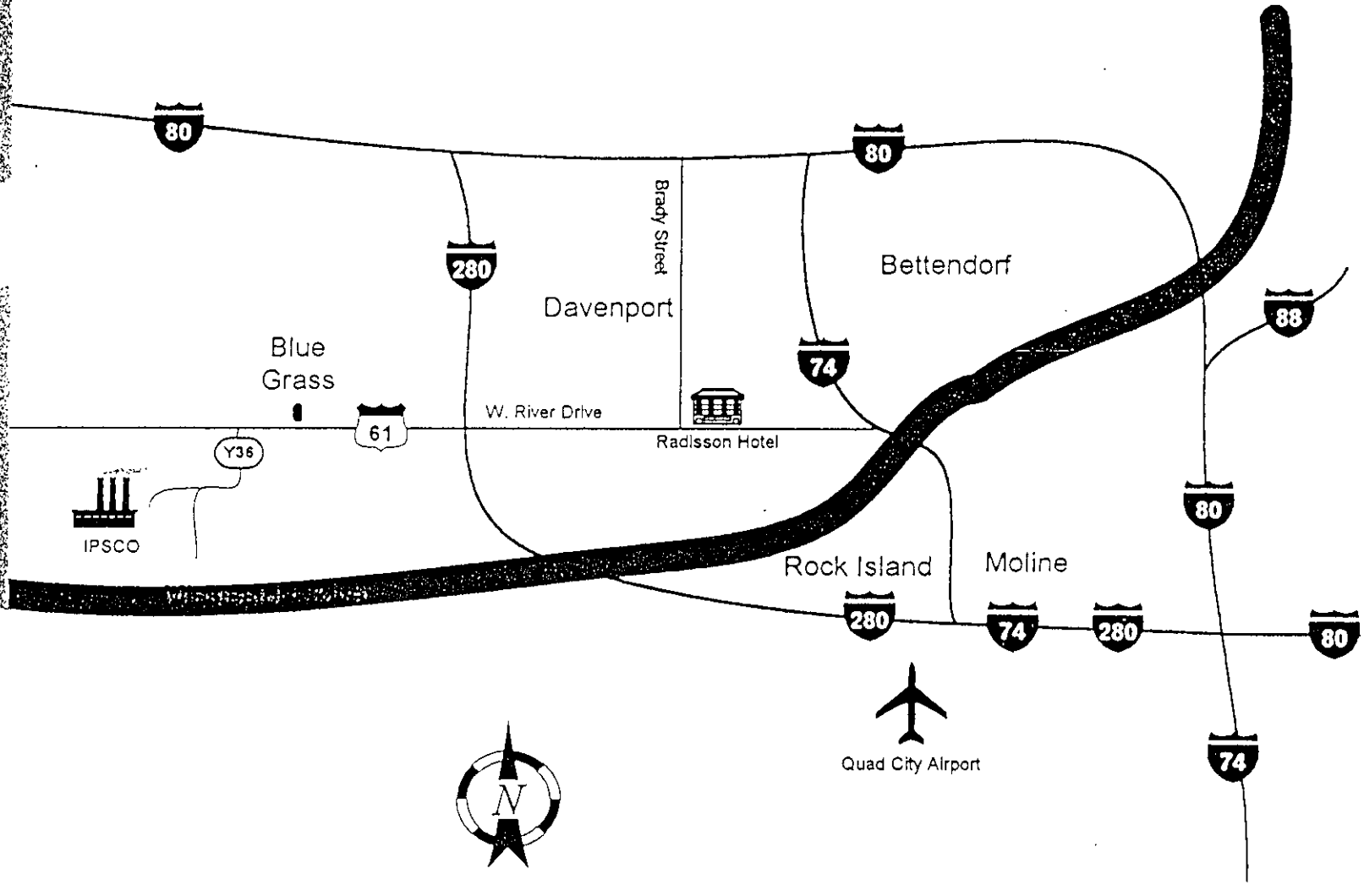
Take I-74 North to I-280 exit; proceed west to Highway 61 South exit

Proceed on Highway 61 to Y-36 (Zachary Av) - 5 miles; see following note

From Highway 61:

Proceed south on Y-36 (Zachary Av) 2-3 miles

Do not turn where Y-36 branches to the south; proceed straight to gate for auto entrance



PROPOSED TEST PLAN PROTOCOL

Company Name: IPSCO Steel (Plant Number 70-08-002)

Address: 1770 Bill Sharp Boulevard, Muscatine, IA 52761

Name and Title of Contact: Stephanie Kreiter

Address of Contact: 1770 Bill Sharp Boulevard, Muscatine, IA 52761

Telephone Number of Contact: (563) 381-5338

Proposed Test Date: Quarterly Starting March 5, 2003, April 30, 2003, July 9, 2003 and October 8,2003.

Source Information

Type of Source: EAF/LMF Baghouse Exhaust Stack

Identification of Source to be tested: Baghouse Exhaust Stack

Permit Number of Source: 94-A-548-S3

Address of Source: 1770 Zachary Avenue

Initial Startup Date: 1998

Testing Firm Information

Name of Firm: Ambient Air Services, Inc.

Address: 106 Ambient Air Way, Starke, Florida 32091

Name and Title of Contact: Joseph L. Cooksey, President

Telephone Number: (904) 964-8440

Number of Employees of Firm: 17

Number of Employees engaged in Air Pollution Source Testing (Including Support Personnel): 17

Location and Description of Laboratory Facilities: 106 Ambient Air Way, Starke, Florida (Metals by Ppb Environmental Laboratories, 6821 S.W. Archer Road, Gainesville, FL)

Subcontractor(s) Utilized by firm for Source Testing Activities: None

Number of Air Pollution Sources Previously Tested by Firm: Testing since 1973

Types of Sources Previously Tested by Firm: Many different source types including heavy experience in Steel Industry.

PERFORMANCE TEST INFORMATION

List all pollutants to be sampled. 94-A-548-S3 - EAF / LMF Baghouse

	Pollutant	Number of Sampling Points	Total Time per Test Run	Number of Test Runs	Test Methods to be Used
1	NOx	1	2 heats	3	M 7E
2	Flow	24	N/A	3	1-4*
3*	VE	Meltshop Building	180 minutes	1	9

***VE Test will be conducted on March 5, 2003 only.**

For EPA Reference Method 5 or Iowa Method 5 tests, indicate the length of each run to collect 50 milligrams of sample. Use the estimated emissions after control as the stack gas concentration.

If the permitted emission standard or expected concentration of particulate is equal to or less than 0.005 grains per dry standard cubic foot (gr/dscf), an extended sampling time must be considered. When calculating the sample time, the length of each run should be such that a sample catch of 50 milligrams will be colleted. Should the sample catch be less than 10 milligrams after applying the above method, the test may be subject to rejection or a 10 milligrams sample weight may be assumed.

Include a description of any test procedures to be used in the conduct of the performance tests which differ from the specified method(s).

* Moisture using wet bulb/dry bulb

PROTOCOL SUPPLEMENT - OPERATING DATA

This form is to be filled out and returned with the test protocol.

Maximum Continuous Process Weight (Manufacturer's Rating): Existing - 164 TPH
Phase 1 - 200 TPH (Target Production for Test is Phase 1)
Phase 2 - 230 TPH

Historical Average Process Weight: Not yet established however plant is capable of up to 200 TPH but to date has achieved this for only short time periods.

Historical Maximum Process Weight:

Product Recycling Capability: Yes ____ (Heel) No X

Type of Sources of Fuels Normally Burned: Electric arc 420 KWH, 200 cu.ft. natural gas, 400 cu.ft. oxygen + 1200-1400 cu.ft. oxygen per liquid ton of steel.

Type of Control Equipment: Baghouse

Range of Pressure Drop Across Control Equipment: 4-6 Currently operating at Inches of Water

Person Responsible For This Data: Stephanie Kreiter

Person Responsible For Collecting Process Data During Actual Testing: Stephanie Kreiter

Complete and submit one of these forms for each test to be conducted. This information is especially important the determine to operating conditions of the equipment under which the tests will be conducted. The tests must be conducted while operating at maximum capacity or the highest capacity which this source will be operated. Failure to test at the permitted capacity may result in derating this source.

This information is also required to be submitted on the forms found at the end of the protocol package. These two forms, the Compliance Emission Test Operating Data and the Air Pollution Control Equipment Operating Data forms, must be filled out with the data collected on the actual date of the tests. Failure to complete the forms on the day of the testing may be cause for rejecting the tests.

Ambient Air Services, Inc.

106 Ambient Airway • Starke, FL 32091 • (904) 964-8440 • Fax (904) 964-6675

January 7, 2003

Mr. Mark Stone
Stack Testing Coordinator
Air Quality Bureau
Iowa Department of Natural Resources
7900 Hickman Road, Suite 1
Urbandale, Iowa 50322

Dear Mark:

Attached is the IDNR test protocol form completed for the quarterly NOx testing at IPSCO Steel's Montpelier Works facility.

The tentative date for conducting the testing for the First Quarter of 2003 is March 5.

A brief synopsis of the testing planned is as follows:

Oxides of Nitrogen (NOx):	3 test runs, each run 2 heats (nominally 1.5 - 2.0 hours) in duration. Instrument range 0-50 ppm, calibration gases nominally 0, 25 ppm and 45 ppm. Test in accordance with USEPA Method 7E.
Flow:	3 flow traverses, one for each NOx test run. Moisture by wet bulb/dry bulb. O2 and CO2 are expected to be 21% and 0% and will be confirmed using a fyrite analyzer.
VE:	Visible Emission Testing (VE) will be conducted on the Meltshop Building. The VE test will be conducted on March 5, 2003 only. The VE test will be used to re-establish the NSPS AAa requirments for establishment of control device fan amp, damper positions, and furnace pressure operating ranges.

For planning purposes IPSCO has selected the following dates for the remaining calendar quarters for 2003:

Second Quarter	April 30, 2003
Third Quarter	July 9, 2003
Fourth Quarter	October 8, 2003

Please note that these dates are tentative only. As each date approaches we will confirm production schedules and confirm dates and test start times.

Please let me know if you have any questions.

Sincerely,

Joseph L. Cooksey

JLC:las

cc: Stephanie Kreiter, IPSCO Montpelier Works
Joseph Wesselman, IPSCO Corporate

ipsco

February 6, 2003

Iowa Department of Natural Resources
Air Quality Bureau
Stack Test Coordinator
7900 Hickman Road
Suite 1
Des Moines, IA 50322

Re: Quarterly NOx Test
Pre-Test Meeting Requirements

Mr. Stone:

As per our conversation on Thursday, February 6, 2003, I am hereby confirming by way of letter that a pre-test meeting for the quarterly NOx testing requirements will not be required for the tests scheduled in the calendar year 2003. If this information is incorrect, please give me a call at (563)381-5584. Thank you.

Sincerely,
IPSCO Steel Inc.

Stephanie J. Kreiter
Environmental Coordinator

Cc: Joe Wesselman - IPSCO
Joe Cooksey – Ambient Air

ipsco steel inc.

1770 Bill Sharp Boulevard, Muscatine, Iowa 52761
Phone (563) 381-5300 Fax (563) 381-5329

APPENDIX C

Flow Information

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

Data Request Entry Area	PM Run 1
Facility	IPSCO Steel (Iowa) Inc.
Location	Montpelier, Iowa
Source	EAF Baghouse
Date	03/06/03
Run Number	1
Start Time	15:00
Finish Time	15:15
Weather	Cold and Clear
Total Time (min)	N/A
Number of Points	24
Barometric Pressure	29.30
Static Pressure ("H20)	-0.54
Stack Diameter (inches)	228.00
Nozzle Diameter (in.)	N/A
Meter Y Factor	N/A
Pitot Factor	0.84
Final Meter Reading	N/A
Initial Meter Reading	N/A
Condensate (ml)	N/A
Silica Gel Weight (gm)	N/A
Orsat CO2	0.0
Orsat O2	20.9
Orsat CO	0.0
Orsat N2	79.1
Filter Weight (gm)	N/A
Prefilter Weight (gm)	N/A
Meter Factor	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Field Data Points - PM Run 1							
Port	Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter In ' F	Meter Out 'F	Sq Rt VH
1	1	0.75		160			0.8660
	2	0.7		162			0.8367
	3	0.65		161			0.8062
	4	0.8		158			0.8944
	5	0.72		158			0.8485
	6	0.55		155			0.7416
2	1	0.75		163			0.8660
	2	0.88		166			0.9381
	3	0.95		164			0.9747
	4	0.95		160			0.9747
	5	0.95		158			0.9747
	6	0.65		157			0.8062
3	1	0.5		162			0.7071
	2	0.5		160			0.7071
	3	0.44		160			0.6633
	4	0.45		159			0.6708
	5	0.45		159			0.6708
	6	0.4		156			0.6325
4	1	0.58		161			0.7616
	2	0.5		155			0.7071
	3	0.38		155			0.6164
	4	0.45		152			0.6708
	5	0.45		144			0.6708
	6	0.4		146			0.6325

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

PM Summary Run 1

Facility	IPSCO Steel (Iowa) Inc.	Impinger Condensate	N/A
Location	Montpeliar, Iowa	Silica Gel Condensate	N/A
Stack	EAF Baghouse	Volume Metered	N/A
Run Date	3/6/2003	Meter Temp (Deg R)	460.0
Run Number	1	Orsat CO2 %	0.0
Start Time	15:00	Orsat O2 %	20.9
Finish Time	15:15	Orsat CO %	0.0
Weather	Cold and Clear	Orsat N %	79.1
Total Time (min.)	N/A	Condensate Volume	N/A
Barometric Pressure	29.3	Delta H (inches H2O)	N/A
Stack Diameter (in.)	228.00	Stack Pressure	29.260
Stack Area sq. ft.	283.529	Stack Temp (Deg R)	✓ 618.0
Nozzle Area sq. ft.	N/A	Filter Weight (gm)	N/A
Number of Points	✓ 24	Prefilter Weight (gm)	N/A
Avg of SQRT of V.H.	✓ 0.7766	Total Particulate (gm)	N/A
Meter Correction (Y)	N/A		
Nozzle Diameter	N/A		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		N/A
Gas Volume Sampled, STPD		N/A
Total Volume, STP		N/A
Moisture in stack gas, volume fraction		0.012
Dry Stack Gas, volume fraction		0.988
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		28.71
Specific gravity of Stack Gas Relative to Air		0.990
Excess Air (%)		14864.9
Average Stack Velocity, FPM		2870.0
Actual Stack Gas Flow Rate, ACFM		813728
Actual Stack Gas Flow Rate, (Dry) ACFMD		803963
Stack Gas Flow Rate, SCFMD		671729
Stack Gas Flow Rate Wet, SCFMW		679888
Percent Isokinetic		N/A
Stack Emissions:	Grains/DSCF	N/A
	Lbs/Hr	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Data Request Entry Area	PM Run 2
Facility	IPSCO Steel (Iowa) Inc.
Location	Montpeliar, Iowa
Source	EAF Baghouse
Date	03/06/03
Run Number	2
Start Time	18:20
Finish Time	18:40
Weather	Clear and Cold
Total Time (min)	N/A
Number of Points	24
Barometric Pressure	29.31
Static Pressure ("H20)	-0.46
Stack Diameter (inches)	228.00
Nozzle Diameter (in.)	N/A
Meter Y Factor	N/A
Pitot Factor	0.84
Final Meter Reading	N/A
Initial Meter Reading	N/A
Condensate (ml)	N/A
Silica Gel Weight (gm)	N/A
Orsat CO2	0.0
Orsat O2	21.0
Orsat CO	0.0
Orsat N2	79.0
Filter Weight (gm)	N/A
Prefilter Weight (gm)	N/A
Meter Factor	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Field Data Points - PM Run 2

Port	Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter In ' F	Meter Out 'F	Sq Rt VH
1	1	0.6		170			0.7746
	2	0.65		175			0.8062
	3	0.6		178			0.7746
	4	0.55		176			0.7416
	5	0.8		175			0.8944
	6	0.75		175			0.8660
2	1	0.75		171			0.8660
	2	0.82		175			0.9055
	3	0.99		174			0.9950
	4	0.95		168			0.9747
	5	0.95		168			0.9747
	6	0.9		170			0.9487
3	1	0.78		160			0.8832
	2	0.75		158			0.8660
	3	0.6		150			0.7746
	4	0.52		148			0.7211
	5	0.55		148			0.7416
	6	0.37		150			0.6083
4	1	0.6		142			0.7746
	2	0.5		142			0.7071
	3	0.6		140			0.7746
	4	0.55		138			0.7416
	5	0.5		138			0.7071
	6	0.3		138			0.5477

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

PM Summary Run 2

Facility	IPSCO Steel (Iowa) Inc.	Impinger Condensate	N/A
Location	Montpeliar, Iowa	Silica Gel Condensate	N/A
Stack	EAF Baghouse	Volume Metered	N/A
Run Date	3/6/2003	Meter Temp (Deg R)	N/A
Run Number	2	Orsat CO2 %	0.0
Start Time	18:20	Orsat O2 %	21.0
Finish Time	18:40	Orsat CO %	0.0
Weather	Clear and Cold	Orsat N %	79.0
Total Time (min.)	N/A	Condensate Volume	N/A
Barometric Pressure	29.31	Delta H (inches H2O)	N/A
Stack Diameter (in.)	228.00	Stack Pressure	29.276
Stack Area sq. ft.	283.529	Stack Temp (Deg R)	619.5
Nozzle Area sq. ft.	N/A	Filter Weight (gm)	N/A
Number of Points	24	Prefilter Weight (gm)	N/A
Avg of SQRT of V.H.	0.8071	Total Particulate (gm)	N/A
Meter Correction (Y)	N/A		
Nozzle Diameter	N/A		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		N/A
Gas Volume Sampled, STPD		N/A
Total Volume, STP		N/A
Moisture in stack gas, volume fraction		0.010
Dry Stack Gas, volume fraction		0.99
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		28.73
Specific gravity of Stack Gas Relative to Air		0.991
Excess Air (%)		150000.0
Average Stack Velocity, FPM		2984.4
Actual Stack Gas Flow Rate, ACFM		846164
Actual Stack Gas Flow Rate, (Dry) ACFMD		837702
Stack Gas Flow Rate, SCFMD		698606
Stack Gas Flow Rate Wet, SCFMW		705663
Percent Isokinetic		N/A
Stack Emissions:	Grains/DSCF	N/A
	Lbs/Hr	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

Data Request Entry Area	PM Run 3
Facility	IPSCO Steel (Iowa) Inc.
Location	Montpeliar, Iowa
Source	EAF Baghouse
Date	03/06/03
Run Number	3
Start Time	23:17
Finish Time	23:30
Weather	Clear and Cool
Total Time (min)	N/A
Number of Points	24
Barometric Pressure	29.31
Static Pressure ("H20)	-0.40
Stack Diameter (inches)	228.00
Nozzle Diameter (in.)	N/A
Meter Y Factor	N/A
Pitot Factor	0.84
Final Meter Reading	N/A
Initial Meter Reading	N/A
Condensate (ml)	N/A
Silica Gel Weight (gm)	N/A
Orsat CO2	0.0
Orsat O2	20.9
Orsat CO	0.0
Orsat N2	79.1
Filter Weight (gm)	N/A
Prefilter Weight (gm)	N/A
Meter Factor	N/A

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

Field Data Points - PM Run 3							
Port	Trav. Pt.	Vel. Head	Meter Orif.	Stack 'F	Meter In 'F	Meter Out 'F	Sq Rt VH
1	1	0.75		120			0.8660
	2	0.7		124			0.8367
	3	0.75		124			0.8660
	4	0.8		125			0.8944
	5	0.8		125			0.8944
	6	0.9		126			0.9487
2	1	0.9		130			0.9487
	2	0.8		128			0.8944
	3	1		126			1.0000
	4	1		120			1.0000
	5	0.95		120			0.9747
	6	1.1		118			1.0488
3	1	0.62		127			0.7874
	2	0.65		125			0.8062
	3	0.67		126			0.8185
	4	0.55		123			0.7416
	5	0.6		124			0.7746
	6	0.63		125			0.7937
4	1	0.8		128			0.8944
	2	0.7		126			0.8367
	3	0.65		126			0.8062
	4	0.88		125			0.9381
	5	0.72		125			0.8485
	6	0.55		120			0.7416

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

Volumetric Flow Calculations Worksheet

PM Summary Run 3

Facility	IPSCO Steel (Iowa) Inc.	Impinger Condensate	N/A
Location	Montpeliar, Iowa	Silica Gel Condensate	N/A
Stack	EAF Baghouse	Volume Metered	N/A
Run Date	3/6/2003	Meter Temp (Deg R)	N/A
Run Number	3	Orsat CO2 %	0.0
Start Time	23:17	Orsat O2 %	20.9
Finish Time	23:30	Orsat CO %	0.0
Weather	Clear and Coo	Orsat N %	79.1
Total Time (min.)	N/A	Condensate Volume	N/A
Barometric Pressure	29.31	Delta H (inches H2O)	N/A
Stack Diameter (in.)	228.00	Stack Pressure	29.281
Stack Area sq. ft.	283.529	Stack Temp (Deg R)	584.4
Nozzle Area sq. ft.	N/A	Filter Weight (gm)	N/A
Number of Points	24	Prefilter Weight (gm)	N/A
Avg of SQRT of V.H.	0.8734	Total Particulate (gm)	N/A
Meter Correction (Y)	N/A		
Nozzle Diameter	N/A		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF	N/A
Gas Volume Sampled, STPD	N/A
Total Volume, STP	N/A
Moisture in stack gas, volume fraction	0.015
Dry Stack Gas, volume fraction	0.985
Molecular Weight of Stack Gas (Dry Basis)	28.84
Molecular Weight of Stack Gas (Stack conditions)	28.68
Specific gravity of Stack Gas Relative to Air	0.989
Excess Air (%)	14864.9
Average Stack Velocity, FPM	3139.1
Actual Stack Gas Flow Rate, ACFM	890026
Actual Stack Gas Flow Rate, (Dry) ACFMD	876676
Stack Gas Flow Rate, SCFMD	775152
Stack Gas Flow Rate Wet, SCFMW	786956
Percent Isokinetic	N/A

PITOT TRAVERSE FORM

Plant TP510 Stack Radwell

Date 3/6/03

Stack Dimensions _____ Stack Area(ft.²) _____

Sketch of Stack Cross Section

Wet 90

Dry 162

Moist 1.2%

Pitot Corr. Factor _____

DB _____ °F WB _____ °F DP _____ °F

V.P. at DP _____ "Hg Fract. D.A. _____

Density Factor _____ Stack Pres. _____

Weather Cold

Temp _____ °F Pressure 29.30 "Hg (Stack Lev

Wind Direction _____ Vel. _____

RUN 1

PITOT TRAVERSE 1500 - 1515

Point Number	Equal Area Radius	Distance from Stack Wall	Distance from End of Port	Port #1		Port #2		Port #3		Port #4	
				H	Velocity	H	Velocity	H	Velocity	H	Velocity
1				0.75	160	0.78	163	0.84	162	0.38	161
2				0.72	162	0.88	166	0.80	160	0.80	155
3				0.63	161	0.75	164	0.74	160	0.35	155
4				0.82	159	0.75	160	0.45	159	0.45	162
5				0.72	158	0.85	158	0.75	159	0.45	149
6				0.35	156	0.80	157	0.40	156	0.40	146
7											
8					Stat.		~~[illegible]~~		ΔP_0		
9							-0.54				
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											

Average: $\sqrt{\Delta P}$ = _____

$$U = (174)\ (CP)\ (\sqrt{\Delta P})\ \sqrt{\left\{\frac{T_s + 460}{GS} \times \frac{29.92}{PS}\right\}} = _____ \text{ft/min.}$$

PITOT TRAVERSE FORM

Plant IPSCO Stack Boiler

Date 3/6/03

Stack Dimensions _____ Stack Area(ft.²) _____

Sketch of Stack Cross Section

191 DRY
90 wet
1% H_2O
Pitot ID 7C

(Flow ↓)

Pitot Corr. Factor _____

DB _____ °F WB _____ °F DP _____ °F

V.P. at DP _____ "Hg Fract. D.A. _____

Density Factor _____ Stack Pres. _____

Weather _____

Temp _____ °F Pressure _____ "Hg

Wind Direction _____ Vel. _____

Magnehelic T20 0-3"
3966 AASI Atkins

PITOT TRAVERSE 1820-1840

Point Number	Equal Area Radius	Distance from Stack Wall	Distance from End of Port	Port #1		Port #2		Port #3		Port #4	
				H	Velocity	H	Velocity	H	Velocity	H	Velocity
1				0.60	170	0.75	171	0.38	160	0.50	142
2				0.65	175	0.82	175	0.75	158	0.50	142
3				0.60	175	0.79	174	0.60	150	0.50	140
4				0.55	176	0.75	168	0.52	148	0.48	136
5				0.80	175	0.95	168	0.55	146	0.50	138
6				0.75	175	0.90	170	0.37	150	0.32	138
7											
8					STATIC		-0.46"				
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											

Average: $\sqrt{\Delta P}$ = _____

$$U = (174)\ (CP)\ (\sqrt{\Delta P})\ \sqrt{\left\{\frac{T_s + 460}{GS} \times \frac{29.92}{PS}\right\}} = _____ \text{ft/min.}$$

RSSWP.50

PITOT TRAVERSE FORM

Plant IPSCO Iowa Stack Backup

Date 3/6/03

Stack Dimensions _____ Stack Area(ft.²) _____

Pitot Corr. Factor _____

DB _____ °F WB _____ °F DP _____ °F

V.P. at DP _____ "Hg Fract. D.A. _____

Density Factor _____ Stack Pres. _____

Weather _____

Temp _____ °F Pressure _____ "Hg

Wind Direction _____ Vel. _____

Sketch of Stack Cross Section

120
82
Moist 1.5%

Run 3

PITOT TRAVERSE 23:17 - 23:30

Point Number	Equal Area Radius	Distance from Stack Wall	Distance from End of Port	Port #1		Port #2		Port #3		Port #4	
				H	Velocity	H	Velocity	H	Velocity	H	Velocity
1				0.75	120	0.90	130	0.62	12.7	0.80	128
2				0.70	124	0.80	120	0.65	125	0.70	126
3				0.75	124	1.0	126	0.67	126	0.65	126
4				0.80	125	1.0	120	0.55	123	0.88	125
5				0.82	125	0.78	120	0.60	124	0.72	125
6				0.90	126	1.1	118	0.63	125	0.55	120
7											
8					Stdi.		0.4				
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											

Average: $\sqrt{\Delta P}$ = _____

$$U = (174)\ (CP)\ (\sqrt{\Delta P})\ \sqrt{\left\{\frac{T_s + 460}{GS} \times \frac{29.92}{PS}\right\}} = _____ \text{ft/min.}$$

RSSWP.50

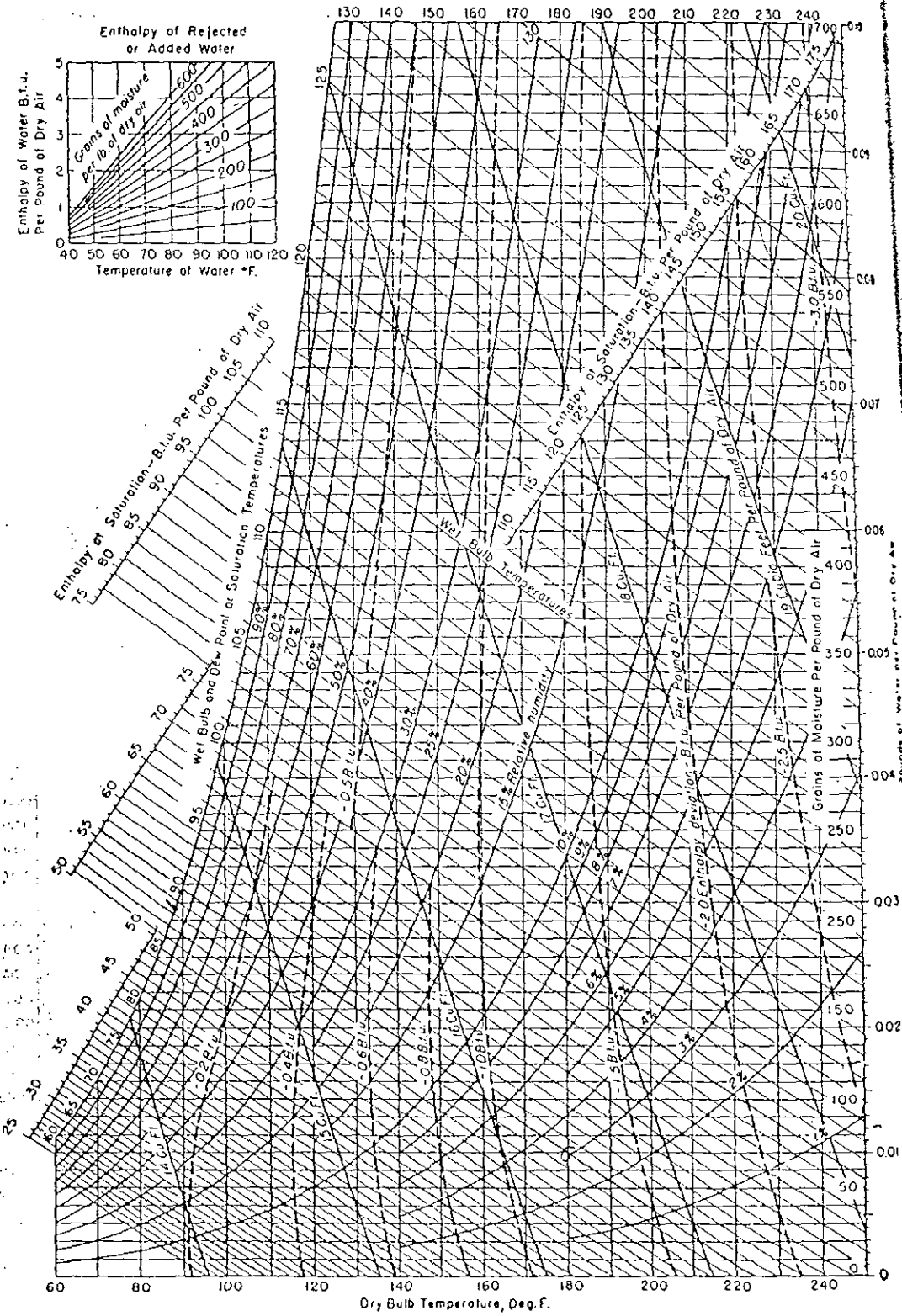


FIG. 44. Psychrometric chart—high temperatures. Barometric pressure, 29.92 in. of Hg.

Pounds of water per pound of dry Air

AMBIENT AIR SERVICES, INC.

MAGNEHELIC CALIBRATION FORM

MAGNEHELIC ID NO. T20

INCLINED MANOMETER ID NO. IN-3

NAME OF PRIMARY USER IPSCO Steel Test 3/6/03

DATE 3/7/03 CALIBRATOR Cooksey

RECAL. DATE n/k

INCLINED MANOMETER (INCHES WATER)	MAGNEHELIC (INCHES WATER)	% DIFFERENCE
0.00	0.00	
1.00	0.98	-2%
2.00	2.01	+1%

AVERAGE PERCENT DIFFERENCE _____

SIGNATURE _____

AASI.53

AAS Inc AMBIENT AIR SERVICES INCORPORATED
ENVIRONMENTAL CONSULTANTS

PITOT TUBE CALIBRATION MEASUREMENTS

DATE CALIBRATED 1-20-03 PITOT TUBE TC

Pitot tube assembly level ? (Yes) ____ No

Pitot tube openings damaged? ____ Yes (explain below) ✓ (NO)

a1 = 0.0 degrees (< 10 deg) a2 = 0.0 degrees (< 10 deg)

b2 = 0.5 degrees (<5 deg) b1 = 1.0 degrees (<5 deg)

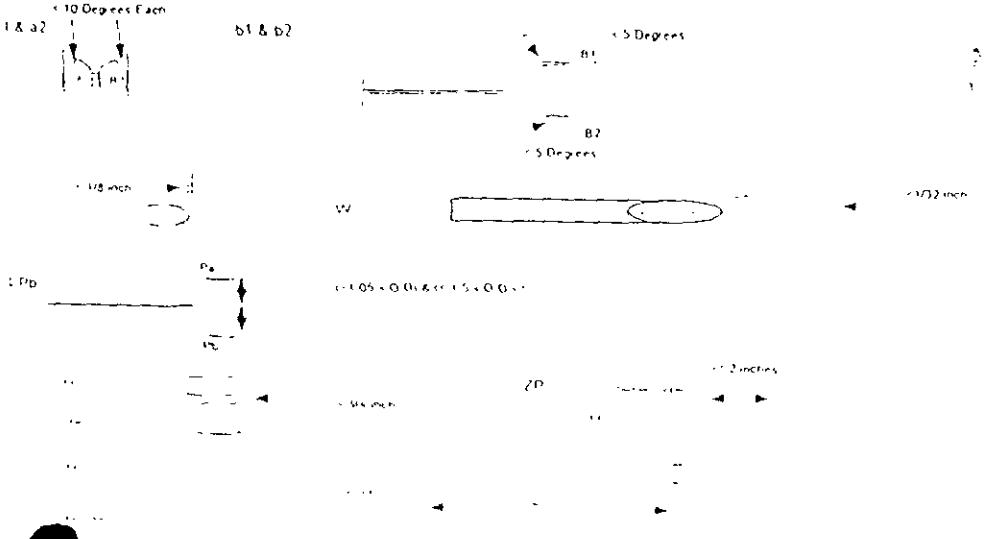
Y = 1.0 degrees θ = 0.5 degrees A = 0.867 inches = (Pa + Pb)

Pa = 0.433 Pb = 0.434 Dt = 0.375

z = A sin Y = 0.015 inches , < 0.32 / < 1/8 inches

w = A sin θ = 0.008 inches , < 0.32 / < 1/8 inches

Calibration required ? ____ Yes (No)



APPENDIX D

NOx Data

Summary of Equipment used
Calibration Summary
Data Logged Printout and Test Summary
Calibration Gas Certificates
25.1 NOx
45.1 NOx

Ipsco Steel - Montpelier, Iowa
Meltshop Baghouse - Quarterly Oxides of Nitrogen Test
IDNR Permit Number 94-A-548-S3
March 6, 2003

Equipment List

Oxides of Nitrogen Instrument: **Manufacturer** - Thermo Environmental Instruments **Model** - 42
Serial Number - 33584-245
CO Range - zero to 50 ppm

Calibration Gas Standards		Concentration	Manufacturer	Cylinder Number	Expiration Date	PSI
Zero	Zero	0.00	Air Gas UHP Air	N/A	N/A	1200
Mid	NOx	25.10	Spectra Gases	CC 135361	Feb-05	1900
High	NOx	45.10	Spectra Gases	CC 85252	Feb-05	1900

Description of Sampling System :
8' 1/4" SS probe to Tee to H_2O condenser to 200 feet 1/4" Teflon sample line to SS/Teflon pump to instruments
all calibration gases injected direct to probe Tee location
Sampling probe positioned in Baghouse Stack at test platform location.

Test Participants :
NOx Testing - Joe Cooksey - Ambient Air Services, Inc. Mark Stone - IDNR Representative
Stephanie Kreiter - Ipsco Steel Environmental Coordinator

Other Comments :

Ipsco Steel - Montpelier, Iowa
Meltshop Baghouse - Quarterly Oxides of Nitrogen Test
IDNR Permit Number 94-A-548-S3
March 6, 2003

Calibration Sheet

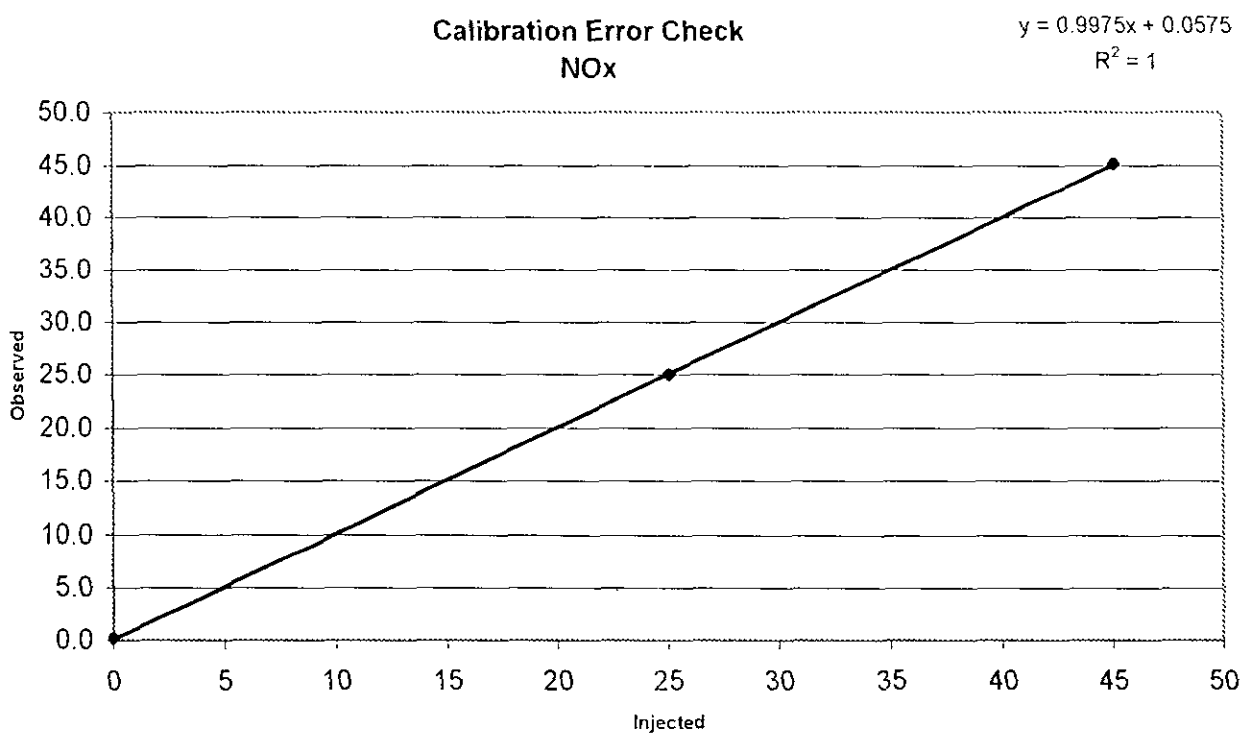
Initial Calibration

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0	13:30 - 14:00	0.1
NOx	25.1	13:30 - 14:00	25.0
NOx	45.1	13:30 - 14:00	45.1

% Error of Range Table

Inject (ppm)		Time	% Error of Range
Gas	Conc.		NOx
Zero	0	13:30 - 14:00	0.20%
NOx	25.1	13:30 - 14:00	-0.20%
NOx	45.1	13:30 - 14:00	0.00%



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Calibration Sheet

Calibration - Post Run 1

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0		-0.2
NOx	25.1		25.3

Drift Analysis From Initial Calibrations to the End of Run 1

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		NOx
Zero	0	0:00	-0.65%
NOx	25.1	0:00	0.59%

Drift Variables for Run 1

Variable	NOx	
Co	-0.06	
Cm	25.15	
Cma	25.10	

Calibration - Post Run 2

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0		-0.18
NOx	25.1		25.20

Drift Analysis From Initial Calibrations to the End of Run 2

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		NOx
Zero	0	0:00	-0.56%
NOx	25.1	0:00	0.40%

Drift Variables for Run 2

Variable	NOx	
Co	-0.20	
Cm	25.25	
Cma	25.1	

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Calibration Sheet

Calibration - Post Run 3

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		NOx
Zero	0		-0.3
NOx	25.1		24.7

Drift Analysis From Initial Calibrations to the End of Run 3

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		NOx
Zero	0	0:00	-0.80%
NOx	25.1	0:00	-0.60%

Drift Variables for Run 3

Variable	NOx	
Co	-0.24	
Cm	24.95	
Cma	25.1	

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DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	Heat Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Production, Tons per Hour	Nox, Pounds per Ton
3/6/2003 13:30	0.6											
3/6/2003 13:31	1.6											
3/6/2003 13:32	1.9											
3/6/2003 13:33	1.2											
3/6/2003 13:34	1.4											
3/6/2003 13:35	1.5											
3/6/2003 13:36	1.5											
3/6/2003 13:37	0.9											
3/6/2003 13:38	0.3											
3/6/2003 13:39	6.6											
3/6/2003 13:40	31.7											
3/6/2003 13:41	43.9											
3/6/2003 13:42	46.2											
3/6/2003 13:43	45.6											
3/6/2003 13:44	45.0			NOx 45.1 Cal								
3/6/2003 13:45	45.2			NOx 45.1 Cal								
	45.1			**NOx 45.1 Cal Average**								
3/6/2003 13:46	43.2											
3/6/2003 13:47	30.6											
3/6/2003 13:48	27.3											
3/6/2003 13:49	26.1											
3/6/2003 13:50	25.6											
3/6/2003 13:51	25.0			NOx 25.1 Cal								
	25.0			**NOx 25.1 Cal Average**								
3/6/2003 13:52	15.0											
3/6/2003 13:53	4.0											
3/6/2003 13:54	1.4											
3/6/2003 13:55	0.4											
3/6/2003 13:56	0.1			NOx 0 Cal								
	0.1			**NOx 0 Cal Average**								
3/6/2003 13:57	1.3											
3/6/2003 13:58	1.7											
3/6/2003 13:59	1.7											
3/6/2003 14:00	1.7											
3/6/2003 14:01	1.5											
3/6/2003 14:02	1.3											
3/6/2003 14:03	1.2											
3/6/2003 14:04	1.3											
3/6/2003 14:05	1.6											
3/6/2003 14:06	2.0											
3/6/2003 14:07	2.2											
3/6/2003 14:08	2.3											
3/6/2003 14:09	2.4											
3/6/2003 14:10	2.4											
3/6/2003 14:11	2.5											
3/6/2003 14:12	2.6											
3/6/2003 14:13	2.1											
3/6/2003 14:14	1.8											
3/6/2003 14:15	1.7											
3/6/2003 14:16	1.7											
3/6/2003 14:17	1.7											
3/6/2003 14:18	1.4											
3/6/2003 14:19	1.2											
3/6/2003 14:20	1.3											
3/6/2003 14:21	1.3											
3/6/2003 14:22	1.2											
3/6/2003 14:23	1.0											
3/6/2003 14:24	0.8											
3/6/2003 14:25	0.8											
3/6/2003 14:26	1.0											
3/6/2003 14:27	1.0	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	1.1	671729.0	5.12	120.6	0.042
3/6/2003 14:28	1.0	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	1.1	671729.0	5.12	120.6	0.042
3/6/2003 14:29	1.4	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	1.5	671729.0	7.17	120.6	0.059
3/6/2003 14:30	2.8	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	2.9	671729.0	13.76	120.6	0.114
3/6/2003 14:31	10.7	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	10.7	671729.0	51.51	120.6	0.427
3/6/2003 14:32	10.9	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	10.9	671729.0	52.41	120.6	0.435
3/6/2003 14:33	7.0	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	7.1	671729.0	34.00	120.6	0.282
3/6/2003 14:34	5.4	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	5.4	671729.0	26.04	120.6	0.216
3/6/2003 14:35	8.4	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	8.4	671729.0	40.36	120.6	0.335
3/6/2003 14:36	7.5	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	7.5	671729.0	36.05	120.6	0.299
3/6/2003 14:37	6.3	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	6.3	671729.0	30.36	120.6	0.252
3/6/2003 14:38	5.9	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	5.9	671729.0	28.54	120.6	0.237
3/6/2003 14:39	5.7	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	5.7	671729.0	27.40	120.6	0.227
3/6/2003 14:40	4.4	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	4.4	671729.0	21.26	120.6	0.176
3/6/2003 14:41	3.1	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	3.1	671729.0	15.12	120.6	0.125
3/6/2003 14:42	2.2	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	2.2	671729.0	10.80	120.6	0.090

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DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	Heat Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Production, Tons per Hour	Nox, Pounds per Ton
3/6/2003 14 43	2 1	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	2 1	671729 0	10 35	120 6	0 086
3/6/2003 14 44	1 5	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	1 5	671729 0	7 39	120 6	0 061
3/6/2003 14 45	1 1	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	1 2	671729 0	5 57	120 6	0 046
3/6/2003 14 46	3 8	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	3 9	671729 0	18 54	120 6	0 154
3/6/2003 14 47	7 8	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	7 9	671729 0	37 66	120 6	0 314
3/6/2003 14 48	6 5	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	6 5	671729 0	31 50	120 6	0 261
3/6/2003 14 49	6 2	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	6 3	671729 0	30 13	120 6	0 250
3/6/2003 14 50	6 2	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	6 2	671729 0	29 91	120 6	0 248
3/6/2003 14 51	5 6	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	5 6	671729 0	26 95	120 6	0 224
3/6/2003 14 52	5 2	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	5 3	671729 0	25 36	120 6	0 210
3/6/2003 14 53	3 9	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	4 0	671729 0	19 22	120 6	0 159
3/6/2003 14 54	5 7	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	5 7	671729 0	27 63	120 6	0 229
3/6/2003 14 55	4 4	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	4 5	671729 0	21 49	120 6	0 178
3/6/2003 14 56	2 0	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	2 1	671729 0	9 89	120 6	0 082
3/6/2003 14 57	2 0	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	2 0	671729 0	9 67	120 6	0 080
3/6/2003 14 58	4 4	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	4 4	671729 0	21 26	120 6	0 176
3/6/2003 14 59	5 7	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	5 7	671729 0	27 40	120 6	0 227
3/6/2003 15 00	8 8	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	8 9	671729 0	42 64	120 6	0 354
3/6/2003 15 01	18 4	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	18 4	671729 0	88 57	120 6	0 735
3/6/2003 15 02	17 5	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	17 5	671729 0	84 02	120 6	0 697
3/6/2003 15 03	12 0	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	12 0	671729 0	57 67	120 6	0 480
3/6/2003 15 04	6 1	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	6 1	671729 0	29 45	120 6	0 244
3/6/2003 15 05	3 2	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	3 2	671729 0	15 58	120 6	0 129
3/6/2003 15 06	2 1	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	2 1	671729 0	10 12	120 6	0 084
3/6/2003 15 07	1 8	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	1 9	671729 0	8 99	120 6	0 075
3/6/2003 15 08	2 1	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	2 2	671729 0	10 58	120 6	0 088
3/6/2003 15 09	1 7	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	1 7	671729 0	8 30	120 6	0 069
3/6/2003 15 10	1 4	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	1 4	671729 0	6 94	120 6	0 058
3/6/2003 15 11	1 4	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	1 4	671729 0	6 94	120 6	0 058
3/6/2003 15 12	1 4	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	1 5	671729 0	7 17	120 6	0 059
3/6/2003 15 13	1 6	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	1 7	671729 0	8 08	120 6	0 067
3/6/2003 15 14	1 5	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	1 6	671729 0	7 62	120 6	0 063
3/6/2003 15 15	1 3	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	1 4	671729 0	6 71	120 6	0 056
3/6/2003 15 16	1 2	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	1 3	671729 0	6 26	120 6	0 052
3/6/2003 15 17	1 4	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	1 4	671729 0	6 94	120 6	0 058
3/6/2003 15 18	1 6	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	1 6	671729 0	7 85	120 6	0 065
3/6/2003 15 19	1,7	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	1 8	671729 0	8 53	120 6	0 071
3/6/2003 15 20	1 8	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	1 8	671729 0	8 76	120 6	0 073
3/6/2003 15 21	1 9	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	2 0	671729 0	9 44	120 6	0 078
3/6/2003 15 22	1 9	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	1 9	671729 0	9 21	120 6	0 076
3/6/2003 15 23	2 0	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	2 0	671729 0	9 67	120 6	0 080
3/6/2003 15 24	2 4	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	2 5	671729 0	11 94	120 6	0 099
3/6/2003 15 25	2 5	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	2 5	671729 0	12 17	120 6	0 101
3/6/2003 15 26	2 3	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	2 4	671729 0	11 48	120 6	0 095
3/6/2003 15 27	2 6	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	2 6	671729 0	12 63	120 6	0 105
3/6/2003 15 28	13 6	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	13 6	671729 0	65 61	120 6	0 544
3/6/2003 15 29	16 9	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	16 9	671729 0	81 52	120 6	0 676
3/6/2003 15 30	8 0	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	8 1	671729 0	38 77	120 6	0 322
3/6/2003 15 31	4 7	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	4 7	671729 0	22 63	120 6	0 188
3/6/2003 15 32	8 0	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	8 0	671729 0	38 55	120 6	0 320
3/6/2003 15 33	5 4	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	5 4	671729 0	26 04	120 6	0 216
3/6/2003 15 34	3 4	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	3 5	671729 0	16 71	120 6	0 139
3/6/2003 15 35	8 5	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	8 5	671729 0	40 82	120 6	0 339
3/6/2003 15 36	12 9	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	12 9	671729 0	61 97	120 6	0 514
3/6/2003 15 37	20 0	1	B3C522 / A3C070	Run 1	-0 1	25.2	25 1	20 0	671729 0	96 08	120 6	0 797
3/6/2003 15 38	16 9	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	16 9	671729 0	81 29	120 6	0 674
3/6/2003 15 39	9 9	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	9 9	671729 0	47 64	120 6	0 395
3/6/2003 15 40	6 9	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	6 9	671729 0	33 32	120 6	0 276
3/6/2003 15 41	6 4	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	6 4	671729 0	30 82	120 6	0 256
3/6/2003 15 42	5 6	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	5 6	671729 0	27 18	120 6	0 225
3/6/2003 15 43	4 2	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	4 2	671729 0	20 35	120 6	0 169
3/6/2003 15 44	2 5	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	2 6	671729 0	12 40	120 6	0 103
3/6/2003 15 45	1 4	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	1 4	671729 0	6 94	120 6	0 058
3/6/2003 15 46	1 0	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	1 1	671729 0	5 12	120 6	0 042
3/6/2003 15 47	1,5	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	1 6	671729 0	7 62	120 6	0 063
3/6/2003 15 48	2,3	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	2 3	671729 0	11 26	120 6	0 093
3/6/2003 15 49	3 4	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	3 4	671729 0	16 49	120 6	0 137
3/6/2003 15 50	2 2	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	2 3	671729 0	11 03	120 6	0 091
3/6/2003 15 51	2 0	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	2 0	671729 0	9 67	120 6	0 080
3/6/2003 15 52	2 9	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	3 0	671729 0	14 22	120 6	0 118
3/6/2003 15 53	5 3	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	5 3	671729 0	25 59	120 6	0 212
3/6/2003 15 54	4 5	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	4 6	671729 0	21 95	120 6	0 182
3/6/2003 15 55	3 9	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	3 9	671729 0	18 99	120 6	0 158
3/6/2003 15 56	4 4	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	4 4	671729 0	21 26	120 6	0 176
3/6/2003 15 57	5 1	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	5 2	671729 0	24 90	120 6	0 207
3/6/2003 15 58	6 0	1	B3C522 / A3C070	Run 1	-0 1	25 2	25 1	6 0	671729 0	28 99	120 6	0 240

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Time	NOx, ppm	Run Number	Heat Number	COMMENTS	NOx C_o	NOx C_M	NOx C_{MA}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Production, Tons per Hour	Nox, Pounds per Ton
3/6/2003 15:59	6.5	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	6.5	671729.0	31.50	120.6	0.261
3/6/2003 16:00	6.1	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	6.2	671729.0	29.68	120.6	0.246
3/6/2003 16:01	4.8	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	4.8	671729.0	23.31	120.6	0.193
3/6/2003 16:02	3.4	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	3.4	671729.0	16.49	120.6	0.137
3/6/2003 16:03	2.4	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	2.5	671729.0	11.94	120.6	0.099
3/6/2003 16:04	2.6	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	2.7	671729.0	12.85	120.6	0.107
3/6/2003 16:05	4.3	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	4.3	671729.0	20.81	120.6	0.173
3/6/2003 16:06	4.2	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	4.3	671729.0	20.58	120.6	0.171
3/6/2003 16:07	3.3	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	3.4	671729.0	16.26	120.6	0.135
3/6/2003 16:08	2.7	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	2.8	671729.0	13.31	120.6	0.110
3/6/2003 16:09	2.0	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	2.0	671729.0	9.67	120.6	0.080
3/6/2003 16:10	1.9	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	1.9	671729.0	9.21	120.6	0.076
3/6/2003 16:11	2.4	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	2.4	671729.0	11.71	120.6	0.097
3/6/2003 16:12	2.6	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	2.7	671729.0	12.85	120.6	0.107
3/6/2003 16:13	2.6	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	2.7	671729.0	12.85	120.6	0.107
3/6/2003 16:14	2.7	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	2.8	671729.0	13.31	120.6	0.110
3/6/2003 16:15	2.2	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	2.2	671729.0	10.80	120.6	0.090
3/6/2003 16:16	1.8	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	1.9	671729.0	8.99	120.6	0.075
3/6/2003 16:17	2.4	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	2.4	671729.0	11.71	120.6	0.097
3/6/2003 16:18	2.7	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	2.7	671729.0	13.08	120.6	0.108
3/6/2003 16:19	2.8	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	2.8	671729.0	13.53	120.6	0.112
3/6/2003 16:20	3.4	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	3.5	671729.0	16.71	120.6	0.139
3/6/2003 16:21	3.6	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	3.6	671729.0	17.40	120.6	0.144
3/6/2003 16:22	3.0	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	3.1	671729.0	14.90	120.6	0.124
3/6/2003 16:23	2.6	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	2.7	671729.0	12.85	120.6	0.107
3/6/2003 16:24	2.5	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	2.5	671729.0	12.17	120.6	0.101
3/6/2003 16:25	2.6	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	2.7	671729.0	12.85	120.6	0.107
3/6/2003 16:26	2.6	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	2.6	671729.0	12.63	120.6	0.105
3/6/2003 16:27	2.3	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	2.4	671729.0	11.48	120.6	0.095
3/6/2003 16:28	2.7	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	2.8	671729.0	13.31	120.6	0.110
3/6/2003 16:29	2.4	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	2.5	671729.0	11.94	120.6	0.099
3/6/2003 16:30	3.2	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	3.3	671729.0	15.81	120.6	0.131
3/6/2003 16:31	13.6	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	13.6	671729.0	65.61	120.6	0.544
3/6/2003 16:32	22.2	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	22.2	671729.0	106.76	120.6	0.886
3/6/2003 16:33	15.3	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	15.3	671729.0	73.79	120.6	0.612
3/6/2003 16:34	12.3	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	12.3	671729.0	59.24	120.6	0.491
3/6/2003 16:35	14.9	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	14.9	671729.0	71.52	120.6	0.593
3/6/2003 16:36	20.7	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	20.7	671729.0	99.71	120.6	0.827
3/6/2003 16:37	21.3	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	21.3	671729.0	102.44	120.6	0.850
3/6/2003 16:38	21.7	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	21.7	671729.0	104.26	120.6	0.865
3/6/2003 16:39	23.4	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	23.4	671729.0	112.68	120.6	0.935
3/6/2003 16:40	25.8	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	25.7	671729.0	123.81	120.6	1.027
3/6/2003 16:41	27.4	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	27.3	671729.0	131.55	120.6	1.091
3/6/2003 16:42	29.7	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	29.6	671729.0	142.69	120.6	1.184
3/6/2003 16:43	31.3	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	31.2	671729.0	150.19	120.6	1.246
3/6/2003 16:44	19.6	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	19.5	671729.0	94.03	120.6	0.780
3/6/2003 16:45	10.3	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	10.3	671729.0	49.69	120.6	0.412
3/6/2003 16:46	10.4	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	10.4	671729.0	50.14	120.6	0.416
3/6/2003 16:47	12.6	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	12.6	671729.0	60.60	120.6	0.503
3/6/2003 16:48	12.2	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	12.2	671729.0	58.78	120.6	0.488
3/6/2003 16:49	12.7	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	12.7	671729.0	61.29	120.6	0.508
3/6/2003 16:50	17.4	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	17.4	671729.0	83.57	120.6	0.693
3/6/2003 16:51	18.8	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	18.7	671729.0	90.16	120.6	0.748
3/6/2003 16:52	16.9	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	16.9	671729.0	81.29	120.6	0.674
3/6/2003 16:53	15.0	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	15.0	671729.0	72.20	120.6	0.599
3/6/2003 16:54	10.4	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	10.4	671729.0	49.92	120.6	0.414
3/6/2003 16:55	8.8	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	8.9	671729.0	42.64	120.6	0.354
3/6/2003 16:56	18.8	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	18.8	671729.0	90.39	120.6	0.750
3/6/2003 16:57	20.9	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	20.9	671729.0	100.62	120.6	0.835
3/6/2003 16:58	12.2	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	12.2	671729.0	58.55	120.6	0.486
3/6/2003 16:59	8.4	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	8.4	671729.0	40.59	120.6	0.337
3/6/2003 17:00	5.9	1	B3C522 / A3C070	Run 1	-0.1	25.2	25.1	5.9	671729.0	28.54	120.6	0.237
	7.0			Run 1 Average				7.0	671729.0	33.63	120.6	0.279
3/6/2003 17:01	4.1											
3/6/2003 17:02	3.3											
3/6/2003 17:03	2.8											
3/6/2003 17:04	2.7											
3/6/2003 17:05	1.8											
3/6/2003 17:06	0.6											
3/6/2003 17:07	0.0											
3/6/2003 17:08	-0.2			NOx 0 Cal								
	-0.2			NOx 0 Cal Average								
3/6/2003 17:09	1.4											
3/6/2003 17:10	12.8											
3/6/2003 17:11	19.9											
3/6/2003 17:12	22.7											

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

March 6, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	Heat Number	COMMENTS	NOx C_o	NOx C_{ex}	NOx C_{wa}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Production, Tons per Hour	Nox, Pounds per Ton
3/6/2003 17 13	24 1											
3/6/2003 17 14	25 3			NOx 25 1 Cal								
	25 3			NOx 25 1 Cal Average								
3/6/2003 17 15	21 7											
3/6/2003 17 16	6 2											
3/6/2003 17 17	3 4											
3/6/2003 17 18	3 0											
3/6/2003 17 19	1 7											
3/6/2003 17 20	4 0											
3/6/2003 17 21	5 5											
3/6/2003 17 22	5 4											
3/6/2003 17 23	2 9											
3/6/2003 17 24	2 9											
3/6/2003 17 25	2 6											
3/6/2003 17 26	2 3											
3/6/2003 17 27	2 8											
3/6/2003 17 28	3 1	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	3 3	698606 0	16 51	162 6	0 102
3/6/2003 17 29	15 2	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	15 2	698606 0	76 01	162 6	0 468
3/6/2003 17 30	29 0	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	28 7	698606 0	143 94	162 6	0 885
3/6/2003 17 31	35 5	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	35 3	698606 0	176 50	162 6	1 086
3/6/2003 17 32	35 9	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	35 6	698606 0	178 14	162 6	1 096
3/6/2003 17 33	32 3	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	32 0	698606 0	160 34	162 6	0 986
3/6/2003 17 34	14 3	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	14 3	698606 0	71 56	162 6	0 440
3/6/2003 17 35	10 5	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	10 5	698606 0	52 82	162 6	0 325
3/6/2003 17 36	23 3	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	23 2	698606 0	116 06	162 6	0 714
3/6/2003 17 37	25 7	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	25 6	698606 0	128 01	162 6	0 787
3/6/2003 17 38	21 7	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	21 6	698606 0	108 10	162 6	0 665
3/6/2003 17 39	22 0	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	21 9	698606 0	109 74	162 6	0 675
3/6/2003 17 40	22 7	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	22 6	698606 0	113 02	162 6	0 695
3/6/2003 17 41	22 4	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	22 3	698606 0	111 61	162 6	0 687
3/6/2003 17 42	21 1	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	21 0	698606 0	105 06	162 6	0 646
3/6/2003 17 43	22 6	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	22 5	698606 0	112 55	162 6	0 692
3/6/2003 17 44	23 8	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	23 6	698606 0	118 41	162 6	0 728
3/6/2003 17 45	28 0	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	27 8	698606 0	139 02	162 6	0 855
3/6/2003 17 46	31 7	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	31 4	698606 0	157 30	162 6	0 968
3/6/2003 17 47	37 8	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	37 5	698606 0	187 51	162 6	1 153
3/6/2003 17 48	41 6	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	41 2	698606 0	206 49	162 6	1 270
3/6/2003 17 49	25 9	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	25 8	698606 0	128 95	162 6	0 793
3/6/2003 17 50	24 6	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	24 4	698606 0	122 39	162 6	0 753
3/6/2003 17 51	22 3	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	22 2	698606 0	110 91	162 6	0 682
3/6/2003 17 52	14 1	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	14 2	698606 0	70 86	162 6	0 436
3/6/2003 17 53	13 6	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	13 6	698606 0	68 04	162 6	0 419
3/6/2003 17 54	9 3	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	9 3	698606 0	46 72	162 6	0 287
3/6/2003 17 55	21 4	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	21 3	698606 0	106 70	162 6	0 656
3/6/2003 17 56	45 4	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	45 0	698606 0	225 23	162 6	1 385
3/6/2003 17 57	45 0	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	44 6	698606 0	223 12	162 6	1 372
3/6/2003 17 58	23 4	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	23 3	698606 0	116 53	162 6	0 717
3/6/2003 17 59	10 1	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	10 1	698606 0	50 71	162 6	0 312
3/6/2003 18 00	6 1	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	6 2	698606 0	31.26	162 6	0 192
3/6/2003 18 01	5 0	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	5 2	698606 0	25 88	162 6	0 159
3/6/2003 18 02	4 9	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	5 1	698606 0	25 41	162 6	0 156
3/6/2003 18 03	3 9	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	4 1	698606 0	20 49	162 6	0 126
3/6/2003 18 04	3 6	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	3 7	698606 0	18.62	162 6	0 115
3/6/2003 18 05	3 0	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	3 1	698606 0	15 57	162 6	0 096
3/6/2003 18 06	1 9	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	2 0	698606 0	10 18	162 6	0 063
3/6/2003 18 07	1 5	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 7	698606 0	8 31	162 6	0 051
3/6/2003 18 08	1 3	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 5	698606 0	7 60	162 6	0 047
3/6/2003 18 09	1 2	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 4	698606 0	6 90	162 6	0 042
3/6/2003 18 10	1 4	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 6	698606 0	7 84	162 6	0 048
3/6/2003 18 11	2 4	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	2 5	698606 0	12 76	162 6	0 078
3/6/2003 18 12	2 8	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	2 9	698606 0	14 63	162 6	0 090
3/6/2003 18 13	2 9	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	3 0	698606 0	15 10	162 6	0 093
3/6/2003 18 14	2 6	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	2 8	698606 0	13 93	162 6	0 086
3/6/2003 18 15	2 3	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	2 5	698606 0	12 52	162 6	0 077
3/6/2003 18 16	2 1	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	2 3	698606 0	11 59	162 6	0 071
3/6/2003 18 17	1 9	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	2 0	698606 0	10 18	162 6	0 063
3/6/2003 18 18	1 3	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 5	698606 0	7 37	162 6	0 045
3/6/2003 18 19	1 7	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 8	698606 0	9 24	162 6	0 057
3/6/2003 18 20	2 1	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	2 2	698606 0	11 12	162 6	0 068
3/6/2003 18 21	1 4	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1.6	698606 0	7 84	162 6	0 048
3/6/2003 18 22	1 2	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 4	698606 0	7 14	162 6	0 044
3/6/2003 18 23	1 2	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 4	698606 0	6 90	162 6	0 042
3/6/2003 18 24	0 8	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 0	698606 0	5 03	162 6	0 031
3/6/2003 18 25	3 1	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	3 2	698606 0	16 27	162 6	0 100
3/6/2003 18 26	3 7	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	3 8	698606.0	19 09	162 6	0 117
3/6/2003 18 27	2 6	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	2.9	698606 0	14 63	162.6	0 090

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

IDNR Permit Number 94-A-548-S3

March 6, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	Heat Number	COMMENTS	NOx C_o	NOx C_w	NOx C_{wa}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Production, Tons per Hour	Nox, Pounds per Ton
3/6/2003 18 28	2 1	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	2 2	698606 0	11 12	162 6	0 068
3/6/2003 18 29	1 5	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 7	698606 0	8 31	162 6	0 051
3/6/2003 18 30	1 2	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 4	698606 0	6 90	162 6	0 042
3/6/2003 18 31	1,1	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 2	698606 0	6 20	162 6	0 038
3/6/2003 18 32	1 2	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 3	698606 0	6 67	162 6	0 041
3/6/2003 18 33	1 2	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 3	698606 0	6 67	162 6	0 041
3/6/2003 18 34	1 2	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 4	698606 0	6 90	162 6	0 042
3/6/2003 18 35	1 2	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 4	698606 0	6 90	162 6	0 042
3/6/2003 18 36	1 3	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 5	698606 0	7 37	162 6	0 045
3/6/2003 18 37	1 4	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 6	698606 0	8 07	162 6	0 050
3/6/2003 18 38	1 4	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 6	698606 0	8 07	162 6	0 050
3/6/2003 18 39	1 6	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 8	698606 0	8 77	162 6	0 054
3/6/2003 18 40	1 6	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 8	698606 0	8 77	162 6	0 054
3/6/2003 18 41	1 9	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	2 1	698606 0	10 41	162 6	0 064
3/6/2003 18 42	2 4	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	2 6	698606 0	12 99	162 6	0 080
3/6/2003 18 43	2 2	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	2 4	698606 0	12 05	162 6	0 074
3/6/2003 18 44	2 1	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	2 3	698606 0	11 59	162 6	0 071
3/6/2003 18 45	2 1	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	2 3	698606 0	11 59	162 6	0 071
3/6/2003 18 46	2 0	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	2 2	698606 0	10 88	162 6	0 067
3/6/2003 18 47	1 6	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 8	698606 0	9 01	162 6	0 055
3/6/2003 18 48	1 6	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 8	698606 0	8 77	162 6	0 054
3/6/2003 18 49	5 0	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	5 1	698606 0	25 64	162 6	0 158
3/6/2003 18 50	10 9	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	10 9	698606 0	54 69	162 6	0 336
3/6/2003 18 51	9 3	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	9 4	698606 0	46 96	162 6	0 289
3/6/2003 18 52	8 4	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	8 5	698606 0	42 51	162 6	0 261
3/6/2003 18 53	6 7	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	6 9	698606 0	34 31	162 6	0 211
3/6/2003 18 54	5 3	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	5 4	698606 0	27 28	162 6	0 168
3/6/2003 18 55	6 5	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	6 6	698606 0	33 14	162 6	0 204
3/6/2003 18 56	6 9	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	7 0	698606 0	35 25	162 6	0 217
3/6/2003 18 57	5 9	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	6 0	698606 0	30 09	162 6	0 185
3/6/2003 18 58	4 0	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	4 1	698606 0	20 72	162 6	0 127
3/6/2003 18 59	1 7	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 8	698606 0	9 24	162 6	0 057
3/6/2003 19 00	1 4	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 6	698606 0	7 84	162 6	0 048
3/6/2003 19 01	0 7	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	0 9	698606 0	4 56	162 6	0 028
3/6/2003 19 02	0 5	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	0 7	698606 0	3 62	162 6	0 022
3/6/2003 19 03	1 0	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 1	698606 0	5 73	162 6	0 035
3/6/2003 19 04	1 5	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 7	698606 0	8 31	162 6	0 051
3/6/2003 19 05	3 4	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	3 6	698606 0	17 91	162 6	0 110
3/6/2003 19 06	7 9	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	8 0	698606 0	40 17	162 6	0 247
3/6/2003 19 07	4 9	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	5 0	698606 0	24 94	162 6	0 153
3/6/2003 19 08	3 4	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	3 6	698606 0	17 91	162 6	0 110
3/6/2003 19 09	6 1	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	6 2	698606 0	31 26	162 6	0 192
3/6/2003 19 10	6 6	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	6 7	698606 0	33 37	162 6	0 205
3/6/2003 19 11	6 5	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	6 6	698606 0	32 91	162 6	0 202
3/6/2003 19 12	7 2	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	7 3	698606 0	36 42	162 6	0 224
3/6/2003 19 13	6 3	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	6 4	698606 0	31 97	162 6	0 197
3/6/2003 19 14	5 2	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	5 3	698606 0	26 58	162 6	0 164
3/6/2003 19 15	3 2	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	3 4	698606 0	16 98	162 6	0 104
3/6/2003 19 16	3 3	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	3 5	698606 0	17 45	162 6	0 107
3/6/2003 19 17	6 5	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	6 6	698606 0	32 91	162 6	0 202
3/6/2003 19 18	5 5	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	5 6	698606 0	27 98	162 6	0 172
3/6/2003 19 19	4 1	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	4 2	698606 0	21 19	162 6	0 130
3/6/2003 19 20	3 2	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	3 3	698606 0	16 74	162 6	0 103
3/6/2003 19 21	2 6	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	2 8	698606 0	13 93	162 6	0 086
3/6/2003 19 22	2 1	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	2 3	698606 0	11 59	162 6	0 071
3/6/2003 19 23	1 8	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	2 0	698606 0	9 95	162 6	0 061
3/6/2003 19 24	1 7	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 8	698606 0	9 24	162 6	0 057
3/6/2003 19 25	1 8	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 9	698606 0	9 71	162 6	0 060
3/6/2003 19 26	1 4	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 6	698606 0	7 84	162 6	0 048
3/6/2003 19 27	1 6	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1.8	698606 0	8 77	162 6	0 054
3/6/2003 19 28	1 9	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	2 0	698606 0	10 18	162 6	0 063
3/6/2003 19 29	1 9	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	2 1	698606 0	10 41	162 6	0 064
3/6/2003 19 30	1 8	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	2 0	698606 0	9 95	162 6	0 061
3/6/2003 19 31	1 3	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 5	698606 0	7 37	162 6	0 045
3/6/2003 19 32	1 2	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 3	698606 0	6 67	162 6	0 041
3/6/2003 19 33	1 1	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 2	698606 0	6 20	162 6	0 038
3/6/2003 19 34	1 1	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 2	698606 0	6 20	162 6	0 038
3/6/2003 19 35	1 1	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 3	698606 0	6 43	162 6	0 040
3/6/2003 19 36	1 2	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 3	698606 0	6 67	162 6	0 041
3/6/2003 19 37	1 2	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 4	698606 0	6 90	162 6	0 042
3/6/2003 19 38	1 3	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	1 5	698606 0	7 37	162 6	0 045
3/6/2003 19 39	6 0	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	6 1	698606 0	30 56	162 6	0 188
3/6/2003 19 40	32 7	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	32 4	698606 0	162 45	162 6	0 999
3/6/2003 19 41	24 0	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	23 8	698606 0	119 35	162 6	0 734
3/6/2003 19 42	7 0	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	7 1	698606 0	35 72	162 6	0 220
3/6/2003 19 43	3 5	2	A3C071 / B3C524	Run 2	-0 2	25 3	25 1	3 6	698606 0	18 15	162 6	0 112

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Time	NOx, ppm	Run Number	Heat Number	COMMENTS	NOx C_o	NOx C_w	NOx C_{ma}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Production, Tons per Hour	Nox, Pounds per Ton
3/6/2003 19:44	15.5	2	A3C071 / B3C524	Run 2	-0.2	25.3	25.1	15.5	698606.0	77.41	162.6	0.476
3/6/2003 19:45	23.7	2	A3C071 / B3C524	Run 2	-0.2	25.3	25.1	23.6	698606.0	117.94	162.6	0.725
3/6/2003 19:46	29.2	2	A3C071 / B3C524	Run 2	-0.2	25.3	25.1	29.0	698606.0	145.11	162.6	0.893
3/6/2003 19:47	28.7	2	A3C071 / B3C524	Run 2	-0.2	25.3	25.1	28.5	698606.0	142.54	162.6	0.877
3/6/2003 19:48	13.4	2	A3C071 / B3C524	Run 2	-0.2	25.3	25.1	13.4	698606.0	67.11	162.6	0.413
3/6/2003 19:49	6.2	2	A3C071 / B3C524	Run 2	-0.2	25.3	25.1	6.3	698606.0	31.50	162.6	0.194
3/6/2003 19:50	4.6	2	A3C071 / B3C524	Run 2	-0.2	25.3	25.1	4.7	698606.0	23.77	162.6	0.146
3/6/2003 19:51	3.5	2	A3C071 / B3C524	Run 2	-0.2	25.3	25.1	3.7	698606.0	18.38	162.6	0.113
3/6/2003 19:52	4.6	2	A3C071 / B3C524	Run 2	-0.2	25.3	25.1	4.7	698606.0	23.53	162.6	0.145
3/6/2003 19:53	3.7	2	A3C071 / B3C524	Run 2	-0.2	25.3	25.1	3.8	698606.0	19.09	162.6	0.117
3/6/2003 19:54	3.1	2	A3C071 / B3C524	Run 2	-0.2	25.3	25.1	3.2	698606.0	16.27	162.6	0.100
	8.7			Run 2 Average				8.8	698606.0	43.82	162.6	0.270
3/6/2003 19:55	3.5											
3/6/2003 19:56	4.0											
3/6/2003 19:57	3.4											
3/6/2003 19:58	0.4											
3/6/2003 19:59	-0.2			Nox 0 Cal								
	-0.2			Nox 0 Cal Average								
3/6/2003 20:00	0.0											
3/6/2003 20:01	13.0											
3/6/2003 20:02	22.8											
3/6/2003 20:03	24.8											
3/6/2003 20:04	25.2			Nox 25.1 Cal								
	25.2			Nox 25.1 Cal Average								
3/6/2003 20:05	22.7											
3/6/2003 20:06	10.2											
3/6/2003 20:07	4.5											
3/6/2003 20:08	4.5											
3/6/2003 20:09	6.1											
3/6/2003 20:10	6.2											
3/6/2003 20:11	6.1											
3/6/2003 20:12	4.9											
3/6/2003 20:13	4.1											
3/6/2003 20:14	3.2											
3/6/2003 20:15	4.6											
3/6/2003 20:16	7.5											
3/6/2003 20:17	7.0											
3/6/2003 20:18	5.8											
3/6/2003 20:19	4.0											
3/6/2003 20:20	3.3											
3/6/2003 20:21	2.6											
3/6/2003 20:22	5.0											
3/6/2003 20:23	3.7											
3/6/2003 20:24	3.0											
3/6/2003 20:25	2.9											
3/6/2003 20:26	2.9											
3/6/2003 20:27	3.0											
3/6/2003 20:28	3.0											
3/6/2003 20:29	3.0											
3/6/2003 20:30	2.8											
3/6/2003 20:31	2.1											
3/6/2003 20:32	1.9											
3/6/2003 20:33	2.0											
3/6/2003 20:34	2.0											
3/6/2003 20:35	2.2											
3/6/2003 20:36	2.7											
3/6/2003 20:37	2.8											
3/6/2003 20:38	2.4											
3/6/2003 20:39	2.6											
3/6/2003 20:40	3.4											
3/6/2003 20:41	3.6											
3/6/2003 20:42	3.5											
3/6/2003 20:43	3.5											
3/6/2003 20:44	3.4											
3/6/2003 20:45	3.0											
3/6/2003 20:46	2.6											
3/6/2003 20:47	3.4											
3/6/2003 20:48	4.4											
3/6/2003 20:49	2.7											
3/6/2003 20:50	10.3											
3/6/2003 20:51	14.9											
3/6/2003 20:52	11.0											
3/6/2003 20:53	5.8											
3/6/2003 20:54	2.5											
3/6/2003 20:55	1.4											
3/6/2003 20:56	1.1											

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Time	NOx, ppm	Run Number	Heat Number	COMMENTS	NOx C_o	NOx C_{dir}	NOx C_{adj}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Production, Tons per Hour	Nox, Pounds per Ton
3/6/2003 20:57	1.1											
3/6/2003 20:58	1.1											
3/6/2003 20:59	0.8											
3/6/2003 21:00	0.6											
3/6/2003 21:01	0.5											
3/6/2003 21:02	0.6											
3/6/2003 21:03	0.4											
3/6/2003 21:04	0.4											
3/6/2003 21:05	0.4											
3/6/2003 21:06	0.4											
3/6/2003 21:07	0.4											
3/6/2003 21:08	0.3											
3/6/2003 21:09	0.3											
3/6/2003 21:10	0.4											
3/6/2003 21:11	0.4											
3/6/2003 21:12	0.4											
3/6/2003 21:13	0.3											
3/6/2003 21:14	0.3											
3/6/2003 21:15	0.3											
3/6/2003 21:16	0.3											
3/6/2003 21:17	0.2											
3/6/2003 21:18	0.2											
3/6/2003 21:19	0.2											
3/6/2003 21:20	0.2											
3/6/2003 21:21	0.2											
3/6/2003 21:22	0.1											
3/6/2003 21:23	0.3											
3/6/2003 21:24	3.2											
3/6/2003 21:25	3.5											
3/6/2003 21:26	2.3											
3/6/2003 21:27	1.3											
3/6/2003 21:28	0.9											
3/6/2003 21:29	0.8											
3/6/2003 21:30	0.7											
3/6/2003 21:31	0.7											
3/6/2003 21:32	0.6											
3/6/2003 21:33	0.8											
3/6/2003 21:34	0.7											
3/6/2003 21:35	0.6											
3/6/2003 21:36	0.6											
3/6/2003 21:37	0.6											
3/6/2003 21:38	0.6											
3/6/2003 21:39	0.5											
3/6/2003 21:40	0.5											
3/6/2003 21:41	0.5											
3/6/2003 21:42	1.9											
3/6/2003 21:43	7.0											
3/6/2003 21:44	4.0											
3/6/2003 21:45	3.1											
3/6/2003 21:46	3.2											
3/6/2003 21:47	2.3											
3/6/2003 21:48	1.4	3		Run 3	-0.24	24.95	25.1	1.6	775152.0	9.01	104.8	0.086
3/6/2003 21:49	0.9	3		Run 3	-0.24	24.95	25.1	1.1	775152.0	6.38	104.8	0.061
3/6/2003 21:50	0.7	3		Run 3	-0.24	24.95	25.1	1.0	775152.0	5.33	104.8	0.051
3/6/2003 21:51	0.7	3		Run 3	-0.24	24.95	25.1	1.0	775152.0	5.33	104.8	0.051
3/6/2003 21:52	0.6	3		Run 3	-0.24	24.95	25.1	0.8	775152.0	4.54	104.8	0.043
3/6/2003 21:53	0.5	3		Run 3	-0.24	24.95	25.1	0.8	775152.0	4.28	104.8	0.041
3/6/2003 21:54	0.5	3		Run 3	-0.24	24.95	25.1	0.8	775152.0	4.28	104.8	0.041
3/6/2003 21:55	0.6	3		Run 3	-0.24	24.95	25.1	0.9	775152.0	4.81	104.8	0.046
3/6/2003 21:56	0.8	3		Run 3	-0.24	24.95	25.1	1.1	775152.0	5.86	104.8	0.056
3/6/2003 21:57	1.2	3		Run 3	-0.24	24.95	25.1	1.4	775152.0	7.69	104.8	0.073
3/6/2003 21:58	0.9	3		Run 3	-0.24	24.95	25.1	1.1	775152.0	6.38	104.8	0.061
3/6/2003 21:59	0.9	3		Run 3	-0.24	24.95	25.1	1.1	775152.0	6.12	104.8	0.058
3/6/2003 22:00	1.0	3		Run 3	-0.24	24.95	25.1	1.2	775152.0	6.65	104.8	0.063
3/6/2003 22:01	1.1	3		Run 3	-0.24	24.95	25.1	1.3	775152.0	7.17	104.8	0.068
3/6/2003 22:02	1.2	3		Run 3	-0.24	24.95	25.1	1.4	775152.0	7.96	104.8	0.076
3/6/2003 22:03	1.0	3		Run 3	-0.24	24.95	25.1	1.2	775152.0	6.91	104.8	0.066
3/6/2003 22:04	0.9	3		Run 3	-0.24	24.95	25.1	1.1	775152.0	6.38	104.8	0.061
3/6/2003 22:05	1.2	3		Run 3	-0.24	24.95	25.1	1.4	775152.0	7.69	104.8	0.073
3/6/2003 22:06	1.3	3		Run 3	-0.24	24.95	25.1	1.5	775152.0	8.49	104.8	0.081
3/6/2003 22:07	1.5	3		Run 3	-0.24	24.95	25.1	1.7	775152.0	9.53	104.8	0.091
3/6/2003 22:08	1.6	3		Run 3	-0.24	24.95	25.1	1.8	775152.0	10.06	104.8	0.096
3/6/2003 22:09	1.6	3		Run 3	-0.24	24.95	25.1	1.8	775152.0	10.06	104.8	0.096
3/6/2003 22:10	1.6	3		Run 3	-0.24	24.95	25.1	1.8	775152.0	10.06	104.8	0.096
3/6/2003 22:11	1.5	3		Run 3	-0.24	24.95	25.1	1.8	775152.0	9.80	104.8	0.093
3/6/2003 22:12	1.2	3		Run 3	-0.24	24.95	25.1	1.4	775152.0	7.96	104.8	0.076

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Time	NOx, ppm	Run Number	Heat Number	COMMENTS	NOx C_o	NOx C_{sa}	NOx C_{wa}	NOx, ppm Drift Corrected	Flow, SCFM-Dry	Nox, pounds per hour	Production, Tons per Hour	Nox, Pounds per Ton
3/6/2003 22:13	1.2	3		Run 3	-0.24	24.95	25.1	1.4	775152.0	7.69	104.8	0.073
3/6/2003 22:14	1.6	3		Run 3	-0.24	24.95	25.1	1.8	775152.0	10.06	104.8	0.096
3/6/2003 22:15	1.8	3		Run 3	-0.24	24.95	25.1	2.0	775152.0	11.11	104.8	0.106
3/6/2003 22:16	8.5	3		Run 3	-0.24	24.95	25.1	8.7	775152.0	48.40	104.8	0.462
3/6/2003 22:17	12.8	3		Run 3	-0.24	24.95	25.1	13.0	775152.0	72.04	104.8	0.687
3/6/2003 22:18	8.3	3		Run 3	-0.24	24.95	25.1	8.5	775152.0	47.35	104.8	0.452
3/6/2003 22:19	9.0	3		Run 3	-0.24	24.95	25.1	9.2	775152.0	51.03	104.8	0.487
3/6/2003 22:20	11.4	3		Run 3	-0.24	24.95	25.1	11.6	775152.0	64.42	104.8	0.615
3/6/2003 22:21	11.8	3		Run 3	-0.24	24.95	25.1	12.0	775152.0	66.78	104.8	0.637
3/6/2003 22:22	14.2	3		Run 3	-0.24	24.95	25.1	14.4	775152.0	79.91	104.8	0.762
3/6/2003 22:23	16.2	3		Run 3	-0.24	24.95	25.1	16.4	775152.0	91.21	104.8	0.870
3/6/2003 22:24	17.1	3		Run 3	-0.24	24.95	25.1	17.3	775152.0	95.93	104.8	0.915
3/6/2003 22:25	22.7	3		Run 3	-0.24	24.95	25.1	22.8	775152.0	126.92	104.8	1.211
3/6/2003 22:26	27.8	3		Run 3	-0.24	24.95	25.1	28.0	775152.0	155.28	104.8	1.481
3/6/2003 22:27	30.6	3		Run 3	-0.24	24.95	25.1	30.7	775152.0	170.51	104.8	1.627
3/6/2003 22:28	21.0	3		Run 3	-0.24	24.95	25.1	21.2	775152.0	117.73	104.8	1.123
3/6/2003 22:29	8.7	3		Run 3	-0.24	24.95	25.1	8.9	775152.0	49.72	104.8	0.474
3/6/2003 22:30	4.7	3		Run 3	-0.24	24.95	25.1	4.9	775152.0	27.39	104.8	0.261
3/6/2003 22:31	3.2	3		Run 3	-0.24	24.95	25.1	3.5	775152.0	19.25	104.8	0.184
3/6/2003 22:32	2.3	3		Run 3	-0.24	24.95	25.1	2.5	775152.0	14.00	104.8	0.134
3/6/2003 22:33	1.9	3		Run 3	-0.24	24.95	25.1	2.1	775152.0	11.64	104.8	0.111
3/6/2003 22:34	1.8	3		Run 3	-0.24	24.95	25.1	2.0	775152.0	11.38	104.8	0.109
3/6/2003 22:35	1.5	3		Run 3	-0.24	24.95	25.1	1.7	775152.0	9.53	104.8	0.091
3/6/2003 22:36	1.2	3		Run 3	-0.24	24.95	25.1	1.5	775152.0	8.22	104.8	0.078
3/6/2003 22:37	0.5	3		Run 3	-0.24	24.95	25.1	0.7	775152.0	4.02	104.8	0.038
3/6/2003 22:38	0.3	3		Run 3	-0.24	24.95	25.1	0.5	775152.0	2.97	104.8	0.028
3/6/2003 22:39	0.3	3		Run 3	-0.24	24.95	25.1	0.6	775152.0	3.23	104.8	0.031
3/6/2003 22:40	0.4	3		Run 3	-0.24	24.95	25.1	0.7	775152.0	3.76	104.8	0.036
3/6/2003 22:41	0.4	3		Run 3	-0.24	24.95	25.1	0.7	775152.0	3.76	104.8	0.036
3/6/2003 22:42	0.4	3		Run 3	-0.24	24.95	25.1	0.6	775152.0	3.49	104.8	0.033
3/6/2003 22:43	0.4	3		Run 3	-0.24	24.95	25.1	0.7	775152.0	3.76	104.8	0.036
3/6/2003 22:44	0.3	3		Run 3	-0.24	24.95	25.1	0.6	775152.0	3.23	104.8	0.031
3/6/2003 22:45	0.2	3		Run 3	-0.24	24.95	25.1	0.4	775152.0	2.18	104.8	0.021
3/6/2003 22:46	0.1	3		Run 3	-0.24	24.95	25.1	0.3	775152.0	1.66	104.8	0.016
3/6/2003 22:47	0.0	3		Run 3	-0.24	24.95	25.1	0.3	775152.0	1.39	104.8	0.013
3/6/2003 22:48	0.0	3		Run 3	-0.24	24.95	25.1	0.3	775152.0	1.39	104.8	0.013
3/6/2003 22:49	0.2	3		Run 3	-0.24	24.95	25.1	0.4	775152.0	2.18	104.8	0.021
3/6/2003 22:50	0.4	3		Run 3	-0.24	24.95	25.1	0.7	775152.0	3.76	104.8	0.036
3/6/2003 22:51	0.7	3		Run 3	-0.24	24.95	25.1	0.9	775152.0	5.07	104.8	0.048
3/6/2003 22:52	1.6	3		Run 3	-0.24	24.95	25.1	1.8	775152.0	10.06	104.8	0.096
3/6/2003 22:53	2.0	3		Run 3	-0.24	24.95	25.1	2.2	775152.0	12.16	104.8	0.116
3/6/2003 22:54	2.2	3		Run 3	-0.24	24.95	25.1	2.4	775152.0	13.47	104.8	0.129
3/6/2003 22:55	0.7	3		Run 3	-0.24	24.95	25.1	1.0	775152.0	5.33	104.8	0.051
3/6/2003 22:56	0.3	3		Run 3	-0.24	24.95	25.1	0.6	775152.0	3.23	104.8	0.031
3/6/2003 22:57	1.0	3		Run 3	-0.24	24.95	25.1	1.2	775152.0	6.91	104.8	0.066
3/6/2003 22:58	1.9	3		Run 3	-0.24	24.95	25.1	2.1	775152.0	11.64	104.8	0.111
3/6/2003 22:59	2.3	3		Run 3	-0.24	24.95	25.1	2.6	775152.0	14.26	104.8	0.136
3/6/2003 23:00	4.8	3		Run 3	-0.24	24.95	25.1	5.0	775152.0	27.92	104.8	0.266
3/6/2003 23:01	7.1	3		Run 3	-0.24	24.95	25.1	7.3	775152.0	40.52	104.8	0.387
3/6/2003 23:02	6.3	3		Run 3	-0.24	24.95	25.1	6.5	775152.0	36.06	104.8	0.344
3/6/2003 23:03	2.8	3		Run 3	-0.24	24.95	25.1	3.0	775152.0	16.89	104.8	0.161
3/6/2003 23:04	3.0	3		Run 3	-0.24	24.95	25.1	3.2	775152.0	17.94	104.8	0.171
3/6/2003 23:05	3.8	3		Run 3	-0.24	24.95	25.1	4.0	775152.0	22.14	104.8	0.211
3/6/2003 23:06	4.4	3		Run 3	-0.24	24.95	25.1	4.6	775152.0	25.82	104.8	0.246
3/6/2003 23:07	4.8	3		Run 3	-0.24	24.95	25.1	5.0	775152.0	27.66	104.8	0.264
3/6/2003 23:08	4.7	3		Run 3	-0.24	24.95	25.1	4.9	775152.0	27.39	104.8	0.261
3/6/2003 23:09	3.4	3		Run 3	-0.24	24.95	25.1	3.7	775152.0	20.30	104.8	0.194
3/6/2003 23:10	2.8	3		Run 3	-0.24	24.95	25.1	3.0	775152.0	16.62	104.8	0.159
3/6/2003 23:11	2.8	3		Run 3	-0.24	24.95	25.1	3.0	775152.0	16.89	104.8	0.161
3/6/2003 23:12	2.7	3		Run 3	-0.24	24.95	25.1	2.9	775152.0	16.10	104.8	0.154
3/6/2003 23:13	2.6	3		Run 3	-0.24	24.95	25.1	2.9	775152.0	15.84	104.8	0.151
3/6/2003 23:14	2.3	3		Run 3	-0.24	24.95	25.1	2.5	775152.0	14.00	104.8	0.134
3/6/2003 23:15	1.3	3		Run 3	-0.24	24.95	25.1	1.5	775152.0	8.49	104.8	0.081
3/6/2003 23:16	0.8	3		Run 3	-0.24	24.95	25.1	1.1	775152.0	5.86	104.8	0.056
3/6/2003 23:17	0.6	3		Run 3	-0.24	24.95	25.1	0.9	775152.0	4.81	104.8	0.046
3/6/2003 23:18	0.6	3		Run 3	-0.24	24.95	25.1	0.8	775152.0	4.54	104.8	0.043
3/6/2003 23:19	0.5	3		Run 3	-0.24	24.95	25.1	0.8	775152.0	4.28	104.8	0.041
3/6/2003 23:20	0.5	3		Run 3	-0.24	24.95	25.1	0.8	775152.0	4.28	104.8	0.041
3/6/2003 23:21	2.3	3		Run 3	-0.24	24.95	25.1	2.5	775152.0	14.00	104.8	0.134
3/6/2003 23:22	12.2	3		Run 3	-0.24	24.95	25.1	12.4	775152.0	68.62	104.8	0.655
3/6/2003 23:23	10.2	3		Run 3	-0.24	24.95	25.1	10.4	775152.0	57.85	104.8	0.552
3/6/2003 23:24	5.2	3		Run 3	-0.24	24.95	25.1	5.4	775152.0	30.02	104.8	0.286
3/6/2003 23:25	4.7	3		Run 3	-0.24	24.95	25.1	4.9	775152.0	27.39	104.8	0.261
3/6/2003 23:26	8.4	3		Run 3	-0.24	24.95	25.1	8.6	775152.0	47.61	104.8	0.454
3/6/2003 23:27	7.3	3		Run 3	-0.24	24.95	25.1	7.5	775152.0	41.83	104.8	0.399
3/6/2003 23:28	6.9	3		Run 3	-0.24	24.95	25.1	7.2	775152.0	39.73	104.8	0.379

Ipsco Steel - Montpelier, Iowa

Meltshop Baghouse - Quarterly Oxides of Nitrogen Test

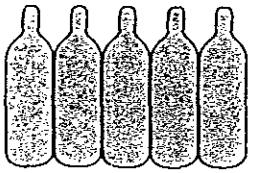
IDNR Permit Number 94-A-548-S3

March 6, 2003

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	NOx, ppm	Run Number	Heat Number	COMMENTS	NOx C_o	NOx C_s	NOx C_{ma}	NOx, ppm Drift Corrected	Flow, SCFM,Dry	Nox, pounds per hour	Production, Tons per Hour	Nox, Pounds per Ton
3/6/2003 23:29	7.3	3		Run 3	-0.24	24.95	25.1	7.5	775152.0	41.57	104.8	0.397
3/6/2003 23:30	6.3	3		Run 3	-0.24	24.95	25.1	6.5	775152.0	36.06	104.8	0.344
3/6/2003 23:31	4.9	3		Run 3	-0.24	24.95	25.1	5.1	775152.0	28.18	104.8	0.269
3/6/2003 23:32	3.7	3		Run 3	-0.24	24.95	25.1	3.9	775152.0	21.62	104.8	0.206
3/6/2003 23:33	2.5	3		Run 3	-0.24	24.95	25.1	2.7	775152.0	15.05	104.8	0.144
3/6/2003 23:34	1.3	3		Run 3	-0.24	24.95	25.1	1.6	775152.0	8.75	104.8	0.083
3/6/2003 23:35	1.5	3		Run 3	-0.24	24.95	25.1	1.8	775152.0	9.80	104.8	0.093
3/6/2003 23:36	2.5	3		Run 3	-0.24	24.95	25.1	2.8	775152.0	15.31	104.8	0.146
3/6/2003 23:37	2.6	3		Run 3	-0.24	24.95	25.1	2.8	775152.0	15.58	104.8	0.149
3/6/2003 23:38	2.1	3		Run 3	-0.24	24.95	25.1	2.4	775152.0	13.21	104.8	0.126
3/6/2003 23:39	2.0	3		Run 3	-0.24	24.95	25.1	2.2	775152.0	12.16	104.8	0.116
3/6/2003 23:40	1.9	3		Run 3	-0.24	24.95	25.1	2.1	775152.0	11.64	104.8	0.111
3/6/2003 23:41	1.9	3		Run 3	-0.24	24.95	25.1	2.1	775152.0	11.90	104.8	0.113
3/6/2003 23:42	1.9	3		Run 3	-0.24	24.95	25.1	2.1	775152.0	11.64	104.8	0.111
3/6/2003 23:43	1.4	3		Run 3	-0.24	24.95	25.1	1.7	775152.0	9.27	104.8	0.088
3/6/2003 23:44	1.1	3		Run 3	-0.24	24.95	25.1	1.3	775152.0	7.17	104.8	0.068
3/6/2003 23:45	1.0	3		Run 3	-0.24	24.95	25.1	1.2	775152.0	6.65	104.8	0.063
3/6/2003 23:46	1.0	3		Run 3	-0.24	24.95	25.1	1.2	775152.0	6.65	104.8	0.063
3/6/2003 23:47	0.9	3		Run 3	-0.24	24.95	25.1	1.1	775152.0	6.38	104.8	0.061
3/6/2003 23:48	1.0	3		Run 3	-0.24	24.95	25.1	1.2	775152.0	6.91	104.8	0.066
3/6/2003 23:49	1.1	3		Run 3	-0.24	24.95	25.1	1.3	775152.0	7.17	104.8	0.068
3/6/2003 23:50	1.3	3		Run 3	-0.24	24.95	25.1	1.6	775152.0	8.75	104.8	0.083
3/6/2003 23:51	1.8	3		Run 3	-0.24	24.95	25.1	2.0	775152.0	11.38	104.8	0.109
3/6/2003 23:52	2.4	3		Run 3	-0.24	24.95	25.1	2.7	775152.0	14.79	104.8	0.141
3/6/2003 23:53	2.2	3		Run 3	-0.24	24.95	25.1	2.5	775152.0	13.73	104.8	0.131
3/6/2003 23:54	6.3	3		Run 3	-0.24	24.95	25.1	6.5	775152.0	36.06	104.8	0.344
3/6/2003 23:55	23.1	3		Run 3	-0.24	24.95	25.1	23.2	775152.0	129.02	104.8	1.231
3/6/2003 23:56	10.9	3		Run 3	-0.24	24.95	25.1	11.1	775152.0	61.79	104.8	0.590
3/6/2003 23:57	3.9	3		Run 3	-0.24	24.95	25.1	4.1	775152.0	22.93	104.8	0.219
3/6/2003 23:58	6.4	3		Run 3	-0.24	24.95	25.1	6.6	775152.0	36.59	104.8	0.349
3/6/2003 23:59	9.1	3		Run 3	-0.24	24.95	25.1	9.3	775152.0	51.81	104.8	0.494
3/7/2003 0:00	7.8	3		Run 3	-0.24	24.95	25.1	8.1	775152.0	44.72	104.8	0.427
3/7/2003 0:01	14.4	3		Run 3	-0.24	24.95	25.1	14.6	775152.0	80.96	104.8	0.772
3/7/2003 0:02	6.4	3		Run 3	-0.24	24.95	25.1	6.6	775152.0	36.59	104.8	0.349
3/7/2003 0:03	2.5	3		Run 3	-0.24	24.95	25.1	2.7	775152.0	15.05	104.8	0.144
3/7/2003 0:04	1.9	3		Run 3	-0.24	24.95	25.1	2.1	775152.0	11.64	104.8	0.111
	4.0			**Run 3 Average**				4.3	775152.0	23.72	104.8	0.226
3/7/2003 0:05	5.4											
3/7/2003 0:06	19.6											
3/7/2003 0:07	23.7											
3/7/2003 0:08	24.4											
3/7/2003 0:09	24.7			NOx 25.1 Cal								
3/7/2003 0:10	24.7			NOx 25.1 Cal								
	24.7			**NOx 25.1 Cal Average**								
3/7/2003 0:11	21.6											
3/7/2003 0:12	3.9											
3/7/2003 0:13	0.1											
3/7/2003 0:14	-0.3			NOx 0 Cal								
3/7/2003 0:15	-0.4			NOx 0 Cal								
3/7/2003 0:16	-0.4			NOx 0 Cal								
	-0.3			**NOx 0 Cal Average**								
	6.4			**Time Weighted Test Average**				6.7	713099	33.95	129.74	0.259

SPECTRA GASES INC.
3434 Route 22 West • Branchburg, NJ 08876 USA Tel : (908) 252-9300 • (800) 932-0624 • Fax: (908) 252-0811
Shipped From: 80 Industrial Drive • Alpha, NJ 08865



CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: IPSCO Steel, Inc.
SGI ORDER # : 0033156
ITEM# : 1
P.O.# : VERBAL-DAVID

CYLINDER # : CC-135361
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 2/18/2003
EXPIRATION DATE: 2/18/2005

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	2/10/2003 2/18/2003	24.94 ppm 25.04 ppm	25.0 ppm	+/- 1%
NOx			25.1 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	NTRM-82660	CC-133646	99.5 ppm

INSTRUMENTATION

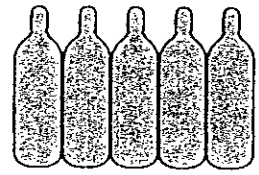
COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	CAI-400-CLD	6L09004	Cheml	1/28/2003

THIS STANDARD IS NIST TRACEABLE. IT 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

DATE: 2/18/2003

SPECTRA GASES INC.
3434 Route 22 West • Branchburg, NJ 08876 USA Tel : (908) 252-9300 • (800) 932-0624 • Fax: (908) 252-0811
Shipped From 80 Industrial Drive • Alpha, NJ 08865



CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: IPSCO Steel, Inc.
SGI ORDER # : 0033156
ITEM# : 2
P.O.# : VERBAL-DAVID

CYLINDER # : CC-85252
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 2/18/2003
EXPIRATION DATE: 2/18/2005

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	2/10/2003 2/18/2003	44.81 ppm 44.91 ppm	44.9 ppm	+/- 1%
NOx			45.1 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	NTRM-82660	CC-133646	99.5 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	CAI-400-CLD	6L09004	Chemi	1/28/2003

THIS STANDARD IS NIST TRACEABLE. IT 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

DATE: 2/18/2003

APPENDIX E

Facility Operating Data

HEAT	Tap Date	Cast Date	Scrap Charged	# Slabs	Tons Heat	Pit Scrap	Crops	Samples	Tundish Skull	Calculated Tap Weight	Notes / Yield
B3C515	03/06	03/06	362750	6	143.36	1.36				144.72	
A3C063	03/06	03/06	345550	6	158.07	1.30				159.37	
B3C516	03/06	03/06	321000	6	139.47	1.20	1.72	0.25	3.16	145.80	
A3C064	03/06	03/06	344400	6	150.99	1.29				152.28	
B3C517	03/06	03/06	343800	6	150	1.29				151.29	
A3C065	03/06	03/06	343500	7	176.37	1.29				177.66	
B3C518	03/06	03/06	350400	5	127.79	1.31				129.10	
A3C066	03/06	03/06	344000	6	151.02	1.29				152.31	
B3C519	03/06	03/06	342850	6	160.9	1.29				162.19	
A3C067	03/06	03/06	340650	6	154.3	1.28	2.33	0.25	2.99	161.15	
B3C520	03/06	03/06	344050	6	150.31	1.29				151.60	
A3C068	03/06	03/06	346500	6	160.65	1.30				161.95	
B3C521	03/06	03/06	343650	4	138.78	1.29				140.07	
A3C069	03/06	03/06	366250	5	145.76	1.37				147.13	
B3C522	03/06	03/06	344900	7	169.13	1.29				170.42	
A3C070	03/06	03/06	366150	5	160.31	1.37				161.68	
B3C523	03/06	03/06	346050	6	150.5	1.30				151.80	
A3C071	03/06	03/06	365550	1	21.08	1.37	2.38	0.25	28.02	53.10	
B3C524	03/06	***03/07***	352300	4	137.86	1.32				139.18	
A3C072	03/06	***03/07***	351650	7	157	1.32				158.32	
A3C073	03/06	***03/07***	190950	6	161.74	0.72				162.46	
03/06	MELTSHOP/YEILD		3578.45			21				3133.58	87.57%
03/06	CASTER/SLABS/WEIGHT					20	113	2934.03			
03/06	Caster Losses					26.07	6.43	0.75	34.17		
B3C525	03/07	03/07	367800	5	165.67	1.38				167.05	
A3C074	03/07	03/07	367450	5	166.79	1.38				168.17	
B3C526	03/07	03/07	324150	5	164.25	1.22				165.47	
A3C075	03/07	03/07	349450	5	172.39	1.31				173.70	
B3C527	03/07	03/07	346600	4	133.2	1.30				134.50	
A3C076	03/07	03/07	365650	6	162.58	1.37	2.33	0.25	2.98	169.51	
B3C528	03/07	03/07	364050	6	163.27	1.37				164.64	
A3C077	03/07	03/07	351500	6	164.07	1.32				165.39	
B3C529	03/07	03/07	364050	6	161.21	1.37				162.58	
A3C078	03/07	03/07	402950	6	155.85	1.51				157.36	
B3C530	03/07	03/07	367850	6	155.67	1.38				157.05	
A3C079	03/07	03/07	366850	4	141.72	1.38				143.10	
B3C531	03/07	03/07	366600	5	159.58	1.37				160.95	
A3C080	03/07	03/07	368700	5	170.31	1.38				171.69	
B3C532	03/07	03/07	366550	6	168.51	1.37				169.88	
A3C081	03/07	03/07	366600	6	159.14	1.37				160.51	
B3C533	03/07	03/07	367000	6	165.23	1.38	2.31	0.25	4.95	174.12	
A3C082	03/07	**03/08**	370050	7	167.11	1.39				168.50	
B3C534	03/07	**03/08**	348300	7	167	1.31				168.31	
03/07	MELTSHOP/YEILD		3446.08			19				3102.47	90.03%
03/07	CASTER/SLABS/WEIGHT					20	109	3186.04			
03/07	Caster Losses					26.51	4.64	0.50	7.93		

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 3/6/2003 12:00:00 to 3/7/2003 07:00:00

Issue Date	: 3/7/2003 07:23:25
Issued By	: Operations Planning
PBL Name	: Planning-g.pbl Created Date : 12/18/99
Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 1.1

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0414002	03/06/2003	10:40:39	A3C068	0000000004	01	FRAG	022500	11.25
					02	MXTN	018150	9.08
					03	HM1	007300	3.65
					04	BEACH IRON	022500	11.25
					05	BEACH IRON	030900	15.45
					07	BEACH IRON	006750	3.38
					08	MXTN	018950	9.48
					09	HM1	034500	17.25
					10	FRAG	072900	36.45
						0000000004 Total	**234450**	**117.23**
0414002	03/06/2003	11:23:36	A3C068	0000000003	01	FRAG	018650	9.33
					02	BEACH IRON	016000	8.00
					04	MXTN	031900	15.95
					05	HM1	025550	12.78
					06	FRAG	019950	9.98
						0000000003 Total	**112050**	**56.03**
						A3C068 Total	**346500**	**173.25**
0387002	03/06/2003	13:10:32	A3C069	0000000003	01	FRAG	024700	12.35
					02	MXTN	017200	8.60
					03	HM1	007700	3.85
					04	BEACH IRON	024300	12.15
					05	BEACH IRON	025900	12.95
					07	BEACH IRON	014450	7.23
					08	MXTN	018950	9.48
					09	HM1	036500	18.25
					10	FRAG	067750	33.88
						0000000003 Total	**237450**	**118.73**
0387002	03/06/2003	13:33:23	A3C069	0000000003	01	FRAG	016300	8.15
					02	BEACH IRON	017950	8.98
					04	MXTN	032000	16.00
					05	HM1	022950	11.48
					06	FRAG	039600	19.80
						0000000003 Total	**128800**	**64.40**
						A3C069 Total	**366250**	**183.13**
0387004	03/06/2003	14:47:41	A3C070	0000000003	01	FRAG	020850	10.43
					02	MXTN	019250	9.63
					03	HM1	008450	4.23
					04	BEACH IRON	027750	13.88
					05	BEACH IRON	024900	12.45
					07	BEACH IRON	008200	4.10
					08	MXTN	022000	11.00
					09	HM1	037050	18.52
					10	FRAG	066200	33.10
						0000000003 Total	**234650**	**117.32**
0387004	03/06/2003	15:56:17	A3C070	0000000003	01	FRAG	016500	8.25
					02	BEACH IRON	017600	8.80

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 3/6/2003 12:00:00 to 3/7/2003 07:00:00

Issue Date : 3/7/2003 07:23:25
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Report Name :d_meltshop_raw_material_rpt_by_heat Version : 1.1

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0387004	03/06/2003	15:56:17	A3C070	0000000003	04	MXTN	031400	15.70
					05	HM1	024500	12.25
					06	FRAG	041500	20.75
						0000000003 Total	**131500**	**65.75**
						A3C070 Total	**366150**	**183.08**
0387201	03/06/2003	17:13:42	A3C071	0000000003	01	FRAG	023900	11.95
					02	MXTN	021500	10.75
					03	HM1	008500	4.25
					04	BEACH IRON	024350	12.18
					05	BEACH IRON	023650	11.83
					07	BEACH IRON	009150	4.58
					08	MXTN	019550	9.78
					09	HM1	037150	18.58
					10	FRAG	066650	33.33
						0000000003 Total	**234400**	**117.20**
0387201	03/06/2003	17:55:02	A3C071	0000000003	01	FRAG	019150	9.58
					02	BEACH IRON	015050	7.53
					04	MXTN	033600	16.80
					05	HM1	027650	13.83
					06	FRAG	035700	17.85
						0000000003 Total	**131150**	**65.58**
						A3C071 Total	**365550**	**182.78**
0386902	03/06/2003	19:15:13	A3C072	0000000003	01	FRAG	021850	10.93
					02	MXTN	024150	12.08
					03	2BN	009100	4.55
					04	BEACH IRON	014650	7.33
					05	BEACH IRON	017350	8.68
					07	PROCREVERT	021350	10.68
					08	PITSCRAP	009400	4.70
					09	HM1	034500	17.25
					10	FRAG	084300	42.15
						0000000003 Total	**236650**	**118.32**
0386902	03/06/2003	20:10:26	A3C072	0000000003	01	FRAG	014800	7.40
					02	MXTN	033600	16.80
					04	HM1	019700	9.85
					05	HM2	027350	13.68
					06	FRAG	019550	9.78
						0000000003 Total	**115000**	**57.50**
						A3C072 Total	**351650**	**175.83**
0386904	03/06/2003	22:30:50	A3C073	0000000003	01	FRAG	019700	9.85
					02	MXTN	020400	10.20
					03	2BN	007550	3.78
					04	BEACH IRON	019550	9.78
					05	BEACH IRON	018400	9.20
					07	PROCREVERT	021200	10.60

MELTSHOP RAW MATERIALS REPORT

(By Heat)

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Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0386904	03/06/2003	22:30:50	A3C073	0000000003	08	PITSCRAP	011400	5.70
					09	HM1	034900	17.45
					10	FRAG	037850	18.93
						0000000003 Total	**190950**	**95.48**
						A3C073 Total	**190950**	**95.48**
0386905	03/06/2003	23:04:56	A3C074	0000000003	01	FRAG	024250	12.13
					02	MXTN	020300	10.15
					03	2BN	010500	5.25
					04	BEACH IRON	017100	8.55
					05	BEACH IRON	014000	7.00
					07	PROCREVERT	022000	11.00
					08	PITSCRAP	011050	5.53
					09	HM1	034800	17.40
					10	FRAG	081950	40.98
						0000000003 Total	**235950**	**117.98**
0386905	03/06/2003	23:34:13	A3C074	0000000003	01	FRAG	019250	9.63
					02	MXTN	032000	16.00
					04	HM1	016150	8.08
					05	HM2	024700	12.35
					06	FRAG	039400	19.70
						0000000003 Total	**131500**	**65.75**
						A3C074 Total	**367450**	**183.72**
0387102	03/07/2003	01:22:01	A3C075	0000000003	01	FRAG	021850	10.93
					02	MXTN	048150	24.08
					03	2BN	007400	3.70
					04	BEACH IRON	018700	9.35
					05	BEACH IRON	009700	4.85
					07	PROCREVERT	021400	10.70
					08	PITSCRAP	007550	3.78
					09	HM1	031500	15.75
					10	FRAG	068850	34.42
						0000000003 Total	**235100**	**117.55**
0387102	03/07/2003	02:26:13	A3C075	0000000003	01	FRAG	014150	7.08
					02	MXTN	037000	18.50
					04	HM1	017050	8.53
					05	HM2	025100	12.55
					06	FRAG	021050	10.53
						0000000003 Total	**114350**	**57.18**
						A3C075 Total	**349450**	**174.73**
0387401	03/07/2003	03:32:34	A3C076	0000000003	01	FRAG	021800	10.90
					02	MXTN	048250	24.13
					03	2BN	007500	3.75
					04	BEACH IRON	018800	9.40
					05	BEACH IRON	010850	5.43
					07	PROCREVERT	022000	11.00

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 3/6/2003 12:00:00 to 3/7/2003 07:00:00

Issue Date	: 3/7/2003 07:23:25
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Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0387401	03/07/2003	03:32:34	A3C076	0000000003	08	PITSCRAP	007300	3.65
					09	HM1	032350	16.18
					10	FRAG	067950	33.98
						0000000003 Total	**236800**	**118.40**
0387401	03/07/2003	04:32:13	A3C076	0000000003	01	FRAG	016100	8.05
					02	MXTN	035800	17.90
					04	HM1	017250	8.63
					05	HM2	024200	12.10
					06	FRAG	035500	17.75
						0000000003 Total	**128850**	**64.43**
						A3C076 Total	**365650**	**182.83**
0387001	03/06/2003	12:16:34	B3C521	0000000005	01	FRAG	021600	10.80
					02	MXTN	020250	10.13
					03	HM1	009150	4.58
					04	BEACH IRON	023250	11.63
					05	BEACH IRON	024150	12.08
					07	BEACH IRON	008250	4.13
					08	MXTN	020200	10.10
					09	HM1	038100	19.05
					10	FRAG	069250	34.63
						0000000005 Total	**234200**	**117.10**
0387001	03/06/2003	12:16:36	B3C521	0000000006	01	FRAG	016600	8.30
					02	BEACH IRON	017000	8.50
					04	MXTN	032500	16.25
					05	HM1	023300	11.65
					06	FRAG	020050	10.03
						0000000006 Total	**109450**	**54.72**
						B3C521 Total	**343650**	**171.83**
0387003	03/06/2003	13:48:24	B3C522	0000000005	01	FRAG	021250	10.63
					02	MXTN	019200	9.60
					03	HM1	009700	4.85
					04	BEACH IRON	025500	12.75
					05	BEACH IRON	022900	11.45
					07	BEACH IRON	011600	5.80
					08	MXTN	025100	12.55
					09	HM1	036600	18.30
					10	FRAG	064900	32.45
						0000000005 Total	**236750**	**118.38**
0387003	03/06/2003	14:47:28	B3C522	0000000005	01	FRAG	016200	8.10
					02	BEACH IRON	018550	9.28
					04	MXTN	032450	16.23
					05	HM1	025100	12.55
					06	FRAG	015850	7.93
						0000000005 Total	**108150**	**54.08**
						B3C522 Total	**344900**	**172.45**

MELTSHOP RAW MATERIALS REPORT

(By Heat)

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PBL Name	: Planning-g.pbl — Created Date : 12/18/99
Report Name	:d_meltshop_raw_material_rpt_by_heat — Version : 1.1

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0387202	03/06/2003	15:56:12	B3C523	0000000005	01	FRAG	026300	13.15
					02	MXTN	019850	9.93
					03	HM1	015350	7.68
					04	BEACH IRON	025700	12.85
					05	BEACH IRON	025900	12.95
					07	BEACH IRON	008250	4.13
					08	MXTN	019900	9.95
					09	HM1	036600	18.30
					10	FRAG	057650	28.83
						0000000005 Total	**235500**	**117.75**
0387202	03/06/2003	16:55:22	B3C523	0000000005	01	FRAG	017850	8.93
					02	BEACH IRON	015800	7.90
					04	MXTN	034100	17.05
					05	HM1	023750	11.88
					06	FRAG	019050	9.53
						0000000005 Total	**110550**	**55.28**
						B3C523 Total	**346050**	**173.03**
0386901	03/06/2003	18:33:05	B3C524	0000000005	01	FRAG	021350	10.68
					02	MXTN	018600	9.30
					03	2BN	009300	4.65
					04	BEACH IRON	017500	8.75
					05	BEACH IRON	013650	6.83
					07	PROCREVERT	023400	11.70
					08	PITSCRAP	010250	5.13
					09	HM1	034750	17.38
					10	FRAG	090700	45.35
						0000000005 Total	**239500**	**119.75**
0386901	03/06/2003	19:06:02	B3C524	0000000005	01	FRAG	017750	8.88
					02	MXTN	031100	15.55
					04	HM1	015400	7.70
					05	HM2	025850	12.93
					06	FRAG	022700	11.35
						0000000005 Total	**112800**	**56.40**
						B3C524 Total	**352300**	**176.15**
0386903	03/06/2003	20:17:08	B3C525	0000000005	01	FRAG	019550	9.78
					02	MXTN	019150	9.58
					03	2BN	011000	5.50
					04	BEACH IRON	018250	9.13
					05	BEACH IRON	013450	6.73
					07	PROCREVERT	019650	9.83
					08	PITSCRAP	010700	5.35
					09	HM1	041850	20.93
					10	FRAG	082050	41.03
						0000000005 Total	**235650**	**117.83**
0386903	03/06/2003	23:10:59	B3C525	0000000005	01	FRAG	015400	7.70
					02	MXTN	032600	16.30

MELTSHOP RAW MATERIALS REPORT

(By Heat)

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Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0386903	03/06/2003	23:10:59	B3C525	0000000005	04	HM1	017850	8.93
					05	HM2	024950	12.48
					06	FRAG	041350	20.68
						0000000005 Total	**132150**	**66.08**
						B3C525 Total	**367800**	**183.90**
0387101	03/07/2003	00:21:38	B3C526	0000000005	01	FRAG	021800	10.90
					02	MXTN	048200	24.10
					03	2BN	009400	4.70
					04	BEACH IRON	017900	8.95
					05	BEACH IRON	012200	6.10
					07	PROCREVERT	022800	11.40
					08	PITSCRAP	007150	3.58
					09	HM1	030650	15.33
					10	FRAG	065500	32.75
						0000000005 Total	**235600**	**117.80**
0387101	03/07/2003	01:21:47	B3C526	0000000005	01	FRAG	018650	9.33
					02	MXTN	039550	19.77
					04	HM1	000000	0.00
					05	HM2	024000	12.00
					06	FRAG	006350	3.18
						0000000005 Total	**88550**	**44.27**
						B3C526 Total	**324150**	**162.08**
0387103	03/07/2003	02:26:17	B3C527	0000000005	01	FRAG	023750	11.88
					02	MXTN	050750	25.38
					03	2BN	009350	4.68
					04	BEACH IRON	018850	9.43
					05	BEACH IRON	011250	5.63
					07	PROCREVERT	026850	13.43
					08	PITSCRAP	012850	6.43
					09	HM1	036400	18.20
					10	FRAG	045300	22.65
						0000000005 Total	**235350**	**117.67**
0387103	03/07/2003	03:08:42	B3C527	0000000005	01	FRAG	015100	7.55
					02	MXTN	037950	18.98
					04	HM1	018950	9.48
					05	HM2	024050	12.03
					06	FRAG	015200	7.60
						0000000005 Total	**111250**	**55.63**
						B3C527 Total	**346600**	**173.30**
0387402	03/07/2003	05:04:04	B3C528	0000000005	01	FRAG	022550	11.28
					02	MXTN	050450	25.23
					03	2BN	009100	4.55
					04	BEACH IRON	018200	9.10
					05	BEACH IRON	011650	5.83
					07	PROCREVERT	026550	13.28

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 3/6/2003 12:00:00 to 3/7/2003 07:00:00

Issue Date	: 3/7/2003 07:23:25
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Report Name	:d_meltshop_raw_material_rpt_by_heat Version : 1.1

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0387402	03/07/2003	05:04:04	B3C528	0000000005	08	PITSCRAP	011750	5.88
					09	HM1	031950	15.98
					10	FRAG	053150	26.58
						0000000005 Total	**235350**	**117.68**
0387402	03/07/2003	05:41:14	B3C528	0000000005	01	FRAG	017550	8.78
					02	MXTN	038050	19.02
					04	HM1	018050	9.03
					05	HM2	023300	11.65
					06	FRAG	031750	15.88
						0000000005 Total	**128700**	**64.35**
						B3C528 Total	**364050**	**182.03**

Total Heats 17 **Total Weight for Time Period** 5859100 **Pounds** 2929.55 **Tons**

IPSCO STEEL INC.
Montpelier Works

HEAT: B3C522 MSP: 25190

Start Time: 06-Mar-2003 13:40:21
End Time : 06-Mar-2003 15:45:46
TapToTap Time : 125 (min)

Heat Order : 0387003
Grade : A/SA36A709
Ladle #: 0 CrewID: 4 OperatorID: 8

START	DUR	DELAY REASON
15:42:30	0000	Operational, Tap
15:40:36	0001	Operational, Slagoff
15:37:14	0000	Operational, Temp and Sample
15:33:09	0001	Operational, Temp and Sample
15:28:44	0001	Operational, Temp and Sample
15:02:52	0001	Electrical, Electrode Saver
14:51:09	0003	Operational, Charge
13:41:08	0055	Operational, Charge Run A

CHARGES	AMOUNT
Charge 1	243650
Charge 2	114650
Charge 3	0
Charge 4	0
Charge 5	0

ADDITIONS	LBS
SiMn	0003340
75% Fe Si	0000110
Reclaim Mn	0000500
4oz AL Con	0000620
LSR	0004400
Carbon	0002910
Dololime	0011420
HiCal Lime	0006385

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	74400	13600	60800	0	0	0
O2 Burner	SCF	105	15	90	0	0	0
Gas Burner	SCF	39	8	31	0	0	0
O2 Lance	SCF	1020	0	1020	0	0	0
Carbon Lance	LBS	5464	0	5464	0	0	0
TIMES							
Melting Tm	MIN	125	66	58	0	0	0
Power on Tm	MIN	54	10	44	0	0	0
Burner On Tm	MIN	59	6	53	0	0	0
O2Lance On Tm	MIN	44	0	44	0	0	0
CLance On Tm	MIN	28	0	28	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	456.8	111.6	415.3	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	38034.6	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	006.3	000.0	005.7	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	033.5	000.0	030.5	000.0	000.0	000.0

COMMENTS

eric

	ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
	MAX	0.20400	1.10000	0.02000	0.01000	0.32000	0.03000	0.00000	0.01500	0.00000	0.43900	0.30000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.02500	0.00050	0.00000	0.00000
	MIN	0.17500	1.00000	0.00000	0.00000	0.22000	0.01800	0.01500	0.00000	0.00150	0.39300	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01500	0.00000	0.00000	0.00000
	AIM	0.19000	1.05000	0.00000	0.00000	0.27000	0.02500	0.00000	0.00000	0.00000	0.41600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.02000	0.00000	0.00000	0.00000
15:45:19	E1	0.12500	0.15000	0.00800	0.08300	0.00100	0.12200	0.10700	0.00560	0.00060	0.21000	0.24000	0.15000	0.13000	0.04100	0.00700	0.00200	0.00200	0.00100	0.00100	0.00020	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: B3C522 MSP: 25190

---------- EVENTS ----------

TIME	KWH	Description
15:45:52	0074400	Ladle Weigth
15:45:48	0074400	End Tapping
15:45:19	0000000	Chemical Analysis Received
15:44:04	0074400	Start Tapping
15:40:53	0074400	Burners Off
15:40:35	0074400	Temperature <2940> O2 <5200> C <56>
15:40:34	0074400	Power Off
15:38:48	0071600	Temperature <2849> O2 <4120> C <56>
15:37:48	0070300	Power On
15:37:47	0070300	Temperature <2812> O2 <4120> C <62>
15:37:12	0070300	Power Off
15:36:11	0068700	Material Additlon
15:34:34	0066200	Power On
15:34:12	0066200	Temperature <2737> O2 <2960> C <59>
15:33:08	0066200	Power Off
15:31:50	0064100	Temperature <2265> O2 <5180> C <59>
15:30:29	0062200	Power On
15:30:26	0062100	Temperature <2262> O2 <5180> C <59>
15:28:42	0062100	Power Off
15:04:22	0027500	Power On
15:02:50	0027500	Power Off
14:54:43	0019200	Power On
14:51:07	0019100	Power Off
14:47:28	0013700	Charge
14:45:02	0010100	Power On
14:44:56	0010100	Power Off
14:41:01	0004500	Burners On
14:36:34	0000000	Melting
14:36:33	0000000	Power On
14:11:51	0000000	Material Addition
14:11:31	0000000	Material Addition
13:48:25	0000000	Charge
13:40:23	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: B3C522 MSP: 25190

Start Time: 06-Mar-2003 16:24:48
End Time : 06-Mar-2003 17:52:11
Heat Order: 0387003 Grade : A/SA36A709
Ladle #: 5
CrewID: 4 OperatorID: 2

---------- DELAYS ----------

Start	Dur	Delay Reason

---------- COMSUMTION ----------

Energy	KWH	720
Steel Wt	LBS	296000
Argon	SCF	9264

---------- TIMES ----------

Arrives Ladle		16:24:48
Leaves Ladle		17:52:11
Power On	Min	30
Stirring On	Min	71

---------- TEMPERATURES ----------

Time	Temperature	O2
17:46:46	2836	186
17:40:26	2838	186
17:33:18	2847	186
17:02:36	2831	186

---------- ADDITIONS ----------

MATERIALS	LBS	ALLOYS	LBS
FeSi	0000146	FeTi	0000100
Lime	0000249	Larpin Car	0000300
FeMn	0000788		
Al - 4 oz	0000054		
POWDERS			
CalSil	0000081		

COMMENTS

	ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
	MAX	0.20400	1.10000	0.02000	0.01000	0.32000	0.03000	0.00000	0.01500	0.00000	0.43900	0.30000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.02500	0.00050	0.00000	0.00000
	MIN	0.17500	1.00000	0.00000	0.00000	0.22000	0.01800	0.01500	0.00000	0.00150	0.39300	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01500	0.00000	0.00000	0.00000
	AIM	0.19000	1.05000	0.00000	0.00000	0.27000	0.02500	0.00000	0.00000	0.00000	0.41600	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.02000	0.00000	0.00000	0.00000
17:51:23	L4	0.18600	1.01000	0.01100	0.00500	0.22700	0.02900	0.02600	0.00560	0.00250	0.41500	0.24000	0.15000	0.14000	0.03600	0.00800	0.00200	0.00300	0.00200	0.02400	0.00040	0.00000	0.00000
17:37:53	L3	0.18500	1.01000	0.01000	0.00700	**0.17500**	**0.03600**	0.03600	0.00520	**0.00030**	0.41300	0.24000	0.15000	0.14000	0.03600	0.00800	0.00200	0.00300	0.00100	**0.00200**	0.00040	0.00000	0.00000
17:07:52	L2	**0.16100**	**0.86000**	0.01000	**0.02100**	**0.17400**	**0.05500**	0.05400	0.00520	**0.00020**	**0.36400**	0.24000	0.14000	0.14000	0.03700	0.00800	0.00200	0.00300	0.00100	**0.00300**	0.00040	0.00000	0.00000
16:39:51	L1	**0.08700**	**0.79000**	0.01000	**0.06200**	**0.17600**	**0.10500**	0.10200	0.00570	**0.00020**	**0.28000**	0.24000	0.15000	0.14000	0.03800	0.00800	0.00200	0.00300	0.00100	**0.00200**	0.00040	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: A3C070 *MSP: 25190*

Start Time: 06-Mar-2003 14:47:25
End Time : 06-Mar-2003 17:11:50
TapToTap Time : 144 (min)

Heat Order : 0387004
Grade : A/SA36A709
Ladle #: 0 CrewID: 2 OperatorID: 8

START	DUR	DELAY REASON
17:08:31	0000	Operational, Tap
17:06:43	0001	Operational, Rebar Taphole
17:03:25	0003	Operational, Slagoff
16:35:13	0028	Operational, Hot Anode#4
16:25:58	0000	Other, TE 402 Combustion door temp
16:14:08	0000	Other, TE 402 Combustion door temp
16:11:13	0000	Other, TE 402 Combustion door temp
15:57:21	0003	Operational, Charge
15:52:13	0000	Other, TE 402 Combustion door temp
14:48:12	0054	Operational, Charge run B

CHARGES	AMOUNT
Charge 1	241500
Charge 2	138350
Charge 3	0
Charge 4	0
Charge 5	0

ADDITIONS	LBS
SiMn	0003440
75% Fe Si	0000120
Reclaim Mn	0000500
4oz AL Con	0000640
LSR	0004400
Carbon	0001935
Dololime	0007610
HiCal Lime	0004255

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	65400	17600	47800	0	0	0
O2 Burner	SCF	86	18	68	0	0	0
Gas Burner	SCF	37	8	29	0	0	0
O2 Lance	SCF	1341	0	1341	0	0	0
Carbon Lance	LBS	4554	0	4554	0	0	0
TIMES							
Melting Tm	MIN	144	68	75	0	0	0
Power on Tm	MIN	46	13	33	0	0	0
Burner On Tm	MIN	76	10	66	0	0	0
O2Lance On Tm	MIN	53	0	53	0	0	0
CLance On Tm	MIN	22	0	22	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	378.8	145.8	344.3	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	27221.6	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	007.8	000.0	007.1	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.1	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	026.4	000.0	024.0	000.0	000.0	000.0

COMMENTS

dan

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
MIN	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
AIM	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: A3C070 MSP: 25190

---------- EVENTS ----------

TIME	KWH	Description
17:11:55	0065400	Ladle Weigth
17:11:52	0065400	End Tapping
17:10:07	0065400	Start Tapping
17:03:17	0065400	Temperature <2855> O2 <2900> C <90>
17:02:41	0065400	Burners Off
17:02:29	0065400	Temperature <2855> O2 <2900> C <2937>
16:59:11	0065400	Temperature <2837> O2 <2380> C <117>
16:53:18	0065400	Temperature <2789> O2 <1840> C <130>
16:48:15	0065400	Temperature <2782> O2 <1630> C <2974>
16:35:12	0065400	Power Off
16:26:51	0052700	Power On
16:25:56	0052700	Power Off
16:22:23	0047300	Material Addition
16:14:32	0035100	Power On
16:14:06	0035100	Power Off
16:11:47	0031500	Power On
16:11:46	0031500	Power Off
16:11:44	0031500	Power On
16:11:11	0031500	Power Off
16:01:07	0019100	Power On
15:57:19	0019100	Power Off
15:56:17	0017600	Charge
15:52:38	0012100	Power On
15:52:11	0012000	Power Off
15:46:15	0003700	Burners On
15:42:18	0000000	Melting
15:42:17	0000000	Power On
15:16:16	0000000	Material Addition
14:47:41	0000000	Charge
14:47:27	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: A3C071 MSP: 24160

Start Time: 06-Mar-2003 17:12:53
End Time : 06-Mar-2003 19:07:46
TapToTap Time : 114 (min)

Heat Order : 0387202
Grade : A/SA36A709
Ladle #: 0 CrewID: 2 OperatorID: 8

START	DUR	DELAY REASON
19:04:48	0000	Operational, Tap
19:00:54	0003	Operational, Wait on Sample
18:54:24	0006	Operational, Slagoff
18:51:16	0000	Other, Operator Did Not Enter
18:48:01	0000	Other, Open sump door
18:33:29	0000	Other, TE 402 Combustion door temp
18:08:39	0012	Operational, Swap columns
18:07:43	0000	Electrical, Electrode Saver
17:58:15	0003	Operational, Charge
17:50:15	0008	Operational, Wait on Scrap
17:25:34	0010	Operational, Charge run B
17:13:40	0011	Operational, Gunning

CHARGES AMOUNT
Charge 1 : 241400
Charge 2 : 138050
Charge 3 : 0
Charge 4 : 0
Charge 5 : 0

ADDITIONS	LBS
SiMn	0002620
4oz AL Con	0000630
LSR	0004400
Carbon	0001930
Dololime	0007605
HiCal Lime	0004250

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	70900	19000	51900	0	0	0
O2 Burner	SCF	74	12	62	0	0	0
Gas Burner	SCF	32	5	27	0	0	0
O2 Lance	SCF	723	0	723	0	0	0
Carbon Lance	LBS	5342	0	5342	0	0	0
TIMES							
Melting Tm	MIN	114	42	72	0	0	0
Power on Tm	MIN	51	14	37	0	0	0
Burner On Tm	MIN	74	14	60	0	0	0
O2Lance On Tm	MIN	32	0	32	0	0	0
CLance On Tm	MIN	19	0	19	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	411.1	157.4	373.7	000.0	000.0	000.0
Flux	Tons	000.0	000.0	000.0	000.0	000.0	000.0
Average Power	Kwh/hr	37294.0	000.0	000.0	000.0	000.0	000.0
O2 ton	SCF/Ton	004.2	000.0	003.8	000.0	000.0	000.0
Gas Ton	SCF/Ton	000.2	000.0	000.2	000.0	000.0	000.0
Carbon Ton	LBS/Ton	031.0	000.0	028.2	000.0	000.0	000.0

COMMENTS

mike

	ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
	MAX	0.17400	1.05000	0.02000	0.01000	0.25000	0.03000	0.00000	0.01500	0.00000	0.40000	0.30000	0.20000	0.20000	0.05000	0.02000	0.00400	0.00000	0.00000	0.02500	0.00050	0.00000	0.00000
	MIN	0.14500	0.95000	0.00000	0.00000	0.15000	0.01800	0.01500	0.00000	0.00150	0.35500	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01500	0.00000	0.00000	0.00000
	AIM	0.16000	1.00000	0.00000	0.00000	0.18000	0.02500	0.00000	0.00000	0.00000	0.37800	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.02000	0.00000	0.00000	0.00000
19:04:25	E1	0.06100	0.12000	0.00500	0.08200	0.00100	0.12900	0.10400	0.00460	0.00110	0.13400	0.23000	0.09000	0.12000	0.04000	0.00900	0.00200	0.00200	0.00100	0.00100	0.00020	0.00000	0.00000

IPSCO STEEL INC.
Montpelier Works

HEAT: A3C071 MSP: 24160

EVENTS		
TIME	KWH	Description
19:07:52	0070900	Ladle Weigth
19:07:49	0070900	End Tapping
19:06:06	0070900	Start Tapping
19:04:25	0000000	Chemical Analysis Received
18:58:27	0070900	Temperature <2887> O2 <4430> C <2965>
18:57:19	0070900	Temperature <2862> O2 <5520> C <2965>
18:55:36	0070900	Temperature <2838> O2 <5520> C <2965>
18:55:14	0070900	Burners Off
18:54:42	0070900	Temperature <2919> O2 <5520> C <175>
18:54:22	0070900	Power Off
18:51:57	0067300	Power On
18:51:36	0067300	Temperature <2758> O2 <1120> C <110>
18:51:15	0067300	Power Off
18:48:27	0063000	Power On
18:48:20	0063000	Temperature <2755> O2 <1770> C <90>
18:47:59	0063000	Power Off
18:34:21	0041300	Power On
18:34:20	0041300	Power Off
18:34:19	0041300	Power On
18:33:28	0041300	Power Off
18:21:49	0025800	Material Addition
18:21:04	0025300	Power On
18:08:37	0025300	Power Off
18:08:19	0025000	Power On
18:08:17	0025000	Power Off
18:08:16	0025000	Power On
18:07:41	0024900	Power Off
18:01:39	0019100	Power On
17:55:02	0019000	Charge
17:50:13	0019000	Power Off
17:42:17	0007000	Material Addition
17:40:38	0004500	Burners On
17:36:09	0000000	Melting
17:36:08	0000000	Power On

EVENTS		
TIME	KWH	Description
17:13:42	0000000	Charge
17:12:56	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: B3C524 MSP: 25191

Start Time: 06-Mar-2003 18.08.51
End Time : 06-Mar-2003 19.57.47
TapToTap Time : 108 (min)

Heat Order : 0386901
Grade : A/SA516-70
Ladle #: 2 CrewID: 4 OperatorID: 8

START	DUR	DELAY REASON
19 55.22	0000	Operational, Tap
19:49:52	0005	Operational, Slagoff
19 45:08	0001	Operational, Temp and Sample
19:10 53	0003	Operational, Charge
18:09:38	0046	Operational, Charge run B

CHARGES	AMOUNT
Charge 1	244900
Charge 2	119900
Charge 3	0
Charge 4	0
Charge 5	0

ADDITIONS	LBS
SiMn	0003340
75% Fe Si	0000080
4oz AL Con	0000520
LSR	0004400
Carbon	0001950
Dololime	0007600
HiCal Lime	0004250

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	69000	12000	57000	0	0	0
O2 Burner	SCF	94	14	80	0	0	0
Gas Burner	SCF	35	7	28	0	0	0
O2 Lance	SCF	773	0	773	0	0	0
Carbon Lance	LBS	4783	0	4783	0	0	0
TIMES							
Melting Tm	MIN	108	57	51	0	0	0
Power on Tm	MIN	48	9	38	0	0	0
Burner On Tm	MIN	51	6	45	0	0	0
O2Lance On Tm	MIN	36	0	36	0	0	0
CLance On Tm	MIN	20	0	20	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	416 1	098 0	378 3	000 0	000 0	000 0
Flux	Tons	000 0	000.1	000 0	000 0	000 0	000 0
Average Power	Kwh/hr	48868 8	000 0	000 0	000 0	000 0	000 0
O2 ton	SCF/Ton	004.7	000 0	004 2	000 0	000.0	000 0
Gas Ton	SCF/Ton	000.2	000 1	000 2	000 0	000 0	000 0
Carbon Ton	LBS/Ton	028 8	000 0	026.2	000 0	000 0	000 0

COMMENTS

mike

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CC	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.00000	0.00000	0.00000	0.00000	0.00000	0 00000	0 00000	0.00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0.00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000
MIN	0.00000	0.00000	0 00000	0.00000	0 00000	0.00000	0.00000	0 00000	0.00000	0 00000	0 00000	0 00000	0.00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000
AIM	0 00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0 00000	0 00000	0.00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000

IPSCO STEEL INC.
Montpelier Works

HEAT: B3C524 MSP: 25191

---------- EVENTS ----------

TIME	KWH	Description
19:57:52	0069000	Ladle Weigth
19:57:48	0069000	End Tapping
19:56:11	0069000	Start Tapping
19:51:42	0069000	Burners Off
19:50:52	0069000	Temperature <2963> O2 <4550> C <213>
19:49:50	0069000	Power Off
19:46:50	0064500	Power On
19:46:10	0064500	Temperature <2768> O2 <953> C <3098>
19:45:06	0064500	Power Off
19:29:19	0039600	Material Addition
19:14:35	0019200	Power On
19:10:51	0019200	Power Off
19:06:02	0012000	Charge
19:02:18	0007000	Power On
19:02:09	0007000	Power Off
19:00:02	0004200	Burners On
18:56:00	0000000	Melting
18:55:59	0000000	Power On
18:49:06	0000000	Material Addition
18:33:06	0000000	Charge
18:08:53	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: A3C073 MSP: 25191

Start Time: 06-Mar-2003 21:09:34
End Time : 06-Mar-2003 22:42:41
TapToTap Time : 93 (min)

Heat Order : 0386904
Grade : ABS-A/A36
Ladle # : 0 CrewID : 2 OperatorID. 8

START	DUR	DELAY REASON
22:39 07	0000	Operational, Tap
22:35 07	0004	Operational, Slagoff
22.20.49	0014	Operational, Blow Carbon
22:12:43	0000	Other, TE 402 Combustion door temp
22.08:43	0000	Other, TE 402 Combustion door temp
22.02.21	0000	Operational, Sidewall RTD trip
21:13:21	0035	Down Stream Processes, Waiting on Caste
21:10:21	0003	Operational, Turnaround

CHARGES	AMOUNT
Charge 1 :	197850
Charge 2 :	0
Charge 3 :	0
Charge 4 :	0
Charge 5 :	0

ADDITIONS	LBS
SiMn	0003550
75% Fe Si	0000120
4oz AL Con	0000620
LSR	0004400

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	38700	38700	0	0	0	0
O2 Burner	SCF	49	49	0	0	0	0
Gas Burner	SCF	22	22	0	0	0	0
O2 Lance	SCF	925	925	0	0	0	0
Carbon Lance	LBS	5335	5335	0	0	0	0
TIMES							
Melting Tm	MIN	93	93	0	0	0	0
Power on Tm	MIN	30	30	0	0	0	0
Burner On Tm	MIN	39	39	0	0	0	0
O2Lance On Tm	MIN	39	39	0	0	0	0
CLance On Tm	MIN	21	21	0	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	430.3	391.2	000 0	000 0	000 0	000 0
Flux	Tons	000.0	000 1	000.0	000.0	000 0	000 0
Average Power	Kwh/hr	195949.4	000.0	000 0	000.0	000 0	000.0
O2 ton	SCF/Ton	010 3	009 4	000.0	000 0	000 0	000 0
Gas Ton	SCF/Ton	000.2	000.2	000 0	000 0	000 0	000 0
Carbon Ton	LBS/Ton	059.3	053 9	000 0	000 0	000 0	000 0

COMMENTS

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CO	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0 00000	0 00000	0.00000	0 00000	0.00000	0.00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0.00000	0 00000	0 00000	0 00000	0 00000
MIN	0 00000	0.00000	0.00000	0.00000	0.00000	0.00000	0 00000	0.00000	0.00000	0.00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000
AIM	0.00000	0 00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0 00000	0 00000	0 00000	0 00000	0.00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000

IPSCO STEEL INC.
Montpelier Works

HEAT: A3C073 MSP: 25191

---------- EVENTS ----------

TIME	KWH	Description
22 42.47	0038700	Ladle Weigth
22:42.43	0038700	End Tapping
22 42:26	0038700	Start Tapping
22:33:51	0038700	Temperature <2925> O2 <2920> C <154>
22 33.46	0038700	Burners Off
22:30:50	0038700	Charge
22:30:28	0038700	Temperature <2891> O2 <1890> C <308>
22:22.42	0038700	Temperature <2857> O2 <856> C <3033>
22:20:47	0038700	Power Off
22.13:04	0027100	Power On
22:12:41	0027100	Power Off
22.09:15	0022800	Power On
22:08:41	0022700	Power Off
22:03:04	0016000	Power On
22:02.19	0016000	Power Off
21:54.01	0004900	Burners On
21:48:22	0000000	Melting
21:48:21	0000000	Power On
21.09.36	0000000	TurnAround

IPSCO STEEL INC.
Montpelier Works

HEAT: B3C525 MSP: 25191

Start Time: 06-Mar-2003 19.58 50
End Time : 07-Mar-2003 00.10.29
TapToTap Time : 251 (min)

Heat Order : 0386903
Grade . ABS-A/A36
Ladle #: 0 CrewID: 4 OperatorID 8

START	DUR	DELAY REASON
00:06 45	0000	Operational, Tap
00:04:45	0002	Operational, Slagoff
00:00.06	0001	Operational, Temp and Sample
23:27:24	0003	Operational, Charge
20:48:37	0141	Other, New Other
19.59:37	0049	Operational, Charge Run A

CHARGES	AMOUNT
Charge 1	242600
Charge 2	139100
Charge 3	0
Charge 4	0
Charge 5	0

ADDITIONS	LBS
SiMn	0003560
75% Fe Si	0000130
4oz AL Con	0000550
LSR	0004400
Carbon	0001920
Dololime	0007615
HiCal Lime	0004255

COMSUMTION	Units	Total	Charge 1	Charge 2	Charge 3	Charge 4	Charge 5
Energy	KWH	73100	600	72500	0	0	0
O2 Burner	SCF	93	0	93	0	0	0
Gas Burner	SCF	35	0	35	0	0	0
O2 Lance	SCF	813	0	813	0	0	0
Carbon Lance	LBS	4671	0	4671	0	0	0
TIMES							
Melting Tm	MIN	251	191	59	0	0	0
Power on Tm	MIN	49	1	48	0	0	0
Burner On Tm	MIN	50	0	50	0	0	0
O2Lance On Tm	MIN	33	0	33	0	0	0
CLance On Tm	MIN	22	0	22	0	0	0
PERFORMANCE							
Kwh/Ton	Kwh/Ton	421 3	004 9	383.0	000 0	000 0	000 0
Flux	Tons	000 0	000.0	000.0	000 0	000 0	000 0
Average Power	Kwh/hr	18795.8	000 0	000 0	000 0	000 0	000 0
O2 ton	SCF/Ton	004 7	000.0	004.3	000 0	000 0	000.0
Gas Ton	SCF/Ton	000 2	000 0	000.2	000.0	000 0	000 0
Carbon Ton	LBS/Ton	026 9	000 0	024.5	000 0	000 0	000 0

COMMENTS

#1 anode return line pluged up mike

ELEM	C	Mn	P	S	Si	Al	SA	N	CA	CQ	Cu	Ni	Cr	Mo	Sn	Pb	Cb	V	Ti	B		
MAX	0.00000	0.00000	0 00000	0.00000	0.00000	0.00000	0 00000	0.00000	0.00000	0.00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0.00000	0 00000
MIN	0 00000	0.00000	0 00000	0.00000	0 00000	0.00000	0.00000	0.00000	0 00000	0.00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0.00000	0.00000	0 00000	0 00000	0 00000
AIM	0 00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0 00000	0 00000	0.00000	0.00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000	0 00000

IPSCO STEEL INC.
Montpelier Works

HEAT: B3C525 MSP: 25191

---------- EVENTS ----------

TIME	KWH	Description
00:10:36	0073100	Ladle Weigth
00:10:32	0073100	End Tapping
00:08:05	0073100	Start Tapping
00 05.22	0073100	Temperature <3003> O2 <5510> C <81>
00 04:54	0073100	Burners Off
00:04.43	0073100	Power Off
00:04.00	0072000	Temperature <2963> O2 <4360> C <78>
00:01:15	0067900	Power On
00:00:04	0067900	Power Off
23:49:40	0051400	Material Addition
23:31:21	0024100	Power On
23:27:22	0024100	Power Off
23:14:00	0004400	Burners On
23:10:59	0000600	Charge
23:09:49	0000000	Melting
23:09:48	0000000	Power On
21:15:40	0000000	Material Addition
20:17:08	0000000	Charge
19:58:51	0000000	TurnAround

EXECUTIVE SUMMARY

On October 14-16, 2002 Ambient Air Services, Inc. conducted performance testing at the IPSCO Steel (Iowa) Facility located in Montpelier, Iowa. Table 1-1 summarizes the results of the testing. All results demonstrate compliance with the permit limitations.

TABLE 1-1

EMISSION TEST RESULTS
EXECUTIVE SUMMARY
IPSCO STEEL, INC.
MONTPELIER, IOWA

OCTOBER 14-16, 2002

SOURCE	PARAMETER	ALLOWABLE	TEST RESULTS
EAF Baghouse Stack	Particulate Matter (PM)	0.0052 gr/dscf	0.0023 gr/dscf
	Particulate Matter plus Condensable Particulate Matter (PM & CPM) (Iowa Compliance Sampling Manual)	0.335 lbs/ton 293.5 tons/year	0.204 lbs/ton 121.6 tons/year
	PM-10 Particulate plus Condensable Particulate Matter (PM-10 & CPM)	0.335 lbs/ton 293.5 tons/year	0.160 lbs/ton 95.1 tons year
	Opacity (VE)	3% Opacity	0.0% opacity
	Sulfur Dioxide (SO_2)	0.70 lbs/ton 613.2 tons/year	0.36 lbs/ton 240.4 tons/year
	Oxides of Nitrogen (as NO_2)	0.80 lbs/ton 700.8 tons/year	0.10 lbs ton 64.6 tons year
	Volatile Organic Compounds (VOC)	0.18 lbs/ton 157.7 tons/year	0.12 lbs/ton 79.3 tons year
	Carbon Monoxide (CO)	1.93 lbs/ton 1690.7 tons/year	0.84 lbs/ton 567.7 tons year
	Lead (Pb)	0.00055 lbs/ton 0.49 tons/year	0.00022 lbs/year 0.13 tons/year
	Beryllium (Be)	0.0004 tons/year $9.1E^{-5}$ lbs/hour	0.0003 tons/year $7.5 E^{-5}$ lbs/hour
	Flouride (F)	2.98 tons/year 0.68 lbs/hour	0.56 tons/year 0.13 lbs/hour

TABLE 1-1

IPSCO STEEL, INC.
Montpelier Mill
Summary of
Performance Emission Testing Specifications

IDNR Permits 94-A-548-S3, 94-A-561-S2, 94-A-562-S2, 94-A-563-S3 and 94-A-564-S2

Test Date October 14-16, 2002

Source #	Source Description	Approx. Stack Flow	Tests	EPA Method	# of Runs	Min. hrs/test or Min.vol.
1	EAF/LMF (BH Exhaust Stack)	835,000 dscfm	PM10	40CFR51 AppM, 201A with 202	3	6.6 hr
			PM/Pb	40CFR60 AppA, Meth 5/12	3	4.0 hr or 160 actual CF
			NOx	40CFR60 AppA, Meth 7E	3	2 heats per run (approx 1.5 hrs)
			SO2	40CFR60 AppA, Meth 6C	3	2 heats per run (approx 1.5 hrs)
			CO	40CFR60 AppA, Meth 10	3	2 heats per run (approx 1.5 hrs)
			VOC	40CFR60 AppA, Meth 25A	3	2 heats per run (approx 1.5 hrs)
			Bc	40CFR61 AppB, Meth 104	1	3.2 hr or 143 actual CF
			Opacity	40CFR60 AppA, Meth 9	1	3 hr (aggregate total) (BH Stack)
			F-	40CFR60 AppA, Meth 13B	1	3.2 hr or 143 actual CF
	EAF Melt Shop Building	N/A	Opacity	40CFR App A, Meth 9	1	3 hr (aggregate total) Melt Shop Building
	EAF Baghouse Dust Handling System	N/A	Opacity	40 CFR App A, Meth 9	1	3 hrs per emission point aggregate total (See Note 1)
2	LMF/Caster Roof	N/A	Opacity	40 CFR App A, Meth 9	1	1 hour observation
3	Caster / Maintenance Roof	N/A	Opacity	40 CFR, App A, Meth 9	1	1 hour observation
4	Rolling Mill Roof	N/A	Opacity	40 CFR, App A, Meth 9	1	1 hour observation

Note 1 - 3 of 4 emission points from the dust handling system were observed for 3 hours. The 4th point, truck load out entrance door, was observed for 5 minutes. A truck load out takes approximately 5 minutes to complete, two trucks are loaded per day. Mr. Scott Potsma from USEPA Region VII approved this reduced time period.

Ambient Air Services, Inc. of Starke, Florida, has completed the testing described in this report for IPSCO Steel, Inc., Muscatine, Iowa facility. To the best knowledge and abilities we certify that all information, facts and test data are true and correct. Information supplied to AASI for use in this report from IPSCO Steel, Inc. is perceived to be accurate and is used as such where necessary. This report was prepared and certified by:

David C. Sholtes
Report Review

Joseph L. Cooksey
Project Manager

1.0 INTRODUCTION

IPSCO Steel, Inc. contracted with Ambient Air Services, Inc. to perform compliance testing at their facility located in Muscatine, Iowa.

This testing was conducted in order to satisfy specific testing requirements in permit numbers 94-A-548-S3, 94-A-561-S2, 94-A-562-S2, 94-A-563-S3 and 94-A-564-S2 for emissions associated IPSCO Steel's facility.

A summary of the testing conducted is summarized in Table 1-1, the permit limitations for each parameter tested are summarized in Table 1-2.

The testing was conducted the week of October 14, 2002.

Questions and or comments regarding this test report or process conditions should be directed to:

Ms. Stephanie Kreiter
IPSCO Steel
1770 Bill Sharp Blvd.
Muscatine, IA 52761
Phone#: (563) 381-5584
FAX #: (563) 381-5406

or

Joseph L. Cooksey
Ambient Air Services, Inc.
106 Ambient Air Way
Starke, FL 32091
Phone#: (904) 964-8440
FAX#: (904) 964-6775

The test was conducted by the following personnel:

NAME	AFFILIATION	RESPONSIBILITY DESCRIPTION
Mr. Joseph L. Cooksey	AASI	Project Manager
Mr. Randy L. Weston	AASI	Test Team Leader
Mr. David R. Salter	AASI	Test Team
Mr. Joseph L. Elliott	AASI	Test Team
Mr. Paul E. Paulk	AASI	Test Team
Ms. Stephanie Kreiter	IPSCO Steel	Environmental Coordinator
Mr. Mark Stone	IDNR	State of Iowa Observer

1.2 EAF/LMF Baghouse Emission Limitations

The permitted emission limitations for the EAF/LMF baghouse stack at a steel production of 200 tons per hour are as follows:

TABLE 1-2

IPSCO STEEL Montpelier, Iowa Facility Emission Limitations at 200 Tons Per Hour					
Pollutant	**Lbs/ton**	**Lbs/Hr.**	**Tons/year**	**Concentration**	**Designation**
PM (PM)	N/A	N/A	N/A	0.0052 gr/dscft	NSPS
PM (PM & CPM)	0.335	N/A	293.5	NA	BACT
PM10 (PM-10 & CPM)	0.335	N/A	293.5	N/A	BACT
Opacity (VE)	N/A	N/A	N/A	3%	NSPS, BACT
SO2	0.70	N/A	613.2	N/A	
NOx	0.80	N/A	700.80	N/A	
VOC	0.18	N/A	157.7	N/A	BACT
CO	1.93	N/A	1690.7	N/A	BACT
Lead (Pb)	0.00055	N/A	0.49	N/A	BACT
Beryllium (Be)	N/A	9.1×10^{-5}	0.0004	N/A	SM
Fluoride (F)	N/A	0.68	2.98	N/A	SM

2.0 TEST METHODOLOGIES

2.1 Total Particulate and Lead Testing:

USEPA Method 5 and 12 sampling was conducted on the EAF baghouse stack. The following is a listing of parameters and equipment specifications:

Number of traverse points per run	:	24 points
Number of minutes per traverse point	:	10 minutes
Data recorded	:	each 5 minutes (minimum)
Total sampling time per run	:	240 minutes
Total number of runs	:	3 runs
Stack inside diameter	:	19 feet, 0 inches
Number of ports utilized	:	4
Number of points per port	:	6 per port

Point number	Distance from inside wall
1	4.8 inches
2	15.3 inches
3	26.9 inches
4	40.4 inches
5	57.0 inches
6	81.2 inches

Length of probe : 8 feet

Sampling Apparatus

1) Nozzle - Stainless Steel with sharp, tapered leading edge.

2) Probe - Stainless steel sheath with a 5/8 inch O.D. stainless steel insert wrapped with insulated nichrome wire heating element. Probe temperature will be controlled and capable of maintaining a temperature of 250°F.

3) Pitot tube - Standard "type S", attached to the probe.

4) Filter Holder - Pyrex glass with fritted glass filter support.

5) Impingers - Four (4) glass impingers connected in series with glass ball joint fittings. The first, third and fourth are the modified Greenburg-Smith design.

The second is the Greenburg-Smith design with a standard tip. All will be submerged in an ice bath during sampling runs.

6) Heated Filter Box - Insulated container with a controlled heating system capable of maintaining filter temperature not to exceed 273°F.

7) Meter Box/ Control Box - Module containing a vacuum gauge, leak free pump, dry gas meter with a minimum of one percent accuracy, valves and related equipment to maintain isokinetic sampling rate and determine sample volume.

8) Barometer - Aneroid type to measure atmospheric on-site pressure to ±0.05 inches of mercury.

9) Thermocouples - Type K thermocouples are utilized to monitor temperatures for stack gas, filter box, last impinger and dry gas meter.

Figures 2-1 and 2-2 show the PM/Pb and PM-10/CPM sampling schematics.

Test Procedure

Prior to performing the actual particulate matter sample runs, certain stack gas and stack gas parameters were determined. The preliminary data includes the average temperature, velocity head, and moisture content, the stack dimensions at the point where the tests were performed, as well as a check for cyclonic flow.

The stack gas temperature was determined by using a Type K thermocouple with a real time readout. Velocity head measurements were determined across the stack using a type "S" pitot tube with an oil filled inclined manometer.

The sampling traverse points are selected so that a representative sample can be extracted from the gas stream. The traverse points are located in the center of equal areas, which are dependent upon equivalent duct diameters downstream from flow disturbances. The specific points selected followed the requirements of EPA Method 1.

FIGURE 2-1

Paticulate and Lead Sampling System

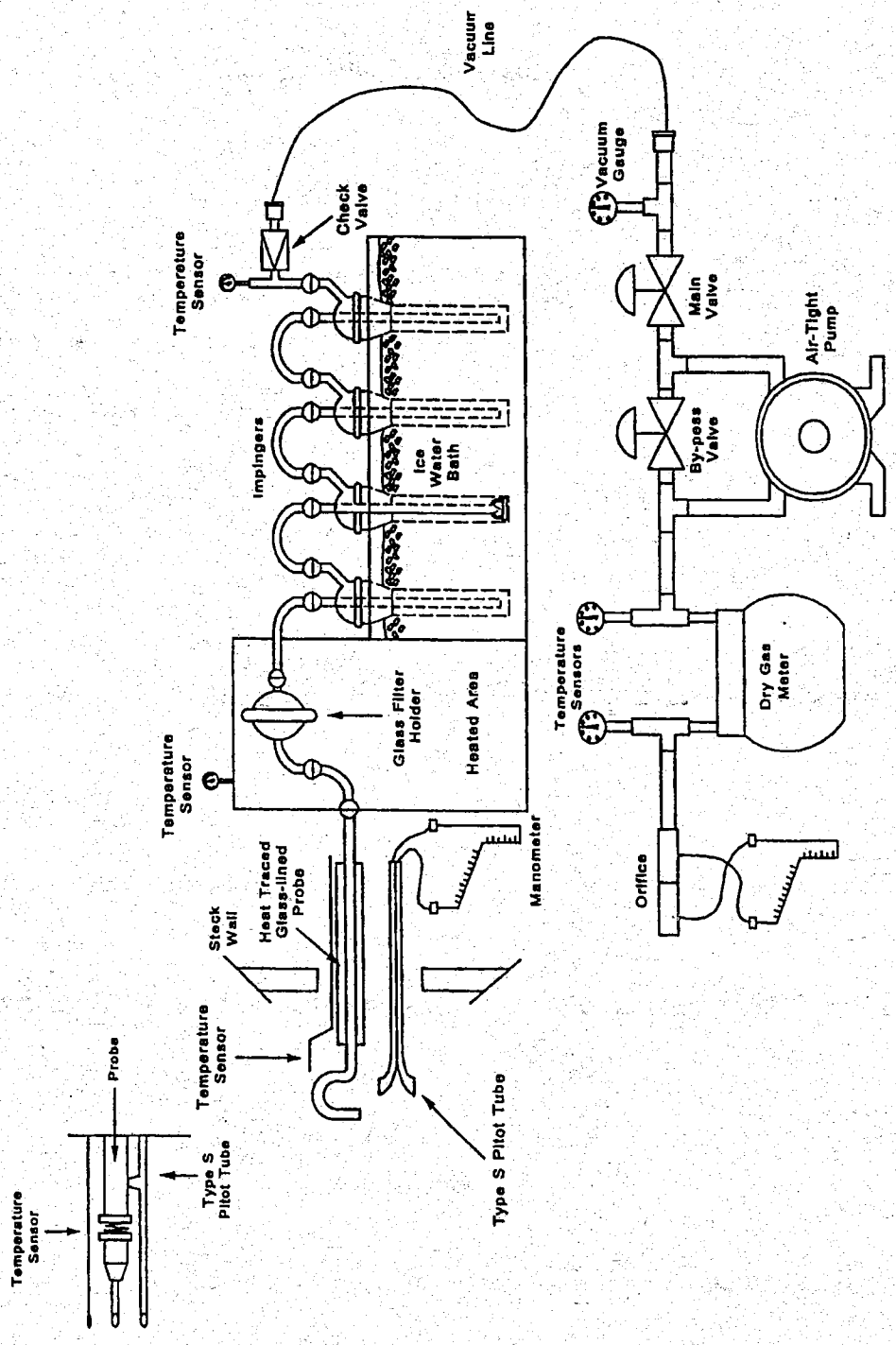


FIGURE 2-2

PM-10 and CPM Sampling System

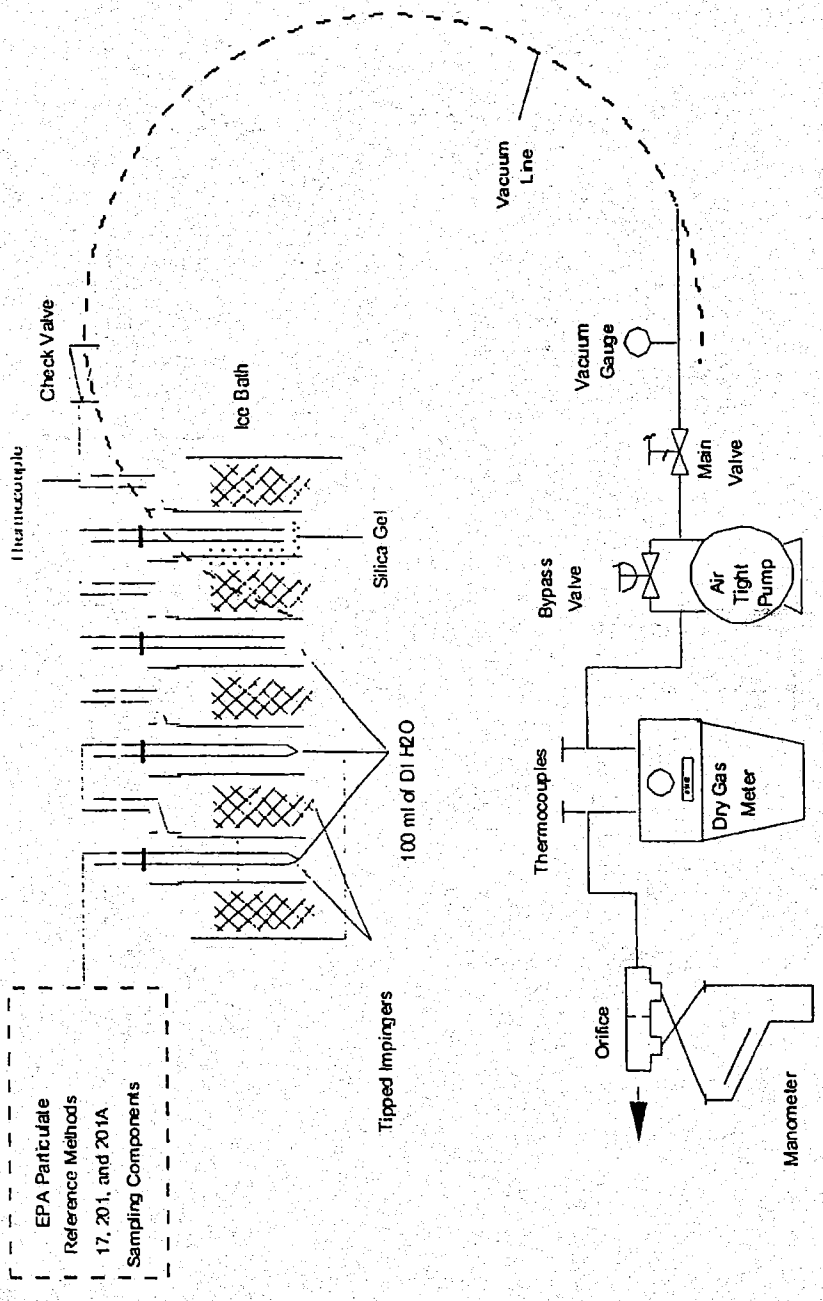


Figure 202-1. Schematic of Condensible Particulate Sampling Train

One particulate test run consist of sampling for a specified time at each traverse point. The type "S" pitot tube was connected adjacent to the sample probe so that an instantaneous velocity head measurement can be determined at each traverse point during the test run. The stack gas temperature was measured throughout each test. Isokinetic sampling rates for each traverse point during each test run were used.

The gases sampled passed through the following components: a stainless steel nozzle and probe; a glass fiber filter; two impingers with 100 ml of 0.1N Nitric Solution; one impinger dry; one impinger with a minimum of 400 grams of silica gel (the second impinger had a standard tip, while the first, third, and fourth impingers had modified tips with ½-inch I.D. openings); a flexible sample line; an air-tight pump; a dry test meter; and finally a calibrated orifice.

Sample recovery was accomplished by the following procedures in accordance with Method 5:

1. The pre-tared filter was removed from its holder and placed in Container 1 and sealed.
2. All sample exposed surfaces prior to the filter were washed with acetone 1st and placed in Container 2, and then washed with 0. 1N Nitric and saved for lead analysis (Container 3).
3. The volume of 0.1N Nitric Solution from the first three impingers are measured for the purpose of calculating the moisture in the stack gas.
4. All impinger catches from first three impingers are collected in brown glass storage containers for analysis.
5. The used silica gel from the fourth impinger was transferred to the original tared container and sealed.

Laboratory Analysis

The sample containers from each sample run were analyzed according to the following procedures:

1. The filter of Container 1 was transferred to a tared glass weighting dish, dried and desiccated (desiccation environment 20-25° C, 40 ±5% RH) to a constant weight (constant weight is defined as two repeat weighings at 6 hour intervals with a difference in weights not more than 0.5 mg).

2. The solvent from Container 2 was transferred to a tared breaker and evaporated to dryness at a temperature below its boiling point. It will then be desiccated to a constant weight (see desiccation and constant weight specification in 1).

3. All impinger catches (0.1N Nitric solutions) are processed by approved lab along with filter from Container 1 for determination of total lead concentration.

The used silica gel in its tared container was weighted to the nearest one-half (0.5) gram.

Data

All field data sheets, calculation sheets and nomenclature definitions are included in the Appendices of the test report. An example calculation from a similar compliance test is included in Appendix A of this report.

2.2 Visible Emission Testing:

Visible emission observations were made on the baghouse exhaust stack, the EAF portion of the meltshop building and the dust handling system. Also, 60 minute visible emission observations were made on the following three rooflines:

OBSERVATION POINT	SOURCE OBSERVED
LMF / Caster Roof	Ladle Preheaters, Ladle Dryers
Caster / Maintenance Roof	Tundish Dryers
Rolling Mill Roof	Temperature Retention Units

These observations included the ladle dryers, ladle pre-heaters and the tundish dryers, which are part of one or each of these rooflines.

As required by NSPS AAa, the baghouse stack, meltshop building and dust handling system were observed for a minimum of 180 minutes each. All visible observations were performed concurrently with the EAF baghouse particulate testing.

NOTE:

Mr. Mark Stone of IDNR requested, on site, that the Dust Handling system visible emission test emcompass the following observations points:

1) Top of Dust Handling Silo Building - 3 hours
2) Rectangular Duct 1 on Dust Handling Silo Building - 3 hours
3) Rectangular Duct 2 on Dust Handling Silo Building - 3 hours
4) Garage door where trucks drive into dust handling load out area. This area was to be observed during truck load out for 3 hours.

Points 1, 2, and 3 were each observed for 3 hours. Point 4 was observed for a period of 5 minutes, the time it takes to load 1 truck. Mr. Scott Potsma of USEPA Region VII approved this reduced time.

2.3 Source Operating Parameters:

In accordance with NSPS AAa Section 60.274a(c), (f), (g), and (h) the following information was recorded during the compliance testing:

1) Control system fan amperes and damper positions
2) Furnace pressure in the free space inside the EAF.
3) Charge weights and materials
4) Tap weights and material
5) Heat times, including start and stop times, and a log of process operation including periods of down time.
6) Control device operation log

These items were recorded by IPSCO personnel and included in appendices of this report.

2.4 Calculation of Production Rate:

It was the intent of IPSCO and AASI to suspend testing at any time when the facility was not charging, melting, tapping or otherwise processing steel in a normal fashion. Delays of less than 10 minutes in duration were considered part of normal operation, however, delays in excess of 10 minutes were considered abnormal operation.

Since the testing was suspended during periods the mill experienced a non-normal delay, the process weight was adjusted to reflect only the time in which both the mill was producing steel and the particulate test was being conducted. To the extent possible all test runs include an integral number of heats in each test run.

The mill experienced a significant delay during Run 1 of the Method 5 testing. Due to a failure of communications between the meltshop and testers the run was not stopped. This resulted in AASI aborting Run 1, changing out the filter, impinger water, silica gel, cleaning the probe, and restarting Run 1. The samples were disgarded since they only had approximately 1 of 4 hours of sampling with the process running. The data sheets from the aborted runs are included in the appendix section. There was a delay during Run 2, communications were made, the run suspended until the process was operational. The data sheets reflect the delays.

2.5 Other Issues:

Run Duration - Integral Number Heat(s)

Since this Ipsco Steel facility operates a twin shell furnace in which only one furnace shell melts steel at a time, an attempt was made to sample an integral number of heat cycles (charge to tap) for each parameter tested. Since integral number of heats and 6.6 hours very rarely coincide with each other, the run time was extended as necessary to achieve an intregral number of heat cycles. The sampling began when an arc was struck in one shell of the furnace. The run continued until the prescribed time for the run expired. At that point, a decision was made as to how much longer the run needed to be extended in order to test through the next tap of the furnace (or charge of opposite shell whichever occurs first). The test points were repeated in reverse order until the end of the current heat was reached.

It is noted that this method potentially biased the results in favor of the fourth port tested but to comply with the requirement set forth in 40CFR60 60.275a(e)(1) it was done.

2.6 Gaseous Emission Sampling

2.6.1 Methodology

Continuous instruments were used to measure CO, NO_x, SO_2 and VOC emissions. For the arc furnace shop the sample was obtained from the baghouse stack. A fully extractive sample withdrawal system was used a schematic of the sampling system is shown in figure 2-3. The VOC was sampled on a wet basis and carbon monoxide, sulfur dioxide and oxides of nitrogen on a dry basis. Flow was determined on the stack in accordance with Methods 1-4 (flows obtained from Method 5 testing data which was conducted concurrently).

Gaseous emission sampling consisted of three runs, each run covering two furnace heats. The sampling probe was positioned in the center 10% of the stack using the gaseous test port located at the particulate test port elevation. The test covered 2 heats per run. These tests were performed concurrent with the particulate testing to the extent possible. Utilizing the flow rates (SCFM) measured for the particulate sampling and production data from the gaseous testing periods, mass emissions were calculated in tons/year and lbs/ton of liquid (tapped) steel produced. Run 3 of the gaseous testing was completed after the completion of the PM test for the day. For Run 3 a flow traverse was conducted for each furnace heat.

As stated earlier, for VOC a fully extractive heated probe system was used. This equipment provides a controlled temperature, Teflon coated path wherein the sample is conveyed to the analytical instrument. Temperature was controlled to 250°F ±10°F to prevent hydrocarbon and moisture condensation problems.

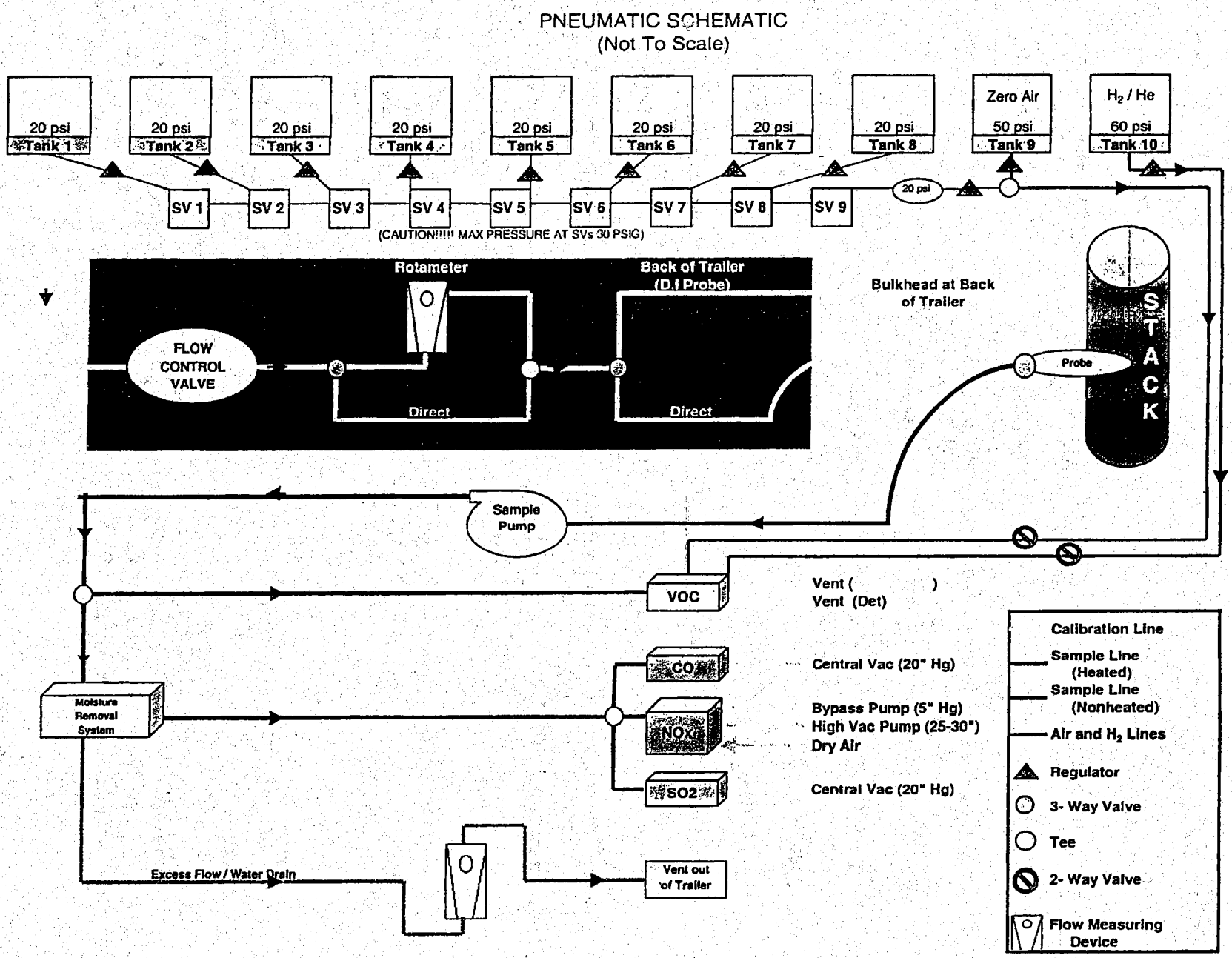

PNEUMATIC SCHEMATIC
(Not To Scale)
20 psi Tank 1
20 psi Tank 2
20 psi Tank 3
20 psi Tank 4
20 psi Tank 5
20 psi Tank 6
20 psi Tank 7
20 psi Tank 8
Zero Air 50 psi Tank 9
H2 / He 60 psi Tank 10
SV 1
SV 2
SV 3
SV 4
SV 5
SV 6
SV 7
SV 8
SV 9
20 psi
(CAUTION!!!!! MAX PRESSURE AT SVs 30 PSIG)
Rotameter
Back of Trailer (D.I Probe)
FLOW CONTROL VALVE
Direct
Direct
Bulkhead at Back of Trailer
STACK
Probe
Sample Pump
VOC
Vent ( )
Vent (Det)
CO
NOX
SO2
Central Vac (20" Hg)
Bypass Pump (5" Hg)
High Vac Pump (25-30")
Dry Air
Central Vac (20" Hg)
Moisture Removal System
Excess Flow / Water Drain
Vent out of Trailer
Calibration Line
Sample Line (Heated)
Sample Line (Nonheated)
Air and H2 Lines
Regulator
3- Way Valve
Tee
2- Way Valve
Flow Measuring Device

Figure 2-3

All calibration gases were introduced to the system at a 3 way valve located at the sample probe.

Data Recording

An electronic data recorder which is based on micro-processor technology was used to record all instrument data. The recorder interrogates each analytical instrument signal on a once-every-one-second basis and for this work was instructed to accumulate 60 of these one-second readings and store the average into recorder memory. The data bank consists of a series of one minute averages. In retrieving the data from the computerized database, scaling factors were entered to reflect the appropriate calibrations which occurred immediately before collecting the data set of current interest. The analysis of NO_x, CO, SO_2 and VOC gaseous species was carried out as follows:

<u>Oxides of Nitrogen</u> - Oxides of Nitrogen from this facility was measured using EPA Method 7E. Table 2.6.1 relates the required performance specifications of Method 7E to those presented by the manufacturer of the TEI Model 42 to be used in these tests. The instrument was calibrated over a nominal range of 0-100 ppm. It is noted that normal practice is to have the instrument calibrated and operated at a full scale range two times the permitted limit. In this case, that range would be 58 ppm. However in the process of making steel, it is very common to have short duration peaks well above this level. To accommodate the peaks normally present, a 0-100 ppm range was deemed necessary.

Results from the test are reported in mass per unit time with all NO_x converted to the species NO_2 as required by IDNR. At the beginning of each test series zero gas plus two calibration gases were used to perform calibration checks. At the completion of each of the three runs, zero gas plus one

calibration gas was used as a calibration check.

TABLE 2.6.1

OXIDES OF NITROGEN SYSTEM PERFORMANCE SPECIFICATIONS METHOD 7E VS THERMO ENVIRONMENTAL INSTRUMENTS MODEL 42		
	METHOD 7E	TECO 42
Calibration error zero, mid and high gases	Less than ±2% span	±1% of full scale
Sampling system bias for zero, mid and high gases	Less than ±5% span	±1% of full scale
Zero Drift	Less than ±3% of span over the run period	Negligible
Calibration Drift	Less than ±3% of span over the run period	±1% of full scale

Carbon Monoxide - Carbon monoxide was measured using an adaptation of EPA Method 10. Analyses was on a continuous basis using a TEI Model 48 gas filter correlation type instrument. The instrument was operated on a nominal 600 parts per million range and obtain its sample from the sample withdrawal system. The required instrumental specifications from Method 10 and the specifications of the TECO Model 48 are displayed in Table 2.6.2 as an indication that this instrument is at least equivalent to the NDIR instrumentation described in EPA Method 10.

It is noted that normal practice is to calibrate and operate the instrument on a full scale range two to three times the permitted concentration limit. In this case, that range would be 220-330 ppm. However in the steel making process, it is not uncommon to routinely have concentration peaks of 300-400 ppm for brief periods of time. In order to have the peaks remain within the calibrated range of the instrument, a range of 0-600 ppm was selected.

At the beginning of the test series, calibrations were performed using zero and three calibration gases. Following the completion of each run a zero and single point calibration check was performed.

TABLE 2.6.2

PERFORMANCE SPECIFICATIONS CARBON MONOXIDE ANALYZERS		
	METHOD 10 SPECIFICATION	TEI 48
Range (minimum)	0 - 1000 ppm	0 - 1000 ppm
Output (minimum)	0 - 10 mv	0 - 1 volt
Minimum Detectable Sensitivity	20 ppm	0.10 ppm
Rise Time (90%)	30 seconds max	(95%) 60 seconds
Fall Time (90%)	30 seconds max	(95%) 60 seconds
Zero Drift (maximum)	10% in 8 hours	±0.2 ppm in 24 hours
Span Drift (maximum)	10% in 8 hours	±1% in 24 hours
Precision (minimum)	±2% of full scale	±0.1 ppm
Noise (maximum)	±1% of full scale	0.05 ppm
Linearity (max dev.)	2% of full scale	±1%
Interference Rejection Ratio	CO_2 - 1000 to 1 H_2O - 500 to 1	Negligible for CO_2, H_2O, SO_2 and NO_x

Volatile Organic Compounds - VOC emissions from this facility was measured using an adaptation of EPA Method 25A.

The instrument used for this testing, a TEI Model 51, measures total hydrocarbon concentrations through a flame ionization detector and associated electronics. As is commonly practiced, the instrument was calibrated on a range of 0-30 ppm with EPA protocol gases of propane, and thus the results are expressed as being equivalent to propane. Table 2.6.3 reviews the specifications of this instrument relative to the requirements of EPA Method 25A.

At the beginning of each test, a zero and 3 propane based calibration gases were used for calibrations. At the completion of each test run, zero plus one propane based calibration gas were injected.

It is recognized that the full scale range is normally selected to be no more than three times the permitted concentration. However, in the normal process of making steel, it is very common to have short duration VOC peaks well above the average. A range of 30 ppm was selected based on experience with other similar facilities.

TOTAL HYDROCARBONS SYSTEM PERFORMANCE SPECIFICATIONS METHOD 25A VS THERMO ENVIRONMENTAL INSTRUMENTS MODEL 51		
	METHOD 25A	TEI 51
Calibration error zero, mid and high gases	Less than ±5% calibration gas value	2% of reading plus span gas accuracy
Zero Drift	Less than ±3% of span	Less than ±1% of full scale in 24 hours
Calibration Drift	Less than ±3% of span	Less than ±1% of full scale in 24 hours

Flow, Oxygen, and Carbon Dioxide

US EPA Methods 1-4 was utilized to determine stack gas velocity, volumetric flow rates and gas molecular weight under actual as well as standard conditions (68 F, 29.92 inches of mercury).

Sulfur Dioxide

Sulfur Dioxide concentrations were determined using EPA Method 6C. A Thermo Environmental Instruments (TEI) Model 43-C was used. EPA protocol calibration gases of SO_2 in air were used at nominal levels of 0, 12, and 25 ppm (instrument range 0-30 ppm). Calibrations were performed before and after each test run. EPA Method 6C required correction factors were applied to the data based on the results of the calibrations.

It is noted that normal practice is to have the instrument calibrated and operated at a full scale range of three times (or less) the permitted limit. In the process of making steel, it is very common to have short term peaks well above this level. To accommodate the peaks associated with normal steel making, an instrument range of 0-30 ppm was selected.

Table 2.6.4 summarized the TEI Model 43C versus those required by Method 6c.

TABLE 2.6.4

SULFUR DIOXIDE SYSTEM PERFORMANCE SPECIFICATIONS METHOD 6C VS THERMO ENVIRONMENTAL INSTRUMENTS MODEL 43C		
	METHOD 6C	TEI 43C
Calibration error zero, mid and high gases	Less than ±2% span	±1% of full scale
Sampling system bias for zero, mid and high gases	Less than ±5% span	±1% of full scale
Interference Check	Less than ±7% of Method 6 result	NO < 3 ppb M-Xylene <2 ppb H2O < 2% of reading
Calibration Drift	Less than ±3% of span over the run period	±1% of full scale

2.7 Beryllium Testing

EPA Method 104 was utilized to sample for beryllium.

One test run was performed, the test run was a minimum of 3.2 hours in duration and sample a minimum of 143 actual cubic feet. The test run included, to the extent possible, an integral number of heats. The procedure for including an integral number of heats discussed under particulate testing was followed. The test parameters itemized under particulate testing were followed with the exception of the probe liner, nozzle, filter were glass as specified in Method 104.

2.8 Lead Testing

EPA Method 12 was utilized to sample for lead. Method 12 was combined with Method 5 testing as discussed within the Method 5 Section.

The stack parameters and sampling conditions are outlined in the particulate test section. The distilled water in the impingers was replaced with 0.1N HNO_3 as specified in Method 12.

2.9 Flouride

EPA Method 13B was utilized to sample flouride. One test run was performed, the test run was a minimum of 3.2 hours in duration and sampled a minimum of 143 actual cubic feet. The test run included, to the extent possible, an integral number of heats. The procedure for including an integral number of heats discussed under particulate testing was followed. The test parameters itemized under particulate testing were followed with the exception of the probe liner nozzle, etc, was glass or teflon as specified in the method.

2.10 PM-10 Particulate and Condensable Particulate

USEPA Methods 201a and 202 were combined for this test.

Note-Due to the length of the probe required the requirement to use a glass liner was not feasable. A stainless steel probe liner was used. This was listed as a modification in the Test Protocol and approved by IDNR.

Test conditions were as follows:

Number of Points per run	24
Number of Minutes per point	16 (nominally)
Data recorded each (minute)	6
Total time per test run	6.5 hours
Total number of runs	3
Stack ID	19 feet 0 inches
Ports	4
Points per port	6
Length of probe	10'

The sampling apparatus was the same as Method 5 except a PM-10 cut point cyclone was used.

Five impingers were used, the last 2 were filled with 400 grams of silica gel. This was to accommodate the long duration runs.

The "Back Half" (all components down stream of the cyclone) were cleaned as described in Method 202.

3.0 PROCESS DESCRIPTION

Electric arc furnaces (EAF) are used to produce carbon and alloy steels. The input material to an EAF is typically 100 percent scrap. Cylindrical, refractory lined EAF's are equipped with carbon electrodes to be raised or lowered through the furnace roof. With electrodes retracted, the furnace roof can be rotated aside to permit the charge of scrap steel by overhead crane. Lime and charge carbon are added to the charge buckets, alloying agents and materials are added during the tapping process. Electric current of the opposite polarity electrodes generates heat between the electrodes and through the scrap. After melting and refining periods, the slag and steel are poured from the furnace by tilting.

The production of steel in an EAF is a batch process. Cycles, or "heats", range from about 45 to 90 minutes to produce carbon steel. Scrap steel is charged to begin a cycle, and alloying agents and slag materials are added for refining. Stages of each cycle normally are charging and melting operations, refining (which usually includes oxygen blowing), and tapping.

4.0 RESULTS

The results from the testing demonstrate compliance with the listed permit requirements at the time of testing on October 14-16, 2002.

The results are summarized in the following tables:

4-0 Summary of Results

4-1 USEPA Method 5 Particulate Results

4-2 USEPA Method 5 & 202 Particulate Results

4-3 USEPA Method 201a & 202 Particulate Results

4-4 USEPA Method 6c Sulfur Dioxide Results

4-5 USEPA Method 9 Visible Emission Results

4-6 USEPA Method 7E Oxides of Nitrogen Results

4-7 USEPA Method 25a Volatile Organic Compounds

4-8 USEPA Method 10 Carbon Monoxide Results

4-9 USEPA Method 12 Lead Emission Summary

4-10 USEPA Method 104 Beryllium Emission Summary

4-11 USEPA Method 13B Flouride Emission Summary

TABLE 4-0

IPSCO STEEL, INC.
MONTPELIER, IOWA

SUMMARY OF TEST RESULTS

OCTOBER 14-16, 2002

SOURCE	PARAMETER	ALLOWABLE	TEST RESULTS
EAF Baghouse Stack	Particulate Matter (PM)	0.0052 gr/dscf	0.0023 gr/dscf
	Particulate Matter plus Condensable Particulate Matter (PM & CPM) (Iowa Compliance Sampling Manual)	0.335 lbs/ton 293.5 tons/year	0.204 lbs/ton 121.6 tons/year
	PM-10 Particulate plus Condensable Particulate Matter (PM-10 CPM)	0.335 lbs/ton 293.5 tons/year	0.160 lbs/ton 95.1 tons/year
	Opacity (VE)	3% Opacity	0.0% opacity
	Sulfur Dioxide (SO_2)	0.70 lbs/ton 613.2 tons/year	0.36 lbs/ton 240.4 tons/year
	Oxides of Nitrogen (as NO_2)	0.80 lbs/ton 700.8 tons/year	0.10 lbs/ton 64.6 tons/year
	Volatile Organic Compounds (VOC)	0.18 lbs/ton 157.7 tons/year	0.12 lbs/ton 79.3 tons/year
	Carbon Monoxide (CO)	1.93 lbs/ton 1690.7 tons/year	0.84 lbs/ton 567.7 tons/year
	Lead (Pb)	0.00055 lbs/ton 0.49 tons/year	0.00022 lbs/year 0.13 tons/year
	Beryllium (Be)	0.0004 tons/year $9.1E^{-5}$ lbs/hour	0.0003 tons/year $7.5\ E^{-5}$ lbs/hour
	Flouride (F)	2.98 tons/year 0.68 lbs/hour	0.56 tons/year 0.13 lbs/hour

TABLE 4-0 (continued)

EMISSION TEST RESULTS EXECUTIVE SUMMARY IPSCO STEEL, INC. MONTPELIER, IOWA OCTOBER 14-16, 2002			
SOURCE	**PARAMETER**	**ALLOWABLE**	**TEST RESULTS**
Meltshop Building	Opacity (VE)	6% Opacity	0.0% Opacity
Dust Handling System	Opacity (VE)	10% Opacity	0.0% Opacity
LMF Caster Roof	Opacity (VE)	10% Opacity	0.0% Opacity
Caster/Maintenance Roof	Opacity (VE)	10% Opacity	0.0% Opacity
Rolling Mill Roof	Opacity (VE)	10% Opacity	0.0% Opacity

Table 4-1

AASI

Particulate Emissions Summary
USEPA Method 5 (40 CFR Part 60 Appendix A)
IPSCO Steel (Iowa) Inc.
Montpelier, Iowa

October 14 - 16, 2002

Run			Particulate Emissions		Volumetric Flow Rates		Stack		Sample Volume	Percent
Date	Number	Time (CDT)	GR/SCFD	LBS/HR	ACFM	SCFMD	Temp °F	Moisture %	SCFD	Isokinetic
10/14/2002	1	12:37 17:56	0.0034	16.81	732526	579434	180.7	1.8	175.063	99.7
10/15/2002	2	8:57 14:28	0.0018	9.55	792350	619743	189.9	1.0	222.465	99.5
10/16/2002	3	8:56 15:44	0.0016	9.38	888353	695428	189.6	1.3	237.244	99.6
Average			0.0023	11.92	804410	631535	186.7	1.4	211.591	99.6

Table 4-2

AASI

CPM + PM Particulate Emissions Summary
USEPA Method 5 plus 202 (40 CFR Part 51 Appendix M)
IPSCO Steel (Iowa) Inc.
Montpelier, Iowa

October 14 - 16, 2002

Run			Particulate	CPM	Production	Combined Emissions	
Date	Number	Time (CDT)	LBS/HR	LBS/HR	TPH	pounds per ton	tons per year
10/14/2002	1	12:37 19:53	16.81	20.43	146.3	0.255	163.1
10/15/2002	2	8:57 16:30	9.55	13.72	113.4	0.205	102.0
10/16/2002	3	8:56 16:33	9.38	13.42	150.4	0.152	99.9
Average			**11.92**	**15.86**	**136.7**	**0.204**	**121.6**

Note - Method 5 and Method 202 data are from two separate sampling systems. The runs were conducted on the same day but not at the exact same times.

- Tons per year based on 8760 hours per year.

Table 4-3

AASI

CPM + PM-10 Particulate Emissions Summary
USEPA Method 201a plus 202 (40 CFR Part 51 Appendix M)
IPSCO Steel
Montpelier, Iowa

October 14 - 16, 2002

Run			Particulate <10um	CPM	Production	Combined Emissions	
Date	Number	Time (CDT)	LBS/HR	LBS/HR	TPH	pounds per ton	tons per year
10/14/2002	1	12:37 19:53	7.13	20.43	146.3	0.188	120.7
10/15/2002	2	8:57 16:30	5.44	13.72	113.4	0.169	84.0
10/16/2002	3	8:56 16:33	4.96	13.42	150.4	0.122	80.5
Average			**5.85**	**15.86**	**136.7**	**0.160**	**95.1**

Note - Tons per year based on 8760 operating hours per year.

Table 4-4

AASI

Visible Emission Observations (VE) Summary
USEPA Method 9 (40 CFR Part 60 Appendix A)
Ipsco Steel (Iowa), Inc.
Montpelier, Iowa

October 14-16, 2002

Date	Time (CDT)		Source	Opacity (Highest 6-Minute Average)
10/14/2002	10:15	14:05	EAF/LMF Baghouse Stack	0.0 % Opacity
10/14/2002	10:15	14:05	EAF Meltshop Roof	0.0 % Opacity
10/14/2002	15:00	18:02	Dust Handling System	0.0 % Opacity
10/15/2002	14:13	14:18	Dust Handling System (Truck Loadout)	0.0 % Opacity
10/16/2002	17:10	18:10	Caster Maintenance Roof	0.0 % Opacity
10/15/2002	14:35	15:35	LMF Roof	0.0 % Opacity
10/15/2002	9:08	10:08	Rolling Mill Roof	0.0 % Opacity

Table 4-5

AASI

Sulfur Dioxide (SO_2) Emissions Summary
USEPA Method 6C (40 CFR Part 60 Appendix A)
Ipsco Steel (Iowa), Inc.
Montpelier, Iowa

October 14, 2002

Run			Concentration	Volumetric Flow Rates	Production				Mass Emissions	
Date	Number	Time (CDT)	ppm-v/v	SCFM-Dry	Heat Numbers	Tap to Tap Time (min)	Tons Cast	Tons per Hour	Tons per Year	Pounds per Ton
10/14/2002	1	12:37 15:39	9.19	579434	B2J626 B2J627	62.0 62.0	155.973 155.973	150.94	232.6	0.35
10/14/2002	2	16:54 18:48	8.84	579434	B2J628 A2J135	66.0 55.0	155.973 155.973	155.97	223.7	0.33
10/14/2002	3	19:43 21:34	10.28	589792	A2J136 B2J630	58.0 59.0	150.475 150.475	154.33	264.8	0.39
Average			**9.44**	**582887**		**60.6**	**154.140**	**153.7**	**240.4**	**0.36**

Note - Tons per year is based on 8760 operating hours per year.

$$\left(240.4 \frac{\text{TONS}}{\text{YEAR}}\right)\left(\frac{\text{YR}}{8760 \text{ HR}}\right)\left(\frac{2000 \text{ LB}}{\text{TON}}\right) = 54.9$$

Table 4-6

AASI

Oxides of Nitrogen (NO_X) Emissions Summary

USEPA Method 7E (40 CFR Part 60 Appendix A)

Ipsco Steel (Iowa), Inc.

Montpelier, Iowa

October 14, 2002

Run			Concentration	Volumetric Flow Rates	Production				Mass Emissions (as NO_2)	
Date	Number	Time (CDT)	ppm-v/v	SCFM-Dry	Heat Numbers	Tap to Tap Time (min)	Tons Cast	Tons per Hour	Tons per Year	Pounds per Ton
10/14/2002	1	12:37 15:39	3.31	579434	B2J626 B2J627	62.0 62.0	155.973 155.973	150.94	60.2	0.09
10/14/2002	2	16:54 18:48	2.93	579434	B2J628 A2J135	66.0 55.0	155.973 155.973	155.97	53.3	0.08
10/14/2002	3	19:43 21:34	4.33	589792	A2J136 B2J630	58.0 59.0	150.475 150.475	154.33	80.2	0.12
Average			**3.52**	**582887**		**60.6**	**154.140**	**153.7**	**64.6**	**0.10**

Note - Tons per year is based on 8760 operating hours per year.

$$\left(64.6 \frac{\text{TONS}}{\text{YR}}\right)\left(\frac{\text{YR}}{8760\ \text{HR}}\right)\left(\frac{2000\ \text{LB}}{\text{TON}}\right) = 14.7$$

Table 4-7

AASI

Volatile Organic Compound (VOC) Emissions Summary
USEPA Method 25a (40 CFR Part 60 Appendix A)
Ipsco Steel (Iowa), Inc.
Montpelier, Iowa

October 14, 2002

Run			Concentration	Volumetric Flow Rates	Production				Mass Emissions	
Date	Number	Time (CDT)	ppm-v/v (as Propane)	SCFM-Wet	Heat Numbers	Tap to Tap Time (min)	Tons Cast	Tons per Hour	Tons per Year	Pounds per Ton
10/14/2002	1	12:37 15:39	4.44	590055	B2J626 B2J627	62.0 62.0	155.973 155.973	150.94	78.7	0.12
10/14/2002	2	16:54 18:48	4.16	590055	B2J628 A2J135	66.0 55.0	155.973 155.973	155.97	73.7	0.11
10/14/2002	3	19:43 21:34	4.74	600603	A2J136 B2J630	58.0 59.0	150.475 150.475	154.33	85.5	0.13
Average			4.45	593571		**60.6**	**154.140**	**153.7**	**79.3**	**0.12**

Note - Tons per year is based on 8760 operating hours per year

$$\left(79.3 \frac{\text{TONS}}{\text{YR}}\right)\left(\frac{\text{YR}}{8760\ \text{HR}}\right)\left(\frac{2000\ \text{LB}}{\text{TON}}\right) = 18.1\ \text{LB/HR}$$

Table 4-8

AASI

Carbon Monoxide (CO) Emissions Summary
USEPA Method 10 (40 CFR Part 60 Appendix A)
Ipsco Steel (Iowa), Inc.
Montpelier, Iowa

October 14, 2002

Run			Concentration	Volumetric Flow Rates	Production				Mass Emissions	
Date	Number	Time (CDT)	ppm-v/v	SCFM-Dry	Heat Numbers	Tap to Tap Time (min)	Tons Cast	Tons per Hour	Tons per Year	Pounds per Ton
10/14/2002	1	12:37 15:39	48.84	579434	B2J626 B2J627	62.0 62.0	155.973 155.973	150.94	579.4	0.88
10/14/2002	2	16:54 18:48	46.31	579434	B2J628 A2J135	66.0 55.0	155.973 155.973	155.97	549.4	0.80
10/14/2002	3	19:43 21:34	47.56	589792	A2J136 B2J630	58.0 59.0	150.475 150.475	154.33	574.3	0.85
Average			**47.57**	**582887**		**60.3**	**154.140**	**153.7**	**567.7**	**0.84**

Note - Tons per year is based on 8760 operating hours per year.

$$(567.7\ \tfrac{TON}{YR})\left(\tfrac{YR}{8760\ HR}\right)\left(\tfrac{2000\ LB}{TON}\right) = 130\ LB/HR$$

Table 4-9

AASI

Lead Emissions Summary
USEPA Method 12 (40 CFR Part 60 Appendix A)
IPSCO Steel (Iowa) Inc.
Montpeliar, Iowa

October 14 - 16, 2002

Run			Lead Emissions		Production	Volumetric Flow Rates		Stack		Sample Volume	Percent
Date	Number	Time (CDT)	Lbs/Ton	Tons/Year	Tons/Hour	ACFM	SCFMD	Temp °F	Moisture %	SCFD	Isokinetic
10/14/2002	1	12:37 17:58	0.00017	0.11	144.6	732526	579434	180.7	1.8	175.063	99.7
10/15/2002	2	8:57 14:28	0.00029	0.14	110.6	792350	619743	189.9	1.0	222.465	99.5
10/16/2002	3	8:56 13:44	0.00021	0.13	147.5	888353	695428	189.6	1.3	237.244	99.6
Average			0.00022	0.13	134.2	804410	631535	186.7	1.4	211.591	99.6

Notes:
Tons per year based on 8760 hours per year.
USEPA Sampling Methods 5 and 12 were combined and sampled as one method.

$$\left(0.13 \frac{\text{TONS}}{\text{YR}}\right)\left(\frac{\text{YR}}{8760\ \text{HR}}\right)\left(\frac{2000\ \text{LB}}{\text{TON}}\right) = 0.0297\ \text{LB/HR}$$

Table 4-10

AASI

Beryllium Emissions Summary
USEPA Method 104 (40 CFR Part 61 Appendix B)
IPSCO Steel (Iowa) Inc.
Montpelier, Iowa

October 16, 2002

Run			Beryllium Emissions		Volumetric Flow Rates		Stack		Sample Volume	Percent
Date	Number	Time (CDT)	LBS/HR	Tons/Year	ACFM	SCFMD	Temp °F	Moisture %	SCFD	Isokinetic
10/16/2002	1	14:43 18:38	7.54E-05	3.30E-04	866635	661152	205.9	1.2	173.872	101
Average			7.54E-05	3.30E-04	866635	661152	205.9	1.2	173.872	101

Weights
R 1
0.15

Note - Tons per year based on 8760 hours per year.

Table 4-11

AASI

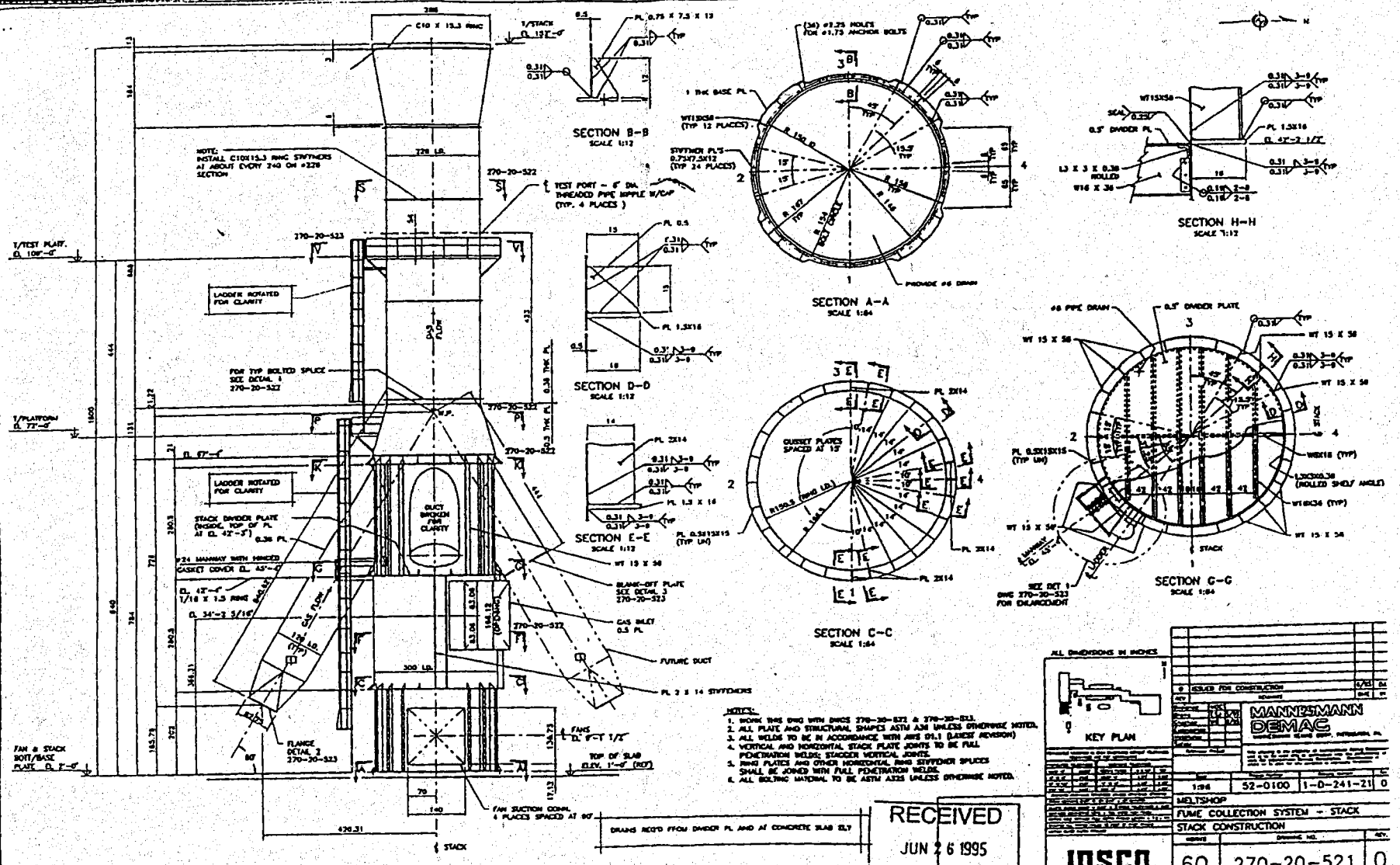
Fluoride Emissions Summary
USEPA Method 13B (40 CFR Part 60 Appendix A)
IPSCO Steel (Iowa) Inc.
Montpelier, Iowa

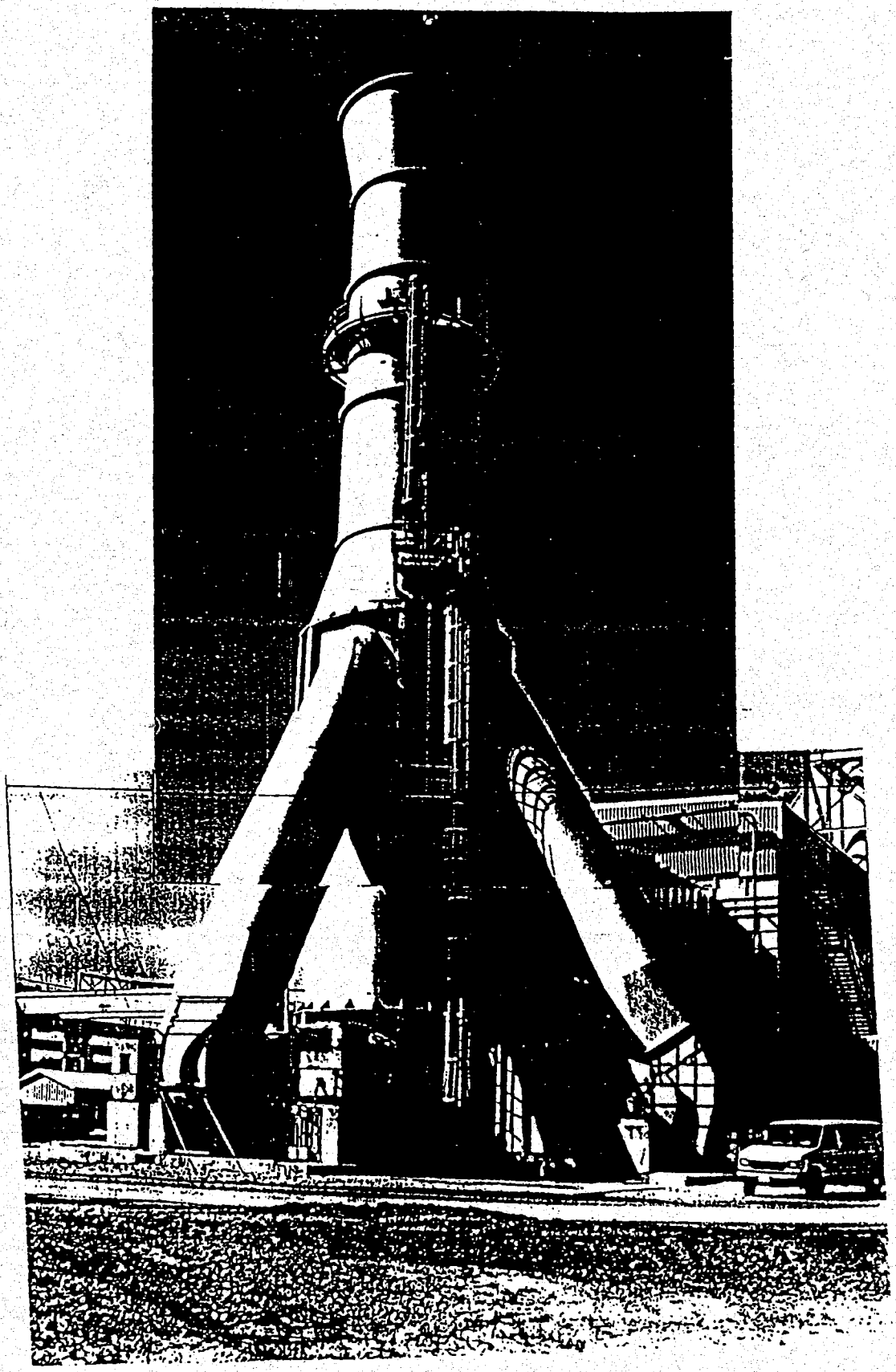
October 15, 2002

Run			Fluoride Emissions		Volumetric Flow Rates		Stack		Sample Volume	Percent
Date	Number	Time (CDT)	LBS/HR	Tons/Year	ACFM	SCFMD	Temp °F	Moisture %	SCFD	Isokinetic
10/15/2002	1	17:10 21:32	0.129	0.564	681774	536160	183.7	1.4	148.632	101
Average			0.129	0.564	681774	536160	183.7	1.4	148.632	101

Weights
R 1
0.27

Note - Tons per year based on 8760 hours per year.


ELEVATION
SECTION A–A
SCALE 1:64
SECTION B–B
SCALE 1:12
SECTION C–C
SCALE 1:64
SECTION D–D
SCALE 1:12
SECTION E–E
SCALE 1:12
SECTION G–G
SCALE 1:64
SECTION H–H
SCALE 1:12
KEY PLAN
NOTES:
1. WORK THIS DWG WITH DWGS 270-20-522 & 270-20-523.
2. ALL PLATE AND STRUCTURAL SHAPES ASTM A36 UNLESS OTHERWISE NOTED.
3. ALL WELDS TO BE IN ACCORDANCE WITH AWS D1.1 (LATEST REVISION)
4. VERTICAL AND HORIZONTAL STACK PLATE JOINTS TO BE FULL PENETRATION WELDS; STAGGER VERTICAL JOINTS.
5. RING PLATES AND OTHER HORIZONTAL RING STIFFENER SPLICES SHALL BE JOINED WITH FULL PENETRATION WELDS.
6. ALL BOLTING MATERIAL TO BE ASTM A325 UNLESS OTHERWISE NOTED.
RECEIVED
JUN 26 1995
IPSCO STEEL INC
GREEN-FIELD PROJECT
MANNESMANN DEMAG
ipsco
MELTSHOP
FUME COLLECTION SYSTEM - STACK
STACK CONSTRUCTION
52-0100
1-0-241-21
60
270-20-521
0



MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 10/14/2002 11:00:00 to 10/14/2002 22:00:00

Issue Date	: 10/14/20 21:42:44
Issued By	: Operations Planning
PBL Name	: Planning-g.pbl — Created Date : 12/18/99
Report Name	:d_meltshop_raw_material_rpt_by_heat — Version : 1.1

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0154001	10/14/2002	10:10:51	A2J132	0000000005	01	FRAG	019900	9.95
					02	2BN	009750	4.88
					03	FRAG	011850	5.93
					05	BEACH IRON	029350	14.68
					06	FRAG	015500	7.75
					07	MXTN	041700	20.85
					08	HM1	021000	10.50
					09	PITSCRAP	011300	5.65
					10	FRAG	012350	6.18
					11	HM2	020150	10.08
					12	FRAG	044700	22.35
						0000000005 Total	**237550**	**118.78**
0154001	10/14/2002	10:10:53	A2J132	0000000003	01	FRAG	008350	4.18
					02	MXTN	021450	10.73
					04	HM1	026750	13.38
					05	FRAG	016700	8.35
					06	HM2	015000	7.50
					07	FRAG	021800	10.90
						0000000003 Total	**110050**	**55.03**
						A2J132 Total	**347600**	**173.80**
130802	10/14/2002	13:42:16	A2J133	0000000006	01	FRAG	009850	4.93
					02	MXTN	020500	10.25
					04	HM1	028400	14.20
					05	FRAG	000000	0.00
					06	HM2	016350	8.18
					07	FRAG	013200	6.60
						0000000006 Total	**88300**	**44.15**
						A2J133 Total	**88300**	**44.15**
0154802	10/14/2002	16:12:13	A2J134	0000000004	01	FRAG	018850	9.43
					02	2BN	007950	3.98
					03	FRAG	014800	7.40
					05	BEACH IRON	027950	13.98
					06	FRAG	013300	6.65
					07	MXTN	042350	21.18
					08	PROCREVERT	018050	9.03
					09	PITSCRAP	010100	5.05
					10	FRAG	012150	6.08
					11	HM2	019300	9.65
					12	FRAG	051650	25.83
						0000000004 Total	**236450**	**118.23**
0154801	10/14/2002	16:12:16	A2J134	0000000003	01	FRAG	009000	4.50
					02	MXTN	017950	8.98
					04	HM1	029600	14.80
					05	FRAG	000000	0.00
					06	HM2	014150	7.08

MELTSHOP RAW MATERIALS REPORT

(By Heat)

From 10/14/2002 11:00:00 to 10/14/2002 22:00:00

Issue Date : 10/14/20 21:42:44
Issued By : Operations Planning
PBL Name : Planning-g.pbl Created Date : 12/18/99
Report Name :d_meltshop_raw_material_rpt_by_heat Version : 1.1

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0154801	10/14/2002	16:12:16	A2J134	0000000003	07	FRAG	017250	8.63
						0000000003 Total	**87950**	**43.98**
						A2J134 Total	**324400**	**162.20**
0154803	10/14/2002	17:53:31	A2J135	0000000006	01	FRAG	021250	10.63
					02	2BN	006250	3.13
					03	FRAG	012050	6.03
					05	BEACH IRON	028000	14.00
					06	FRAG	011750	5.88
					07	MXTN	040450	20.23
					08	PROCREVERT	018450	9.23
					09	PITSCRAP	010350	5.18
					10	FRAG	012550	6.28
					11	HM2	022300	11.15
					12	FRAG	052100	26.05
						0000000006 Total	**235500**	**117.75**
0154803	10/14/2002	18:01:15	A2J135	0000000003	01	FRAG	011600	5.80
					02	MXTN	018300	9.15
					04	HM1	026900	13.45
					05	FRAG	018550	9.28
					06	HM2	017300	8.65
					07	FRAG	017800	8.90
						0000000003 Total	**110450**	**55.22**
						A2J135 Total	**345950**	**172.98**
0128502	10/14/2002	19:42:44	A2J136	0000000005	01	FRAG	018750	9.38
					02	2BN	008000	4.00
					03	FRAG	015750	7.88
					05	BEACH IRON	030900	15.45
					06	FRAG	012950	6.48
					07	MXTN	060750	30.38
					08	PROCREVERT	018200	9.10
					09	PITSCRAP	007150	3.58
					10	FRAG	011250	5.63
					11	HM2	019800	9.90
					12	FRAG	031650	15.83
						0000000005 Total	**235150**	**117.58**
0128502	10/14/2002	19:52:47	A2J136	0000000003	01	FRAG	007950	3.98
					02	MXTN	019400	9.70
					04	HM1	025450	12.73
					05	FRAG	019050	9.53
					06	HM2	015850	7.93
					07	FRAG	028600	14.30
						0000000003 Total	**116300**	**58.15**
						A2J136 Total	**351450**	**175.73**
0130801	10/14/2002	12:40:43	B2J626	0000000002	01	FRAG	020000	10.00
					02	2BN	006900	3.45

MELTSHOP RAW MATERIALS REPORT

(By Heat)

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Issue Date	: 10/14/20 21:42:44
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PBL Name	: Planning-g.pbl — Created Date : 12/18/99
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Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0130801	10/14/2002	12:40:43	B2J626	0000000002	03	FRAG	012200	6.10
					05	BEACH IRON	032100	16.05
					06	FRAG	015100	7.55
					07	MXTN	063450	31.73
					08	HM1	020750	10.38
					09	PITSCRAP	012400	6.20
					10	FRAG	014400	7.20
					11	HM2	019500	9.75
					12	FRAG	019300	9.65
						0000000002 Total	**236100**	**118.05**
0130801	10/14/2002	13:10:09	B2J626	0000000003	01	FRAG	009150	4.58
					02	MXTN	019600	9.80
					04	HM1	029000	14.50
					05	FRAG	016250	8.13
					06	HM2	000000	0.00
					07	FRAG	014500	7.25
						0000000003 Total	**88500**	**44.25**
						B2J626 Total	**324600**	**162.30**
0130803	10/14/2002	14:39:35	B2J627	0000000002	01	FRAG	021400	10.70
					02	2BN	009200	4.60
					03	FRAG	014350	7.18
					05	BEACH IRON	035750	17.88
					06	FRAG	011000	5.50
					07	MXTN	060700	30.35
					08	PROCREVERT	017150	8.58
					09	PITSCRAP	008850	4.43
					10	FRAG	017150	8.58
					11	HM2	019800	9.90
					12	FRAG	019000	9.50
						0000000002 Total	**234350**	**117.18**
0130803	10/14/2002	14:57:38	B2J627	0000000003	01	FRAG	010900	5.45
					02	MXTN	020600	10.30
					04	HM1	029300	14.65
					05	FRAG	000050	0.03
					06	HM2	015550	7.78
					07	FRAG	012000	6.00
						0000000003 Total	**88400**	**44.20**
						B2J627 Total	**322750**	**161.38**
0154802	10/14/2002	16:56:30	B2J628	0000000002	01	FRAG	011400	5.70
					02	MXTN	020050	10.03
					04	HM1	026950	13.48
					05	FRAG	000000	0.00
					06	HM2	015150	7.58

MELTSHOP RAW MATERIALS REPORT

(By Heat)

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Issue Date : 10/14/20 21:42:44
Issued By : Operations Planning
PBL Name : Planning-g.pbl Created Date : 12/18/99
Report Name :d_meltshop_raw_material_rpt_by_heat Version : 1.1

Heat Order ID	Charge Date	Charge Time	Heat Id	Charge Bucket Id	Layer Number	Material Id	Material Weight(lbs)	Material Weight(tons)
0154802	10/14/2002	16:56:30	B2J628	0000000002	07	FRAG	013750	6.88
						0000000002 Total	**87300**	**43.65**
						B2J628 Total	**87300**	**43.65**
0128501	10/14/2002	18:50:02	B2J629	0000000005	01	FRAG	020600	10.30
					02	2BN	007250	3.63
					03	FRAG	012950	6.48
					05	BEACH IRON	028950	14.48
					06	FRAG	015150	7.58
					07	MXTN	059150	29.58
					08	PROCREVERT	016150	8.08
					09	PITSCRAP	009950	4.98
					10	FRAG	012450	6.23
					11	HM2	021750	10.88
					12	FRAG	031500	15.75
						0000000005 Total	**235850**	**117.93**
0128501	10/14/2002	18:55:38	B2J629	0000000003	01	FRAG	008500	4.25
					02	MXTN	017850	8.93
					04	HM1	025900	12.95
					05	FRAG	020650	10.33
					06	HM2	013300	6.65
					07	FRAG	023200	11.60
						0000000003 Total	**109400**	**54.70**
						B2J629 Total	**345250**	**172.62**
0128503	10/14/2002	20:36:02	B2J630	0000000005	01	FRAG	024150	12.08
					02	2BN	006800	3.40
					03	FRAG	012900	6.45
					05	BEACH IRON	029250	14.63
					06	FRAG	012900	6.45
					07	MXTN	059250	29.63
					08	PROCREVERT	017600	8.80
					09	PITSCRAP	013800	6.90
					10	FRAG	014600	7.30
					11	HM2	019600	9.80
					12	FRAG	021200	10.60
						0000000005 Total	**232050**	**116.03**
0128503	10/14/2002	20:46:48	B2J630	0000000003	01	FRAG	007350	3.68
					02	MXTN	019150	9.58
					04	HM1	026700	13.35
					05	FRAG	020000	10.00
					06	HM2	016100	8.05
					07	FRAG	028950	14.48
						0000000003 Total	**118250**	**59.13**
						B2J630 Total	**350300**	**175.15**

tal Heats: 10 Total Weight for Time Period: 2907[illegible] Pounds 1445.95 Tons