Note: This is a reference cited in *AP 42, Compilation of Air Pollutant Emission Factors, Volume I Stationary Point and Area Sources.* AP42 is located on the EPA web site at www.epa.gov/ttn/chief/ap42/

The file name refers to the reference number, the AP42 chapter and section. The file name "ref02_c01s02.pdf" would mean the reference is from AP42 chapter 1 section 2. The reference may be from a previous version of the section and no longer cited. The primary source should always be checked.

AP-42 Section 11.23
Reference 25
Report Sect. 4
Reference 25

Interpoll Laboratories, Inc.
4500 Ball Road N.E.
Circle Pines, Minnesota 55014-1819

TEL: (612) 786-6020
FAX: (612) 786-7854

No inlet flow rate

ENGINEERING

RESULTS OF THE AUGUST 6, 1991 SO_2 EMISSION ENGINEERING TESTS AT THE USX MINNESOTA ORE OPERATION FACILITY IN MOUNTAIN IRON, MINNESOTA

Submitted to:

U. S. Steel Corporation
P.O. Box 417
Mountain Iron, Minnesota 55768

Attention:

Nick Brascugli
Supervisor of Facility Engineering

Approved by:

Daniel Despen
Manager
Field Testing Support Group

Report Number 1-3380
August 15, 1991
JG/jg

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B - Interpoll Laboratories Analytical Data

C - Operating Conditions

ABBREVIATIONS

ACFM	actual cubic feet per minute
cc (ml)	cubic centimeter (milliliter)
DSCFM	standard cubic foot of dry gas per minute
DSML	dry standard milliliter
DEG-F (^{0}F)	degrees Fahrenheit
DIA.	diameter
FP	finished product for plant
FT/SEC	feet per second
g	gram
GPM	gallons per minute
GR/ACF	grains per actual cubic foot
GR/DSCF	grains per dry standard cubic foot
g/dscm	grams per dry standard cubic meter
HP	horsepower
HRS	hours
IN.	inches
IN.HG.	inches of mercury
IN.WC.	inches of water
LB	pound
LB/DSCF	pounds per dry standard cubic foot
LB/HR	pounds per hour
LB/10^6BTU	pounds per million British Thermal Units heat input
LB/MMBTU	pounds per million British Thermal Units heat input
LTPD	long tons per day
MW	megawatt
mg/Nm^3	milligrams per dry standard cubic meter
ug/Nm^3	micrograms per dry standard cubic meter
microns (um)	micrometer
MIN.	minutes
ng	nanograms
ohm-cm	ohm-centimeter
PM	particulate matter
PPH	pounds per hour
PPM	parts per million
ppmC	parts per million carbon
ppm,d	parts per million, dry
ppm,w	parts per million, wet
ppt	parts per trillion
PSI	pounds per square inch
SQ.FT.	square feet
TPD	tons per day
ug	micrograms
v/v	percent by volume
w/w	percent by weight
<	$\leq$ (when following a number)

Standard conditions are defined as 68 ^{0}F (20 ^{0}C) and 29.92 IN. of mercury pressure.

1 FOREWORD

8.42

On August 6, 1991, Interpoll Laboratories personnel conducted sulfur dioxide emission engineering tests on the Step 3 Line 7 Waste Gas Inlet and Stack at the U. S. Steel Plant located near Mountain Iron, Minnesota. Steve Lonnes and Gary Hove of Interpoll Laboratories performed the on-site testing. John Lanari provided coordination between testing activities and plant operation.

Sulfur dioxide determinations were performed in accordance with EPA Method 6 Tester Option No. 2 which uses a Method 5 sampling train in which the water in the impinger train is replaced with 3% peroxide solution. In this work, the samples were collected at 0.75 CFM. To facilitate the calculation of SO_2 emission rates at the stack, the test team conducted a volumetric flow rate determination in accordance with EPA Method 2.

No difficulties were encountered in the field or in the laboratory evaluation of the samples. On the basis of this fact and a complete review of the entire data and results, it is our opinion that the results reported herein are accurate and closely reflect the actual values which existed at the time the test was performed.

Table 1. Summary of the Results of the August 6, 1991 Sulfur Dioxide Engineering Determinations on the Step 3 Line 7 Waste Gas Stack at the USX Facility in Mountain Iron, Minnesota.

8.42

RUN	CONCENTRATION (ppm,d)	EMISSION RATE (LB/HR)
1	195	676.4
2	154	533.7
3	169	586.0
AVG	173	598.7

Table 2. Summary of the Results of the August 6, 1991 Sulfur Dioxide Engineering Determinations on the Step 3 Line 7 Waste Gas Inlet at the USX Facility in Mountain Iron, Minnesota.

RUN	CONCENTRATION (ppm,d)	EMISSION RATE (LB/HR)
1	244	-

2 RESULTS

The results of all field and laboratory evaluations are presented in this section. Gas composition (Orsat and moisture) are presented first followed by the computer printout of the sulfur dioxide determinations and the preliminary flow rate determination.

Appendices contain all field data sheets, laboratory results, and process information.

Test No. 1
Step 3 Line 7 Stack

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 1	Run 2	Run 3
Date of run	08-06-91	08-06-91	08-06-91
Dry basis (orsat)			
carbon dioxide.....	3.80	3.70	3.60
oxygen.....	16.70	16.80	16.90
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	79.50	79.50	79.50
Wet basis (orsat)			
carbon dioxide.....	3.42	3.30	3.20
oxygen.....	15.01	14.97	15.00
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	71.46	70.82	70.57
water vapor.....	10.11	10.92	11.23
Dry molecular weight.....	29.28	29.26	29.25
Wet molecular weight.....	28.14	28.03	27.99
Specific gravity.....	0.972	0.968	0.967
FO	1.105	1.108	1.111

Test No. 1
Step 3 Line 7 Inlet

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 1
Date of run	08-06-91
Dry basis (orsat)	
carbon dioxide.....	3.50
oxygen.....	17.00
carbon monoxide.....	0.00
nitrogen.....	79.50
Wet basis (orsat)	
carbon dioxide.....	3.30
oxygen.....	16.02
carbon monoxide.....	0.00
nitrogen.....	74.93
water vapor.....	5.75
Dry molecular weight.....	29.24
Wet molecular weight.....	28.59
Specific gravity.....	0.988

Test No. 1
Step 3 Line 7 Stack

Results of Sulfur Dioxide Determinations----------Method 6

	Run 1	Run 2	Run 3
Date of run	08-06-91	08-06-91	08-06-91
Time run start/end.....(HRS)	830/ 930	940/1040	1055/1155
Barometric pressure..(IN.HG)	28.36	28.36	28.36
Meter temperature....(DEG-F)	70.10	79.40	87.40
Meter correction coefficient	0.9974	0.9974	0.9974
Volume through gas meter....			
at meter conditions...(CF)	45.180	46.760	45.980
standard conditions..(SCF)	42.743	43.475	42.125
Total sampling time....(MIN)	60.0	60.0	60.0
Moisture content.....(%V/V)	10.11	10.92	11.23
Volumetric flow rate (DSCFM)	348900	348900	348900
Oxygen content....(%V/V DRY)	0.00	0.00	0.00
Milliequivalents of SO4 in..			
gas sample.....	19.56	15.70	16.70
<u>Sulfur dioxide concentration</u>			
(GR/DSCF).....	0.2262	0.1785	0.1959
(MG/DSCM).....	518	408	448
(PPM-DRY).....	195	154	169
(PPM-WET).....	175	137	150
SO2 Emission rate....(LB/HR)	676.38	533.70	585.99

Test No. 1
Step 3 Line 7 Inlet

Results of Sulfur Dioxide Determinations----------Method 6

	Run 1
Date of run	08-06-91
Time run start/end.....(HRS)	1312/1348
Barometric pressure..(IN.HG)	28.36
Meter temperature....(DEG-F)	95.90
Meter correction coefficient	0.9974
Volume through gas meter....	
at meter conditions...(CF)	18.860
standard conditions..(SCF)	17.015
Total sampling time....(MIN)	36.0
Moisture content.....(%V/V)	5.75
Volumetric flow rate (DSCFM)	0
Milliequivalents of SO4 in..	
gas sample.....	9.78
Sulfur dioxide concentration	
(GR/DSCF).....	0.2841
(MG/DSCM).....	650
(PPM-DRY).....	244
(PPM-WET).....	230

Test No. 1
Step 3 Line 7 Stack

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination.....	08-06-91
Time of Determination.....(HRS)	1228
Barometric pressure.....(IN.HG)	28.36
Pitot tube coefficient.....	.84
Number of sampling ports.....	4
Total number of points.....	24
Shape of duct.....	Round
Stack diameter.....(IN)	192
Duct area.....(SQ.FT)	201.06
Direction of flow.....	UP
Static pressure.....(IN.WC)	-.36
Avg. gas temp.....(DEG-F)	116
Moisture content.....(% V/V)	11.20
Avg. linear velocity.....(FT/SEC)	37.5
Gas density.....(LB/ACF)	.06310
Molecular weight.....(LB/LBMOLE)	29.25
Mass flow of gas.....(LB/HR)	1713657
Volumetric flow rate.....	
actual.....(ACFM)	452625
dry standard.....(DSCFM)	348901

APPENDIX A

FIELD DATA SHEETS

INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job U.S. STEEL CORP.

Source STEP 3 LINE 7 STACK

Test 1 Run 1 Date 8-6-91

Stack dimen. 192 IN.

Dry bulb ____ °F Wet bulb ____ °F

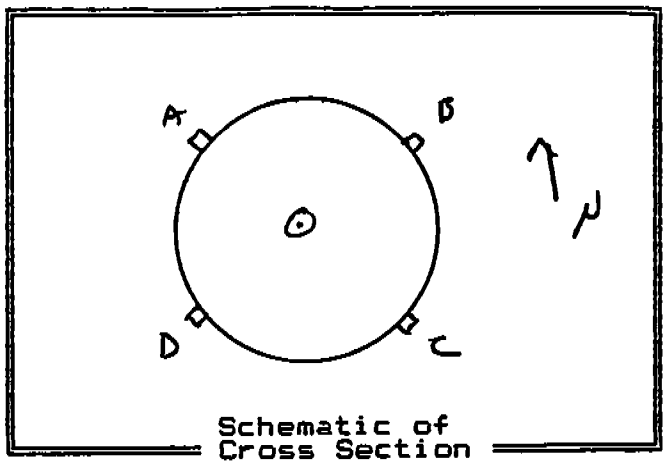
Manometer: ☒ Reg. ☐ Exp. ☐ Elec.

Barometric pressure 28.36 in Hg

Static pressure -0.36 in WC

Operators STEVE LONNES, GARY HAVLIS

Pitot No. 71-8 Cp 0.84



Schematic of Cross Section

Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length: 5.5 in.		Time start: 1228 hrs	
A-1	0.021	4.032	9.53	0.37	
2	0.067	12.96	18.36	0.43	
3	0.118	22.66	28.16	0.40	
4	0.177	33.98	39.48	0.35	
5	0.250	48.00	53.50	0.33	NULL
6	0.356	68.35	73.85	0.35	-0.04
D-1				0.34	
2				0.37	
3				0.32	↑
4				0.33	
5				0.29	116
6				0.32	↓
C-1				0.37	
2				0.36	
3				0.40	
4				0.37	
5				0.38	
6				0.31	
B-1				0.45	
2				0.47	
3				0.45	
4				0.43	
5				0.42	
6				0.45	
Temp. meas. tool & S/N: FLUKE #45				Time end: 1242 hrs	

R or nothing= reg. manometer; S= expanded; E = electronic S-392.1

INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job U.S. STEEL CORP.

Source STEP 3 LINE 7 STACK

Test 1 Run 1 Date 8-6-91

Stack dimen. 192 IN.

Dry bulb ____ °F Wet bulb ____ °F

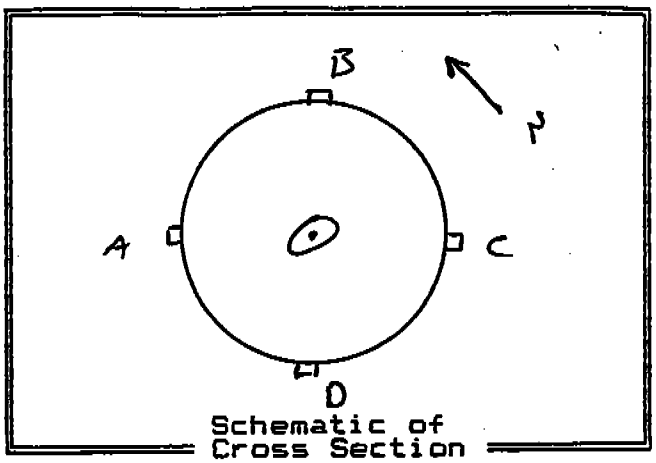
Manometer: ☒ Reg. ☐ Exp. ☐ Elec.

Barometric pressure 28.36 in Hg

Static pressure ____ in WC

Operators STEVE LOWNESS, PAT ONEILL

Pitot No. 21- Cp 0.84



Schematic of Cross Section

Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length:	5.5" in.	Time start:	hrs
A - 1	1/6	32	37.50		
2	3/6	96	101.50		
3	5/6	160	165.50		
Temp. meas. tool & S/N:		FLUKE #15		Time end:	hrs

R or nothing= reg. manometer; S= expanded; E = electronic S-392.1

EPA Method 4 and 6 Field Data Sheet

Job U.S. STEEL CORP.
Source STEP 3 LINE 7 STACK
Date 8-6-91 Test 1 Run 1

Operator(s) STEVE LONNES, PAT DUGELL
Meter Box No. 5 Gasmeter coef. 0.9974
^H@ 1.96 in.WC Bar. press 28.36 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 9.0 in. Hg.

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(0830)	72.13								
3	5	75.86	1.96	5.2	250	252	45	64	62	
3	10	79.60	1.96	5.5				65	63	
3	15	83.35	1.96	5.6				67	64	
3	20	87.08	1.96	5.6	253	254	47	69.8	65	
2	25	90.82	1.96	5.6				72	66	
2	30	94.58	1.96	5.7				74	68	
2	35	98.36	1.96	5.7	255	256	48	75	69	
2	40	102.14	1.96	5.8				76	69	
1	45	105.93	1.96	5.8				77	70	
1	50	109.71	1.96	5.9	257	255	49	77	71	
1	55	113.50	1.96	5.9				78	71	
1	60	117.31	1.96	5.9				78	72	
	(0930)									
	θ= 60 min	V_m= 45.18	$(^H)_{avg}$=1.96					$(t_m)_{avg.}$= 70.1		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers	582	501	81
Condenser			
Desiccant	1522	1501	21
		Total	102

Preliminary results of SO_2 concentration determination
V_{std} = 42.74 DSCF
Moisture = 10.1 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 al

EPA Method 4 and 6 Field Data Sheet

Job U.S. STEEL CORP. Operator(s) SL + RO
Source STEP 3 LINE 7 STACK Meter Box No. 5 Gasmeter coef. 0.9974
Date 8-6-91 Test 1 Run 2 ^H@ 1.96 in.WC Bar. press 28.36 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 10.0 in. Hg.

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(0940)	117.69								
A-3	5	121.51	1.96	5.5	252	253	48	73	72	
3	10	126.13	1.96	5.5				78	72	
3	15	130.16	1.96	5.6				80	74	
3	20	135.16	1.96	5.7	254	255	49	81	74	
2	25	139.38	1.96	5.9				81	75	
2	30	142.61	1.96	5.9				82	77	
2	35	146.42	1.96	5.9	256	257	50	82	76	
2	40	150.24	1.96	6.0				84	77	
1	45	154.07	1.96	6.0				86	79	
1	50	157.89	1.96	6.0	257	259	50	87	80	
1	55	161.74	1.96	6.0				87	80	
1	60	164.45	1.96	6.0				88	81	
	(1040)									
	θ= 60	V_m= 46.76	$(\Delta H)_{avg}$= 1.96					$(t_m)_{avg.}$= 79.4		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers	595	499	96
Condenser			
Desiccant	1435	1418	17
		Total	113

Preliminary results of SO_2 concentration determination
V_{std} = 43.49 DSCF
Moisture = 10.90 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

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EPA Method 4 and 6 Field Data Sheet

Job: U.S. STEEL CORP. Operator(s): JC + PO
Source: STEP 3 LINE 7 STACK Meter Box No. 5 Gasmeter coef. 0.9974
Date 8-6-91 Test 1 Run 3 ^H@ 1.96 in.WC Bar. press 28.36 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg. ☒
Posttest: 0.0 cfm at 10.0 in. Hg. ☒

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1055)	164.68								
A-3	5	168.45	1.96	6.0	253	250	42	84	81	
3	10	172.29	1.96	6.0				86	82	
3	15	176.11	1.96	6.0				88	82	
3	20	179.94	1.96	6.1	255	251	43	90	83	
2	25	183.78	1.96	6.1				90	84	
2	30	187.63	1.96	6.2				91	85	
2	35	191.48	1.96	6.2	257	253	45	91	85	
2	40	195.32	1.96	6.2				93	86	
1	45	199.16	1.96	6.3				91	85	
1	50	203.00	1.96	6.3	259	256	46	92	85	
1	55	206.83	1.96	6.3				94	87	
1	60	210.66	1.96	6.3				94	88	
	(1155)									
	θ=60	V_m=45.98	(^H)avg=1.96					$(t_m)_{avg.}$= 87.4		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers	591	493	98
Condenser			
Desiccant	1537	1522	15
		Total	113

Preliminary results of SO_2 concentration determination	
V_{std} =	42.14 DSCF
Moisture =	11.21 %v/v
SO_2, dry =	ppm
SO_2, wet =	ppm
LB/MMBtu =	

S-287 a1

INTERPOLE LABORATORIES

EPA Method 4 and 6 Field Data Sheet

Job U.S STEEL CORP.
Source STEP 3 LINE 7 SCRUBBER INLET
Date 8-6-91 Test 2 Run 1

Operator(s) STEVE LONNES, PAT ONEILL
Meter Box No. 5 Gasmeter coef. 0.9974
^H@ 1.96 in.WC Bar. press 28.36 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1312)	211.14								
A-3	5	216.21	1.96	10.0	250	252	45	95	93	
3	10	219.91	1.96	12.0				96	91	
2	15	223.61	1.96	13.0				99	93	
2	20	227.19	1.96	13.2	252	256	45	100	94	
1	25	230.64	1.96	13.5				99	95	
1	26	230.00	1.96	14.0				100	96	
	(1348)									
	θ= 26	V_m= 18.86	$(^H)_{avg}$=1.96					$(t_m)_{avg.}$= 95.9		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers	517	501	16
Condenser			
Desiccant	1486	1480	6
		Total	22

Preliminary results of SO_2 concentration determination
V_{std} = 17.01 DSCF
Moisture = 5.74 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 al

APPENDIX B

INTERPOLL LABORATORIES ANALYTICAL DATA

Interpoll Laboratories
(612) 786-6020

EPA Method 3 Data Reporting Sheet
Orsat Analysis

Job: US Steel Corp.
Team Leader: SL
Date Submitted: 8-9-91
Test No.: 1
Date of Analysis: 8-12-91

Source: Step 3 Line 7
Test Site: Stack
Date of Test: 8-6-91
No. of Runs Completed: 3
Technician: R. Elm

Test/ Run	Sample Log Number and Type	No. of An.	Buret Readings (ml) Zero Pt.	After CO_2	After O_2	Conc. CO_2 %v/v Dry	Conc. O_2 %v/v Dry	F_o
1/1	3926-05	1	0.00	3.80	20.50	3.80	16.70	1.11
		2	0.00	3.80	20.50	3.80	16.70	1.11
	☑ B ☐ F	Avg				3.80	16.70	
1/2	-06	1	0.00	3.70	20.50	3.70	16.80	1.11
		2	0.00	3.70	20.50	3.70	16.80	1.11
	☑ B ☐ F	Avg				3.70	16.80	
1/3	-07	1	0.00	3.60	20.50	3.60	16.90	1.11
		2	0.00	3.60	20.50	3.60	16.90	1.11
	☑ B ☐ F	Avg				3.60	16.90	
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						

☑ Ambient Air QA Check
☑ Orsat Analyzer System Leak Check
☐ F_o Within EPA M-3 Guidelines for fuel type.

Where $F_o = \frac{20.9 - O_2}{CO_2}$

F=Flask (250 cc all glass)
B=Tedlar Bag (5-layer)

EPA Method 3 Guidelines

Fuel Type	F0 Range
Coal:	
Anthracite/Lignite	1.016-1.130
Bituminous	1.083-1.230
Oil:	
Distillate	1.260-1.413
Residual	1.210-1.370
Gas:	
Natural	1.600-1.836
Propane	1.434-1.586
Butane	1.405-1.553
Wood/Wood Bark	1.000-1.130

LSC-04-BR

Interpoll Laboratories
(612) 786-6020

EPA Method 3 Data Reporting Sheet
Orsat Analysis

Job: U.S. Steel Corp.
Team Leader:
Date Submitted:
Test No.:
Date of Analysis:

Source: Step 3 Line 7
Test Site: Scrubber Inlet
Date of Test: 8-6-91
No. of Runs Completed: 1
Technician: R. Cullen

Test/ Run	Sample Log Number and Type	No. of An.	Buret Readings (ml) Zero Pt.	After CO_2	After O_2	Conc. CO_2 %v/v Dry	Conc. O_2 %v/v Dry	F_o
2/1	3926-09	1	0.00	3.50	20.50	3.50	17.00	1.11
		2	0.00	3.50	20.50	3.50	17.00	1.11
	☑ B ☐ F	Avg				3.50	17.00	
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						

☑ Ambient Air QA Check
☑ Orsat Analyzer System Leak Check
☐ F_o Within EPA M-3 Guidelines for fuel type.

Where $F_o = \frac{20.9 - O_2}{CO_2}$

F=Flask (250 cc all glass)
B=Tedlar Bag (5-layer)

EPA Method 3 Guidelines

Fuel Type	F0 Range
Coal:	
Anthracite/Lignite	1.016-1.130
Bituminous	1.083-1.230
Oil:	
Distillate	1.260-1.413
Residual	1.210-1.370
Gas:	
Natural	1.600-1.836
Propane	1.434-1.586
Butane	1.405-1.553
Wood/Wood Bark	1.000-1.130

LSC-04-BR

(612) 786-6020

EPA Method 6 Sulfur Dioxide
Titration Data Sheet

Job: U.S Steel Corp.
Team Leader: SL
Date Submitted: 8-9-91
Test No.:
Date of Analysis: 8-9-91

Source: Step 3 Line 7
Test Site: Stack
Date of Test: 8-6-91
No. of Runs Completed: 3
Technician: M. Hume

Test/ Run	Sample Log Number	pH of Original Sample *	Final Vol. (V_{main})	Dilution Factor (DF)	Aliquot Titrated (V_a)	No. of An.	Start Vol. Buret (ml)	Final Vol. Buret (ml)	Volume of Tit. (V_a) (ml)
Field Blank 1/0	3926-01	☒ pH<3.5 ☐ pH____	☒ 500 ml ☐ 250 ml ☐ 100 ml ☐ ____ml	☒ 1 DF ☐ 10 DF ☐ 25 DF ☐ 50 DF ☐ ____DF	☐ 1 ml ☐ 5 ml ☐ 10 ml ☒ 20 ml ☐ ____ml	1	0.00	0.15	0.15
						2	0.15	0.30	0.15
						Avg			0.15 V_b
1/1	-02	☒ pH<3.5 ☐ pH____	☒ 500 ml ☐ 250 ml ☐ 100 ml ☐ ____ml	☒ 1 DF ☐ 10 DF ☐ 25 DF ☐ 50 DF ☐ ____DF	☒ 1 ml ☐ 5 ml ☐ 10 ml ☐ 20 ml ☐ ____ml	1	0.30	4.40	4.10
						2	4.40	8.40	4.00
						Avg			4.05
1/2	-03	☒ pH<3.5 ☐ pH____	☒ 500 ml ☐ 250 ml ☐ 100 ml ☐ ____ml	☒ 1 DF ☐ 10 DF ☐ 25 DF ☐ 50 DF ☐ ____DF	☒ 1 ml ☐ 5 ml ☐ 10 ml ☐ 20 ml ☐ ____ml	1	8.40	11.65	3.25
						2	11.65	14.95	3.30
						Avg			3.28
1/3	-04	☒ pH<3.5 ☐ pH____	☒ 500 ml ☐ 250 ml ☐ 100 ml ☐ ____ml	☒ 1 DF ☐ 10 DF ☐ 25 DF ☐ 50 DF ☐ ____DF	☒ 1 ml ☐ 5 ml ☐ 10 ml ☐ 20 ml ☐ ____ml	1	14.95	18.40	3.45
						2	18.40	22.30	3.50
						Avg			3.48
		☐ pH<3.5 ☐ pH____	☐ 500 ml ☐ 250 ml ☐ 100 ml ☐ ____ml	☐ 1 DF ☐ 10 DF ☐ 25 DF ☐ 50 DF ☐ ____DF	☐ 1 ml ☐ 5 ml ☐ 10 ml ☐ 20 ml ☐ ____ml	1			
						2			
						Avg			
		☐ pH<3.5 ☐ pH____	☐ 500 ml ☐ 250 ml ☐ 100 ml ☐ ____ml	☐ 1 DF ☐ 10 DF ☐ 25 DF ☐ 50 DF ☐ ____DF	☐ 1 ml ☐ 5 ml ☐ 10 ml ☐ 20 ml ☐ ____ml	1			
						2			
						Avg			
		☐ pH<3.5 ☐ pH____	☐ 500 ml ☐ 250 ml ☐ 100 ml ☐ ____ml	☐ 1 DF ☐ 10 DF ☐ 25 DF ☐ 50 DF ☐ ____DF	☐ 1 ml ☐ 5 ml ☐ 10 ml ☐ 20 ml ☐ ____ml	1			
						2			
						Avg			
		☐ pH<3.5 ☐ pH____	☐ 500 ml ☐ 250 ml ☐ 100 ml ☐ ____ml	☐ 1 DF ☐ 10 DF ☐ 25 DF ☐ 50 DF ☐ ____DF	☐ 1 ml ☐ 5 ml ☐ 10 ml ☐ 20 ml ☐ ____ml	1			
						2			
						Avg			
		☐ pH<3.5 ☐ pH____	☐ 500 ml ☐ 250 ml ☐ 100 ml ☐ ____ml	☐ 1 DF ☐ 10 DF ☐ 25 DF ☐ 50 DF ☐ ____DF	☐ 1 ml ☐ 5 ml ☐ 10 ml ☐ 20 ml ☐ ____ml	1			
						2			
						Avg			
		☐ pH<3.5 ☐ pH____	☐ 500 ml ☐ 250 ml ☐ 100 ml ☐ ____ml	☐ 1 DF ☐ 10 DF ☐ 25 DF ☐ 50 DF ☐ ____DF	☐ 1 ml ☐ 5 ml ☐ 10 ml ☐ 20 ml ☐ ____ml	1			
						2			
						Avg			

Normality of Titrant (N): 0.01003 N

Vol. Titrant for Field blank (V_b): 0.15 ml
Vol. Titrant for Method Blank: 0.15 ml

☐ Ion Exchange
☐ EPA Audit(s)
Audit No.
Audit No.

* If pH >3.5 Adjust with conc. perchloric acid to pH~2.0

S-421

EPA Method 6 Sulfur Dioxide
Titration Data Sheet

Job: U.S. Steel
Team Leader: SL
Date Submitted: 8-9-91
Test No.: 2
Date of Analysis: 8-14-91

Source: Step 3 Line 7
Test Site: Scrubber Inlet
Date of Test: 8-6-91
No. of Runs Completed: 1
Technician: M. Hume

Test/ Run	Sample Log Number	pH of Original Sample *	Final Vol. (V_{main})	Dilution Factor (DF)	Aliquot Titrated (V_a)	No. of An.	Start Vol. Buret (ml)	Final Vol. Buret (ml)	Volume of Tit. (V_t) (ml)
Field Blank		☐ pH<3.5 ☐ pH____	☐ 500 ml ☐ 250 ml ☐ 100 ml ☐ ____ml	☐ 1 DF ☐ 10 DF ☐ 25 DF ☐ 50 DF ☐ ____DF	☐ 1 ml ☐ 5 ml ☐ 10 ml ☐ 20 ml ☐ ____ml	1			
						2			
						Avg			V_b
2/1	3926-08	☒ pH<3.5 ☐ pH____	☒ 500 ml ☐ 250 ml ☐ 100 ml ☐ ____ml	☒ 1 DF ☐ 10 DF ☐ 25 DF ☐ 50 DF ☐ ____DF	☒ 1 ml ☐ 5 ml ☐ 10 ml ☐ 20 ml ☐ ____ml	1	22.30	24.40	2.10
						2	24.40	26.50	2.10
						Avg			2.10
		☐ pH<3.5 ☐ pH____	☐ 500 ml ☐ 250 ml ☐ 100 ml ☐ ____ml	☐ 1 DF ☐ 10 DF ☐ 25 DF ☐ 50 DF ☐ ____DF	☐ 1 ml ☐ 5 ml ☐ 10 ml ☐ 20 ml ☐ ____ml	1			
						2			
						Avg			
		☐ pH<3.5 ☐ pH____	☐ 500 ml ☐ 250 ml ☐ 100 ml ☐ ____ml	☐ 1 DF ☐ 10 DF ☐ 25 DF ☐ 50 DF ☐ ____DF	☐ 1 ml ☐ 5 ml ☐ 10 ml ☐ 20 ml ☐ ____ml	1			
						2			
						Avg			
		☐ pH<3.5 ☐ pH____	☐ 500 ml ☐ 250 ml ☐ 100 ml ☐ ____ml	☐ 1 DF ☐ 10 DF ☐ 25 DF ☐ 50 DF ☐ ____DF	☐ 1 ml ☐ 5 ml ☐ 10 ml ☐ 20 ml ☐ ____ml	1			
						2			
						Avg			
		☐ pH<3.5 ☐ pH____	☐ 500 ml ☐ 250 ml ☐ 100 ml ☐ ____ml	☐ 1 DF ☐ 10 DF ☐ 25 DF ☐ 50 DF ☐ ____DF	☐ 1 ml ☐ 5 ml ☐ 10 ml ☐ 20 ml ☐ ____ml	1			
						2			
						Avg			
		☐ pH<3.5 ☐ pH____	☐ 500 ml ☐ 250 ml ☐ 100 ml ☐ ____ml	☐ 1 DF ☐ 10 DF ☐ 25 DF ☐ 50 DF ☐ ____DF	☐ 1 ml ☐ 5 ml ☐ 10 ml ☐ 20 ml ☐ ____ml	1			
						2			
						Avg			
		☐ pH<3.5 ☐ pH____	☐ 500 ml ☐ 250 ml ☐ 100 ml ☐ ____ml	☐ 1 DF ☐ 10 DF ☐ 25 DF ☐ 50 DF ☐ ____DF	☐ 1 ml ☐ 5 ml ☐ 10 ml ☐ 20 ml ☐ ____ml	1			
						2			
						Avg			
		☐ pH<3.5 ☐ pH____	☐ 500 ml ☐ 250 ml ☐ 100 ml ☐ ____ml	☐ 1 DF ☐ 10 DF ☐ 25 DF ☐ 50 DF ☐ ____DF	☐ 1 ml ☐ 5 ml ☐ 10 ml ☐ 20 ml ☐ ____ml	1			
						2			
						Avg			

Normality of Titrant (N): 0.01003 N

Vol. Titrant for Field blank (V_b): 0.15 ml
Vol. Titrant for Method Blank: 0.15 ml

☐ Ion Exchange
☐ EPA Audit(s)
Audit No. ____
Audit No. ____

* If pH >3.5 Adjust with conc. perchloric acid to pH~2.0

S-421

Interpoll Laboratories
(612) 786-6020

Chain of Custody
Sample Deposition Sheet

Job: U.S. STEEL CORP.
Team Leader: STEVE CONNOLLY
Date Submitted: 8-9-91
Test No.: 1

Source: STEP 3 LINE 7 STACK
Test Site: STACK
Date of Test: 8-6-91
No. of Runs Completed: 3

No. of Samples	Type of Sample	Analysis Required	Comments
—	Probe Wash: ☐ Acetone ☐ D.I. Water	☐ As per EPA M-5 ☐ Other _____	
—	Filter: ☐ 4" G.F. ☐ S.S. Thimble ☐ 2.5" G.F. ☐ 47 mm G.F.	☐ As per EPA M-5 ☐ As per EPA M-17 ☐ Other _____	
4	Impinger Catch: ☐ D.I. Water ☒ 3% H_2O_2 ☐ 4M5 Hg Only ☐ 4M5 Metals ☐ 1.0 N NaOH ☐ Other _____	☐ MN Protocol ☐ WI Protocol ☒ EPA (M-6) or 8 ☐ Acid Gases ☐ Formaldehyde ☐ Metals ☐ Other _____	
3	Integrated Gas sample	☐ As per EPA M-3 ☐ As per EPA M-10 ☐ Other _____	
—	Oxides of Nitrogen (NO_x)	☐ As per EPA M-7A ☐ Other _____	Date _____ Time (HRS) _____
—	☐ Fuel Sample ☐ Aggregate	☐ Attached fuel Form #S-0163RRR	
—	Particle Size	☐ X-Ray Sedigraph ☐ Bahco Method ☐ Other _____	
—	Audit Samples ☐ Sulfur Dioxide ☐ Oxides of Nit. ☐ Other _____	☐ As per EPA M-6 ☐ As per EPA M-7A ☐ Other _____	

Source Information

1) Type of Source: ☐ Boiler ☐ Asphalt Plant ☐ Incinerator ☐ Dryer ☒ Other STEP 3 LINE 7
2) Fuel: ☒ Coal ☐ Wood ☐ Gas ☐ Oil ☐ RDF ☐ Other _____
3) Is sample combustible? ☒ No ☐ Yes
4) Does sample need special handling? ☒ No ☐ Yes If yes, explain _____

S-278RRRR

Interpoll Laboratories
(612) 786-6020

Chain of Custody
Sample Deposition Sheet

Job: U.S. STEEL CORP.
Team Leader: STEVE LOUNES
Date Submitted: 8-9-91
Test No.: 2

Source: STEP 3 CHUT 7
Test Site: SCRUBBER INLET
Date of Test: 8-6-91
No. of Runs Completed: 1

No. of Samples	Type of Sample	Analysis Required	Comments
—	Probe Wash: ☐Acetone ☐D.I. Water	☐As per EPA M-5 ☐Other _____	
—	Filter: ☐4" G.F. ☐S.S. Thimble ☐2.5" G.F. ☐47 mm G.F.	☐As per EPA M-5 ☐As per EPA M-17 ☐Other _____	
1	Impinger Catch: ☐D.I. Water ☒3% H_2O_2 ☐4M5 Hg Only ☐4M5 Metals ☐1.0 N NaOH ☐Other _____	☒MN Protocol ☐WI Protocol ☐EPA M-6 or 8 ☐Acid Gases ☐Formaldehyde ☐Metals ☐Other _____	
1	Integrated Gas sample	☐As per EPA M-3 ☐As per EPA M-10 ☐Other _____	
—	Oxides of Nitrogen (NO_x)	☐As per EPA M-7A ☐Other _____	Date _____ Time (HRS) _____
—	☐ Fuel Sample ☐ Aggregate	☐Attached fuel Form #S-0163RRR	
—	Particle Size	☐X-Ray Sedigraph ☐Bahco Method ☐Other _____	
—	Audit Samples ☐Sulfur Dioxide ☐Oxides of Nit. ☐Other _____	☐As per EPA M-6 ☐As per EPA M-7A ☐Other _____	

Source Information

1) Type of Source: ☐ Boiler ☐ Asphalt Plant ☐ Incinerator ☐ Dryer ☐ Other _____
2) Fuel: ☐ Coal ☐ Wood ☐ Gas ☐ Oil ☐ RDF ☐ Other _____
3) Is sample combustible? ☒ No ☐ Yes
4) Does sample need special handling? ☒ No ☐ Yes If yes, explain _____

S-278RRRR

APPENDIX C

OPERATING CONDITIONS

LINE 7 SO2 TEST - AUGUST 6, 1991

TIME	DELTA P " WATER	COAL LB/HR	P.H. GAS MCF/HR	GREEN B LT/HR	BENTO LB/HR	
07:55 AM	10.1	13046	25	400	5368	
08:05 AM	8.8	14695	54	410	5476	
08:15 AM	9.9	10498	54	421	5598	
08:25 AM	9.0	14094	54	425	5771	
08:35 AM	9.7	10649	65	RUN 436	5843	
08:45 AM	9.3	11099	76	1 443	5972	
08:55 AM	9.4	11099	76	464	6149	460 LT/HR = 515 T/HR
09:05 AM	9.7	10199	76	472	6278	
09:15 AM	9.8	10796	76	468	6322	
09:25 AM	9.6	11099	76	479	6455	
09:35 AM	9.5	10498	76	479	6458	
09:45 AM	9.4	10948	76	RUN 490	6530	
09:55 AM	9.4	10649	76	2 490	6527	
10:05 AM	9.5	10948	76	500	6689	
10:15 AM	9.7	10796	76	504	6764	498 LT/HR = 558 T/HR
10:25 AM	9.7	11398	61	504	6736	
10:35 AM	9.6	11398	58	500	6761	
10:45 AM	9.4	11398	58	504	6761	
10:55 AM	9.2	11696	58	504	6725	
11:05 AM	9.1	12146	58	RUN 504	6746	
11:15 AM	8.9	11844	58	3 504	6746	
11:25 AM	8.7	11844	58	497	6725	502 LT/HR = 562 T/HR
11:35 AM	8.4	11696	58	504	6761	
11:45 AM	8.3	11696	58	504	6746	
11:55 AM	8.0	12143	58	500	6736	
12:05 PM	7.7	12146	58	500	6782	
12:15 PM	7.4	11696	58	504	6736	
12:25 PM	7.0	12143	58	504	6746	
12:35 PM	6.9	12294	58	504	6761	
12:45 PM	6.6	11844	58	504	6743	
12:55 PM	6.4	11844	58	504	6743	
01:05 PM	6.1	11995	58	500	6746	
01:15 PM	6.0	11696	58	511	6754	
01:25 PM	5.9	11844	58	508	6728	
01:35 PM	5.6	11545	58	497	6746	
01:45 PM	5.4	11844	58	508	6728	
01:55 PM	5.5	11848	58	497	6728	
02:05 PM	5.4	11545	58	497	6736	
02:15 PM	5.2	11545	58	508	6746	
02:25 PM	5.1	11398	58	497	6743	

DIAGRAM NUMBER: 3004 VERSION: 0
DATE: 08/06/91 TIME: 08:38:14

08/06/91 [illegible] 08:38:12

[illegible]			[illegible]		[illegible]			[illegible]		
203-06	44.4	64.2	3 INCH	39.1	KEXIT	64	2182	SPEED	0	19[illegible]
203-07	40.1	40.2	5 INCH	32.9	1A UG	70	918	BED	[illegible]	[illegible]
					1B UG	72	928	LTPH	1	94[illegible]
[illegible]			[illegible]		DDII	90	1212			
203-06	8	1118	3 INCH	118	DDI	81	668	[illegible]		
203-07	4000	0	5 INCH	113	SECAIR	95.3	1865	SPEED	0	[illegible]
					BURN Z	2786	2390	PRESS	0.01	0.21
[illegible]			STEP 2		PELLET	2784	2307	V DMPR	100	95
CONC LTPH		326	1279		1A IN	73	695			
FLUX LTPH		24	91		1B IN	68	663	[illegible]		
RATIO SP		.075	.070		CLR ST	59	762	3A	0.0	82.5
RATIO		.076	.072		OUTSIDE		58.6	3B	0	113
CALCIUM SP		2.00	3.35					WG	0	364
CALCIUM PCT		1.01	1.01							
								[illegible]		
170 LTPH		367	1395					3A	1	20
								3B	0	54

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DIAGRAM NUMBER: 3004 VERSION: 0
DATE: 08/06/91 TIME: 09:01:35

08/06/91 [illegible] 09:01:35

[illegible]			[illegible]		[illegible]			[illegible]		
203-06	40.0	62.1	3 INCH	8.9	KEXIT	64	2244	SPEED	1	304
203-07	40.2	40.2	5 INCH	38.0	1A UG	[illegible]	946	BED	[illegible]	[illegible]
					1B UG	72	949	LTPH	1	46.1
[illegible]			[illegible]		DDII	90	1255			
203-06	51	845	3 INCH	31	DDI	80	675	[illegible]		
203-07	4000	0	5 INCH	130	SECAIR	[illegible]	1962	SPEED	0	41
					BURN Z	2784	2371	PRESS	[illegible]	.06
[illegible]			STEP #2		PELLET	2784	2281	V DMPR	100	93
CONC LTPH		231	1354		1A IN	71	710			
FLUX LTPH		14	91		1B IN	66	674	[illegible]		
RATIO SP		.076	.070		CLR ST	72	770	3A	0.0	83.1
RATIO		.064	.069		OUTSIDE		59.4	3B	0	112
CALCIUM SP		2.00	3.35					WG	0	305
CALCIUM PCT		1.01	1.01							
								[illegible]		
170 LTPH		536	1410					3A	1	22
								3B	0	54

[illegible] IN PROGRESS

C-3

DIAGRAM NUMBER: 3004 VERSION: 0
DATE: 08/06/91 TIME: 09:20:31

08/06/91 [illegible] 09:20:31

[illegible]			[illegible]		[illegible]		[illegible]		
203-06	40.0	63.2	3 INCH	8.8	KEXIT	64	2190	SPEED	[illegible]
203-07	40.2	40.2	5 INCH	47.1	1A UG	72	984	BED	[illegible]
					1B UG	70	965	LTPH	[illegible]
[illegible]			[illegible]		DDII	90	1132		
203-06	47	1521	3 INCH	-30	DDI	81	888	[illegible]	
203-07	4000	0	5 INCH	232	SECAIR	95.3	1992	SPEED	0 49
					BURN Z	2786	2392	PRESS	0.01 0.14
[illegible]			STEP 2		PELLET	2784	2290	V DMPR	100 95
CONC LTPH		430	1212		1A IN	71	718		
FLUX LTPH		35	85		1B IN	68	662	[illegible]	
RATIO SP		.075	.070		CLR ST	60	633	3A	0.0 90.1
RATIO		.078	.071		OUTSIDE		61.4	3B	0 111
CALCIUM SP		2.00	3.35					WG	0 377
CALCIUM PCT		1.01	1.01						
								[illegible]	
170 LTPH		1134	1377					3A	1 23
								3B	0 54

[illegible]

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DIAGRAM NUMBER: 3004 VERSION: 0
DATE: 08/06/91 TIME: 09:39:41

08/06/91 [illegible] 09:39:40

[illegible]			[illegible]		[illegible]			[illegible]		
203-06	40.0	66.7	3 INCH	8.8	KEXIT	64	2185	SPEED	[illegible]	[illegible]
203-07	40.1	40.2	5 INCH	47.8	1A UG	72	992	BED	[illegible]	[illegible]
					1B UG	72	984	LTPH	[illegible]	470
[illegible]			[illegible]		DDII	90	1273			
203-06	51	2147	3 INCH	-30	DDI	81	696	[illegible]		
203-07	4000	0	5 INCH	327	SECAIR	[illegible]	2005	SPEED	[illegible]	[illegible]
					BURN Z	2286	2374	PRESS	[illegible]	[illegible]
[illegible]			STEP #2		PELLET	2282	2299	V DMPR	[illegible]	[illegible]
CONC LTPH		667	1350		1A IN	72	727			
FLUX LTPH		50	94		1B IN	68	690	[illegible]		
RATIO SP		.075	.070		CLR ST	72	711	3A	[illegible]	[illegible]
RATIO		.075	.070		OUTSIDE		63.7	3B	[illegible]	111
CALCIUM SP		2.00	3.35					WG	[illegible]	366
CALCIUM PCT		1.01	1.00							
								[illegible]		
170 LTPH		908	1413					3A	1	22
								3B	0	54

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DIAGRAM NUMBER: 3004 VERSION: 0
DATE: 08/06/91 TIME: 09:57:58

08/06/91 [illegible] 09:57:57

[illegible]			[illegible]		[illegible]			[illegible]		
203-06	57.3	59.4	3 INCH	8.8	KEXIT	54	2182	SPEED	[illegible]	[illegible]
203-07	40.2	40.2	5 INCH	48.2	1A UG	72	952	BED	[illegible]	[illegible]
					1B UG	70	966	LTPH	[illegible]	[illegible]
[illegible]			[illegible]		DDII	90	1284			
203-06	1220	1814	3 INCH	-30	DDI	81	696	[illegible]		
203-07	2999	0	5 INCH	367	SECAIR	95.3	2009	SPEED	[illegible]	[illegible]
					BURN Z	2786	2372	PRESS	0.44	0.44
[illegible]			STEP 2		PELLET	2784	2380	U DMPR	100	[illegible]
CONC LTPH		740	1281		1A IN	72	722			
FLUX LTPH		57	89		1B IN	68	692	[illegible]		
RATIO SP		.075	.070		CLR ST	72	689	3A	4.4	[illegible]
RATIO		.077	.068		OUTSIDE		62.1	3B	0	111
CALCIUM SP		2.00	3.35					WG	[illegible]	376
CALCIUM PCT		2.94	1.01							
								[illegible]		
170 LTPH		907	1179					3A	1	23
								3B	0	54

[illegible] IN PROGRESS

DIAGRAM NUMBER: 3004 VERSION: 0
DATE: 08/06/91 TIME: 10:17:10

08/06/91 [illegible] 10:17:07

[illegible]			[illegible]		[illegible]			[illegible]		
203-06	58.5	60.6	3 INCH	8.8	KEXIT	64	2163	SPEED	[illegible]	[illegible]
203-07	40.1	40.2	5 INCH	48.0	1A UG	72	930	BED	[illegible]	[illegible]
					1B UG	70	944	LTPH	[illegible]	[illegible]
[illegible]			[illegible]		DDII	90	1365			
203-06	1224	1183	3 INCH	0	DDI	81	644	[illegible]		
203-07	4000	0	5 INCH	286	SECAIR	95.3	2031	SPEED	9	56
					BURN Z	2784	2376	PRESS	0.01	.06
[illegible]			STEP 2		PELLET	2782	2284	V DMPR	100	95
CONC LTPH		587	1162		1A IN	72	718			
FLUX LTPH		44	83		1B IN	68	681	[illegible]		
RATIO SP		.075	.070		CLR ST	62	751	3A	0.4	44.1
RATIO		.075	.071		OUTSIDE		65.0	3B	0	113
CALCIUM SP		2.00	3.35					WG	0	384
CALCIUM PCT		3.01	1.01							
								[illegible]		
170 LTPH		696	1197					3A	1	29
								3B	0	54

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DIAGRAM NUMBER: 3004 VERSION: 0
DATE: 08/06/91 TIME: 10:35:31

08/06/91 AGGL 3 ANALOG STATUS OVERVIEW DIAG #3004 10:35:28

CONC SLURRY DENS			FLUX DENS		TEMPS			GRATE		
203-06	59.3	62.2	3 INCH	818	KEXIT	64	2138	SPEED	0	220
203-07	40.1	40.2	5 INCH	47.9	1A UG	72	920	BED	1.3	5.9
					1B UG	73	956	LTPH	1	492
CONC SLURRY FLOW			FLUX FLOW		DDII	90	1251			
203-06	1216	911	3 INCH	1	DDI	81	697	COOLER		
203-07	4000	0	5 INCH	269	SECAIR	95.3	2028	SPEED	0	52
					BURN Z	2786	2376	PRESS	0.01	0.01
FLUX MIXING			STEP 2		PELLET	2782	2277	V DMPR	100	95
CONC LTPH		553	1061		1A IN	72	719			
FLUX LTPH		41	76		1B IN	68	695	FAN AMPS		
RATIO SP		.075	.070		CLR ST	63	743	3A	0.0	92.1
RATIO		.075	.072		OUTSIDE		67.9	3B	0	112
CALCIUM SP		2.00	3.35					WG	0	393
CALCIUM PCT		3.07	1.00							
								DAMPER POS		
170 LTPH		747	1182					3A	1	28
								3B	0	54

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DIAGRAM NUMBER: 3004 VERSION: 0
DATE: 08/06/91 TIME: 10:54:52

08/06/91 AGGL 3 ANALOG STATUS OVERVIEW [illegible] 10:54:49

CONC SLURRY DENS			FLUX DENS		TEMPS			GRATE		
203-06	58.3	61.5	3 INCH	8.8	KEXIT	64	2133	SPEED	1	214
203-07	40.2	40.2	5 INCH	48.2	1A UG	70	936	BED	5.0	5.9
					1B UG	73	950	LTPH	1	489
CONC SLURRY FLOW			FLUX FLOW		DDII	88	1259			
203-06	1193	1130	3 INCH	0	DDI	81	702	COOLER		
203-07	4000	0	5 INCH	293	SECAIR	95.3	2023	SPEED	0	59
					BURN Z	2788	2378	PRESS	0.01	0.13
FLUX MIXING			STEP 2		PELLET	2782	2274	V DMPR	100	95
CONC LTPH		591	1298		1A IN	72	721			
FLUX LTPH		46	92		1B IN	68	689	FAN AMPS		
RATIO SP		.075	.070		CLR ST	72	720	3A	0.0	89.3
RATIO		.078	.072		OUTSIDE		66.2	3B	0	111
CALCIUM SP		2.00	3.35					WG	0	387
CALCIUM PCT		3.13	1.01							
								DAMPER POS		
170 LTPH		713	1207					3A	1	25
								3B	0	54

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DIAGRAM NUMBER: 3004 VERSION: 0
DATE: 08/06/91 TIME: 11:12:59

08/06/91 AGGL 3 ANALOG STATUS OVERVIEW DIAG 3004 11:12:56

CONC SLURRY DENS			FLUX DENS		TEMPS			GRATE		
203-06	57.0	61.7	3 INCH	8.8	KEXIT	64	2133	SPEED	1	225
203-07	40.2	40.2	5 INCH	48.2	1A UG	72	945	BED	0.4	5.7
					1B UG	73	944	LTPH	1	506
CONC SLURRY FLOW			FLUX FLOW		DDII	90	1243			
203-06	1196	1107	3 INCH	0	DDI	80	705	COOLER		
203-07	4000	0	5 INCH	284	SECAIR	95.3	2021	SPEED	0	51
					BURN Z	2786	2369	PRESS	0.01	-.02
FLUX MIXING			STEP 2		PELLET	2782	2265	V DMPR	100	95
CONC LTPH		575	1267		1A IN	72	723			
FLUX LTPH		44	89		1B IN	68	686	FAN AMPS		
RATIO SP		.075	.070		CLR ST	73	823	3A	0.0	91.5
RATIO		.076	.070		OUTSIDE		70.0	3B	0	110
CALCIUM SP		2.00	3.35					WG	0	394
CALCIUM PCT		3.16	1.01							
								DAMPER POS		
170 LTPH		728	1203					3A	1	27
								3B	0	54

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DIAGRAM NUMBER: 3004 VERSION: 0
DATE: 08/06/91 TIME: 11:26:52

08/06/91 AGGL 3 ANALOG STATUS OVERVIEW - DIAG #3004 11:26:52

CONC SLURRY DENS			FLUX DENS		TEMPS			GRATE		
203-06	58.8	62.7	3 INCH	8.8	KEXIT	64	2126	SPEED	1	217
203-07	40.2	40.2	5 INCH	48.2	1A UG	72	945	BED	0.4	5.9
					1B UG	73	943	LTPH	1	490
CONC SLURRY FLOW			FLUX FLOW		DDII	90	1249			
203-06	1200	1056	3 INCH	0	DDI	80	707	COOLER		
203-07	4000	0	5 INCH	284	SECAIR	95.3	2033	SPEED	0	52
					BURN Z	2784	2378	PRESS	0.01	0.03
FLUX MIXING			STEP 2		PELLET	2784	2267	V DMPR	100	95
CONC LTPH		588	1289		1A IN	72	724			
FLUX LTPH		44	87		1B IN	69	687	FAN AMPS		
RATIO SP		.075	.070		CLR ST	63	685	3A	0.0	88.8
RATIO		.075	.068		OUTSIDE		69.8	3B	0	109
CALCIUM SP		2.00	3.35					WG	0	391
CALCIUM PCT		3.15	1.01							
								DAMPER POS		
170 LTPH		706	1205					3A	1	26
								3B	0	55

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DIAGRAM NUMBER: 3004 VERSION: 0
DATE: 08/06/91 TIME: 11:52:05

08/06/91 AGGL 5 ANALOG STATUS OVERVIEW - DIAG #3004 11:52:03

CONC SLURRY DENS			FLUX DENS		TEMPS			GRATE		
203-06	58.3	62.8	3 INCH	8.8	KEXIT	64	2126	SPEED	1	221
203-07	40.2	40.2	5 INCH	48.5	1A UG	72	949	BED	0.4	5.8
					1B UG	73	956	LTPH	1	498
CONC SLURRY FLOW			FLUX FLOW		DDII	90	1228			
203-06	1181	1036	3 INCH	0	DDI	80	713	COOLER		
203-07	4000	0	5 INCH	278	SECAIR	95.3	2023	SPEED	0	58
					BURN Z	2786	2378	PRESS	0.01	.01
FLUX MIXING			STEP 2		PELLET	2784	2277	V DMPR	100	95
CONC LTPH		575	1198		1A IN	72	732			
FLUX LTPH		43	84		1B IN	69	690	FAN AMPS		
RATIO SP		.075	.070		CLR ST	72	688	3A	0.0	91.5
RATIO		.075	.072		OUTSIDE		70.5	3B	0	111
CALCIUM SP		2.00	3.35					WG	0	404
CALCIUM PCT		3.13	1.01							
								DAMPER POS		
170 LTPH		689	1192					3A	1	27
								3B	0	54

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DIAGRAM NUMBER: 3004 VERSION: 0
DATE: 08/06/91 TIME: 12:11:12

08/06/91 AGGL 3 ANALOG STATUS OVERVIEW - DIAG #3004 12:11:10

CONC SLURRY DENS			FLUX DENS		TEMPS			GRATE		
203-06	59.0	63.0	3 INCH	8.8	KEXIT	64	2119	SPEED	0	219
203-07	40.1	40.2	5 INCH	48.6	1A UG	72	938	BED	0.4	5.7
					1B UG	73	944	LTPH	1	487
CONC SLURRY FLOW			FLUX FLOW		DDII	90	1230			
203-06	1220	1247	3 INCH	0	DDI	80	709	COOLER		
203-07	4000	0	5 INCH	804	SECAIR	95.3	2004	SPEED	0	53
					BURN Z	2786	2395	PRESS	0.01	-.04
FLUX MIXING			STEP 2		PELLET	2782	2265	V DMPR	100	95
CONC LTPH		652	1284		1A IN	71	727			
FLUX LTPH		48	88		1B IN	69	684	FAN AMPS		
RATIO SP		.074	.070		CLR ST	72	673	3A	0.0	89.7
RATIO		.073	.068		OUTSIDE		70.9	3B	0	110
CALCIUM SP		2.00	3.35					WG	0	406
CALCIUM PCT		3.04	1.01							
								DAMPER POS		
170 LTPH		935	1210					3A	1	25
								3B	0	54

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DIAGRAM NUMBER: 3004 VERSION: 0
DATE: 08/06/91 TIME: 12:30:35

08/08/91 AGGL 5 ANALOG STATUS OVERVIEW - DIAG #5004 12:30:33

CONC SLURRY DENS			FLUX DENS		TEMPS			GRATE		
203-06	58.3	61.8	3 INCH	8.8	KEXIT	68	2119	SPEED	0	224
203-07	40.2	40.2	5 INCH	49.0	1A UG	72	951	BED	0.4	5.7
					1B UG	76	953	LTPH	1	511
CONC SLURRY FLOW			FLUX FLOW		DDII	90	1234			
203-06	1212	1427	3 INCH	0	DDI	80	709	COOLER		
203-07	4000	0	5 INCH	321	SECAIR	95.3	2019	SPEED	0	54
					BURN Z	2786	2378	PRESS	0.01	0.03
FLUX MIXING			STEP 2		PELLET	2784	2263	V DMPR	100	95
CONC LTPH		678	1208		1A IN	72	729			
FLUX LTPH		51	87		1B IN	70	688	FAN AMPS		
RATIO SP		.074	.070		CLR ST	75	635	3A	0.0	89.5
RATIO		.074	.073		OUTSIDE		71.0	3B	0	112
CALCIUM SP		2.00	3.35					WG	0	396
CALCIUM PCT		2.97	1.01							
								DAMPER POS		
170 LTPH		921	1222					3A	1	26
								3B	0	54

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DIAGRAM NUMBER: 3004 VERSION: 0
DATE: 08/06/91 TIME: 12:49:45

08/06/91 AGGL 3 ANALOG STATUS OVERVIEW - DIAG #3004 12:49:45

CONC SLURRY DENS			FLUX DENS		TEMPS			GRATE		
203-06	60.4	63.1	3 INCH	8.8	KEXIT	68	2129	SPEED	0	225
203-07	40.2	40.2	5 INCH	48.9	1A UG	73	951	BED	0.4	5.6
					1B UG	73	941	LTPH	1	508
CONC SLURRY FLOW			FLUX FLOW		DDII	92	1220			
203-06	1204	1752	3 INCH	0	DDI	83	708	COOLER		
203-07	4000	0	5 INCH	372	SECAIR	95.3	2011	SPEED	0	52
					BURN Z	2786	2371	PRESS	0.01	.01
FLUX MIXING			STEP 2		PELLET	2782	2272	V DMPR	100	95
CONC LTPH		805	1201		1A IN	72	729			
FLUX LTPH		59	83		1B IN	70	683	FAN AMPS		
RATIO SP		.074	.070		CLR ST	73	661	3A	0.0	94.6
RATIO		.074	.069		OUTSIDE		72.6	3B	0	111
CALCIUM SP		2.00	3.35					WG	0	396
CALCIUM PCT		3.12	1.01							
								DAMPER POS		
170 LTPH		1075	1196					3A	1	30
								3B	0	54

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DIAGRAM NUMBER: 3004 VERSION: 0
DATE: 08/06/91 TIME: 13:08:46

08/06/91 AGGL 3 ANALOG STATUS OVERVIEW - DIAG #3004 13:08:46

CONC SLURRY DENS			FLUX DENS		TEMPS			GRATE		
203-06	59.9	61.8	3 INCH	8.8	KEXIT	64	2114	SPEED	0	221
203-07	40.2	40.2	5 INCH	48.9	1A UG	75	996	BED	9.9	5.8
					1B UG	75	959	LTPH	1	487
CONC SLURRY FLOW			FLUX FLOW		DDII	90	1224			
203-06	1208	2022	3 INCH	0	DDI	82	714	COOLER		
203-07	4000	0	5 INCH	406	SECAIR	92.9	2009	SPEED	0	51
					BURN Z	2786	2388	PRESS	0.01	0.05
FLUX MIXING			STEP 2		PELLET	2782	2281	V DMPR	100	95
CONC LTPH		853	1108		1A IN	73	739			
FLUX LTPH		65	77		1B IN	70	687	FAN AMPS		
RATIO SP		.074	.070		CLR ST	66	661	3A	0.0	95.8
RATIO		.075	.070		OUTSIDE		73.1	3B	0	110
CALCIUM SP		2.00	3.35					WG	0	411
CALCIUM PCT		3.15	1.01							
								DAMPER POS		
170 LTPH		1123	1203					3A	1	31
								3B	0	54

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DIAGRAM NUMBER: 3004 VERSION: 0
DATE: 08/06/91 TIME: 13:32:21

08/06/91 AGGL 3 ANALOG STATUS OVERVIEW - DIAG #3004 13:32:19

CONC SLURRY DENS			FLUX DENS		TEMPS			GRATE		
203-06	57.2	58.4	3 INCH	8.8	KEXIT	64	2129	SPEED	0	229
203-07	40.1	40.2	5 INCH	48.8	1A UG	73	946	BED	0.0	5.8
					1B UG	75	949	LTPH	1	504
CONC SLURRY FLOW			FLUX FLOW		DDII	90	1232			
203-06	1220	1357	3 INCH	0	DDI	83	712	COOLER		
203-07	4000	0	5 INCH	290	SECAIR	92.9	2023	SPEED	0	54
					BURN Z	2786	2379	PRESS	0.01	0.01
FLUX MIXING			STEP 2		PELLET	2782	2263	V DMPR	100	95
CONC LTPH		614	1196		1A IN	71	732			
FLUX LTPH		46	84		1B IN	71	688	RAN AMPS		
RATIO SP		.074	.070		CLR ST	75	642	3A	0.0	92.3
RATIO		.074	.070		OUTSIDE		75.0	3B	0	111
CALCIUM SP		2.00	3.35					WG	0	409
CALCIUM PCT		3.24	1.01							
								DAMPER POS		
170 LTPH		1067	1207					3A	1	27
								3B	0	54

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DIAGRAM NUMBER: 3004 VERSION: 0
DATE: 08/06/91 TIME: 13:48:49

08/06/91 AGGL 3 ANALOG STATUS OVERVIEW DIAG #3004 13:48:48

CONC SLURRY DENS			FLUX DENS		TEMPS			GRATE		
203-06	60.1	63.4	3 INCH	8.8	KEXIT	64	2119	SPEED	1	222
203-07	40.2	40.2	5 INCH	48.8	1A UG	72	949	BED	0.0	5.5
					1B UG	75	950	LTPH	1	500
CONC SLURRY FLOW			FLUX FLOW		DDII	90	1249			
203-06	1224	1853	3 INCH	0	DDI	83	715	COOLER		
203-07	4000	0	5 INCH	393	SECAIR	95.3	2021	SPEED	0	57
					BURN Z	2786	2392	PRESS	0.01	0.03
FLUX MIXING			STEP 2		PELLET	2782	2260	V DMPR	100	95
CONC LTPH		839	1244		1A IN	72	734			
FLUX LTPH		62	86		1B IN	70	692	FAN AMPS		
RATIO SP		.074	.070		CLR ST	70	673	3A	0.0	91.9
RATIO		.073	.070		OUTSIDE		72.4	3B	0	109
CALCIUM SP		2.00	3.35					WG	0	401
CALCIUM PCT		3.05	1.01							
								DAMPER POS		
170 LTPH		1291	1207					3A	1	30
								3B	0	54

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DIAGRAM NUMBER: 3004 VERSION: 0
DATE: 08/06/91 TIME: 14:07:16

08/06/91 AGGL 3 ANALOG STATUS OVERVIEW DIAG #3004 14:07:14

CONC SLURRY DENS			FLUX DENS		TEMPS			GRATE		
203-06	60.5	63.0	3 INCH	8.8	KEXIT	64	2111	SPEED	0	217
203-07	40.2	40.2	5 INCH	49.0	1A UG	73	955	BED	0.0	5.8
					1B UG	76	946	LTPH	1	497
CONC SLURRY FLOW			FLUX FLOW		DDII	88	1251			
203-06	1173	2123	3 INCH	0	DDI	82	713	COOLER		
203-07	4000	0	5 INCH	431	SECAIR	92.9	2021	SPEED	0	55
					BURN Z	2786	2387	PRESS	0.01	0.13
FLUX MIXING			STEP 2		BELLET	2784	2270	V DMPR	100	95
CONC LTPH		904	1169		1A IN	71	732			
FLUX LTPH		68	87		1B IN	71	686	FAN AMPS		
RATIO SP		.074	.070		CLR ST	78	696	3A	0.0	93.3
RATIO		.075	.074		OUTSIDE		71.7	3B	0	110
CALCIUM SP		2.00	3.35					WG	0	393
CALCIUM PCT		3.29	1.01							
								DAMPER POS		
170 LTPH		1248	1185					3A	1	27
								3B	0	54

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DIAGRAM NUMBER: 3004 VERSION: 0
DATE: 08/06/91 TIME: 14:25:13

08/06/91 AGGL 3 ANALOG STATUS OVERVIEW - DIAG 3004 14:25:10

CONC SLURRY DENS			FLUX DENS		TEMPS			GRATE		
203-06	61.4	62.7	3 INCH	8.8	KEXIT	64	2124	SPEED	0	227
203-07	40.2	40.2	5 INCH	46.7	1A UG	73	951	BED	0.0	6.0
					1B UG	78	946	LTPH	1	509
CONC SLURRY FLOW			FLUX FLOW		DDII	90	1259			
203-06	1193	2147	3 INCH	0	DDI	83	713	COOLER		
203-07	4000	0	5 INCH	467	SECAIR	92.9	2019	SPEED	0	55
					BURN Z	2786	2372	PRESS	0.01	0.06
FLUX MIXING			STEP 2		PELLET	2782	2262	V DMPR	100	95
CONC LTPH		915	1160		1A IN	71	732			
FLUX LTPH		69	82		1B IN	71	688	FAN AMPS		
RATIO SP		.074	.070		CLR ST	78	733	3A	0.0	91.9
RATIO		.075	.071		OUTSIDE		70.4	3B	0	111
CALCIUM SP		2.00	3.35					WG	0	392
CALCIUM PCT		3.16	1.01							
								DAMPER POS		
170 LTPH		1118	1191					3A	1	27
								3B	0	54

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UNIT 6	0.09	-0.48								
UNIT 7	-0.37	-0.15	9852.25	130.15	122.19	88.11	112.60			31.91
TOT/AVG	-0.28	-0.63	9852.25							

HOURLY LOG 08-06-91 0730

	CONC 1 FD LTPH	CONC 2 FD LTPH	CONC 3 FD LTPH	CONC 4 FD LTPH	CONC 5 FD LTPH	G. BALL1 LTPH	G. BALL2 LTPH	G. BALL3 LTPH	G. BALL4 LTPH	G. BALL5 LTPH	FIL CAKE LTPH
UNIT 6											
UNIT 7	103.01	102.92	102.89	103.12	102.86	102.04	101.35	99.43	96.29	101.73	502.00
TOT/AVG											502.00

	BENT 1 LBS/HR	BENT 2 LBS/HR	BENT 3 LBS/HR	BENT 4 LBS/HR	BENT 5 LBS/HR	CONC FD LTPH	GRN BALL TOT TPH	PELLETS LTPH	G.B.CONC RE.L LTPH	CONC STK TONS/TPH	RECLAIM TONS/TPH
UNIT 6										200.00	
UNIT 7	1462.91	1400.23	1403.30	1461.72	1414.42	514.88	500.86	390.72	949.02	201.28	
TOT/AVG						514.87	500.86	390.71	949.02		

	GRTE SPD IN P MIN	BED DPTH INCHES	CONC THK WELD A-1	CONC THK WELD A-2	SLURRY LEVL FT.	HOOD PRESSURE	3A SIDE PRESSURE	3B SIDE PRESSURE	WDBOX 3A PRESSURE	WDBOX 3B PRESSURE	OUTSIDE TEMP
UNIT 6	[illegible]	1.22	59.17		31.89	-0.01		0.01		-0.04	
UNIT 7	1220.60	5.77	[illegible]		47.33	-0.04	0.05	0.01	11.77	13.35	
TOT/AVG											

	PREHEAT FUR PRER	PREHEAT W.B. PRES	DRY FURN PRESSURE	DRY WIND PRESSURE	BRN ZONE TEMP DEG	EXIT GAS TEMP DEG	SEC AIR TEMP DEG	COOL STK TEMP DEG	DRY FURN TEMP DEG	PREHT 1A FAN TEMP	PREHT 1B FAN TEMP
UNIT 6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
UNIT 7	-0.15	0.24	-0.67	-10.[illegible]	2375.00	2109.13	2001.88	625.11	707.98	727.02	689.31
TOT/AVG											

	PRE W.B. TEMP 1E	PRE W.B. TEMP 2E	PRE W.B. TEMP 3E	PRE W.B. TEMP 4E	PRE W.B. TEMP 5E	PRE W.B. TEMP 6E	PRE W.B. TEMP 7E	1A1 BYPS TEMP	1A2 BYPS TEMP	1B1 BYPS TEMP	1B2 BYPS TEMP
UNIT 6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
UNIT 7	953.42	638.12	953.74	835.[illegible]	724.16	582.[illegible]	489.78	0.81	1078.33	1503.64	1403.64
TOT/AVG											

	PRE W.B. TEMP 1W	PRE W.B. TEMP 2W	PRE W.B. TEMP 3W	PRE W.B. TEMP 4W	PRE W.B. TEMP 5W	PRE W.B. TEMP 6W	PRE W.B. TEMP 7W	WSTE GAS TEMP NO1	WSTE GAS TEMP NO2	BURNER PRES PSI	COAL FD TOT LBS
UNIT 6	67.20	68.26	68.33	65.60	66.53	66.75	68.34	72.39	70.53	0.09	
UNIT 7	1014.27	763.59	951.91	893.74	834.59	641.80	549.28	115.51	115.51	0.02	12025.00
TOT/AVG											

	CONC FD1 TONS	CONC FD2 TONS	CONC FD3 TONS	CONC FD4 TONS	CONC FD5 TONS	BENT FD1 LBS	BENT FD2 LBS	BENT FD3 LBS	BENT FD4 LBS	BENT FD5 LBS	REJECT TON/LTPH
UNIT 6											
UNIT 7	102.92	103.61	99.82	103.32	101.42	1555.00	1349.00	1387.00	1334.00	1333.00	67.57
TOT/AVG											

	G. BALL1 TONS	G. BALL2 TONS	G. BALL3 TONS	G. BALL4 TONS	G. BALL5 TONS	PELLET 1 TONS	PELLET 2 TONS	PELLET 3 TONS	PELLET 4 TONS	PELLET 5 TONS	042 TONS 6-1/6-2
UNIT 6											577.16
UNIT 7	102.83	100.72	99.52	97.02	101.52	80.19	78.55	77.62	75.67	79.17	23.90
TOT/AVG											

	BNT1 LBS /PRD TON	BNT2 LBS /PRD TON	BNT3 LBS /PRD TON	BNT4 LBS /PRD TON	BNT5 LBS /PRD TON	CONC FD TOT TONS	BENT FD TOT LBS	GRN BALL TOT TONS	PELLETS TOT TONS	BENT LBS /PRD TON	CALC GRT GB LTPH
UNIT 6											
UNIT 7	19.84	17.62	18.38	18.19	17.24	511.16	6958.06	501.67	391.25	17.84	501.21
TOT/AVG						511.16	6958.06	501.67	391.25	17.84	

	GAS FLO AC MCF	FUEL OIL FLOW GPM	COAL LBS./HR	1A FAN AMPS	1B FAN AMPS	3A FAN AMPS	3B FAN AMPS	PCT PREHT BTU
UNIT 6	0.09	-0.48						
UNIT 7	-0.37	-0.15	10007.25	131.12	122.88	88.29	112.68	31.62
TOT/AVG	-0.28	-0.63	10007.25					

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	CONC 1 FD LTPH	CONC 2 FD LTPH	CONC 3 FD LTPH	CONC 4 FD LTPH	CONC 5 FD LTPH	G. BALL1 LTPH	G. BALL2 LTPH	G. BALL3 LTPH	G. BALL4 LTPH	G. BALL5 LTPH	FIL CAKE LTPH
UNIT 6		1.31	114.26	-3.62	-4.16						
UNIT 7	83.57	83.72	83.95	83.86	83.71	85.21	84.38	81.83	78.55	83.20	405.54
TOT/AVG											405.54

	BENT 1 LBS/HR	BENT 2 LBS/HR	BENT 3 LBS/HR	BENT 4 LBS/HR	BENT 5 LBS/HR	CONC FD LTPH	GRN BALL TOT TPH	PELLETS LTPH	G.B.CONC REJ LTPH	CONC STK TONS/TPH	RECLAIM TONS/TPH
UNIT 6						42.24				202.00	
UNIT 7	1158.20	1103.66	1103.98	1154.19	1127.30	418.96	354.63	314.14	1037.03	195.91	
TOT/AVG						418.96	354.63	314.14	1037.03		

	GRTE SPD IN P MIN	BED DPTH INCHES	CONC THK UFLO A-1	CONC THK UFLO A-2	SLURRY LEVL FT.	HOOD PRESSURE	3A SIDE PRESSURE	3B SIDE PRESSURE	WDBOX 3A PRESSURE	WDBOX 3B PRESSURE	OUTSIDE TEMP
UNIT 6		1.25	58.67		31.44	-0.02		0.01		-0.04	
UNIT 7	179.70	5.48			45.30	-0.02	0.04	0.07	7.83	12.67	
TOT/AVG											

	PREHEAT FUR PRES	PREHEAT W.B.PRES	DRY FURN PRESSURE	DRY WIND PRESSURE	BRN ZONE TEMP DEG	EXIT GAS TEMP DEG	SEC AIR TEMP DEG	COOL STK TEMP DEG	DRY FURN TEMP DEG	PREHT 1A FAN TEMP	PREHT 1B FAN TEMP
UNIT 6	[illegible]	[illegible]	-0.04	-0.09	2774.59	48.38	90.32	63.34	79.27	70.52	65.53
UNIT 7	[illegible]	[illegible]	-0.47	-0.58	2373.28	2061.06	1905.45	560.75	487.75	695.21	660.80
TOT/AVG											

	PRE W.B. TEMP 1E	PRE W.B. TEMP 2E	PRE W.B. TEMP 3E	PRE W.B. TEMP 4E	PRE W.B. TEMP 5E	PRE W.B. TEMP 6E	PRE W.B. TEMP 7E	1A1 BYPS TEMP	1A2 BYPS TEMP	1B1 BYPS TEMP	1B2 BYPS TEMP
UNIT 6	[illegible]	[illegible]	[illegible]	67.67	[illegible]	65.83	[illegible]	0.14		[illegible]	
UNIT 7	[illegible]	[illegible]	949.74	842.37	737.52	660.25	495.32	-0.48	1059.95	1518.45	1327.92
TOT/AVG											

	PRE W.B. TEMP 1W	PRE W.B. TEMP 2W	PRE W.B. TEMP 3W	PRE W.B. TEMP 4W	PRE W.B. TEMP 5W	PRE W.B. TEMP 6W	PRE W.B. TEMP 7W	WSTE GAS TEMP NO1	WSTE GAS TEMP NO2	BURNER PRES PSI	COAL FD TOT LBS
UNIT 6	47.18	67.85	68.10	65.65	66.51	62.09	68.32	71.11	70.53	0.09	
UNIT 7	970.25	785.82	946.01	892.30	822.82	660.13	549.19	109.89	110.07	0.02	11950.00
TOT/AVG											

	CONC FD1 TONS	CONC FD2 TONS	CONC FD3 TONS	CONC FD4 TONS	CONC FD5 TONS	BENT FD1 LBS	BENT FD2 LBS	BENT FD3 LBS	BENT FD4 LBS	BENT FD5 LBS	REJECT TON/LTPH
UNIT 6											
UNIT 7	83.41	84.41	80.21	83.81	82.21	1215.00	1051.00	1085.00	1082.00	1061.00	50.82
TOT/AVG											

	G. BALL1 TONS	G. BALL2 TONS	G. BALL3 TONS	G. BALL4 TONS	G. BALL5 TONS	PELLET 1 TONS	PELLET 2 TONS	PELLET 3 TONS	PELLET 4 TONS	PELLET 5 TONS	042 TON A-1/A-2
UNIT 6											516.59
UNIT 7	68.45	73.63	71.93	70.03	73.04	53.39	57.44	56.11	54.62	56.97	
TOT/AVG											

	BNT1 LBS /PRD TON	BNT2 LBS /PRD TON	BNT3 LBS /PRD TON	BNT4 LBS /PRD TON	BNT5 LBS /PRD TON	CONC FD TOT TONS	BENT FD TOT LBS	GRN BALL TOT TONS	PELLETS TOT TONS	BENT LBS /PRD TON	CALC BR GR LTPH
UNIT 6											
UNIT 7	18.65	16.64	17.62	18.05	16.99	414.05	5494.06	357.07	278.59	18.37	403.05
TOT/AVG						414.05	5494.06	357.07	278.59	18.37	

	GAS FLO AC MCF	FUEL OIL FLOW GPM	COAL LBS./HR	1A FAN AMPS	1B FAN AMPS	3A FAN AMPS	3B FAN AMPS	PCT.2 PREHT RTU
UNIT 6	0.09	-0.48						
UNIT 7	-0.37	-0.15	10261.13	118.91	119.50	75.57	112.78	[illegible]
TOT/AVG	-0.28	-0.63	10261.13					

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	CONC 1 FD LTPH	CONC 2 FD LTPH	CONC 3 FD LTPH	CONC 4 FD LTPH	CONC 5 FD LTPH	G. BALL1 LTPH	G. BALL2 LTPH	G. BALL3 LTPH	G. BALL4 LTPH	G. BALL5 LTPH	FIL CAKE LTPH
UNIT 6			119.23	-3.77	-4.17						
UNIT 7	93.27	93.42	93.00	93.42	93.25	94.52	92.40	89.97	86.78	91.77	455.00
TOT/AVG											455.00

	BENT 1 LBS/HR	BENT 2 LBS/HR	BENT 3 LBS/HR	BENT 4 LBS/HR	BENT 5 LBS/HR	CONC FD LTPH	GRN BALL TOT TPH	PELLETS LTPH	G.B.CONC REJ LTPH	CONC STK TONS/TPH	RECLAIM TONS/TPH
UNIT 6						99.71					
UNIT 7	1282.34	1227.45	1236.17	1286.39	1257.09	466.37	455.46	355.30	927.02	-4.41	
TOT/AVG						466.37	455.46	355.29	927.02		

	GRTE SPD IN P MIN	BED DPTH INCHES	CONC THK UELO A-1	CONC THK UELO A-2	SLURRY LEVL FT.	HOOD PRESSURE	3A SIDE PRESSURE	3B SIDE PRESSURE	WDBOX 3A PRESSURE	WDBOX 3B PRESSURE	OUTSIDE TEMP
UNIT 6	146.61	1.26	50.92		31.25	-0.01		0.01		-0.04	
UNIT 7	198.63	5.78			45.37	-0.06	0.04	0.01	10.19	13.12	
TOT/AVG											

	PREHEAT FUR PRES	PREHEAT W.B.PRES	DRY FURN PRESSURE	DRY WIND PRESSURE	BRN ZONE TEMP DEG	EXIT GAS TEMP DEG	SEC AIR TEMP DEG	COOL STK TEMP DEG	DRY FURN TEMP DEG	PREHT 1A FAN TEMP	PREHT 1B FAN TEMP
UNIT 6	-0.03	0.01	-0.04	-0.09	2776.50	48.32	90.51	64.87	79.27	70.08	65.53
UNIT 7	-0.07	[illegible]	[illegible]	-8.40	2376.44	218.69	1933.22	621.14	680.00	706.28	677.89
TOT/AVG											

	PRE W.B. TEMP 1E	PRE W.B. TEMP 2E	PRE W.B. TEMP 3E	PRE W.B. TEMP 4E	PRE W.B. TEMP 5E	PRE W.B. TEMP 6E	PRE W.B. TEMP 7E	1A1 BYPS TEMP	1A2 BYPS TEMP	1B1 BYPS TEMP	1B2 BYPS TEMP
UNIT 6	[illegible]	[illegible]	[illegible]	[illegible]	67.54	66.26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
UNIT 7	558.44	620.32	550.64	[illegible]	717.23	581.29	484.74	0.65	1043.28	1482.72	1337.77
TOT/AVG											

	PRE W.B. TEMP 1W	PRE W.B. TEMP 2W	PRE W.B. TEMP 3W	PRE W.B. TEMP 4W	PRE W.B. TEMP 5W	PRE W.B. TEMP 6W	PRE W.B. TEMP 7W	WSTE GAS TEMP NO1	WSTE GAS TEMP NO2	BURNER PRES PST	COAL FD TOT LBS
UNIT 6	67.31	68.16	69.26	66.43	67.15	67.50	68.34	71.11	70.53	0.09	
UNIT 7	996.80	765.74	930.59	884.33	821.52	625.81	528.88	113.02	113.27	0.02	11025.00
TOT/AVG											

	CONC FD1 TONS	CONC FD2 TONS	CONC FD3 TONS	CONC FD4 TONS	CONC FD5 TONS	BENT FD1 LBS	BENT FD2 LBS	BENT FD3 LBS	BENT FD4 LBS	BENT FD5 LBS	REJECT TON/LTPH
UNIT 6											
UNIT 7	93.12	94.62	90.11	93.52	91.32	1348.00	1172.00	1221.00	1186.00	1185.00	60.23
TOT/AVG											

	G. BALL1 TONS	G. BALL2 TONS	G. BALL3 TONS	G. BALL4 TONS	G. BALL5 TONS	PELLET 1 TONS	PELLET 2 TONS	PELLET 3 TONS	PELLET 4 TONS	PELLET 5 TONS	042 TONS 6-1/6-2
UNIT 6											540.85
UNIT 7	95.12	91.92	89.41	87.31	90.92	74.19	71.69	69.74	68.11	70.92	13.20
TOT/AVG											

	BNT1 LBS /PRD TON	BNT2 LBS /PRD TON	BNT3 LBS /PRD TON	BNT4 LBS /PRD TON	BNT5 LBS /PRD TON	CONC FD TOT TONS	BENT FD TOT LBS	GRN BALL TOT TONS	PELLETS TOT TONS	BENT LBS /PRD TON	CALC BRT GB LTPH
UNIT 6											75.03
UNIT 7	18.75	18.92	18.23	18.14	17.35	462.68	6112.00	454.66	354.68	17.33	451.48
TOT/AVG						462.68	6112.00	454.66	354.68	17.33	

	GAS FLO AC MCF	FUEL OIL FLOW GPM	COAL LBS./HR	1A FAN AMPS	1B FAN AMPS	3A FAN AMPS	3B FAN AMPS	PCT PREHT BTU
UNIT 6	0.09	-0.48						
UNIT 7	-0.37	-0.15	9156.00	127.97	122.02	82.19	112.27	37.72
TOT/AVG	-0.28	-0.63	9156.00					

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	CONC 1 FD LTPH	CONC 2 FD LTPH	CONC 3 FD LTPH	CONC 4 FD LTPH	CONC 5 FD LTPH	B. BALL1 LTPH	G. BALL2 LTPH	B. BALL3 LTPH	B. BALL4 LTPH	B. BALL5 LTPH	FIL CAKE LTPH
UNIT 6			120.24	-3.87	-4.05						
UNIT 7	100.48	100.31	100.40	100.23	100.41	101.71	99.29	97.73	93.84	99.41	493.37
TOT/AVG											493.37

	BENT 1 LBS/HR	BENT 2 LBS/HR	BENT 3 LBS/HR	BENT 4 LBS/HR	BENT 5 LBS/HR	CONC FD LTPH	GRN BALL TOT TPH	PELLETS LTPH	G.B.CONC REJ LTPH	CONC STK TONS/TPH	RECLAIM TONS/TPH
UNIT 6						112.30					
UNIT 7	1383.48	1326.84	1330.05	1386.00	1357.34	501.83	491.97	383.78	935.02	-4.68	
TOT/AVG						501.83	491.96	383.77	935.02		

	BRTE SPD IN P MIN	BED DPTH INCHES	CONC THK UFLO A-1	CONC THK UFLO A-2	SLURRY LEVL FT.	HOOD PRESSURE	3A SIDE PRESSURE	3B SIDE PRESSURE	WDBOX 3A PRESSURE	WDBOX 3B PRESSURE	OUTSIDE TEMP
UNIT 6		1.27	58.90		32.43	-0.01		0.01		-0.04	
UNIT 7	216.09	5.78			45.38	-0.06	0.04	0.01	11.72	13.54	
TOT/AVG											

	PREHEAT FUR PRES	PREHEAT W.B.PRES	DRY FURN PRESSURE	DRY WIND PRESSURE	BRN ZONE TEMP DEG	EXIT GAS TEMP DEG	SEC. AIR TEMP DEG	COOL STK TEMP DEG	DRY FURN TEMP DEG	PREHT 1A FAN TEMP	PREHT 1B FAN TEMP
UNIT 6	0.03	0.01	0.01	-0.04	2746.57	48.17	789.41	45.53	79.27	49.83	45.87
UNIT 7	0.12	8.54	-0.47	10.08	2375.13	2148.54	2021.06	687.22	698.55	720.02	690.48
TOT/AVG											

	PRE W.B. TEMP 1E	PRE W.B. TEMP 2E	PRE W.B. TEMP 3E	PRE W.B. TEMP 4E	PRE W.B. TEMP 5E	PRE W.B. TEMP 6E	PRE W.B. TEMP 7E	1A1 BYPS TEMP	1A2 BYPS TEMP	1B1 BYPS TEMP	1B2 BYPS TEMP
UNIT 6	69.36	69.43	68.26	80.20	48.44	80.85	47.83	0.16		47.35	
UNIT 7	942.07	1453.94	338.73	1811.62	729.26	585.74	493.00	0.78	1096.91	1586.02	1415.03
TOT/AVG											

	PRE W.B. TEMP 1W	PRE W.B. TEMP 2W	PRE W.B. TEMP 3W	PRE W.B. TEMP 4W	PRE W.B. TEMP 5W	PRE W.B. TEMP 6W	PRE W.B. TEMP 7W	WSTE GAS TEMP NO1	WSTE GAS TEMP NO2	BURNER PRES PSI	COAL FD TOT LBS
UNIT 6	67.46	68.34	68.34	66.51	67.32	68.33	68.86	73.55	72.00	0.09	
UNIT 7	1002.20	758.19	943.56	893.12	834.57	637.07	540.68	114.73	115.51	0.02	10800.00
TOT/AVG											

	CONC FD1 TONS	CONC FD2 TONS	CONC FD3 TONS	CONC FD4 TONS	CONC FD5 TONS	BENT FD1 LBS	BENT FD2 LBS	BENT FD3 LBS	BENT FD4 LBS	BENT FD5 LBS	REJECT TON/LTPH
UNIT 6											
UNIT 7	100.12	100.92	97.22	100.62	98.92	1479.00	1271.00	1310.00	1262.00	1276.00	62.39
TOT/AVG											

	G. BALL1 TONS	G. BALL2 TONS	G. BALL3 TONS	G. BALL4 TONS	G. BALL5 TONS	PELLET 1 TONS	PELLET 2 TONS	PELLET 3 TONS	PELLET 4 TONS	PELLET 5 TONS	042 TON 6-1/6-2
UNIT 6											610.73
UNIT 7	102.53	98.92	97.72	94.72	99.12	79.95	77.15	76.21	73.87	77.30	
TOT/AVG											

	BNT1 LBS /PRD TON	BNT2 LBS /PRD TON	BNT3 LBS /PRD TON	BNT4 LBS /PRD TON	BNT5 LBS /PRD TON	CONC FD TOT TONS	BENT FD TOT LBS	GRN BALL TOT TONS	PELLETS TOT TONS	BENT LBS /PRD TON	CALC GR GB LTPH
UNIT 6											
UNIT 7	18.88	16.94	17.71	17.73	16.99	497.82	6598.06	493.02	384.55	17.22	491.93
TOT/AVG						497.82	6598.06	493.02	384.55	17.22	

	GAS FLO AC MCF	FUEL OIL FLOW GPM	COAL LBS./HR	1A FAN AMPS	1B FAN AMPS	3A FAN AMPS	3B FAN AMPS	PCT PREHT BTU
UNIT 6	0.09	-0.48						
UNIT 7	-0.37	-0.15	8739.00	127.80	123.39	87.57	112.22	39.54
TOT/AVG	-0.28	-0.43	8739.00					

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	CONC 1 FD LTPH	CONC 2 FD LTPH	CONC 3 FD LTPH	CONC 4 FD LTPH	CONC 5 FD LTPH	G. BALL1 LTPH	G. BALL2 LTPH	G. BALL3 LTPH	G. BALL4 LTPH	G. BALL5 LTPH	FIL CAKE LTPH
UNIT 6			82.22	-3.83	-3.95						
UNIT 7	102.81	102.92	102.93	103.03	102.92	103.50	101.37	99.71	96.23	102.01	503.98
TOT/AVG											503.98

	BENT 1 LBS/HR	BENT 2 LBS/HR	BENT 3 LBS/HR	BENT 4 LBS/HR	BENT 5 LBS/HR	CONC FD LTPH	GRN BALL TOT TPH	PELLETS LTPH	G.B.CONC RE.I LTPH	CONC STK TONS/TPH	RECLAIM TONS/TPH
UNIT 6						62.60				58.00	
UNIT 7	1420.56	1357.80	1361.50	1420.31	1388.30	514.59	502.80	392.23	911.02	58.06	
TOT/AVG						514.41	502.80	392.23	911.02		

	GRTE SPD IN P MIN	BED DPTH INCHES	CONC THK UFLO A-1	CONC THK UFLO A-2	SLURRY LEVL FT.	HOOD PRESSURE	3A SIDE PRESSURE	3B SIDE PRESSURE	WDBOX 3A PRESSURE	WDBOX 3B PRESSURE	OUTSIDE TEMP
UNIT 6		1.88	58.73		34.54	-0.01		0.01		-0.04	
UNIT 7	223.95	5.78			45.43	-0.06	0.04	0.02	12.98	13.80	
TOT/AVG											

	PREHEAT FUR PRES	PREHEAT W.B.PRES	DRY FURN PRESSURE	DRY WIND PRESSURE	BRN ZONE TEMP DEG	EXIT GAS TEMP DEG	SEC AIR TEMP DEG	COOL STK TEMP DEG	DRY FURN TEMP DEG	PREHT 1A FAN TEMP	PREHT 1B FAN TEMP
UNIT 6	-0.03	-0.01	-0.04	-0.05	2776.59	48.44	789.05	66.31	79.27	449.51	466.32
UNIT 7	-0.18	-10.08	-0.47	-11.91	2374.91	2120.72	2032.32	734.64	708.80	228.36	492.70
TOT/AVG											

	PRE W.B. TEMP 1E	PRE W.B. TEMP 2E	PRE W.B. TEMP 3E	PRE W.B. TEMP 4E	PRE W.B. TEMP 5E	PRE W.B. TEMP 6E	PRE W.B. TEMP 7E	1A1 BYPS TEMP	1A2 BYPS TEMP	1B1 BYPS TEMP	1B2 BYPS TEMP
UNIT 6	70.81	70.[illegible]	70.43	68.[illegible]	69.34	68.84	68.81	0.16	[illegible]	77.35	[illegible]
UNIT 7	947.37	624.[illegible]	954.24	[illegible]	30.[illegible]	581.[illegible]	497.[illegible]	0.[illegible]	1102.78	1549.22	1412.39
TOT/AVG											

	PRE W.B. TEMP 1W	PRE W.B. TEMP 2W	PRE W.B. TEMP 3W	PRE W.B. TEMP 4W	PRE W.B. TEMP 5W	PRE W.B. TEMP 6W	PRE W.B. TEMP 7W	WSTE GAS TEMP NO1	WSTE GAS TEMP NO2	BURNER PRES PSI	COAL FD TOT LBS
UNIT 6	69.44	66.64	68.70	67.02	68.08	69.24	69.28	75.48	73.25	0.09	
UNIT 7	992.94	740.57	940.51	890.14	834.27	648.27	549.18	115.51	115.51	0.02	11700.00
TOT/AVG											

	CONC FD1 TONS	CONC FD2 TONS	CONC FD3 TONS	CONC FD4 TONS	CONC FD5 TONS	BENT FD1 LBS	BENT FD2 LBS	BENT FD3 LBS	BENT FD4 LBS	BENT FD5 LBS	REJECT TON/LTPH
UNIT 6			0.20								
UNIT 7	102.82	103.71	99.62	103.12	101.52	1520.00	1304.00	1344.00	1271.00	1304.00	56.60
TOT/AVG											

	G. BALL1 TONS	G. BALL2 TONS	G. BALL3 TONS	G. BALL4 TONS	G. BALL5 TONS	PELLET 1 TONS	PELLET 2 TONS	PELLET 3 TONS	PELLET 4 TONS	PELLET 5 TONS	042 TONS 6-1/6-2
UNIT 6											651.27
UNIT 7	104.63	100.72	99.52	97.12	101.62	81.59	78.55	77.62	75.74	79.25	
TOT/AVG											

	BNT1 LBS /PRD TON	BNT2 LBS /PRD TON	BNT3 LBS /PRD TON	BNT4 LBS /PRD TON	BNT5 LBS /PRD TON	CONC FD TOT TONS	BENT FD TOT LBS	GRN BALL TOT TONS	PELLETS TOT TONS	BENT LBS /PRD TON	CALC GR GB LTPH
UNIT 6						0.20					
UNIT 7	18.96	17.00	17.83	17.35	16.83	510.86	6743.06	503.66	392.81	17.21	509.32
TOT/AVG						511.06	6743.06	503.66	392.81	17.21	

	GAS FLO AC MCF	FUEL OIL FLOW GPH	COAL LBS./HR	1A FAN AMPS	1B FAN AMPS	3A FAN AMPS	3B FAN AMPS	PCT PREHT BTU
UNIT 6	0.09	-0.48						
UNIT 7	-0.37	-0.15	9496.88	135.64	125.78	91.86	111.51	31.45
TOT/AVG	-0.28	-0.63	9496.88					

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	CONC 1 FD LTPH	CONC 2 FD LTPH	CONC 3 FD LTPH	CONC 4 FD LTPH	CONC 5 FD LTPH	G. BALL1 LTPH	G. BALL2 LTPH	G. BALL3 LTPH	G. BALL4 LTPH	G. BALL5 LTPH	FIL CAKE LTPH
UNIT 6			78.65	-3.88	-3.90						
UNIT 7	102.88	103.00	102.91	103.01	102.88	103.23	101.51	99.65	96.04	101.80	502.68
TOT/AVG											502.68

	BENT 1 LBS/HR	BENT 2 LBS/HR	BENT 3 LBS/HR	BENT 4 LBS/HR	BENT 5 LBS/HR	CONC FD LTPH	GRN BALL TOT TPH	PELLETS LTPH	G.B.CONC REJ LTPH	CONC STK TONS/TPH	RECLAIM TONS/TPH
UNIT 6						5.57				201.00	
UNIT 7	1421.14	1359.31	1361.88	1420.47	1387.91	514.67	502.23	391.77	913.02	204.88	
TOT/AVG						514.66	502.22	391.77	913.02		

	GRTE SPD IN P MIN	BED DPTH INCHES	CONC THK UFLO A-1	CONC THK UFLO A-2	SLURRY LEVL FT.	HOOD PRESSURE	3A SIDE PRESSURE	3B SIDE PRESSURE	WDBOX 3A PRESSURE	WDBOX 3B PRESSURE	OUTSIDE TEMP
UNIT 6		0.36	59.06		35.68	-0.01		0.01		-0.04	
UNIT 7	223.83	5.77			45.45	-0.06	0.04	-0.00	12.83	13.75	
TOT/AVG											

	PREHEAT EUR PRES	PREHEAT W.B.PRES	DRY FURN PRESSURE	DRY WIND PRESSURE	BRN ZONE TEMP DEG	EXIT GAS TEMP DEG	SEC AIR TEMP DEG	COOL STK TEMP DEG	DRY FURN TEMP DEG	PREHT 1A FAN TEMP	PREHT 1B FAN TEMP
UNIT 6	0.03	0.02	0.04	-0.05	2776.66	49.86	89.73	67.86	79.27	69.36	67.04
UNIT 7	0.17	10.68	0.67	-12.91	2375.06	2110.78	2021.34	684.38	714.27	732.13	689.26
TOT/AVG											

	PRE W.B. TEMP 1E	PRE W.B. TEMP 2E	PRE W.B. TEMP 3E	PRE W.B. TEMP 4E	PRE W.B. TEMP 5E	PRE W.B. TEMP 6E	PRE W.B. TEMP 7E	1A1 BYPS TEMP	1A2 BYPS TEMP	1B1 BYPS TEMP	1B2 BYPS TEMP
UNIT 6	71.72	69.27	71.41	69.32	70.26	68.98	69.26	0.16	[illegible]	77.35	[illegible]
UNIT 7	938.42	818.62	952.83	818.39	727.25	587.44	453.97	[illegible]	[illegible]	1530.[illegible]	[illegible]
TOT/AVG											

	PRE W.B. TEMP 1W	PRE W.B. TEMP 2W	PRE W.B. TEMP 3W	PRE W.B. TEMP 4W	PRE W.B. TEMP 5W	PRE W.B. TEMP 6W	PRE W.B. TEMP 7W	WSTE GAS TEMP NO1	WSTE GAS TEMP NO2	BURNER PRES PSI	COAL FD TOT LBS
UNIT 6	69.38	69.41	69.28	67.59	68.35	70.62	69.56	76.10	75.52	0.09	
UNIT 7	1000.30	748.73	950.73	897.15	842.13	658.34	555.97	115.51	115.51	0.02	11900.00
TOT/AVG											

	CONC FD1 TONS	CONC FD2 TONS	CONC FD3 TONS	CONC FD4 TONS	CONC FD5 TONS	BENT FD1 LBS	BENT FD2 LBS	BENT FD3 LBS	BENT FD4 LBS	BENT FD5 LBS	REJECT TON/LTPH
UNIT 6											
UNIT 7	102.82	103.51	99.52	103.22	101.52	1517.00	1307.00	1343.00	1275.00	1311.00	56.05
TOT/AVG											

	G. BALL1 TONS	G. BALL2 TONS	G. BALL3 TONS	G. BALL4 TONS	G. BALL5 TONS	PELLET 1 TONS	PELLET 2 TONS	PELLET 3 TONS	PELLET 4 TONS	PELLET 5 TONS	042 TONS 6-1/6-2
UNIT 6											
UNIT 7	104.02	100.82	99.42	96.51	101.52	81.12	78.63	77.54	75.28	79.17	643.02
TOT/AVG											

	BNT1 LBS /PRD TON	BNT2 LBS /PRD TON	BNT3 LBS /PRD TON	BNT4 LBS /PRD TON	BNT5 LBS /PRD TON	CONC FD TOT TONS	BENT FD TOT LBS	GRN BALL TOT TONS	PELLETS TOT TONS	BENT LBS /PRD TON	CALC GR GR LTPH
UNIT 6											
UNIT 7	19.15	17.10	17.85	17.54	16.91	510.70	6753.06	502.34	391.80	17.29	508.80
TOT/AVG						510.70	6753.06	502.34	391.80	17.29	

	GAS FLO AC MCF	FUEL OIL FLOW GPM	COAL LBS./HR	1A FAN AMPS	1B FAN AMPS	3A FAN AMPS	3B FAN AMPS	PCT PREHT RTI
UNIT 6	0.09	0.48						
UNIT 7	0.37	0.15	9910.38	136.76	126.31	91.68	111.18	30.52
TOT/AVG	0.28	0.63	9910.38					

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	CONC 1 FD LTPH	CONC 2 FD LTPH	CONC 3 FD LTPH	CONC 4 FD LTPH	CONC 5 FD LTPH	G. BALL1 LTPH	G. BALL2 LTPH	G. BALL3 LTPH	G. BALL4 LTPH	G. BALL5 LTPH	FIL CAKE LTPH
UNIT 6			72.42	58.49	-3.84						
UNIT 7	103.13	102.74	102.99	102.92	102.89	103.93	101.43	99.76	95.80	101.38	504.65
TOT/AVG											504.65

	BENT 1 LBS/HR	BENT 2 LBS/HR	BENT 3 LBS/HR	BENT 4 LBS/HR	BENT 5 LBS/HR	CONC FD LTPH	GRN BALL TOT TPH	PELLETS LTPH	G.B.CONC REJ LTPH	CONC STK TONS/TPH	RECLAIM TONS/TPH
UNIT 6						68.73				202.00	
UNIT 7	1419.23	1359.11	1363.22	1420.08	1389.42	514.71	502.27	391.80	915.02	205.43	
TOT/AVG						513.48	502.26	391.80	915.02		

	GRTE SPD IN P MIN	BED DPTH INCHES	CONC THK UELO A-1	CONC THK UELO A-2	SLURRY LEVL FT.	HOOD PRESSURE	3A SIDE PRESSURE	3B SIDE PRESSURE	WDBOX 3A PRESSURE	WDBOX 3B PRESSURE	OUTSIDE TEMP
UNIT 6		5.08	59.78		37.80	-0.01		0.01		0.04	
UNIT 7	223.61	5.78			45.51	-0.06	0.04	0.01	12.79	13.66	
TOT/AVG											

	PREHEAT FUR PRES	PREHEAT W.B PRES	DRY FURN PRESSURE	DRY WIND PRESSURE	BRN ZONE TEMP DEG	EXIT GAS TEMP DEG	SEC AIR TEMP DEG	COOL STK TEMP DEG	DRY FURN TEMP DEG	PREHT 1A FAN TEMP	PREHT 1B FAN TEMP
UNIT 6	-0.02	-0.01	0.04	-0.05	2776.66	51.42	30.50	48.71	80.84	69.43	68.12
UNIT 7	-0.12	[illegible]	[illegible]	11.65	2374.84	2108.44	2019.57	448.38	717.31	[illegible]	[illegible]
TOT/AVG											

	PRE W.B. TEMP 1E	PRE W.B. TEMP 2E	PRE W.B. TEMP 3E	PRE W.B. TEMP 4E	PRE W.B. TEMP 5E	PRE W.B. TEMP 6E	PRE W.B. TEMP 7E	IA1 BYPS TEMP	IA2 BYPS TEMP	1B1 BYPS TEMP	1B2 BYPS TEMP
UNIT 6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
UNIT 7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
TOT/AVG											

	PRE W.B. TEMP 1W	PRE W.B. TEMP 2W	PRE W.B. TEMP 3W	PRE W.B. TEMP 4W	PRE W.B. TEMP 5W	PRE W.B. TEMP 6W	PRE W.B. TEMP 7W	WSTE GAS TEMP WO1	WSTE GAS TEMP WO2	BURNER PRES PSI	COAL FD TOT LBS
UNIT 6	70.27	70.27	70.07	68.33	68.70	72.06	70.27	77.79	76.26	0.09	
UNIT 7	1005.91	753.09	955.25	900.45	846.88	661.43	559.64	115.51	115.51	0.02	11950.00
TOT/AVG											

	CONC FD1 TONS	CONC FD2 TONS	CONC FD3 TONS	CONC FD4 TONS	CONC FD5 TONS	BENT FD1 LBS	BENT FD2 LBS	BENT FD3 LBS	BENT FD4 LBS	BENT FD5 LBS	REJECT TON/LTPH
UNIT 6			1.20	0.20							
UNIT 7	103.52	103.11	99.92	103.12	101.32	1519.00	1308.00	1341.00	1275.00	1308.00	58.27
TOT/AVG											

	G. BALL1 TONS	G. BALL2 TONS	G. BALL3 TONS	G. BALL4 TONS	G. BALL5 TONS	PELLET 1 TONS	PELLET 2 TONS	PELLET 3 TONS	PELLET 4 TONS	PELLET 5 TONS	042 TONS A-1/A-2
UNIT 6											635.73
UNIT 7	104.93	101.22	99.92	96.72	101.52	81.83	78.94	77.93	75.43	79.18	
TOT/AVG											

	BNT1 LBS /PRD TON	BNT2 LBS /PRD TON	BNT3 LBS /PRD TON	BNT4 LBS /PRD TON	BNT5 LBS /PRD TON	CONC FD TOT TONS	BENT FD TOT LBS	GRN BALL TOT TONS	PELLETS TOT TONS	BENT LBS /PRD TON	CALC GRT GR LTPH
UNIT 6						1.40					
UNIT 7	18.81	17.00	17.68	17.50	17.01	511.05	6751.06	504.37	393.36	17.23	508.63
TOT/AVG						512.45	6751.06	504.37	393.36	17.23	

	GAS FLO AC MCF	FUEL OIL FLOW GPM	COAL LBS./HR	1A FAN AMPS	1B FAN AMPS	3A FAN AMPS	3B FAN AMPS	PCT. PREHT BTU
UNIT 6	0.09	0.48						
UNIT 7	-0.37	0.15	10051.25	133.74	126.51	91.80	110.96	30.17
TOT/AVG	-0.28	0.63	10051.25					

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	CONC 1 FD LTPH	CONC 2 FD LTPH	CONC 3 FD LTPH	CONC 4 FD LTPH	CONC 5 FD LTPH	G. BALL1 LTPH	G. BALL2 LTPH	G. BALL3 LTPH	G. BALL4 LTPH	G. BALL5 LTPH	FIL CAKE LTPH
UNIT 6				83.05	-3.74						
UNIT 7	102.76	103.05	102.84	102.93	102.87	103.11	101.62	99.67	95.97	101.06	502.4[illegible]
TOT/AVG											502.4[illegible]

	BENT 1 LBS/HR	BENT 2 LBS/HR	BENT 3 LBS/HR	BENT 4 LBS/HR	BENT 5 LBS/HR	CONC FD LTPH	GRN BALL TOT TPH	PELLETS LTPH	G.B.CONC REJ LTPH	CONC STK TONS/TPH	RECLAIM TONS/TPH
UNIT 6						78.45				548.00	
UNIT 7	1419.59	1360.08	1362.14	1420.98	1389.91	514.36	501.46	391.22	907.02	540.21	
TOT/AVG						514.35	501.46	391.21	907.02		

	GRTE SPD IN P MIN	BED DPTH INCHES	CONC THK UFLO A-1	CONC THK UFLO A-2	SLURRY LEVL FT.	HOOD PRESSURE	3A SIDE PRESSURE	3B SIDE PRESSURE	WDBOX 3A PRESSURE	WDBOX 3B PRESSURE	OUTSIDE TEMP
UNIT 6		-1.05	60.10		38.87	-0.01		0.01		-0.04	
UNIT 7	223.48	5.78			45.50	-0.06	0.05	0.03	12.72	13.63	
TOT/AVG											

	PREHEAT FUR PRES	PREHEAT W.B.PRES	DRY FURN PRESSURE	DRY WIND PRESSURE	BRN ZONE TEMP DEG	EXIT GAS TEMP DEG	SEC AIR TEMP DEG	COOL STK TEMP DEG	DRY FURN TEMP DEG	PREHT 1A FAN TEMP	PREHT 1B FAN TEMP
UNIT 6	-0.02	0.01	-0.04	-0.06	2776.67	50.12	88.19	469.49	81.09	69.87	66.92
UNIT 7	-0.18	-9.37	-0.47	-11.23	2375.50	2108.63	2026.97	489.90	718.05	736.94	690.88
TOT/AVG											

	PRE W.B. TEMP 1E	PRE W.B. TEMP 2E	PRE W.B. TEMP 3E	PRE W.B. TEMP 4E	PRE W.B. TEMP 5E	PRE W.B. TEMP 6E	PRE W.B. TEMP 7E	1A1 BYPS TEMP	1A2 BYPS TEMP	1B1 BYPS TEMP	1B2 BYPS TEMP
UNIT 6	72.98	72.78	73.24	71.80	72.39	70.98	70.17	0.16	[illegible]	77.[illegible]	[illegible]
UNIT 7	694.71	623.98	952.88	817.98	722.88	586.45	494.00	0.89	1087.55	1543.38	1392.09
TOT/AVG											

	PRE W.B. TEMP 1W	PRE W.B. TEMP 2W	PRE W.B. TEMP 3W	PRE W.B. TEMP 4W	PRE W.B. TEMP 5W	PRE W.B. TEMP 6W	PRE W.B. TEMP 7W	WSTE GAS TEMP NO1	WSTE GAS TEMP NO2	BURNER PRES PST	COAL FD TOT FDS
UNIT 6	70.75	72.08	70.53	69.10	70.31	72.95	70.92	78.60	78.07	-0.09	[illegible]
UNIT 7	1005.43	753.59	955.75	904.07	851.48	642.61	564.77	115.51	115.51	-0.02	11650.00
TOT/AVG											

	CONC FD1 TONS	CONC FD2 TONS	CONC FD3 TONS	CONC FD4 TONS	CONC FD5 TONS	BENT FD1 LBS	BENT FD2 LBS	BENT FD3 LBS	BENT FD4 LBS	BENT FD5 LBS	REJECT TON/LTPH
UNIT 6											
UNIT 7	102.42	103.62	100.02	103.72	101.12	1519.00	1301.00	1341.00	1267.00	1311.00	57.29
TOT/AVG											

	G. BALL1 TONS	G. BALL2 TONS	G. BALL3 TONS	G. BALL4 TONS	G. BALL5 TONS	PELLET 1 TONS	PELLET 2 TONS	PELLET 3 TONS	PELLET 4 TONS	PELLET 5 TONS	042 TONS 6-1/6-2
UNIT 6											635.49
UNIT 7	103.83	101.42	99.22	96.72	100.92	80.97	79.10	77.38	75.43	78.71	
TOT/AVG											

	BNT1 LBS /PRD TON	BNT2 LBS /PRD TON	BNT3 LBS /PRD TON	BNT4 LBS /PRD TON	BNT5 LBS /PRD TON	CONC FD TOT TONS	BENT FD TOT LBS	GRN BALL TOT TONS	PELLETS TOT TONS	BENT LBS /PRD TON	CALC GR GB LTPH
UNIT 6											
UNIT 7	19.12	16.84	17.79	17.33	17.01	510.97	6739.06	502.17	391.64	17.26	508.46
TOT/AVG						510.97	6739.06	502.17	391.64	17.26	

	GAS FLO AC MCF	FUEL OIL FLOW GPM	COAL LBS./HR	1A FAN AMPS	1B FAN AMPS	3A FAN AMPS	3B FAN AMPS	PCT PREHT BT
UNIT 6	0.09	-0.48						
UNIT 7	-0.37	-0.15	9823.63	133.94	-127.19	91.95	111.24	30.65
TOT/AVG	-0.28	-0.63	9823.63					

Source category: Taconite ore processing
Plant name : USS Minnesota
Test date : August 6, 1991
Process : Waste gas stack

Date: 10/24/96
Location: Mountain Iron, MN
Ref. No.: 25
Basis for process rate : production

Source	Type of control	Pollutant	Run No.	Emission rate, lb/hr	Process rate, ton/hr	Emission factor kg/Mg	Emission factor lb/ton	Volumetric flow rate, DSCFM	Concen %
Waste gas grate/kiln coal-fired	Wet scrubber	SO2	1	676.38	386.25	0.88	1.8		
		SO2	2	533.70	418.50	0.64	1.3		
		SO2	3	585.99	421.50	0.70	1.4		
		AVERAGE				0.74	1.5	RATING:	C
		CO2	1	91004.3	386.25	118	236	348,900	3.80
		CO2	2	88609.4	418.50	106	212	348,900	3.70
		CO2	3	86214.6	421.50	102	205	348,900	3.60
		AVERAGE				109	217	RATING:	C

Notes: Furnace production rates estimated as 75% of feed rates, based on information provided by MPCA (Reference 53)