Newport Steel
Oil Country Tubular Goods
Line Pipe- Piling

10.1

September 29,2000

Department for Environmental Protection
Division for Air Quality
803 Schenkel Lane
Frankfort, KY 40601-1403
Attn: Mr. Gerald Slucher

Re: Stack Test Results for EAF Exhaust/Brandt Baghouse
Air Quality Permit (F-98-014)

Dear Mr. Slucher,

Enclosed please find a copy of the, "Air Emissions Test Report – Brandt Baghouse, Newport Steel Corporation, Newport, Kentucky."

The first three particulate test runs constitute a complete test as required by Newport Steel's Air Quality Permit (F-98-014) for Brandt Baghouse particulate emissions and described in the NSPS for Elecric Arc Furnaces (40 CFR 60.275a). The fourth test run was optional and was terminated when operating problems occurred in the EAF. We believe that the particulate test results are representative of normal baghouse emissions. The NOx and CO data, however, are not representative because manual oxygen lancing was being performed during much of the test which resulted in lower than normal production and higher than normal NOx and CO emission factors on a pound of pollutant per ton of steel produced basis. A follow-up test for Nox, CO, and SO2 emissions is scheduled for next week, October 2 for setup and October 3 and 4 for testing.

If you have any further questions, please feel free to contact me at 859/292-7236.

Sincerely,
Newport Steel Corporation

Jennifer A. McDaniel

Jennifer A. McDaniel
Manager, Environmental and
Safety Compliance

Cc: Thom Golatzki

NEWPORT STEEL CORPORATION
A Subsidiary of NS Group. Inc.

Ninth & Lowell Streets • P.O. Box 1670
Newport, Kentucky 41072
Phone (606) 292-6000, Fax (606) 292-0110

AIR EMISSIONS TEST REPORT
BRANDT BAGHOUSE
NEWPORT STEEL CORPORATION
NEWPORT, KENTUCKY

Prepared for:

Newport Steel Corporation
P.O. Box 1670
Ninth & Lowell Streets
Newport, Kentucky 41072

PN 050101.0011

Prepared by:

Environmental Quality Management, Inc.
1310 Kemper Meadow Drive
Cincinnati, Ohio 45240

September 2000

TABLE OF CONTENTS

FIGURES

TABLES

SECTION 1

INTRODUCTION

On August 15 and 16,2000 Environmental Quality Management, Inc. (EQ) and FBT Testing & Environmental Services (FBT) personnel conducted a compliance air emission program at Newport Steel Corporation, The air sampling program was performed on the Brandt Positive Pressure Baghouse servicing the electric arc furnace (EAF) and the EAF building. Sampling was performed in accordance with the requirements of operating Permit Number F-98-014 using EPA Reference Methods.. Table 1-1 presents the sampling conducted at the baghouse exhaust or the baghouse inlet.

TABLE 1-1. SAMPLING REQUIREMENTS

Test Point No.	Test Point Name	Parameter Tested	Test Method
1	Brandt Baghouse Inlet	Flow[1] O_2/CO_2 Moisture SO_2 NO_X CO	EPA Method 1 for Velocity EPA Method 2 for Temperature EPA Method 3 EPA Method 4 EPA Method 6 EPA Method 7E EPA Method 10
2	Brandt Baghouse Outlet	PM Lead Visible Emissions	EPA Method 5D EPA Method 12 EPA Method 9

[1] Velocity profiles were conducted at the inlet before and after each outlet Method 5D sample. Inlet velocity data was be used to calculate the outlet sample rate.

Mr. Thom Golatzki of the NS Group, Ms. Jennifer McDanial of Newport Steel, and Mr. Fred Hall of EQ monitored process operations for the purpose of testing. Mr. Tom Gerstle of EQ coordinated testing and process operations. Mr. John Jayne and Mr. John Allan of the Kentucky

Department of Environmental Protection observed process operations and sampling efforts. Messrs. David Wetmore and Pete Hilty of FBT conducted samphg efforts.

SECTION 2

SUMMARY OF TEST RESULTS

Sampling of the Brandt baghouse was conducted on August 15 and 16, 2000. Three test runs, four to five hours in length, were conducted for velocity, moisture, O_2, and CO,, particulate matter, SO,, NO_X, CO, and lead. A fourth test run, for these same pollutants was aborted after 1 hour and 20 minutes due to EAF operating problems. Visible emission observations were also conducted at the baghouse and melt shop exhausts. Sampling was conducted following EPA Reference Methods 1-4, 5D, 6, 7E, 9, 10, and 12 (Table 1-1).

Table 2-1 summarizes the stack gas conditions measured for the three full sample periods at the inlet. Stack gas velocities averaged 67.2 feet per second (fps) at 148° F and 2.7 percent moisture. Stack gas composition averaged 0.4 percent CO, and 20.6 percent O_2. Volumetric flow rates averaged 775,735 actual cubic feet per minute (acfm) or 650,596 dry standard cubic feet minute (dscfm). Measurements were consistent for the three test runs.

TABLE 2-1. SUMMARY OF STACK GAS CONDITIONS FOR EAF EXHAUST/BRANDT BAGHOUSE INLET

Run #	Date/Time	Exhaust Velocity (fps)[a]	Flow Rate		Exhaust Temp. ° F	H_2O %	O_2 %	CO_2 %
			(acfm)[b]	(dsch)"				
1	8/15/00	67.6	790,454	675,327	134	3.0	20.6	0.3
2	8/15/00	67.2	785,137	681,273	125	3.0	20.6	0.5
3	8/16/00	66.7	751,613	595,188	184	2.2	20.7	0.5
Average		**67.2**	**775,735**	**650,596**	**148**	**2.7**	**20.6**	**0.4**

[a] Velocity in feet per second
[b] Stack gas volumetric flow rate in actual cubic feet per minute
[c] Stack gas volumetric flow rate in dry standard cubic feet minute

Tables 2-2a and 2-2b summarize the pollutant concentrations and mass emission rates for Runs 1 to 3. The filterable particulate concentration averaged 0.00084 grains per dry standard cubic foot (gr/dscf), with an average mass emission rate of 5.45 pounds per hour (lb/hr). The NO_x (as NO,) concentration averaged 8.7 pprn with an average mass emission rate of 35.7 lb/hr. The CO concentration averaged 89 ppm with an average mass emission rate of 251 lb/hr.

TABLE 2-2a. SUMMARY OF EAF NO_x AND CO EMISSIONS

Run #	Date/Time	NO_x as NO,		CO	
		ppm[a]	(lb/hr)[b]	ppm[a]	(lb/hr)[b]
1	8/15/00 0814-1214	8.9	27.77	55	161.7
2	8/15/00 1532-1754	8.1	39.40	94	276.1
3	08/16/00 1355 - 1755	9.1	39.81	119	316.2
Average		**8.7**	**35.66**	**89**	**251.3**

[a] Concentration in parts per million
[b] Emission rate in pounds per hour

TABLE 2-2b. SUMMARY OF PM/SULFUR DIOXIDE/LEAD EMISSIONS

Run#	Date/Time	PM Concentration		PM Emission Rate (lb/hr)[c]	Sulfur Dioxide		Lead Concentration		Er (lb/hr)[c]
		(gr/dscf)[a]	(lb/dscf)[b]		Cs (ppm)[d]	Er(lb/hr)	(gr/dscf)[a]	(lb/dscf)[b]	
1	8/15/00 0414-1300	4.70E-04	6.91E-08	2.862	0.0	0.0	3.49E-06	4.98382E-10	204E-02
2	8/15/00 1345-1828	1.98E-03	295E-07	12.326	0.0	0.0	4.86E-06	6.95197E-10	290E-02
3	8/16/00 0754-1214	2.01E-04	2.98E-08	1.205	0.0	0.04	2.96E-06	4.22966E-10	1.71E-0-2
Average		**8.84E-4**	**1.32E-7**	**5.45**	**0.0**	**0.013**	**3.77E-06**	**5.38848E-10**	**2.22E-02**

[a] Concentration in grains per dry standard cubic **foot**
[b] Concentration in pounds per dry standard cubic foot
[c] Emission rate in pounds per hour
[d] Concentration in parts per million

Table 2-3 summarizes the melt shop production during the three test runs along with the calculated emission factors for NO_x, CO, SO_2, and lead (Pb). The emission factors for NO_x

ranged from 0.465 to 0.728 lb/ton produced with an average of 0.562 lb/NO_X/ton steel. The calculated emission factors for CO ranged from 2.71 to 5.10 lb/ton with an average of 3.96 lb CO/ton steel produced. The emission factors for SO, and Pb averaged 0.0 lb SO_2/ton steel produced and 0.0003 lb Pb/ton steel produced, respectively.

TABLE 2-3. EMISSION FACTORS BASED ON BRANDT BAGHOUSE STACK TEST

Date	Steel Production, Tons/Hr	Emissions, lb/hr				Emission Factors, lb/ton steel			
		NO_X	CO	SO_2	Pb	NO_X	CO	SO_2	Pb
Test 1	59.7	27.77	161.7	0.00	0.0204	0.465	2.709	0.000	0.0003
Test 2	54.1	39.40	276.1	0.00	0.0290	0.728	5.104	0.000	0.0005
Test 3	76.7	39.81	316.2	0.04	0.0171	0.519	4.123	0.001	0.0002
Average	**63.5**	**35.66**	**251.3**	**0.013**	**0.0222**	**0.562**	**3.958**	**0.000**	**0.0003**

Table 2-4a and 2-4b presents the test results comparing the NO_X and CO concentrations measured by the EPA Reference Methods (RM) 7E and 10, respectively, and the NO_X and CO concentrations concurrently measured by the CEMs.

EPA Reference Method 9, "Visible Determination of the Opacity of Emissions from Stationary Sources" was used to determine opacity from the baghouse exhaust as well as from the shop roof monitor. Observations were conducted simultaneously at each source in conjunction with the particulate sampling runs. The observations were recorded separately for the baghouse exhaust and melt shop roof monitor. The baghouse observation data are provided in Table 2-5. The melt shop observation data is provided in Table 2-6. Both tables also present the rolling 6 minute averages.

The data are presented as a comparison in relative concentration. The RM CO and NO, data were collected at the Brandt baghouse inlet duct. The CEM CO and NO_X data were collected at the baghouse roof monitor, downstream of the bags.

TABLE 2-4a. DATA COMPARISON - CO (ppm)

Run #	Date	Time	Values	
			RM	CEMS
1	08/15/00	0814-1300	55.28	59.51
2	08/15/00	1345-1659	93.73	114.90
3	08/16/00	0754-1214	118.93	142.77
4	08/16/00	1309-1509	96.00	85.87
Averages:			**90.99**	**100.76**

RM - Data collected at baghouse inlet using EPA Reference Method 10.
CEMS - Continuous emission monitoring data collected at the baghouse exhaust.

TABLE 2-4b. DATA COMPARISON - NO_X (ppm)

Run #	Date	Time	Values	
			RM	CEMS
1	08/15/00	0814-1300	8.86	10.67
2	08/16/00	1345-1659	8.14	9.83
3	08/16/00	0754-1214	9.11	6.85
4	08/16/00	1309-1509	10.30	11.06
Averages:			**9.10**	***9.60***

RM - Data collected at baghouse inlet using EPA Reference Method 7E.
CEMS - Continuous emission monitoring data collected at the baghouse exhaust.

TABLE 2-5. VE READINGS AND ROLLING 6-MINUTE VE AVERAGES FOR NEWPORT STEEL BRANDT BAGHOUSE

TEST 1 August 15, 2000			TEST 2 August 15, 2000			TEST 3 August 16, 2000			TEST 4 (Incomplete) August 16, 2000		
Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg
8:15:00	0		13:55:00	0		7:55:00	0		12:40:00	0	
8:15:15	0		13:55:15	0		7:55:15	0		12:40:15	0	
8:15:30	0		13:55:30	0		7:55:30	0		12:40:30	0	
8:15:45	0		13:55:45	0		7:55:45	0		12:40:45	0	
8:16:00	0		13:56:00	0		7:56:00	0		12:41:00	0	
8:16:15	0		13:56:15	0		7:56:15	0		12:41:15	0	
8:16:30	0		13:56:30	0		7:56:30	0		12:41:30	0	
8:16:45	0		13:56:45	0		7:56:45	0		12:41:45	0	
8:17:00	0		13:57:00	0		7:57:00	0		12:42:00	0	
8:17:15	0		13:57:15	0		7:57:15	0		12:42:15	0	
8:17:30	0		13:57:30	0		7:57:30	0		12:42:30	0	
8:17:45	0		13:57:45	0		7:57:45	0		12:42:45	0	
8:18:00	0		13:58:00	0		7:58:00	0		12:43:00	0	
8:18:15	0		13:58:15	0		7:58:15	0		12:43:15	0	
8:18:30	0		13:58:30	0		7:58:30	0		12:43:30	0	
8:18:45	0		13:58:45	0		7:58:45	0		12:43:45	0	
8:19:00	0		13:59:00	0		7:59:00	0		12:44:00	0	
8:19:15	0		13:59:15	0		7:59:15	0		12:44:15	0	
8:19:30	0		13:59:30	0		7:59:30	0		12:44:30	0	
8:19:45	0		13:59:45	0		7:59:45	0		12:44:45	0	
8:20:00	0		14:00:00	0		8:00:00	0		12:45:00	0	
8:20:15	0		14:00:15	0		8:00:15	0		12:45:15	0	
8:20:30	0		14:00:30	0		8:00:30	0		12:45:30	0	
8:20:45	0	0.00	14:00:45	0	0.00	8:00:45	0	0.00	12:45:45	0	0.00
8:21:00	0	0.00	14:01:00	0	0.00	8:01:00	0	0.00	12:46:00	0	0.00
8:21:15	0	0.00	14:01:15	0	0.00	8:01:15	0	0.00	12:46:15	0	0.00
8:21:30	0	0.00	14:01:30	0	0.00	8:01:30	0	0.00	12:46:30	0	0.00
8:21:45	0	0.00	14:01:45	0	0.00	8:01:45	0	0.00	12:46:45	0	0.00
8:22:00	0	0.00	14:02:00	0	0.00	8:02:00	0	0.00	12:47:00	0	0.00
8:22:15	0	0.00	14:02:15	0	0.00	8:02:15	0	0.00	12:47:15	0	0.00
8:22:30	0	0.00	14:02:30	0	0.00	8:02:30	0	0.00	12:47:30	0	0.00
8:22:45	0	0.00	14:02:45	0	0.00	8:02:45	0	0.00	12:47:45	0	0.00
8:23:00	0	0.00	14:03:00	0	0.00	8:03:00	0	0.00	12:48:00	0	0.00
8:23:15	0	0.00	14:03:15	0	0.00	8:03:15	0	0.00	12:48:15	0	0.00
8:23:30	0	0.00	14:03:30	0	0.00	8:03:30	0	0.00	12:48:30	0	0.00
8:23:45	0	0.00	14:03:45	0	0.00	8:03:45	0	0.00	12:48:45	0	0.00
8:24:00	0	0.00	14:04:00	0	0.00	8:04:00	0	0.00	12:49:00	0	0.00
8:24:15	0	0.00	14:04:15	0	0.00	8:04:15	0	0.00	12:49:15	0	0.00
8:24:30	0	0.00	14:04:30	0	0.00	8:04:30	0	0.00	12:49:30	0	0.00
8:24:45	0	0.00	14:04:45	0	0.00	8:04:45	0	0.00	12:49:45	0	0.00
8:25:00	0	0.00	14:05:00	0	0.00	8:05:00	0	0.00	12:50:00	0	0.00
8:25:15	0	0.00	14:05:15	0	0.00	8:05:15	0	0.00	12:50:15	0	0.00
8:25:30	0	0.00	14:05:30	0	0.00	8:05:30	0	0.00	12:50:30	0	0.00
8:25:45	0	0.00	14:05:45	0	0.00	8:05:45	0	0.00	12:50:45	0	0.00
8:26:00	0	0.00	14:06:00	0	0.00	8:06:00	0	0.00	12:51:00	0	0.00
8:26:15	0	0.00	14:06:15	0	0.00	8:06:15	0	0.00	12:51:15	0	0.00
8:26:30	0	0.00	14:06:30	0	0.00	8:06:30	0	0.00	12:51:30	0	0.00
8:26:45	0	0.00	14:06:45	0	0.00	8:06:45	0	0.00	12:51:45	0	0.00
8:27:00	0	0.00	14:07:00	0	0.00	8:07:00	0	0.00	12:52:00	0	0.00
8:27:15	0	0.00	14:07:15	0	0.00	8:07:15	0	0.00	12:52:15	0	0.00
8:27:30	0	0.00	14:07:30	0	0.00	8:07:30	0	0.00	12:52:30	0	0.00
8:27:45	0	0.00	14:07:45	0	0.00	8:07:45	0	0.00	12:52:45	0	0.00
8:28:00	0	0.00	14:08:00	0	0.00	8:08:00	0	0.00	12:53:00	0	0.00
8:28:15	0	0.00	14:08:15	0	0.00	8:08:15	0	0.00	12:53:15	0	0.00
8:28:30	0	0.00	14:08:30	0	0.00	8:08:30	0	0.00	12:53:30	0	0.00
8:28:45	0	0.00	14:08:45	0	0.00	8:08:45	0	0.00	12:53:45	0	0.00
8:29:00	0	0.00	14:09:00	0	0.00	8:09:00	0	0.00	12:54:00	0	0.00
8:29:15	0	0.00	14:09:15	0	0.00	8:09:15	0	0.00	12:54:15	0	0.00
8:29:30	0	0.00	14:09:30	0	0.00	8:09:30	0	0.00	12:54:30	0	0.00
8:29:45	0	0.00	14:09:45	0	0.00	8:09:45	0	0.00	12:54:45	0	0.00
8:30:00	0	0.00	14:10:00	0	0.00	8:10:00	0	0.00	12:55:00	0	0.00
8:30:15	0	0.00	14:10:15	0	0.00	8:10:15	0	0.00	12:55:15	0	0.00

TABLE 2-5. VE READINGS AND ROLLING 6-MINUTE VE AVERAGES FOR NEWPORT STEEL BRANDT BAGHOUSE

TEST 1 August 15, 2000			TEST 2 August 15, 2000			TEST 3 August 16, 2000			TEST 4 (Incomplete) August 16, 2000		
Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg
8:30:30	0	0.00	14:10:30	0	0.00	8:10:30	0	0.00	12:55:30	0	0.00
8:30:45	0	0.00	14:10:45	0	0.00	8:10:45	0	0.00	12:55:45	0	0.00
8:31:00	0	0.00	14:11:00	0	0.00	8:11:00	0	0.00	12:56:00	0	0.00
8:31:15	0	0.00	14:11:15	0	0.00	8:11:15	0	0.00	12:56:15	0	0.00
8:31:30	0	0.00	14:11:30	0	0.00	8:11:30	0	0.00	12:56:30	0	0.00
8:31:45	0	0.00	14:11:45	0	0.00	8:11:45	0	0.00	12:56:45	0	0.00
8:32:00	0	0.00	14:12:00	0	0.00	8:12:00	0	0.00	12:57:00	0	0.00
8:32:15	0	0.00	14:12:15	0	0.00	8:12:15	0	0.00	12:57:15	0	0.00
8:32:30	0	0.00	14:12:30	0	0.00	8:12:30	0	0.00	12:57:30	0	0.00
8:32:45	0	0.00	14:12:45	0	0.00	8:12:45	0	0.00	12:57:45	0	0.00
8:33:00	0	0.00	14:13:00	0	0.00	8:13:00	0	0.00	12:58:00	0	0.00
8:33:15	0	0.00	14:13:15	0	0.00	8:13:15	0	0.00	12:58:15	0	0.00
8:33:30	0	0.00	14:13:30	0	0.00	8:13:30	0	0.00	12:58:30	0	0.00
8:33:45	0	0.00	14:13:45	0	0.00	8:13:45	0	0.00	12:58:45	0	0.00
8:34:00	0	0.00	14:14:00	0	0.00	8:14:00	0	0.00	12:59:00	0	0.00
8:34:15	0	0.00	14:14:15	0	0.00	8:14:15	0	0.00	12:59:15	0	0.00
8:34:30	0	0.00	14:14:30	0	0.00	8:14:30	0	0.00	12:59:30	0	0.00
8:34:45	0	0.00	14:14:45	0	0.00	8:14:45	0	0.00	12:59:45	0	0.00
8:35:00	0	0.00	14:15:00	0	0.00	8:15:00	0	0.00	13:00:00	0	0.00
8:35:15	0	0.00	14:15:15	0	0.00	8:15:15	0	0.00	13:00:15	0	0.00
8:35:30	0	0.00	14:15:30	0	0.00	8:15:30	0	0.00	13:00:30	0	0.00
8:35:45	0	0.00	14:15:45	0	0.00	8:15:45	0	0.00	13:00:45	0	0.00
8:36:00	0	0.00	14:16:00	0	0.00	8:16:00	0	0.00	13:01:00	0	0.00
8:36:15	0	0.00	14:16:15	0	0.00	8:16:15	0	0.00	13:01:15	0	0.00
8:36:30	0	0.00	14:16:30	0	0.00	8:16:30	0	0.00	13:01:30	0	0.00
8:36:45	0	0.00	14:16:45	0	0.00	8:16:45	0	0.00	13:01:45	0	0.00
8:37:00	0	0.00	14:17:00	0	0.00	8:17:00	0	0.00	13:02:00	0	0.00
8:37:15	0	0.00	14:17:15	0	0.00	8:17:15	0	0.00	13:02:15	0	0.00
8:37:30	0	0.00	14:17:30	0	0.00	8:17:30	0	0.00	13:02:30	0	0.00
8:37:45	0	0.00	14:17:45	0	0.00	8:17:45	0	0.00	13:02:45	0	0.00
8:38:00	0	0.00	14:18:00	0	0.00	8:18:00	0	0.00	13:03:00	0	0.00
8:38:15	0	0.00	14:18:15	0	0.00	8:18:15	0	0.00	13:03:15	0	0.00
8:38:30	0	0.00	14:18:30	0	0.00	8:18:30	0	0.00	13:03:30	0	0.00
8:38:45	0	0.00	14:18:45	0	0.00	8:18:45	0	0.00	13:03:45	0	0.00
8:39:00	0	0.00	14:19:00	0	0.00	8:19:00	0	0.00	13:04:00	0	0.00
8:39:15	0	0.00	14:19:15	0	0.00	8:19:15	0	0.00	13:04:15	0	0.00
8:39:30	0	0.00	14:19:30	0	0.00	8:19:30	0	0.00	13:04:30	0	0.00
8:39:45	0	0.00	14:19:45	0	0.00	8:19:45	0	0.00	13:04:45	0	0.00
8:40:00	0	0.00	14:20:00	0	0.00	8:20:00	0	0.00	13:05:00	0	0.00
8:40:15	0	0.00	14:20:15	0	0.00	8:20:15	0	0.00	13:05:15	0	0.00
8:40:30	0	0.00	14:20:30	0	0.00	8:20:30	0	0.00	13:05:30	0	0.00
8:40:45	0	0.00	14:20:45	0	0.00	8:20:45	0	0.00	13:05:45	0	0.00
8:41:00	0	0.00	14:21:00	0	0.00	8:21:00	0	0.00	13:06:00	0	0.00
8:41:15	0	0.00	14:21:15	0	0.00	8:21:15	0	0.00	13:06:15	0	0.00
8:41:30	0	0.00	14:21:30	0	0.00	8:21:30	0	0.00	13:06:30	0	0.00
8:41:45	0	0.00	14:21:45	0	0.00	8:21:45	0	0.00	13:06:45	0	0.00
8:42:00	0	0.00	14:22:00	0	0.00	8:22:00	0	0.00	13:07:00	0	0.00
8:42:15	0	0.00	14:22:15	0	0.00	8:22:15	0	0.00	13:07:15	0	0.00
8:42:30	0	0.00	14:22:30	0	0.00	8:22:30	0	0.00	13:07:30	0	0.00
8:42:45	0	0.00	14:22:45	0	0.00	8:22:45	0	0.00	13:07:45	0	0.00
8:43:00	0	0.00	14:23:00	0	0.00	8:23:00	0	0.00	13:08:00	0	0.00
8:43:15	0	0.00	14:23:15	0	0.00	8:23:15	0	0.00	13:08:15	0	0.00
8:43:30	0	0.00	14:23:30	0	0.00	8:23:30	0	0.00	13:08:30	0	0.00
8:43:45	0	0.00	14:23:45	0	0.00	8:23:45	0	0.00	13:08:45	0	0.00
8:44:00	0	0.00	14:24:00	0	0.00	8:24:00	0	0.00	13:09:00	0	0.00
8:44:15	0	0.00	14:24:15	0	0.00	8:24:15	0	0.00	13:09:15	0	0.00
8:44:30	0	0.00	14:24:30	0	0.00	8:24:30	0	0.00	13:09:30	0	0.00
8:44:45	0	0.00	14:24:45	0	0.00	8:24:45	0	0.00	13:09:45	0	0.00
8:45:00	0	0.00	14:25:00	0	0.00	8:25:00	0	0.00	13:10:00	0	0.00
8:45:15	0	0.00	14:25:15	0	0.00	8:25:15	0	0.00	13:10:15	0	0.00
8:45:30	0	0.00	14:25:30	0	0.00	8:25:30	0	0.00	13:10:30	0	0.00
8:45:45	0	0.00	14:25:45	0	0.00	8:25:45	0	0.00	13:10:45	0	0.00

TABLE 2-5. VE READINGS AND ROLLING 6-MINUTE VE AVERAGES FOR NEWPORT STEEL BRANDT BAGHOUSE

TEST 1 August 15, 2000			TEST 2 August 15, 2000			TEST 3 August 16 2000			TEST 4 (Incomplete) August 16, 2000		
Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg
8:46:00	0	0.00	14:26:00	0	0.00	8:26:00	0	0.00	13:11:00	0	0.00
8:46:15	0	0.00	14:26:15	0	0.00	8:26:15	0	0.00	13:11:15	0	0.00
8:46:30	0	0.00	14:26:30	0	0.00	8:26:30	0	0.00	13:11:30	0	0.00
8:46:45	0	0.00	14:26:45	0	0.00	8:26:45	0	0.00	13:11:45	0	0.00
8:47:00	0	0.00	14:27:00	0	0.00	8:27:00	0	0.00	13:12:00	0	0.00
8:47:15	0	0.00	14:27:15	0	0.00	8:27:15	0	0.00	13:12:15	0	0.00
8:47:30	0	0.00	14:27:30	0	0.00	8:27:30	0	0.00	13:12:30	0	0.00
8:47:45	0	0.00	14:27:45	0	0.00	8:27:45	0	0.00	13:12:45	0	0.00
8:48:00	0	0.00	14:28:00	0	0.00	8:28:00	0	0.00	13:13:00	0	0.00
8:48:15	0	0.00	14:28:15	0	0.00	8:28:15	0	0.00	13:13:15	0	0.00
8:48:30	0	0.00	14:28:30	0	0.00	8:28:30	0	0.00	13:13:30	0	0.00
8:48:45	0	0.00	14:28:45	0	0.00	8:28:45	0	0.00	13:13:45	0	0.00
8:49:00	0	0.00	14:29:00	0	0.00	8:29:00	0	0.00	13:14:00	0	0.00
8:49:15	0	0.00	14:29:15	0	0.00	8:29:15	0	0.00	13:14:15	0	0.00
8:49:30	0	0.00	14:29:30	0	0.00	8:29:30	0	0.00	13:14:30	0	0.00
8:49:45	0	0.00	14:29:45	0	0.00	8:29:45	0	0.00	13:14:45	0	0.00
8:50:00	0	0.00	14:30:00	0	0.00	8:30:00	0	0.00	13:15:00	0	0.00
8:50:15	0	0.00	14:30:15	0	0.00	8:30:15	0	0.00	13:15:15	0	0.00
8:50:30	0	0.00	14:30:30	0	0.00	8:30:30	0	0.00	13:15:30	0	0.00
8:50:45	0	0.00	14:30:45	0	0.00	8:30:45	0	0.00	13:15:45	0	0.00
8:51:00	0	0.00	14:31:00	0	0.00	8:31:00	0	0.00	13:16:00	0	0.00
8:51:15	0	0.00	14:31:15	0	0.00	8:31:15	0	0.00	13:16:15	0	0.00
8:51:30	0	0.00	14:31:30	0	0.00	8:31:30	0	0.00	13:16:30	0	0.00
8:51:45	0	0.00	14:31:45	0	0.00	8:31:45	0	0.00	13:16:45	0	0.00
8:52:00	0	0.00	14:32:00	0	0.00	8:32:00	0	0.00	13:17:00	0	0.00
8:52:15	0	0.00	14:32:15	0	0.00	8:32:15	0	0.00	13:17:15	0	0.00
8:52:30	0	0.00	14:32:30	0	0.00	8:32:30	0	0.00	13:17:30	0	0.00
8:52:45	0	0.00	14:32:45	0	0.00	8:32:45	0	0.00	13:17:45	0	0.00
8:53:00	0	0.00	14:33:00	0	0.00	8:33:00	0	0.00	13:18:00	0	0.00
8:53:15	0	0.00	14:33:15	0	0.00	8:33:15	0	0.00	13:18:15	0	0.00
8:53:30	0	0.00	14:33:30	0	0.00	8:33:30	0	0.00	13:18:30	0	0.00
8:53:45	0	0.00	14:33:45	0	0.00	8:33:45	0	0.00	13:18:45	0	0.00
8:54:00	0	0.00	14:34:00	0	0.00	8:34:00	0	0.00	13:19:00	0	0.00
8:54:15	0	0.00	14:34:15	0	0.00	8:34:15	0	0.00	13:19:15	0	0.00
8:54:30	0	0.00	14:34:30	0	0.00	8:34:30	0	0.00	13:19:30	0	0.00
8:54:45	0	0.00	14:34:45	0	0.00	8:34:45	0	0.00	13:19:45	0	0.00
8:55:00	0	0.00	14:35:00	0	0.00	8:35:00	0	0.00	13:20:00	0	0.00
8:55:15	0	0.00	14:35:15	0	0.00	8:35:15	0	0.00	13:20:15	0	0.00
8:55:30	0	0.00	14:35:30	0	0.00	8:35:30	0	0.00	13:20:30	0	0.00
8:55:45	0	0.00	14:35:45	0	0.00	8:35:45	0	0.00	13:20:45	0	0.00
8:56:00	0	0.00	14:36:00	0	0.00	8:36:00	0	0.00	13:21:00	0	0.00
8:56:15	0	0.00	14:36:15	0	0.00	8:36:15	0	0.00	13:21:15	0	0.00
8:56:30	0	0.00	14:36:30	0	0.00	8:36:30	0	0.00	13:21:30	0	0.00
8:56:45	0	0.00	14:36:45	0	0.00	8:36:45	0	0.00	13:21:45	0	0.00
8:57:00	0	0.00	14:37:00	0	0.00	8:37:00	0	0.00	13:22:00	0	0.00
8:57:15	0	0.00	14:37:15	0	0.00	8:37:15	0	0.00	13:22:15	0	0.00
8:57:30	0	0.00	14:37:30	0	0.00	8:37:30	0	0.00	13:22:30	0	0.00
8:57:45	0	0.00	14:37:45	0	0.00	8:37:45	0	0.00	13:22:45	0	0.00
8:58:00	0	0.00	14:38:00	0	0.00	8:38:00	0	0.00	13:23:00	0	0.00
8:58:15	0	0.00	14:38:15	0	0.00	8:38:15	0	0.00	13:23:15	0	0.00
8:58:30	0	0.00	14:38:30	0	0.00	8:38:30	0	0.00	13:23:30	0	0.00
8:58:45	0	0.00	14:38:45	0	0.00	8:38:45	0	0.00	13:23:45	0	0.00
8:59:00	0	0.00	14:39:00	0	0.00	8:39:00	0	0.00	13:24:00	0	0.00
8:59:15	0	0.00	14:39:15	0	0.00	8:39:15	0	0.00	13:24:15	0	0.00
8:59:30	0	0.00	14:39:30	0	0.00	8:39:30	0	0.00	13:24:30	0	0.00
8:59:45	0	0.00	14:39:45	0	0.00	8:39:45	0	0.00	13:24:45	0	0.00
9:00:00	0	0.00	14:40:00	0	0.00	8:40:00	0	0.00	13:25:00	0	0.00
9:00:15	0	0.00	14:40:15	0	0.00	8:40:15	0	0.00	13:25:15	0	0.00
9:00:30	0	0.00	14:40:30	0	0.00	8:40:30	0	0.00	13:25:30	0	0.00
9:00:45	0	0.00	14:40:45	0	0.00	8:40:45	0	0.00	13:25:45	0	0.00
9:01:00	0	0.00	14:41:00	0	0.00	8:41:00	0	0.00	13:26:00	0	0.00
9:01:15	0	0.00	14:41:15	0	0.00	8:41:15	0	0.00	13:26:15	0	0.00

TABLE 2-5. VE READINGS AND ROLLING 6-MINUTE VE AVERAGES FOR NEWPORT STEEL BRANDT BAGHOUSE

TEST 1 August 15, 2000			TEST 2 August 15, 2000			TEST 3 August 16, 2000			TEST 4 (Incomplete) August 16, 2000		
Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg
9:01:30	0	0.00	14:41:30	0	0.00	8:41:30	0	0.00	13:26:30	0	0.00
9:01:45	0	0.00	14:41:45	0	0.00	8:41:45	0	0.00	13:26:45	0	0.00
9:02:00	0	0.00	14:42:00	0	0.00	8:42:00	0	0.00	13:27:00	0	0.00
9:02:15	0	0.00	14:42:15	0	0.00	8:42:15	0	0.00	13:27:15	0	0.00
9:02:30	0	0.00	14:42:30	0	0.00	8:42:30	0	0.00	13:27:30	0	0.00
9:02:45	0	0.00	14:42:45	0	0.00	8:42:45	0	0.00	13:27:45	0	0.00
9:03:00	0	0.00	14:43:00	0	0.00	8:43:00	0	0.00	13:28:00	0	0.00
9:03:15	0	0.00	14:43:15	0	0.00	8:43:15	0	0.00	13:28:15	0	0.00
9:03:30	0	0.00	14:43:30	0	0.00	8:43:30	0	0.00	13:28:30	0	0.00
9:03:45	0	0.00	14:43:45	0	0.00	8:43:45	0	0.00	13:28:45	0	0.00
9:04:00	0	0.00	14:44:00	0	0.00	8:44:00	0	0.00	13:29:00	0	0.00
9:04:15	0	0.00	14:44:15	0	0.00	8:44:15	0	0.00	13:29:15	0	0.00
9:04:30	0	0.00	14:44:30	0	0.00	8:44:30	0	0.00	13:29:30	0	0.00
9:04:45	0	0.00	14:44:45	0	0.00	8:44:45	0	0.00	13:29:45	0	0.00
9:05:00	0	0.00	14:45:00	0	0.00	8:45:00	0	0.00	13:30:00	0	0.00
9:05:15	0	0.00	14:45:15	0	0.00	8:45:15	0	0.00	13:30:15	0	0.00
9:05:30	0	0.00	14:45:30	0	0.00	8:45:30	0	0.00	13:30:30	0	0.00
9:05:45	0	0.00	14:45:45	0	0.00	8:45:45	0	0.00	13:30:45	0	0.00
9:06:00	0	0.00	14:46:00	0	0.00	8:46:00	0	0.00	13:31:00	0	0.00
9:06:15	0	0.00	14:46:15	0	0.00	8:46:15	0	0.00	13:31:15	0	0.00
9:06:30	0	0.00	14:46:30	0	0.00	8:46:30	0	0.00	13:31:30	0	0.00
9:06:45	0	0.00	14:46:45	0	0.00	8:46:45	0	0.00	13:31:45	0	0.00
9:07:00	0	0.00	14:47:00	0	0.00	8:47:00	0	0.00	13:32:00	0	0.00
9:07:15	0	0.00	14:47:15	0	0.00	8:47:15	0	0.00	13:32:15	0	0.00
9:07:30	0	0.00	14:47:30	0	0.00	8:47:30	0	0.00	13:32:30	0	0.00
9:07:45	0	0.00	14:47:45	0	0.00	8:47:45	0	0.00	13:32:45	0	0.00
9:08:00	0	0.00	14:48:00	0	0.00	8:48:00	0	0.00	13:33:00	0	0.00
9:08:15	0	0.00	14:48:15	0	0.00	8:48:15	0	0.00	13:33:15	0	0.00
9:08:30	0	0.00	14:48:30	0	0.00	8:48:30	0	0.00	13:33:30	0	0.00
9:08:45	0	0.00	14:48:45	0	0.00	8:48:45	0	0.00	13:33:45	0	0.00
9:09:00	0	0.00	14:49:00	0	0.00	8:49:00	0	0.00	13:34:00	0	0.00
9:09:15	0	0.00	14:49:15	0	0.00	8:49:15	0	0.00	13:34:15	0	0.00
9:09:30	0	0.00	14:49:30	0	0.00	8:49:30	0	0.00	13:34:30	0	0.00
9:09:45	0	0.00	14:49:45	0	0.00	8:49:45	0	0.00	13:34:45	0	0.00
9:10:00	0	0.00	14:50:00	0	0.00	8:50:00	0	0.00	13:35:00	0	0.00
9:10:15	0	0.00	14:50:15	0	0.00	8:50:15	0	0.00	13:35:15	0	0.00
9:10:30	0	0.00	14:50:30	0	0.00	8:50:30	0	0.00	13:35:30	0	0.00
9:10:45	0	0.00	14:50:45	0	0.00	8:50:45	0	0.00	13:35:45	0	0.00
9:11:00	0	0.00	14:51:00	0	0.00	8:51:00	0	0.00	13:36:00	0	0.00
9:11:15	0	0.00	14:51:15	0	0.00	8:51:15	0	0.00	13:36:15	0	0.00
9:11:30	0	0.00	14:51:30	0	0.00	8:51:30	0	0.00	13:36:30	0	0.00
9:11:45	0	0.00	14:51:45	0	0.00	8:51:45	0	0.00	13:36:45	0	0.00
9:12:00	0	0.00	14:52:00	0	0.00	8:52:00	0	0.00	13:37:00	0	0.00
9:12:15	0	0.00	14:52:15	0	0.00	8:52:15	0	0.00	13:37:15	0	0.00
9:12:30	0	0.00	14:52:30	0	0.00	8:52:30	0	0.00	13:37:30	0	0.00
9:12:45	0	0.00	14:52:45	0	0.00	8:52:45	0	0.00	13:37:45	0	0.00
9:13:00	0	0.00	14:53:00	0	0.00	8:53:00	0	0.00	13:38:00	0	0.00
9:13:15	0	0.00	14:53:15	0	0.00	8:53:15	0	0.00	13:38:15	0	0.00
9:13:30	0	0.00	14:53:30	0	0.00	8:53:30	0	0.00	13:38:30	0	0.00
9:13:45	0	0.00	14:53:45	0	0.00	8:53:45	0	0.00	13:38:45	0	0.00
9:14:00	0	0.00	14:54:00	0	0.00	8:54:00	0	0.00	13:39:00	0	0.00
9:14:15	0	0.00	14:54:15	0	0.00	8:54:15	0	0.00	13:39:15	0	0.00
9:14:30	0	0.00	14:54:30	0	0.00	8:54:30	0	0.00	13:39:30	0	0.00
9:14:45	0	0.00	14:54:45	0	0.00	8:54:45	0	0.00	13:39:45	0	0.00
9:15:00	0	0.00	14:55:00	0	0.00	8:55:00	0	0.00	13:40:00	0	0.00
9:15:15	0	0.00	14:55:15	0	0.00	8:55:15	0	0.00	13:40:15	0	0.00
9:15:30	0	0.00	14:55:30	0	0.00	8:55:30	0	0.00	13:40:30	0	0.00
9:15:45	0	0.00	14:55:45	0	0.00	8:55:45	0	0.00	13:40:45	0	0.00
9:16:00	0	0.00	14:56:00	0	0.00	8:56:00	0	0.00	13:41:00	0	0.00
9:16:15	0	0.00	14:56:15	0	0.00	8:56:15	0	0.00	13:41:15	0	0.00
9:16:30	0	0.00	14:56:30	0	0.00	8:56:30	0	0.00	13:41:30	0	0.00
9:16:45	0	0.00	14:56:45	0	0.00	8:56:45	0	0.00	13:41:45	0	0.00

TABLE 2-5. VE READINGS AND ROLLING 6-MINUTE VE AVERAGES FOR NEWPORT STEEL BRANDT BAGHOUSE

TEST 1 August 15, 2000			TEST 2 August 15, 2000			TEST 3 August 16, 2000			TEST 4 (Incomplete) August 16, 2000		
Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg
9:17:00	0	0.00	14:57:00	0	0.00	8:57:00	0	0.00	13:42:00	0	0.00
9:17:15	0	0.00	14:57:15	0	0.00	8:57:15	0	0.00	13:42:15	0	0.00
9:17:30	0	0.00	14:57:30	0	0.00	8:57:30	0	0.00	13:42:30	0	0.00
9:17:45	0	0.00	14:57:45	0	0.00	8:57:45	0	0.00	13:42:45	0	0.00
9:18:00	0	0.00	14:58:00	0	0.00	8:58:00	0	0.00	13:43:00	0	0.00
9:18:15	0	0.00	14:58:15	0	0.00	8:58:15	0	0.00	13:43:15	0	0.00
9:18:30	0	0.00	14:58:30	0	0.00	8:58:30	0	0.00	13:43:30	0	0.00
9:18:45	0	0.00	14:58:45	0	0.00	8:58:45	0	0.00	13:43:45	0	0.00
9:19:00	0	0.00	14:59:00	0	0.00	8:59:00	0	0.00	13:44:00	0	0.00
9:19:15	0	0.00	14:59:15	0	0.00	8:59:15	0	0.00	13:44:15	0	0.00
9:19:30	0	0.00	14:59:30	0	0.00	8:59:30	0	0.00	13:44:30	0	0.00
9:19:45	0	0.00	14:59:45	0	0.00	8:59:45	0	0.00	13:44:45	0	0.00
9:20:00	0	0.00	15:00:00	0	0.00	9:00:00	0	0.00	13:45:00	0	0.00
9:20:15	0	0.00	15:00:15	0	0.00	9:00:15	0	0.00	13:45:15	0	0.00
9:20:30	0	0.00	15:00:30	0	0.00	9:00:30	0	0.00	13:45:30	0	0.00
9:20:45	0	0.00	15:00:45	0	0.00	9:00:45	0	0.00	13:45:45	0	0.00
9:21:00	0	0.00	15:01:00	0	0.00	9:01:00	0	0.00	13:46:00	0	0.00
9:21:15	0	0.00	15:01:15	0	0.00	9:01:15	0	0.00	13:46:15	0	0.00
9:21:30	0	0.00	15:01:30	0	0.00	9:01:30	0	0.00	13:46:30	0	0.00
9:21:45	0	0.00	15:01:45	0	0.00	9:01:45	0	0.00	13:46:45	0	0.00
9:22:00	0	0.00	15:02:00	0	0.00	9:02:00	0	0.00	13:47:00	0	0.00
9:22:15	0	0.00	15:02:15	0	0.00	9:02:15	0	0.00	13:47:15	0	0.00
9:22:30	0	0.00	15:02:30	0	0.00	9:02:30	0	0.00	13:47:30	0	0.00
9:22:45	0	0.00	15:02:45	0	0.00	9:02:45	0	0.00	13:47:45	0	0.00
9:23:00	0	0.00	15:03:00	0	0.00	9:03:00	0	0.00	13:48:00	0	0.00
9:23:15	0	0.00	15:03:15	0	0.00	9:03:15	0	0.00	13:48:15	0	0.00
9:23:30	0	0.00	15:03:30	0	0.00	9:03:30	0	0.00	13:48:30	0	0.00
9:23:45	0	0.00	15:03:45	0	0.00	9:03:45	0	0.00	13:48:45	0	0.00
9:24:00	0	0.00	15:04:00	0	0.00	9:04:00	0	0.00	13:49:00	0	0.00
9:24:15	0	0.00	15:04:15	0	0.00	9:04:15	0	0.00	13:49:15	0	0.00
9:24:30	0	0.00	15:04:30	0	0.00	9:04:30	0	0.00	13:49:30	0	0.00
9:24:45	0	0.00	15:04:45	0	0.00	9:04:45	0	0.00	13:49:45	0	0.00
9:25:00	0	0.00	15:05:00	0	0.00	9:05:00	0	0.00	13:50:00	0	0.00
9:25:15	0	0.00	15:05:15	0	0.00	9:05:15	0	0.00	13:50:15	0	0.00
9:25:30	0	0.00	15:05:30	0	0.00	9:05:30	0	0.00	13:50:30	0	0.00
9:25:45	0	0.00	15:05:45	0	0.00	9:05:45	0	0.00	13:50:45	0	0.00
9:26:00	0	0.00	15:06:00	0	0.00	9:06:00	0	0.00	13:51:00	0	0.00
9:26:15	0	0.00	15:06:15	0	0.00	9:06:15	0	0.00	13:51:15	0	0.00
9:26:30	0	0.00	15:06:30	0	0.00	9:06:30	0	0.00	13:51:30	0	0.00
9:26:45	0	0.00	15:06:45	0	0.00	9:06:45	0	0.00	13:51:45	0	0.00
9:27:00	0	0.00	15:07:00	0	0.00	9:07:00	0	0.00	13:52:00	0	0.00
9:27:15	0	0.00	15:07:15	0	0.00	9:07:15	0	0.00	13:52:15	0	0.00
9:27:30	0	0.00	15:07:30	0	0.00	9:07:30	0	0.00	13:52:30	0	0.00
9:27:45	0	0.00	15:07:45	0	0.00	9:07:45	0	0.00	13:52:45	0	0.00
9:28:00	0	0.00	15:08:00	0	0.00	9:08:00	0	0.00	13:53:00	0	0.00
9:28:15	0	0.00	15:08:15	0	0.00	9:08:15	0	0.00	13:53:15	0	0.00
9:28:30	0	0.00	15:08:30	0	0.00	9:08:30	0	0.00	13:53:30	0	0.00
9:28:45	0	0.00	15:08:45	0	0.00	9:08:45	0	0.00	13:53:45	0	0.00
9:29:00	0	0.00	15:09:00	0	0.00	9:09:00	0	0.00	13:54:00	0	0.00
9:29:15	0	0.00	15:09:15	0	0.00	9:09:15	0	0.00	13:54:15	0	0.00
9:29:30	0	0.00	15:09:30	0	0.00	9:09:30	0	0.00	13:54:30	0	0.00
9:29:45	0	0.00	15:09:45	0	0.00	9:09:45	0	0.00	13:54:45	0	0.00
9:30:00	0	0.00	15:10:00	0	0.00	9:10:00	0	0.00	13:55:00	0	0.00
9:30:15	0	0.00	15:10:15	0	0.00	9:10:15	0	0.00	13:55:15	0	0.00
9:30:30	0	0.00	15:10:30	0	0.00	9:10:30	0	0.00	13:55:30	0	0.00
9:30:45	0	0.00	15:10:45	0	0.00	9:10:45	0	0.00	13:55:45	0	0.00
9:31:00	0	0.00	15:11:00	0	0.00	9:11:00	0	0.00	13:56:00	0	0.00
9:31:15	0	0.00	15:11:15	0	0.00	9:11:15	0	0.00	13:56:15	0	0.00
9:31:30	0	0.00	15:11:30	0	0.00	9:11:30	0	0.00	13:56:30	0	0.00
9:31:45	0	0.00	15:11:45	0	0.00	9:11:45	0	0.00	13:56:45	0	0.00
9:32:00	0	0.00	15:12:00	0	0.00	9:12:00	0	0.00	13:57:00	0	0.00
9:32:15	0	0.00	15:12:15	0	0.00	9:12:15	0	0.00	13:57:15	0	0.00

TABLE 2-5. VE READINGS AND ROLLING 6-MINUTE VE AVERAGES FOR NEWPORT STEEL BRANDT BAGHOUSE

TEST 1 August 15, 2000			TEST 2 August 15, 2000			TEST 3 August 16, 2000			TEST 4 (Incomplete) August 16, 2000		
Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg
9:32:30	0	0.00	15:12:30	0	0.00	9:12:30	0	0.00	13:57:30	0	0.00
9:32:45	0	0.00	15:12:45	0	0.00	9:12:45	0	0.00	13:57:45	0	0.00
9:33:00	0	0.00	15:13:00	0	0.00	9:13:00	0	0.00	13:58:00	0	0.00
9:33:15	0	0.00	15:13:15	0	0.00	9:13:15	0	0.00	13:58:15	0	0.00
9:33:30	0	0.00	15:13:30	0	0.00	9:13:30	0	0.00	13:58:30	0	0.00
9:33:45	0	0.00	15:13:45	0	0.00	9:13:45	0	0.00	13:58:45	0	0.00
9:34:00	0	0.00	15:14:00	0	0.00	9:14:00	0	0.00	13:59:00	0	0.00
9:34:15	0	0.00	15:14:15	0	0.00	9:14:15	0	0.00	13:59:15	0	0.00
9:34:30	0	0.00	15:14:30	0	0.00	9:14:30	0	0.00	13:59:30	0	0.00
9:34:45	0	0.00	15:14:45	0	0.00	9:14:45	0	0.00	13:59:45	0	0.00
9:35:00	0	0.00	15:15:00	0	0.00	9:15:00	0	0.00	14:00:00	0	0.00
9:35:15	0	0.00	15:15:15	0	0.00	9:15:15	0	0.00	14:00:15	0	0.00
9:35:30	0	0.00	15:15:30	0	0.00	9:15:30	0	0.00	14:00:30	0	0.00
9:35:45	0	0.00	15:15:45	0	0.00	9:15:45	0	0.00	14:00:45	0	0.00
9:36:00	0	0.00	15:16:00	0	0.00	9:16:00	0	0.00	14:01:00	0	0.00
9:36:15	0	0.00	15:16:15	0	0.00	9:16:15	0	0.00	14:01:15	0	0.00
9:36:30	0	0.00	15:16:30	0	0.00	9:16:30	0	0.00	14:01:30	0	0.00
9:36:45	0	0.00	15:16:45	0	0.00	9:16:45	0	0.00	14:01:45	0	0.00
9:37:00	0	0.00	15:17:00	0	0.00	9:17:00	0	0.00	14:02:00	0	0.00
9:37:15	0	0.00	15:17:15	0	0.00	9:17:15	0	0.00	14:02:15	0	0.00
9:37:30	0	0.00	15:17:30	0	0.00	9:17:30	0	0.00	14:02:30	0	0.00
9:37:45	0	0.00	15:17:45	0	0.00	9:17:45	0	0.00	14:02:45	0	0.00
9:38:00	0	0.00	15:18:00	0	0.00	9:18:00	0	0.00	14:03:00	0	0.00
9:38:15	0	0.00	15:18:15	0	0.00	9:18:15	0	0.00	14:03:15	0	0.00
9:38:30	0	0.00	15:18:30	0	0.00	9:18:30	0	0.00	14:03:30	0	0.00
9:38:45	0	0.00	15:18:45	0	0.00	9:18:45	0	0.00	14:03:45	0	0.00
9:39:00	0	0.00	15:19:00	0	0.00	9:19:00	0	0.00	14:04:00	0	0.00
9:39:15	0	0.00	15:19:15	0	0.00	9:19:15	0	0.00	14:04:15	0	0.00
9:39:30	0	0.00	15:19:30	0	0.00	9:19:30	0	0.00	14:04:30	0	0.00
9:39:45	0	0.00	15:19:45	0	0.00	9:19:45	0	0.00	14:04:45	0	0.00
9:40:00	0	0.00	15:20:00	0	0.00	9:20:00	0	0.00	14:05:00	0	0.00
9:40:15	0	0.00	15:20:15	0	0.00	9:20:15	0	0.00	14:05:15	0	0.00
9:40:30	0	0.00	15:20:30	0	0.00	9:20:30	0	0.00	14:05:30	0	0.00
9:40:45	0	0.00	15:20:45	0	0.00	9:20:45	0	0.00	14:05:45	0	0.00
9:41:00	0	0.00	15:21:00	0	0.00	9:21:00	0	0.00	14:06:00	0	0.00
9:41:15	0	0.00	15:21:15	0	0.00	9:21:15	0	0.00	14:06:15	0	0.00
9:41:30	0	0.00	15:21:30	0	0.00	9:21:30	0	0.00	14:06:30	0	0.00
9:41:45	0	0.00	15:21:45	0	0.00	9:21:45	0	0.00	14:06:45	0	0.00
9:42:00	0	0.00	15:22:00	0	0.00	9:22:00	0	0.00	14:07:00	0	0.00
9:42:15	0	0.00	15:22:15	0	0.00	9:22:15	0	0.00	14:07:15	0	0.00
9:42:30	0	0.00	15:22:30	0	0.00	9:22:30	0	0.00	14:07:30	0	0.00
9:42:45	0	0.00	15:22:45	0	0.00	9:22:45	0	0.00	14:07:45	0	0.00
9:43:00	0	0.00	15:23:00	0	0.00	9:23:00	0	0.00	14:08:00	0	0.00
9:43:15	0	0.00	15:23:15	0	0.00	9:23:15	0	0.00	14:08:15	0	0.00
9:43:30	0	0.00	15:23:30	0	0.00	9:23:30	0	0.00	14:08:30	0	0.00
9:43:45	0	0.00	15:23:45	0	0.00	9:23:45	0	0.00	14:08:45	0	0.00
9:44:00	0	0.00	15:24:00	0	0.00	9:24:00	0	0.00	14:09:00	0	0.00
9:44:15	0	0.00	15:24:15	0	0.00	9:24:15	0	0.00	14:09:15	0	0.00
9:44:30	0	0.00	15:24:30	0	0.00	9:24:30	0	0.00	14:09:30	0	0.00
9:44:45	0	0.00	15:24:45	0	0.00	9:24:45	0	0.00	14:09:45	0	0.00
9:45:00	0	0.00	15:25:00	0	0.00	9:25:00	0	0.00	14:10:00	0	0.00
9:45:15	0	0.00	15:25:15	0	0.00	9:25:15	0	0.00	14:10:15	0	0.00
9:45:30	0	0.00	15:25:30	0	0.00	9:25:30	0	0.00	14:10:30	0	0.00
9:45:45	0	0.00	15:25:45	0	0.00	9:25:45	0	0.00	14:10:45	0	0.00
9:46:00	0	0.00	15:26:00	0	0.00	9:26:00	0	0.00	14:11:00	0	0.00
9:46:15	0	0.00	15:26:15	0	0.00	9:26:15	0	0.00	14:11:15	0	0.00
9:46:30	0	0.00	15:26:30	0	0.00	9:26:30	0	0.00	14:11:30	0	0.00
9:46:45	0	0.00	15:26:45	0	0.00	9:26:45	0	0.00	14:11:45	0	0.00
9:47:00	0	0.00	15:27:00	0	0.00	9:27:00	0	0.00	14:12:00	0	0.00
9:47:15	0	0.00	15:27:15	0	0.00	9:27:15	0	0.00	14:12:15	0	0.00
9:47:30	0	0.00	15:27:30	0	0.00	9:27:30	0	0.00	14:12:30	0	0.00
9:47:45	0	0.00	15:27:45	0	0.00	9:27:45	0	0.00	14:12:45	0	0.00

TABLE 2-5. VE READINGS AND ROLLING 6-MINUTE VE AVERAGES FOR NEWPORT STEEL BRANDT BAGHOUSE

TEST 1 August 15, 2000			TEST 2 August 15, 2000			TEST 3 August 16, 2000			TEST 4 (Incomplete) August 16, 2000		
Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg
9:48:00	0	0.00	15:28:00	0	0.00	9:28:00	0	0.00	14:13:00	0	0.00
9:48:15	0	0.00	15:28:15	0	0.00	9:28:15	0	0.00	14:13:15	0	0.00
9:48:30	0	0.00	15:28:30	0	0.00	9:28:30	0	0.00	14:13:30	0	0.00
9:48:45	0	0.00	15:28:45	0	0.00	9:28:45	0	0.00	14:13:45	0	0.00
9:49:00	0	0.00	15:29:00	0	0.00	9:29:00	0	0.00	14:14:00	0	0.00
9:49:15	0	0.00	15:29:15	0	0.00	9:29:15	0	0.00	14:14:15	0	0.00
9:49:30	0	0.00	15:29:30	0	0.00	9:29:30	0	0.00	14:14:30	0	0.00
9:49:45	0	0.00	15:29:45	0	0.00	9:29:45	0	0.00	14:14:45	0	0.00
9:50:00	0	0.00	15:30:00	0	0.00	9:30:00	0	0.00	14:15:00	0	0.00
9:50:15	0	0.00	15:30:15	0	0.00	9:30:15	0	0.00	14:15:15	0	0.00
9:50:30	0	0.00	15:30:30	0	0.00	9:30:30	0	0.00	14:15:30	0	0.00
9:50:45	0	0.00	15:30:45	0	0.00	9:30:45	0	0.00	14:15:45	0	0.00
9:51:00	0	0.00	15:31:00	0	0.00	9:31:00	0	0.00	14:16:00	0	0.00
9:51:15	0	0.00	15:31:15	0	0.00	9:31:15	0	0.00	14:16:15	0	0.00
9:51:30	0	0.00	15:31:30	0	0.00	9:31:30	0	0.00	14:16:30	0	0.00
9:51:45	0	0.00	15:31:45	0	0.00	9:31:45	0	0.00	14:16:45	0	0.00
9:52:00	0	0.00	15:32:00	0	0.00	9:32:00	0	0.00	14:17:00	0	0.00
9:52:15	0	0.00	15:32:15	0	0.00	9:32:15	0	0.00	14:17:15	0	0.00
9:52:30	0	0.00	15:32:30	0	0.00	9:32:30	0	0.00	14:17:30	0	0.00
9:52:45	0	0.00	15:32:45	0	0.00	9:32:45	0	0.00	14:17:45	0	0.00
9:53:00	0	0.00	15:33:00	0	0.00	9:33:00	0	0.00	14:18:00	0	0.00
9:53:15	0	0.00	15:33:15	0	0.00	9:33:15	0	0.00	14:18:15	0	0.00
9:53:30	0	0.00	15:33:30	0	0.00	9:33:30	0	0.00	14:18:30	0	0.00
9:53:45	0	0.00	15:33:45	0	0.00	9:33:45	0	0.00	14:18:45	0	0.00
9:54:00	0	0.00	15:34:00	0	0.00	9:34:00	0	0.00	14:19:00	0	0.00
9:54:15	0	0.00	15:34:15	0	0.00	9:34:15	0	0.00	14:19:15	0	0.00
9:54:30	0	0.00	15:34:30	0	0.00	9:34:30	0	0.00	14:19:30	0	0.00
9:54:45	0	0.00	15:34:45	0	0.00	9:34:45	0	0.00	14:19:45	0	0.00
9:55:00	0	0.00	15:35:00	0	0.00	9:35:00	0	0.00	14:20:00	0	0.00
9:55:15	0	0.00	15:35:15	0	0.00	9:35:15	0	0.00	14:20:15	0	0.00
9:55:30	0	0.00	15:35:30	0	0.00	9:35:30	0	0.00	14:20:30	0	0.00
9:55:45	0	0.00	15:35:45	0	0.00	9:35:45	0	0.00	14:20:45	0	0.00
9:56:00	0	0.00	15:36:00	0	0.00	9:36:00	0	0.00	14:21:00	0	0.00
9:56:15	0	0.00	15:36:15	0	0.00	9:36:15	0	0.00	14:21:15	0	0.00
9:56:30	0	0.00	15:36:30	0	0.00	9:36:30	0	0.00	14:21:30	0	0.00
9:56:45	0	0.00	15:36:45	0	0.00	9:36:45	0	0.00	14:21:45	0	0.00
9:57:00	0	0.00	15:37:00	0	0.00	9:37:00	0	0.00	14:22:00	0	0.00
9:57:15	0	0.00	15:37:15	0	0.00	9:37:15	0	0.00	14:22:15	0	0.00
9:57:30	0	0.00	15:37:30	0	0.00	9:37:30	0	0.00	14:22:30	0	0.00
9:57:45	0	0.00	15:37:45	0	0.00	9:37:45	0	0.00	14:22:45	0	0.00
9:58:00	0	0.00	15:38:00	0	0.00	9:38:00	0	0.00	14:23:00	0	0.00
9:58:15	0	0.00	15:38:15	0	0.00	9:38:15	0	0.00	14:23:15	0	0.00
9:58:30	0	0.00	15:38:30	0	0.00	9:38:30	0	0.00	14:23:30	0	0.00
9:58:45	0	0.00	15:38:45	0	0.00	9:38:45	0	0.00	14:23:45	0	0.00
9:59:00	0	0.00	15:39:00	0	0.00	9:39:00	0	0.00	14:24:00	0	0.00
9:59:15	0	0.00	15:39:15	0	0.00	9:39:15	0	0.00	14:24:15	0	0.00
9:59:30	0	0.00	15:39:30	0	0.00	9:39:30	0	0.00	14:24:30	0	0.00
9:59:45	0	0.00	15:39:45	0	0.00	9:39:45	0	0.00	14:24:45	0	0.00
10:00:00	0	0.00	15:40:00	0	0.00	9:40:00	0	0.00	14:25:00	0	0.00
10:00:15	0	0.00	15:40:15	0	0.00	9:40:15	0	0.00	14:25:15	0	0.00
10:00:30	0	0.00	15:40:30	0	0.00	9:40:30	0	0.00	14:25:30	0	0.00
10:00:45	0	0.00	15:40:45	0	0.00	9:40:45	0	0.00	14:25:45	0	0.00
10:01:00	0	0.00	15:41:00	0	0.00	9:41:00	0	0.00	14:26:00	0	0.00
10:01:15	0	0.00	15:41:15	0	0.00	9:41:15	0	0.00	14:26:15	0	0.00
10:01:30	0	0.00	15:41:30	0	0.00	9:41:30	0	0.00	14:26:30	0	0.00
10:01:45	0	0.00	15:41:45	0	0.00	9:41:45	0	0.00	14:26:45	0	0.00
10:02:00	0	0.00	15:42:00	0	0.00	9:42:00	0	0.00	14:27:00	0	0.00
10:02:15	0	0.00	15:42:15	0	0.00	9:42:15	0	0.00	14:27:15	0	0.00
10:02:30	0	0.00	15:42:30	0	0.00	9:42:30	0	0.00	14:27:30	0	0.00
10:02:45	0	0.00	15:42:45	0	0.00	9:42:45	0	0.00	14:27:45	0	0.00
10:03:00	0	0.00	15:43:00	0	0.00	9:43:00	0	0.00	14:28:00	0	0.00
10:03:15	0	0.00	15:43:15	0	0.00	9:43:15	0	0.00	14:28:15	0	0.00

TABLE 2-5. VE READINGS AND ROLLING 6-MINUTE VE AVERAGES FOR NEWPORT STEEL BRANDT BAGHOUSE

TEST 1 August 15, 2000			TEST 2 August 15, 2000			TEST 3 August 16, 2000			TEST 4 (Incomplete) August 16, 2000		
Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	Gmin Avg
10:03:30	0	0.00	15:43:30	0	0.00	9:43:30	0	0.00	14:28:30	0	0.00
10:03:45	0	0.00	15:43:45	0	0.00	9:43:45	0	0.00	14:28:45	0	0.00
10:04:00	0	0.00	15:44:00	0	0.00	9:44:00	0	0.00	14:29:00	0	0.00
10:04:15	0	0.00	15:44:15	0	0.00	9:44:15	0	0.00	14:29:15	0	0.00
10:04:30	0	0.00	15:44:30	0	0.00	9:44:30	0	0.00	14:29:30	0	0.00
10:04:45	0	0.00	15:44:45	0	0.00	9:44:45	0	0.00	14:29:45	0	0.00
10:05:00	0	0.00	15:45:00	0	0.00	9:45:00	0	0.00	14:30:00	0	0.00
10:05:15	0	0.00	15:45:15	0	0.00	9:45:15	0	0.00	14:30:15	0	0.00
10:05:30	0	0.00	15:45:30	0	0.00	9:45:30	0	0.00	14:30:30	0	0.00
10:05:45	0	0.00	15:45:45	0	0.00	9:45:45	0	0.00	14:30:45	0	0.00
10:06:00	0	0.00	15:46:00	0	0.00	9:46:00	0	0.00	14:31:00	0	0.00
10:06:15	0	0.00	15:46:15	0	0.00	9:46:15	0	0.00	14:31:15	0	0.00
10:06:30	0	0.00	15:46:30	0	0.00	9:46:30	0	0.00	14:31:30	0	0.00
10:06:45	0	0.00	15:46:45	0	0.00	9:46:45	0	0.00	14:31:45	0	0.00
10:07:00	0	0.00	15:47:00	0	0.00	9:47:00	0	0.00	14:32:00	0	0.00
10:07:15	0	0.00	15:47:15	0	0.00	9:47:15	0	0.00	14:32:15	0	0.00
10:07:30	0	0.00	15:47:30	0	0.00	9:47:30	0	0.00	14:32:30	0	0.00
10:07:45	0	0.00	15:47:45	0	0.00	9:47:45	0	0.00	14:32:45	0	0.00
10:08:00	0	0.00	15:48:00	0	0.00	9:48:00	0	0.00	14:33:00	0	0.00
10:08:15	0	0.00	15:48:15	0	0.00	9:48:15	0	0.00	14:33:15	0	0.00
10:08:30	0	0.00	15:48:30	0	0.00	9:48:30	0	0.00	14:33:30	0	0.00
10:08:45	0	0.00	15:48:45	0	0.00	9:48:45	0	0.00	14:33:45	0	0.00
10:09:00	0	0.00	15:49:00	0	0.00	9:49:00	0	0.00	14:34:00	0	0.00
10:09:15	0	0.00	15:49:15	0	0.00	9:49:15	0	0.00	14:34:15	0	0.00
10:09:30	0	0.00	15:49:30	0	0.00	9:49:30	0	0.00	14:34:30	0	0.00
10:09:45	0	0.00	15:49:45	0	0.00	9:49:45	0	0.00	14:34:45	0	0.00
10:10:00	0	0.00	15:50:00	0	0.00	9:50:00	0	0.00	14:35:00	0	0.00
10:10:15	0	0.00	15:50:15	0	0.00	9:50:15	0	0.00	14:35:15	0	0.00
10:10:30	0	0.00	15:50:30	0	0.00	9:50:30	0	0.00	14:35:30	0	0.00
10:10:45	0	0.00	15:50:45	0	0.00	9:50:45	0	0.00	14:35:45	0	0.00
10:11:00	0	0.00	15:51:00	0	0.00	9:51:00	0	0.00	14:36:00	0	0.00
10:11:15	0	0.00	15:51:15	0	0.00	9:51:15	0	0.00	14:36:15	0	0.00
10:11:30	0	0.00	15:51:30	0	0.00	9:51:30	0	0.00	14:36:30	0	0.00
10:11:45	0	0.00	15:51:45	0	0.00	9:51:45	0	0.00	14:36:45	0	0.00
10:12:00	0	0.00	15:52:00	0	0.00	9:52:00	0	0.00	14:37:00	0	0.00
10:12:15	0	0.00	15:52:15	0	0.00	9:52:15	0	0.00	14:37:15	0	0.00
10:12:30	0	0.00	15:52:30	0	0.00	9:52:30	0	0.00	14:37:30	0	0.00
10:12:45	0	0.00	15:52:45	0	0.00	9:52:45	0	0.00	14:37:45	0	0.00
10:13:00	0	0.00	15:53:00	0	0.00	9:53:00	0	0.00	14:38:00	0	0.00
10:13:15	0	0.00	15:53:15	0	0.00	9:53:15	0	0.00	14:38:15	0	0.00
10:13:30	0	0.00	15:53:30	0	0.00	9:53:30	0	0.00	14:38:30	0	0.00
10:13:45	0	0.00	15:53:45	0	0.00	9:53:45	0	0.00	14:38:45	0	0.00
10:14:00	0	0.00	15:54:00	0	0.00	9:54:00	0	0.00	14:39:00	0	0.00
10:14:15	0	0.00	15:54:15	0	0.00	9:54:15	0	0.00	14:39:15	0	0.00
10:14:30	0	0.00	15:54:30	0	0.00	9:54:30	0	0.00	14:39:30	0	0.00
10:14:45	0	0.00	15:54:45	0	0.00	9:54:45	0	0.00	14:39:45	0	0.00
10:15:00	0	0.00	15:55:00	0	0.00	9:55:00	0	0.00	14:40:00	0	0.00
10:15:15	0	0.00	15:55:15	0	0.00	9:55:15	0	0.00	14:40:15	0	0.00
10:15:30	0	0.00	15:55:30	0	0.00	9:55:30	0	0.00	14:40:30	0	0.00
10:15:45	0	0.00	15:55:45	0	0.00	9:55:45	0	0.00	14:40:45	0	0.00
10:16:00	0	0.00	15:56:00	0	0.00	9:56:00	0	0.00	14:41:00	0	0.00
10:16:15	0	0.00	15:56:15	0	0.00	9:56:15	0	0.00	14:41:15	0	0.00
10:16:30	0	0.00	15:56:30	0	0.00	9:56:30	0	0.00	14:41:30	0	0.00
10:16:45	0	0.00	15:56:45	0	0.00	9:56:45	0	0.00	14:41:45	0	0.00
10:17:00	0	0.00	15:57:00	0	0.00	9:57:00	0	0.00	14:42:00	0	0.00
10:17:15	0	0.00	15:57:15	0	0.00	9:57:15	0	0.00	14:42:15	0	0.00
10:17:30	0	0.00	15:57:30	0	0.00	9:57:30	0	0.00	14:42:30	0	0.00
10:17:45	0	0.00	15:57:45	0	0.00	9:57:45	0	0.00	14:42:45	0	0.00
10:18:00	0	0.00	15:58:00	0	0.00	9:58:00	0	0.00	14:43:00	0	0.00
10:18:15	0	0.00	15:58:15	0	0.00	9:58:15	0	0.00	14:43:15	0	0.00
[illegible]	0	0.00	15:58:30	0	0.00	9:58:30	0	0.00	14:43:30	0	0.00
	0	0.00	15:58:45	0	0.00	9:58:45	0	0.00	14:43:45	0	0.00

TABLE 2-5. VE READINGS AND ROLLING &MINUTE VE AVERAGES FOR NEWPORT STEEL BRANDT BAGHOUSE

TEST 1 August 15, 2000			TEST 2 August 15, 2000			TEST 3 August 16, 2000			TEST 4 (Incomplete) August 16, 2000		
Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg
10:19:00	0	0.00	15:59:00	0	0.00	9:59:00	0	0.00	14:44:00	0	0.00
10:19:15	0	0.00	15:59:15	0	0.00	9:59:15	0	0.00	14:44:15	0	0.00
10:19:30	0	0.00	15:59:30	0	0.00	9:59:30	0	0.00	14:44:30	0	0.00
10:19:45	0	0.00	15:59:45	0	0.00	9:59:45	0	0.00	14:44:45	0	0.00
10:20:00	0	0.00	16:00:00	0	0.00	10:00:00	0	0.00	14:45:00	0	0.00
10:20:15	0	0.00	16:00:15	0	0.00	10:00:15	0	0.00	14:45:15	0	0.00
10:20:30	0	0.00	16:00:30	0	0.00	10:00:30	0	0.00	14:45:30	0	0.00
10:20:45	0	0.00	16:00:45	0	0.00	10:00:45	0	0.00	14:45:45	0	0.00
10:21:00	0	0.00	16:01:00	0	0.00	10:01:00	0	0.00	14:46:00	0	0.00
10:21:15	0	0.00	16:01:15	0	0.00	10:01:15	0	0.00	14:46:15	0	0.00
10:21:30	0	0.00	16:01:30	0	0.00	10:01:30	0	0.00	14:46:30	0	0.00
10:21:45	0	0.00	16:01:45	0	0.00	10:01:45	0	0.00	14:46:45	0	0.00
10:22:00	0	0.00	16:02:00	0	0.00	10:02:00	0	0.00	14:47:00	0	0.00
10:22:15	0	0.00	16:02:15	0	0.00	10:02:15	0	0.00	14:47:15	0	0.00
10:22:30	0	0.00	16:02:30	0	0.00	10:02:30	0	0.00	14:47:30	0	0.00
10:22:45	0	0.00	16:02:45	0	0.00	10:02:45	0	0.00	14:47:45	0	0.00
10:23:00	0	0.00	16:03:00	0	0.00	10:03:00	0	0.00	14:48:00	0	0.00
10:23:15	0	0.00	16:03:15	0	0.00	10:03:15	0	0.00	14:48:15	0	0.00
10:23:30	0	0.00	16:03:30	0	0.00	10:03:30	0	0.00	14:48:30	0	0.00
10:23:45	0	0.00	16:03:45	0	0.00	10:03:45	0	0.00	14:48:45	0	0.00
10:24:00	0	0.00	16:04:00	0	0.00	10:04:00	0	0.00	14:49:00	0	0.00
10:24:15	0	0.00	16:04:15	0	0.00	10:04:15	0	0.00	14:49:15	0	0.00
10:24:30	0	0.00	16:04:30	0	0.00	10:04:30	0	0.00	14:49:30	0	0.00
10:24:45	0	0.00	16:04:45	0	0.00	10:04:45	0	0.00	14:49:45	0	0.00
10:25:00	0	0.00	16:05:00	0	0.00	10:05:00	0	0.00	14:50:00	0	0.00
10:25:15	0	0.00	16:05:15	0	0.00	10:05:15	0	0.00	14:50:15	0	0.00
10:25:30	0	0.00	16:05:30	0	0.00	10:05:30	0	0.00	14:50:30	0	0.00
10:25:45	0	0.00	16:05:45	0	0.00	10:05:45	0	0.00	14:50:45	0	0.00
10:26:00	0	0.00	16:06:00	0	0.00	10:06:00	0	0.00	14:51:00	0	0.00
10:26:15	0	0.00	16:06:15	0	0.00	10:06:15	0	0.00	14:51:15	0	0.00
10:26:30	0	0.00	16:06:30	0	0.00	10:06:30	0	0.00	14:51:30	0	0.00
10:26:45	0	0.00	16:06:45	0	0.00	10:06:45	0	0.00	14:51:45	0	0.00
10:27:00	0	0.00	16:07:00	0	0.00	10:07:00	0	0.00	14:52:00	0	0.00
10:27:15	0	0.00	16:07:15	0	0.00	10:07:15	0	0.00	14:52:15	0	0.00
10:27:30	0	0.00	16:07:30	0	0.00	10:07:30	0	0.00	14:52:30	0	0.00
10:27:45	0	0.00	16:07:45	0	0.00	10:07:45	0	0.00	14:52:45	0	0.00
10:28:00	0	0.00	16:08:00	0	0.00	10:08:00	0	0.00	14:53:00	0	0.00
10:28:15	0	0.00	16:08:15	0	0.00	10:08:15	0	0.00	14:53:15	0	0.00
10:28:30	0	0.00	16:08:30	0	0.00	10:08:30	0	0.00	14:53:30	0	0.00
10:28:45	0	0.00	16:08:45	0	0.00	10:08:45	0	0.00	14:53:45	0	0.00
10:29:00	0	0.00	16:09:00	0	0.00	10:09:00	0	0.00	14:54:00	0	0.00
10:29:15	0	0.00	16:09:15	0	0.00	10:09:15	0	0.00	14:54:15	0	0.00
10:29:30	0	0.00	16:09:30	0	0.00	10:09:30	0	0.00	14:54:30	0	0.00
10:29:45	0	0.00	16:09:45	0	0.00	10:09:45	0	0.00	14:54:45	0	0.00
10:30:00	0	0.00	16:10:00	0	0.00	10:10:00	0	0.00	14:55:00	0	0.00
10:30:15	0	0.00	16:10:15	0	0.00	10:10:15	0	0.00	14:55:15	0	0.00
10:30:30	0	0.00	16:10:30	0	0.00	10:10:30	0	0.00	14:55:30	0	0.00
10:30:45	0	0.00	16:10:45	0	0.00	10:10:45	0	0.00	14:55:45	0	0.00
10:31:00	0	0.00	16:11:00	0	0.00	10:11:00	0	0.00	14:56:00	0	0.00
10:31:15	0	0.00	16:11:15	0	0.00	10:11:15	0	0.00	14:56:15	0	0.00
10:31:30	0	0.00	16:11:30	0	0.00	10:11:30	0	0.00	14:56:30	0	0.00
10:31:45	0	0.00	16:11:45	0	0.00	10:11:45	0	0.00	14:56:45	0	0.00
10:32:00	0	0.00	16:12:00	0	0.00	10:12:00	0	0.00	14:57:00	0	0.00
10:32:15	0	0.00	16:12:15	0	0.00	10:12:15	0	0.00	14:57:15	0	0.00
10:32:30	0	0.00	16:12:30	0	0.00	10:12:30	0	0.00	14:57:30	0	0.00
10:32:45	0	0.00	16:12:45	0	0.00	10:12:45	0	0.00	14:57:45	0	0.00
10:33:00	0	0.00	16:13:00	0	0.00	10:13:00	0	0.00	14:58:00	0	0.00
10:33:15	0	0.00	16:13:15	0	0.00	10:13:15	0	0.00	14:58:15	0	0.00
10:33:30	0	0.00	16:13:30	0	0.00	10:13:30	0	0.00	14:58:30	0	0.00
10:33:45	0	0.00	16:13:45	0	0.00	10:13:45	0	0.00	14:58:45	0	0.00
10:34:00	0	0.00	16:14:00	0	0.00	10:14:00	0	0.00	14:59:00	0	0.00
10:34:15	0	0.00	16:14:15	0	0.00	10:14:15	0	0.00	14:59:15	0	0.00

TABLE 2-5. VE READINGS AND ROLLING 6-MINUTE VE AVERAGES FOR NEWPORT STEEL BRANDT BAGHOUSE

TEST 1 August 15, 2000			TEST 2 August 15, 2000			TEST 3 August 16, 2000			TEST 4 (Incomplete) August 16, 2000		
Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg
10:34:30	0	0.00	16:14:30	0	0.00	10:14:30	0	0.00	14:59:30	0	0.00
10:34:45	0	0.00	16:14:45	0	0.00	10:14:45	0	0.00	14:59:45	0	0.00
10:35:00	0	0.00	16:15:00	0	0.00	10:15:00	0	0.00	15:00:00	0	0.00
10:35:15	0	0.00	16:15:15	0	0.00	10:15:15	0	0.00	15:00:15	0	0.00
10:35:30	0	0.00	16:15:30	0	0.00	10:15:30	0	0.00	15:00:30	0	0.00
10:35:45	0	0.00	16:15:45	0	0.00	10:15:45	0	0.00	15:00:45	0	0.00
10:36:00	0	0.00	16:16:00	0	0.00	10:16:00	0	0.00	15:01:00	0	0.00
10:36:15	0	0.00	16:16:15	0	0.00	10:16:15	0	0.00	15:01:15	0	0.00
10:36:30	0	0.00	16:16:30	0	0.00	10:16:30	0	0.00	15:01:30	0	0.00
10:36:45	0	0.00	16:16:45	0	0.00	10:16:45	0	0.00	15:01:45	0	0.00
10:37:00	0	0.00	16:17:00	0	0.00	10:17:00	0	0.00	15:02:00	0	0.00
10:37:15	0	0.00	16:17:15	0	0.00	10:17:15	0	0.00	15:02:15	0	0.00
10:37:30	0	0.00	16:17:30	0	0.00	10:17:30	0	0.00	15:02:30	0	0.00
10:37:45	0	0.00	16:17:45	0	0.00	10:17:45	0	0.00	15:02:45	0	0.00
10:38:00	0	0.00	16:18:00	0	0.00	10:18:00	0	0.00	Test Terminated		
10:38:15	0	0.00	16:18:15	0	0.00	10:18:15	0	0.00			
10:38:30	0	0.00	16:18:30	0	0.00	10:18:30	0	0.00			
10:38:45	0	0.00	16:18:45	0	0.00	10:18:45	0	0.00			
10:39:00	0	0.00	16:19:00	0	0.00	10:19:00	0	0.00			
10:39:15	0	0.00	16:19:15	0	0.00	10:19:15	0	0.00			
10:39:30	0	0.00	16:19:30	0	0.00	10:19:30	0	0.00			
10:39:45	0	0.00	16:19:45	0	0.00	10:19:45	0	0.00			
10:40:00	0	0.00	16:20:00	0	0.00	10:20:00	0	0.00			
10:40:15	0	0.00	16:20:15	0	0.00	10:20:15	0	0.00			
10:40:30	0	0.00	16:20:30	0	0.00	10:20:30	0	0.00			
10:40:45	0	0.00	16:20:45	0	0.00	10:20:45	0	0.00			
10:41:00	0	0.00	16:21:00	0	0.00	10:21:00	0	0.00			
10:41:15	0	0.00	16:21:15	0	0.00	10:21:15	0	0.00			
10:41:30	0	0.00	16:21:30	0	0.00	10:21:30	0	0.00			
10:41:45	0	0.00	16:21:45	0	0.00	10:21:45	0	0.00			
10:42:00	0	0.00	16:22:00	0	0.00	10:22:00	0	0.00			
10:42:15	0	0.00	16:22:15	0	0.00	10:22:15	0	0.00			
10:42:30	0	0.00	16:22:30	0	0.00	10:22:30	0	0.00			
10:42:45	0	0.00	16:22:45	0	0.00	10:22:45	0	0.00			
10:43:00	0	0.00	16:23:00	0	0.00	10:23:00	0	0.00			
10:43:15	0	0.00	16:23:15	0	0.00	10:23:15	0	0.00			
10:43:30	0	0.00	16:23:30	0	0.00	10:23:30	0	0.00			
10:43:45	0	0.00	16:23:45	0	0.00	10:23:45	0	0.00			
10:44:00	0	0.00	16:24:00	0	0.00	10:24:00	0	0.00			
10:44:15	0	0.00	16:24:15	0	0.00	10:24:15	0	0.00			
10:44:30	0	0.00	16:24:30	0	0.00	10:24:30	0	0.00			
10:44:45	0	0.00	16:24:45	0	0.00	10:24:45	0	0.00			
10:45:00	0	0.00	16:25:00	0	0.00	10:25:00	0	0.00			
10:45:15	0	0.00	16:25:15	0	0.00	10:25:15	0	0.00			
10:45:30	0	0.00	16:25:30	0	0.00	10:25:30	0	0.00			
10:45:45	0	0.00	16:25:45	0	0.00	10:25:45	0	0.00			
10:46:00	0	0.00	16:26:00	0	0.00	10:26:00	0	0.00			
10:46:15	0	0.00	16:26:15	0	0.00	10:26:15	0	0.00			
10:46:30	0	0.00	16:26:30	0	0.00	10:26:30	0	0.00			
10:46:45	0	0.00	16:26:45	0	0.00	10:26:45	0	0.00			
10:47:00	0	0.00	16:27:00	0	0.00	10:27:00	0	0.00			
10:47:15	0	0.00	16:27:15	0	0.00	10:27:15	0	0.00			
10:47:30	0	0.00	16:27:30	0	0.00	10:27:30	0	0.00			
10:47:45	0	0.00	16:27:45	0	0.00	10:27:45	0	0.00			
10:48:00	0	0.00	16:28:00	0	0.00	10:28:00	0	0.00			
10:48:15	0	0.00	16:28:15	0	0.00	10:28:15	0	0.00			
10:48:30	0	0.00	16:28:30	0	0.00	10:28:30	0	0.00			
10:48:45	0	0.00	16:28:45	0	0.00	10:28:45	0	0.00			
10:49:00	0	0.00	16:29:00	0	0.00	10:29:00	0	0.00			
10:49:15	0	0.00	16:29:15	0	0.00	10:29:15	0	0.00			
10:49:30	0	0.00	16:29:30	0	0.00	10:29:30	0	0.00			
10:49:45	0	0.00	16:29:45	0	0.00	10:29:45	0	0.00			

TABLE 2-5. VE READINGS AND ROLLING 6-MINUTE VE AVERAGES FOR NEWPORT STEEL BRANDT BAGHOUSE

TEST 1 August 15, 2000			TEST 2 August 15, 2000			TEST 3 August 16, 2000			TEST 4 (Incomplete) August 16, 2000		
Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6Cmin Avg	Time	VE	6-min Avg
10:50:00	0	0.00	16:30:00	0	0.00	10:30:00	0	0.00			
10:50:15	0	0.00	16:30:15	0	0.00	10:30:15	0	0.00			
10:50:30	0	0.00	16:30:30	0	0.00	10:30:30	0	0.00			
10:50:45	0	0.00	16:30:45	0	0.00	10:30:45	0	0.00			
10:51:00	0	0.00	16:31:00	0	0.00	10:31:00	0	0.00			
10:51:15	0	0.00	16:31:15	0	0.00	10:31:15	0	0.00			
10:51:30	0	0.00	16:31:30	0	0.00	10:31:30	0	0.00			
10:51:45	0	0.00	16:31:45	0	0.00	10:31:45	0	0.00			
10:52:00	0	0.00	16:32:00	0	0.00	10:32:00	0	0.00			
10:52:15	0	0.00	16:32:15	0	0.00	10:32:15	0	0.00			
10:52:30	0	0.00	16:32:30	0	0.00	10:32:30	0	0.00			
10:52:45	0	0.00	16:32:45	0	0.00	10:32:45	0	0.00			
10:53:00	0	0.00	16:33:00	0	0.00	10:33:00	0	0.00			
10:53:15	0	0.00	16:33:15	0	0.00	10:33:15	0	0.00			
10:53:30	0	0.00	16:33:30	0	0.00	10:33:30	0	0.00			
10:53:45	0	0.00	16:33:45	0	0.00	10:33:45	0	0.00			
10:54:00	0	0.00	16:34:00	0	0.00	10:34:00	0	0.00			
10:54:15	0	0.00	16:34:15	0	0.00	10:34:15	0	0.00			
10:54:30	0	0.00	16:34:30	0	0.00	10:34:30	0	0.00			
10:54:45	0	0.00	16:34:45	0	0.00	10:34:45	0	0.00			
10:55:00	0	0.00	16:35:00	0	0.00	10:35:00	0	0.00			
10:55:15	0	0.00	16:35:15	0	0.00	10:35:15	0	0.00			
10:55:30	0	0.00	16:35:30	0	0.00	10:35:30	0	0.00			
10:55:45	0	0.00	16:35:45	0	0.00	10:35:45	0	0.00			
10:56:00	0	0.00	16:36:00	0	0.00	10:36:00	0	0.00			
10:56:15	0	0.00	16:36:15	0	0.00	10:36:15	0	0.00			
10:56:30	0	0.00	16:36:30	0	0.00	10:36:30	0	0.00			
10:56:45	0	0.00	16:36:45	0	0.00	10:36:45	0	0.00			
10:57:00	0	0.00	16:37:00	0	0.00	10:37:00	0	0.00			
10:57:15	0	0.00	16:37:15	0	0.00	10:37:15	0	0.00			
10:57:30	0	0.00	16:37:30	0	0.00	10:37:30	0	0.00			
10:57:45	0	0.00	16:37:45	0	0.00	10:37:45	0	0.00			
10:58:00	0	0.00	16:38:00	0	0.00	10:38:00	0	0.00			
10:58:15	0	0.00	16:38:15	0	0.00	10:38:15	0	0.00			
10:58:30	0	0.00	16:38:30	0	0.00	10:38:30	0	0.00			
10:58:45	0	0.00	16:38:45	0	0.00	10:38:45	0	0.00			
10:59:00	0	0.00	16:39:00	0	0.00	10:39:00	0	0.00			
10:59:15	0	0.00	16:39:15	0	0.00	10:39:15	0	0.00			
10:59:30	0	0.00	16:39:30	0	0.00	10:39:30	0	0.00			
10:59:45	0	0.00	16:39:45	0	0.00	10:39:45	0	0.00			
11:00:00	0	0.00	16:40:00	0	0.00	10:40:00	0	0.00			
11:00:15	0	0.00	16:40:15	0	0.00	10:40:15	0	0.00			
11:00:30	0	0.00	16:40:30	0	0.00	10:40:30	0	0.00			
11:00:45	0	0.00	16:40:45	0	0.00	10:40:45	0	0.00			
11:01:oo	0	0.00	16:41OO	0	0.00	10:41:00	0	0.00			
11:01:15	0	0.00	16:41:15	0	0.00	10:41:15	0	0.00			
11:01:30	0	0.00	16:41:30	0	0.00	10:41:30	0	0.00			
11:01:45	0	0.00	16:41:45	0	0.00	10:41:45	0	0.00			
11:02:00	0	0.00	16:42:00	0	0.00	10:42:00	0	0.00			
11:02:15	0	0.00	16:42:15	0	0.00	10:42:15	0	0.00			
11:02:30	0	0.00	16:42:30	0	0.00	10:42:30	0	0.00			
11:02:45	0	0.00	16:42:45	0	0.00	10:42:45	0	0.00			
11:03:00	0	0.00	16:43:00	0	0.00	10:43:00	0	0.00			
11:03:15	0	0.00	16:43:15	0	0.00	10:43:15	0	0.00			
11:03:30	0	0.00	16:43:30	0	0.00	10:43:30	0	0.00			
11:03:45	0	0.00	16:43:45	0	0.00	10:43:45	0	0.00			
11:04:00	0	0.00	16:44:00	0	0.00	10:44:00	0	0.00			
11:04:15	0	0.00	16:44:15	0	0.00	10:44:15	0	0.00			
11:04:30	0	0.00	16:44:30	0	0.00	10:44:30	0	0.00			
11:04:45	0	0.00	16:44:45	0	0.00	10:44:45	0	0.00			
11:05:00	0	0.00	16:45:00	0	0.00	10:45:00	0	0.00			
11:05:15	0	0.00	16:45:15	0	0.00			0.00			

TABLE 2-5. YE READINGS AND ROLLING 6-MINUTE YE AVERAGES FOR NEWPORT STEEL BRANDT BAGHOUSE

TEST 1 August 15, 2000			TEST 2 August 15, 2000			TEST 3 August 16, 2000			TEST 4 (Incomplete) August 16, 2000		
Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg
11:05:30	0	0.00	16:45:30	0	0.00	10:45:30	0	0.00			
11:05:45	0	0.00	16:45:45	0	0.00	10:45:45	0	0.00			
11:06:00	0	0.00	16:46:00	0	0.00	10:46:00	0	0.00			
11:06:15	0	0.00	16:46:15	0	0.00	10:46:15	0	0.00			
11:06:30	0	0.00	16:46:30	0	0.00	10:46:30	0	0.00			
11:06:45	0	0.00	16:46:45	0	0.00	10:46:45	0	0.00			
11:07:00	0	0.00	16:47:00	0	0.00	10:47:00	0	0.00			
11:07:15	0	0.00	16:47:15	0	0.00	10:47:15	0	0.00			
11:07:30	0	0.00	16:47:30	0	0.00	10:47:30	0	0.00			
11:07:45	0	0.00	16:47:45	0	0.00	10:47:45	0	0.00			
11:08:00	0	0.00	16:48:00	0	0.00	10:48:00	0	0.00			
11:08:15	0	0.00	16:48:15	0	0.00	10:48:15	0	0.00			
11:08:30	0	0.00	16:48:30	0	0.00	10:48:30	0	0.00			
11:08:45	0	0.00	16:48:45	0	0.00	10:48:45	0	0.00			
11:09:00	0	0.00	16:49:00	0	0.00	10:49:00	0	0.00			
11:09:15	0	0.00	16:49:15	0	0.00	10:49:15	0	0.00			
11:09:30	0	0.00	16:49:30	0	0.00	10:49:30	0	0.00			
11:09:45	0	0.00	16:49:45	0	0.00	10:49:45	0	0.00			
11:10:00	0	0.00	16:50:00	0	0.00	10:50:00	0	0.00			
11:10:15	0	0.00	16:50:15	0	0.00	10:50:15	0	0.00			
11:10:30	0	0.00	16:50:30	0	0.00	10:50:30	0	0.00			
11:10:45	0	0.00	16:50:45	0	0.00	10:50:45	0	0.00			
11:11:00	0	0.00	16:51:00	0	0.00	10:51:00	0	0.00			
11:11:15	0	0.00	16:51:15	0	0.00	10:51:15	0	0.00			
11:11:30	0	0.00	16:51:30	0	0.00	10:51:30	0	0.00			
11:11:45	0	0.00	16:51:45	0	0.00	10:51:45	0	0.00			
11:12:00	0	0.00	16:52:00	0	0.00	10:52:00	0	0.00			
11:12:15	0	0.00	16:52:15	0	0.00	10:52:15	0	0.00			
11:12:30	0	0.00	16:52:30	0	0.00	10:52:30	0	0.00			
11:12:45	0	0.00	16:52:45	0	0.00	10:52:45	0	0.00			
11:13:00	0	0.00	16:53:00	0	0.00	10:53:00	0	0.00			
11:13:15	0	0.00	16:53:15	0	0.00	10:53:15	0	0.00			
11:13:30	0	0.00	16:53:30	0	0.00	10:53:30	0	0.00			
11:13:45	0	0.00	16:53:45	0	0.00	10:53:45	0	0.00			
11:14:00	0	0.00	16:54:00	0	0.00	10:54:00	0	0.00			
11:14:15	0	0.00	16:54:15	0	0.00	10:54:15	0	0.00			
11:14:30	0	0.00	16:54:30	0	0.00	10:54:30	0	0.00			
11:14:45	0	0.00	16:54:45	0	0.00	10:54:45	0	0.00			
11:15:00	0	0.00	16:55:00	0	0.00	10:55:00	0	0.00			
11:15:15	0	0.00	16:55:15	0	0.00	10:55:15	0	0.00			
11:15:30	0	0.00	16:55:30	0	0.00	10:55:30	0	0.00			
11:15:45	0	0.00	16:55:45	0	0.00	10:55:45	0	0.00			
11:16:00	0	0.00	16:56:00	0	0.00	10:56:00	0	0.00			
11:16:15	0	0.00	16:56:15	0	0.00	10:56:15	0	0.00			
11:16:30	0	0.00	16:56:30	0	0.00	10:56:30	0	0.00			
11:16:45	0	0.00	16:56:45	0	0.00	10:56:45	0	0.00			
11:17:00	0	0.00	16:57:00	0	0.00	10:57:00	0	0.00			
11:17:15	0	0.00	16:57:15	0	0.00	10:57:15	0	0.00			
11:17:30	0	0.00	16:57:30	0	0.00	10:57:30	0	0.00			
11:17:45	0	0.00	16:57:45	0	0.00	10:57:45	0	0.00			
11:18:00	0	0.00	16:58:00	0	0.00	10:58:00	0	0.00			
11:18:15	0	0.00	16:58:15	0	0.00	10:58:15	0	0.00			
11:18:30	0	0.00	16:58:30	0	0.00	10:58:30	0	0.00			
11:18:45	0	0.00	16:58:45	0	0.00	10:58:45	0	0.00			
11:19:00	0	0.00	16:59:00	0	0.00	10:59:00	0	0.00			
11:19:15	0	0.00	16:59:15	0	0.00	10:59:15	0	0.00			
11:19:30	0	0.00	16:59:30	0	0.00	10:59:30	0	0.00			
11:19:45	0	0.00	16:59:45	0	0.00	10:59:45	0	0.00			
11:20:00	0	0.00	17:00:00	0	0.00	11:00:00	0	0.00			
11:20:15	0	0.00	17:00:15	0	0.00	11:00:15	0	0.00			
11:20:30	0	0.00	17:00:30	0	0.00	11:00:30	0	0.00			
11:20:45	0	0.00	17:00:45	0	0.00	[illegible]	0	0.00			

TABLE 2-5. VE READINGS AND ROLLING 6-MINUTE VE AVERAGES FOR NEWPORT STEEL BRANDT BAGHOUSE

TEST 1 August 15, 2000			TEST 2 August 15, 2000			TEST 3 August 16, 2000			TEST 4 (Incomplete) August 16, 2000		
Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg
11:21:00	0	0.00	17:01:00	0	0.00	11:01:00	0	0.00			
11:21:15	0	0.00	17:01:15	0	0.00	11:01:15	0	0.00			
11:21:30	0	0.00	17:01:30	0	0.00	11:01:30	0	0.00			
11:21:45	0	0.00	17:01:45	0	0.00	11:01:45	0	0.00			
11:22:00	0	0.00	17:02:00	0	0.00	11:02:00	0	0.00			
11:22:15	0	0.00	17:02:15	0	0.00	11:02:15	0	0.00			
11:22:30	0	0.00	17:02:30	0	0.00	11:02:30	0	0.00			
11:22:45	0	0.00	17:02:45	0	0.00	11:02:45	0	0.00			
11:23:00	0	0.00	17:03:00	0	0.00	11:03:00	0	0.00			
11:23:15	0	0.00	17:03:15	0	0.00	11:03:15	0	0.00			
11:23:30	0	0.00	17:03:30	0	0.00	11:03:30	0	0.00			
11:23:45	0	0.00	17:03:45	0	0.00	11:03:45	0	0.00			
11:24:00	0	0.00	17:04:00	0	0.00	11:04:00	0	0.00			
11:24:15	0	0.00	17:04:15	0	0.00	11:04:15	0	0.00			
11:24:30	0	0.00	17:04:30	0	0.00	11:04:30	0	0.00			
11:24:45	0	0.00	17:04:45	0	0.00	11:04:45	0	0.00			
11:25:00	0	0.00	17:05:00	0	0.00	11:05:00	0	0.00			
11:25:15	0	0.00	17:05:15	0	0.00	11:05:15	0	0.00			
11:25:30	0	0.00	17:05:30	0	0.00	11:05:30	0	0.00			
11:25:45	0	0.00	17:05:45	0	0.00	11:05:45	0	0.00			
11:26:00	0	0.00	17:06:00	0	0.00	11:06:00	0	0.00			
11:26:15	0	0.00	17:06:15	0	0.00	11:06:15	0	0.00			
11:26:30	0	0.00	17:06:30	0	0.00	11:06:30	0	0.00			
11:26:45	0	0.00	17:06:45	0	0.00	11:06:45	0	0.00			
11:27:00	0	0.00	17:07:00	0	0.00	11:07:00	0	0.00			
11:27:15	0	0.00	17:07:15	0	0.00	11:07:15	0	0.00			
11:27:30	0	0.00	17:07:30	0	0.00	11:07:30	0	0.00			
11:27:45	0	0.00	17:07:45	0	0.00	11:07:45	0	0.00			
11:28:00	0	0.00	17:08:00	0	0.00	11:08:00	0	0.00			
11:28:15	0	0.00	17:08:15	0	0.00	11:08:15	0	0.00			
11:28:30	0	0.00	17:08:30	0	0.00	11:08:30	0	0.00			
11:28:45	0	0.00	17:08:45	0	0.00	11:08:45	0	0.00			
11:29:00	0	0.00	17:09:00	0	0.00	11:09:00	0	0.00			
11:29:15	0	0.00	17:09:15	0	0.00	11:09:15	0	0.00			
11:29:30	0	0.00	17:09:30	0	0.00	11:09:30	0	0.00			
11:29:45	0	0.00	17:09:45	0	0.00	11:09:45	0	0.00			
11:30:00	0	0.00	17:10:00	0	0.00	11:10:00	0	0.00			
11:30:15	0	0.00	17:10:15	0	0.00	11:10:15	0	0.00			
11:30:30	0	0.00	17:10:30	0	0.00	11:10:30	0	0.00			
11:30:45	0	0.00	17:10:45	0	0.00	11:10:45	0	0.00			
11:31:00	0	0.00	17:11:00	0	0.00	11:11:00	0	0.00			
11:31:15	0	0.00	17:11:15	0	0.00	11:11:15	0	0.00			
11:31:30	0	0.00	17:11:30	0	0.00	11:11:30	0	0.00			
11:31:45	0	0.00	17:11:45	0	0.00	11:11:45	0	0.00			
11:32:00	0	0.00	17:12:00	0	0.00	11:12:00	0	0.00			
11:32:15	0	0.00	17:12:15	0	0.00	11:12:15	0	0.00			
11:32:30	0	0.00	17:12:30	0	0.00	11:12:30	0	0.00			
11:32:45	0	0.00	17:12:45	0	0.00	11:12:45	0	0.00			
11:33:00	0	0.00	17:13:00	0	0.00	11:13:00	0	0.00			
11:33:15	0	0.00	17:13:15	0	0.00	11:13:15	0	0.00			
11:33:30	0	0.00	17:13:30	0	0.00	11:13:30	0	0.00			
11:33:45	0	0.00	17:13:45	0	0.00	11:13:45	0	0.00			
11:34:00	0	0.00	17:14:00	0	0.00	11:14:00	0	0.00			
11:34:15	0	0.00	17:14:15	0	0.00	11:14:15	0	0.00			
11:34:30	0	0.00	17:14:30	0	0.00	11:14:30	0	0.00			
11:34:45	0	0.00	17:14:45	0	0.00	11:14:45	0	0.00			
11:35:00	0	0.00	17:15:00	0	0.00	11:15:00	0	0.00			
11:35:15	0	0.00	17:15:15	0	0.00	11:15:15	0	0.00			
11:35:30	0	0.00	17:15:30	0	0.00	11:15:30	0	0.00			
11:35:45	0	0.00	17:15:45	0	0.00	11:15:45	0	0.00			
11:36:00	0	0.00	17:16:00	0	0.00	11:16:00	0	0.00			
11:36:15	0	0.00	17:16:15	0	0.00	11:16:15	0	0.00			

TABLE 2-5. VE READINGS AND ROLLING 6-MINUTE VE AVERAGES FOR NEWPORT STEEL BRANDT BAGHOUSE

TEST 1 August 15, 2000			TEST 2 August 15, 2000			TEST 3 August 16, 2000			TEST 4 (Incomp August 16, 2000		
Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg
11:36:30	0	0.00	17:16:30	0	0.00	11:16:30	0	0.00			
11:36:45	0	0.00	17:16:45	0	0.00	11:16:45	0	0.00			
11:37:00	0	0.00	17:17:00	0	0.00	11:17:00	0	0.00			
11:37:15	0	0.00	17:17:15	0	0.00	11:17:15	0	0.00			
11:37:30	0	0.00	17:17:30	0	0.00	11:17:30	0	0.00			
11:37:45	0	0.00	17:17:45	0	0.00	11:17:45	0	0.00			
11:38:00	0	0.00	17:18:00	0	0.00	11:18:00	0	0.00			
11:38:15	0	0.00	17:18:15	0	0.00	11:18:15	0	0.00			
11:38:30	0	0.00	17:18:30	0	0.00	11:18:30	0	0.00			
11:38:45	0	0.00	17:18:45	0	0.00	11:18:45	0	0.00			
11:39:00	0	0.00	17:19:00	0	0.00	11:19:00	0	0.00			
11:39:15	0	0.00	17:19:15	0	0.00	11:19:15	0	0.00			
11:39:30	0	0.00	17:19:30	0	0.00	11:19:30	0	0.00			
11:39:45	0	0.00	17:19:45	0	0.00	11:19:45	0	0.00			
11:40:00	0	0.00	17:20:00	0	0.00	11:20:00	0	0.00			
11:40:15	0	0.00	17:20:15	0	0.00	11:20:15	0	0.00			
11:40:30	0	0.00	17:20:30	0	0.00	11:20:30	0	0.00			
11:40:45	0	0.00	17:20:45	0	0.00	11:20:45	0	0.00			
11:41:00	0	0.00	17:21:00	0	0.00	11:21:00	0	0.00			
11:41:15	0	0.00	17:21:15	0	0.00	11:21:15	0	0.00			
11:41:30	0	0.00	17:21:30	0	0.00	11:21:30	0	0.00			
11:41:45	0	0.00	17:21:45	0	0.00	11:21:45	0	0.00			
11:42:00	0	0.00	17:22:00	0	0.00	11:22:00	0	0.00			
11:42:15	0	0.00	17:22:15	0	0.00	11:22:15	0	0.00			
11:42:30	0	0.00	17:22:30	0	0.00	11:22:30	0	0.00			
11:42:45	0	0.00	17:22:45	0	0.00	11:22:45	0	0.00			
11:43:00	0	0.00	17:23:00	0	0.00	11:23:00	0	0.00			
11:43:15	0	0.00	17:23:15	0	0.00	11:23:15	0	0.00			
11:43:30	0	0.00	17:23:30	0	0.00	11:23:30	0	0.00			
11:43:45	0	0.00	17:23:45	0	0.00	11:23:45	0	0.00			
11:44:00	0	0.00	17:24:00	0	0.00	11:24:00	0	0.00			
11:44:15	0	0.00	17:24:15	0	0.00	11:24:15	0	0.00			
11:44:30	0	0.00	17:24:30	0	0.00	11:24:30	0	0.00			
11:44:45	0	0.00	17:24:45	0	0.00	11:24:45	0	0.00			
11:45:00	0	0.00	17:25:00	0	0.00	11:25:00	0	0.00			
11:45:15	0	0.00	17:25:15	0	0.00	11:25:15	0	0.00			
11:45:30	0	0.00	17:25:30	0	0.00	11:25:30	0	0.00			
11:45:45	0	0.00	17:25:45	0	0.00	11:25:45	0	0.00			
11:46:00	0	0.00	17:26:00	0	0.00	11:26:00	0	0.00			
11:46:15	0	0.00	17:26:15	0	0.00	11:26:15	0	0.00			
11:46:30	0	0.00	17:26:30	0	0.00	11:26:30	0	0.00			
11:46:45	0	0.00	17:26:45	0	0.00	11:26:45	0	0.00			
11:47:00	0	0.00	17:27:00	0	0.00	11:27:00	0	0.00			
11:47:15	0	0.00	17:27:15	0	0.00	11:27:15	0	0.00			
11:47:30	0	0.00	17:27:30	0	0.00	11:27:30	0	0.00			
11:47:45	0	0.00	17:27:45	0	0.00	11:27:45	0	0.00			
11:48:00	0	0.00	17:28:00	0	0.00	11:28:00	0	0.00			
11:48:15	0	0.00	17:28:15	0	0.00	11:28:15	0	0.00			
11:48:30	0	0.00	17:28:30	0	0.00	11:28:30	0	0.00			
11:48:45	0	0.00	17:28:45	0	0.00	11:28:45	0	0.00			
11:49:00	0	0.00	17:29:00	0	0.00	11:29:00	0	0.00			
11:49:15	0	0.00	17:29:15	0	0.00	11:29:15	0	0.00			
11:49:30	0	0.00	17:29:30	0	0.00	11:29:30	0	0.00			
11:49:45	0	0.00	17:29:45	0	0.00	11:29:45	0	0.00			
11:50:00	0	0.00	17:30:00	0	0.00	11:30:00	0	0.00			
11:50:15	0	0.00	17:30:15	0	0.00	11:30:15	0	0.00			
11:50:30	0	0.00	17:30:30	0	0.00	11:30:30	0	0.00			
11:50:45	0	0.00	17:30:45	0	0.00	11:30:45	0	0.00			
11:51:00	0	0.00	17:31:00	0	0.00	11:31:00	0	0.00			
11:51:15	0	0.00	17:31:15	0	0.00	11:31:15	0	0.00			
11:51:30	0	0.00	17:31:30	0	0.00	11:31:30	0	0.00			
11:51:45	0	0.00	17:31:45	0	0.00	11:31:45	0	0.00			

TABLE 2-5. VE READINGS AND ROLLING 6-MINUTE VE AVERAGES FOR NEWPORT STEEL BRANDT BAGHOUSE

TEST 1 August 15, 2000			TEST 2 August 15, 2000			TEST 3 August 16, 2000			TEST 4 (Incomplete) August 16, 2000		
Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg
11:52:00	0	0.00	17:32:00	0	0.00	11:32:00	0	0.00			
11:52:15	0	0.00	17:32:15	0	0.00	11:32:15	0	0.00			
11:52:30	0	0.00	17:32:30	0	0.00	11:32:30	0	0.00			
11:52:45	0	0.00	17:32:45	0	0.00	11:32:45	0	0.00			
11:53:00	0	0.00	17:33:00	0	0.00	11:33:00	0	0.00			
11:53:15	0	0.00	17:33:15	0	0.00	11:33:15	0	0.00			
11:53:30	0	0.00	17:33:30	0	0.00	11:33:30	0	0.00			
11:53:45	0	0.00	17:33:45	0	0.00	11:33:45	0	0.00			
11:54:00	0	0.00	17:34:00	0	0.00	11:34:00	0	0.00			
11:54:15	0	0.00	17:34:15	0	0.00	11:34:15	0	0.00			
11:54:30	0	0.00	17:34:30	0	0.00	11:34:30	0	0.00			
11:54:45	0	0.00	17:34:45	0	0.00	11:34:45	0	0.00			
11:55:00	0	0.00	17:35:00	0	0.00	11:35:00	0	0.00			
11:55:15	0	0.00	17:35:15	0	0.00	11:35:15	0	0.00			
11:55:30	0	0.00	17:35:30	0	0.00	11:35:30	0	0.00			
11:55:45	0	0.00	17:35:45	0	0.00	11:35:45	0	0.00			
11:56:00	0	0.00	17:36:00	0	0.00	11:36:00	0	0.00			
11:56:15	0	0.00	17:36:15	0	0.00	11:36:15	0	0.00			
11:56:30	0	0.00	17:36:30	0	0.00	11:36:30	0	0.00			
11:56:45	0	0.00	17:36:45	0	0.00	11:36:45	0	0.00			
11:57:00	0	0.00	17:37:00	0	0.00	11:37:00	0	0.00			
11:57:15	0	0.00	17:37:15	0	0.00	11:37:15	0	0.00			
11:57:30	0	0.00	17:37:30	0	0.00	11:37:30	0	0.00			
11:57:45	0	0.00	17:37:45	0	0.00	11:37:45	0	0.00			
11:58:00	0	0.00	17:38:00	0	0.00	11:38:00	0	0.00			
11:58:15	0	0.00	17:38:15	0	0.00	11:38:15	0	0.00			
11:58:30	0	0.00	17:38:30	0	0.00	11:38:30	0	0.00			
11:58:45	0	0.00	17:38:45	0	0.00	11:38:45	0	0.00			
11:59:00	0	0.00	17:39:00	0	0.00	11:39:00	0	0.00			
11:59:15	0	0.00	17:39:15	0	0.00	11:39:15	0	0.00			
11:59:30	0	0.00	17:39:30	0	0.00	11:39:30	0	0.00			
11:59:45	0	0.00	17:39:45	0	0.00	11:39:45	0	0.00			
12:00:00	0	0.00	17:40:00	0	0.00	11:40:00	0	0.00			
12:00:15	0	0.00	17:40:15	0	0.00	11:40:15	0	0.00			
12:00:30	0	0.00	17:40:30	0	0.00	11:40:30	0	0.00			
12:00:45	0	0.00	17:40:45	0	0.00	11:40:45	0	0.00			
12:01:00	0	0.00	17:41:00	0	0.00	11:41:00	0	0.00			
12:01:15	0	0.00	17:41:15	0	0.00	11:41:15	0	0.00			
12:01:30	0	0.00	17:41:30	0	0.00	11:41:30	0	0.00			
12:01:45	0	0.00	17:41:45	0	0.00	11:41:45	0	0.00			
12:02:00	0	0.00	17:42:00	0	0.00	11:42:00	0	0.00			
12:02:15	0	0.00	17:42:15	0	0.00	11:42:15	0	0.00			
12:02:30	0	0.00	17:42:30	0	0.00	11:42:30	0	0.00			
12:02:45	0	0.00	17:42:45	0	0.00	11:42:45	0	0.00			
12:03:00	0	0.00	17:43:00	0	0.00	11:43:00	0	0.00			
12:03:15	0	0.00	17:43:15	0	0.00	11:43:15	0	0.00			
12:03:30	0	0.00	17:43:30	0	0.00	11:43:30	0	0.00			
12:03:45	0	0.00	17:43:45	0	0.00	11:43:45	0	0.00			
12:04:00	0	0.00	17:44:00	0	0.00	11:44:00	0	0.00			
12:04:15	0	0.00	17:44:15	0	0.00	11:44:15	0	0.00			
12:04:30	0	0.00	17:44:30	0	0.00	11:44:30	0	0.00			
12:04:45	0	0.00	17:44:45	0	0.00	11:44:45	0	0.00			
12:05:00	0	0.00	17:45:00	0	0.00	11:45:00	0	0.00			
12:05:15	0	0.00	17:45:15	0	0.00	11:45:15	0	0.00			
12:05:30	0	0.00	17:45:30	0	0.00	11:45:30	0	0.00			
12:05:45	0	0.00	17:45:45	0	0.00	11:45:45	0	0.00			
12:06:00	0	0.00	17:46:00	0	0.00	11:46:00	0	0.00			
12:06:15	0	0.00	17:46:15	0	0.00	11:46:15	0	0.00			
12:06:30	0	0.00	17:46:30	0	0.00	11:46:30	0	0.00			
12:06:45	0	0.00	17:46:45	0	0.00	11:46:45	0	0.00			
12:07:00	0	0.00	17:47:00	0	0.00	11:47:00	0	0.00			
12:07:15	0	0.00	17:47:15	0	0.00	11:47:15	0	0.00			

TABLE 2-5. VE READINGS AND ROLLING 6-MINUTE VE AVERAGES FOR NEWPORT STEEL BRANDT BAGHOUSE

TEST 1 August 15, 2000			TEST 2 Au ust 15, 2000			TEST 3 August 16, 2000			TEST 4 (Incompiete) August 16, 2000		
Time	VE	6-min Avg			in Avg	Time	VE	6-min Avg	Time	VE	6-min Avg
12:07:30	0	0.00	17:47:30		).00	11:47:30	0	0.00			
12:07:45	0	0.00	17:47:45	0	0.00	11:47:45	0	0.00			
12:08:00	0	0.00	17:48:00	0	0.00	11:48:00	0	0.00			
12:08:15	0	0.00	17:48:15	0	0.00	11:48:15	0	0.00			
12:08:30	0	0.00	17:48:30	0	0.00	11:48:30	0	0.00			
12:08:45	0	0.00	17:48:45	0	0.00	11:48:45	0	0.00			
12:09:00	0	0.00	17:49:00	0	0.00	11:49:00	0	0.00			
12:09:15	0	0.00	17:49:15	0	0.00	11:49:15	0	0.00			
12:09:30	0	0.00	17:49:30	0	0.00	11:49:30	0	0.00			
12:09:45	0	0.00	17:49:45	0	0.00	11:49:45	0	0.00			
12:10:00	0	0.00	17:50:00	0	0.00	11:50:00	0	0.00			
12:10:15	0	0.00	17:50:15	0	0.00	11:50:15	0	0.00			
12:10:30	0	0.00	17:50:30	0	0.00	11:50:30	0	0.00			
12:10:45	0	0.00	17:50:45	0	0.00	11:50:45	0	0.00			
12:11:oo	0	0.00	17:51:00	0	0.00	11:51:00	0	0.00			
12:11:15	0	0.00	17:51:15	0	0.00	11:51:15	0	0.00			
12:11:30	0	0.00	17:51:30	0	0.00	11:51:30	0	0.00			
12:11:45	0	0.00	17:51:45	0	0.00	11:51:45	0	0.00			
12:12:00	0	0.00	17:52:00	0	0.00	11:52:00	0	0.00			
12:12:15	0	0.00	17:52:15	0	0.00	11:52:15	0	0.00			
12:12:30	0	0.00	17:52:30	0	0.00	11:52:30	0	0.00			
12:12:45	0	0.00	17:52:45	0	0.00	11:52:45	0	0.00			
12:13:00	0	0.00	17:53:00	0	0.00	11:53:00	0	0.00			
12:13:15	0	0.00	17:53:15	0	0.00	11:53:15	0	0.00			
12:13:30	0	0.00	17:53:30	0	0.00	11:53:30	0	0.00			
12:13:45	0	0.00	17:53:45	0	0.00	11:53:45	0	0.00			
12:14:00	0	0.00	17:54:00	0	0.00	11:54:00	0	0.00			
12:14:15	0	0.00	17:54:15	0	0.00	11:54:15	0	0.00			
12:14:30	0	0.00	17:54:30	0	0.00	11:54:30	0	0.00			
12:14:45	0	0.00	17:54:45	0	0.00	11:54:45	0	0.00			
VE Readings Completed			VE Readings Completed			VE Readings Completed					

TABLE 2-6. VE READINGS AND ROLLING 6-MINUTE VE AVERAGES FOR NEWPORT STEEL MELT SHOP

TEST 1 August 15,2000			TEST 2 August 15, 2000			TEST 3 August 16, 2000			TEST 4 (Incomplete) August 16, 2000		
Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	Cmin Avg
8:15:00	0		13:55:00	0		7:55:00	0		12:40:00	0	
8:15:15	0		13:55:15	0		7:55:15	0		12:40:15	0	
8:15:30	0		13:55:30	0		7:55:30	0		12:40:30	0	
8:15:45	0		13:55:45	0		7:55:45	0		12:40:45	0	
8:16:00	0		13:56:00	0		7:56:00	0		12:41:00	0	
8:16:15	0		13:56:15	0		7:56:15	0		12:41:15	0	
8:16:30	0		13:56:30	0		7:56:30	0		12:41:30	0	
8:16:45	0		13:56:45	0		7:56:45	0		12:41:45	0	
8:17:00	0		13:57:00	0		7:57:00	0		12:42:00	0	
8:17:15	0		13:57:15	0		7:57:15	0		12:42:15	0	
8:17:30	0		13:57:30	0		7:57:30	0		12:42:30	0	
8:17:45	0		13:57:45	0		7:57:45	0		12:42:45	0	
8:18:00	0		13:58:00	0		7:58:00	0		12:43:00	0	
8:18:15	0		13:58:15	0		7:58:15	0		12:43:15	0	
8:18:30	0		13:58:30	0		7:58:30	0		12:43:30	0	
8:18:45	0		13:58:45	0		7:58:45	0		12:43:45	0	
8:19:00	0		13:59:00	0		7:59:00	0		12:44:00	0	
8:19:15	0		13:59:15	0		7:59:15	0		12:44:15	0	
8:19:30	0		13:59:30	0		7:59:30	0		12:44:30	0	
8:19:45	0		13:59:45	0		7:59:45	0		12:44:45	0	
8:20:00	0		14:00:00	0		8:00:00	0		12:45:00	0	
8:20:15	0		14:00:15	0		8:00:15	0		12:45:15	0	
8:20:30	0		14:00:30	0		8:00:30	0		12:45:30	0	
8:20:45	0	0.00	14:00:45	0	0.00	8:00:45	0	0.00	12:45:45	0	0.00
8:21:00	0	0.00	14:01:00	0	0.00	8:01:00	0	0.00	12:46:00	0	0.00
8:21:15	0	0.00	14:01:15	0	0.00	8:01:15	0	0.00	12:46:15	0	0.00
8:21:30	0	0.00	14:01:30	0	0.00	8:01:30	0	0.00	12:46:30	0	0.00
8:21:45	0	0.00	14:01:45	0	0.00	8:01:45	0	0.00	12:46:45	0	0.00
8:22:00	0	0.00	14:02:00	0	0.00	8:02:00	0	0.00	12:47:00	0	0.00
8:22:15	0	0.00	14:02:15	0	0.00	8:02:15	0	0.00	12:47:15	0	0.00
8:22:30	0	0.00	14:02:30	0	0.00	8:02:30	0	0.00	12:47:30	0	0.00
8:22:45	0	0.00	14:02:45	0	0.00	8:02:45	0	0.00	12:47:45	0	0.00
8:23:00	0	0.00	14:03:00	0	0.00	8:03:00	0	0.00	12:48:00	0	0.00
8:23:15	0	0.00	14:03:15	0	0.00	8:03:15	0	0.00	12:48:15	0	0.00
8:23:30	0	0.00	14:03:30	0	0.00	8:03:30	0	0.00	12:48:30	0	0.00
8:23:45	0	0.00	14:03:45	0	0.00	8:03:45	0	0.00	12:48:45	0	0.00
8:24:00	0	0.00	14:04:00	0	0.00	8:04:00	0	0.00	12:49:00	0	0.00
8:24:15	0	0.00	14:04:15	0	0.00	8:04:15	0	0.00	12:49:15	0	0.00
8:24:30	0	0.00	14:04:30	0	0.00	8:04:30	0	0.00	12:49:30	0	0.00
8:24:45	0	0.00	14:04:45	0	0.00	8:04:45	0	0.00	12:49:45	0	0.00
8:25:00	0	0.00	14:05:00	0	0.00	8:05:00	0	0.00	12:50:00	0	0.00
8:25:15	0	0.00	14:05:15	0	0.00	8:05:15	0	0.00	12:50:15	0	0.00
8:25:30	0	0.00	14:05:30	0	0.00	8:05:30	0	0.00	12:50:30	0	0.00
8:25:45	0	0.00	14:05:45	0	0.00	8:05:45	0	0.00	12:50:45	0	0.00
8:26:00	0	0.00	14:06:00	0	0.00	8:06:00	0	0.00	12:51:00	0	0.00
8:26:15	0	0.00	14:06:15	0	0.00	8:06:15	0	0.00	12:51:15	0	0.00
8:26:30	0	0.00	14:06:30	0	0.00	8:06:30	0	0.00	12:51:30	0	0.00
8:26:45	0	0.00	14:06:45	0	0.00	8:06:45	0	0.00	12:51:45	0	0.00
8:27:00	0	0.00	14:07:00	0	0.00	8:07:00	0	0.00	12:52:00	0	0.00
8:27:15	0	0.00	14:07:15	0	0.00	8:07:15	0	0.00	12:52:15	0	0.00
8:27:30	0	0.00	14:07:30	0	0.00	8:07:30	0	0.00	12:52:30	0	0.00
8:27:45	0	0.00	14:07:45	0	0.00	8:07:45	0	0.00	12:52:45	0	0.00
8:28:00	0	0.00	14:08:00	0	0.00	8:08:00	0	0.00	12:53:00	0	0.00
8:28:15	0	0.00	14:08:15	0	0.00	8:08:15	0	0.00	12:53:15	0	0.00
8:28:30	0	0.00	14:08:30	0	0.00	8:08:30	0	0.00	12:53:30	0	0.00
8:28:45	0	0.00	14:08:45	0	0.00	8:08:45	0	0.00	12:53:45	0	0.00
8:29:00	0	0.00	14:09:00	0	0.00	8:09:00	0	0.00	12:54:00	0	0.00
8:29:15	0	0.00	14:09:15	0	0.00	8:09:15	0	0.00	12:54:15	0	0.00
8:29:30	0	0.00	14:09:30	0	0.00	8:09:30	0	0.00	12:54:30	0	0.00
8:29:45	0	0.00	14:09:45	0	0.00	8:09:45	0	0.00	12:54:45	0	0.00
8:30:00	0		14:10:00	0	0.00	8:10:00	0	0.00	12:55:00	0	0.00
8:30:15	0		14:10:15	0	0.00	8:10:15	0	0.00	12:55:15	0	0.00

TABLE 2-6. VE READINGS AND ROLLING 6-MINUTE VE AVERAGES FOR NEWPORT STEEL MELT SHOP

TEST 1 August 15, 2000			TEST 2 August 15, 2000			TEST 3 August 16, 2000			TEST 4 (Incomplete) August 16, 2000		
Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg
8:30:30	0	0.00	14:10:30	0	0.00	8:10:30	0	0.00	12:55:30	0	0.00
8:30:45	0	0.00	14:10:45	0	0.00	8:10:45	0	0.00	12:55:45	0	0.00
8:31:00	0	0.00	14:11:00	0	0.00	8:11:00	0	0.00	12:56:00	0	0.00
8:31:15	0	0.00	14:11:15	0	0.00	8:11:15	0	0.00	12:56:15	0	0.00
8:31:30	0	0.00	14:11:30	0	0.00	8:11:30	0	0.00	12:56:30	0	0.00
8:31:45	0	0.00	14:11:45	0	0.00	8:11:45	0	0.00	12:56:45	0	0.00
8:32:00	0	0.00	14:12:00	0	0.00	8:12:00	0	0.00	12:57:00	0	0.00
8:32:15	0	0.00	14:12:15	0	0.00	8:12:15	0	0.00	12:57:15	0	0.00
8:32:30	0	0.00	14:12:30	0	0.00	8:12:30	0	0.00	12:57:30	0	0.00
8:32:45	0	0.00	14:12:45	0	0.00	8:12:45	0	0.00	12:57:45	0	0.00
8:33:00	0	0.00	14:13:00	0	0.00	8:13:00	0	0.00	12:58:00	0	0.00
8:33:15	0	0.00	14:13:15	0	0.00	8:13:15	0	0.00	12:58:15	0	0.00
8:33:30	0	0.00	14:13:30	0	0.00	8:13:30	0	0.00	12:58:30	0	0.00
8:33:45	0	0.00	14:13:45	0	0.00	8:13:45	0	0.00	12:58:45	0	0.00
8:34:00	0	0.00	14:14:00	0	0.00	8:14:00	0	0.00	12:59:00	0	0.00
8:34:15	0	0.00	14:14:15	0	0.00	8:14:15	0	0.00	12:59:15	0	0.00
8:34:30	0	0.00	14:14:30	0	0.00	8:14:30	0	0.00	12:59:30	0	0.00
8:34:45	0	0.00	14:14:45	0	0.00	8:14:45	0	0.00	12:59:45	0	0.00
8:35:00	0	0.00	14:15:00	0	0.00	8:15:00	0	0.00	13:00:00	0	0.00
8:35:15	0	0.00	14:15:15	0	0.00	8:15:15	0	0.00	13:00:15	0	0.00
8:35:30	0	0.00	14:15:30	0	0.00	8:15:30	0	0.00	13:00:30	0	0.00
8:35:45	0	0.00	14:15:45	0	0.00	8:15:45	0	0.00	13:00:45	0	0.00
8:36:00	0	0.00	14:16:00	0	0.00	8:16:00	0	0.00	13:01:00	0	0.00
8:36:15	0	0.00	14:16:15	0	0.00	8:16:15	0	0.00	13:01:15	0	0.00
8:36:30	0	0.00	14:16:30	0	0.00	8:16:30	0	0.00	13:01:30	0	0.00
8:36:45	0	0.00	14:16:45	0	0.00	8:16:45	0	0.00	13:01:45	0	0.00
8:37:00	0	0.00	14:17:00	0	0.00	8:17:00	0	0.00	13:02:00	0	0.00
8:37:15	0	0.00	14:17:15	0	0.00	8:17:15	0	0.00	13:02:15	0	0.00
8:37:30	0	0.00	14:17:30	0	0.00	8:17:30	0	0.00	13:02:30	0	0.00
8:37:45	0	0.00	14:17:45	0	0.00	8:17:45	0	0.00	13:02:45	0	0.00
8:38:00	0	0.00	14:18:00	0	0.00	8:18:00	0	0.00	13:03:00	0	0.00
8:38:15	0	0.00	14:18:15	0	0.00	8:18:15	0	0.00	13:03:15	0	0.00
8:38:30	0	0.00	14:18:30	0	0.00	8:18:30	0	0.00	13:03:30	0	0.00
8:38:45	0	0.00	14:18:45	0	0.00	8:18:45	0	0.00	13:03:45	0	0.00
8:39:00	0	0.00	14:19:00	0	0.00	8:19:00	0	0.00	13:04:00	0	0.00
8:39:15	0	0.00	14:19:15	0	0.00	8:19:15	0	0.00	13:04:15	0	0.00
8:39:30	0	0.00	14:19:30	0	0.00	8:19:30	0	0.00	13:04:30	0	0.00
8:39:45	0	0.00	14:19:45	0	0.00	8:19:45	0	0.00	13:04:45	0	0.00
8:40:00	0	0.00	14:20:00	0	0.00	8:20:00	0	0.00	13:05:00	0	0.00
8:40:15	0	0.00	14:20:15	0	0.00	8:20:15	0	0.00	13:05:15	0	0.00
8:40:30	0	0.00	14:20:30	0	0.00	8:20:30	0	0.00	13:05:30	0	0.00
8:40:45	0	0.00	14:20:45	0	0.00	8:20:45	0	0.00	13:05:45	0	0.00
8:41:00	0	0.00	14:21:00	0	0.00	8:21:00	0	0.00	13:06:00	0	0.00
8:41:15	0	0.00	14:21:15	0	0.00	8:21:15	0	0.00	13:06:15	0	0.00
8:41:30	0	0.00	14:21:30	0	0.00	8:21:30	0	0.00	13:06:30	0	0.00
8:41:45	0	0.00	14:21:45	0	0.00	8:21:45	0	0.00	13:06:45	0	0.00
8:42:00	0	0.00	14:22:00	0	0.00	8:22:00	0	0.00	13:07:00	0	0.00
8:42:15	0	0.00	14:22:15	0	0.00	8:22:15	0	0.00	13:07:15	0	0.00
8:42:30	0	0.00	14:22:30	0	0.00	8:22:30	0	0.00	13:07:30	0	0.00
8:42:45	0	0.00	14:22:45	0	0.00	8:22:45	0	0.00	13:07:45	0	0.00
8:43:00	0	0.00	14:23:00	0	0.00	8:23:00	0	0.00	13:08:00	0	0.00
8:43:15	0	0.00	14:23:15	0	0.00	8:23:15	0	0.00	13:08:15	0	0.00
8:43:30	0	0.00	14:23:30	0	0.00	8:23:30	0	0.00	13:08:30	0	0.00
8:43:45	0	0.00	14:23:45	0	0.00	8:23:45	0	0.00	13:08:45	0	0.00
8:44:00	0	0.00	14:24:00	0	0.00	8:24:00	0	0.00	13:09:00	0	0.00
8:44:15	0	0.00	14:24:15	0	0.00	8:24:15	0	0.00	13:09:15	0	0.00
8:44:30	0	0.00	14:24:30	0	0.00	8:24:30	0	0.00	13:09:30	0	0.00
8:44:45	0	0.00	14:24:45	0	0.00	8:24:45	0	0.00	13:09:45	0	0.00
8:45:00	0	0.00	14:25:00	0	0.00	8:25:00	0	0.00	13:10:00	0	0.00
8:45:15	0	0.00	14:25:15	0	0.00	8:25:15	0	0.00	13:10:15	0	0.00
8:45:30	0	0.00	14:25:30	0	0.00	8:25:30	0	0.00	13:10:30	0	0.00
8:45:45	0	0.00		0	0.00	8:25:45	0	0.00	13:10:45	0	0.00

TABLE 2-5. VE READINGS AND ROLLING 6-MINUTE VE AVERAGES FOR NEWPORT STEEL BRANDT BAGHOUSE

TEST 1 August 15, 2000			TEST 2 August 15, 2000			TEST 3 August 16, 2000			TEST 4 (Incomplete) August 16, 2000		
Time	VE	6Cmin Avg	Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg
10:50:00	0	0.00	16:30:00	0	0.00	10:30:00	0	0.00			
10:50:15	0	0.00	16:30:15	0	0.00	10:30:15	0	0.00			
10:50:30	0	0.00	16:30:30	0	0.00	10:30:30	0	0.00			
10:50:45	0	0.00	16:30:45	0	0.00	10:30:45	0	0.00			
10:51:00	0	0.00	16:31:00	0	0.00	10:31:00	0	0.00			
10:51:15	0	0.00	16:31:15	0	0.00	10:31:15	0	0.00			
10:51:30	0	0.00	16:31:30	0	0.00	10:31:30	0	0.00			
10:51:45	0	0.00	16:31:45	0	0.00	10:31:45	0	0.00			
10:52:00	0	0.00	16:32:00	0	0.00	10:32:00	0	0.00			
10:52:15	0	0.00	16:32:15	0	0.00	10:32:15	0	0.00			
10:52:30	0	0.00	16:32:30	0	0.00	10:32:30	0	0.00			
10:52:45	0	0.00	16:32:45	0	0.00	10:32:45	0	0.00			
10:53:00	0	0.00	16:33:00	0	0.00	10:33:00	0	0.00			
10:53:15	0	0.00	16:33:15	0	0.00	10:33:15	0	0.00			
10:53:30	0	0.00	16:33:30	0	0.00	10:33:30	0	0.00			
10:53:45	0	0.00	16:33:45	0	0.00	10:33:45	0	0.00			
10:54:00	0	0.00	16:34:00	0	0.00	10:34:00	0	0.00			
10:54:15	0	0.00	16:34:15	0	0.00	10:34:15	0	0.00			
10:54:30	0	0.00	16:34:30	0	0.00	10:34:30	0	0.00			
10:54:45	0	0.00	16:34:45	0	0.00	10:34:45	0	0.00			
10:55:00	0	0.00	16:35:00	0	0.00	10:35:00	0	0.00			
10:55:15	0	0.00	16:35:15	0	0.00	10:35:15	0	0.00			
10:55:30	0	0.00	16:35:30	0	0.00	10:35:30	0	0.00			
10:55:45	0	0.00	16:35:45	0	0.00	10:35:45	0	0.00			
10:56:00	0	0.00	16:36:00	0	0.00	10:36:00	0	0.00			
10:56:15	0	0.00	16:36:15	0	0.00	10:36:15	0	0.00			
10:56:30	0	0.00	16:36:30	0	0.00	10:36:30	0	0.00			
10:56:45	0	0.00	16:36:45	0	0.00	10:36:45	0	0.00			
10:57:00	0	0.00	16:37:00	0	0.00	10:37:00	0	0.00			
10:57:15	0	0.00	16:37:15	0	0.00	10:37:15	0	0.00			
10:57:30	0	0.00	16:37:30	0	0.00	10:37:30	0	0.00			
10:57:45	0	0.00	16:37:45	0	0.00	10:37:45	0	0.00			
10:58:00	0	0.00	16:38:00	0	0.00	10:38:00	0	0.00			
10:58:15	0	0.00	16:38:15	0	0.00	10:38:15	0	0.00			
10:58:30	0	0.00	16:38:30	0	0.00	10:38:30	0	0.00			
10:58:45	0	0.00	16:38:45	0	0.00	10:38:45	0	0.00			
10:59:00	0	0.00	16:39:00	0	0.00	10:39:00	0	0.00			
10:59:15	0	0.00	16:39:15	0	0.00	10:39:15	0	0.00			
10:59:30	0	0.00	16:39:30	0	0.00	10:39:30	0	0.00			
10:59:45	0	0.00	16:39:45	0	0.00	10:39:45	0	0.00			
11:00:00	0	0.00	16:40:00	0	0.00	10:40:00	0	0.00			
11:00:15	0	0.00	16:40:15	0	0.00	10:40:15	0	0.00			
11:00:30	0	0.00	16:40:30	0	0.00	10:40:30	0	0.00			
11:00:45	0	0.00	16:40:45	0	0.00	10:40:45	0	0.00			
11:01:00	0	0.00	16:41:00	0	0.00	10:41:00	0	0.00			
11:01:15	0	0.00	16:41:15	0	0.00	10:41:15	0	0.00			
11:01:30	0	0.00	16:41:30	0	0.00	10:41:30	0	0.00			
11:01:45	0	0.00	16:41:45	0	0.00	10:41:45	0	0.00			
11:02:00	0	0.00	16:42:00	0	0.00	10:42:00	0	0.00			
11:02:15	0	0.00	16:42:15	0	0.00	10:42:15	0	0.00			
11:02:30	0	0.00	16:42:30	0	0.00	10:42:30	0	0.00			
11:02:45	0	0.00	16:42:45	0	0.00	10:42:45	0	0.00			
11:03:00	0	0.00	16:43:00	0	0.00	10:43:00	0	0.00			
11:03:15	0	0.00	16:43:15	0	0.00	10:43:15	0	0.00			
11:03:30	0	0.00	16:43:30	0	0.00	10:43:30	0	0.00			
11:03:45	0	0.00	16:43:45	0	0.00	10:43:45	0	0.00			
11:04:00	0	0.00	16:44:00	0	0.00	10:44:00	0	0.00			
11:04:15	0	0.00	16:44:15	0	0.00	10:44:15	0	0.00			
11:04:30	0	0.00	16:44:30	0	0.00	10:44:30	0	0.00			
11:04:45	0	0.00	16:44:45	0	0.00	10:44:45	0	0.00			
11:05:00	0	0.00	16:45:00	0	0.00	10:45:00	0	0.00			
11:05:15	0	0.00	16:45:15	0	0.00	10:45:15	0	0.00			

TABLE 2-5. VE READINGS AND ROLLING 6-MINUTE VE AVERAGES FOR NEWPORT STEEL BRANDT BAGHOUSE

TEST 1 August 15, 2000			TEST 2 August 15, 2000			TEST 3 August 16, 2000			TEST 4 (Incomplete) August 16, 2000		
Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg
11:05:30	0	0.00	16:45:30	0	0.00	10:45:30	0	0.00			
11:05:45	0	0.00	16:45:45	0	0.00	10:45:45	0	0.00			
11:06:00	0	0.00	16:46:00	0	0.00	10:46:00	0	0.00			
11:06:15	0	0.00	16:46:15	0	0.00	10:46:15	0	0.00			
11:06:30	0	0.00	16:46:30	0	0.00	10:46:30	0	0.00			
11:06:45	0	0.00	16:46:45	0	0.00	10:46:45	0	0.00			
11:07:00	0	0.00	16:47:00	0	0.00	10:47:00	0	0.00			
11:07:15	0	0.00	16:47:15	0	0.00	10:47:15	0	0.00			
11:07:30	0	0.00	16:47:30	0	0.00	10:47:30	0	0.00			
11:07:45	0	0.00	16:47:45	0	0.00	10:47:45	0	0.00			
11:08:00	0	0.00	16:48:00	0	0.00	10:48:00	0	0.00			
11:08:15	0	0.00	16:48:15	0	0.00	10:48:15	0	0.00			
11:08:30	0	0.00	16:48:30	0	0.00	10:48:30	0	0.00			
11:08:45	0	0.00	16:48:45	0	0.00	10:48:45	0	0.00			
11:09:00	0	0.00	16:49:00	0	0.00	10:49:00	0	0.00			
11:09:15	0	0.00	16:49:15	0	0.00	10:49:15	0	0.00			
11:09:30	0	0.00	16:49:30	0	0.00	10:49:30	0	0.00			
11:09:45	0	0.00	16:49:45	0	0.00	10:49:45	0	0.00			
11:10:00	0	0.00	16:50:00	0	0.00	10:50:00	0	0.00			
11:10:15	0	0.00	16:50:15	0	0.00	10:50:15	0	0.00			
11:10:30	0	0.00	16:50:30	0	0.00	10:50:30	0	0.00			
11:10:45	0	0.00	16:50:45	0	0.00	10:50:45	0	0.00			
11:11:00	0	0.00	16:51:00	0	0.00	10:51:00	0	0.00			
11:11:15	0	0.00	16:51:15	0	0.00	10:51:15	0	0.00			
11:11:30	0	0.00	16:51:30	0	0.00	10:51:30	0	0.00			
11:11:45	0	0.00	16:51:45	0	0.00	10:51:45	0	0.00			
11:12:00	0	0.00	16:52:00	0	0.00	10:52:00	0	0.00			
11:12:15	0	0.00	16:52:15	0	0.00	10:52:15	0	0.00			
11:12:30	0	0.00	16:52:30	0	0.00	10:52:30	0	0.00			
11:12:45	0	0.00	16:52:45	0	0.00	10:52:45	0	0.00			
11:13:00	0	0.00	16:53:00	0	0.00	10:53:00	0	0.00			
11:13:15	0	0.00	16:53:15	0	0.00	10:53:15	0	0.00			
11:13:30	0	0.00	16:53:30	0	0.00	10:53:30	0	0.00			
11:13:45	0	0.00	16:53:45	0	0.00	10:53:45	0	0.00			
11:14:00	0	0.00	16:54:00	0	0.00	10:54:00	0	0.00			
11:14:15	0	0.00	16:54:15	0	0.00	10:54:15	0	0.00			
11:14:30	0	0.00	16:54:30	0	0.00	10:54:30	0	0.00			
11:14:45	0	0.00	16:54:45	0	0.00	10:54:45	0	0.00			
11:15:00	0	0.00	16:55:00	0	0.00	10:55:00	0	0.00			
11:15:15	0	0.00	16:55:15	0	0.00	10:55:15	0	0.00			
11:15:30	0	0.00	16:55:30	0	0.00	10:55:30	0	0.00			
11:15:45	0	0.00	16:55:45	0	0.00	10:55:45	0	0.00			
11:16:00	0	0.00	16:56:00	0	0.00	10:56:00	0	0.00			
11:16:15	0	0.00	16:56:15	0	0.00	10:56:15	0	0.00			
11:16:30	0	0.00	16:56:30	0	0.00	10:56:30	0	0.00			
11:16:45	0	0.00	16:56:45	0	0.00	10:56:45	0	0.00			
11:17:00	0	0.00	16:57:00	0	0.00	10:57:00	0	0.00			
11:17:15	0	0.00	16:57:15	0	0.00	10:57:15	0	0.00			
11:17:30	0	0.00	16:57:30	0	0.00	10:57:30	0	0.00			
11:17:45	0	0.00	16:57:45	0	0.00	10:57:45	0	0.00			
11:18:00	0	0.00	16:58:00	0	0.00	10:58:00	0	0.00			
11:18:15	0	0.00	16:58:15	0	0.00	10:58:15	0	0.00			
11:18:30	0	0.00	16:58:30	0	0.00	10:58:30	0	0.00			
11:18:45	0	0.00	16:58:45	0	0.00	10:58:45	0	0.00			
11:19:00	0	0.00	16:59:00	0	0.00	10:59:00	0	0.00			
11:19:15	0	0.00	16:59:15	0	0.00	10:59:15	0	0.00			
11:19:30	0	0.00	16:59:30	0	0.00	10:59:30	0	0.00			
11:19:45	0	0.00	16:59:45	0	0.00	10:59:45	0	0.00			
11:20:00	0	0.00	17:00:00	0	0.00	11:00:00	0	0.00			
11:20:15	0	0.00	17:00:15	0	0.00	11:00:15	0	0.00			
11:20:30	0	0.00	17:00:30	0	0.00	11:00:30	0	0.00			
11:20:45	0	0.00	17:00:45	0	0.00	11:00:45	0	0.00			

TABLE 2-5. VE READINGS AND ROLLING 6-MINUTE VE AVERAGES FOR NEWPORT STEEL BRANDT BAGHOUSE

TEST 1 August 15, 2000			TEST 2 August 15, 2000			TEST 3 August 16, 2000			TEST 4 (Incomplete) August 16, 2000		
Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg
11:21:00	0	0.00	17:01:00	0	0.00	11:01:00	0	0.00			
11:21:15	0	0.00	17:01:15	0	0.00	11:01:15	0	0.00			
11:21:30	0	0.00	17:01:30	0	0.00	11:01:30	0	0.00			
11:21:45	0	0.00	17:01:45	0	0.00	11:01:45	0	0.00			
11:22:00	0	0.00	17:02:00	0	0.00	11:02:00	0	0.00			
11:22:15	0	0.00	17:02:15	0	0.00	11:02:15	0	0.00			
11:22:30	0	0.00	17:02:30	0	0.00	11:02:30	0	0.00			
11:22:45	0	0.00	17:02:45	0	0.00	11:02:45	0	0.00			
11:23:00	0	0.00	17:03:00	0	0.00	11:03:00	0	0.00			
11:23:15	0	0.00	17:03:15	0	0.00	11:03:15	0	0.00			
11:23:30	0	0.00	17:03:30	0	0.00	11:03:30	0	0.00			
11:23:45	0	0.00	17:03:45	0	0.00	11:03:45	0	0.00			
11:24:00	0	0.00	17:04:00	0	0.00	11:04:00	0	0.00			
11:24:15	0	0.00	17:04:15	0	0.00	11:04:15	0	0.00			
11:24:30	0	0.00	17:04:30	0	0.00	11:04:30	0	0.00			
11:24:45	0	0.00	17:04:45	0	0.00	11:04:45	0	0.00			
11:25:00	0	0.00	17:05:00	0	0.00	11:05:00	0	0.00			
11:25:15	0	0.00	17:05:15	0	0.00	11:05:15	0	0.00			
11:25:30	0	0.00	17:05:30	0	0.00	11:05:30	0	0.00			
11:25:45	0	0.00	17:05:45	0	0.00	11:05:45	0	0.00			
11:26:00	0	0.00	17:06:00	0	0.00	11:06:00	0	0.00			
11:26:15	0	0.00	17:06:15	0	0.00	11:06:15	0	0.00			
11:26:30	0	0.00	17:06:30	0	0.00	11:06:30	0	0.00			
11:26:45	0	0.00	17:06:45	0	0.00	11:06:45	0	0.00			
11:27:00	0	0.00	17:07:00	0	0.00	11:07:00	0	0.00			
11:27:15	0	0.00	17:07:15	0	0.00	11:07:15	0	0.00			
11:27:30	0	0.00	17:07:30	0	0.00	11:07:30	0	0.00			
11:27:45	0	0.00	17:07:45	0	0.00	11:07:45	0	0.00			
11:28:00	0	0.00	17:08:00	0	0.00	11:08:00	0	0.00			
11:28:15	0	0.00	17:08:15	0	0.00	11:08:15	0	0.00			
11:28:30	0	0.00	17:08:30	0	0.00	11:08:30	0	0.00			
11:28:45	0	0.00	17:08:45	0	0.00	11:08:45	0	0.00			
11:29:00	0	0.00	17:09:00	0	0.00	11:09:00	0	0.00			
11:29:15	0	0.00	17:09:15	0	0.00	11:09:15	0	0.00			
11:29:30	0	0.00	17:09:30	0	0.00	11:09:30	0	0.00			
11:29:45	0	0.00	17:09:45	0	0.00	11:09:45	0	0.00			
11:30:00	0	0.00	17:10:00	0	0.00	11:10:00	0	0.00			
11:30:15	0	0.00	17:10:15	0	0.00	11:10:15	0	0.00			
11:30:30	0	0.00	17:10:30	0	0.00	11:10:30	0	0.00			
11:30:45	0	0.00	17:10:45	0	0.00	11:10:45	0	0.00			
11:31:00	0	0.00	17:11:00	0	0.00	11:11:00	0	0.00			
11:31:15	0	0.00	17:11:15	0	0.00	11:11:15	0	0.00			
11:31:30	0	0.00	17:11:30	0	0.00	11:11:30	0	0.00			
11:31:45	0	0.00	17:11:45	0	0.00	11:11:45	0	0.00			
11:32:00	0	0.00	17:12:00	0	0.00	11:12:00	0	0.00			
11:32:15	0	0.00	17:12:15	0	0.00	11:12:15	0	0.00			
11:32:30	0	0.00	17:12:30	0	0.00	11:12:30	0	0.00			
11:32:45	0	0.00	17:12:45	0	0.00	11:12:45	0	0.00			
11:33:00	0	0.00	17:13:00	0	0.00	11:13:00	0	0.00			
11:33:15	0	0.00	17:13:15	0	0.00	11:13:15	0	0.00			
11:33:30	0	0.00	17:13:30	0	0.00	11:13:30	0	0.00			
11:33:45	0	0.00	17:13:45	0	0.00	11:13:45	0	0.00			
11:34:00	0	0.00	17:14:00	0	0.00	11:14:00	0	0.00			
11:34:15	0	0.00	17:14:15	0	0.00	11:14:15	0	0.00			
11:34:30	0	0.00	17:14:30	0	0.00	11:14:30	0	0.00			
11:34:45	0	0.00	17:14:45	0	0.00	11:14:45	0	0.00			
11:35:00	0	0.00	17:15:00	0	0.00	11:15:00	0	0.00			
11:35:15	0	0.00	17:15:15	0	0.00	11:15:15	0	0.00			
11:35:30	0	0.00	17:15:30	0	0.00	11:15:30	0	0.00			
11:35:45	0	0.00	17:15:45	0	0.00	11:15:45	0	0.00			
11:36:00	0	0.00	17:16:00	0	0.00	11:16:00	0	0.00			
11:36:15	0	0.00	17:16:15	0	0.00	11:16:15	0	0.00			

TABLE 2-5. VE READINGS AND ROLLING 6-MINUTE VE AVERAGES FOR NEWPORT STEEL BRANDT BAGHOUSE

TEST 1 August 15, 2000			TEST 2 August 15, 2000			TEST 3 August 16, 2000			TEST 4 (Incomplete) August 16, 2000		
Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg
11:36:30	0	0.00	17:16:30	0	0.00	11:16:30	0	0.00			
11:36:45	0	0.00	17:16:45	0	0.00	11:16:45	0	0.00			
11:37:00	0	0.00	17:17:00	0	0.00	11:17:00	0	0.00			
11:37:15	0	0.00	17:17:15	0	0.00	11:17:15	0	0.00			
11:37:30	0	0.00	17:17:30	0	0.00	11:17:30	0	0.00			
11:37:45	0	0.00	17:17:45	0	0.00	11:17:45	0	0.00			
11:38:00	0	0.00	17:18:00	0	0.00	11:18:00	0	0.00			
11:38:15	0	0.00	17:18:15	0	0.00	11:18:15	0	0.00			
11:38:30	0	0.00	17:18:30	0	0.00	11:18:30	0	0.00			
11:38:45	0	0.00	17:18:45	0	0.00	11:18:45	0	0.00			
11:39:00	0	0.00	17:19:00	0	0.00	11:19:00	0	0.00			
11:39:15	0	0.00	17:19:15	0	0.00	11:19:15	0	0.00			
11:39:30	0	0.00	17:19:30	0	0.00	11:19:30	0	0.00			
11:39:45	0	0.00	17:19:45	0	0.00	11:19:45	0	0.00			
11:40:00	0	0.00	17:20:00	0	0.00	11:20:00	0	0.00			
11:40:15	0	0.00	17:20:15	0	0.00	11:20:15	0	0.00			
11:40:30	0	0.00	17:20:30	0	0.00	11:20:30	0	0.00			
11:40:45	0	0.00	17:20:45	0	0.00	11:20:45	0	0.00			
11:41:00	0	0.00	17:21:00	0	0.00	11:21:00	0	0.00			
11:41:15	0	0.00	17:21:15	0	0.00	11:21:15	0	0.00			
11:41:30	0	0.00	17:21:30	0	0.00	11:21:30	0	0.00			
11:41:45	0	0.00	17:21:45	0	0.00	11:21:45	0	0.00			
11:42:00	0	0.00	17:22:00	0	0.00	11:22:00	0	0.00			
11:42:15	0	0.00	17:22:15	0	0.00	11:22:15	0	0.00			
11:42:30	0	0.00	17:22:30	0	0.00	11:22:30	0	0.00			
11:42:45	0	0.00	17:22:45	0	0.00	11:22:45	0	0.00			
11:43:00	0	0.00	17:23:00	0	0.00	11:23:00	0	0.00			
11:43:15	0	0.00	17:23:15	0	0.00	11:23:15	0	0.00			
11:43:30	0	0.00	17:23:30	0	0.00	11:23:30	0	0.00			
11:43:45	0	0.00	17:23:45	0	0.00	11:23:45	0	0.00			
11:44:00	0	0.00	17:24:00	0	0.00	11:24:00	0	0.00			
11:44:15	0	0.00	17:24:15	0	0.00	11:24:15	0	0.00			
11:44:30	0	0.00	17:24:30	0	0.00	11:24:30	0	0.00			
11:44:45	0	0.00	17:24:45	0	0.00	11:24:45	0	0.00			
11:45:00	0	0.00	17:25:00	0	0.00	11:25:00	0	0.00			
11:45:15	0	0.00	17:25:15	0	0.00	11:25:15	0	0.00			
11:45:30	0	0.00	17:25:30	0	0.00	11:25:30	0	0.00			
11:45:45	0	0.00	17:25:45	0	0.00	11:25:45	0	0.00			
11:46:00	0	0.00	17:26:00	0	0.00	11:26:00	0	0.00			
11:46:15	0	0.00	17:26:15	0	0.00	11:26:15	0	0.00			
11:46:30	0	0.00	17:26:30	0	0.00	11:26:30	0	0.00			
11:46:45	0	0.00	17:26:45	0	0.00	11:26:45	0	0.00			
11:47:00	0	0.00	17:27:00	0	0.00	11:27:00	0	0.00			
11:47:15	0	0.00	17:27:15	0	0.00	11:27:15	0	0.00			
11:47:30	0	0.00	17:27:30	0	0.00	11:27:30	0	0.00			
11:47:45	0	0.00	17:27:45	0	0.00	11:27:45	0	0.00			
11:48:00	0	0.00	17:28:00	0	0.00	11:28:00	0	0.00			
11:48:15	0	0.00	17:28:15	0	0.00	11:28:15	0	0.00			
11:48:30	0	0.00	17:28:30	0	0.00	11:28:30	0	0.00			
11:48:45	0	0.00	17:28:45	0	0.00	11:28:45	0	0.00			
11:49:00	0	0.00	17:29:00	0	0.00	11:29:00	0	0.00			
11:49:15	0	0.00	17:29:15	0	0.00	11:29:15	0	0.00			
11:49:30	0	0.00	17:29:30	0	0.00	11:29:30	0	0.00			
11:49:45	0	0.00	17:29:45	0	0.00	11:29:45	0	0.00			
11:50:00	0	0.00	17:30:00	0	0.00	11:30:00	0	0.00			
11:50:15	0	0.00	17:30:15	0	0.00	11:30:15	0	0.00			
11:50:30	0	0.00	17:30:30	0	0.00	11:30:30	0	0.00			
11:50:45	0	0.00	17:30:45	0	0.00	11:30:45	0	0.00			
11:51:00	0	0.00	17:31:00	0	0.00	11:31:00	0	0.00			
11:51:15	0	0.00	17:31:15	0	0.00	11:31:15	0	0.00			
11:51:30	0	0.00	17:31:30	0	0.00	11:31:30	0	0.00			
11:51:45	0	0.00	17:31:45	0	0.00	11:31:45		0.00			

TABLE 2-5. VE READINGS AND ROLLING 6-MINUTE VE AVERAGES FOR NEWPORT STEEL BRANDT BAGHOUSE

TEST 1 August 15, 2000			TEST 2 August 15, 2000			TEST 3 August 16, 2000			TEST 4 (Incomplete) August 16, 2000		
Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg
11:52:00	0	0.00	17:32:00	0	0.00	11:32:00	0	0.00			
11:52:15	0	0.00	17:32:15	0	0.00	11:32:15	0	0.00			
11:52:30	0	0.00	17:32:30	0	0.00	11:32:30	0	0.00			
11:52:45	0	0.00	17:32:45	0	0.00	11:32:45	0	0.00			
11:53:00	0	0.00	17:33:00	0	0.00	11:33:00	0	0.00			
11:53:15	0	0.00	17:33:15	0	0.00	11:33:15	0	0.00			
11:53:30	0	0.00	17:33:30	0	0.00	11:33:30	0	0.00			
11:53:45	0	0.00	17:33:45	0	0.00	11:33:45	0	0.00			
11:54:00	0	0.00	17:34:00	0	0.00	11:34:00	0	0.00			
11:54:15	0	0.00	17:34:15	0	0.00	11:34:15	0	0.00			
11:54:30	0	0.00	17:34:30	0	0.00	11:34:30	0	0.00			
11:54:45	0	0.00	17:34:45	0	0.00	11:34:45	0	0.00			
11:55:00	0	0.00	17:35:00	0	0.00	11:35:00	0	0.00			
11:55:15	0	0.00	17:35:15	0	0.00	11:35:15	0	0.00			
11:55:30	0	0.00	17:35:30	0	0.00	11:35:30	0	0.00			
11:55:45	0	0.00	17:35:45	0	0.00	11:35:45	0	0.00			
11:56:00	0	0.00	17:36:00	0	0.00	11:36:00	0	0.00			
11:56:15	0	0.00	17:36:15	0	0.00	11:36:15	0	0.00			
11:56:30	0	0.00	17:36:30	0	0.00	11:36:30	0	0.00			
11:56:45	0	0.00	17:36:45	0	0.00	11:36:45	0	0.00			
11:57:00	0	0.00	17:37:00	0	0.00	11:37:00	0	0.00			
11:57:15	0	0.00	17:37:15	0	0.00	11:37:15	0	0.00			
11:57:30	0	0.00	17:37:30	0	0.00	11:37:30	0	0.00			
11:57:45	0	0.00	17:37:45	0	0.00	11:37:45	0	0.00			
11:58:00	0	0.00	17:38:00	0	0.00	11:38:00	0	0.00			
11:58:15	0	0.00	17:38:15	0	0.00	11:38:15	0	0.00			
11:58:30	0	0.00	17:38:30	0	0.00	11:38:30	0	0.00			
11:58:45	0	0.00	17:38:45	0	0.00	11:38:45	0	0.00			
11:59:00	0	0.00	17:39:00	0	0.00	11:39:00	0	0.00			
11:59:15	0	0.00	17:39:15	0	0.00	11:39:15	0	0.00			
11:59:30	0	0.00	17:39:30	0	0.00	11:39:30	0	0.00			
11:59:45	0	0.00	17:39:45	0	0.00	11:39:45	0	0.00			
12:00:00	0	0.00	17:40:00	0	0.00	11:40:00	0	0.00			
12:00:15	0	0.00	17:40:15	0	0.00	11:40:15	0	0.00			
12:00:30	0	0.00	17:40:30	0	0.00	11:40:30	0	0.00			
12:00:45	0	0.00	17:40:45	0	0.00	11:40:45	0	0.00			
12:01:00	0	0.00	17:41:00	0	0.00	11:41:00	0	0.00			
12:01:15	0	0.00	17:41:15	0	0.00	11:41:15	0	0.00			
12:01:30	0	0.00	17:41:30	0	0.00	11:41:30	0	0.00			
12:01:45	0	0.00	17:41:45	0	0.00	11:41:45	0	0.00			
12:02:00	0	0.00	17:42:00	0	0.00	11:42:00	0	0.00			
12:02:15	0	0.00	17:42:15	0	0.00	11:42:15	0	0.00			
12:02:30	0	0.00	17:42:30	0	0.00	11:42:30	0	0.00			
12:02:45	0	0.00	17:42:45	0	0.00	11:42:45	0	0.00			
12:03:00	0	0.00	17:43:00	0	0.00	11:43:00	0	0.00			
12:03:15	0	0.00	17:43:15	0	0.00	11:43:15	0	0.00			
12:03:30	0	0.00	17:43:30	0	0.00	11:43:30	0	0.00			
12:03:45	0	0.00	17:43:45	0	0.00	11:43:45	0	0.00			
12:04:00	0	0.00	17:44:00	0	0.00	11:44:00	0	0.00			
12:04:15	0	0.00	17:44:15	0	0.00	11:44:15	0	0.00			
12:04:30	0	0.00	17:44:30	0	0.00	11:44:30	0	0.00			
12:04:45	0	0.00	17:44:45	0	0.00	11:44:45	0	0.00			
12:05:00	0	0.00	17:45:00	0	0.00	11:45:00	0	0.00			
12:05:15	0	0.00	17:45:15	0	0.00	11:45:15	0	0.00			
12:05:30	0	0.00	17:45:30	0	0.00	11:45:30	0	0.00			
12:05:45	0	0.00	17:45:45	0	0.00	11:45:45	0	0.00			
12:06:00	0	0.00	17:46:00	0	0.00	11:46:00	0	0.00			
12:06:15	0	0.00	17:46:15	0	0.00	11:46:15	0	0.00			
12:06:30	0	0.00	17:46:30	0	0.00	11:46:30	0	0.00			
12:06:45	0	0.00	17:46:45	0	0.00	11:46:45	0	0.00			
12:07:00	0	0.00	17:47:00		0.00	11:47:00	0	0.00			
12:07:15	0	0.00	17:47:15		0.00	11:47:15	0	0.00			

TABLE 2-5. VE READINGS AND ROLLING 6-MINUTE VE AVERAGES FOR NEWPORT STEEL BRANDT BAGHOUSE

TEST 1 August 15, 2000			TEST 2 August 15, 2000			TEST 3 August 16, 2000			TEST 4 (Incomplete) August 16, 2000		
Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg
12:07:30	0	0.00	17:47:30	0	0.00	11:47:30	0	0.00			
12:07:45	0	0.00	17:47:45	0	0.00	11:47:45	0	0.00			
12:08:00	0	0.00	17:48:00	0	0.00	11:48:00	0	0.00			
12:08:15	0	0.00	17:48:15	0	0.00	11:48:15	0	0.00			
12:08:30	0	0.00	17:48:30	0	0.00	11:48:30	0	0.00			
12:08:45	0	0.00	17:48:45	0	0.00	11:48:45	0	0.00			
12:09:00	0	0.00	17:49:00	0	0.00	11:49:00	0	0.00			
12:09:15	0	0.00	17:49:15	0	0.00	11:49:15	0	0.00			
12:09:30	0	0.00	17:49:30	0	0.00	11:49:30	0	0.00			
12:09:45	0	0.00	17:49:45	0	0.00	11:49:45	0	0.00			
12:10:00	0	0.00	17:50:00	0	0.00	11:50:00	0	0.00			
12:10:15	0	0.00	17:50:15	0	0.00	11:50:15	0	0.00			
12:10:30	0	0.00	17:50:30	0	0.00	11:50:30	0	0.00			
12:10:45	0	0.00	17:50:45	0	0.00	11:50:45	0	0.00			
12:11:00	0	0.00	17:51:00	0	0.00	11:51:00	0	0.00			
12:11:15	0	0.00	17:51:15	0	0.00	11:51:15	0	0.00			
12:11:30	0	0.00	17:51:30	0	0.00	11:51:30	0	0.00			
12:11:45	0	0.00	17:51:45	0	0.00	11:51:45	0	0.00			
12:12:00	0	0.00	17:52:00	0	0.00	11:52:00	0	0.00			
12:12:15	0	0.00	17:52:15	0	0.00	11:52:15	0	0.00			
12:12:30	0	0.00	17:52:30	0	0.00	11:52:30	0	0.00			
12:12:45	0	0.00	17:52:45	0	0.00	11:52:45	0	0.00			
12:13:00	0	0.00	17:53:00	0	0.00	11:53:00	0	0.00			
12:13:15	0	0.00	17:53:15	0	0.00	11:53:15	0	0.00			
12:13:30	0	0.00	17:53:30	0	0.00	11:53:30	0	0.00			
12:13:45	0	0.00	17:53:45	0	0.00	11:53:45	0	0.00			
12:14:00	0	0.00	17:54:00	0	0.00	11:54:00	0	0.00			
12:14:15	0	0.00	17:54:15	0	0.00	11:54:15	0	0.00			
12:14:30	0	0.00	17:54:30	0	0.00	11:54:30	0	0.00			
12:14:45	0	0.00	17:54:45	0	0.00	11:54:45	0	0.00			
VE Readings Completed			VE Readings Completed			VE Readings Completed					

TABLE 2-6. VE READINGS AND ROLLING 6-MINUTE VE AVERAGES FOR NEWPORT STEEL MELT SHOP

TEST 1 August 15, 2000			TEST 2 August 15, 2000			TEST 3 August 16, 2000			TEST 4 (Incomplete) August 16, 2000		
Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg
8:15:00	0		13:55:00	0		7:55:00	0			0	
8:15:15	0		13:55:15	0		7:55:15	0		12:40:15	0	
8:15:30	0		13:55:30	0		7:55:30	0		12:40:30	0	
8:15:45	0		13:55:45	0		7:55:45	0		12:40:45	0	
8:16:00	0		13:56:00	0		7:56:00	0		12:41:00	0	
8:16:15	0		13:56:15	0		7:56:15	0		12:41:15	0	
8:16:30	0		13:56:30	0		7:56:30	0		12:41:30	0	
8:16:45	0		13:56:45	0		7:56:45	0		12:41:45	0	
8:17:00	0		13:57:00	0		7:57:00	0		12:42:00	0	
8:17:15	0		13:57:15	0		7:57:15	0		12:42:15	0	
8:17:30	0		13:57:30	0		7:57:30	0		12:42:30	0	
8:17:45	0		13:57:45	0		7:57:45	0		12:42:45	0	
8:18:00	0		13:58:00	0		7:58:00	0		12:43:00	0	
8:18:15	0		13:58:15	0		7:58:15	0		12:43:15	0	
8:18:30	0		13:58:30	0		7:58:30	0		12:43:30	0	
8:18:45	0		13:58:45	0		7:58:45	0		12:43:45	0	
8:19:00	0		13:59:00	0		7:59:00	0		12:44:00	0	
8:19:15	0		13:59:15	0		7:59:15	0		12:44:15	0	
8:19:30	0		13:59:30	0		7:59:30	0		12:44:30	0	
8:19:45	0		13:59:45	0		7:59:45	0		12:44:45	0	
8:20:00	0		14:00:00	0		8:00:00	0		12:45:00	0	
8:20:15	0		14:00:15	0		8:00:15	0		12:45:15	0	
8:20:30	0		14:00:30	0		8:00:30	0		12:45:30	0	
8:20:45	0	0.00	14:00:45	0	0.00	8:00:45	0	0.00	12:45:45	0	0.00
8:21:00	0	0.00	14:01:00	0	0.00	8:01:00	0	0.00	12:46:00	0	0.00
8:21:15	0	0.00	14:01:15	0	0.00	8:01:15	0	0.00	12:46:15	0	0.00
8:21:30	0	0.00	14:01:30	0	0.00	8:01:30	0	0.00	12:46:30	0	0.00
8:21:45	0	0.00	14:01:45	0	0.00	8:01:45	0	0.00	12:46:45	0	0.00
8:22:00	0	0.00	14:02:00	0	0.00	8:02:00	0	0.00	12:47:00	0	0.00
8:22:15	0	0.00	14:02:15	0	0.00	8:02:15	0	0.00	12:47:15	0	0.00
8:22:30	0	0.00	14:02:30	0	0.00	8:02:30	0	0.00	12:47:30	0	0.00
8:22:45	0	0.00	14:02:45	0	0.00	8:02:45	0	0.00	12:47:45	0	0.00
8:23:00	0	0.00	14:03:00	0	0.00	8:03:00	0	0.00	12:48:00	0	0.00
8:23:15	0	0.00	14:03:15	0	0.00	8:03:15	0	0.00	12:48:15	0	0.00
8:23:30	0	0.00	14:03:30	0	0.00	8:03:30	0	0.00	12:48:30	0	0.00
8:23:45	0	0.00	14:03:45	0	0.00	8:03:45	0	0.00	12:48:45	0	0.00
8:24:00	0	0.00	14:04:00	0	0.00	8:04:00	0	0.00	12:49:00	0	0.00
8:24:15	0	0.00	14:04:15	0	0.00	8:04:15	0	0.00	12:49:15	0	0.00
8:24:30	0	0.00	14:04:30	0	0.00	8:04:30	0	0.00	12:49:30	0	0.00
8:24:45	0	0.00	14:04:45	0	0.00	8:04:45	0	0.00	12:49:45	0	0.00
8:25:00	0	0.00	14:05:00	0	0.00	8:05:00	0	0.00	12:50:00	0	0.00
8:25:15	0	0.00	14:05:15	0	0.00	8:05:15	0	0.00	12:50:15	0	0.00
8:25:30	0	0.00	14:05:30	0	0.00	8:05:30	0	0.00	12:50:30	0	0.00
8:25:45	0	0.00	14:05:45	0	0.00	8:05:45	0	0.00	12:50:45	0	0.00
8:26:00	0	0.00	14:06:00	0	0.00	8:06:00	0	0.00	12:51:00	0	0.00
8:26:15	0	0.00	14:06:15	0	0.00	8:06:15	0	0.00	12:51:15	0	0.00
8:26:30	0	0.00	14:06:30	0	0.00	8:06:30	0	0.00	12:51:30	0	0.00
8:26:45	0	0.00	14:06:45	0	0.00	8:06:45	0	0.00	12:51:45	0	0.00
8:27:00	0	0.00	14:07:00	0	0.00	8:07:00	0	0.00	12:52:00	0	0.00
8:27:15	0	0.00	14:07:15	0	0.00	8:07:15	0	0.00	12:52:15	0	0.00
8:27:30	0	0.00	14:07:30	0	0.00	8:07:30	0	0.00	12:52:30	0	0.00
8:27:45	0	0.00	14:07:45	0	0.00	8:07:45	0	0.00	12:52:45	0	0.00
8:28:00	0	0.00	14:08:00	0	0.00	8:08:00	0	0.00	12:53:00	0	0.00
8:28:15	0	0.00	14:08:15	0	0.00	8:08:15	0	0.00	12:53:15	0	0.00
8:28:30	0	0.00	14:08:30	0	0.00	8:08:30	0	0.00	12:53:30	0	0.00
8:28:45	0	0.00	14:08:45	0	0.00	8:08:45	0	0.00	12:53:45	0	0.00
8:29:00	0	0.00	14:09:00	0	0.00	8:09:00	0	0.00	12:54:00	0	0.00
8:29:15	0	0.00	14:09:15	0	0.00	8:09:15	0	0.00	12:54:15	0	0.00
8:29:30	0	0.00	14:09:30	0	0.00	8:09:30	0	0.00	12:54:30	0	0.00
8:29:45	0	0.00	14:09:45	0	0.00	8:09:45	0	0.00	12:54:45	0	0.00
8:30:00	0	0.00	14:10:00	0	0.00	8:10:00	0	0.00	12:55:00	0	0.00
8:30:15	0	0.00	14:10:15	0	0.00	8:10:15	0	0.00	12:55:15	0	0.00

TABLE 2-6. VE READINGS AND ROLLING 6-MINUTE VE AVERAGES FOR NEWPORT STEEL MELT SHOP

TEST 1 August 15, 2000			TEST 2 August 15, 2000			TEST 3 August 16, 2000			TEST 4 (Incomplete) August 16, 2000		
Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg	Time	VE	6-min Avg
8:30:30	0	0.00	14:10:30	0	0.00	8:10:30	0	0.00	12:55:30	0	0.00
8:30:45	0	0.00	14:10:45	0	0.00	8:10:45	0	0.00	12:55:45	0	0.00
8:31:00	0	0.00	14:11:00	0	0.00	8:11:00	0	0.00	12:56:00	0	0.00
8:31:15	0	0.00	14:11:15	0	0.00	8:11:15	0	0.00	12:56:15	0	0.00
8:31:30	0	0.00	14:11:30	0	0.00	8:11:30	0	0.00	12:56:30	0	0.00
8:31:45	0	0.00	14:11:45	0	0.00	8:11:45	0	0.00	12:56:45	0	0.00
8:32:00	0	0.00	14:12:00	0	0.00	8:12:00	0	0.00	12:57:00	0	0.00
8:32:15	0	0.00	14:12:15	0	0.00	8:12:15	0	0.00	12:57:15	0	0.00
8:32:30	0	0.00	14:12:30	0	0.00	8:12:30	0	0.00	12:57:30	0	0.00
8:32:45	0	0.00	14:12:45	0	0.00	8:12:45	0	0.00	12:57:45	0	0.00
8:33:00	0	0.00	14:13:00	0	0.00	8:13:00	0	0.00	12:58:00	0	0.00
8:33:15	0	0.00	14:13:15	0	0.00	8:13:15	0	0.00	12:58:15	0	0.00
8:33:30	0	0.00	14:13:30	0	0.00	8:13:30	0	0.00	12:58:30	0	0.00
8:33:45	0	0.00	14:13:45	0	0.00	8:13:45	0	0.00	12:58:45	0	0.00
8:34:00	0	0.00	14:14:00	0	0.00	8:14:00	0	0.00	12:59:00	0	0.00
8:34:15	0	0.00	14:14:15	0	0.00	8:14:15	0	0.00	12:59:15	0	0.00
8:34:30	0	0.00	14:14:30	0	0.00	8:14:30	0	0.00	12:59:30	0	0.00
8:34:45	0	0.00	14:14:45	0	0.00	8:14:45	0	0.00	12:59:45	0	0.00
8:35:00	0	0.00	14:15:00	0	0.00	8:15:00	0	0.00	13:00:00	0	0.00
8:35:15	0	0.00	14:15:15	0	0.00	8:15:15	0	0.00	13:00:15	0	0.00
8:35:30	0	0.00	14:15:30	0	0.00	8:15:30	0	0.00	13:00:30	0	0.00
8:35:45	0	0.00	14:15:45	0	0.00	8:15:45	0	0.00	13:00:45	0	0.00
8:36:00	0	0.00	14:16:00	0	0.00	8:16:00	0	0.00	13:01:00	0	0.00
8:36:15	0	0.00	14:16:15	0	0.00	8:16:15	0	0.00	13:01:15	0	0.00
8:36:30	0	0.00	14:16:30	0	0.00	8:16:30	0	0.00	13:01:30	0	0.00
8:36:45	0	0.00	14:16:45	0	0.00	8:16:45	0	0.00	13:01:45	0	0.00
8:37:00	0	0.00	14:17:00	0	0.00	8:17:00	0	0.00	13:02:00	0	0.00
8:37:15	0	0.00	14:17:15	0	0.00	8:17:15	0	0.00	13:02:15	0	0.00
8:37:30	0	0.00	14:17:30	0	0.00	8:17:30	0	0.00	13:02:30	0	0.00
8:37:45	0	0.00	14:17:45	0	0.00	8:17:45	0	0.00	13:02:45	0	0.00
8:38:00	0	0.00	14:18:00	0	0.00	8:18:00	0	0.00	13:03:00	0	0.00
8:38:15	0	0.00	14:18:15	0	0.00	8:18:15	0	0.00	13:03:15	0	0.00
8:38:30	0	0.00	14:18:30	0	0.00	8:18:30	0	0.00	13:03:30	0	0.00
8:38:45	0	0.00	14:18:45	0	0.00	8:18:45	0	0.00	13:03:45	0	0.00
8:39:00	0	0.00	14:19:00	0	0.00	8:19:00	0	0.00	13:04:00	0	0.00
8:39:15	0	0.00	14:19:15	0	0.00	8:19:15	0	0.00	13:04:15	0	0.00
8:39:30	0	0.00	14:19:30	0	0.00	8:19:30	0	0.00	13:04:30	0	0.00
8:39:45	0	0.00	14:19:45	0	0.00	8:19:45	0	0.00	13:04:45	0	0.00
8:40:00	0	0.00	14:20:00	0	0.00	8:20:00	0	0.00	13:05:00	0	0.00
8:40:15	0	0.00	14:20:15	0	0.00	8:20:15	0	0.00	13:05:15	0	0.00
8:40:30	0	0.00	14:20:30	0	0.00	8:20:30	0	0.00	13:05:30	0	0.00
8:40:45	0	0.00	14:20:45	0	0.00	8:20:45	0	0.00	13:05:45	0	0.00
8:41:00	0	0.00	14:21:00	0	0.00	8:21:00	0	0.00	13:06:00	0	0.00
8:41:15	0	0.00	14:21:15	0	0.00	8:21:15	0	0.00	13:06:15	0	0.00
8:41:30	0	0.00	14:21:30	0	0.00	8:21:30	0	0.00	13:06:30	0	0.00
8:41:45	0	0.00	14:21:45	0	0.00	8:21:45	0	0.00	13:06:45	0	0.00
8:42:00	0	0.00	14:22:00	0	0.00	8:22:00	0	0.00	13:07:00	0	0.00
8:42:15	0	0.00	14:22:15	0	0.00	8:22:15	0	0.00	13:07:15	0	0.00
8:42:30	0	0.00	14:22:30	0	0.00	8:22:30	0	0.00	13:07:30	0	0.00
8:42:45	0	0.00	14:22:45	0	0.00	8:22:45	0	0.00	13:07:45	0	0.00
8:43:00	0	0.00	14:23:00	0	0.00	8:23:00	0	0.00	13:08:00	0	0.00
8:43:15	0	0.00	14:23:15	0	0.00	8:23:15	0	0.00	13:08:15	0	0.00
8:43:30	0	0.00	14:23:30	0	0.00	8:23:30	0	0.00	13:08:30	0	0.00
8:43:45	0	0.00	14:23:45	0	0.00	8:23:45	0	0.00	13:08:45	0	0.00
8:44:00	0	0.00	14:24:00	0	0.00	8:24:00	0	0.00	13:09:00	0	0.00
8:44:15	0	0.00	14:24:15	0	0.00	8:24:15	0	0.00	13:09:15	0	0.00
8:44:30	0	0.00	14:24:30	0	0.00	8:24:30	0	0.00	13:09:30	0	0.00
8:44:45	0	0.00	14:24:45	0	0.00	8:24:45	0	0.00	13:09:45	0	0.00
8:45:00	0	0.00	14:25:00	0	0.00	8:25:00	0	0.00	13:10:00	0	0.00
8:45:15	0	0.00	14:25:15	0	0.00	8:25:15	0	0.00	13:10:15	0	0.00
8:45:30	0	0.00	14:25:30	0	0.00	8:25:30	0	0.00	13:10:30	0	0.00
8:45:45	0	0.00	14:25:45	0	0.00	8:25:45	0	0.00	13:10:45	0	0.00

SECTION 3

SAMPLING PROCEDURES

The sampling and analytical procedures used conform to the most recent revisions of U.S. EPA Reference Methods for stationary sources. Specifically, U.S. EPA Reference Methods 1, 2, 3, 4, 5D, 6, 7E, 9, 10 and 12 were used. A brief description of each procedure is included below:

3.1 Measurement Sites

The location of measurement sites and the number of traverse points were determined as specified in U.S. EPA Reference Method 1, "Sample and Velocity Traverses for Stationary Sources."

Exhaust from the Brandt Baghouse is routed through 12 bag sections (cells). Following the guidelines presented in Method 5D, each sampling run consisted of six sample points per cell and four cells per test, for a total of 24 sample points per test run. At 10 minutes of sampling per point, this resulted in a net sampling time of 4 hours per test run. After three test runs, all 12 of the cells were sampled. Each test run was 240 minutes in length. Sampling point locations are detailed in Section 3. Isokinetic sampling rates were calculated from the measurement of volumetric flow rates at each inlet, as specified in Method 5D.

3.2 Velocity and Volumetric Flow Rates

The stack gas velocities and volumetric flow rates were determined using U.S. EPA Reference Method 2, "Determination of Stack Gas Velocity and Volumetric Flow Rate." Velocities were measured with an "s" type pitot tube and stack gas temperatures were measured with a calibrated Type "K" thermocouple.

3.3 Dry Molecular Weight (Method 3/3A)

Dry molecular weight was determined using U.S. EPA Method 3A, "Gas Analysis for Carbon Dioxide, Oxygen, Excess *Air,* and Dry Molecular Weight (Instrumental Analyzer Method)." A continuous sample was withdrawn and analyzed for O_2/CO_2 using instrumental analyzers. The instruments were calibrated with zero nitrogen and 2 span gases, in order to demonstrate linearity. Due to the amount of dilution air that the collection system receives, the dry molecular weight is essentially that of ambient air. Figure 3-1 depicts the sample train.

3.4 Moisture

Moisture content was determined using U.S. EPA Method 4 "Determination of Moisture Content of Stack Gases" in conjunction with the RM/Lead sampling.

3.5 Particulate Matter

EPA Reference Method 5D, "Determination of Particulate Matter Emissions from Positive Pressure Fabric Filters," was used to determine the particulate matter concentration and mass emission rates. The sample train consisted of a glass nozzle, glass probe and filter holder, glass fiber filter, and a series of impingers followed by a vacuum pump, dry gas meter, and calibrated orifice. The particulate sample will be withdrawn isokinetically and collected on the filter. Thermocouples will be used to monitor temperatures of the stack gas and impinger exit gas.

Exhaust from the Brandt Baghouse is routed through 12 bag sections (cells). Following the guidelines presented in Method 5D, each sampling run consisted of six sample points per cell and four cells per test, for a total of 24 sample points per test run. At 10 minutes of sampling per point, this resulted in a net sampling time of 4 hours per test run. After three test runs, all 12 of the cells were sampled. Each test run was approximately 240 minutes in length, and covered approximately three EAF heat cycles. Determination of measurement sites, number and location of traverse points, and velocity determination followed procedures in Method 5D. Isokinetic sampling rates were calculated from the measurement of volumetric flow rates at each inlet, as specified in Method 5D.

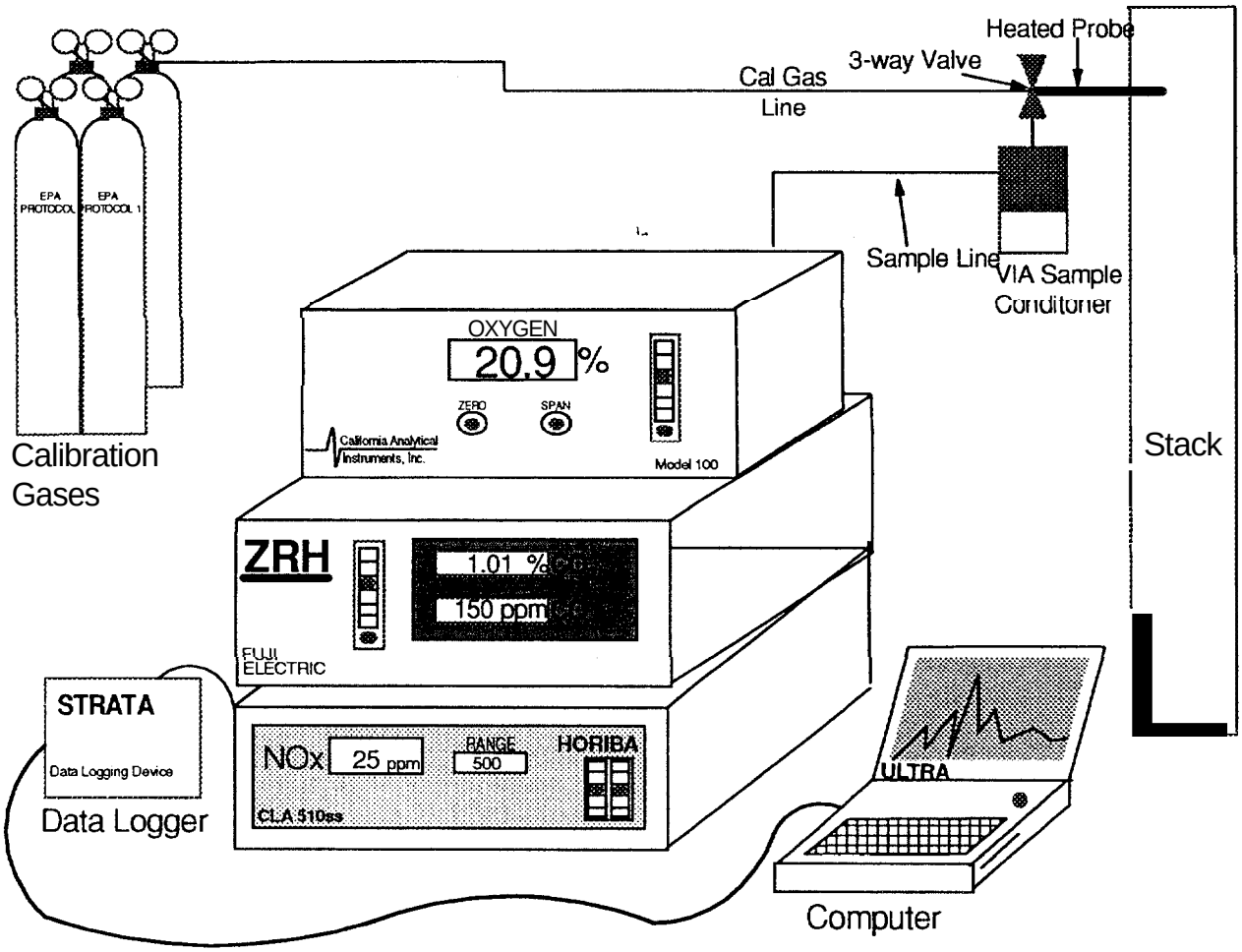


Figure 3-1. Instrumental Analyzer Sampling System

3.6 Visible Emission Obsesvations

EPA Reference Method 9, "Visual Determination of the Opacity of Emissions from Stationary Sources," was used to determine opacity from the baghouse exhaust as well as from the shop roof monitor. Observations were conducted simultaneously with the particulate sampling runs.

3.7 SO, Emissions

The principles of EPA Method 6, "Determination of Sulfur Dioxide Emissions from Stationary Sources," were used for this test program. The first irnpinger contained 100 milliliters (ml) of an 80% isopropanol alcohol solution and the following two irnpingers of the irnpinger train contained a 3% hydrogen peroxide solution. The large irnpingers in a Method 5 sampling train were used in place of the midget impingers. A gas sample was extracted from one sampling point in the stack. The sulfuric acid mist [including sulfur trioxide (SO,)] and the SO, was separated. A separate pump was used to purge the sampling train. The SO, fraction was analyzed by the barium-thorin titration method. The average of three 240-minute sampling runs will constitute the test.

3.8 Nitrogen Oxides

NO, emissions were determined using U.S. EPA Method 7E, "Determination of Nitrogen Oxide Emissions from Stationary Sources (Instrumental Analyzer Procedure)." A stack gas sample was withdrawn continuously from a single point and a portion directed to a chemilluminescent analyzer for NO, measurement. All NOx is converted to NO, in the analyzer and emission calculations are based upon the molecular weight of NO,. U.S. EPA Protocol 1 calibration gases were used for instrument calibrations. Figure 3-1 depicts the sample

3.9 Lead Emissions

The principles of EPA Method 12, "Determination of Inorganic Lead Emissions from Stationary Sources," were used to measure lead emissions at the Brandt Baghouse. A gas sample

SECTION 4

PROCESS DESCRIPTION AND BAGHOUSE OPERATING DATA

The processes operating in the Newport Steel Corporation Melt Shop are the electric arc furnace (EAF), ladle metallurgy furnace (LMF), and continuous slab caster. The structure containing the EAF is referred to as the EAF building and the structure containing the LMF and the Caster is referred to as the Main Melt Shop Building. The Brandt baghouse vents emissions from the EAF and the EAF building.

Figure 4-1 shows the process flow for the Newport electric arc furnace (EAF'). The EAF is a batch process. Each process cycle consists of four distinct phases: charging, melting, slagging, and tapping. After the furnace is charged with scrap and other additives, the meltdown phase comprises the period from charging to the complete meltdown of the solid material. Melting is accomplished by the heat supplied by direct radiation from the arcs formed between the electrodes and the scrap metal, by direct radiation from the furnace lining, and electric resistance of the metal between arc paths. The EAF also has oxy-fuel burners to provide additional heat input to enhance scrap meltdown and oxygen/carbon lances to enhance meltdown, refining, and foamy slag practice.

When the melting phase is complete, chemistry and temperature samples are taken. Based on these samples, the steel composition is adjusted and when the proper steel temperature has been reached, the foamy slag is poured off the furnace. For tapping, the power is shut off, the electrodes are raised to clear the molten steel bath, and the molten steel is tapped into a ladle and transferred to the LMF. After steel tapping is completed, the melting cycle begins again (i.e., the charging phase begins).

The Brandt baghouse exhausts the electric arc furnace (EAF') and the EAF building by an exhaust system consisting of (1) a direct evacuation control (DEC), and (2) a roof canopy hood. The DEC - also called a "fourth hole" system or direct shell evacuation (DSE) - captures emissions generated during scrap meltdown while the EAF roof is in place directly from the

was withdrawn from the gas stream and collected on a glass-lined probe, on a glass-fiber filter, and in a series of glass impingers containing 0.1 N nitric acid. The Method 12 sample was conducted utilizing the same train as the particulate sample. The impinger content volume was measured after sampling to determine the moisture pickup. The average of three 240-minute sample runs constituted the test.

3.10 CO Emissions

The principles of EPA Method 10, "Determination of Carbon Monoxide Emissions from Stationary Sources," were used for this program to determine CO emissions, A gas sample was continuously extracted from the baghouse inlet duct using the same conveying system as the NO_x and VOC analyzer. The CO analyzer measured the CO concentration using the principles of nondispersive infrared (NDIR) analysis. The sampling and data acquisition will be conducted simultaneously with and in the same manner as the NO, sampling.

3.11 EAF and Baghouse Operation Data

EAF and Brandt Baghouse operation data included the following:

- EAF logs, including time and duration of each charge and tap, charge weights and tap weights;
- Calculations of average hourly steel production rate for each test run;
- Charge carbon sample analyses (for sulfur content);
- Baghouse pressure drops;
- Baghouse fan amperage and damper positions.

furnace vessel. The DEC is comprised of water-cooled ductwork to cool the hot EAF exhaust gases. Prior to the water-cooled section, a gap in the duct allows the entrainment of shop ambient air to assist in the combustion of carbon monoxide (CO) off-gases to carbon dioxide (CO_2). After passing sufficient distance to cool the exhaust, the DEC duct then merges with shop roof ductwork from the roof canopy hood. The overhead roof canopy hood collects fumes and gases that escape the furnace shell. The combined gas stream including EAF exhausts and melt shop ambient air is ducted to the Brandt baghouse.

Process information collected during the course of the sampling program included:

A) Charge weights and materials, and tap weights and materials

B) Heat times, including start and stop times, log of process operation including periods of no operation during testing

C) Pressure drop across the baghouse, visual inspection of bags and control system fan amperes

D) Fan/duct damper positions

E) Fan amperes.

Data were recorded at 15-minute intervals during testing. Table 4-1 presents the baghouse pressure drops, fan amps, and damper positions during the test program.

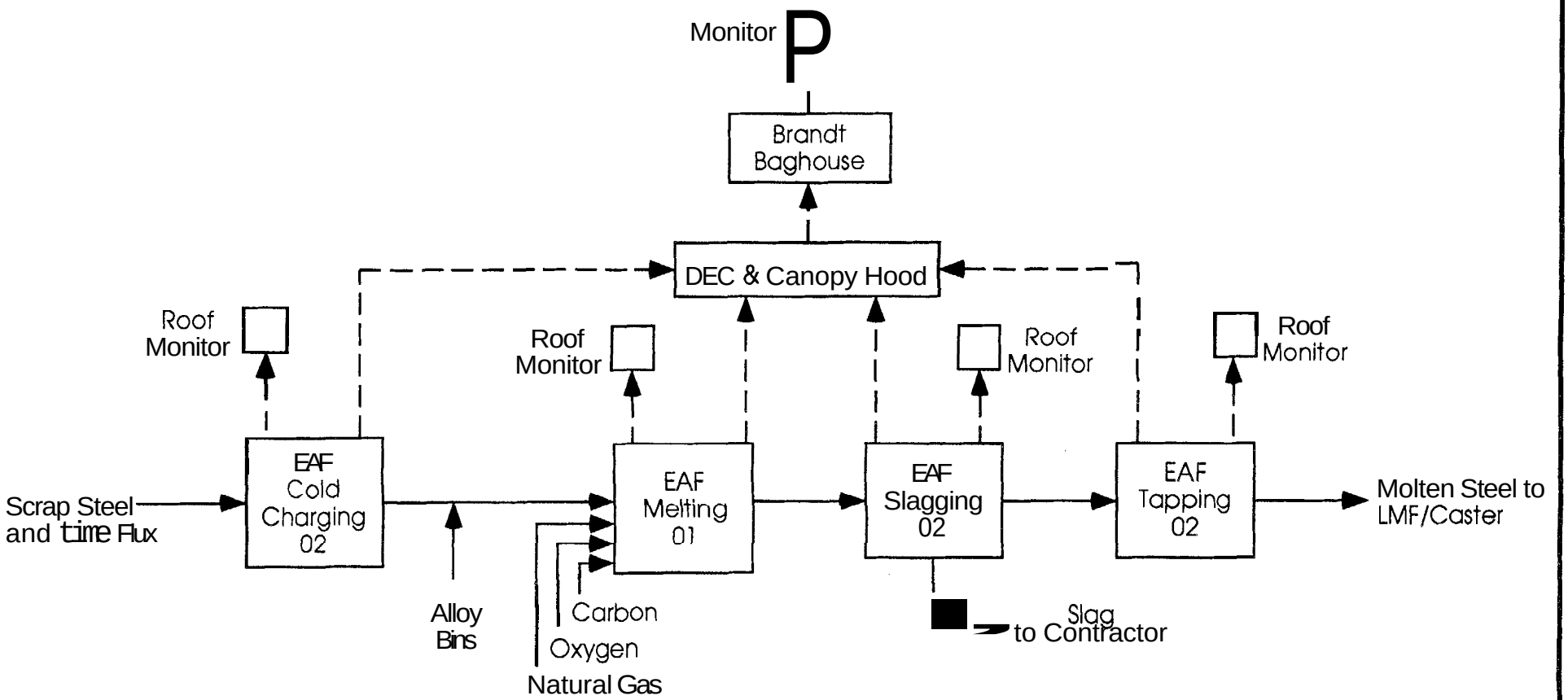


Figure 4-1. Process Flow Diagram
Melt Shop - Electric Arc Furnace (EAF)

Material/Fuel Flow
Emission Stream

Newport Steel, Inc.	EO
Process Flow Diagram: Melt Shop - Electric Arc Furnace (EAF)	
Drawing No.:	
Scale: Not to Scale	
Drawn by: RJH	**Revision: 0**
Checked by: FDH	**Date:** *2/9/98*

TABLE 4-1. BAGHOUSE PRESSURE DROP, CONTROL SYSTEM FAN AMPS, AND DAMPER POSITIONS DURING PERFORMANCE TESTS

DATE	TIME	Baghouse Pressure Drop, in. WG	Fan 1 Amp	Fan 2 Amp	Fan 3 Amp	Total Amp
TEST 1						
8/15/00	8:15:00 AM	7.3	201	191	198	590
8/15/00	8:30:00 AM	7.5	202	193	199	594
8/15/00	8:45:00 AM	8.1	206	195	208	609
8/15/00	9:00:00 AM	7.6	214	201	210	625
8/15/00	9:15:00 AM	7.2	214	202	208	624
8/15/00	9:30:00 AM	7.2	219	208	214	641
8/15/00	9:45:00 AM	7.1	208	196	204	608
8/15/00	10:00:00 AM	7.5	199	190	197	586
8/15/00	10:15:00 AM	7.7	200	191	198	589
8/15/00	10:30:00 AM	7.8	210	200	206	616
8/15/00	10:45:00 AM	8.1	207	194	201	602
8/15/00	11:00:00 AM	7.6	218	205	212	635
8/15/00	11:15:00 AM	7.9	212	203	206	621
8/15/00	11:30:00 AM	7.7	214	200	207	621
8/15/00	11:45:00 AM	7.3	206	197	202	605
8/15/00	12:00:00 PM	8.0	208	196	204	608
8/15/00	12:15:00 PM	8.3	204	193	200	597
8/15/00	12:30:00 PM	8.3	211	199	206	616
8/15/00	12:45:00 PM	7.9	210	204	214	628
8/15/00	1:00:00 PM	8.3	197	188	196	581
					Ampere Range Test 1 =	581 - 641
Damper Positions During Test No. 1:			EAF Exhaust = 100% Open			
				Canopy = 68-70% Open		
TEST 2						
8/15/00	1:45:00 PM	7.6	213	199	206	618
8/15/00	2:00:00 PM	8.2	203	196	209	608
8/15/00	2:15:00 PM	7.7	213	200	206	619
8/15/00	2:30:00 PM	7.4	217	206	211	634
8/15/00	2:45:00 PM	7.1	215	208	221	644
8/15/00	3:00:00 PM	7.9	200	192	205	597
8/15/00	3:15:00 PM	8.0	215	203	207	625
8/15/00	3:30:00 PM	7.4	213	200	205	618
8/15/00	3:45:00 PM	7.2	209	194	205	608
8/15/00	4:00:00 PM	7.9	211	197	204	612
8/15/00	4:15:00 PM	7.7	206	192	200	598
8/15/00	4:30:00 PM	8.0	213	199	208	620
8/15/00	4:45:00 PM	6.9	214	207	220	641
8/15/00	5:00:00 PM	7.7	203	192	198	593
8/15/00	5:15:00 PM	7.4	207	192	201	600
8/15/00	5:30:00 PM	7.9	213	199	207	619
8/15/00	5:45:00 PM	7.2	208	195	202	605
8/15/00	6:00:00 PM	7.2	208	196	203	607
8/15/00	6:15:00 PM	7.3	214	202	208	624
8/15/00	6:30:00 PM	7.9	201	189	195	585
					Ampere Range Test 3 =	585 - 644
Damper Positions During Test No. 2:			EAF Exhaust = 00% Open			
				Canopy = 70% Open		

TABLE 4-1 (continued)

DATE	TIME	Baghouse Pressure Drop, in. WG	Fan 1 Amp	Fan 2 Amp	Fan 3 Amp	Total Amp
TEST 3						
8/16/00	7:55:00 AM	7.0	219	205	210	634
8/16/00	8:15:00 AM	7.6	211	198	205	614
8/16/00	8:30:00 AM	8.6	205	192	201	598
8/16/00	8:45:00 AM	8.1	206	193	199	598
8/16/00	9:00:00 AM	7.8	193	182	189	564
8/16/00	9:15:00 AM	7.7	199	187	195	581
8/16/00	9:30:00 AM	8.3	196	183	191	570
8/16/00	9:45:00 AM	8.4	198	185	194	577
8/16/00	10:00:00 AM	7.9	191	183	193	567
8/16/00	10:15:00 AM	7.9	214	201	207	622
8/16/00	10:30:00 AM	8.3	201	188	197	586
8/16/00	10:45:00 AM	8.2	202	187	196	585
8/16/00	11:00:00 AM	7.9	195	183	191	569
8/16/00	11:15:00 AM	7.7	210	197	204	611
8/16/00	11:30:00 AM	7.8	213	200	207	620
8/16/00	11:45:00 AM	7.6	200	190	199	589
8/16/00	12:00:00 PM	8.0	204	192	197	593
8/16/00	12:15:00 PM	7.6	201	191	197	589
					Ampere Range Test 3 =	567 - 634
Damper Positions During Test No. 3:				EAF Exhaust = 00% Open Canopy = 70% Open		
					Ampere Range All Complete Tests =	567 - 644
Damper Positions During Tests No's 1 - 3:				EAF Exhaust = 100% Open Canopy = 68-70% Open		

SECTION 5

QUALITY ASSURANCE AND QUALITY CONTROL

The field sampling quality assurance for this project includes the use of calibrated source sampling equipment, reference test methods, and traceability protocols for the recording and calculation of data. The analytical quality assurance includes use of validated analytical procedures, calibration of equipment, and analysis of control samples and blanks. The calibration and quality control procedures to be used for this test program are described in the following subsection.

5.1 Calibration Procedures and Frequency

All manual stack gas sampling equipment is calibrated before the test program in accordance with the procedures outlined in the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume 111, EPA-60014-72-027B. Summarized in Table 5-1 are the stack gas sampling equipment calibrations which will be performed in preparation for this project. The meter boxes will be re-calibrated after the test. Analyzer checks will be conduced directly to the instrument initially and then through the sampling system. Calibration checks will be conducted before and after each test run. EPA protocol gases will be used for calibrating the NO_x analyzer. The CO analyzer will be calibrated with Master Gas Certified calibration gases with a 2 percent accuracy.

Listed in Table 5-2 are the additional calibration checks which will be performed on the sampling equipment on site, just prior to the testing, to ensure that equipment was not damaged during transport. A copy of the calibration data and procedures is provided in Appendix F.

TABLE 5-1. FIELD EQUIPMENT CALIBRATION SUMMARY'

Equipment	Calibrated Against	Allowable Error
Method 5 meter box	Reference test meter	Y ±0.02Y ▲H @ S.15 post-test Y ±0.05 Y
Orsat	Certified cylinder gas	±0.5%
Pitot tube	Geometric specifications	See EPA Method 2
Thermocouple	ASTM-3F thermometer	±1.5%
Impinger (or condenser thermometer)	ASTM-3F	±2°F
Dry gas thermometer	ASTM-3F	±5°F
Probe nozzles	Caliper	±0.004 in.
Barometer	NBS traceable barometer	±0.1 in. Hg

* As recommended in the Quality Assurance Handbook for Air Pollution Measurement Systems: Volume III. Stationary Source-Specific Methods. EPA-600/4-77-027b, August 1977.

TABLE 5-2. FIELD CHECKS OF SAMPLING EQUIPMENT

Equipment	Checked Against	Allowable Difference
Pitot tube	Inspection	No visible damage
Thermocouples	ASTM 2F or 3F	±1.5%
Probe Nozzles	Caliper	f0.004 in.

FIELD CHECKS OF CO AND NO_x ANALYZER

	Instrument Check	Acceptable Limit
Initial Calibration	CO & NO_x Calibration Error, % Span	± 2%
	Sampling System Bias	< 5% of Span
Daily Calibration	CO & NO_x Calibration Error, % Span	± 2%
	CO & NO, Drift, % Span	< 3 of Span

APPENDIX B

PRODUCTION/PROCESS FIELD DATA

PRODUCTION WORKSHEET

Heats During Tests

Date	Heat No.	Tons	Tap-Tap Time, min	Operating Time, hr	Tons/Hr
TEST 1					
15-Aug	6004	95.4	96	1.6	59.6
	6005	94.6	96	1.6	59.1
	6006	95.2	110	1.8	51.9
	6007	105.8	91	1.5	69.8
	Totals	**391.0**	**393**	**6.6**	**59.7 tons/hr**
TEST 2					
95-Aug	6007	105.8	91	1.5	69.8
	6008	92.8	144	2.4	38.7
	6009	92.0	90	1.5	61.3
	6010	92.9	100	1.7	55.7
	Totals	**383.5**	**425**	**7.1**	**54.1 tonslhr**
TEST 3	6018	93.3	85	1.4	65.9
16-Aug	6019	93.6	60	1.0	93.6
	6020	94.5	88	1.5	64.4
	6021	94.2	61	1.0	92.7
	Totals	**375.6**	**294**	**4.9**	***76.7* tonslhr**
TEST 4	6021	94.2	61	1.0	92.7
16-Aug	6022	93.8	79	1.3	71.2
	6023	93.2	174	2.9	32.1
	Totals	**281.2**	**314**	**5.2**	**53.7**

Test stopped at 1:40 pm due to operating problems with automatic oxygen lance

6969

NEWPORT STEEL CORPORATION
BRANDT BAGHOUSE TEST PROCESS MONITORING FORM

Date 8/15 **Run Number** 2 Start 13:45

1 hr 30 min

Time	Baghouse Fan Amperage 1	2	3	Baghouse Pressure Drop, in. WG	Damper Positions (Describe)	Notes (Heat No. and time; Other)
13:45	213	199	206	7.6	13:50 30% closed on canopy 100% open exhaust	6007 Melting Heat 14:15 Tapped 6007
14:00	203	196	209	8.2		
14:15	213	200	206	7.7		6008 14:55 Power On
14:30	217	206	211	7.4	14:50 30 closed Canopy 100 open Exhaust	Drum of dust in 15:22
14:45	215	208	221	7.1		2nd Charge 15:32
15:00	200	192	205	7.9	15:22 30 closed Canopy 100 open exhaust	Tap 16:37
15:15	215	203	207	8.0		
15:30	213	200	205	7.4	16:30 30 closed Canopy 100 open exhaust	6009
15:45	209	194	205	7.2		Begin 16:51
16:00	211	197	204	7.9	17:30 30% closed Can 100% open exh.	2nd charge 17:07
16:15	206	192	200	7.7		Tap 18:07
16:30	213	199	208	8.0	18/ closed 30% Canopy 100% open exhaust	6010
16:45	214	207	220	6.9		Power On 6:21
17:00	203	192	198	7.7		
17:15	207	192	201	7.4		
17:30	213	199	207	7.9		
17:45	208	195	202	7.2		
18:00	208	196	203	7.2		
18:15	214	202	208	7.3		
18:25	201	189	195	7.9		

Gas (CO + NOx + SO_2) ended 17:55

Note: Automatic oxygen lance in repair. Manual lancing performed for heats during test

End 18:25

NEWPORT STEEL CORPORATION
BRANDT BAGHOUSE TEST PROCESS MONITORING FORM

Date 8/16/00 **Run Number** 4 Start 12:40

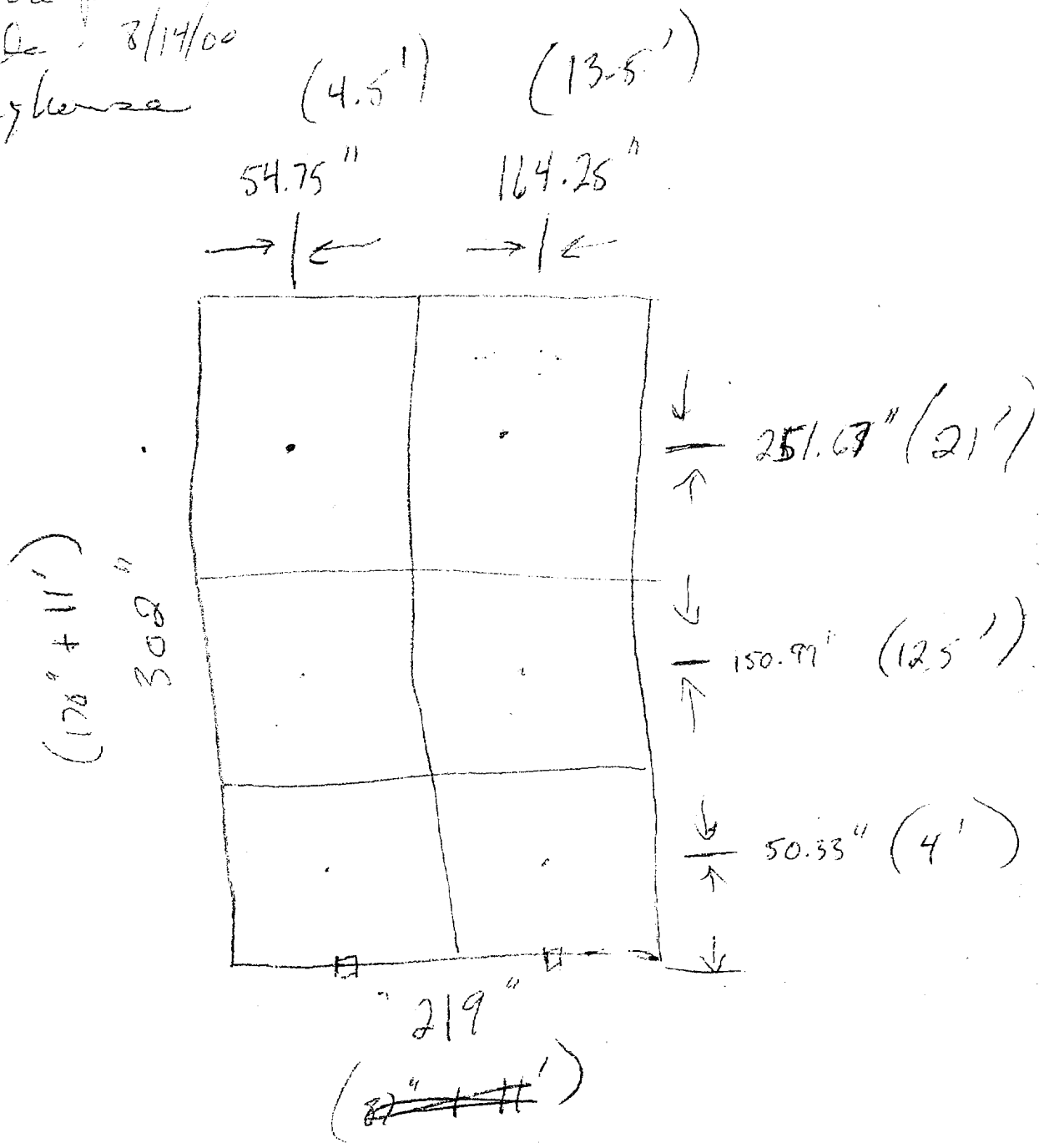
Time	Baghouse Fan Amperage 1	2	3	Baghouse Pressure Drop, in. WG	Damper Positions (Describe)	Notes (Heat No. and time; Other)
12:40	208	195	202	8.0	Canopy 30% closed	On Heat 6021 Tapped 12:35
13:00	193	184	191	7.8	Exhaust 100% open	Heat 6022
13:15	192	180	188	8.0		Power on 12:45
13:30	191	177	185	8.2	Canopy 20% closed	2nd charge 12:58
13:45	201	189	195	8.3	Exhaust 100% open	Tapped 1:38
14:00	195	184	191	8.1		Heat 6023
14:15	205	192	199	7.5		Power On 14:17
14:30	199	188	196	7.2		2nd charge
14:45	202	189	197	7.9		
					Lance went out @ 13:40 Test stopped until 8/17/00	

END

APPENDIX D

EMISSION TESTING FIELD DATA

Alaska Steel
Date: 8/14/00
Bayhouse



793,656

.0016 Δp

806,752

1.05

1.25

Traverse Point Locator Data

Client : Newport Steel

Calculator : BW Date : 8/14/00

Location :

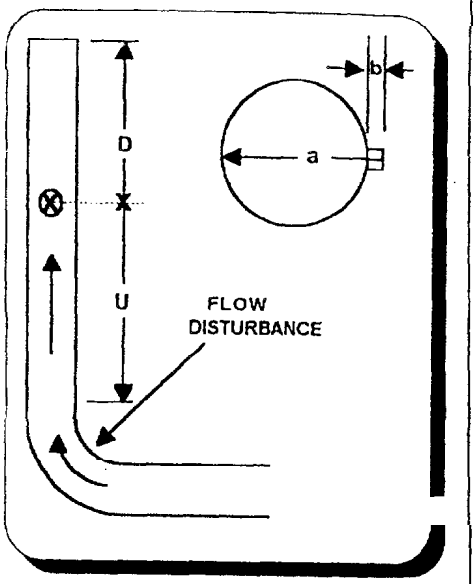
Distance from ***upstream*** disturbance (u) : 1900"

Distance from ***downstream*** disturbance (d) : 250"

Outside of port to ***far side*** of stack (a) : 197 1/2"

Outside of port to ***near side*** of stack (b) : 11/2"

Inside Stack Diameter (a-b) : 185.5



Point #	% from wall to point	" from wall to point (c)	Port length (b)	" from probe tip to point (b+c)
1	3.2	5.94	17-	17.94
2	10.5	19.48		31.48
3	19.4	35.99		47.99
4	32.3	59.92		71.92
5	67.7	125.58		137.58
6	80.6	149.51		161.51
7	89.5	166.02		178.02
8	96.8	179.56		191.56

FBT

SAMPLE RECOVERY DATA

Date: 8-16-00
Client: Newport Steel
Plant: Newport
Location: Baghouse exhaust
Test Method: 5
Run #: 4 TC #:

IMPINGER DATA

	#1	#2	#3	#4	#5	
Contents	0.1N HNO_3	0.1N HNO_3	MT	SG		Total
Final Wt.(g)	709	695	583	890		
Initial Wt.(g)	693	691	581	865		
Net Gain (g)	16	4	2		25	47

RECOVERED SAMPLES

Recovered by:
Date:
Filter #:
Silica Gel Color:

COMMENTS:

FBT

Client / City: Newport Steel

Date: 08/16/00 Run #:

Location: Baghouse Outlet

Sample Type: Operator: RM, CW

Probe Length / Type:

Nozzle Size:

Meter Box #: Apex 3 ΔH@: Y:

Assumed H_2O: % T_s: Cp:

P_{BAR}: Ambient Temperature: °F P: Reference ΔP: K-factor:

Pretest Leak Rate: .009 ft^3 @ 8 "hg

Postest Leak Rate: ft^3 @ "hg

Filter #:

Comments: ½ Post Leak .004 @ 13 hg

Pitot Leak Check: Orsat Leak Check:

Fyrite Data:	Moisture Data Total:	
O_2:	ml H_2O	g Sil. Gel
CO_2:		

Traverse Schematic:

Page ___ of ___ Record data every ___ minutes

Trav. #	Sample Time	Clock Time	Meter Reading	Pitot #: ΔP	ΔH(calc	TC #'s: ΔH(act)	Probe	Stack	Tm In	Tm Out	Filter	Exit	Pump Vac.
		12:39	825.862										
5-1	10				2.5			186	104	96	190	65	7
2	20							191	105	97	230	64	7
3	30							203	105	97	238	64	7
4	40							189	106	98	238	69	7
5	50							210	105	98	240	67	7
6	60		879.548					232	105	98	248	68	7
6-1	10							167	101	99	210	65	7
2	20							175	105	99	226	67	7
3	30							183	108	99	228	67	7
4	40							175	109	100	228	69	7
5	50							175	109	101	228	69	7
6	60		933.487					170	109	101	227	67	7
12-1													
2													
3													
4													
5													
6													
11-1													
2													
3													
4													
5													
6													

Θ: V_m: 107.625 avg $\sqrt{\Delta P}$: .04 avg ΔH: T_s: 188 T_m: 102 Calculated By: Checked By:

FBT

SAMPLE RECOVERY DATA

Date: 8/16/00
Client: Newport Steel
Plant: Newport, KY
Location: Baghouse
Test Method: M12
Run #: 3 TC #:

IMPINGER DATA

	#1	#2	#3	#4	#5	Total
Contents	0.1 N HNO_3	0.1 N HNO_3	MT	SG		
Final Wt.(g)	760	530	554	~~802~~ 843		
Initial Wt.(g)	617	606	551	~~800~~ 875		
Net Gain (g)	143	-76	3	8		

RECOVERED SAMPLES

Recovered by: Hilty
Date: 8/16/00
Filter #: 3705
Silica Gel Color: ok

COMMENTS:

FBT

Client / City: Newport Steel

Probe Length / Type: 3' Glass

Date: 8-16-00 Run #: 3

Nozzle Size: _____, _____ = 1.125

Location: Baghouse Outlet

Meter Box #: Apex3 ΔH@: 1.723 Y: .993

Sample Type: M5 Operator: CW / RM

Assumed H_2O: _____% T_s: _____ Cp: _____

P_{BAR}: _____ Ambient Temperature: 69 °F P_s: _____

Reference ΔP: _____ K-factor: _____

Pretest Leak Rate: .006 ft^3 @ 22 "hg

Postest Leak Rate: .003 ft^3 @ 5.5 "hg

Filter #:

Comments:

Pitot Leak Check: _____ Orsat Leak Check: _____

Fyrite Data:	Moisture Data Total:	
O:	ml H_2O	g Sil. Gel
CO_2:		

Traverse Schematic:

Page ___ of ___ Record data every ____ minutes

Trav. #	Sample Time	Clock Time	Meter Reading	Pitot #: ΔP	ΔH(calc	TC #'s: ΔH(act)	Probe	Stack	Tm In	Tm Out	Filter	Exit	Pump Vac.
	0	7:51	617.880										
1-1	10				2.5			135	90	86	229	62	3
2	20							140	90	87	233	67	3
3	30							145	93	86	232	69	3
4	40							150	95	84	237	60	3
5	50							160	96	83	239	65	3
6	60		670.529					160	95	83	240	65	3
2-1	10							155	92	83	210	67	3
2	20							183	92	83	241	68	3
3	30							180	86	84	242	69	3
4	40							180	93	83	242	68	3
5	50							175	98	85	244	68	3
6	60		718.215					175	99	86	243	68	3
3-1	10	10:03						175	101	90	242	67	4
2	20							175	101	90	240	67	4
3	30							180	102	91	237	67	4
4	40							180	100	92	236	67	4
5	50							180	101	92	238	66	4
6	60		770.550					175	101	92	240	67	4
4-1	10							158	92	91	227	68	4
2	20							156	102	92	232	67	4
3	30							158	105	93	233	67	4
4	40							162	106	95	234	65	4
5	15							163	107	96	235	64	4
6	16	10:14	824.501					154	103	97	234	66	4

Θ: ____ V_m: 206.621 avg $\sqrt{\Delta P}$: _____ avg ΔH: ____ T_s: 165 T: 93 Calculated By: _____ Checked By: _____

FBT

SAMPLE RECOVERY DATA

Date: 8.15.00
Client: Newport Steel
Plant: Newport Ky
Location: Baghouse
Test Method: M12
Run #: 2 TC #:

IMPINGER DATA

Contents	#1	#2	#3	#4	#5	Total
	0.1N HNO_3	0.1N HNO_3	MT	SG		
Final Wt.(g)	~~[illegible]~~ 726	697	585	892		
Initial Wt.(g)	677	686	581	863		
Net Gain (g)	49	11	4	29		93

RECOVERED SAMPLES

Recovered by: DW
Date: 8/15/00
Filter #: -
Silica Gel Color. ok

COMMENTS:

FBT

Newport Steel

Date: 08/15/00 Run #: 2

Location: Baghouse

Sample Type: _____ Operator: KM, CW

P_{BAR}: 30.02 Ambient Temperature: ____ °F P_s: _____

Pretest Leak Rate: .018 ft³ @ 10 "hg

Postest Leak Rate: .001 ft³ @ 20 "hg

Pitot Leak Check: _____ Orsat Leak Check: _____

Probe Length / Type: _____

Nozzle Size: _____, _____, _____ = 1.13

Meter Box #: Apex3 ΔH@: 1.7234 Y: .9931

Assumed H_2O: _____ % T_s: _____ Cp: _____

Reference ΔP: _____ K-factor: _____

Filter #:

Comments:

Fyrite Data:

O: _____

CO_2: _____

Moisture Data Total: _____

ml H_2O	g Sil. Gel

Traverse Schematic:

Page ___ of ___ Record data every _____ minutes

Trav. #	Sample Time	Clock Time	Meter Reading	Pitot #: ΔP	ΔH(calc	TC #'s: ΔH(act)	Probe	Stack	Tm In	Tm Out	Filter	Exit	Pump Vac.
		1:45	393.934										
1-1	10			0016	2.53			135	109	107	230	53	11
2	20							135	111	105	239	53	11
3	30							135	112	107	243	44	11
4	40							135	118	113	242	46	11
5	50							131	108	111	239	47	11
6	60							130	111	109	239	46	11
2-1	10							135	108	108	237	51	12
2	20							135	103	103	236	44	12
3	30							140	115	108	240	42	13
4	40							142	114	110	239	45	13
5	50							140	114	110	238	50	13
6	60		503.417					140	116	111	238	45	13
6-1								150	110	111	208	52	12
2								150	122	113	217	52	12
3								150	136	123	224	52	12
4								146	134	127	228	46	12
5								145	132	127	221	40	12
6			560.342					145	128	124	229	44	12
5-1								145	108	113	210	44	13.5
2								145	125	120	217	44	13
3								160	122	117	244	46	13
4								150	125	119	244	46	14
5								162	118	116	230	47	14
6		6:28	616.726					151	116	114	229	48	14

Θ: ____ V_m: 222.792 avg $\sqrt{\Delta P}$: _____ avg ΔH: ____ T_s: 122 T_m: 113 Calculated By: _____ Checked By: _____

FBT

SAMPLE RECOVERY DATA

Date: 8/15/00
Client: Newport Steel
Plant: Newport, KY
Location: Baghouse
rest Method: M 12
Run #: 1 TC #:

IMPINGER DATA

Contents	#1	#2	#3	#4	#5	Total
	0.1 N HNO_3	0.1 N HNO_3	MT	SG		
Final Wt.(g)	721	576	634	~~876~~ 913		
Initial Wt.(g)	672	560	628	~~875~~ 875		
Net Gain (g)	49	16	6	38		109

RECOVERED SAMPLES

Recovered by: H. Hy
Date: 8/15/0
Filter #: -
Silica *Gel* Color: ok

COMMENTS:

FBT

FIELD DATA SHEET A

Client / City: Newport Steel

Date: 08/15/02 Run #: 1

Location: Baghouse

Sample Type: _____ Operator: RM, CW

P_{BAR}: _____ Ambient Temperature: ____ °F P_s: _____

Pretest Leak Rate: .008 ft³ @ 15 "hg

Postest Leak Rate: .003 ft³ @ 10 "hg

Pitot Leak Check: _____ Orsat Leak Check: _____

Probe Length / Type: _____

Nozzle Size: _____, _____, _____ = 1.13

Meter Box #: Apex 3 ΔH@: 1.2234 Y: .9931

Assumed H_2O: _____ % T_s: _____ Cp: _____

Reference ΔP: _____ K-factor: _____

Filter #: _____

Comments:

Fyrite Data:

O_2: _____

CO_2: _____

Moisture Data Total: _____	
ml H_2O	g Sil. Gel

Traverse Schematic:

Page ___ of ___ Record data every _____ minutes

Trav. #	Sample Time	Clock Time	Meter Reading	Pitot #: ΔP	ΔH(calc	TC #'s: ΔH(act)	Probe	Stack	Tm In	Tm Out	Filter	Exit	Pump Vac.
		8:34	157.717				X						
7-1	10			.0016	2.53			145	81	78	265	40	7.5
2	20							145	89	79	265	41	7.5
3	30							145	92	81	289	41	7.5
4	40							145	93	83	240	65	7.5
5	50							155	94	84	262	55	7.5
6	60		212.671					155	94	85	255	55	7.5
8-1	10							140	89	87	255	61	6
2	20							140	96	88	255	53	6
3	30							155	100	90	280	52	6
4	40							165	101	93	281	51	6
5	50							165	104	94	275	50	6
6	60		274.486					165	104	96	277	51	6
9-1	10							150	98	99	260	49	5
2	20							150	105	100	261	49	5
3	30							130	111	100	260	50	5
4	40							130	112	105	260	62	5
5	50							130	112	105	260	49	5
6	60		330.452					130	112	105	260	54	5
10-1	10							135	105	106	240	52	5
2	20							135	108	104	241	56	5
3	30							145	109	104	241	65	5
4	40							135	110	105	242	55	5
5	50							135	109	105	244	68	5
6	60		385.860					135	108	104	237	56	5

Θ: ____ V_m: 228.143 avg $\sqrt{\Delta P}$: .04 avg ΔH: 2.53 T_s: 144 T_m: 98 Calculated By: _____ Checked By: _____

FBT

GAS VELOCITY AND VOLUMETRIC FLOW RATE

Plant: Newport Steel Date: 8/16/00

Sampling Location: EAF Exhaust / Brandt Inlet Run #: 3 Clock Time: 0900

Barometric Pressure, in Hg: 29.85 Static Pressure, " H_2O: -4.1 Operators: PH / DW

TC #: _____ Pitot Tube #: _____ Pitot Leak Check: ✓ Pitot Tube Cp: 0.84

Wet Bulb, °F: _____ Dry Bulb, °F: _____ Dia 185.5" Fyrite 02: _____ CO_2: _____

Traverse Point #	ΔP in. H_2O	Stack Temp. °F	Cyclonic Flow °
1	0.89	190	
2	1.2	192	
3	1.3	194	
4	1.4	200	
5	1.2	200	
6	1.3	187	
7	1.1	180	
8	1.2	175	
1	0.98	195	
2	1.1	168	
3	1.0	163	
4	0.95	200	
5	1.3	231	
6	1.1	153	
3	1.1	153	
6	1.1	153	
Average:	√ΔP= 1.066	Ts= 184	°C=

$$Md = (0.44 \times \%CO2) + (0.32 \times \%O2) + (0.28 \times N2)$$

$$Md = (0.44 \times \_\_\_\_) + (0.32 \times \_\_\_\_) + (0.28 \times \_\_\_\_)$$

$$Md = \_\_\_\_$$

$$Ms = Md \times \left(1 - \frac{\%H2O}{100}\right) + 18\left(\frac{\%H2O}{100}\right)$$

$$Ms = \_\_\_\_ \times \left(1 - \frac{\_\_\_\_}{100}\right) + 18\left(\frac{\_\_\_\_}{100}\right)$$

$$Ms = \_\_\_\_$$

$$Ts = \_\_\_\_ F + 460 = \_\_\_\_ R$$

$$Ps = Pbar + \frac{SP}{13.6} = \_\_\_\_ + \frac{\_\_\_\_}{13.6}$$

$$Ps = \_\_\_\_ in.Hg$$

$$\sqrt{\Delta P} = \_\_\_\_$$

$$Vs = 85.49 \times Cp \times \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps \times Ms}}$$

$$Vs = 85.49 \times \_\_\_\_ \times \_\_\_\_ \times \sqrt{\frac{\_\_\_\_}{\_\_\_\_ \times \_\_\_\_}}$$

$$Vs = \_\_\_\_ ft/sec$$

$$As = \_\_\_\_ sq.ft$$

$$Qa = Vs \times As \times 60s/m$$

$$Qa = \_\_\_\_ \times \_\_\_\_ \times 60$$

$$Qa = \_\_\_\_ acfm$$

$$Qstd = Qa \times 17.647 \times \frac{Ps}{Ts} \times \left(1 - \frac{\%H2O}{100}\right)$$

$$Qstd = \_\_\_\_ \times 17.647 \times \frac{\_\_\_\_}{\_\_\_\_} \times \left(1 - \frac{\_\_\_\_}{100}\right)$$

$$Qstd = \_\_\_\_ dscfm$$

FBT

GAS VELOCITY AND VOLUMETRIC FLOW RATE

Plant: Newport Steel Date: 8/15/00

Sampling Location: EAF Exhaust / Baghouse Inlet Clock Time: 1540

Run #: 2 Operators: PH / DW

Barometric Pressure, in Hg: Static Pressure, " H_2O: -4.7

TC #: Pitot Tube #.: Pitot Tube Cp: 0.84

Stack Dimension, in. ~~Diameter or~~ Side 1: 189" Side 2:

Wet Bulb, °F: Dry Bulb, °F: Fyrite 02: CO_2:

Traverse Point #	Velocity Head in. H_2O	Stack Temp. °F	Cyclonic Flow °
1	0.92	~~[illegible]~~ 125	
2	1.3	125	
3	1.2	126	
4	1.5	127	
5	1.3	125	
6	1.2	126	
7	1.2	125	
8	1.1	125	
1	0.95	120	
2	1.3	126	
3	1.3	126	
4	1.4	127	
5	1.5	121	
6	1.4	122	
7	1.5	122	
8	1.3	123	
Average: $\sqrt{\Delta P}$= 1.1257	Ts= 125	°C=	

$$Md = (0.44 \times \%CO2) + (0.32 \times \%O2) + (0.28 \times N2)$$

$$Md = (0.44 \times \_\_\_\_\_) + (0.32 \times \_\_\_\_\_) + (0.28 \times \_\_\_\_\_)$$

$$Md = \_\_\_\_\_$$

$$Ms = Md \times \left(1 - \frac{\%H2O}{100}\right) + 18\left(\frac{\%H2O}{100}\right)$$

$$Ms = \_\_\_\_\_ \times \left(1 - \frac{\_\_\_\_\_}{100}\right) + 18\left(\frac{\_\_\_\_\_}{100}\right)$$

$$Ms = \_\_\_\_\_$$

$$Ts = \_\_\_\_\_ F + 460 = \_\_\_\_\_ R$$

$$Ps = Pbar + \frac{SP}{13.8} = \_\_\_\_\_ + \frac{\_\_\_\_\_}{13.8}$$

$$Ps = \_\_\_\_\_ in.\ Hg$$

$$\sqrt{\Delta P} = \_\_\_\_\_$$

$$Vs = 85.49 \times Cp \times \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps \times Ms}}$$

$$Vs = 85.49 \times \_\_\_\_\_ \times \_\_\_\_\_ \times \sqrt{\frac{\_\_\_\_\_}{\_\_\_\_\_ \times \_\_\_\_\_}}$$

$$Vs = \_\_\_\_\_ ft/sec$$

$$As = \_\_\_\_\_ sq.ft$$

$$Qa = Vs \times As \times 60s/m$$

$$Qa = \_\_\_\_\_ \times \_\_\_\_\_ \times 60$$

$$Qa = \_\_\_\_\_ acfm$$

$$Qstd = Qa \times 17.647 \times \frac{Ps}{Ts} \times \left(1 - \frac{\%H2O}{100}\right)$$

$$Qstd = \_\_\_\_\_ \times 17.647 \times \frac{\_\_\_\_\_}{\_\_\_\_\_} \times \left(1 - \frac{\_\_\_\_\_}{100}\right)$$

$$Qstd = \_\_\_\_\_ dscfm$$

FBT

GAS VELOCINAND VOLUMETRIC FLOW RATE

Plant: , Steel Date: 6/15/00

Sampiing Location: ⑩ Brandt Baghouse In Clock Time: 0900

Run #: 1 Operators: PH / DW

Barometric Pressure, in Hg: 30.01 Static Pressure, " H_2O: −3.8

TC #: Pitot Tube #.: Pitot Tube Cp: 0.84

Stack Dimension, in. Diameter or Side 1: 169" Side 2:

Wet Bulb, OF: Dry Bulb, OF: Fyrite 02: CO_2:

Traverse Point #	Velocity Head in. H_2O	Stack Temp. ^0F	Cyclonic Flow ^{0}
1	~~1.5~~ .92	~~125~~ 135	
2	1.3	~~125~~ 138	
3	1.4	~~128~~ 142	
4	~~1.5~~ 1.4	~~126~~ 139	
5	1.3	136	
6	1.3	~~1.5~~ 131	
7	1.4	131	
8	1.3	126	
1	0.96	126	
2	~~0.98~~ 1.4	~~129~~ 137	
3	~~0.96~~ 1.3	~~129~~ 134	
4	1.4	131	
5	1.3	135	
6	1.3	134	
7	1.2	131	
8	1.1	131	
Average: $\sqrt{\Delta P}$= 1.124	Ts= 3	^0C=	

$$Md = (0.44 \times \%CO2) + (0.32 \times \%O2) + (0.28 \times N2)$$

$$Md = (0.44 \times \_\_\_\_\_) + (0.32 \times \_\_\_\_\_) + (0.28 \times \_\_\_\_\_)$$

$$Md = \_\_\_\_\_$$

$$Ms = Md \times \left(1 - \frac{\%H2O}{100}\right) + 18\left(\frac{\%H2O}{100}\right)$$

$$Ms = \_\_\_\_\_ \times \left(1 - \frac{\_\_\_\_\_}{100}\right) + 18\left(\frac{\_\_\_\_\_}{100}\right)$$

$$Ms = \_\_\_\_\_$$

$$Ts = \_\_\_\_\_ F + 460 = \_\_\_\_\_ R$$

$$Ps = Pbar + \frac{SP}{13.8} = \_\_\_\_\_ + \frac{\_\_\_\_\_}{13.8}$$

$$Ps = \_\_\_\_\_ in.\ Hg$$

$$\sqrt{\Delta P} = \_\_\_\_\_$$

$$Vs = 85.49 \times Cp \times \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps \times Ms}}$$

$$Vs = 85.49 \times \_\_\_\_\_ \times \_\_\_\_\_ \times \sqrt{\frac{\_\_\_\_\_}{\_\_\_\_\_ \times \_\_\_\_\_}}$$

$$Vs = \_\_\_\_\_ ft/sec$$

$$As = \_\_\_\_\_ sq.ft$$

$$Qa = Vs \times As \times 60s/m$$

$$Qa = \_\_\_\_\_ \times \_\_\_\_\_ \times 60$$

$$Qa = \_\_\_\_\_ acfm$$

$$Qstd = Qa \times 17.647 \times \frac{Ps}{Ts} \times \left(1 - \frac{\%H2O}{100}\right)$$

$$Qstd = \_\_\_\_\_ \times 17.647 \times \frac{\_\_\_\_\_}{\_\_\_\_\_} \times \left(1 - \frac{\_\_\_\_\_}{100}\right)$$

$$Qstd = \_\_\_\_\_ dscfm$$

FBT

GAS VELOCITY AND VOLUMETRIC FLOW RATE

Plant: Newport Steel Date: 8/14/00

Sampling Location: Furnace Exhaust / Brandt Inlet Clock Time: 1545

Run #: Dorlin Operators: PA / Bw

Barometric Pressure, in Hg: _____ Static Pressure, " H_2O: -.48

TC #: _____ Pitot Tube #.: _____ Pitot Tube Cp: 0.64

Stack Dimension, in. Diameter or Side 1: _____ Side 2: _____

Wet Bulb, °F: _____ Dry Bulb, °F: _____ Fyrite 02: _____ CO_2: _____

Horizontal

Traverse Point #	Velocity Head in. H_2O	Stack Temp. °F	Cyclonic Flow °
1	.91	158	
2	1.3	155	
3	1.5	160	
4	1.5	163	
5	1.3	156	
6	1.3	158	
7	1.2	148	
8	1.3	148	
Vertical			
1	1.2	151	
2	1.4	159	
3	1.4	165	
4	1.4	170	
5	1.4	174	
6	1.4	173	
7	1.5	174	
8	1.3	174	
Average: $\sqrt{\Delta P}$= 1.1523		Ts= 162	°C=

$$Md = (0.44 \times \%CO2) + (0.32 \times \%O2) + (0.28 \times N2)$$

$$Md = (0.44 \times \_\_\_\_\_) + (0.32 \times \_\_\_\_\_) + (0.28 \times \_\_\_\_\_)$$

$$Md = \_\_\_\_\_$$

$$Ms = Md \times \left(1 - \frac{\%H2O}{100}\right) + 18\left(\frac{\%H2O}{100}\right)$$

$$Ms = \_\_\_\_\_ \times \left(1 - \frac{\_\_\_\_}{100}\right) + 18\left(\frac{\_\_\_\_}{100}\right)$$

$$Ms = \_\_\_\_\_$$

$$Ts = \_\_\_\_\_ F + 460 = \_\_\_\_\_ R$$

$$Ps = \mathbf{Pbar} + \frac{SP}{13.8} = \_\_\_\_\_ + \frac{\_\_\_\_}{13.8}$$

$$Ps = \_\_\_\_\_ \textbf{in. Hg}$$

$$\sqrt{\Delta P} = \_\_\_\_\_$$

$$Vs = 85.49 \times Cp \times \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps \times Ms}}$$

$$Vs = 85.49 \times \_\_\_\_\_ \times \_\_\_\_\_ \times \sqrt{\frac{\_\_\_\_}{\_\_\_\_ \times \_\_\_\_}}$$

$$Vs = \_\_\_\_\_ ft/sec$$

$$As = \_\_\_\_\_ sq.ft$$

$$Qa = Vs \times As \times 60s/m$$

$$Qa = \_\_\_\_\_ \times \_\_\_\_\_ \times 60$$

$$Qa = \_\_\_\_\_ acfm$$

$$\mathbf{Qstd} = \mathbf{Qa} \times 17.647 \times \frac{Ps}{Ts} \times \left(1 - \frac{\%H2O}{100}\right)$$

$$Qstd = \_\_\_\_\_ \times 17.647 \times \frac{\_\_\_\_}{\_\_\_\_} \times \left(1 - \frac{\_\_\_\_}{100}\right)$$

$$Qstd = \_\_\_\_\_ dscfm$$

FBT

MIDGET IMPINGER SAMPLING DATA SHEET

Company: Newport Steel
Date: 8/16/00
DGM/Orifice #: 5
Sampling Site: EAF Exhaust / Brandt B.H.
Operator: PH
DGM λ: 1.051
Run #: 4
Leak ✓: Pre: ✓
Probe Type:
Sample Type: M6 / SO_2
Post:
P_{BAR}: 30.02

SAMPLING PARAMETERS

* purge @ 15 l / 70 mins

Time		DGM (ft^3 or l)	Temp (°F)	Flow Rate	Time		(DGM)	Tee	Flow Rate
Clock	Sample				Clock	Sample			
1351	0	0	76	1 l/min	1501	70	2.516	78	1 l/min *
	10	0.398	76	" "					
	20	0.764	76	" "					
	30	1.118	76	" "					
	40	1.511	77	" "					
	50	1.730	78	" "					
	60	2.601	78	" "					

Run Time: _____ (min) Meter Volume: _____ (ft^3 or l) Average Meter Temp.: _____ (°F)

STACK GAS COKDITIONS DATA

Time: _____ Wet / Dry: _____ / _____ CO_2: _____ %

P_s: _____ "H_2O Pitot # / C_p: _____ / _____ TC #: _____ O_2: _____ %

Point #	AP	T_s	Point #	ΔP	T_s

Avg. √ΔP: _____ Average Stack Temp.: _____ (°F)

FBT

MIDGET IMPINGER SAMPLING DATA SHEET

Company: Newport Steel
Date: 8-16-00
DGM/Orifice #: DGM #5
Sampling Site: Baghouse Inlet
Operator: PH
DGM λ:
Run#: 3
Leak ✓: Pre: ✓
Probe Type: TFE
Sample Type: SO2 Method 6
Post:
P_{BAR}: 29.8

SAMPLING PARAMETERS

Time		DGM (ft^3 or l)	Temp (°F)	Flow Rate	Time		DGM (ft^3 or l)	Temp (°F)	Flow Rate
Clock	Sample				Clock	Sample			
0900	0	0.000	72	1lpm	1010	70	3.244	72	1l/min
	10	0.40	73	1lpm	1020	80	3.446	72	1l/min
	20	0.903	73	1lpm		90	3.631	72	1l/min
	30	1.228	73	"		100	4.053	72	1l/min
	40	1.531	73	1l/pm		110	4.151	72	1l/min
	50	1.750	73	1lpm		120	4.057	73	" "
1000	60	2.041	73	1l/min					

Run Time: _____ (min) Meter Volume: _____ (ft^3 or l) Average Meter Temp.: _____ (°F)

STACK GAS CONDITIONS DATA

Time: _____ Wet / Dry: _____ / _____ CO_2: _____ %

P_s: _____ "H_2O Pitot # / C_p: _____ / _____ TC #: _____ O_2: _____ %

Point #	ΔP	T_s	Point #	ΔP	T_s

Avg. √ΔP: _____ Average Stack Temp.: _____ (°F)

FBT

MIDGET IMPINGER SAMPLING DATA SHEET

Company: Newport Steel
Date: 8-15-00
DGM/Orifice #: DGM #5
Sampling Site: Baghouse Inlet
Operator: DW
DGM λ: 1.051
Run #: 2
Leak ✓: Pre: ✓
Probe Type: TFE
Sample Type: SO_2 - Method 6
Post: ____
P_{BAR}: ____

SAMPLING PARAMETERS

Time		DGM (ft^3 or l)	Temp (°F)	Flow Rate	Time		DGM (ft^3 or l)	Temp (°F)	Flow Rate
Clock	Sample				Clock	Sample			
1501	0	0.000	84	1lpm		70	2.57	86	1lpm
	10	0.36	84	1lpm		80	2.95	86	1lpm
	20	0.73	85	1lpm		90	3.31	86	1lpm
	30	1.10	85	1lpm		100	3.80	86	1lpm
	40	1.45	86	1lpm		110	4.08	86	1lpm
	50	1.83	86	1lpm		120	4.300	86	
	60	2.19	86	1lpm					

Run Time: 120 (min) Meter Volume: 4.300 (A' or l) Average Meter Temp.: 85.6 (°F)

STACK GAS CONDITIONS DATA

Time: ____ Wet / Dry: I CO_2: ____ %

P_s: ____ "H_2O Pitot # / C_p: I TC #: ____ O_2: ____ %

Point #	ΔP	T_s	Point #	ΔP	T_s

Avg. √ΔP: ____ **Average Stack Temp.:** ____ (°F)

FBT

MIDGET IMPINGER SAMPLING DATA SHEET

Company: Newport Steel
Date: 8-15-00
DGM/Orifice #: DGM #5
Sampling Site: Baghouse Inlet
Operator: DW
DGM λ: 1.051
Run #: 1
Leak ✓: Pre: ✓
Probe Type: TFE
Sample Type: SO_2 - Method 6
Post:
P_{BAR}:

SAMPLING PARAMETERS

Time		DGM	Temp	Flow	Time		DGM	Temp	Flow
Clock	Sample	(ft^3 or l)	(°F)	Rate	Clock	Sample	(ft^3 or l)	(°F)	Rate
1000	0	0.000	77	1lpm		70	2.43	80	1lpm
	10	0.400	79	1lpm		80	2.83	80	1lpm
	20	0.66	80	1lpm		90	3.19	81	1lpm
	30	1.00	81	1lpm		100	3.54	82	1lpm
	40	1.24	80	1lpm		110	3.92	82	1lpm
	50	1.60	80	1lpm	1200	120	4.343	82	
	60	2.05	80	1lpm					

Run Time: 120 (min) Meter Volume: 4.343 (ft^3 or l) Average Meter Temp.: 80.3 (°F)

STACK GAS CONDITIONS DATA

Time: _____ Wet / Dry: ____ / ____ CO_2: ____ %

P_s: ____ "H_2O Pitot # / C_p: ____ / ____ TC #: ____ O_2: ____ %

Point #	ΔP	T_s	Point #	ΔP	T_s

Avg. √ΔP: _____ Average Stack Temp.: _____ (°F)

FBT

APPENDIX E

STACK TEST CALCULATIONS

CLIENT/PROJECT #:	Newport Steel			
SAMPLE LOCATION:	Baghouse Exhaust			
DATE/TIME:	8/15/000814-1300			
RUN #:	1			
STATIC PRESSURE("H2O):	0		'HG	30.01
BAROMETRIC("Hg):	30.01			
SAMPLE TIME(min):	240		Vm(corr)	228.143
TOTAL METER VOLUME:	228.143		DSCF	216.365
[illegible]	0.040			
AVG OR [illegible]	2.53			
AVG STACK TEMP °F:	144.0		°R	604.0
AVG METER TEMP °F:	98.0			
Cp PITOT :	0.84			
NOZZLE DIA.(inches):	1.130		An(ft^2)	6.96~-03
METER GAMMA:	0.993			
LEAK RATE(IF<0.02):				
CIRC STACK? 1=Y,0=N:	0		As(ft^2)	5511.50
DIA OR DIM (inches):	793656.00			
% 02 :	20.58		Dry Mole Wt	28.8744
% CO2 :	0.32		Stack Mole Wt	28.6225099
VOL CONDENSATE(ml):	109		% H20	2.32
PARTICULATE(mg):	6.606			
LEAD(µg):	49.00			

********** CALCULATED RESULTS ********** **********

STACK GAS CONDITIONS

Velocity (Vs):	2.4	ft/sec
Volumetric Flow Rate (Qa):	796,539	acfm
(Qstd):	682,227	dscfm
Stack Gas Temp :	144	°F
Moisture (%H2O):	2.3	%
%O2:	20.6	%
%CO2:	0.3	%
Isokinetic Sampling Rate:	104.6	%

PARTICULATE EMISSIONS DATA

PM Concentration (Cs):	4.70E-04	grldscf
	6.72E-08	lb/dscf
PM Emission Rate (Er):	2.75E+00	lb/hr

LEAD EMISSIONS DATA

LEAD Concentration (Cs):	3.49E-06	gr/dscf
	4.98E-10	lb/dscf
LEAD Emission Rate (Er):	2.04E-02	lb/hr

Comments:

FBT

CLIENT/PROJECT #:	Newport Steel
SAMPLE LOCATION:	Baghouse Exhaust
DATE/TIME:	8/15/00 1345-1828
RUN #:	2

STATIC PRESSURE("H_2O):	0	"HG	30.01
BAROMETRIC("Hg):	30.01		
SAMPLE TIME(min):	240	Vm(corr)	222.792
ACTUAL METER VOLUME:	222.792	DSCF	205.759
Average $\sqrt{\Delta P}$:	0.040		
AVG ORIFICE AH:	2.53		
AVG STACK TEMP °F:	122.0	°R	582.0
AVG METER TEMP °F:	113.0		
Cp PITOT :	0.84		
NOZZLE DIA.(inches):	1.130	An(ft^2)	6.96E-03
METER GAMMA:	0.993		
LEAK RATE(IF<0.02):			
CIRC STACK? 1=Y,0=N:	0	As(ft^2)	5511.50
DIA OR DIM (inches):	793656.00		
% O_2 :	20.68	Dry Mole Wt	28.896
% CO_2 :	0.43	Stack Mole Wt	28.6690172
VOL CONDENSATE(ml):	93	% H_2O	2.08
PARTICULATE(mg):	26.475		
LEAD(µg):	65.00		

********** CALCULATED RESULTS ********** **********

STACK GAS CONDITIONS

Velocity (Vs):	24	ft/sec
Volumetric Flow Rate (Qa):	781,264	acfm
(Qstd):	696,096	dscfm
Stack Gas Temp :	122	°F
Moisture (%H_2O):	2.1	%
%O_2:	20.7	%
%CO_2:	0.4	%
Isokinetic Sampling Rate:	97.5	%

PARTICULATE EMISSIONS DATA

PM Concentration (Cs):	1.98E-03	gr/dscf
	2.83E-07	lb/dscf
PM Emission Rate (Er):	1.18E+01	lb/hr

LEAD EMISSIONS DATA

LEAD Concentration (Cs):	4.86E-06	gr/dscf
	6.95E-10	lb/dscf
LEAD Emission Rate (Er):	2.90E-02	lb/hr

Comments:

FBT

CLIENT/PROJECT #:	Newport Steel
SAMPLE LOCATION:	Baghouse Exhaust
DATE/TIME:	8/16/00 0754-1214
RUN #:	3

STATIC PRESSURE("H_2O):	0	"HG	30.01
BAROMETRIC("Hg):	30.01		
SAMPLE TIME(min):	240	Vm(corr)	206.621
ACTUAL METER VOLUME:	206.621	DSCF	197.711
Average $\sqrt{\Delta P}$:	0.040		
AVG ORIFICE AH:	2.50		
AVG STACK TEMP °F:	165.0	°R	625.0
AVG METER TEMP °F:	93.0		
Cp PITOT :	0.84		
NOZZLE DIA.(inches):	1.130	An(ft^2)	6.96E-03
METER GAMMA:	0.993		
LEAK RATE(IF<0.02):			
CIRC STACK? 1=Y,0=N:	0	As(ft^2)	5511.50
DIA OR DIM (inches):	793656.00		
% O_2 :	20.43	Dry Mole Wt	28.8716
% CO_2 :	0.34	Stack Mole Wt	28.673397
VOL CONDENSATE(ml):	78	% H20	1.82
PARTICULATE(mg):	2.575		
LEAD(µg):	38.00		

********** CALCULATED RESULTS ********** **********

STACK GAS CONDITIONS

Velocity (Vs):	2.4	ft/sec
Volumetric Flow Rate (Qa):	809,549	acfm
(Qstd):	673.456	dscfm
Stack Gas Temp :	165	°F
Moisture (%H_2O):	1.8	%
%O_2:	20.4	%
%CO_2:	0.3	%
Isokinetic Sampling Rate:	96.9	%

PARTICULATE EMISSIONS DATA

PM Concentration (Cs):	2.01E-04	grldscf
	2.87E-08	lb/dscf
PM Emission Rate (Er):	1.16E+00	lb/hr

LEAD EMISSIONS DATA

LEAD Concentration (Cs):	2.96E-06	gr/dscf
	4.23E-10	lb/dscf
LEAD Emission Rate (Er):	1.71E M	lblhr

Comments:

FBT

CLIENT/PROJECT #:	Newport Steel
SAMPLE LOCATION:	Baghouse Exhaust
DATE/TIME:	8/16/00 1239-1500
RUN #:	4

STATIC PRESSURE("H_2O):	0	"HG	30.01
BAROMETRIC("Hg):	30.01		
SAMPLE TIME(min):	180	Vm(corr)	107.625
ACTUAL METER VOLUME:	107.625	DSCF	101.335
Average $\sqrt{\Delta P}$:	0.040		
AVG ORIFICE AH:	2.50		
AVG STACK TEMP °F:	188.0	°R	648.0
AVG METER TEMP °F:	102.0		
Cp PITOT :	0.84		
NOZZLE DIA.(inches):	1.130	An(ft^2)	6.96E-03
METER GAMMA:	0.993		
LEAK RATE(IF<0.02):			
CIRC STACK? 1=Y,0=N:	0	As(ft^2)	5511.50
DIA OR DIM (inches):	793656.00		
% O2 :	20.66	Dry Mole Wt	28.8872
% CO_2 :	0.38	Stack Mole Wt	28.6545944
VOL CONDENSATE(ml):	47	% H20	2.14
PARTICULATE(mg):	0.55		
LEAD(µg):	13.00		

********** CALCULATED RESULTS ********** **********

STACK GAS CONDITIONS

Velocity (Vs):	25	ft/sec
Volumetric Flow Rate (Qa):	824,580	acfm
(Qstd):	659,501	dscfm
Stack Gas Temp :	188	°F
Moisture (%H_2O):	2.1	%
%O_2:	20.7	%
%CO_2:	0.4	%
Isokinetic Sampling Rate:	67.6	%

PARTICULATE EMISSIONS DATA

PM Concentration (Cs):	8.36E-05	gr/dscf
	1.19E-08	lb/dscf
PM Emission Rate (Er):	4.73E-01	lb/hr

LEAD EMISSIONS DATA

LEAD Concentration (Cs):	1.98E-06	gr/dscf
	2.82E-10	lb/dscf
LEAD Emission Rate (Er):	1.12E-02	lb/hr

Comments:

FBT

CLIENTIPROJECT #:	Newport Steel
SAMPLE LOCATION:	EAF Exhaust/Brandt Inlet
DATE/TIME:	8/15/00 0814-1214
RUN #:	1

DATA INPUT

STATIC PRESSURE("H_2O):	-3.80	"Hg	29.73
BAROMETRIC("Hg):	30.01		
Cp PITOT :	0.84		
AVG. √ΔP:	1.124		
AVG STACK TEMP °F:	134.0	°R	594.0
CIRC STACK? 1=Y,0=N:	1		
DIA OR DIM (inches):	185.50	As(ft^2)	1.88E+02
% O_2 :	20.54	Dry Mole Wt	28.83
% CO_2 :	0.07	Stack Mole Wt	28.58
	Moisture Data		
ACTUAL METER VOLUME:	228.14		
AVG. METER TEMP (OF):	98.00	Vol_{std} (dscf)	216.365
AVG ORIFICE AH:	2.53		
METER "γ":	0.99		
VOL CONDENSATE(ml):	109.00	**H_2O %**	**2.32**
DRY BULB TEMP:			
WET BULB TEMP:		VP ("Hg)	#N/A
CALIBRATION :	***NOx as NO2***		
PPM :	8.86		
CALIBRATION :	***Carbon Monoxide***		
PPM :	55.28		

CALCULATED DATA

STACK GAS DATA

GAS VELOCITY (Vs):	67.48	ft/sec
STACK GAS FLOW (Qs):	759,930	acfm
	671,215	dscfm
STACK GAS TEMP :	134	° F
MOISTURE (%H_2O):	2.3	%

Emission Data for:	***NOx***	
CONCENTRATION (Cs):	6.89E-07	lbldscf
	9	ppm
EMISSION RATE (Er):	2.78E+01	lblhr

Emission Data for:	***CO***	
CONCENTRATION (Cs):	4.02E-06	lbldscf
	55	ppm
EMISSION RATE (Er):	1.62E+02	lblhr

Comments:

FBT

CLIENT/PROJECT #:	Newport Steel
SAMPLE LOCATION:	EAF Exhaust/Brandt Inlet
DATE/TIME:	8/15/00 1532-1754
RUN #:	2

DATA INPUT

STATIC PRESSURE("H_2O):	-4.70	"Hg	29.66
BAROMETRIC("Hg):	30.01		
Cp PITOT :	0.84		
AVG. $\sqrt{\Delta P}$:	1.126		
AVG STACK TEMP °F:	125.0	°R	585.0
CIRC STACK? 1=Y,0=N:	1		
DIA OR DIM (inches):	185.50	As(ft^2)	1.88E+02
% O_2:	20.58	Dry Mole Wt	28.86
% CO_2:	0.24	Stack Mole Wt	28.64
	Moisture Data		
ACTUAL METER VOLUME:	222.79		
AVG. METER TEMP (°F):	113.00	Vol_{std} (dscf)	205.759
AVG ORIFICE AH:	2.53		
METER "γ":	0.99		
VOL CONDENSATE(ml):	93.00	**H_2O %**	**2.08**
DRY BULB TEMP:			
WET BULB TEMP:		VP ("Hg)	#N/A
CALIBRATION:	***NOx as NO2***		
PPM :	8.14		
CALIBRATION:	***Carbon Monoxide***		
PPM :	93.73		

CALCULATED DATA

STACK GAS DATA

GAS VELOCITY (Vs):	67.09	ft/sec
STACK GAS FLOW (Qs):	755,427	acfm
	675,995	dscfm
STACK GAS TEMP :	125	° F
MOISTURE (%H_2O):	2.1	%
Emission Data for:	***NOx***	
CONCENTRATION (Cs):	9.72E-07	lbldscf
	8	ppm
EMISSION RATE (Er):	39.40	lb/hr
Emission Data for:	***CO***	
CONCENTRATION (Cs):	6.81E-06	lb/dscf
	94	ppm
EMISSION RATE (Er):	276.13	lb/hr

Comments:

FBT

CLIENT/PROJECT #:	Newport Steel
SAMPLE LOCATION:	EAF Exhaust/Brandt Inlet
DATE/TIME:	8/16/00 0900
RUN #:	3

DATA INPUT

STATIC PRESSURE("H_2O):	-4.10	"Hg	29.71
BAROMETRIC("Hg):	30.01		
Cp PITOT :	0.84		
AVG. $\sqrt{\Delta P}$:	1.066		
AVG STACK TEMP °F:	184.0	°R	644.0
CIRC STACK? 1=Y,0=N:	1		
DIA OR DIM (inches):	185.50	As(ft^2)	1.88E+02
% O_2 :	20.43	Dry Mole Wt	28.87
% CO_2 :	0.34	Stack Mole Wt	28.67
	Moisture Data		
ACTUAL METER VOLUME:	206.62		
AVG. METER TEMP (0F):	93.00	Volstd (dscf)	197.711
AVG ORIFICE AH:	2.50		
METER "γ":	0.99		
VOL CONDENSATE(ml):	78.00	**H20 %**	**1.82**
DRY BULB TEMP:			
WET BULB TEMP:		VP ("Hg)	#N/A
CALIBRATION :	***NOx as NO2***		
PPM :	9.11		
CALIBRATION :	***Carbon Monoxide***		
PPM :	118.93		

CALCULATED DATA

STACK GAS DATA

GAS VELOCITY (Vs):	66.56	ft/sec
STACK GAS FLOW (Qs):	749,516	acfrn
	610,165	dscfrn
STACK GAS TEMP :	184	° F
MOISTURE (%H_2O):	1.8	Yo
Emission Data for:	***NOx***	
CONCENTRATION (Cs):	1.09E-06	lbldscf
	9	ppm
EMISSION RATE (Er):	39.81	lb/hr
Emission Data for:	***CO***	
CONCENTRATION (Cs):	8.64E-06	lbldscf
	119	ppm
EMISSION RATE (Er):	316.24	lb/hr

Comments:

FBT

CLIENT/PROJECT #:	Newport Steel
SAMPLE LOCATION:	EAF Exhaust/Brandt Inlet
DATE/TIME:	8117/00 1309-1509
RUN #:	4

DATA INPUT

STATIC PRESSURE("H_2O):	-4.20	"Hg	29.70
BAROMETRIC("Hg):	30.01		
Cp PITOT :	0.84		
AVG. $\sqrt{\Delta P}$:	1.105		
AVG STACK TEMP °F:	148.0	°R	608.0
CIRC STACK? 1=Y,0=N:	1		
DIA OR DIM (inches):	185.50	As(ft^2)	1.88E+02
% O_2 :	20.50	Dry Mole Wt	28.85
% CO_2 :	0.20	Stack Mole Wt	28.63
	Moisture Data		
ACTUAL METER VOLUME:			
AVG. METER TEMP (OF):		Volstd (dscf)	0.000
AVG ORIFICE AH:			
METER "γ":			
VOL CONDENSATE(ml):		**H20** %	**2.07**
DRY BULB TEMP:			
WET BULB TEMP:		VP **("Hg)**	#N/A
CALIBRATION :	***NOx as NO2***		
PPM :	10.30		
CALIBRATION :	***Carbon Monoxide***		
PPM :	96.00		

CALCULATED DATA

STACK GAS DATA

GAS VELOCITY (Vs):	67.11	Wsec
STACK GAS FLOW (Qs):	755,747	acfm
	651,504	dscfm
STACK GAS TEMP :	148	° F
MOISTURE (%H_2O):	2.1	%
Emission Data for:	***NOx***	
CONCENTRATION (Cs):	1.23E-06	lbldscf
	10	ppm
EMISSION RATE (Er):	48.05	lblhr
Emission Data for:	***CO***	
CONCENTRATION (Cs):	6.97E-06	lbldscf
	96	ppm
EMISSION RATE (Er):	272.57	lblhr

Comments:

FBT

CLIENT/PROJECT #:	Newport Steel
SAMPLE LOCATION:	Baghouse Exhaust
DATE/TIME:	8/15/00 0814-1300
RUN #:	1

STATIC PRESSURE("H2O):	0	"HG	30.01
BAROMETRIC("HG):	30.01		
SAMPLE TIME(min):	240	Vm(corr)	228.143
ACTUAL METER VOLUME:	228.143	DSCF	216.365
SQ. ROOT AP:	0.040		
AVG ORIFICE AH:	2.53		
AVG STACK TEMP °F:	144.0	°R	604.0
AVG METER TEMP °F:	98.0		
Cp PITOT :	0.84		
NOZZLE DIA(inches):	1.130	An(ft^2)	6.96E-03
METER GAMMA:	0.993		
LEAK RATE(IF<0.02):			
CIRC STACK? 1=Y,0=N:	0	As(ft^2)	5511.50
DIA OR DIM (inches):	793656.00		
% 0 2 :	21.00	DRY MOLE WT	28.84
% C02 :	0.00	ST MOLE WT	28.588907
VOL CONDENSATE(ml):	109	% H20	2.32
FILTER GAIN (rng):			
RINSE GAIN(mg):		NET WT(mg)	0
F-FACTOR(DSCF/mmBtu):			
FUEL AS REC'D(Btu/lb):			
FUEL FEED RATE(lb/hr):			

SO2 DATA:

SAMPLE VOLUME(ml):	98.5
ALIQUOT VOLUME(ml):	20
TITRANT NORMALITY:	0.1
SAMPLE TITRANT (ml):	0.1
BLANK TITRANT (ml):	0.1

**********CALCULATED RESULTS**********

Stack Gas Conditions

VELOCITY (Vs):	2.41	FT/SEC
VOLUMETRIC FLOW RATE(Qs):	797007.4	ACFM
	682628.1	DSCFM
TEMPERATURE :	144	Deg F
H20:	2.3	%
02:	21.0	%
CO2:	0.0	%
HEAT INPUT RATE:	#DIV/0!	mmBTU/hr
EXCESS AIR	0.00	%
ISOKINETIC SAMPLING RATE:	104.58	%

Particulate Matter Emissions

CONCENTRATION (Cs):	#N/A	gr/dscf
	#N/A	lb/dscf
EMISSION RATE (Er):	#N/A	lb/hr
	#N/A	lb/mmBTU
F-FACTOR EMISSIONS:	#N/A	lb/mmBTU

SO2 Emissions

CONCENTRATION (Cs):	0	ppm
	0.00E+00	lb/DSCF
EMISSION RATE (Er):	0.00	lb/hr
	#REF!	lb/mmBTU

COMMENTS:

FBT

CLIENT/PROJECT #:	8/15/00 0814-1300
SAMPLE LOCATION:	Baghouse Exhaust
DATE/TIME:	8/15/00 1345-1828
RUN #:	2

STATIC PRESSURE("H2O):	0	"HG	30.01
BAROMETRIC("HG):	30.01		
SAMPLE TIME(min):	240	Vm(corr)	222.792
ACTUAL METER VOLUME:	222.792	DSCF	205.759
SQ. ROOT AP:	0.040		
AVG ORIFICE AH:	2.53		
AVG STACK TEMP °F:	122.0	°R	582.0
AVG METER TEMP °F:	113.0		
Cp PITOT :	0.84		
NOZZLE DIA.(inches):	1.130	An(R^2)	6.96E-03
METER GAMMA:	0.993		
LEAK RATE(IF<0.02):			
CIRC STACK? 1=Y,0=N:	0	As(ft^2)	5511.50
DIA OR DIM (inches):	793656.00		
% O2 :	21.00	DRY MOLE WT	28.84
% C02 :	0.00	ST MOLE WT	28.614184
VOL CONDENSATE(ml):	93	% H20	2.08
FILTER GAIN (rng):			
RINSE GAIN(mg):		NET WT(mg)	0
F-FACTOR(DSCF/mmBtu):			
FUEL AS REC'D(Btu/lb):			
FUEL FEED RATE(lb/hr):			

SO2 DATA:

SAMPLE VOLUME(ml):	95.5
ALIQUOT VOLUME(ml):	20
TITRANT NORMALITY:	0.01
SAMPLE TITRANT (ml):	0.1
BLANK TITRANT (ml):	0.1

**********CALCULATED RESULTS**********

Stack Gas Conditions

VELOCITY (Vs):	2.36	FT/SEC
VOLUMETRIC FLOW RATE(Qs):	782012.1	ACFM
	696762.4	DSCFM
TEMPERATURE :	122	Deg F
H20:	2.1	%
02:	21.0	%
CO2:	0.0	%
HEAT INPUT RATE:	#DIV/0!	mmBTU/hr
EXCESS AIR	0.00	%
ISOKINETIC SAMPLING RATE:	97.43	%

Particulate Matter Emissions

CONCENTRATION (Cs):	#N/A	gr/dscf
	#N/A	lb/dscf
EMISSION RATE (Er):	#N/A	lb/hr
	#N/A	lb/mmBTU
F-FACTOR EMISSIONS:	#N/A	lb/mmBTU

SO2 Emissions

CONCENTRATION (Cs):	0	ppm
	0.00E+00	lb/DSCF
EMISSION RATE (Er):	0.00	lb/hr
	#REF!	lb/mmBTU

COMMENTS:

FBT

CLIENT/PROJECT #:	Newport Steel
SAMPLE LOCATION:	Baghouse Exhaust
DATE/TIME:	8/16/00 0754-1214
RUN #:	3

STATIC PRESSURE("H2O):	0	"HG	30.01
BAROMETRIC("HG):	30.01		
SAMPLE TIME(min):	240	Vm(corr)	206.621
ACTUAL METER VOLUME:	206.621	DSCF	197.711
SQ. ROOT AP:	0.040		
AVG ORIFICE AH:	2.50		
AVG STACK TEMP °F:	165.0	°R	625.0
AVG METER TEMP °F:	93.0		
Cp PITOT :	0.84		
NOZZLE DIA.(inches):	1.130	An(ft^2)	6.96E-03
METER GAMMA:	0.993		
LEAK RATE(IF<0.02):			
CIRC STACK? 1=Y,0=N:	0	As(ft^2)	5511.50
DIA OR DIM (inches):	793656.00		
% O2 :	21.00	DRY MOL	28.84
% C02 :	0.00	OLE WT	28.642373
VOL CONDENSATE(ml):	78	% H20	1.82
FILTER GAIN (mg):			
RINSE GAIN(mg):		NET WT(mg)	0
F-FACTOR(DSCF/mmBtu):			
FUEL AS REC'D(Btu/lb):			
FUEL FEED RATE(lb/hr):			

SO2 DATA:

SAMPLE VOLUME(ml):	62
ALIQUOT VOLUME(ml):	20
TITRANT NORMALITY:	0.01
SAMPLE TITRANT (ml):	0.2
BLANK TITRANT (ml):	0.1

**********CALCULATED RESULTS**********

Stack Gas Conditions

VELOCITY (Vs):	2.45	FT/SEC
VOLUMETRIC FLOW RATE(Qs):	809987.2	ACFM
	673820.5	DSCFM
TEMPERATURE :	165	Deg F
H20:	1.8	%
02:	21.0	%
C02:	0.0	%
HEAT INPUT RATE:	#DIV/0!	mBTU/hr
EXCESS AIR	#N/A	%
ISOKINETIC SAMPLING RATE:	96.81	%

Particulate Matter Emissions

CONCENTRATION (Cs):	#N/A	grldscf
	#N/A	lb/dscf
EMISSION RATE (Er):	#N/A	lb/hr
	#N/A	lb/mmBTU
F-FACTOR EMISSIONS:	#N/A	lb/mmBTU

SO2 Emissions

CONCENTRATION (Cs):	0	ppm
	1.11E-09	lb/DSCF
EMISSION RATE (Er):	0.04	lb/hr
	#REF!	lb/mmBTU

COMMENTS:

FBT

CLIENT/PROJECT #:	#REF!
SAMPLE LOCATION:	#REF!
DATE/TIME:	8/16/00 1239-1500
RUN #:	4

STATIC PRESSURE("H2O):	0	'HG	30.01
BAROMETRIC("HG):	30.01		
SAMPLE TIME(min):	180	Vm(corr)	107.625
ACTUAL METER VOLUME:	107.625	DSCF	101.335
SQ. ROOT ΔP:	0.040		
AVG ORIFICE AH:	2.50		
AVG STACK TEMP °F:	188.0	°R	648.0
AVG METER TEMP °F:	102.0		
Cp PITOT :	0.84		
NOZZLE DIA.(inches):	1.130	An(ft^2)	6.96E-03
METER GAMMA:	0.993		
LEAK RATE(IF<0.02):			
CIRC STACK? 1=Y,0=N:	0	As(ft^2)	5511.50
DIA OR DIM (inches):	793656.00		
% 0 2 :	21.00	DRY MOL	28.84
% C02 :	0.00	OLE WT	28.608403
VOL CONDENSATE(ml):	47	% H20	2.14
FILTER GAIN (mg):			
RINSE GAIN(mg):		NET WT(mg)	0
F-FACTOR(DSCF/mmBtu):			
FUEL AS REC'D(Btu/lb):			
FUEL FEED RATE(lb/hr):			

SO2 DATA:

SAMPLE VOLUME(ml):	65
ALIQUOT VOLUME(ml):	20
TITRANT NORMALITY:	0.01
SAMPLE TITRANT (ml):	0.1
BLANK TITRANT (ml):	

**********CALCULATED RESULTS**********

Stack Gas Conditions

VELOCITY (Vs):	2.50	FT/SEC
VOLUMETRIC FLOW RATE(Qs):	825245.9	ACFM
	660033.5	DSCFM
TEMPERATURE :	188	Deg F
H20:	2.1	%
02:	21.0	%
CO2:	0.0	%
HEAT INPUT RATE:	#DIV/0!	mBTU/hr
EXCESS AIR	#NIA	%
ISOKINETIC SAMPLING RATE:	67.54	%

Particulate Matter Emissions

CONCENTRATION (Cs):	#N/A	gr/dscf
	#N/A	lb/dscf
EMISSION RATE (Er):	#N/A	lb/hr
	#N/A	lb/mmBTU
F-FACTOR EMISSIONS:	#N/A	lb/mmBTU

SO2 Emissions

CONCENTRATION (Cs):	0	ppm
	2.26E-09	lb/DSCF
EMISSION RATE (Er):	0.09	lb/hr
	#REF!	lb/mmBTU

COMMENTS:

FBT

APPENDIX B

Analytical Data

PROJECT ANALYTICAL SHEET FOR PARTICULATE MATTER

PROJECT NAME: Newport Steel

PROJECT DATE: 8/14/00

PROJECT MANAGER: David Wetmore

NUMBEROFSITES: 1

ID NO.	RUN NO.	DESCRIPTION	TARE MASS	FINAL MASS	NET MASS	VOLUME
220	1	Front 1/2 Acetone	105,520.45 mg	105,525.5 mg	5.05 mg	98 ml
221	2	↓	96,120.85 mg	96,146.55 mg	26.2 mg	75 ml
222	3	↓	95,479.7 mg	95,485.55 mg	5.85 mg	123 ml
223	4	↓	96,966.35 mg	96,968.4 mg	2.05 mg	90 ml
	1	Filter 3667	336.65 mg	338.5 mg	1.85 mg	ml
	2	Filter 3704	334.7 mg	335.2 mg	0.5 mg	ml
	3	Filter 3705	334.75 mg	335.65 mg	0.9 mg	ml
	4	Filter 3706	334.75 mg	333.25 mg	-1.5 mg	ml
Blank	231	Blank Acetone	104,825.55 mg	104,825.7 mg	mg	ml
			mg	mg	mg	ml
			mg	mg	mg	ml
			mg	mg	mg	ml
			mg	mg	mg	ml
			mg	mg	mg	ml
			mg	mg	mg	ml
			mg	mg	mg	ml
			mg	mg	mg	ml
			mg	mg	mg	ml
			mg	mg	mg	ml
			mg	mg	mg	ml
			mg	mg	mg	ml
			mg	mg	mg	ml
			mg	mg	mg	ml
			mg	mg	mg	ml
			mg	mg	mg	ml

ANALYZED BY: Mlh

REVEIWED BY:

page 1 of 1

EBT

DATA CHEM LABORATORIES

A SORENSON COMPANY

TEST REPORT
Page 1 of 2
9/6/00

Submitted To:
Pete Hilty
FBT Testing & Environmental Services
7419 Kingsgate Way, Suite D
West Chester, OH
45069

Reference Data:	SO_2
Sample Location:	Newport Steel 531
Sample Type:	Liquid
Client Sample No.:	591-6 through 591-10
PO #:	00-055
Method Reference:	EPA Method 6
Sample Set ID#:	00-W-4623
DATACHEM Lab No.:	00-27029 through 00-27033
Analysis Date:	9/6/00

The samples were analyzed in accordance with EPA method 6.

The results are provided in the enclosed data table

Results relate only to the items tested.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Rob Nieman
Analyst

Reviewer

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 200-0071, FAX 415 893 9469

SO_2 Results

Client #	DCL #	Sampler Vol. (mL)	Aliquot Vol. (mL)	Titrant Normality	Sample Titrant (mL)
591-6	00-27029	98.5	20	0.0100	0.1
591-7	00-27030	95.5	20	0.0100	0.1
591-8	00-27031	62.	20	0.0100	0.2
591-9	00-27032	65.	20	0.0100	0.1
591-10	00-27033	81.	20	0.0100	0.1

Note: Sample titrant used for prep blank = 0.1 mL.

Rob Nieman
Analyst

Reviewer

00-WW-4623

ANALYTICAL REQUEST & CHAIN OF CUSTODY

FBT Testing & Environmental Services
7419 Kingsgate Way, Suite D
West Chester, Ohio 45069
(513)755-1717 Fax:(513) 755-1770

LABORATORY
Datachem Laboratories
4388 Glendale-MilfordRoad
Cincinnati, Ohio 45242-3706

DATE SHIPPED	# OF SAMPLES	SAMPLE TYPE	PROJECT NAME & NUMBER
August 22, 2000	10 (14)	Mixed	Newport Steel 591
PO# 00-055	CONTACT PERSON Pete Hilty		

COMMENTS/SPECIAL INSTRUCTIONS:	PRIORITY			SAMPLE RETURN	
	NORMAL	RUSH	EMERG RUSH	YES	NO
	XXX				XX

SAMPLE#	SAMPLE DATE	CONTAINER DESCRIPTION	ANALYSES REQUESTED
591-1A/B/C though 591-5A/C	8/15-17/00	Mixed	00-27024-27028 Lead by USEPA Method 12
591-6, 7, 8, 9, 10	8/15-17/00	250 ml HDPE	00-27029-33 SO_2 by USEPA Method 6

CHAIN OF CUSTODY REQUEST

SAMPLES DELIVERED BY: U.S. MAIL ___ FEDEX/UPS ___ COURIER _X_ OTHER ___.

DATE	PURPOSE FOR CUSTODY CHANGE	RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE)
August 22, 2000	Analysis	[signature]	[signature] DCL

FBT

DATA CHEM LABORATORIES
A SOHENSON COMPANY

Submitted To: **Fete** Hilty
FBT Testing & Environmental **Services**
7419 Kinqsgate Way, **Suite** D
West Chester, **OH** *45069*

Reference Data:	**Lead**
Client Sample **No.**:	591-1A/B/C through 591-5A/B/C
P.O. No.:	00-055
Sample Location:	**Newport Steel 591**
Sample Type:	**Filter** / Impinger / Rinse
Method **Reference:**	EPA Method 12
DCL Set **ID No.:**	00-S-4623
DCL **Sample ID No.:**	00-27024 through 00-27028
Sample Receipt Date:	3/23/2000
Preparation. Date:	09/08/00
Analysis Date:	09/15/00

The **samples** were **prepared and analyzed in** accordance **with EPA** method 12 usinq a Perkin Elmer 3000XL (ICP) purged spectrometer.

Results relate **only to** the items tested.

The results are in the enclosed **data** table.

This report **shall not be reproduced except** in full, without the written approval of the Laboratory.

Chris Baugues
Analyst.

Reviewer

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI OHIO 45242-3706
513 733-5336, FAX 513 733-5347

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280 8071, FAX 415 893 9469

Lead Results
µg/Sample

Client #	DCL #	Pb
591-1A/B/C	00-27024	49.
591-2A/B/C	00-27025	65.
591-3A/B/C	00-27026	38.
591-4A/B/C	00-27027	13.
591-5A/B/C	00-27028	ND
	Prep Blank	ND
% Recovery	LCS	91.
Reporting Limit		5.

ND indicates the value is below the Reporting Limit.

Chris Baugues
Analyst

Reviewer

00-WW-4623

ANALYTICAL REQUEST & CHAIN OF CUSTODY

FBT Testing & Environmental Services 7419 Kingsgate Way, Suite D West Chester, Ohio 45060 (513) 755-1717 Fax:(513) 755-1770	**LABORATORY** Datachem Laboratories 4388 Glendale-Milford Road Cincinnati, Ohio 45242-3706

DATE SHIPPED	# OF SAMPLES	SAMPLE TYPE	PROJECT NAME & NUMBER
August 22, 2000	10 (14)	Mixed	Newport Steel 591
PO# 00-055	CONTACT PERSON Pete Hilty		

COMMENTS/SPECIAL INSTRUCTIONS:	PRIORITY			SAMPLE RETURN	
	NORMAL	RUSH	EMERG RUSH	YES	NO
	XXX				XX

SAMPLE #	SAMPLE DATE	CONTAINER DESCRIPTION	ANALYSES REQUESTED
591-1A/B/C though 591-5A/C	8/15-17/00	Mixed	00-27024-27028 Lead by USEPA Method 12
591-6, 7, 8, 9, 10	8/15-17/00	250 ml HDPE	00-27029-33 SO_2 by USEPA Method 6

CHAIN OF CUSTODY REQUEST

SAMPLES DELIVERED BY: U.S. MAIL ___ FEDEX/UPS ___ COURIER _X_ OTHER ___

DATE	PURPOSE FOR CUSTODY CHANGE	RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE)
August 22, 2000	Analysis	[signature]	[signature] DCL

FBT

t..

APPENDIX F

CALIBRATION DATA

QUALITY ASSURANCE/QUALITY CONTROL

This section describes the specific QA/QC procedures employed by FBT in performing this series of tests. The goal of the QA/QC activities for this project are intended to ensure, to the highest degree possible, the accuracy of the data collected. The procedures contained in the "Quality Assurance Handbook for Air Pollution Measurement Systems," "Volume III, Stationary Source Specific Methods," EPA-600/77-027B serve as the basis for performance for all testing and related work activities.

CALIBRATION OF APPARATUS:

The preparation and calibration of source sampling equipment is essential in maintaining data quality. Brief descriptions of the calibration procedures used by FBT follow:

Barometers

FBT uses aneroid barometers which are calibrated against a National Weather Service-Type mercurial barometer.

Temperature Sensors

Bimetallic dial thermometers and Type "K" thermocouples are calibrated using the procedure described in Section 3.4.2 of the Quality Assurance Handbook. Each temperature sensor is calibrated over the expected range of use against an ASTM 3C or 3F thermometer.

Pitot Tubes

FBT uses Type "S" pitot tubes which are constructed according to EPA Method 2 specifications. Pitot tubes meeting these criteria are assigned a baseline coefficient of 0.84 and need not be calibrated.

Differential Pressure Gauges

FBT uses Dwyer inclined/vertical manometers to measure differential pressures. These include velocity pressure, static pressure, and meter orifice pressure. Manometers are selected with sufficient sensitivity to accurately measure pressures over the entire range of expected values. Manometers are primary standards and require no calibration.

Dry Gas Meters and Orifices

Dry gas meters and orifices are calibrated in accordance with Section 3.3.2 of the Quality Assurance Handbook. This procedure involves direct comparison of the dry gas meter to a reference wet test meter. The reference wet test meter is routinely calibrated against a bell prover. Before its initial use in the field, the metering system is calibrated over the entire range of operation. After each field use, the metering system is calibrated at a single intermediate setting based on the previous field test. Acceptable tolerances for the initial and final dry gas meter factors and orifice calibration factious are $\pm$ 0.02 and $\pm$ 0.20 from average, respectively.

QA/QC (cont.)

THE ON-SITE QA/QC ACTIVITIES INCLUDED:

Measurement Sites

Prior to sampling, all measurements were checked dimensionally to determine measurement site locations, location of test ports, and stack inside dimensions. Inside dimensions were checked through all available rest ports to ensure uniformity of the stack cross-sectional area.

Velocity Measurements

All velocity measurement apparatus was assembled, leveled, zeroed, and leak checked prior to each test run. The static pressure was determined at a single point near the center of the stack .

Flue Gas Component Sampling

During sampling, Fyrite combustion gas analyzers were used to determine percent concentrations of carbon dioxide and oxygen.

Moisture

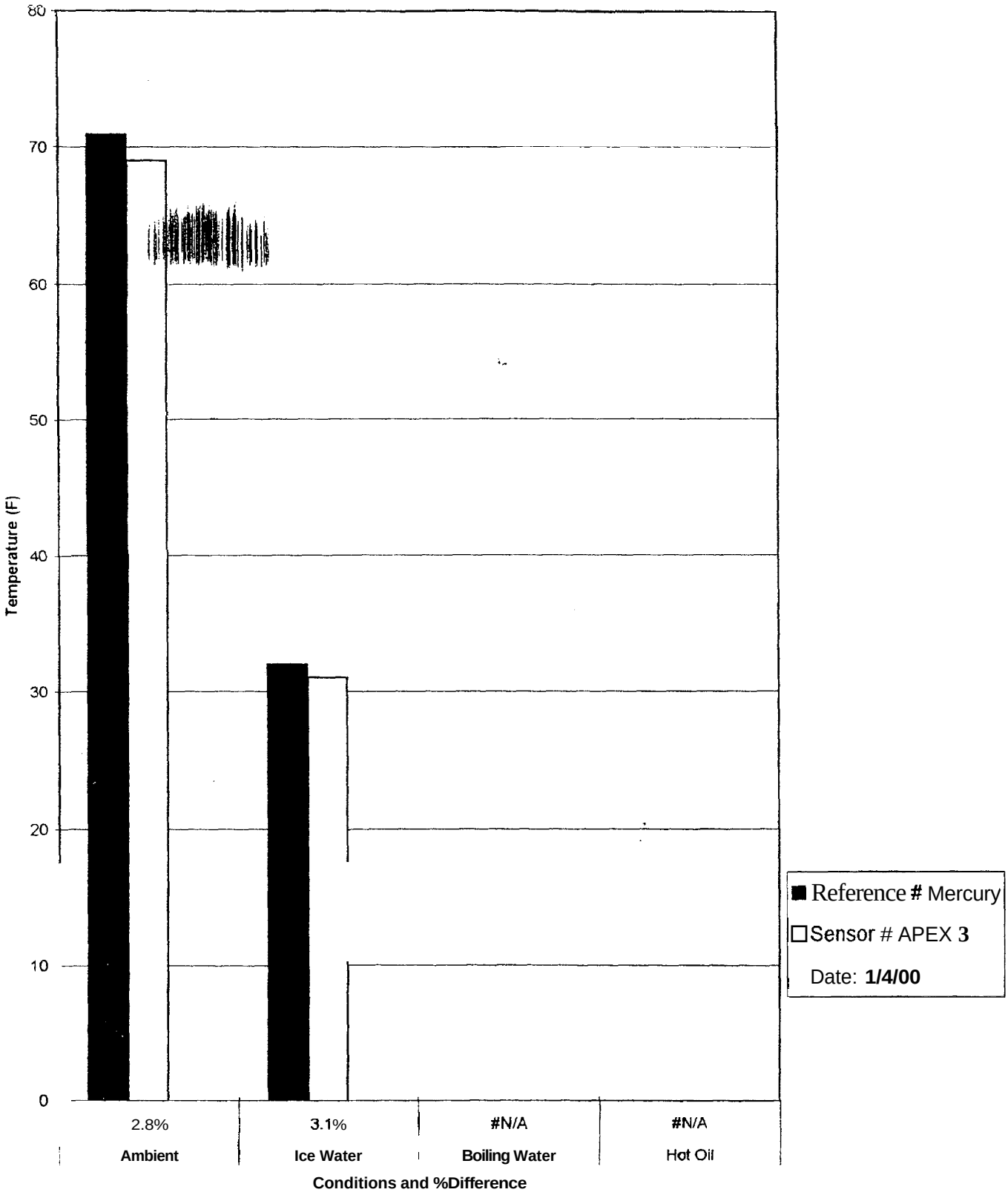
Stack gas moisture was determined simultaneously with particulate matter. During sampling, the exit gas of the last impinger was maintained below 68°F to ensure complete condensation of the stack gas water vapor. The total moisture was determined gravimetrically.

Sample Trains

The sample trains were assembled, equilibrated to required temperatures and leak checked prior to testing. The nozzle size was determined in the field by making triplicate measurements along three different diameters using a dial caliper. The three measurements must vary no more than 0.004 inches between the high and low numbers.

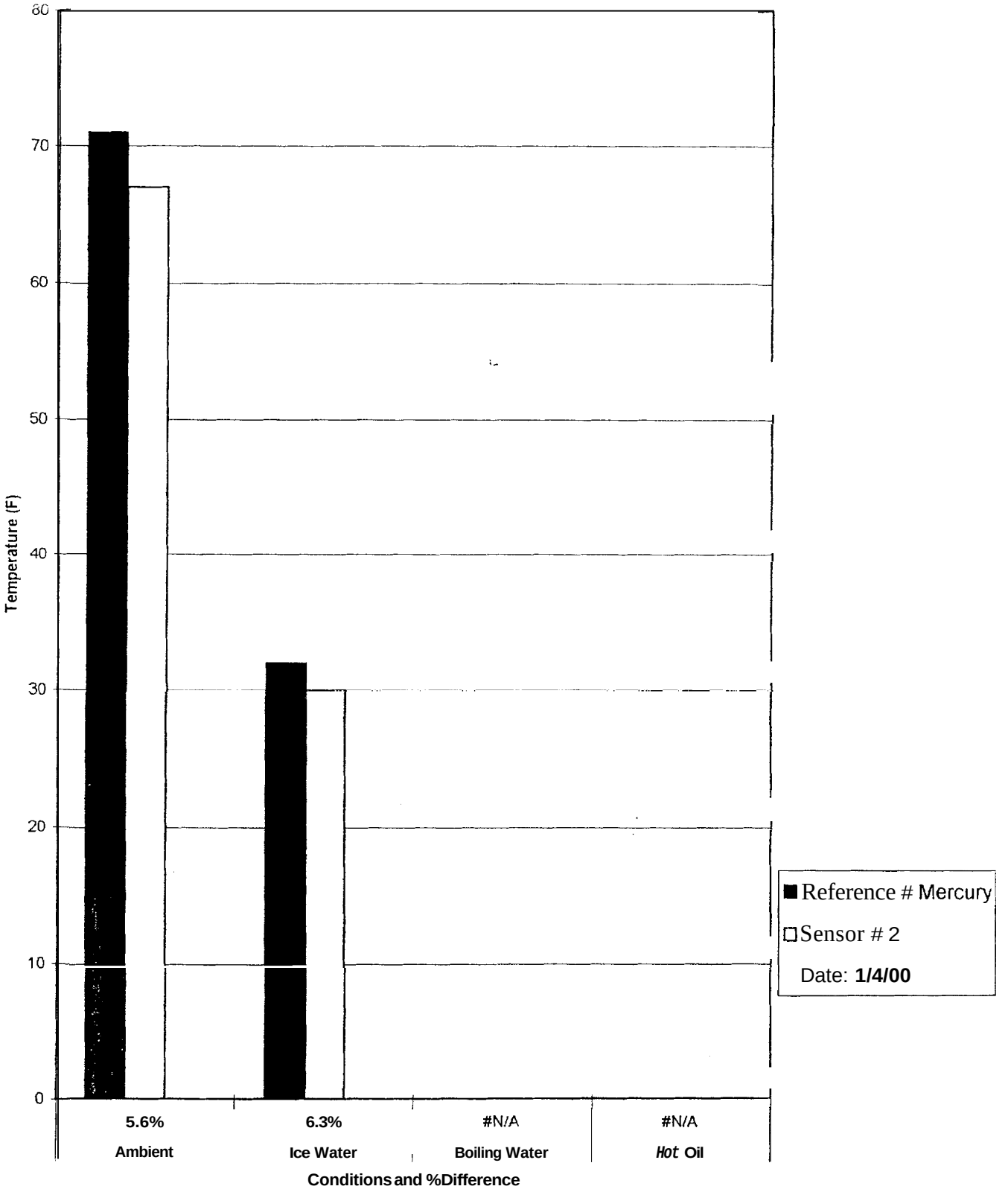
At the conclusion of each test run, the sample trains were leak checked at the highest vacuum attained during the test run. Acceptable leakage rates are 0.02 cfm or 4 percent of the average sampling rate (whichever is less).

TEMPERATURE SENSOR CALIBRATION



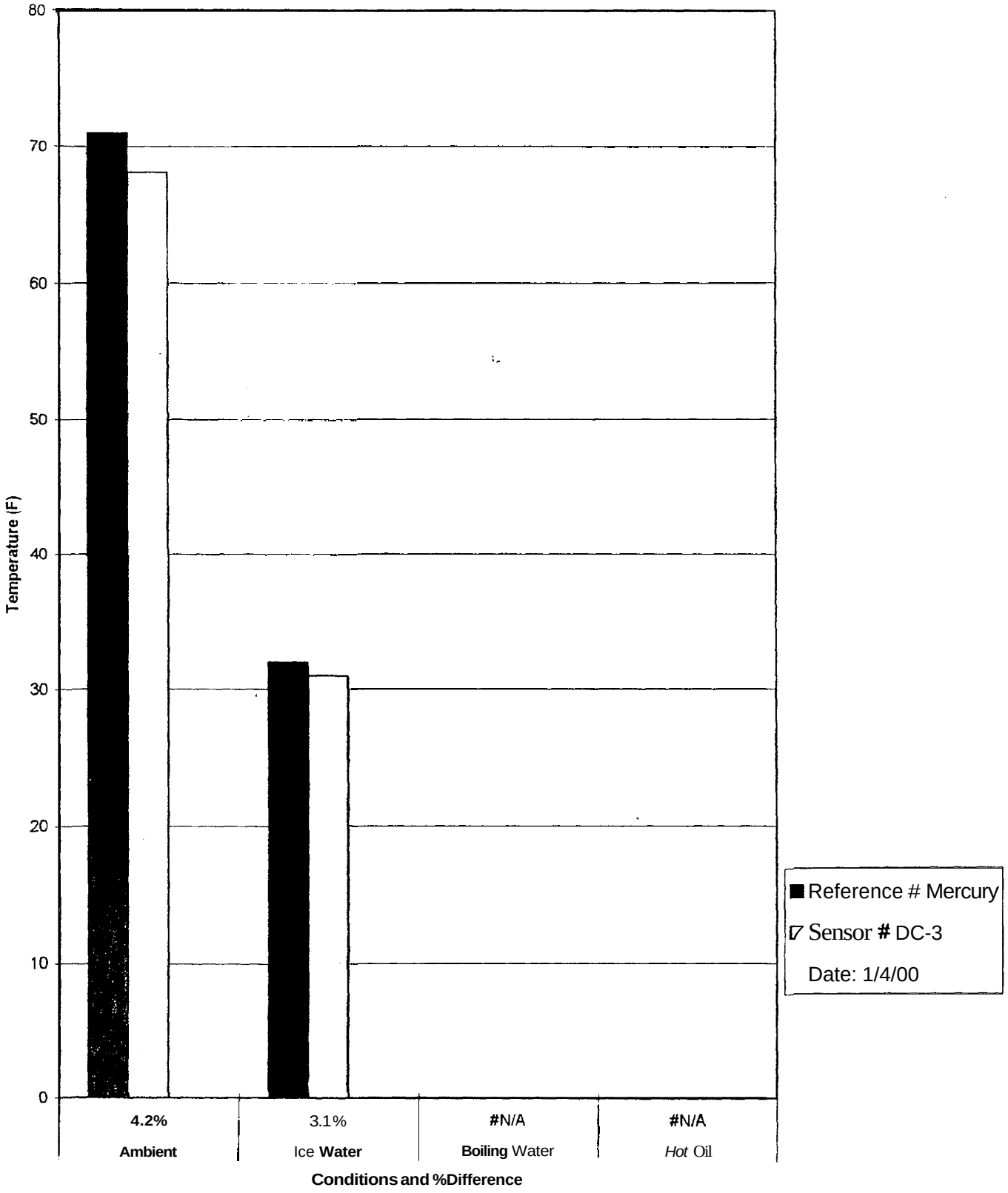
FBT

TEMPERATURE SENSOR CALIBRATION



FBT

TEMPERATURE SENSOR CALIBRATION



FBT

1ETHOD 5 DRY GAS METER CALIBRATION USING CRITICAL ORIFICES

1) Select three critical orifices to calibrate the dry gas meter which bracket the expected operating range.
2) Record barometric pressure before and after calibration procedure.
3) Run at tested vacuum (from Orifice Calibration Report), for a period of lime necessary to achieve a minimum total volume of 5 cubic feet.

CLIENT: Newport Steel
DATE: 8/31/00
W E R **BOX #:** Apex 3
PERSON: Hilty
INITIAL Y: 02931
INITIAL **ΔH@:** 1.723

CRITICAL ORIFICE SET **SERIAL #:** 1355

BAROMETRIC PRESSURE (in Hg): 29.6

RIFICE #	RUN #	K' FACTOR (AVG)	TESTED VACUUM (In Hg)	DGM READINGS (FT^3) INITIAL	DGM READINGS (FT^3) FINAL	DGM READINGS (FT^3) NET (V_m)	TEMPERATURES °F AMBIENT	DGM INLET INITIAL	DGM INLET FINAL	W M OUTLET INITIAL	W M OUTLET FINAL	DGM AVG	ELAPSED TIME (MIN) θ	DGM AH (in H_2O)	(1) V_m (STD)	(2) V_{cr} (STD)	(3) Y	Y VARIATION (%)	$\Delta H_@$
24	1	0.6396	20	933.450	941.563	8.113	68	70	70	72	72	71	9.50	2.2	8.0260	7.8295	0.9755		1.8024
24	2	0.6396	20	941.563	949.555	7.992	68	70	70	72	72	71	9.50	2.2	7.9063	7.8295	0.9903		1.8024
																AVG =	0.9829	-1.03	
30	1	0.829	20	949.555	959.231	9.676	69	72	74	72	74	73	9.00	3.7	9.5716	9.6048	1.0035		1.8077
30	2	0.829	20	959.231	968.904	9.673	69	72	74	72	74	73	9.00	3.7	9.5686	9.6048	1.0038		1.8077
																AVG =	1.0036	1.06	
	1					.0						0			0.0	0.0	#DIV/0!		#DIV/0!
	2					.0						0			0.0	0.0	#DIV/0!		#DIV/0!
																AVG =	#DIV/0!	#DIV/0!	

SING THE CRITICAL ORIFICES AS CALIBRATION STANDARDS:
ıe following equations are used to calculate the standard volumes of air passed through the DGM. V_m (std), and the critical ifice, V_{cr} (std), *end* the DGM calibration factor, Y These equations are automatically calculated in the spreadsheet above

AVERAGE **DRY** GAS METER CALIBRATION FACTOR, Y =
PRE-TESTIPOST-TEST MUST BE ≤ 5.00%= **0.02%**

AVERAGE $\Delta H_@$ = **#DIV/0!**

(1) $V_m(std) = K_1 V_m \frac{P_{bar} + (AH113.6)}{T_m}$ = Net volume of gas sample passed through DGM, corrected to standard conditions

K_1 = 17 64 °R/in. Hg (English),0.3858 °K/mm Hg (Metric)

T_m = Absolute DGM avg temperature (°R - English, °K - Metric)

$$\Delta H_@ = \frac{0.75\,\theta}{V_{cr}(std)}^{2} \Delta H \frac{V_m(std)}{V_m}$$

(2) $V_{cr}(std) = K' \sqrt{\frac{P_{bar}\,\theta}{T_{amb}}}$ = Volume of gas sample passed through the critical orifice, corrected to standard conditions

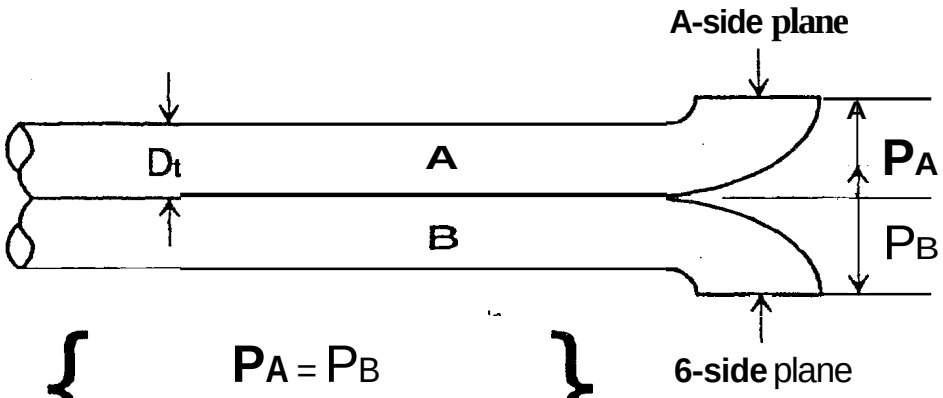
T_{amb} = Absolute ambient temperature (°R - English, °K - Metric)

K' = Average K' factor from Critical Orifice Calibration

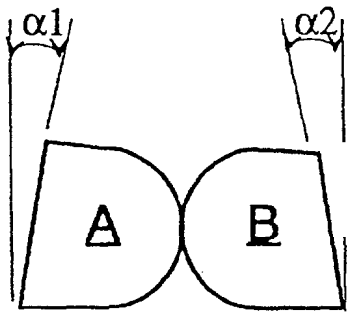
(3) $Y = \frac{V_{cr}(std)}{V_m(std)}$ = DGM calibration factor

S-type Pitot Tube Calibration

Identification: 1
Performed by: BW
Date: 1/4/00

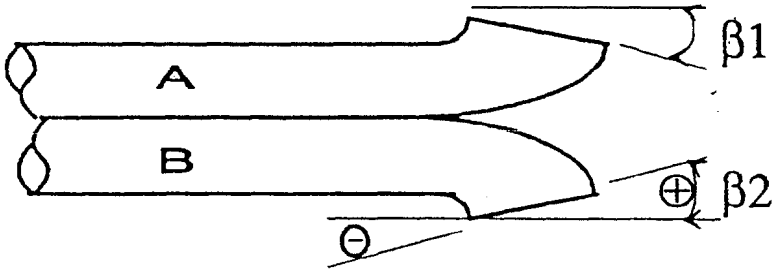


$$\left\{ \begin{array}{c} P_A = P_B \\ 1.05D_t \le P \le 1.50D_t \end{array} \right\}$$



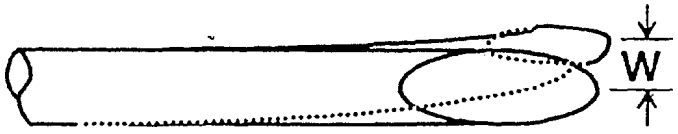
α1 = 0 °

α2 = 1 °



β 1= 1 °

β 2= 0 °

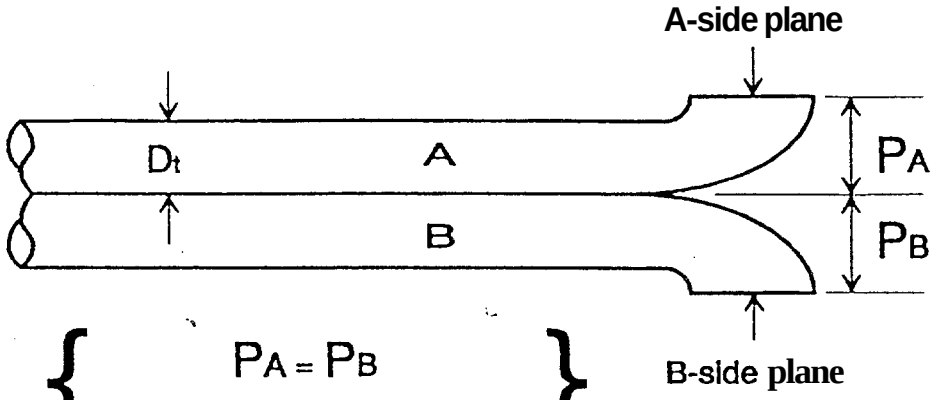


W = 0 in.

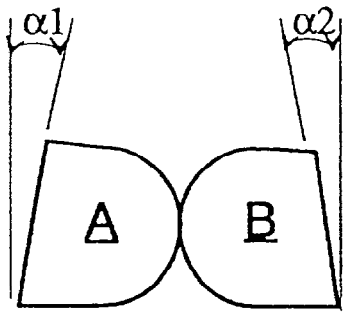
FBT

S-type Pitot Tube Calibration

Identification: 3
Performed by: BW
Date: 1/4/10

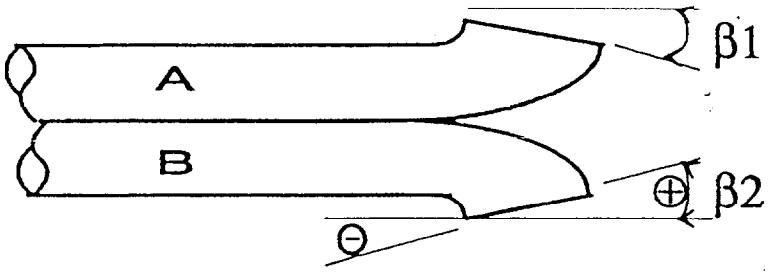


$$\left\{ \begin{array}{c} P_A = P_B \\ 1.05D_t \le P \le 1.50D_t \end{array} \right\}$$



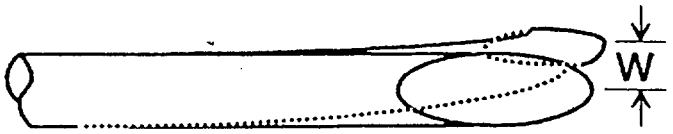
α1 = 1 °

α2 = 0 °



β 1= 0 °

β 2= 0 °



W = 6 in.

FBT

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: FBT Testing & Environmental Services
SGI ORDER # : 152093
ITEM# : 3
P.O.# : 00-019

CYLINDER # : CC106973
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 3/22/2000
EXPIRATION DATE: 3/22/2002

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	311412000 3/22/2000	89.13 ppm 89.51 ppm	89.3 ppm	+/- 1%
NOx			89.5 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	NTRM-81684	CC79981	98.6 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	Nicolet 560	ADL9600109	FTIR	311512000

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

ANALYST: FC.
FRED PIKULA

DATE: 3/22/2000

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: FBT Testing & Environmental Services
SGI ORDER # : 142269
ITEM# : 5
P.O.# : 99-029

CYLINDER # : CC88515
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 5/12/99
EXPIRATION DATE: 5/12/2001

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	5/4/99 5/12/99	92.03 ppm 91.03 ppm	91.5 ppm	+/- 1%
NOx			91.6 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	GMIS-1	CC79984	98.6 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	Teco 10	1OAR-34979-249	Cheml	5/12/99

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

ANALYST: FRED PIKULA

DATE: 5/12/99

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: FBT Testing & Environmental Services
SGI ORDER # : 139857
ITEM# : 4
P.O.# : 99-005

CYLINDER # : CC106772
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 2/22/99
EXPIRATION DATE: 2/22/2001

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	**ANALYTICAL ACCURACY**
Nitric Oxide	2/12/99 2/22/99	200.3 ppm 199.8 ppm	200 pprn	+/- 1%
NOx			200 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	**SRM/NTRM#**	**CYLINDER#**	CONCENTRATION
Nitric Oxide	NTRM-81685	LL2994	245.2 ppm

INSTRUMENTATION

COMPONENT	**MAKE/MODEL**	SERIAL #	DETECTOR	CALIBRATION **DATE(S)**
Nitric Oxide	Teco 10	10AR-34979-249	Cheml	2/5/99

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

ANALYST: FP.
FRED **PIKULA**

DATE: 2/22/99

SPECTRA GASES

3434 Route 22 West • Branchburg, NJ 08876 USA Tel: (908) 252-9303 • (800) 932-0624 • Fax: (908) 252-0811

SHIPPED FROM: 80 INDUSTRIAL DRIVE ALPHA, NJ. 08865 TEL: (908) 454-7455

SHIPPED TO: **FBT Testing** & **Environmental Services**
7419 **Kingsgate** Way
West Chester, OH 45069

CERTIFICATE OF ANALYSIS

SGI ORDER # :	152093		
ITEM# :	1	**CYLINDER # :**	CC113935
CERTIFICATION DATE:	3/22/2000	**CYLINDER PRES:**	2000 psig
P.O.# :	00-019	**CYLINDER VALVE:**	CGA 350
BLEND TYPE:	**CERTIFIED**		

ANALYTICAL ACCURACY: + / - 2%

COMPONENT	REQUESTED GAS CONC	ANALYSIS
Carbon Monoxide	100 ppm	102 ppm
Carbon Dioxide	15.0 %	15.0 %
Nitrogen	Balance	Balance

ANALYST: _____ **DATE:** 3/22/2000
Fred **Pikula**

SPECTRA GASES

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 TEL: (908) 454-7455

SHIPPED TO: FBT Testing & Environmental Services
7419 Kingsgate Way
West Chester. OH 45069

CERTIFICATE OF ANALYSIS

SGI ORDER # :	145753		
ITEM# :	1	**CYLINDER # :**	CC90794
CERTIFICATION DATE:	8/25/99	**CYLINDER PRES:**	2000 psig
P.O.# :	99-057	**CYLINDER VALVE:**	CGA 350
BLEND TYPE:	**CERTIFIED**		

ANALYTICAL ACCURACY: + / - *2%*

COMPONENT	REQUESTED GAS CONC	ANALYSIS
Carbon Monoxide	50.0 ppm	51.0 ppm
Carbon Dioxide	15.0 %	15.1 %
Nitrogen	Balance	Balance

ANALYST: _____
Fred Pikula

DATE: 8/25/99

CLIENT: Newport Steel
SAMPLE LOCATION: EAF-Brandt Baghouse

RUN #:	1	2	3	4	5	6
Reference Method Data						
DATE:	08/15/00	08/15/00	08/16/00	08/16/00		
TIME:	0814-1300	1345-1659	0754-1214	1309-1509		
CO, ppmv	55.28	93.73	118.93	96.00	5.48	5.15
ppm NOx :	8.86	8.14	9.11	10.30	8.14	4.07
lb/MMbtu						
CEMS Data						
CO, ppmv	59.51	114.90	142.77	85.87	5 35	4 99
pprn NOx	10 67	9.83	6.85	11.06	9.50	6.90
lb/MMbtu	53.000	95 000	114.000	53.000	95.000	114.000

RUN #:	7	8	9	10	11	12
Reference Method Data						
DATE:						
TIME:						
CO, pprnv	59.06	5.14	5.14	4.99	4.87	5.02
ppm NOx :	10.67	8.14	4.07	8.86	8.14	4.07
lb/MMbtu	55.280	93.730	118.930	55.280	93.730	118.930
CEMS Data						
% O_2 :	5.08	5.05	5.05	4.92	4.86	5.07
pprn NOx :	9.80	9.50	6.90	9.80	9.50	6.90
lb/MMbtu						

FBT

Plant: Newport Steel
Location: Baghouse Inlet
Operator: P. Hilty
Date/Time: 8/15/00 14:02:15
Final System Bias Check for Run 1

Analyte	O2	SO2	NOx	CO2	CO
Units	%	ppm	ppm	%	ppm
Range	25	1000	100	20	200
Zero Gas Value	0	0	0	0	0
Calibration Zero	0.022	0.3	0.81	-0.267	-5.5
Final Bias Zero Avg	-0.086	-1.9	1.77	-0.301	-10
Zero Bias%	-0.3	-0.2	1.8	-1.5	-5.0
Zero Drift%	0.2	0.2	-1.1	0.4	4.0
Span Gas Value	20.9	400	50.5	8	50
Calibration Span	20.896	393.3	50.15	8.016	46.1
Final Bias Span Avg	20.824	399	51.43	7.992	39.5
Span Bias%	-0.3	-0.1	0.9	0.0	-5
Span Drift%	0.3	-0.7	-1.5	0.1	3.8
Initial Bias Zero	-0.032	0.2	0.69	-0.219	-2.1
Initial Bias Span	20.903	392.4	49.91	8.014	47.1
Run Avg	20.54	-1.43	9.9	0.07	48.51
Co	-0.059	-0.850	1.23	-0.26	-6.05
Cm	20.864	395.700	50.670	8.003	43.300
Correct Avg	**20.58**	-0.59	***8.86***	**0.32**	**55.28**

Plant: Newport Steel
Location: Baghouse Inlet
Operator: P. Hilty
Date/Time: 8/15/00
Final System Bias Check for Run 2

Analyte	O2	SO2	NOx	CO2	CO
Units	%	ppm	ppm	%	ppm
Range	25	1000	100	20	200
Zero Gas Value	0	0	0	0	0
Calibration Zero	0.022	0.3	0.81	-0.267	-5.5
Final Bias Zero Avg	-0.104	-3.3	2.67	-0.101	-4.2
Zero Bias%	-0.4	-0.3	2.7	-0.5	-2.1
Zero Drift%	0.1	0.1	-0.9	-1.0	2.1
Span Gas Value	20.9	400	50.5	8	50
Calibration Span	20.896	393.3	50.15	8.016	46.1
Final Bias Span Avg	20.769	390.3	50.22	7.918	46.1
Span Bias%	-0.5	-1.0	-0.3	-0.4	-2
Span Drift%	0.2	0.9	1.2	0.4	0.4
Initial Bias Zero	-0.086	-1.9	1.77	-0.301	0
Initial Bias Span	20.824	399	51.43	7.992	47
Run Avg	20.58		10.05	0.24	89.1
Co	-0.095	-2.600	2.22	-0.201	-2.1
Cm	20.797	394.650	50.825	7.955	46.550
Correct Avg	***20.68***	***2.62***	***8.14***	**0.43**	93.73

FBT

Plant: Newport Steel
Location: Baghouse Inlet
Operator: P. Hilty
Date/Time: 8/16/00
Final System Bias Check for Run 3

Analyte	O2	SO2	NOx	co2	CO
Units	%	ppm	ppm	%	ppm
Range	25	1000	100	20	200
Zero Gas Value	0	0	0	0	0
Calibration Zero	0.022	0.3	0.81	-0.267	-5.5
Final Bias Zero Avg	-0.254		-0.79	0.016	2.2
Zero Bias%	-1.0	0.0	-0.8	0.1	1.1
Zero Drift%	0.6	-0.3	3.5	-0.6	-3.2
Span Gas Value	20.9	400	50.5	8	50
Calibration Span	20.896	393.3	50.15	8.016	46.1
Final Bias Span Avg	20.864		49.85	7.971	52.8
Span Bias%	-0.1	-40.0	-0.6	-0.1	1
Span Drift%	-0.4	39.0	0.4	-0.3	-3.4
Initial Bias Zero	-0.104	-3.3	2.67	-0.101	-4.2
Initial Bias Span	20.769	390.3	50.22	7.918	46.1
Run Avg	20.343		9.8	0.3	119
Co	-0.179	-1.650	0.94	-0.0425	-1
Cm	20.817	195.150	50.035	7.945	49.450
Correct Avg	**20.43**	**3.35**	**9.11**	**0.34**	**118.93**

Plant: Newport Steel
Location: Baghouse Inlet
Operator: P. Hilty
Date/Time: 8/16/00 1309-1509
Final System Bias Check for Run 4

Analyte	O2	SO2	NOx	co2	CO
Units	%	ppm	ppm	%	ppm
Range	25	1000	100	20	200
Zero Gas Value	0	0	0	0	0
Calibration Zero	0.022	0.3	0.81	-0.267	-5.5
Final Bias Zero Avg	-0.256		-0.16	0.077	0
Zero Bias%	-1.0	0.0	-0.2	0.4	0.0
Zero Drift%	0.0	0.0	-0.6	-0.3	1.1
Span Gas Value	20.9	400	50.5	8	50
Calibration Span	20.896	393.3	50.15	8.016	46.1
Final Bias Span Avg	20.79		51.04	8	52.2
Span Bias%	-0.4	-40.0	0.5	0.0	1
Span Drift%	0.3	0.0	-1.2	-0.1	0.3
Initial Bias Zero	-0.254	0	-0.79	0.016	2.2
Initial Bias Span	20.864	0	49.85	7.971	52.8
Run Avg	20.58		9.91	0.42	99.79
Co	-0.255	0.000	-0.475	0.0465	1.1
Cm	20.827	0.000	50.445	7.986	52.500
Correct Avg	**20.66**	**#DIV/0!**	**10.30**	**0.38**	**96.00**

FBT

CEMS CO Data	RUN 1	CEMS Nox Data	Run 1
8/15/00 8:14	10.5	8/15/00 8:14	27.66
8/15/00 8:15	8.5	8/15/00 8:15	25.32
8/15/00 8:16	13	8/15/00 8:16	22.29
8/15/00 8:17	11.2	8/15/00 8:17	16.83
8/15/00 8:18	10.3	8/15/00 8:18	14.68
8/15/00 8:19	25.6	8/15/00 8:19	15.17
8/15/00 8:20	12.4	8/15/00 8:20	13.84
8/15/00 8:21	8.8	8/15/00 8:21	13.11
8/15/00 8:22	7.3	8/15/00 8:22	12.59
8/15/00 8:23	8.3	8/15/00 8:23	11.06
8/15/00 8:24	9.3	8/15/00 8:24	8.75
8/15/00 8:25	10.8	8/15/00 8:25	3.21
8/15/00 8:26	11.3	8/15/00 8:26	1.99
8/15/00 8:27	10.4	8/15/00 8:27	1.92
8/15/00 8:28	10.3	8/15/00 8:28	1.8
8/15/00 8:29	10.3	8/15/00 8:29	1.88
8/15/00 8:30	10.3	8/15/00 8:30	1.68
8/15/00 8:31	27.1	8/15/00 8:31	1.93
8/15/00 8:32	38.1	8/15/00 8:32	5.25
8/15/00 8:33	33.4	8/15/00 8:33	15.71
8/15/00 8:34	18.8	8/15/00 8:34	6.74
8/15/00 8:35	14.3	8/15/00 8:35	7.07
8/15/00 8:36	17.1	8/15/00 8:36	6.93
8/15/00 8:37	32.5	8/15/00 8:37	6.94
8/15/00 8:38	57.7	8/15/00 8:38	6.28
8/15/00 8:39	91.1	8/15/00 8:39	5.75
8/15/00 8:40	203.8	8/15/00 8:40	5.15
8/15/00 8:41	221.6	8/15/00 8:41	3.76
8/15/00 8:42	299.7	8/15/00 8:42	2.77
8/15/00 8:43	318.4	8/15/00 8:43	2.6
8/15/00 8:44	186.1	8/15/00 8:44	2.75
8/15/00 8:45	116.3	8/15/00 8:45	5.18
8/15/00 8:46	106	8/15/00 8:46	5.26
8/15/00 8:47	105.5	8/15/00 8:47	2.79
8/15/00 8:48	77.4	8/15/00 8:48	10.08
8/15/00 8:49	28.5	8/15/00 8:49	15.63
8/15/00 8:50	28.1	8/15/00 8:50	7.81
8/15/00 8:51	24.1	8/15/00 8:51	6.91
8/15/00 8:52	28.2	8/15/00 8:52	7.59
8/15/00 8:53	31.7	8/15/00 8:53	7.99
8/15/00 8:54	36.8	8/15/00 8:54	6.96
8/15/00 8:55	68.8	8/15/00 8:55	7.06
8/15/00 8:56	170.2	8/15/00 8:56	6.15
8/15/00 8:57	141	8/15/00 8:57	5.49
8/15/00 8:58	197.8	8/15/00 8:58	3.86
8/15/00 8:59	176.3	8/15/00 8:59	3.15

8/15/00 9:00	193.2
8/15/00 9:01	157
8/15/00 9:02	134.7
8/15/00 9:03	126.7
8/15/00 9:04	114.8
8/15/00 9:05	96.4
8/15/00 9:06	89.4
8/15/00 9:07	94
8/15/00 9:08	76
8/15/00 9:09	68.3
8/15/00 9:10	21.7
8/15/00 9:11	9.4
8/15/00 9:12	17.7
8/15/00 9:13	36.4
8/15/00 9:14	24.3
8/15/00 9:15	24.1
8/15/00 9:16	22.9
8/15/00 9:17	23.7
8/15/00 9:18	36
8/15/00 9:19	24.5
8/15/00 9:20	44.6
8/15/00 9:21	18.5
8/15/00 9:22	6.8
8/15/00 9:23	6.9
8/15/00 9:24	8.5
8/15/00 9:25	12.4
8/15/00 9:26	7.4
8/15/00 9:27	6.3
8/15/00 9:28	6.3
8/15/00 9:29	5.7
8/15/00 9:30	5.3
8/15/00 9:31	5.3
8/15/00 9:32	5.3
8/15/00 9:33	5.3
8/15/00 9:34	5.3
8/15/00 9:35	5.3
8/15/00 9:36	5.3
8/15/00 9:37	5.3
8/15/00 9:38	5.3
8/15/00 9:39	5.4
8/15/00 9:40	12
8/15/00 9:41	15.5
8/15/00 9:42	7.6
8/15/00 9:43	6.8
8/15/00 9:44	18.7
8/15/00 9:45	9.6
8/15/00 9:46	6.4

8/15/00 9:00	2.75
8/15/00 9:01	1.96
8/15/00 9:02	2.34
8/15/00 9:03	1.65
8/15/00 9:04	1.68
8/15/00 9:05	1.77
8/15/00 9:06	2.3
8/15/00 9:07	5.32
8/15/00 9:08	8.11
8/15/00 9:09	8.4
8/15/00 9:10	16.02
8/15/00 9:11	22.27
8/15/00 9:12	20.39
8/15/00 9:13	11.32
8/15/00 9:14	8.9
8/15/00 9:15	11.54
8/15/00 9:16	10.81
8/15/00 9:17	9.41
8/15/00 9:18	6.79
8/15/00 9:19	5.93
8/15/00 9:20	5.42
8/15/00 9:21	9.68
8/15/00 9:22	17.56
8/15/00 9:23	14.1
8/15/00 9:24	18.68
8/15/00 9:25	18.32
8/15/00 9:26	18.17
8/15/00 9:27	16.71
8/15/00 9:28	14.32
8/15/00 9:29	12.71
8/15/00 9:30	10.09
8/15/00 9:31	10
8/15/00 9:32	9.76
8/15/00 9:33	11.81
8/15/00 9:34	12.64
8/15/00 9:35	8.65
8/15/00 9:36	8.49
8/15/00 9:37	10.04
8/15/00 9:38	9.18
8/15/00 9:39	15.12
8/15/00 9:40	30.03
8/15/00 9:41	12.42
8/15/00 9:42	14.76
8/15/00 9:43	30.28
8/15/00 9:44	24.12
8/15/00 9:45	13.45
8/15/00 9:46	23.66

8/15/00	9:47	8.1	8/15/00	9:47	15.88
8/15/00	9:48	16.6	8/15/00	9:48	11.66
8/15/00	9:49	17.2	8/15/00	9:49	12.11
8/15/00	9:50	8.5	8/15/00	9:50	19.29
8/15/00	9:51	8.1	8/15/00	9:51	17.05
8/15/00	9:52	9	8/15/00	9:52	15.82
8/15/00	9:53	10	8/15/00	9:53	14.67
8/15/00	9:54	9.4	8/15/00	9:54	14.12
8/15/00	9:55	11.7	8/15/00	9:55	14.06
8/15/00	9:56	11.3	8/15/00	9:56	11.35
8/15/00	9:57	11.3	8/15/00	9:57	3.05
8/15/00	9:58	11.3	8/15/00	9:58	1.2
8/15/00	9:59	11.3	8/15/00	9:59	1.18
8/15/00	10:00	11.3	8/15/00	10:00	1.28
8/15/00	10:01	11.3	8/15/00	10:01	1.31
8/15/00	10:02	11	8/15/00	10:02	1.2
8/15/00	10:03	10.6	8/15/00	10:03	1.1
8/15/00	10:04	10.6	8/15/00	10:04	1.23
8/15/00	10:05	11.7	8/15/00	10:05	1.33
8/15/00	10:06	12.4	8/15/00	10:06	1.49
8/15/00	10:07	12.7	8/15/00	10:07	1.69
8/15/00	10:08	22.3	8/15/00	10:08	2.07
8/15/00	10:09	56.6	8/15/00	10:09	2.8
8/15/00	10:10	44	8/15/00	10:10	18.2
8/15/00	10:11	31.1	8/15/00	10:11	16.89
8/15/00	10:12	52.1	8/15/00	10:12	4.1
8/15/00	10:13	55.6	8/15/00	10:13	3.28
8/15/00	10:14	62.5	8/15/00	10:14	3.3
8/15/00	10:15	79.7	8/15/00	10:15	3.6
8/15/00	10:16	72	8/15/00	10:16	3.4
8/15/00	10:17	74.9	8/15/00	10:17	3.53
8/15/00	10:18	54.2	8/15/00	10:18	4.03
8/15/00	10:19	84.3	8/15/00	10:19	6.11
8/15/00	10:20	70.9	8/15/00	10:20	9.02
8/15/00	10:21	44.8	8/15/00	10:21	10.07
8/15/00	10:22	32.6	8/15/00	10:22	13.89
8/15/00	10:23	20.5	8/15/00	10:23	7.48
8/15/00	10:24	12.3	8/15/00	10:24	3.31
8/15/00	10:25	12.1	8/15/00	10:25	2.9
8/15/00	10:26	14.7	8/15/00	10:26	2.83
8/15/00	10:27	15.5	8/15/00	10:27	2.68
8/15/00	10:28	15.8	8/15/00	10:28	7.7
8/15/00	10:29	25.3	8/15/00	10:29	26.4
8/15/00	10:30	36.6	8/15/00	10:30	14.9
8/15/00	10:31	52.8	8/15/00	10:31	7.94
8/15/00	10:32	48.6	8/15/00	10:32	9.1
8/15/00	10:33	48.8	8/15/00	10:33	12.39

8/15/00	10:34	18.3	8/15/00	10:34	6.26
8/15/00	10:35	35.8	8/15/00	10:35	2.35
8/15/00	10:36	101.4	8/15/00	10:36	2.18
8/15/00	10:37	65.6	8/15/00	10:37	5.67
8/15/00	10:38	20.2	8/15/00	10:38	4.99
8/15/00	10:39	14	8/15/00	10:39	5.17
8/15/00	10:40	21.5	8/15/00	10:40	4.76
8/15/00	10:41	34.4	8/15/00	10:41	3.99
8/15/00	10:42	52	8/15/00	10:42	3.83
8/15/00	10:43	79.2	8/15/00	10:43	3.73
8/15/00	10:44	118.3	8/15/00	10:44	3.53
8/15/00	10:45	126.8	8/15/00	10:45	3.43
8/15/00	10:46	199.9	8/15/00	10:46	3.4
8/15/00	10:47	249	8/15/00	10:47	2.74
8/15/00	10:48	268	8/15/00	10:48	2.27
8/15/00	10:49	284	8/15/00	10:49	2.01
8/15/00	10:50	207	8/15/00	10:50	2.42
8/15/00	10:51	148.7	8/15/00	10:51	3.32
8/15/00	10:52	111.2	8/15/00	10:52	2.51
8/15/00	10:53	54.1	8/15/00	10:53	1.65
8/15/00	10:54	43.4	8/15/00	10:54	1.96
8/15/00	10:55	18.5	8/15/00	10:55	6.84
8/15/00	10:56	9.5	8/15/00	10:56	12.46
8/15/00	10:57	5.9	8/15/00	10:57	32.1
8/15/00	10:58	8.1	8/15/00	10:58	42.56
8/15/00	10:59	7.8	8/15/00	10:59	35.9
8/15/00	11:00	7.4	8/15/00	11:00	28.26
8/15/00	11:01	11.3	8/15/00	11:01	24.68
8/15/00	11:02	22	8/15/00	11:02	13.44
8/15/00	11:03	576.9	8/15/00	11:03	6.03
8/15/00	11:04	223	8/15/00	11:04	3.78
8/15/00	11:05	147.3	8/15/00	11:05	4.25
8/15/00	11:06	118.2	8/15/00	11:06	11.05
8/15/00	11:07	58.6	8/15/00	11:07	22.38
8/15/00	11:08	52.3	8/15/00	11:08	11.09
8/15/00	11:09	21.1	8/15/00	11:09	17.51
8/15/00	11:10	11.4	8/15/00	11:10	21.23
8/15/00	11:11	9.3	8/15/00	11:11	19.64
8/15/00	11:12	11.1	8/15/00	11:12	22.51
8/15/00	11:13	13.8	8/15/00	11:13	26.3
8/15/00	11:14	13.5	8/15/00	11:14	21.28
8/15/00	11:15	14.2	8/15/00	11:15	11.52
8/15/00	11:16	9.7	8/15/00	11:16	19.17
8/15/00	11:17	13.4	8/15/00	11:17	16.07
8/15/00	11:18	10.2	8/15/00	11:18	26.17
8/15/00	11:19	6.8	8/15/00	11:19	28.04
8/15/00	11:20	6.1	8/15/00	11:20	20.41

8/15/00	11:21	5.8	8/15/00	11:21	11.7
8/15/00	11:22	5.8	8/15/00	11:22	10
8/15/00	11:23	5.3	8/15/00	11:23	11.48
8/15/00	11:24	5.3	8/15/00	11:24	17
8/15/00	11:25	5.3	8/15/00	11:25	19.54
8/15/00	11:26	5.3	8/15/00	11:26	20.12
8/15/00	11:27	5.3	8/15/00	11:27	17.62
8/15/00	11:28	5.3	8/15/00	11:28	11.68
8/15/00	11:29	5	8/15/00	11:29	9.92
8/15/00	11:30	4.3	8/15/00	11:30	10.92
8/15/00	11:31	4.3	8/15/00	11:31	11.85
8/15/00	11:32	4.3	8/15/00	11:32	12.62
8/15/00	11:33	4.3	8/15/00	11:33	12.94
8/15/00	11:34	4.5	8/15/00	11:34	12.46
8/15/00	11:35	4.3	8/15/00	11:35	13.57
8/15/00	11:36	4.3	8/15/00	11:36	17.52
8/15/00	11:37	6	8/15/00	11:37	17.94
8/15/00	11:38	12.6	8/15/00	11:38	12.16
8/15/00	11:39	5.8	8/15/00	11:39	12.07
8/15/00	11:40	5.3	8/15/00	11:40	15.84
8/15/00	11:41	5	8/15/00	11:41	15.85
8/15/00	11:42	5.8	8/15/00	11:42	15.14
8/15/00	11:43	7.6	8/15/00	11:43	14.06
8/15/00	11:44	6.3	8/15/00	11:44	12.94
8/15/00	11:45	14.5	8/15/00	11:45	12.78
8/15/00	11:46	9.5	8/15/00	11:46	10.93
8/15/00	11:47	7	8/15/00	11:47	10.37
8/15/00	11:48	6.1	8/15/00	11:48	10.03
8/15/00	11:49	5.3	8/15/00	11:49	9.56
8/15/00	11:50	11.6	8/15/00	11:50	7.39
8/15/00	11:51	49.4	8/15/00	11:51	7.63
8/15/00	11:52	72.5	8/15/00	11:52	6.51
8/15/00	11:53	71.1	8/15/00	11:53	5.8
8/15/00	11:54	96.3	8/15/00	11:54	5.35
8/15/00	11:55	131.6	8/15/00	11:55	5.08
8/15/00	11:56	149	8/15/00	11:56	4.52
8/15/00	11:57	162.6	8/15/00	11:57	5.05
8/15/00	11:58	223.9	8/15/00	11:58	5.23
8/15/00	11:59	284.3	8/15/00	11:59	4.12
8/15/00	12:00	195.1	8/15/00	12:00	3.07
8/15/00	12:01	128.7	8/15/00	12:01	1.36
8/15/00	12:02	243.8	8/15/00	12:02	1.93
8/15/00	12:03	285.7	8/15/00	12:03	1.42
8/15/00	12:04	352.7	8/15/00	12:04	1.67
8/15/00	12:05	370.5	8/15/00	12:05	2.84
8/15/00	12:06	212.5	8/15/00	12:06	9.58
8/15/00	12:07	73.4	8/15/00	12:07	16.34

8/15/00	12:08	40.9	8/15/00	12:08	9.89
8/15/00	12:09	112.7	8/15/00	12:09	5.74
8/15/00	12:10	92.2	8/15/00	12:10	5.78
8/15/00	12:11	37.8	8/15/00	12:11	6.23
8/15/00	12:12	49.5	8/15/00	12:12	5.84
8/15/00	12:13	153.1	8/15/00	12:13	4.98
8/15/00	12:14	349.3	8/15/00	12:14	4.45
8/15/00	12:15	284.8	8/15/00	12:15	4.21
8/15/00	12:16	281.9	8/15/00	12:16	3.78
8/15/00	12:17	301.5	8/15/00	12:17	3.33
8/15/00	12:18	201.3	8/15/00	12:18	9.01
8/15/00	12:19	193.8	8/15/00	12:19	12.16
8/15/00	12:20	381.6	8/15/00	12:20	9.67
8/15/00	12:21	371.7	8/15/00	12:21	15.86
8/15/00	12:22	275.4	8/15/00	12:22	23.25
8/15/00	12:23	156.3	8/15/00	12:23	22.31
8/15/00	12:24	40.9	8/15/00	12:24	18.71
8/15/00	12:25	16.7	8/15/00	12:25	13
8/15/00	12:26	30.5	8/15/00	12:26	10.08
8/15/00	12:27	87	8/15/00	12:27	6.86
8/15/00	12:28	37	8/15/00	12:28	15.11
8/15/00	12:29	32.2	8/15/00	12:29	16.52
8/15/00	12:30	25.3	8/15/00	12:30	15.12
8/15/00	12:31	20.9	8/15/00	12:31	11.75
8/15/00	12:32	17.5	8/15/00	12:32	15.46
8/15/00	12:33	17.4	8/15/00	12:33	17.47
8/15/00	12:34	21.6	8/15/00	12:34	17.09
8/15/00	12:35	23.1	8/15/00	12:35	6.74
8/15/00	12:36	12.3	8/15/00	12:36	5.57
8/15/00	12:37	9.9	8/15/00	12:37	6.96
8/15/00	12:38	6.7	8/15/00	12:38	16.39
8/15/00	12:39	7.9	8/15/00	12:39	26.53
8/15/00	12:40	5.2	8/15/00	12:40	20.11
8/15/00	12:41	5.5	8/15/00	12:41	15.77
8/15/00	12:42	6.9	8/15/00	12:42	18.99
8/15/00	12:43	5.3	8/15/00	12:43	26.79
8/15/00	12:44	4.5	8/15/00	12:44	18.73
8/15/00	12:45	4.9	8/15/00	12:45	15.88
8/15/00	12:46	3.6	8/15/00	12:46	13.32
8/15/00	12:47	4.2	8/15/00	12:47	12.17
8/15/00	12:48	4.3	8/15/00	12:48	12.04
8/15/00	12:49	4.3	8/15/00	12:49	13.71
8/15/00	12:50	4.8	8/15/00	12:50	18.33
8/15/00	12:51	4.6	8/15/00	12:51	12.98
8/15/00	12:52	4.3	8/15/00	12:52	15.47
8/15/00	12:53	8.8	8/15/00	12:53	15.16
8/15/00	12:54	25.4	8/15/00	12:54	12.38

8/15/00	12:55	9.2	8/15/00	12:55	17.05
8/15/00	12:56	12.9	8/15/00	12:56	13.77
8/15/00	12:57	59.5	8/15/00	12:57	8.58
8/15/00	12:58	13.3	8/15/00	12:58	18.49
8/15/00	12:59	5.8	8/15/00	12:59	21.12
8/15/00	13:00	5.3	8/15/00	13:00	15.99
		59.05575			10.67652

FBT

CEMS CO Data	RUN2	CEMS Nox DATA	RUN2
8/15/00 13:45	8.3	8/15/00 13:45	0.69
8/15/00 13:46	8.3	8/15/00 13:46	0.86
8/15/00 13:47	8.3	8/15/00 13:47	1.17
8/15/00 13:48	25.1	8/15/00 13:48	1.5
8/15/00 13:49	77.1	8/15/00 13:49	2.06
8/15/00 13:50	56.8	8/15/00 13:50	1.49
8/15/00 13:51	34.4	8/15/00 13:51	1.02
8/15/00 13:52	25.6	8/15/00 13:52	0.84
8/15/00 13:53	29.2	8/15/00 13:53	4.96
8/15/00 13:54	69.3	8/15/00 13:54	8.8
8/15/00 13:55	147.4	8/15/00 13:55	3.17
8/15/00 13:56	121.7	8/15/00 13:56	2.4
8/15/00 13:57	100.9	8/15/00 13:57	2.53
8/15/00 13:58	97	8/15/00 13:58	2.43
8/15/00 13:59	115.8	8/15/00 13:59	1.86
8/15/00 14:00	104.1	8/15/00 14:00	1.73
8/15/00 14:01	92.4	8/15/00 14:01	1.91
8/15/00 14:02	105.2	8/15/00 14:02	2.25
8/15/00 14:03	103.2	8/15/00 14:03	3.04
8/15/00 14:04	125.1	8/15/00 14:04	3.61
8/15/00 14:05	155.4	8/15/00 14:05	2.33
8/15/00 14:06	159.8	8/15/00 14:06	1.87
8/15/00 14:07	175.1	8/15/00 14:07	1.99
8/15/00 14:08	113	8/15/00 14:08	2.26
8/15/00 14:09	61.2	8/15/00 14:09	2.56
8/15/00 14:10	56.9	8/15/00 14:10	4.41
8/15/00 14:11	89.3	8/15/00 14:11	3.46
8/15/00 14:12	105.9	8/15/00 14:12	1.81
8/15/00 14:13	21.5	8/15/00 14:13	2.56
8/15/00 14:14	9.4	8/15/00 14:14	3.44
8/15/00 14:15	9.3	8/15/00 14:15	3.77
8/15/00 14:16	9	8/15/00 14:16	3.97
8/15/00 14:17	8.7	8/15/00 14:17	4.15
8/15/00 14:18	11.8	8/15/00 14:18	4.28
8/15/00 14:19	18.2	8/15/00 14:19	5.31
8/15/00 14:20	21.6	8/15/00 14:20	6.79
8/15/00 14:21	21.8	8/15/00 14:21	6.03
8/15/00 14:22	21.3	8/15/00 14:22	5.61
8/15/00 14:23	21	8/15/00 14:23	5.72
8/15/00 14:24	22.7	8/15/00 14:24	6.48
8/15/00 14:25	15.8	8/15/00 14:25	5.69
8/15/00 14:26	13.3	8/15/00 14:26	4.87
8/15/00 14:27	13.3	8/15/00 14:27	4.87
8/15/00 14:28	13.2	8/15/00 14:28	5.64
8/15/00 14:29	10.5	8/15/00 14:29	6.47
8/15/00 14:30	27.9	8/15/00 14:30	9.02

FBT

8/15/00	14:31	185.7	8/15/00	14:31	5.5
8/15/00	14:32	216.3	8/15/00	14:32	3.88
8/15/00	14:33	217.6	8/15/00	14:33	4.39
8/15/00	14:34	220.8	8/15/00	14:34	5.08
8/15/00	14:35	193	8/15/00	14:35	4.76
8/15/00	14:36	197.8	8/15/00	14:36	5.1
8/15/00	14:37	164	8/15/00	14:37	4.66
8/15/00	14:38	156.6	8/15/00	14:38	4.26
8/15/00	14:39	162	8/15/00	14:39	4.62
8/15/00	14:40	263.6	8/15/00	14:40	5.37
8/15/00	14:41	134.6	8/15/00	14:41	6.59
8/15/00	14:42	52.6	8/15/00	14:42	5.83
8/15/00	14:43	91.4	8/15/00	14:43	4.49
8/15/00	14:44	390.2	8/15/00	14:44	3.71
8/15/00	14:45	988.9	8/15/00	14:45	3.26
8/15/00	14:46	999.7	8/15/00	14:46	3.13
8/15/00	14:47	999.7	8/15/00	14:47	3.3
8/15/00	14:48	774.7	8/15/00	14:48	3.74
8/15/00	14:49	933.4	8/15/00	14:49	3.87
8/15/00	14:50	784	8/15/00	14:50	2.54
8/15/00	14:51	999.5	8/15/00	14:51	2.26
8/15/00	14:52	716.2	8/15/00	14:52	2.75
8/15/00	14:53	398.2	8/15/00	14:53	1.39
8/15/00	14:54	307.7	8/15/00	14:54	0.88
8/15/00	14:55	270.1	8/15/00	14:55	0.89
8/15/00	14:56	196.2	8/15/00	14:56	1.29
8/15/00	14:57	217.3	8/15/00	14:57	1.09
8/15/00	14:58	166.3	8/15/00	14:58	5.42
8/15/00	14:59	45.4	8/15/00	14:59	15.38
8/15/00	15:00	22.4	8/15/00	15:00	14.15
8/15/00	15:01	15	8/15/00	15:01	12.47
8/15/00	15:02	16.7	8/15/00	15:02	30.06
8/15/00	15:03	19.9	8/15/00	15:03	26.81
8/15/00	15:04	48.1	8/15/00	15:04	11.53
8/15/00	15:05	164.9	8/15/00	15:05	3.6
8/15/00	15:06	117.3	8/15/00	15:06	4.06
8/15/00	15:07	49.1	8/15/00	15:07	10.22
8/15/00	15:08	32.5	8/15/00	15:08	12.09
8/15/00	15:09	23.5	8/15/00	15:09	21.23
8/15/00	15:10	19.6	8/15/00	15:10	25.56
8/15/00	15:11	16.1	8/15/00	15:11	20.61
8/15/00	15:12	17.8	8/15/00	15:12	17.67
8/15/00	15:13	19.6	8/15/00	15:13	15.23
8/15/00	15:14	16.2	8/15/00	15:14	16.67
8/15/00	15:15	13	8/15/00	15:15	22.71
8/15/00	15:16	10.1	8/15/00	15:16	33.33
8/15/00	15:17	7.5	8/15/00	15:17	27.54

8/15/00	15:18	6.8	8/15/00	15:18	22.36
8/15/00	15:19	6.3	8/15/00	15:19	18.21
8/15/00	15:20	5.3	8/15/00	15:20	16.38
8/15/00	15:21	5.3	8/15/00	15:21	15.38
8/15/00	15:22	5.3	8/15/00	15:22	15.24
8/15/00	15:23	5.3	8/15/00	15:23	15.09
8/15/00	15:24	5.3	8/15/00	15:24	13.91
8/15/00	15:25	5.3	8/15/00	15:25	31.31
8/15/00	15:26	5.5	8/15/00	15:26	38.57
8/15/00	15:27	4.3	8/15/00	15:27	16.75
8/15/00	15:28	4.3	8/15/00	15:28	15.56
8/15/00	15:29	4.3	8/15/00	15:29	15.43
8/15/00	15:30	4.3	8/15/00	15:30	25.88
8/15/00	15:31	4.3	8/15/00	15:31	48.6
8/15/00	15:32	4.7	8/15/00	15:32	40.32
8/15/00	15:33	5.3	8/15/00	15:33	17.61
8/15/00	15:34	5	8/15/00	15:34	13.52
8/15/00	15:35	6.1	8/15/00	15:35	20.92
8/15/00	15:36	8.7	8/15/00	15:36	16.19
8/15/00	15:37	5.6	8/15/00	15:37	11.5
8/15/00	15:38	12.1	8/15/00	15:38	11.69
8/15/00	15:39	16.6	8/15/00	15:39	12.36
8/15/00	15:40	8.9	8/15/00	15:40	11.66
8/15/00	15:41	6.4	8/15/00	15:41	11.11
8/15/00	15:42	5.3	8/15/00	15:42	10.78
8/15/00	15:43	5.3	8/15/00	15:43	8.9
8/15/00	15:44	5.3	8/15/00	15:44	7.18
8/15/00	15:45	5.3	8/15/00	15:45	10.55
8/15/00	15:46	13.9	8/15/00	15:46	29.01
8/15/00	15:47	86	8/15/00	15:47	17.1
8/15/00	15:48	147.2	8/15/00	15:48	8.06
8/15/00	15:49	154.3	8/15/00	15:49	8.81
8/15/00	15:50	98.2	8/15/00	15:50	11.52
8/15/00	15:51	35.5	8/15/00	15:51	8.09
8/15/00	15:52	41.6	8/15/00	15:52	5.89
8/15/00	15:53	72.7	8/15/00	15:53	5.06
8/15/00	15:54	115.4	8/15/00	15:54	4.53
8/15/00	15:55	146.7	8/15/00	15:55	4.3
8/15/00	15:56	261.4	8/15/00	15:56	4.14
8/15/00	15:57	503.4	8/15/00	15:57	4.29
8/15/00	15:58	585.8	8/15/00	15:58	3.89
8/15/00	15:59	529	8/15/00	15:59	3.34
8/15/00	16:00	431.1	8/15/00	16:00	4.93
8/15/00	16:01	233.9	8/15/00	16:01	9.34
8/15/00	16:02	122.5	8/15/00	16:02	13.92
8/15/00	16:03	46.2	8/15/00	16:03	11.72
8/15/00	16:04	18	8/15/00	16:04	17.29

8/15/00	16:05	12.2	8/15/00	16:05	30.24
8/15/00	16:06	32	8/15/00	16:06	29.49
8/15/00	16:07	168.1	8/15/00	16:07	13.62
8/15/00	16:08	169.7	8/15/00	16:08	6.3
8/15/00	16:09	189	8/15/00	16:09	7.46
8/15/00	16:10	88.8	8/15/00	16:10	8.52
8/15/00	16:11	30.4	8/15/00	16:11	6.18
8/15/00	16:12	55.8	8/15/00	16:12	5.6
8/15/00	16:13	126.2	8/15/00	16:13	5.66
8/15/00	16:14	240.6	8/15/00	16:14	5.3
8/15/00	16:15	339.1	8/15/00	16:15	4.11
8/15/00	16:16	336.5	8/15/00	16:16	3.58
8/15/00	16:17	257.6	8/15/00	16:17	3.83
8/15/00	16:18	273.7	8/15/00	16:18	3.95
8/15/00	16:19	245.2	8/15/00	16:19	3.91
8/15/00	16:20	360.6	8/15/00	16:20	3.15
8/15/00	16:21	277.4	8/15/00	16:21	2.21
8/15/00	16:22	156.4	8/15/00	16:22	1.97
8/15/00	16:23	90.5	8/15/00	16:23	1.89
8/15/00	16:24	43.3	8/15/00	16:24	2.43
8/15/00	16:25	35.4	8/15/00	16:25	2.22
8/15/00	16:26	40.4	8/15/00	16:26	2.26
8/15/00	16:27	14.9	8/15/00	16:27	3.96
8/15/00	16:28	7.6	8/15/00	16:28	8.16
8/15/00	16:29	5.3	8/15/00	16:29	9.59
8/15/00	16:30	5.3	8/15/00	16:30	9.05
8/15/00	16:31	5.3	8/15/00	16:31	8.59
8/15/00	16:32	5.3	8/15/00	16:32	8.44
8/15/00	16:33	5.3	8/15/00	16:33	8.09
8/15/00	16:34	5.3	8/15/00	16:34	7.93
8/15/00	16:35	5.3	8/15/00	16:35	7.87
8/15/00	16:36	5.3	8/15/00	16:36	7.88
8/15/00	16:37	5.3	8/15/00	16:37	8.36
8/15/00	16:38	5.4	8/15/00	16:38	19.95
8/15/00	16:39	10.6	8/15/00	16:39	11.54
8/15/00	16:40	29.9	8/15/00	16:40	5.61
8/15/00	16:41	22.3	8/15/00	16:41	6.4
8/15/00	16:42	10.2	8/15/00	16:42	9.49
8/15/00	16:43	8.2	8/15/00	16:43	10.75
8/15/00	16:44	6.8	8/15/00	16:44	11.83
8/15/00	16:45	6.5	8/15/00	16:45	14.04
8/15/00	16:46	9.2	8/15/00	16:46	16.23
8/15/00	16:47	6.5	8/15/00	16:47	16.1
8/15/00	16:48	4.3	8/15/00	16:48	17.77
8/15/00	16:49	4.9	8/15/00	16:49	16.26
8/15/00	16:50	5.3	8/15/00	16:50	16.4
8/15/00	16:51	5.3	8/15/00	16:51	16.24

8/15/00	16:52	8.5	8/15/00	16:52	15.28
8/15/00	16:53	12	8/15/00	16:53	20.68
8/15/00	16:54	9.4	8/15/00	16:54	31.86
8/15/00	16:55	10.6	8/15/00	16:55	31.88
8/15/00	16:56	8.1	8/15/00	16:56	31.27
8/15/00	16:57	6.7	8/15/00	16:57	27.3
8/15/00	16:58	15.1	8/15/00	16:58	16.82
8/15/00	16:59	10.6	8/15/00	16:59	14.56
Average:		114.901			9.830256

FBT

CEMS CO Data Run3

8/16/00 7:54	12.3
8/16/00 7:55	12.3
8/16/00 7:56	19.8
8/16/00 7:57	28.1
8/16/00 7:58	43
8/16/00 7:59	26.1
8/16/00 8:00	39.3
8/16/00 8:01	56
8/16/00 8:02	[illegible]
8/16/00 8:03	[illegible]
8/16/00 8:04	[illegible]
8/16/00 8:05	85.2
8/16/00 8:06	125.2
8/16/00 8:07	186.4
8/16/00 8:08	187
8/16/00 8:09	198.5
8/16/00 8:10	137.5
8/16/00 8:11	65.8
8/16/00 8:12	29.9
8/16/00 8:13	32.5
8/16/00 8:14	25.8
8/16/00 8:15	15.1
8/16/00 8:16	15.9
8/16/00 8:17	44.3
8/16/00 8:18	106.3
8/16/00 8:19	102.6
8/16/00 8:20	166.7
8/16/00 8:21	169.2
8/16/00 8:22	182.1
8/16/00 8:23	187
8/16/00 8:24	160.7
8/16/00 8:25	157.6
8/16/00 8:26	146.4
8/16/00 8:27	134.9
8/16/00 8:28	189.7
8/16/00 8:29	235.7
8/16/00 8:30	202.9
8/16/00 8:31	256.4
8/16/00 8:32	272.9
8/16/00 8:33	114.3
8/16/00 8:34	56.5
8/16/00 8:35	118.2
8/16/00 8:36	128.1
8/16/00 8:37	141.8
8/16/00 8:38	139.7
8/16/00 8:39	172.4

CEMS Nox Data Run 3

8/16/00 7:54	14.23
8/16/00 7:55	11.84
8/16/00 7:56	10.18
8/16/00 7:57	9.39
8/16/00 7:58	6.96
8/16/00 7:59	6.63
8/16/00 8:00	6.48
8/16/00 8:01	5.91
8/16/00 8:02	5.49
8/16/00 8:03	4.93
8/16/00 8:04	3.9
8/16/00 8:05	3.33
8/16/00 8:06	3.24
8/16/00 8:07	3.23
8/16/00 8:08	3.06
8/16/00 8:09	3.1
8/16/00 8:10	3.44
8/16/00 8:11	6.66
8/16/00 8:12	8.78
8/16/00 8:13	5.64
8/16/00 8:14	5.14
8/16/00 8:15	5.78
8/16/00 8:16	6.39
8/16/00 8:17	6.19
8/16/00 8:18	5.67
8/16/00 8:19	5.5
8/16/00 8:20	6
8/16/00 8:21	6.42
8/16/00 8:22	5.37
8/16/00 8:23	4.32
8/16/00 8:24	3.2
8/16/00 8:25	3.11
8/16/00 8:26	3.41
8/16/00 8:27	4.94
8/16/00 8:28	5.44
8/16/00 8:29	3.64
8/16/00 8:30	2.75
8/16/00 8:31	2.29
8/16/00 8:32	3.88
8/16/00 8:33	14.93
8/16/00 8:34	18.25
8/16/00 8:35	6.42
8/16/00 8:36	4.18
8/16/00 8:37	4.09
8/16/00 8:38	3.59
8/16/00 8:39	3.5

8/16/00	8:40	219.6	8/16/00	8:40	3.27
8/16/00	8:41	206.9	8/16/00	8:41	2.81
8/16/00	8:42	267.3	8/16/00	8:42	2.71
8/16/00	8:43	278.8	8/16/00	8:43	2.93
8/16/00	8:44	126.6	8/16/00	8:44	7.26
8/16/00	8:45	87.3	8/16/00	8:45	11.16
8/16/00	8:46	88.2	8/16/00	8:46	6.18
8/16/00	8:47	36.1	8/16/00	8:47	13.1
8/16/00	8:48	26.5	8/16/00	8:48	20.2
8/16/00	8:49	24.6	8/16/00	8:49	18.18
8/16/00	8:50	22.1	8/16/00	8:50	16.91
8/16/00	8:51	28.1	8/16/00	8:51	15.96
8/16/00	8:52	18.1	8/16/00	8:52	14.68
8/16/00	8:53	14.8	8/16/00	8:53	14.03
8/16/00	8:54	13	8/16/00	8:54	13.12
8/16/00	8:55	18	8/16/00	8:55	10.36
8/16/00	8:56	24.2	8/16/00	8:56	8.9
8/16/00	8:57	27.5	8/16/00	8:57	6.07
8/16/00	8:58	18	8/16/00	8:58	6.24
8/16/00	8:59	25.2	8/16/00	8:59	6.87
8/16/00	9:00	67.6	8/16/00	9:00	5.57
8/16/00	9:01	61.8	8/16/00	9:01	4.26
8/16/00	9:02	79.3	8/16/00	9:02	4
8/16/00	9:03	80.6	8/16/00	9:03	2.96
8/16/00	9:04	68.3	8/16/00	9:04	2.75
8/16/00	9:05	92.6	8/16/00	9:05	2.97
8/16/00	9:06	118.1	8/16/00	9:06	3.23
8/16/00	9:07	159.7	8/16/00	9:07	2.8
8/16/00	9:08	170.5	8/16/00	9:08	2.3
8/16/00	9:09	111.2	8/16/00	9:09	2.68
8/16/00	9:10	125.9	8/16/00	9:10	3.92
8/16/00	9:11	169.7	8/16/00	9:11	4.88
8/16/00	9:12	200	8/16/00	9:12	5.01
8/16/00	9:13	195.2	8/16/00	9:13	5.65
8/16/00	9:14	135.1	8/16/00	9:14	5.6
8/16/00	9:15	201.5	8/16/00	9:15	4.62
8/16/00	9:16	158	8/16/00	9:16	4.02
8/16/00	9:17	151.4	8/16/00	9:17	3.89
8/16/00	9:18	134.2	8/16/00	9:18	4.05
8/16/00	9:19	103.4	8/16/00	9:19	3.59
8/16/00	9:20	93.9	8/16/00	9:20	3.54
8/16/00	9:21	95.4	8/16/00	9:21	3.62
8/16/00	9:22	94.4	8/16/00	9:22	3.57
8/16/00	9:23	95.5	8/16/00	9:23	3.63
8/16/00	9:24	99.4	8/16/00	9:24	3.44
8/16/00	9:25	83.7	8/16/00	9:25	3.3
8/16/00	9:26	86.5	8/16/00	9:26	3.2

8/16/00 9:27	95.2	8/16/00 9:27	3.28
8/16/00 9:28	101.2	8/16/00 9:28	3.25
8/16/00 9:29	80	8/16/00 9:29	3.19
8/16/00 9:30	84.5	8/16/00 9:30	3.48
8/16/00 9:31	97.2	8/16/00 9:31	3.11
8/16/00 9:32	127.1	8/16/00 9:32	5.23
8/16/00 9:33	38	8/16/00 9:33	5.96
8/16/00 9:34	25.2	8/16/00 9:34	4.69
8/16/00 9:35	111.8	8/16/00 9:35	4.55
8/16/00 9:36	296.4	8/16/00 9:36	4.61
8/16/00 9:37	295.5	8/16/00 9:37	4.92
8/16/00 9:38	335.1	8/16/00 9:38	5.62
8/16/00 9:39	217.8	8/16/00 9:39	6.41
8/16/00 9:40	242.1	8/16/00 9:40	6.45
8/16/00 9:41	374.5	8/16/00 9:41	6.31
8/16/00 9:42	666.5	8/16/00 9:42	5.72
8/16/00 9:43	463.6	8/16/00 9:43	5.34
8/16/00 9:44	334.5	8/16/00 9:44	4.35
8/16/00 9:45	220.9	8/16/00 9:45	3.29
8/16/00 9:46	202.4	8/16/00 9:46	3
8/16/00 9:47	189.4	8/16/00 9:47	2.94
8/16/00 9:48	156.4	8/16/00 9:48	2.34
8/16/00 9:49	141.4	8/16/00 9:49	2.43
8/16/00 9:50	124.6	8/16/00 9:50	3.08
8/16/00 9:51	75.4	8/16/00 9:51	8.3
8/16/00 9:52	103.1	8/16/00 9:52	6.25
8/16/00 9:53	98.1	8/16/00 9:53	2.81
8/16/00 9:54	150.3	8/16/00 9:54	2.48
8/16/00 9:55	160.8	8/16/00 9:55	2.71
8/16/00 9:56	147.7	8/16/00 9:56	3.08
8/16/00 9:57	146.4	8/16/00 9:57	3.86
8/16/00 9:58	86.5	8/16/00 9:58	4.35
8/16/00 9:59	68.6	8/16/00 9:59	3.97
8/16/00 10:00	64.2	8/16/00 10:00	7.48
8/16/00 10:01	38	8/16/00 10:01	17.3
8/16/00 10:02	84.1	8/16/00 10:02	5.38
8/16/00 10:03	58.3	8/16/00 10:03	4.55
8/16/00 10:04	18.7	8/16/00 10:04	15.92
8/16/00 10:05	13.2	8/16/00 10:05	17.67
8/16/00 10:06	11.2	8/16/00 10:06	15.15
8/16/00 10:07	10.1	8/16/00 10:07	14.34
8/16/00 10:08	9.6	8/16/00 10:08	13.48
8/16/00 10:09	8.6	8/16/00 10:09	13.35
8/16/00 10:10	8.3	8/16/00 10:10	13.3
8/16/00 10:11	8.3	8/16/00 10:11	13.22
8/16/00 10:12	7.3	8/16/00 10:12	13.33
8/16/00 10:13	7.3	8/16/00 10:13	13.08

8/16/00	10:14	7.3	8/16/00	10:14	12.85
8/16/00	10:15	8.2	8/16/00	10:15	12.79
8/16/00	10:16	20.1	8/16/00	10:16	13.31
8/16/00	10:17	13.7	8/16/00	10:17	13.17
8/16/00	10:18	24.5	8/16/00	10:18	14
8/16/00	10:19	19.5	8/16/00	10:19	13.76
8/16/00	10:20	10.1	8/16/00	10:20	13.16
8/16/00	10:21	7.8	8/16/00	10:21	12.78
8/16/00	10:22	7.3	8/16/00	10:22	12.86
8/16/00	10:23	7.3	8/16/00	10:23	13.02
8/16/00	10:24	8	8/16/00	10:24	12.95
8/16/00	10:25	7.1	8/16/00	10:25	12.75
8/16/00	10:26	6.3	8/16/00	10:26	12.55
8/16/00	10:27	6.3	8/16/00	10:27	12.51
8/16/00	10:28	6.3	8/16/00	10:28	12.37
8/16/00	10:29	6.3	8/16/00	10:29	11.79
8/16/00	10:30	7	8/16/00	10:30	9.45
8/16/00	10:31	8.2	8/16/00	10:31	9.12
8/16/00	10:32	8.3	8/16/00	10:32	9.04
8/16/00	10:33	8.8	8/16/00	10:33	8.96
8/16/00	10:34	8.3	8/16/00	10:34	8.78
8/16/00	10:35	8.4	8/16/00	10:35	9.02
8/16/00	10:36	9.2	8/16/00	10:36	9.15
8/16/00	10:37	8.3	8/16/00	10:37	9.35
8/16/00	10:38	33.7	8/16/00	10:38	10.69
8/16/00	10:39	60.2	8/16/00	10:39	9.14
8/16/00	10:40	106.1	8/16/00	10:40	6.58
8/16/00	10:41	159.4	8/16/00	10:41	6.99
8/16/00	10:42	62.6	8/16/00	10:42	6.64
8/16/00	10:43	45.6	8/16/00	10:43	6.12
8/16/00	10:44	65.6	8/16/00	10:44	5.33
8/16/00	10:45	86	8/16/00	10:45	4.69
8/16/00	10:46	118.8	8/16/00	10:46	4.56
8/16/00	10:47	110.3	8/16/00	10:47	3.9
8/16/00	10:48	99.8	8/16/00	10:48	3.5
8/16/00	10:49	117.6	8/16/00	10:49	3.89
8/16/00	10:50	255.6	8/16/00	10:50	4.62
8/16/00	10:51	464.7	8/16/00	10:51	4.27
8/16/00	10:52	562.2	8/16/00	10:52	3.92
8/16/00	10:53	364.9	8/16/00	10:53	2.78
8/16/00	10:54	242.9	8/16/00	10:54	2.29
8/16/00	10:55	199.9	8/16/00	10:55	2.41
8/16/00	10:56	97.2	8/16/00	10:56	5.72
8/16/00	10:57	44	8/16/00	10:57	8.11
8/16/00	10:58	94.7	8/16/00	10:58	6.78
8/16/00	10:59	70.8	8/16/00	10:59	4.87
8/16/00	11:00	84.8	8/16/00	11:00	4.56

8/16/00	11:01	192.4	8/16/00	11:01	5.36
8/16/00	11:02	57.5	8/16/00	11:02	6.07
8/16/00	11:03	30.8	8/16/00	11:03	5.41
8/16/00	11:04	85	8/16/00	11:04	5.16
8/16/00	11:05	188.9	8/16/00	11:05	5.25
8/16/00	11:06	267.8	8/16/00	11:06	5.08
8/16/00	11:07	205.8	8/16/00	11:07	5.25
8/16/00	11:08	199.4	8/16/00	11:08	5.09
8/16/00	11:09	229.3	8/16/00	11:09	5.3
8/16/00	11:10	241.7	8/16/00	11:10	5.16
8/16/00	11:11	269.1	8/16/00	11:11	5.04
8/16/00	11:12	474.1	8/16/00	11:12	4.42
8/16/00	11:13	484.4	8/16/00	11:13	4.01
8/16/00	11:14	231.8	8/16/00	11:14	3.41
8/16/00	11:15	156.8	8/16/00	11:15	4.41
8/16/00	11:16	162.3	8/16/00	11:16	3.24
8/16/00	11:17	160.8	8/16/00	11:17	2.38
8/16/00	11:18	184.2	8/16/00	11:18	2.32
8/16/00	11:19	190.6	8/16/00	11:19	2.63
8/16/00	11:20	152	8/16/00	11:20	8.6
8/16/00	11:21	75.6	8/16/00	11:21	12.05
8/16/00	11:22	143.6	8/16/00	11:22	4.18
8/16/00	11:23	234.7	8/16/00	11:23	2.98
8/16/00	11:24	215.2	8/16/00	11:24	3.19
8/16/00	11:25	199.1	8/16/00	11:25	3.25
8/16/00	11:26	209.8	8/16/00	11:26	3.11
8/16/00	11:27	259.3	8/16/00	11:27	3.12
8/16/00	11:28	232.6	8/16/00	11:28	3.41
8/16/00	11:29	288.1	8/16/00	11:29	3.73
8/16/00	11:30	391.2	8/16/00	11:30	4.04
8/16/00	11:31	150.9	8/16/00	11:31	9.82
8/16/00	11:32	35.8	8/16/00	11:32	22.8
8/16/00	11:33	23.7	8/16/00	11:33	28.79
8/16/00	11:34	17.7	8/16/00	11:34	19.73
8/16/00	11:35	20.8	8/16/00	11:35	17.1
8/16/00	11:36	17	8/16/00	11:36	15.6
8/16/00	11:37	42.7	8/16/00	11:37	16.03
8/16/00	11:38	36.9	8/16/00	11:38	14.84
8/16/00	11:39	17.6	8/16/00	11:39	13.84
8/16/00	11:40	12.9	8/16/00	11:40	13.72
8/16/00	11:41	12.3	8/16/00	11:41	13.67
8/16/00	11:42	14.8	8/16/00	11:42	11.3
8/16/00	11:43	44.6	8/16/00	11:43	11.47
8/16/00	11:44	57.1	8/16/00	11:44	7.3
8/16/00	11:45	37.5	8/16/00	11:45	5.35
8/16/00	11:46	55	8/16/00	11:46	5
8/16/00	11:47	87	8/16/00	11:47	4.72

8/16/00	11:48	126	8/16/00	11:48	4.43
8/16/00	11:49	191.5	8/16/00	11:49	4.26
8/16/00	11:50	189.8	8/16/00	11:50	3.9
8/16/00	11:51	196.3	8/16/00	11:51	3.23
8/16/00	11:52	191	8/16/00	11:52	2.9
8/16/00	11:53	210.1	8/16/00	11:53	3.4
8/16/00	11:54	283.8	8/16/00	11:54	3.64
8/16/00	11:55	263.2	8/16/00	11:55	2.73
8/16/00	11:56	221.1	8/16/00	11:56	2.17
8/16/00	11:57	172.5	8/16/00	11:57	1.91
8/16/00	11:58	138.1	8/16/00	11:58	1.89
8/16/00	11:59	100.8	8/16/00	11:59	4.69
8/16/00	12:00	40	8/16/00	12:00	14.79
8/16/00	12:01	53.2	8/16/00	12:01	6.3
8/16/00	12:02	133.4	8/16/00	12:02	7.49
8/16/00	12:03	53.3	8/16/00	12:03	7.31
8/16/00	12:04	79.3	8/16/00	12:04	6.26
8/16/00	12:05	256.8	8/16/00	12:05	5.1
8/16/00	12:06	580.9	8/16/00	12:06	4.79
8/16/00	12:07	515.8	8/16/00	12:07	4.42
8/16/00	12:08	556.5	8/16/00	12:08	3.51
8/16/00	12:09	436.8	8/16/00	12:09	2.96
8/16/00	12:10	323.2	8/16/00	12:10	2.54
8/16/00	12:11	347.7	8/16/00	12:11	3.19
8/16/00	12:12	387.4	8/16/00	12:12	3.28
8/16/00	12:13	502.4	8/16/00	12:13	3.13
8/16/00	12:14	358.5	8/16/00	12:14	2.83
Average		142.7695			6.845187

CEMS CO Data RUn4

8/16/00	13:09	110.9
8/16/00	13:10	42.4
8/16/00	13:11	11.9
8/16/00	13:12	8.6
8/16/00	13:13	31.5
8/16/00	13:14	57.9
8/16/00	13:15	52.8
8/16/00	13:16	24.4
8/16/00	13:17	[illegible]
8/16/00	13:18	[illegible]
8/16/00	13:19	152.3
8/16/00	13:20	246.2
8/16/00	13:21	298.7
8/16/00	13:22	204.8
8/16/00	13:23	248.6
8/16/00	13:24	310.6
8/16/00	13:25	274.9
8/16/00	13:26	170.5
8/16/00	13:27	168.5
8/16/00	13:28	107.6
8/16/00	13:29	28.5
8/16/00	13:30	17.7
8/16/00	13:31	52.4
8/16/00	13:32	66.9
8/16/00	13:33	25.3
8/16/00	13:34	8.4
8/16/00	13:35	9.5
8/16/00	13:36	6
8/16/00	13:37	17.2
8/16/00	13:38	45.9
8/16/00	13:39	99.7
8/16/00	13:40	68.1
8/16/00	13:41	46.1
8/16/00	13:42	50.5
8/16/00	13:43	81.2
8/16/00	13:44	40.2
8/16/00	13:45	18.2
8/16/00	13:46	12.1
8/16/00	13:47	13.1
8/16/00	13:48	10.9
8/16/00	13:49	12.7
8/16/00	13:50	60.2
8/16/00	13:51	36.2
8/16/00	13:52	9.2
8/16/00	13:53	7.3
8/16/00	13:54	9

CEMS Nox Data Run4

8/16/00	13:09	2.25
8/16/00	13:10	8.45
8/16/00	13:11	9.21
8/16/00	13:12	7.98
8/16/00	13:13	7.59
8/16/00	13:14	6.23
8/16/00	13:15	5.83
8/16/00	13:16	5.91
8/16/00	13:17	6.23
8/16/00	13:18	6.09
8/16/00	13:19	5.5
8/16/00	13:20	4.79
8/16/00	13:21	4.75
8/16/00	13:22	4.42
8/16/00	13:23	4.02
8/16/00	13:24	3.52
8/16/00	13:25	3.43
8/16/00	13:26	5.06
8/16/00	13:27	7.64
8/16/00	13:28	8.34
8/16/00	13:29	15.63
8/16/00	13:30	16.27
8/16/00	13:31	9.11
8/16/00	13:32	6.64
8/16/00	13:33	9.55
8/16/00	13:34	16.05
8/16/00	13:35	18.78
8/16/00	13:36	17.77
8/16/00	13:37	15.01
8/16/00	13:38	8.83
8/16/00	13:39	3.92
8/16/00	13:40	7.44
8/16/00	13:41	10.05
8/16/00	13:42	8.41
8/16/00	13:43	6.69
8/16/00	13:44	15.49
8/16/00	13:45	23.77
8/16/00	13:46	46.9
8/16/00	13:47	27.6
8/16/00	13:48	14.77
8/16/00	13:49	12.28
8/16/00	13:50	6.4
8/16/00	13:51	10.9
8/16/00	13:52	13.28
8/16/00	13:53	13.33
8/16/00	13:54	14.11

FBT

8/16/00	13:55	9.5	8/16/00	13:55	14.14
8/16/00	13:56	23.1	8/16/00	13:56	14.77
8/16/00	13:57	22.3	8/16/00	13:57	14.48
8/16/00	13:58	9.3	8/16/00	13:58	12.99
8/16/00	13:59	7.4	8/16/00	13:59	13.04
8/16/00	14:00	7.3	8/16/00	14:00	11.78
8/16/00	14:01	8.2	8/16/00	14:01	10.3
8/16/00	14:02	9.3	8/16/00	14:02	10.53
8/16/00	14:03	10	8/16/00	14:03	10.47
8/16/00	14:04	9.4	8/16/00	14:04	8.83
8/16/00	14:05	9.3	8/16/00	14:05	3.58
8/16/00	14:06	9.3	8/16/00	14:06	2.25
8/16/00	14:07	9.2	8/16/00	14:07	2.18
8/16/00	14:08	8.7	8/16/00	14:08	2.18
8/16/00	14:09	9.3	8/16/00	14:09	2.02
8/16/00	14:10	9.1	8/16/00	14:10	1.56
8/16/00	14:11	9.3	8/16/00	14:11	1.6
8/16/00	14:12	8.4	8/16/00	14:12	1.96
8/16/00	14:13	8.7	8/16/00	14:13	2.32
8/16/00	14:14	9.3	8/16/00	14:14	2.09
8/16/00	14:15	9.3	8/16/00	14:15	1.64
8/16/00	14:16	9.3	8/16/00	14:16	1.4
8/16/00	14:17	8.7	8/16/00	14:17	1.39
8/16/00	14:18	8.3	8/16/00	14:18	1.52
8/16/00	14:19	15.4	8/16/00	14:19	5.19
8/16/00	14:20	48.6	8/16/00	14:20	12.81
8/16/00	14:21	82.7	8/16/00	14:21	8.54
8/16/00	14:22	60.9	8/16/00	14:22	5.9
8/16/00	14:23	62.1	8/16/00	14:23	4.64
8/16/00	14:24	75.6	8/16/00	14:24	3.77
8/16/00	14:25	89.8	8/16/00	14:25	4.13
8/16/00	14:26	106.4	8/16/00	14:26	3.41
8/16/00	14:27	138	8/16/00	14:27	2.8
8/16/00	14:28	143.5	8/16/00	14:28	2.76
8/16/00	14:29	202.2	8/16/00	14:29	2.82
8/16/00	14:30	239.2	8/16/00	14:30	2.78
8/16/00	14:31	249	8/16/00	14:31	4.67
8/16/00	14:32	178	8/16/00	14:32	7.36
8/16/00	14:33	124.9	8/16/00	14:33	5.42
8/16/00	14:34	69.8	8/16/00	14:34	8.46
8/16/00	14:35	18.2	8/16/00	14:35	11.97
8/16/00	14:36	35.4	8/16/00	14:36	13.54
8/16/00	14:37	58.4	8/16/00	14:37	9.22
8/16/00	14:38	54.2	8/16/00	14:38	7.1
8/16/00	14:39	40.8	8/16/00	14:39	6.78
8/16/00	14:40	40.9	8/16/00	14:40	6.67
8/16/00	14:41	68.3	8/16/00	14:41	6.06

8/16/00	14:42	105	8/16/00	14:42	5.28
8/16/00	14:43	190.1	8/16/00	14:43	4.82
8/16/00	14:44	451.1	8/16/00	14:44	4.62
8/16/00	14:45	409.2	8/16/00	14:45	4.12
8/16/00	14:46	552	8/16/00	14:46	3.68
8/16/00	14:47	680.3	8/16/00	14:47	3.34
8/16/00	14:48	527.2	8/16/00	14:48	3.1
8/16/00	14:49	287.9	8/16/00	14:49	2.77
8/16/00	14:50	285.6	8/16/00	14:50	2.52
8/16/00	14:51	255.7	8/16/00	14:51	2.53
8/16/00	14:52	192.9	8/16/00	14:52	3.67
8/16/00	14:53	88.8	8/16/00	14:53	5.91
8/16/00	14:54	53.7	8/16/00	14:54	9.28
8/16/00	14:55	11.5	8/16/00	14:55	10.91
8/16/00	14:56	6.4	8/16/00	14:56	11.64
8/16/00	14:57	6.6	8/16/00	14:57	10.21
8/16/00	14:58	3	8/16/00	14:58	1.61
8/16/00	14:59	2.3	8/16/00	14:59	-0.02
8/16/00	15:00	2.3	8/16/00	15:00	-0.02
8/16/00	15:01	22.9	8/16/00	15:01	17.27
8/16/00	15:02	52.2	8/16/00	15:02	54.71
8/16/00	15:03	52.3	8/16/00	15:03	56.4
8/16/00	15:04	52.3	8/16/00	15:04	56.4
8/16/00	15:05	52.3	8/16/00	15:05	56.43
8/16/00	15:06	76.9	8/16/00	15:06	56.49
8/16/00	15:07	5.4	8/16/00	15:07	56.35
8/16/00	15:08	25.2	8/16/00	15:08	56.39
8/16/00	15:09	52.3	8/16/00	15:09	56.4
Average		85.86777			11.06488

Calibration Error Test, Run 1 STRATA Version 1.2.1

Operator: Peter Hilty
Plant Name: Newport Steel
Location: EAF Collector Exhaust

Reference Cylinder Numbers

	Zero	Low-range	Mid-range	High-range
02	N2		CC84981	Air
C02	N2		CC84981	CC113935
CO	N2	CC113985	CC113935	CC[illegible]790
NOx	N2	CC118512	CC106973	CC79974
SO2	N2	400&20%	400*60%	CC5784

Date/Time 08-14-2000 13:12:59 PASSED

Analyte	O2	CO2	CO	NOx	SO2
Units	%	%	ppm	ppm	ppm
Zero Ref Cyl	0.000	0.000	0.0	0.00	0.0
Zero Avg	0.018	-0.043	0.4	0.24	-0.2
Zero Error%	0.1%	0.2%	0.0%	0.0%	0.0%
Low Ref Cyl			50.0	50.50	
Low Avg			50.1	50.46	
Low Error%			0.0%	0.0%	
Mid Ref Cyl			100.0	89.30	
Mid Avg			98.2	88.74	
Mid Error%			0.2%	0.1%	
High Ref Cyl	20.900	15.000	152.0	197.40	400-0
High Avg	20.841	14.980	150.5	197.47	400.0
High Error%	0.2%	0.1%	0.2%	0.0%	0.0%

Calibration Error Test End

Calibration Error Test, Run 1 STRATA Version 1.2.1

Operator: Peter Hilty

Plant Name: Newport Steel

Location: EAF Exhaust/Baghouse Inlet

Reference Cylinder Numbers

	Zero	Low-range	Mid-range	High-range
02	N2		CC84981	Air
C02	N2		CC84981	CC113935
CO	N2	CC113985	CC113935	CC94790
NOx	N2	CC118512	CC106973	CC79974
SO2	N2	400&20%	400*60%	CC5784

Date/Time 08-15-2000 07:39:45 PASSED

Analyte	O2	CO2	CO	NOx	SO2
Units	%	%	ppm	ppm	ppm
Zero Ref Cyl	0.000	0.000	0.0	0.00	0.0
Zero Avg	0.022	-0.267	-5.5	0.81	0.3
Zero Error8	0.1%	1.3%	0.6%	0.3%	0.0%
Low Ref Cyl			50.0	50.50	80.0
Low Avg			46.1	50.15	81.8
Low Error%			0.4%	0.1%	0.2%
Mid Ref Cyl	10.000	8.000	100.0	89.30	240.0
Mid Avq	9.934	8.016	94.7	89.22	227.0
Mid Error%	0.3%	0.1%	0.5%	0.0%	1.3%
High Ref Cyl	20.900	15.000	152.0	197.40	400.0
High Avg	20.896	14.993	147.1	197.68	393.3
High Error%	0.0%	0.0%	0.5%	0.1%	0.7%

Calibration Error Test End

Initial System Bias Check, Run 1 STRATA Version 1.2.1

Operator: Peter Hilty
Plant Name: Newport Steel
Location: EAF Exhaust/Baghouse Inlet

Reference Cylinder Numbers

	Zero	Span
02	N2	Air
C02	N2	CC84981
CO	N2	CC113985
NOx	N2	CC118512
SO2	N2	CC5784

Date/Time 08-15-2000 07:50:41 PASSED

Analyte	02	C02	CO	NOx	SO2
Units	%	%	ppm	ppm	ppm
Zero Ref Cyl	0.000	0.000	0.0	0.00	0.0
Zero Cal	0.022	-0.267	-5.5	0.81	0.3
Zero Avg	-0.032	-0.219	-2.1	0.69	0.2
Zero Bias%	0.2%	0.2%	0.3%	0.0%	0.0%
Zero Drift%					
Span Ref Cyl	20.900	8.000	50.0	50.50	400.0
Span Cal	20.896	8.016	46.1	50.15	393.3
Span Avg	20.903	8.014	47.1	49.91	392.4
Span Bias%	0.0%	0.0%	0.1%	0.1%	0.1%
Span Drift%					

System Bias Check End

Final System Bias Check, Run 1 STRATA Version 1.2.1

Operator: Peter Hilty

Plant Name: Newport Steel

Location: EAF Exhaust/Baghouse Inlet

Reference Cylinder Numbers

	Zero	Span
02	N2	Air
C02	N2	CC84981
CO	N2	CC113985
NOx	N2	CC118512
SO2	N2	CC5784

Date/Time 08-15-2000 12:25:04 PASSED

Analyte	02	CO2	CO	NOx	SO2
Units	%	%	ppm	ppm	ppm
Zero Ref Cyl	0.000	0.000	0.0	0.00	0.0
Zero Cal	0.022	-0.267	-5.5	0.81	0.3
Zero Avg	-0.086	-0.301	-10.0	1.77	-1.9
Zero Bias%	0.4%	0.28	0.4%	0.4%	0.2%
Zero Drift%	-0.2%	-0.48	-0.8%	0.4%	-0.2%
Span Ref Cyl	20.900	8.000	50.0	50.50	400.0
Span Cal	20.896	8.016	46.1	50.15	393.3
Span Avg	20.824	7.992	39.5	51.43	399.0
Span Bias%	0.3%	0.1%	0.7%	0.5%	0.6%
Span Drift%	-0.3%	-0.1%	-0.8%	0.6%	0.7%
Ini Zero Avg	-0.032	-0,219	-2.1	0.69	0.2
Ini Span Avg	20.903	8.014	47.1	49.91	392.4
Run Avg	20.597	0.267	97.5	10.23	31.9
Co	-0.059	-0.260	-6.0	1.23	-0.8
Cm	20.864	8.003	43.3	50.67	395.7
Correct Avg	20,633	0.510	105.0	9.19	33.1

System Bias Check End

Test Run 2 STRATA Version 1.2.1

	O2 %	CO2 %	CO ppm	NOx ppm	SO2 ppm
08-15-2000 17:10:33	25.086*	13.097*	3289.2*	9.68*	1906.6*
08-15-2000 17:11:33	20.384	0.430	21.2	7.86	-3.1
08-15-2000 17:12:33	20.418	0.402	22.9	7.46	-3.1
08-15-2000 17:13:33	20.454	0.405	98.4	7.37	-3.1
08-15-2000 17:14:34	20.441	0.429	198.0	7.36	-3.2
08-15-2000 17:15:34	20.392	0.474	290.4	6.38	-3.2
08-15-2000 17:16:34	20.378	0.484	337.7	5.57	-3.3
08-15-2000 17:17:34	20.348	0.510	239.3	5.58	-3.3
08-15-2000 17:18:34	20.355	0.507	255.3	5.73	-3.3
08-15-2000 17:19:34	20.333	0.527	241.0	6.11	-3.3
08-15-2000 17:20:34	20.370	0.481	393.5	5.40	-3.3
08-15-2000 17:21:34	20.414	0.430	291.8	4.32	-3.3
08-15-2000 17:22:32	20.476	0.370	155.1	4.33	-3.3
08-15-2000 17:23:32	20.484	0.344	108.1	4.02	-3.3
08-15-2000 17:24:32	20.532	0.335	36.2	4.50	-3.3
08-15-2000 17:25:32	20.501	0.406	26.0	4.58	-3.2
08-15-2000 17:26:32	20.475	0.461	36.1	4.26	-3.2
08-15-2000 17:27:32	20.499	0.368	9.5	5.33	-3.2
08-15-2000 17:28:32	20.582	0.241	-2.1	8.22	-3.2
08-15-2000 17:29:33	20.662	0.156	-6.8	10.98	-3.2
08-15-2000 17:30:33	20.687	0.138	-6.8	10.41	-3.2
08-15-2000 17:31:33	20.700	0.119	-10.6	9.75	-3.2
08-15-2000 17:32:33	20.716	0.106	-7.1	9.56	-3.2
08-15-2000 17:33:33	20.721	0.102	-6.9	9.45	-3.2
08-15-2000 17:34:33	20.721	0.099	-6.5	9.25	-3.2
08-15-2000 17:35:33	20.724	0.093	-6.4	9.06	-3.2
08-15-2000 17:36:33	20.726	0.089	-5.9	9.13	-3.2
08-15-2000 17:37:33	20.726	0.087	-6.2	9.28	-3.2
08-15-2000 17:38:33	20.702	0.124	-6.7	14.05	-3.2
08-15-2000 17:39:33	20.580	0.281	-4.2	19.04	-3.2
08-15-2000 17:40:33	20.500	0.474	8.6	7.37	-3.2
08-15-2000 17:41:33	20.429	0.548	23.3	6.89	-3.2
08-15-2000 17:42:33	20.518	0.393	0.2	9.77	-3.2
08-15-2000 17:43:33	20.536	0.367	-2.7	11.42	-3.2
08-15-2000 17:44:33	20.517	0.415	-4.0	12.25	-3.2
08-15-2000 17:45:33	20.551	0.357	-5.1	13.58	-3.1
08-15-2000 17:46:33	20.554	0.357	-3.6	17.04	-3.1
08-15-2000 17:47:33	20.537	0.355	-2.6	15.46	-3.1
08-15-2000 17:48:33	20.593	0.293	-7.1	17.57	-3.1
08-15-2000 17:49:34	20.631	0.229	-7.1	16.94	-3.1
08-15-2000 17:50:34	20.640	0.202	-6.1	16.31	-3.1
08-15-2000 17:51:34	20.640	0.225	-5.6	16.46	-3.1
08-15-2000 17:52:34	20.620	0.255	-4.7	15.76	-3.2
08-15-2000 17:53:34	20.556	0.315	1.5	16.78	-3.2
08-15-2000 17:54:34	20.518	0.357	-0.3	25.06	-3.2

Test Run 2 STRATA Version 1.2.1

	O2 %	CO2 %	CO ppm	NOx ppm	SO2 ppm
08-15-2003 14:43:34	25.148*	24.468*	3674.7*	63.93*	1833.6*
08-15-2000 14:44:34	20.761	-0.012	2.9	2.90	-2.7
08-15-2000 14:45:34	20.760	-0.012	3.0	2.65	-2.7
08-15-2000 14:46:34	20.759	-0.013	3.3	2.66	-2.7
08-15-2000 14:47:32	20.760	-0.013	2.8	3.01	-2.7
08-15-2000 14:48:32	20.755	-0.002	5.1	3.17	-2.8
08-15-2000 14:49:32	20.619	0.155	75.4	3.72	-2.8
08-15-2000 14:50:32	20.697	0.036	71.7	3.33	-2.8
08-15-2000 14:51:32	20.734	0.013	36.7	3.11	-2.8
08-15-2000 14:52:32	20.743	0.005	24.3	2.73	-2.8
08-15-2000 14:53:32	20.746	0,009	21.1	2.66	-2.8
08-15-2000 14:54:32	20.592	0.141	49.4	12.48	-2.8
08-15-2000 14:55:33	20.539	0.163	134.2	4.66	-2.8
08-15-2000 14:56:33	20.499	0.211	123.2	3.91	-2.8
08-15-2000 14:57:33	20.472	0.233	101.8	4.05	-2.8
08-15-2000 14:58:33	20.478	0,233	86.3	4.31	-2.8
08-15-2000 14:59:33	20.436	0.277	109.9	3.60	-2.8
08-15-2000 15:00:33	20.430	0.285	105.7	3.41	-2.8
08-15-2000 15:01:33	20.435	0,274	88.2	3.52	-2.8
08-15-2000 15:02:33	20.401	0,338	92.6	3.89	-2.9
08-15-2000 15:03:33	20.426	0.311	103.3	4.24	-2.8
08-15-2000 15:04:33	20.431	0.317	102.8	5.31	-2.8
08-15-2000 15:05:33	20.439	0.320	138.9	4.29	-2.7
08-15-2000 15:06:33	20.438	0,311	150.8	3.50	-2.7
08-15-2000 15:07:33	20.433	0.355	174.3	3.71	-2.7
08-15-2000 15:08:34	20.436	0.316	105.3	3.92	-2.9
08-15-2000 15:09:34	20.522	0.251	59.6	3.95	-2.7
08-15-2000 15:10:34	20.593	0.228	47.1	6.43	-2.7
08-15-2000 15:11:34	20.490	0.323	87.6	5.06	-2.8
08-15-2000 15:12:34	20.370	0.448	123.0	3.38	-2.8
08-15-2000 15:13:34	20.506	0.255	29.8	3.83	-2.8
08-15-2000 15:14:34	20.644	0.163	0.4	4.88	-2.8
08-15-2000 15:15:34	20.664	0.142	1.3	5.29	-2.8
08-15-2000 15:16:34	20.654	0.126	1.1	5.35	-2.9
08-15-2000 15:17:34	20.689	0.123	0.3	5.48	-2.8
08-15-2000 15:18:32	20.689	0.121	3.3	5.63	-2.8
08-15-2000 15:19:32	20.698	0.099	10.8	5.70	-2.8
08-15-2000 15:20:32	20.629	0.176	17.0	8.76	-2.8
08-15-2000 15:21:32	20.657	0.143	18.9	8.14	-2.8
08-15-2000 15:22:32	20.662	0.127	16.9	7.32	-2.8
08-15-2000 15:23:33	20.667	0.120	17.4	7.42	-2.8
08-15-2000 15:24:33	30.662	0.137	18.9	7.80	-2.8
08-15-2000 15:25:33	20.661	0.129	10.7	7.29	-2.8
08-15-2000 15:26:33	20.686	0.101	6.2	6.17	-2.8
08-15-2000 15:27:33	20.689	0.095	5.9	5.87	-2.8
08-15-2000 15:28:33	20.644	0.147	6.7	6.81	-2.9
08-15-2000 15:29:33	20.598	0.164	3.5	7.00	-2.9
08-15-2000 15:30:33	20.584	0.199	4.2	10.55	-2.9
08-15-2000 15:31:33	20.531	0.263	156.4	8.68	-2.9

Test Run 2 Begin. STRATA Version 1.2.1
Operator: Peter Hilty
Plant Name: Newport Steel
Location: EAF Exhaust/Baghouse Inlet

Begin calculating run averages

	02 %	CO2 %	CO ppm	NOx ppm	SO2 ppm
8/15/00 13:55:32	20.484	0.401	7.8	13.59	-2.4
8/15/00 13:56:33	20.493	0.412	4.2	16.63	-2.4
8/15/00 13:57:33	20.442	0.563	63	8.05	-2.4
8/15/00 13:58:34	20.532	0.313	14.1	14.79	-2.4
8/15/00 14:01:34	20.657	0.203	0.9	14.64	-2.5
8/15/00 14:02:34	20.679	0.181	0.8	16.27	-2.5
8/15/00 14:03:34	20.699	0.152	0.6	18.43	-2.5
8/15/00 14:04:32	20.709	0.142	0.8	17.7	-2.5
8/15/00 14:05:32	20.702	0.139	1.6	16.99	-2.5
8/15/00 14:06:32	20.714	0.129	1.1	15.57	-2.5
8/15/00 14:10:33	20.509	0.422	12.6	16.07	-2.6
8/15/00 14:11:33	20.558	0.229	4.2	10.75	-2.6
8/15/00 14:12:33	20.654	0.144	1	15.57	-2.6
8/15/00 14:13:33	20.694	0.129	0.8	18.28	-2.6
8/15/00 14:14:33	20.678	0.146	7.5	15.81	-2.6
8/15/00 14:15:33	20.7	0.11	4.2	14.08	-2.6
8/15/00 14:16:33	20.729	0.086	2.4	13.61	-2.6
8/15/00 14:17:33	20.741	0.07	16.2	12.83	-2.6
8/15/00 14:18:34	20.764	0.056	8.1	11.72	-2.6
8/15/00 14:19:34	20.772	0.041	4	10.64	-2.6
8/15/00 14:20:34	20.755	0.014	3.6	3.39	-2.5
8/15/00 14:21:34	20.751	0.007	2.1	2.59	-2.5
8/15/00 14:22:34	20.752	0.004	1.8	2.52	-2.5
8/15/00 14:23:34	20.754	-0.001	1.2	2.61	-2.5
8/15/00 14:24:34	20.753	-0.002	1.2	2.67	-2.6
8/15/00 14:25:34	20.753	-0.002	1.4	2.54	-2.6
8/15/00 14:26:34	20.752	-0.002	1.4	2.73	-2.6
8/15/00 14:27:34	20.75	-0.002	1.4	3.26	-2.6
8/15/00 14:28:34	20.748	-0.003	2.3	3.26	-2.6
8/15/00 14:29:34	20.747	-0.003	2.6	2.92	-2.6
8/15/00 14:30:34	20.747	-0.003	2.5	2.81	-2.6
8/15/00 14:31:32	20.748	-0.003	2.3	2.88	-2.6
8/15/00 14:32:32	20.753	-0.009	2	2.76	-2.6
8/15/00 14:33:32	20.754	-0.01	2.4	2.71	-2.7
8/15/00 14:34:32	20.756	-0.011	3.2	2.65	-2.7
8/15/00 14:35:32	20.755	-0.012	3.4	2.64	-2.7
8/15/00 14:36:32	20.753	-0.011	3.9	2.69	-2.7
8/15/00 14:37:32	20.754	-0.011	3.8	2.83	-2.6
8/15/00 14:38:32	20.752	-0.011	3.1	2.98	-2.6
8/15/00 14:39:32	20.755	-0.011	2.8	2.9	-2.6
8/15/00 14:40:33	20.757	-0.011	3.5	2.79	-2.6
8/15/00 14:41:33	20.759	-0.011	2.7	2.79	-2.6
8/15/00 14:42:33	20.761	-0.011	3.3	2.67	-2.6

Test Run 2 STRATA Version 1.2.1

		02	C02	CO	NOx	SO2
		8	%	ppm	ppm	ppm
Begin calculating run averages						
08-15-2000	13:55:32	20.484	0.401	7.8	13.59	-2.4
08-15-2000	13:56:33	20.493	0.412	4.2	16.63	-2.4
08-15-2000	13:57:33	20.442	0.563	63.0	8.05	-2.4
08-15-2000	13:58:34	20.532	0.313	14.1	14.79	-2.4
08-15-2000	13:59:33	22.057*	0.223"	1180.6*	20.39	-2.4
08-15-2000	14:00:34	23.347*	34.346"	1706.0"	44.26*	565.9*
08-15-2000	14:01:34	20.657	0.203	0.9	14.64	-2.5
08-15-2000	14:02:34	20.679	0.181	0.8	16.27	-2.5
08-15-2000	14:03:34	20.699	0.152	0.6	18.43	-2.5
08-15-2000	14:04:32	20.709	0,142	0.8	17.70	-2.5
08-15-2000	14:05:32	20.702	0.139	1.6	16.99	-2.5
08-15-2000	14:06:32	20.714	0.129	1.1	15.57	-2.5
08-15-2000	14:07:33	24.960"	59.026*	1768.8*	101.52*	1765.6*
08-15-2000	14:08:34	28.481*	35.464*	7072.4*	101.15*	4123.2*
08-15-2000	14:09:33	24.160*	12.020*	2357.9*	100.31*	2944.4*
08-15-2000	14:10:33	20.509	0.422	12.6	16.07	-2.6
08-15-2000	14:11:33	20.558	0.229	4.2	10.75	-2.6
08-15-2000	14:12:33	20.654	0.144	1.0	15.57	-2.6
08-15-2000	14:13:33	20.694	0.129	0.8	18.28	-2.6
08-15-2000	14:14:33	20.678	0.146	7.5	15.81	-2.6
08-15-2000	14:15:33	20.700	0.110	4.2	14.08	-2.6
08-15-2000	14:16:33	20,729	0·086	2.4	13.61	-2.6
08-15-2000	14:17:33	20.741	0.070	16.2	12.83	-2.6
08-15-2000	14:18:34	20.764	0.056	8.1	11.72	-2.6
08-15-2000	14:19:34	20.772	0.041	4.0	10.64	-2.6
08-15-2000	14:20:34	20.755	0.014	3.6	3.39	-2.5
08-15-2000	14:21:34	20.751	0.007	2.1	2.59	-2.5
08-15-2000	14:22:34	20.752	0.004	1.8	2.52	-2.5
08-15-2000	14:23:34	20.754	-0.001	1.2	2.61	-2.5
08-15-2000	14:24:34	20,753	-0.002	1.2	2.67	-2.6
08-15-2000	14:25:34	20.753	-0.002	1.4	2.54	-2.6
08-15-2000	14:26:34	20.752	-0.002	1.4	2.73	-2.6
08-15-2000	14:27:34	20.750	-0.002	1.4	3.26	-2.6
08-15-2000	14:28:34	20.748	-0.003	2.3	3.26	-2.6
08-15-2000	14:29:34	20.747	-0.003	2.6	2.92	-2.6
08-15-2000	14:30:34	20·747	-0.003	2.5	2.81	-2.6
08-15-2000	14:31:32	20.748	-0.003	2.3	2.88	-2.6
08-15-2000	14:32:32	20.753	-0.009	2.0	2.76	-2.6
08-15-2000	14:33:32	20.754	-0.010	2.4	2.71	-2.7
08-15-2000	14:34:32	20.756	-0.011	3.2	2.65	-2.7
08-15-2000	14:35:32	20.755	-0.012	3.4	2.64	-2.7
08-15-2000	14:36:32	20.753	-0.011	3.9	2.69	-2.7
08-15-2000	14:37:32	20.754	-0.011	3.8	2.83	-2.6
08-15-2000	14:38:32	20.752	-0.011	3.1	2.98	-2.6
08-15-2000	14:39:32	20.755	-0.011	2.8	2.90	-2.6
08-15-2000	14:40:33	20.757	-0.011	3.5	2.79	-2.6
08-15-2000	14:41:33	20.759	-0.011	2.7	2.79	-2.6
08-15-2000	14:42:33	20.761	-0.011	3.3	2.67	-2.6

Test Run 2 STRATA Version 1.2.1

	O2 %	CO2 %	CO ppm	NOx ppm	SO2 ppm
08-15-2000 16:21:33	23.783*	12.823*	1269.5*	46.62*	1906.6*
08-15-2000 16:22:33	20.708	0.164	-3.9	15.19	-3.1
08-15-2000 16:23:33	20.679	0.176	-4.4	15.71	-3.1
08-15-2000 16:24:33	20.708	0.151	-4.4	14.22	-3.1
08-15-2000 16:25:33	20.707	0.143	-3.9	14.92	-3.1
08-15-2000 16:26:33	20.648	0.138	-3.8	49.66	-3.0
08-15-2000 16:27:33	20.692	0.125	-4.9	15.38	-3.0
08-15-2000 16:28:33	20.753	0.080	-5.6	15.25	-2.9
08-15-2000 16:29:34	20.761	0.077	-5.8	15.32	-2.9
08-15-2000 16:30:34	20.757	0.089	-5.4	16.71	-2.9
08-15-2000 16:31:34	20.674	0.190	-5.3	41.98	-2.9
08-15-2000 16:32:34	20.682	0.164	-4.9	47.66	-2.9
08-15-2000 16:33:34	20.763	0.083	-4.4	19.89	-2.8
08-15-2000 16:34:32	20.776	0.076	-4.4	13.72	-2.8
08-15-2000 16:35:32	20.771	0.071	-5.0	14.21	-2.8
08-15-2000 16:36:32	20.716	0.094	2.3	23.88	-2.8
08-15-2000 16:37:32	20.753	0.072	-3.0	13.05	-2.8
08-15-2000 16:38:33	20.772	0.064	-3.9	12.43	-2.8
08-15-2000 16:39:33	20.770	0.062	17.1	13.65	-2.8
08-15-2000 16:40:33	20.795	0.054	2.2	12.29	-2.8
08-15-2000 16:41:34	20.802	0.043	-2.8	12.01	-2.8
08-15-2000 16:42:34	20.805	0.035	-3.7	11.58	-2.8
08-15-2000 16:43:34	20.803	0.026	-4.6	11.02	-2.9
08-15-2000 16:44:32	20.811	0.006	-4.1	8.78	-2.9
08-15-2000 16:45:32	20.817	0.006	-3.9	9.81	-2.9
08-15-2000 16:46:32	20.760	0.079	-4.1	25.64	-2.9
08-15-2000 16:47:32	20.428	0.471	62.9	27.83	-2.9
08-15-2000 16:48:32	20.536	0.263	147.9	8.78	-3.0
08-15-2000 16:49:32	20.607	0.219	161.9	8.61	-3.0
08-15-2000 16:50:33	20.576	0.263	127.6	10.81	-3.0
08-15-2000 16:51:33	20.477	0.339	31.9	10.21	-3.0
08-15-2000 16:52:33	20.504	0.340	25.7	7.72	-3.0
08-15-2000 16:53:33	20.463	0.394	54.5	6.84	-3.0
08-15-2000 16:54:33	20.479	0.373	104.7	6.09	-3.0
08-15-2000 16:55:33	20.448	0.405	122.9	6.13	-3.0
08-15-2000 16:56:33	20.407	0.449	212.6	5.74	-3.0
08-15-2000 16:57:33	20.418	0.462	391.4	6.38	-3.0
08-15-2000 16:58:33	20.374	0.498	513.7	5.80	-3.0
08-15-2000 16:59:33	20.343	0.546	539.1	5.53	-3.1
08-15-2000 17:00:33	20.371	0.581	413.9	5.76	-3.1
08-15-2000 17:01:33	20.337	0.645	263.7	10.00	-3.1
08-15-2000 17:02:33	20.375	0.562	148.0	15.06	-3.1
08-15-2000 17:03:33	20.447	0.369	59.2	13.96	-3.1
08-15-2000 17:04:34	20.609	0.208	7.2	13.23	-3.1
08-15-2000 17:05:34	20.529	0.276	1.4	32.69	-3.1
08-15-2000 17:06:34	20.523	0.289	1.3	34.40	-3.2
08-15-2000 17:07:34	20.462	0.374	153.5	20.67	-3.2
08-15-2000 17:08:34	20.509	0.303	191.5	8.21	-3.1
08-15-2000 17:09:34	20.505	0.324	183.2	7.22	-3.1

Test Run 2 STRATA Version 1.2.1

Run Averages	02	C02	CO	NOx	SO2
	%	%	ppm	ppm	ppm
38-15-2000 17:54:38	20.720*	1.003*	184.5*	11.66*	63.6*

Operator: Peter Hilty
Plant Name: Newport Steel
Location: EAF Exhaust/Baghouse Inlet
Test Run 2 End

Final System Bias Check, Run 2 STRATA Version 1.2.1

Operator: Peter Hilty
Plant Name: Newport Steel
Location: EAF Exhaust/Baghouse Inlet

Reference Cylinder Numbers

	Zero	Span
O2	N2	Air
CO2	N2	CC84981
CO	N2	CC113985
NOx	N2	CC118512
SO2	N2	CC5784

Date/Time 08-15-2000 18:15:26 PASSED

Analyte	O2	CO2	CO	NOx	SO2
Units	%	%	ppm	ppm	ppm
Zero Ref Cyl	0.000	0.000	0.0	0.00	0.0
Zero Cal	0.022	-0.267	-5.5	0.81	0.3
Zero Avg	-0.104	-0.101	-4.2	2.67	-3.3
Zero Bias%	0.5%	0.8%	0.1%	0.7%	0.4%
Zero Drift%	-0.1%	1.0%	0.6%	0.4%	-0.1%
Span Ref Cyl	20.900	8.000	50.0	50.50	400.0
Span Cal	20.896	8.016	46.1	50.15	393.3
Span Avg	20.769	7.918	46.2	50.22	390.3
Span Bias%	0.5%	0.5%	0.0%	0.0%	0.3%
Span Drift%	-0.2%	-0.4%	0.7%	-0.5%	-0.9%
Ini Zero Avg	-0.086	-0.301	-10.0	1.77	-1.9
Ini Span Avy	20.824	7.992	39.5	51.43	399.0
Run Avg	20.720	1.003	184.5	11.66	63.6
Co	-0.095	-0.201	-7.1	2.22	-2.6
Cm	20.796	7.955	42.8	50.83	394.7
Correct Avg	20.823	1.181	191.8	9.81	66.7

System Bias Check End

Final System Bias Check for Run 3
Operator: Peter Hilty
Plant Name: Newport Steel
Location: EAF Exhaust/Baghouse Inlet

Date/Time 8/16/00 12:07:23 PASSED

Analyte	02	C02	CO	NOx
Units	%	%	ppm	ppm
Zero Ref Cyl	0	0	0	0
Zero Cal	-0.037	0.005	0.1	-1.24
Zero Avg	-0.254	0.016	2.2	-0.79
Zero Bids%	0.9	0.1	0.2	0.2
Zero Drift%				
Spar! Ref Cyl	20.9	8	50	50.5
Span Cal	20.893	8	50.1	48.88
Span Avg	20.864	7.971	52.8	49.85
Span Bias%	0.1	0.1	0.3	0.4
Span Drift%				

8/15/00 15:34:33	20.518	0.255	235.9	5.78	-3
8/15/00 15:35:33	20.537	0.222	200	5.69	-3
8/15/00 15:36:33	20.518	0.251	225.4	5.83	-3
8/15/00 15:37:33	20.524	0.243	197.5	5.81	-3
8/15/00 15:38:33	20.547	0.205	159.1	5.33	-3
8/15/00 15:40:32	20.479	0.286	239.6	5.72	-3.3
8/15/00 15:41:32	20.404	0.372	174.5	6.27	-3
8/15/00 15:42:32	20.293	0.465	48.8	7.24	-3
8/15/00 15:43:33	20.349	0.407	56.6	6.29	-3
8/15/00 15:44:33	20.431	0.361	190.9	5.34	-3
8/15/00 15:45:33	20.447	0.344	775	4.9	-3.1
8/15/00 15:46:33	20.381	0.419	1148.7	4.74	-3.1
8/15/00 15:47:33	20.346	0.483	1195.7	4.93	-3.1
8/15/00 15:48:33	20.26	0.586	841.3	4.89	-3.1
8/15/00 15:49:33	20.239	0.55	729	5.75	-3.1
8/15/00 15:50:33	20.328	0.506	588.9	4.65	-3.1
8/15/00 15:51:33	20.309	0.58	799.8	4.03	-3.1
8/15/00 15:52:34	20.316	0.554	811.7	4.44	-3.1
8/15/00 15:53:34	20.307	0.64	388.7	3.94	-3.1
8/15/00 15:54:34	20.224	0.67	341.1	3	-3.1
8/15/00 15:55:34	20.243	0.669	260.4	3.06	-3.1
8/15/00 15:56:34	20.26	0.622	232.8	3.33	-3.1
8/15/00 15:57:34	20.281	0.616	196.1	3.44	-3.1
8/15/00 15:58:34	20.284	0.615	212.2	3.39	-3.2
8/15/00 15:59:34	20.539	0.241	54.8	15.1	-3.1
8/15/00 16:00:32	20.639	0.165	21.1	15.72	-3.1
8/15/00 16:01:32	20.669	0.139	14.1	15.36	-3.1
8/15/00 16:02:32	20.645	0.203	11.3	20.75	-3.1
8/15/00 16:03:32	20.509	0.334	10.4	32.89	-3.1
8/15/00 16:04:32	20.461	0.454	20	14.04	-3.1
8/15/00 16:05:33	20.313	0.74	138.8	6.35	-3.1
8/15/00 16:06:33	20.25	0.746	156.1	4.7	-3.1
8/15/00 16:07:33	20.357	0.592	57.5	10.09	-3.1
8/15/00 16:08:33	20.394	0.553	32.4	13.15	-3.1
8/15/00 16:09:33	20.448	0.44	19.8	16.82	-3.2
8/15/00 16:10:33	20.573	0.269	15.7	24.45	-3.2
8/15/00 16:11:33	20.564	0.276	11.2	22.45	-3.2
8/15/00 16:12:33	20.534	0.313	8.8	19.22	-3.2
8/15/00 16:13:33	20.5	0.37	14.6	14.43	-3.2
8/15/00 16:14:33	20.502	0.37	10.7	16.24	-3.2
8/15/00 16:15:34	20.523	0.329	6	17.74	-3.2
8/15/00 16:16:34	20.591	0.24	2.3	39.01	-3.2
8/15/00 16:17:34	20.587	0.213	-1.3	30.47	-3.2
8/15/00 16:18:34	20.678	0.154	-1.7	22.09	-3.2
8/15/00 16:19:34	20.71	0.122	-2.9	18.33	-3.2
8/15/00 16:20:34	20.716	0.11	-3.5	16.73	-3.2
8/15/00 16:22:33	20.708	0.164	-3.9	15.19	-3.1
8/15/00 16:23:33	20.679	0.176	-4.4	15.71	-3.1
8/15/00 16:24:33	20.708	0.151	-4.4	14.22	-3.1
8/15/00 16:25:33	20.707	0.143	-3.9	14.92	-3.1

8/15/00 16:26:33	20.648	0.138	-3.8	49.66	-3
8/15/00 16:27:33	20.692	0.125	-4.9	15.38	-3
8/15/00 16:28:33	20.753	0.08	-5.6	15.25	-2.9
8/15/00 16:29:34	20.761	0.077	-5.8	15.32	-2.9
8/15/00 16:30:34	20.757	0.089	-5.4	16.71	-2.9
8/15/00 16:31:34	20.674	0.19	-5.3	41.98	-2.9
8/15/00 16:32:34	20.682	0.164	-4.9	47.66	-2.9
8/15/00 16:33:34	20.763	0.083	-4.4	19.89	-2.8
8/15/00 16:34:32	20.776	0.076	-4.4	13.72	-2.8
8/15/00 16:35:32	20.771	0.071	-5	14.21	-2.8
8/15/00 16:36:32	20.716	0.094	2.3	23.88	-2.8
8/15/00 16:37:32	20.753	0.072	-3	13.05	-2.8
8/15/00 16:38:33	20.772	0.064	-3.9	12.43	-2.8
8/15/00 16:39:33	20.77	0.062	17.1	13.65	-2.8
8/15/00 16:40:33	20.795	0.054	2.2	12.29	-2.8
8/15/00 16:41:34	20.802	0.043	-2.8	12.01	-2.8
8/15/00 16:42:34	20.805	0.035	-3.7	11.58	-2.8
8/15/00 16:43:34	20.803	0.026	-4.6	11.02	-2.9
8/15/00 16:44:32	20.811	0.006	-4.1	8.78	-2.9
8/15/00 16:45:32	20.817	0.006	-3.9	9.81	-2.9
8/15/00 16:46:32	20.76	0.079	-4.1	25.64	-2.9
8/15/00 16:47:32	20.428	0.471	62.9	27.83	-2.9
8/15/00 16:48:32	20.536	0.263	147.9	8.78	-3
8/15/00 16:49:32	20.607	0.219	161.9	8.61	-3
8/15/00 16:50:33	20.576	0.263	127.6	10.81	-3
8/15/00 16:51:33	20.477	0.339	31.9	10.21	-3
8/15/00 16:52:33	20.504	0.34	25.7	7.72	-3
8/15/00 16:53:33	20.463	0.394	54.5	6.84	-3
8/15/00 16:54:33	20.479	0.373	104.7	6.09	-3
8/15/00 16:55:33	20.448	0.405	122.9	6.13	-3
8/15/00 16:56:33	20.407	0.449	212.6	5.74	-3
8/15/00 16:57:33	20.418	0.462	391.4	6.38	-3
8/15/00 16:58:33	20.374	0.498	513.7	5.8	-3
8/15/00 16:59:33	20.343	0.546	539.1	5.53	-3.1
8/15/00 17:00:33	20.371	0.581	413.9	5.76	-3.1
8/15/00 17:01:33	20.337	0.645	263.7	10	-3.1
8/15/00 17:02:33	20.375	0.562	148	15.06	-3.1
8/15/00 17:03:33	20.447	0.369	59.2	13.96	-3.1
8/15/00 17:04:34	20.609	0.208	7.2	13.23	-3.1
8/15/00 17:05:34	20.529	0.276	1.4	32.69	-3.1
8/15/00 17:06:34	20.523	0.289	1.3	34.4	-3.2
8/15/00 17:07:34	20.462	0.374	153.5	20.67	-3.2
8/15/00 17:08:34	20.509	0.303	191.5	8.21	-3.1
8/15/00 17:09:34	20.505	0.324	183.2	7.22	-3.1
8/15/00 17:11:33	20.384	0.43	21.2	7.86	-3.1
8/15/00 17:12:33	20.418	0.402	22.9	7.46	-3.1
8/15/00 17:13:33	20.454	0.405	98.4	7.37	-3.1
8/15/00 17:14:34	20.441	0.429	198	7.36	-3.2
8/15/00 17:15:34	20.392	0.474	290.4	6.38	-3.2
8/15/00 17:16:34	20.378	0.484	337.7	5.57	-3.3

8/15/00	17:17:34	20.348	0.51	239.3	5.58	-3.3
8/15/00	17:18:34	20.355	0.507	255.3	5.73	-3.3
8/15/00	17:19:34	20.333	0.527	241	6.11	-3.3
8/15/00	17:20:34	20.37	0.481	393.5	5.4	-3.3
8/15/00	17:21:34	20.414	0.43	291.8	4.32	-3.3
8/15/00	17:22:32	20.476	0.37	155.1	4.33	-3.3
8/15/00	17:23:32	20.484	0.344	108.1	4.02	-3.3
8/15/00	17:24:32	20.532	0.335	36.2	4.5	-3.3
8/15/00	17:25:32	20.501	0.406	26	4.58	-3.2
8/15/00	17:26:32	20.475	0.461	36.1	4.26	-3.2
8/15/00	17:27:32	20.499	0.368	9.5	5.33	-3.2
8/15/00	17:28:32	20.582	0.241	-2.1	8.22	-3.2
8/15/00	17:29:33	20.662	0.156	-6.8	10.98	-3.2
8/15/00	17:30:33	20.687	0.138	-6.8	10.41	-3.2
8/15/00	17:31:33	20.7	0.119	-10.6	9.75	-3.2
8/15/00	17:32:33	20.716	0.106	-7.1	9.56	-3.2
8/15/00	17:33:33	20.721	0.102	-6.9	9.45	-3.2
8/15/00	17:34:33	20.721	0.099	-6.5	9.25	-3.2
8/15/00	17:35:33	20.724	0.093	-6.4	9.06	-3.2
8/15/00	17:36:33	20.726	0.089	-5.9	9.13	-3.2
8/15/00	17:37:33	20.726	0.087	-6.2	9.28	-3.2
8/15/00	17:38:33	20.702	0.124	-6.7	14.05	-3.2
8/15/00	17:39:33	20.58	0.281	-4.2	19.04	-3.2
8/15/00	17:40:33	20.5	0.474	8.6	7.37	-3.2
8/15/00	17:41:33	20.429	0.548	23.3	6.89	-3.2
8/15/00	17:42:33	20.518	0.393	0.2	9.77	-3.2
8/15/00	17:43:33	20.536	0.367	-2.7	11.42	-3.2
8/15/00	17:44:33	20.517	0.415	-4	12.25	-3.2
8/15/00	17:45:33	20.551	0.357	-5.1	13.58	-3.1
8/15/00	17:46:33	20.554	0.357	-3.6	17.04	-3.1
8/15/00	17:47:33	20.537	0.355	-2.6	15.46	-3.1
8/15/00	17:48:33	20.593	0.293	-7.1	17.57	-3.1
8/15/00	17:49:34	20.631	0.229	-7.1	16.94	-3.1
8/15/00	17:50:34	20.64	0.202	-6.1	16.31	-3.1
8/15/00	17:51:34	20.64	0.225	-5.6	16.46	-3.1
8/15/00	17:52:34	20.62	0.255	-4.7	15.76	-3.2
8/15/00	17:53:34	20.556	0.315	1.5	16.78	-3.2
8/15/00	17:54:34	20.518	0.357	-0.3	25.06	-3.2

Average of Test Run		O2 %	CO2 %	CO ppm	NOx ppm	SO2 ppm
8/15/00	17:54:34	20.58	0.24	89.10	10.05	-2.93

Test Run 2 End

Final System Bias Check for Run 2
Operator: Peter Hilty
Plant Name: Newport Steel
Location: EAF Exhaust/Baghouse Inlet

Date/Time 8/15/00 18:15:26 PASSED

Analyte	02	CO2	CO	NOx	S02
Units	%	%	ppm	ppm	ppm
Zero Ref Cyl.	0	0	0	0	0
Zero Cal	0.022	-0.267	-5.5	0.81	0.3
Zero Avg	-0.104	-0.101	-4.2	2.67	-3.3
Zero Bias%	0.5	0.8	0.1	0.7	0.4
Zero Drift%	-0.1	1	0.6	0.4	-0.1
Span Ref Cyl	20.9	8	50	50.5	400
Span Cal.	20.896	8.016	46.1	50.15	393.3
Span Avg	20.769	7.918	46.2	50.22	390.3
Span Bias%	0.5	0.5	0	0	0.3
Span Drift%	-0.2	-0.4	0.7	-0.5	-0.9
Ini Zero Avg	-0.086	-0.301	-10	1.77	-1.9
Ini Span Avg	20.824	7.992	39.5	51.43	399
Run Avg	20.72	1.003	184.5	11.66	63.6
CO	-0.095	-0.201	-7.1	2.22	-2.6
Cm	20.796	7.955	42.8	50.83	394.7
Correct Avg	20.823	1.181	191.8	9.81	66.7

8/15/00 14:44:34	20.761	-0.012	2.9	2.9	-2.7
8/15/00 14:45:34	20.76	-0.012	3	2.65	-2.7
8/15/00 14:46:34	20.759	-0.013	3.3	2.66	-2.7
8/15/00 14:47:32	20.76	-0.013	2.8	3.01	-2.7
8/15/00 14:48:32	20.755	-0.002	5.1	3.17	-2.8
8/15/00 14:49:32	20.619	0.155	75.4	3.72	-2.8
8/15/00 14:50:32	20.697	0.036	71.7	3.33	-2.8
8/15/00 14:51:32	20.734	0.013	36.7	3.11	-2.8
8/15/00 14:52:32	20.743	0.005	24.3	2.73	-2.8
8/15/00 14:53:32	20.746	0.009	21.1	2.66	-2.8
8/15/00 14:54:32	20.592	0.141	49.4	12.48	-2.8
8/15/00 14:55:33	20.539	0.163	134.2	4.66	-2.8
8/15/00 14:56:33	20.499	0.211	123.2	3.91	-2.8
8/15/00 14:57:33	20.472	0.233	101.8	4.05	-2.8
8/15/00 14:58:33	20.478	0.233	86.3	4.31	-2.8
8/15/00 14:59:33	20.436	0.277	109.9	3.6	-2.8
8/15/00 15:00:33	20.43	0.285	105.7	3.41	-2.8
8/15/00 15:01:33	20.435	0.274	88.2	3.52	-2.8
8/15/00 15:02:33	20.401	0.338	92.6	3.89	-2.9
8/15/00 15:03:33	20.426	0.311	103.3	4.24	-2.8
8/15/00 15:04:33	20.431	0.317	102.8	5.31	-2.8
8/15/00 15:05:33	20.439	0.32	138.9	4.29	-2.7
8/15/00 15:06:33	20.438	0.311	150.8	3.5	-2.7
8/15/00 15:07:33	20.433	0.355	174.3	3.71	-2.7
8/15/00 15:08:34	20.436	0.316	105.3	3.92	-2.9
8/15/00 15:09:34	20.522	0.251	59.6	3.95	-2.7
8/15/00 15:10:34	20.593	0.228	47.1	6.43	-2.7
8/15/00 15:11:34	20.49	0.323	87.6	5.06	-2.8
8/15/00 15:12:34	20.37	0.448	123	3.38	-2.8
8/15/00 15:13:34	20.506	0.255	29.8	3.83	-2.8
8/15/00 15:14:34	20.644	0.163	0.4	4.88	-2.8
8/15/00 15:15:34	20.664	0.142	1.3	5.29	-2.8
8/15/00 15:16:34	20.654	0.126	1.1	5.35	-2.9
8/15/00 15:17:34	20.689	0.123	0.3	5.48	-2.8
8/15/00 15:18:32	20.689	0.121	3.3	5.63	-2.8
8/15/00 15:19:32	20.698	0.099	10.8	5.7	-2.8
8/15/00 15:20:32	20.629	0.176	17	8.76	-2.8
8/15/00 15:21:32	20.657	0.143	18.9	8.14	-2.8
8/15/00 15:22:32	20.662	0.127	16.9	7.32	-2.8
8/15/00 15:23:33	20.667	0.12	17.4	7.42	-2.8
8/15/00 15:24:33	20.662	0.137	18.9	7.8	-2.8
8/15/00 15:25:33	20.661	0.129	10.7	7.29	-2.8
8/15/00 15:26:33	20.686	0.101	6.2	6.17	-2.8
8/15/00 15:27:33	20.689	0.095	5.9	5.87	-2.8
8/15/00 15:28:33	20.644	0.147	6.7	6.81	-2.9
8/15/00 15:29:33	20.598	0.164	3.5	7	-2.9
8/15/00 15:30:33	20.584	0.199	4.2	10.55	-2.9
8/15/00 15:31:33	20.531	0.263	156.4	8.68	-2.9
8/15/00 15:32:32	20.512	0.279	[illegible]	4.97	-2.9
8/15/00 15:33:32	20.519	0.269		4.92	-2.9

Test Run 2 STRATA Version 1.2.1

	O2 %	CO2 %	CO ppm	NOx ppm	SO2 ppm
08-15-2000 15:32:32	20.512	0.279	220.6	4.97	-2.9
08-15-2000 15:33:32	20.519	0.269	228.5	4.92	-2.9
08-15-2000 15:34:33	20.518	0,255	235.9	5.78*	-3.0
08-15-2000 15:35:33	20.537	0.222	200.0	5.69	-3.0
08-15-2000 15:36:33	20.518	0.251	225.4	5.83	-3.0
08-15-2000 15:37:33	20.524	0.243	197.5	5.81	-3.0
08-15-2000 15:38:33	20.547	0.205	159.1	5.33	-3.0
08-15-2000 15:39:32	24.080*	0.251*	2511.1*	5.68*	1765.2*
08-15-2000 15:40:32	20.479	0.286	239.6	5.72	-3.3
08-15-2000 15:41:32	20.404	0.372	174.5	6.27	-3.0
08-15-2000 15:42:32	20.293	0.465	48.8	7.24	-3.0
08-15-2000 15:43:33	20.349	0.407	56.6	6.29	-3.0
08-15-2000 15:44:33	20.431	0.361	190.9	5.34	-3.0
08-15-2000 15:45:33	20.447	0.344	775.0*	4.90	-3.1
08-15-2000 15:46:33	20.381	0.419	1148.7*	4.74	-3.1
08-15-2000 15:47:33	20.346	0.483	1195.7*	4.93	-3.1
08-15-2000 15:48:33	20.260	0.586	841.3*	4.89	-3.1
08-15-2000 15:49:33	20.239	0.550	729.0*	5.75	-3.1
08-15-2000 15:50:33	20.328	0.506	588.9	4.65	-3.1
08-15-2000 15:51:33	20.309	0.580	799.8*	4.03	-3.1
08-15-2000 15:52:34	20.316	0.554	811.7*	4.44	-3.1
08-15-2000 15:53:34	20.307	0.640	388.7	3.94	-3.1
08-15-2000 15:54:34	20.224	0.670	341.1	3.00	-3.1
08-15-2000 15:55:34	20.243	0.669	260.4	3.06	-3.1
08-15-2000 15:56:34	20.260	0.622	232.8	3.33	-3.1
08-15-2000 15:57:34	20.281	0.616	196.1	3.44	-3.1
08-15-2000 15:58:34	20,284	0.615	212.2	3.39	-3.2
08-15-2000 15:59:34	20.539	0.241	54.8	15.10	-3.1
08-15-2000 16:00:32	20.639	0.165	21.1	15.72	-3.1
08-15-2000 16:01:32	20.669	0.139	14.1	15.36	-3.1
08-15-2000 16:02:32	20.645	0.203	11.3	20.75	-3.1
08-15-2000 16:03:32	20.509	0.334	10.4	32.89	-3.1
08-15-2000 16:04:32	20.461	0.454	20.0	14.04	-3.1
08-15-2000 16:05:33	20.313	0.740	138.8	6.35	-3.1
08-15-2000 16:06:33	20.250	0.746	156.1	4.70	-3.1
08-15-2000 16:07:33	20.357	0.592	57.5	10.09	-3.1
08-15-2000 16:08:33	20.394	0.553	32.4	13.15	-3.1
08-15-2000 16:09:33	20.448	0.440	19.8	16.82	-3.2
08-15-2000 16:10:33	20.573	0.269	15.7	24.45	-3.2
08-15-2000 16:11:33	20.564	0.276	11.2	22.45	-3.2
08-15-2000 16:12:33	20.534	0.313	8.8	19.22	-3.2
08-15-2000 16:13:33	20.500	0.370	14.6	14.43	-3.2
08-15-2000 16:14:33	20.502	0.370	10.7	16.24	-3.2
08-15-2000 16:15:34	20.523	0.329	6.0	17.74	-3.2
08-15-2000 16:16:34	20.591	0.240	2.3	39.01	-3.2
08-15-2000 16:17:34	20.587	0.213	-1.3	30.47	-3.2
08-15-2000 16:18:34	20.678	0.154	-1.7	22.09	-3.2
08-15-2000 16:19:34	20.710	0.122	-2.9	18.33	-3.2
08-15-2000 16:20:34	20.716	0.110	-3.5	16.73	-3.2

Test Run 4 Begin. STRATA Version 1.2.1
Operator: Peter Hilty
Plant Name: Newport Steel
Location: EAF Exhaust/Baghouse Inlet

		02 %	C02 %	CO ppm	NOx ppm
Begin calculating run averages					
8/16/00	13:09:43	20.451	0.51	411.5	3.68
8/16/00	13:10:43	20.445	0.503	304.4	2.64
8/16/00	13:11:42	20.476	0.558	332.2	4
8/16/00	13:12:43	20.521	0.595	348.8	4.18
8/16/00	13:13:43	20.514	0.621	484.2	3.9
8/16/00	13:14:42	20.513	0.56	338.9	3.66
8/16/00	13:15:43	20.45	0.694	241.5	1.88
8/16/00	13:16:44	20.248	0.906	217.8	1.96
8/16/00	13:17:43	20.222	0.916	234.5	2.46
8/16/00	13:18:42	20.288	0.784	237.3	4.7
8/16/00	13:19:43	20.181	0.865	262.8	6.36
8/16/00	13:20:43	20.168	0.784	237.6	6.34
8/16/00	13:21:42	20.424	0.498	182	12.9
8/16/00	13:22:43	20.418	0.609	129.1	9.94
8/16/00	13:23:43	20.122	0.978	196.3	3.34
8/16/00	13:24:42	20.167	0.892	261	4.18
8/16/00	13:25:43	20.22	0.831	300.2	3.94
8/16/00	13:26:43	20.145	0.95	257.9	4.22
8/16/00	13:27:42	20.24	0.805	245.8	4.5
8/16/00	13:28:43	20.336	0.769	208.1	4.72
8/16/00	13:29:44	20.332	0.765	175.2	4.68
8/16/00	13:30:42	20.39	0.685	173.8	4.38
8/16/00	13:31:43	20.331	0.788	146.2	7.32
8/16/00	13:32:44	20.573	0.58	106.4	11.48
8/16/00	13:33:42	20.669	0.4	57.6	17.1
8/16/00	13:34:43	20.746	0.283	34.3	34.18
8/16/00	13:35:43	20.798	0.221	21.2	28.04
8/16/00	13:36:42	20.788	0.228	21.6	23.7
8/16/00	13:37:43	20.771	0.206	20.1	23.64
8/16/00	13:38:44	20.802	0.188	31.3	23.78
8/16/00	13:39:42	20.825	0.171	22.9	22.04
8/16/00	13:40:43	20.86	0.143	14.3	19.72
8/16/00	13:41:43	20.883	0.129	10.6	18.9
8/16/00	13:42:44	20.871	0.12	8.9	20.84
8/16/00	13:43:42	20.89	0.098	9.1	18.9
8/16/00	13:44:43	20.904	0.084	10	16.56
8/16/00	13:45:44	20.91	0.087	11.3	18.92
8/16/00	13:46:42	20.91	0.089	13.7	19.68
8/16/00	13:47:43	20.913	0.089	15.1	19.66

8/16/00 13:48:44	20.91	0.089	14.2	19.26
8/16/00 13:49:42	20.906	0.088	14.1	18.9
8/16/00 13:50:43	20.861	0.167	33.1	18.84
8/16/00 13:51:44	20.396	0.614	108.7	23.64
8/16/00 13:52:42	20.505	0.47	91.2	13.02
8/16/00 13:53:43	20.646	0.324	64.9	8.5
8/16/00 13:54:43	20.527	0.415	95.9	7.84
8/16/00 13:55:42	20.491	0.453	50.1	6.74
8/16/00 13:56:43	20.513	0.429	72.6	6.24
8/16/00 13:57:43	20.501	0.436	141.5	5.74
8/16/00 13:58:42	20.474	0.466	170.7	5.42
8/16/00 13:59:43	20.467	0.477	155.4	5.3
8/16/00 14:00:43	20.428	0.518	137.6	3.66
8/16/00 14:01:42	20.387	0.538	108.9	4.38
8/16/00 14:02:43	20.399	0.534	145.7	4.82
8/16/00 14:03:43	20.414	0.586	168.6	4.16
8/16/00 14:04:42	20.385	0.61	150.3	3.3
8/16/00 14:05:43	20.397	0.585	143.6	3.38
8/16/00 14:06:43	20.412	0.535	124.3	3.16
8/16/00 14:07:42	20.444	0.489	105.2	3.14
8/16/00 14:08:43	20.465	0.464	107.4	2.48
8/16/00 14:09:43	20.468	0.466	116.4	2.02
8/16/00 14:10:42	20.572	0.34	43.3	14.32
8/16/00 14:11:43	20.714	0.218	9.9	15
8/16/00 14:12:43	20.762	0.162	7.3	13.58
8/16/00 14:13:42	20.754	0.228	27.5	13.82
8/16/00 14:14:43	20.536	0.449	73.5	9.48
8/16/00 14:15:44	20.522	0.475	59.3	8.48
8/16/00 14:16:43	20.423	0.525	22.1	8.72
8/16/00 14:17:43	20.482	0.465	16.1	9.52
8/16/00 14:18:42	20.491	0.473	45.1	9.2
8/16/00 14:19:43	20.531	0.477	148.4	7.96
8/16/00 14:20:42	20.536	0.478	222.6	6.64
8/16/00 14:21:42	20.483	0.517	281.9	6.52
8/16/00 14:22:44	20.386	0.588	182.7	5.98
8/16/00 14:23:43	20.407	0.523	234.1	5.62
8/16/00 14:24:43	20.448	0.51	299.8	4.84
8/16/00 14:25:43	20.471	0.533	268.3	4.6
8/16/00 14:26:43	20.502	0.469	167.7	6.32
8/16/00 14:27:43	20.535	0.467	158.2	13.52
8/16/00 14:28:43	20.553	0.472	101.7	11.3
8/16/00 14:29:43	20.601	0.409	22.5	19.64
8/16/00 14:30:42	20.612	0.413	15.7	14.52
8/16/00 14:31:42	20.548	0.523	51.2	7
8/16/00 14:32:42	20.488	0.546	74.1	4.52
8/16/00 14:33:44	20.569	0.45	24	6.5

8/16/00	14:34:44	20.656	0.314	5.5	13.76
8/16/00	14:35:43	20.64	0.335	8.8	16.14
8/16/00	14:36:43	20.703	0.269	4.3	14.4
8/16/00	14:37:43	20.655	0.319	16.2	12.24
8/16/00	14:38:43	20.574	0.489	42.7	7.06
8/16/00	14:39:43	20.384	0.764	109.3	2.16
8/16/00	14:40:42	20.446	0.603	70.2	5.62
8/16/00	14:41:42	20.463	0.581	46.9	8.62
8/16/00	14:42:42	20.462	0.633	50.4	6.88
8/16/00	14:43:44	20.328	0.808	98.3	4.38
8/16/00	14:44:44	20.532	0.472	42.7	12
8/16/00	14:45:43	20.655	0.365	19	20.44
8/16/00	14:46:43	20.687	0.343	12.5	38.26
8/16/00	14:47:43	20.616	0.426	14	12.06
8/16/00	14:48:43	20.635	0.363	10.3	10.82
8/16/00	14:49:43	20.655	0.39	9.5	10.18
8/16/00	14:50:42	20.52	0.655	62.6	4.04
8/16/00	14:51:42	20.607	0.323	46.7	8.44
8/16/00	14:52:44	20.799	0.169	8	10.82
8/16/00	14:53:44	20.823	0.151	6.9	10.86
8/16/00	14:54:44	20.803	0.175	8.9	11.4
8/16/00	14:55:44	20.788	0.176	10.7	11.94
8/16/00	14:56:43	20.813	0.172	26.3	12.16
8/16/00	14:57:43	20.814	0.157	25.8	12.2
8/16/00	14:58:43	20.851	0.13	9.1	10.44
8/16/00	14:59:43	20.856	0.122	6.9	10.38
8/16/00	15:00:44	20.854	0.105	6.9	9.36
8/16/00	15:01:42	20.86	0.092	7.3	9.12
8/16/00	15:02:43	20.863	0.092	9.5	9.64
8/16/00	15:03:44	20.866	0.092	9.8	9.38
8/16/00	15:04:42	20.869	0.091	10.4	8.72
8/16/00	15:05:43	20.845	0.081	9.8	2.06
8/16/00	15:06:44	20.845	0.077	9.1	1.22
8/16/00	15:07:42	20.847	0.076	8.8	1.3
8/16/00	15:08:43	20.851	0.073	8.7	1.3
8/16/00	15:09:44	20.855	0.072	8.7	1.2
Average of Test Run		O2	CO2	CO	NOx
		%	%	ppm	ppm
8/16/00	15:10:36	20.58	0.42	99.79	9.91

Test Run 4 End

-01 Test, Run 5 STRATA Version 1.2.1

uperator: Peter Hilty
Plant Name: Newport Steel
Location: EAF Exhaust/Baghouse Inlet

Reference Cylinder Numbers

	Zero	Low-range	Mid-range	High-range
02	N2		CC84981	Air
CO2	N2		CC84981	CC113935
CO	N2	CC113985	CC113935	CC94790
NOx	N2	CC118512	CC106973	CC79974

Date/Time 08-16-2000 15:35:41 PASSED

Analyte	O2	CO2	CO	NOx
Units	%	%	ppm	ppm
Zero Ref Cyl	0.000	0.000	0.0	0.00
Zero Avg	-0.256	0.077	0.0	-0.16
Zero Error%	1.0%	0.4%	0.0%	0.1%
Low Ref Cyl			50.0	50.50
Low Avg			52.2	51.04
Low Error%			0.2%	0.2%
Mid Ref Cyl			100.0	89.30
Mid Avg			101.7	91.59
Mid Error%			0.2%	0.9%
High Ref Cyl	20.900	15.000	152.0	197.40
High Avg	20.790	14.983	153.0	201.88
High Error&	0.4%	0.1%	0.1%	1.8%

Calibration Error Test End

Initial System Bias Check, Run 5 STRATA Version 1.2.1

Operator: Peter Hilty

Plant Name: Newport Steel

Location: EAF Exhaust/Baghouse Inlet

Reference Cylinder Numbers

	Zero	Span
O2	N2	Air
CO2	N2	CC113935
CO	N2	CC113985
NOx	N2	CC106973

Date/Time 08-17-2000 07:30:14 PASSED

Analyte	O2	C02	CO	NOx
Units	%	%	ppm	ppm
Zero Ref Cyl	0.000	0.000	0.0	0.00
Zero Cal	-0.256	0.077	0.0	-0.16
Zero Avg	-0.163	0.104	1.3	0.21
Zero Bias%	0.4%	0.1%	0.1%	0.2%
Zero Drift%				
Span Ref Cyl	20.900	15.000	50.0	89.30
Span Cal	20,790	14.983	52.2	91.59
Span Avg	20.861	15.084	50.9	90.48
Span Bias%	0.3%	0.5%	0.1%	0.4%
Span Drift%				

System Bias Check End

8/15/00	11:33:43	20.493	0.103	49.5	13.32	-2.3
8/15/00	11:34:43	20.639	-0.121	11.7	7.99	-2.2
8/15/00	11:35:43	20.707	-0.161	19.7	3.39	-2.2
8/15/00	11:36:43	20.708	-0.138	109.2	2.99	-2.1
8/15/00	11:37:41	20.686	-0.075	69.3	5.18	-2.1
8/15/00	11:38:41	20.506	0.11	11.7	5.36	-2.1
8/15/00	11:39:41	20.484	0.116	2.1	5.76	-2.1
8/15/00	11:40:41	20.505	0.08	9	5.76	-2
8/15/00	11:41:41	20.568	0.036	25.4	4.85	-2
8/15/00	11:42:42	20.588	0.008	31.7	4.69	-2
8/15/00	11:43:42	20.567	0.031	70.7	4.56	-1.9
8/15/00	11:44:42	20.567	0.016	101.3	4.4	-1.9
8/15/00	11:45:42	20.541	0.038	113.5	4.31	-1.9
8/15/00	11:46:42	20.517	0.062	166.9	4.44	-1.8
8/15/00	11:47:42	20.522	0.044	219.6	3.9	-1.8
8/15/00	11:48:42	20.56	0.017	228.2	3.52	-1.8
8/15/00	11:49:42	20.55	0.016	259.4	3.23	-1.8
8/15/00	11:50:42	20.541	0.017	193.2	3.22	-1.8
8/15/00	11:51:42	20.518	0.02	141.9	4.44	-1.8
8/15/00	11:52:42	20.488	0.066	108.2	3.84	-1.8
8/15/00	11:53:42	20.491	0.105	47.5	2.99	-1.8
8/15/00	11:54:42	20.514	0.13	34.1	2.89	-1.8
8/15/00	11:55:42	20.613	-0.049	0	8.32	-1.8
8/15/00	11:56:42	20.691	-0.114	-6.6	10.37	-1.8
8/15/00	11:57:42	20.672	-0.095	-6.7	20.81	-1.8
8/15/00	11:58:42	20.572	0.038	-4.2	41.27	-1.8
8/15/00	11:59:42	20.529	0.1	-3.2	33.25	-1.8
8/15/00	12:00:43	20.572	0.044	-3.1	25.42	-1.8
8/15/00	12:01:43	20.577	0.131	-2.1	23.3	-1.9
8/15/00	12:02:43	20.464	0.241	13.2	14.85	-1.9
8/15/00	12:04:43	19.956	0.65	191.6	4.43	-1.9
8/15/00	12:05:43	20.228	0.554	152.8	5.25	-1.9
8/15/00	12:06:43	20.27	0.437	138.9	7.41	-1.9
8/15/00	12:07:43	20.457	0.246	59.4	23.92	-1.9
8/15/00	12:08:43	20.424	0.285	54.5	9.26	-1.9
8/15/00	12:09:43	20.549	0.081	11.8	16.18	-1.9
8/15/00	12:10:42	20.626	-0.026	1.1	20.1	-1.9
8/15/00	12:11:42	20.649	-0.036	-1.3	18.59	-1.9
8/15/00	12:12:42	20.617	0.011	-0.3	20.7	-1.9
8/15/00	12:13:42	20.559	0.07	5	23.79	-1.9
8/15/00	12:14:42	20.535	0.139	3.9	23.45	-1.9
Average of Test Run		O2	CO2	CO	NOx	SO2
		%	%	ppm	ppm	ppm
8/15/00	12:14:42	20.54	0.07	48.51	9.90	-1.43

Test Run 1 **End**

8/15/00	10:40:42	20.584	-0.056	3	32.04	-1.9
8/15/00	10:42:42	20.594	-0.07	-0.5	12.48	-1.9
8/15/00	10:43:42	20.672	-0.114	-3.2	17.36	-1.9
8/15/00	10:44:42	20.488	-0.007	7.2	32.31	-2
8/15/00	10:45:42	20.531	0.008	2.4	9.18	-1.9
8/15/00	10:46:42	20.651	-0.091	-2.6	20.18	-1.9
8/15/00	10:47:42	20.551	0.001	-0.6	17.02	-1.9
8/15/00	10:48:42	20.507	0.126	5.7	12.08	-1.9
8/15/00	10:49:42	20.526	0.04	7.8	10.52	-1.9
8/15/00	10:50:42	20.661	-0.098	-1.6	19.6	-2
8/15/00	10:51:43	20.693	-0.128	-1.4	16.87	-2
8/15/00	10:52:43	20.707	-0.141	-1.1	14.76	-2
8/15/00	10:53:43	20.681	-0.133	2.9	14.54	-2
8/15/00	10:54:43	20.716	-0.169	0.2	13.35	-2.1
8/15/00	10:55:43	20.728	-0.182	3.7	13.45	-2.1
8/15/00	10:56:43	20.735	-0.195	3.3	12.59	-2.1
8/15/00	10:57:43	20.726	-0.239	2.7	4.55	-2.1
8/15/00	10:58:43	20.738	-0.252	2.4	2.26	-2.1
8/15/00	10:59:43	20.745	-0.257	1.9	2.39	-2.1
8/15/00	11:00:43	20.748	-0.26	2.3	2.43	-2.1
8/15/00	11:01:43	20.748	-0.263	1.8	2.48	-2.2
8/15/00	11:02:43	20.75	-0.265	1.4	2.4	-2.2
8/15/00	11:03:43	20.754	-0.267	1.3	2.33	-2.2
8/15/00	11:04:43	20.757	-0.272	1.1	2.38	-2.2
8/15/00	11:05:43	20.757	-0.274	3	2.49	-2.2
8/15/00	11:06:43	20.76	-0.275	4	2.66	-2.2
8/15/00	11:07:41	20.757	-0.276	5.2	2.89	-2.2
8/15/00	11:08:41	20.754	-0.272	5.2	3.16	-2.2
8/15/00	11:09:41	20.618	-0.096	53.5	3.88	-2.2
8/15/00	11:10:41	20.669	-0.178	51.9	6.75	-2.2
8/15/00	11:11:41	20.57	-0.09	15.4	24.71	-2.2
8/15/00	11:12:42	20.532	-0.058	43.5	4.7	-2.2
8/15/00	11:13:42	20.503	-0.036	49.2	3.97	-2.2
8/15/00	11:14:42	20.495	-0.013	47.9	4.16	-2.2
8/15/00	11:15:42	20.453	0.006	71.3	4.31	-2.3
8/15/00	11:16:42	20.421	0.029	67.1	4.29	-2.2
8/15/00	11:17:42	20.464	-0.001	69	4.37	-2.2
8/15/00	11:18:42	20.479	-0.007	42.1	4.63	-2.3
8/15/00	11:19:42	20.469	0.036	79.8	5.9	-2.3
8/15/00	11:20:42	20.478	0.045	73.9	8.48	-2.3
8/15/00	11:21:42	20.447	0.083	36.3	9.66	-2.3
8/15/00	11:22:42	20.38	0.155	26.8	13.29	-2.3
8/15/00	11:23:42	20.509	-0.028	14.5	9.43	-2.3
8/15/00	11:24:42	20.698	-0.156	2.9	4.22	-2.3
8/15/00	11:25:42	20.691	-0.168	1.2	4.02	-2.4
8/15/00	11:26:42	20.691	-0.164	5.3	3.87	-2.4
8/15/00	11:27:42	20.711	-0.163	5.1	3.76	-2.4
8/15/00	11:28:42	20.744	-0.179	5.3	3.56	-2.3
8/15/00	11:29:43	20.602	-0.007	13.6	23.26	-2.3
8/15/00	11:32:43	20.471	0.127	40.9	7.31	-2.3

8/15/00	9:49:42	20.567	0.068	21.3	21.48	-1.3
8/15/00	9:50:42	20.478	0.199	24.8	8.26	-1.3
8/15/00	9:51:42	20.352	0.307	22	7	-1.4
8/15/00	9:53:42	20.331	0.29	32.1	8.31	-1.4
8/15/00	9:54:42	20.356	0.304	31.4	7.21	-1.4
8/15/00	9:55:42	20.406	0.276	56	7.26	-1.4
8/15/00	9:56:42	20.345	0.255	159.1	6.39	-1.5
8/15/00	9:57:42	20.341	0.279	138.3	5.83	-1.5
8/15/00	9:58:42	20.349	0.257	196.2	4.76	-1.4
8/15/00	9:59:43	20.357	0.25	177.4	3.54	-1.4
8/15/00	10:00:43	20.372	0.295	246.6	3.86	-1.5
8/15/00	10:01:43	20.367	0.277	233.3	3.22	-1.5
8/15/00	10:02:43	20.381	0.285	133.6	3.41	-1.5
8/15/00	10:03:43	20.205	0.508	142.6	2.56	-1.5
8/15/00	10:04:43	20.195	0.507	135.6	2.53	-1.5
8/15/00	10:05:43	20.233	0.514	101.2	2.7	-1.5
8/15/00	10:06:43	20.196	0.593	100.6	2.98	-1.6
8/15/00	10:07:43	20.227	0.492	109.4	4.95	-1.6
8/15/00	10:08:43	20.344	0.34	82	9.01	-1.6
8/15/00	10:09:43	20.381	0.29	85.7	7.66	-1.6
8/15/00	10:10:43	20.421	0.173	21	13.9	-1.6
8/15/00	10:11:43	20.511	0.07	2.5	20.13	-1.6
8/15/00	10:12:43	20.528	0.078	5.2	21.86	-1.6
8/15/00	10:13:43	20.403	0.201	35.7	10.57	-1.7
8/15/00	10:14:43	20.416	0.215	19.2	8.38	-1.7
8/15/00	10:15:41	20.408	0.227	17.8	10.46	-1.7
8/15/00	10:16:41	20.406	0.246	18.8	11.09	-1.7
8/15/00	10:17:41	20.393	0.275	16.5	9.85	-1.7
8/15/00	10:18:41	20.36	0.339	34.8	7.05	-1.7
8/15/00	10:19:41	20.389	0.295	23.6	6.21	-1.7
8/15/00	10:20:41	20.323	0.364	47.5	5.73	-1.7
8/15/00	10:21:42	20.395	0.176	14.8	7.15	-1.7
8/15/00	10:22:42	20.558	-0.024	-0.4	16.46	-1.8
8/15/00	10:23:42	20.612	-0.026	-0.7	14.33	-1.7
8/15/00	10:24:42	20.597	-0.02	-0.2	13.96	-1.7
8/15/00	10:25:42	20.485	0.069	6.6	18.15	-1.7
8/15/00	10:26:42	20.566	-0.023	0.3	16.16	-1.7
8/15/00	10:27:42	20.657	-0.094	-0.7	15.55	-1.7
8/15/00	10:28:43	20.679	-0.119	-1.6	13.09	-1.7
8/15/00	10:29:43	20.691	-0.113	-1.9	12.59	-1.7
8/15/00	10:30:42	20.608	0.008	-2.3	9.75	-1.7
8/15/00	10:31:43	20.606	0.004	-2.9	9.87	-1.8
8/15/00	10:32:43	20.605	0.017	-2.4	9.48	-1.8
8/15/00	10:33:43	20.625	-0.046	-2.7	10.79	-1.8
8/15/00	10:34:43	20.684	-0.127	-2.6	12.94	-1.8
8/15/00	10:35:43	20.635	-0.039	-2.8	8.51	-1.8
8/15/00	10:36:43	20.633	-0.038	-3.5	7.98	-1.8
8/15/00	10:37:43	20.665	-0.09	-3	10.06	-1.8
8/15/00	10:38:41	20.644	-0.057	-3.6	8.92	-1.8
8/15/00	10:39:42	20.647	-0.074	-3	9.28	-1.9

8/15/00	8:58:43	20.7	-0.082	3.5	13.03	-0.7
8/15/00	8:59:43	20.72	-0.103	2.3	14.21	-0.7
8/15/00	9:00:43	20.737	-0.116	1.4	13.81	-0.7
8/15/00	9:01:43	20.668	-0.045	1.5	26.44	-0.7
8/15/00	9:02:43	20.617	0.064	6.2	18.29	-0.7
8/15/00	9:03:42	20.606	0.056	4.2	15.4	-0.7
8/15/00	9:04:42	20.708	-0.035	1.6	22.29	-0.7
8/15/00	9:05:42	20.73	-0.062	1.5	19.33	-0.7
8/15/00	9:06:42	20.741	-0.071	1.5	17.88	-0.8
8/15/00	9:07:42	20.735	-0.057	1.8	17.41	-0.7
8/15/00	9:08:42	20.715	-0.045	1.7	14.98	-0.7
8/15/00	9:09:42	20.657	0.025	1.3	12.65	-0.7
8/15/00	9:10:42	20.533	0.365	15.3	12.62	-0.8
8/15/00	9:11:42	20.024	1.195	163.6	6.38	-0.8
8/15/00	9:13:42	20.688	-0.062	11.5	23.24	-0.8
8/15/00	9:14:42	20.675	-0.039	5.6	24.52	-0.8
8/15/00	9:15:42	20.675	-0.057	4	21.51	-0.9
8/15/00	9:16:42	20.704	-0.066	7.3	20.38	-0.8
8/15/00	9:17:42	20.7	-0.102	10.6	15.56	-0.8
8/15/00	9:18:42	20.75	-0.145	3	13.54	-0.8
8/15/00	9:19:43	20.748	-0.135	29.4	14.59	-0.8
8/15/00	9:20:43	20.787	-0.168	9.7	12.73	-0.8
8/15/00	9:21:43	20.802	-0.184	5	11.8	-0.9
8/15/00	9:22:43	20.808	-0.19	3.3	11.61	-0.9
8/15/00	9:23:43	20.814	-0.196	3.5	10.06	-0.9
8/15/00	9:24:43	20.817	-0.206	4.4	8.44	-0.9
8/15/00	9:25:43	20.787	-0.235	5.6	3.53	-1
8/15/00	9:26:43	20.792	-0.24	6.7	2.54	-0.9
8/15/00	9:27:43	20.791	-0.24	5.8	2.59	-0.9
8/15/00	9:28:43	20.787	-0.241	5.9	2.42	-0.9
8/15/00	9:29:43	20.786	-0.241	6.2	2.58	-1
8/15/00	9:30:43	20.786	-0.246	5.8	2.45	-1
8/15/00	9:31:43	20.777	-0.172	23.6	2.31	-1
8/15/00	9:32:43	20.539	-0.022	40.7	3.23	-1
8/15/00	9:33:43	20.582	-0.035	32	15.72	-1.1
8/15/00	9:34:41	20.493	0.099	14.8	5.67	-1.1
8/15/00	9:35:41	20.381	0.204	9.9	7.09	-1.1
8/15/00	9:36:41	20.414	0.179	11	7.02	-1.1
8/15/00	9:37:41	20.421	0.171	23.1	7.15	-1.2
8/15/00	9:38:41	20.4	0.204	58.3	6.61	-1.2
8/15/00	9:39:41	20.34	0.25	70.2	6.17	-1.2
8/15/00	9:40:41	20.323	0.253	213.8	5.6	-1.2
8/15/00	9:41:42	20.299	0.269	212.2	4.65	-1.2
8/15/00	9:42:42	20.288	0.353	316.4	3.42	-1.3
8/15/00	9:43:42	20.291	0.393	358.6	3.35	-1.3
8/15/00	9:44:42	20.312	0.328	192.1	3.5	-1.3
8/15/00	9:45:42	20.331	0.275	120.4	6	-1.3
8/15/00	9:46:42	20.298	0.306	112.6	6.02	-1.3
8/15/00	9:47:42	20.286	0.315	119.7	3.25	-1.3
8/15/00	9:48:42	20.325	0.24	107.1	5.9	-1.3

Test Run 1 Begin STRATA Version 1.2 1
Operator: Peter Hilty
Plant Name: Newport Steel
Location: EAF Exhaust/Baghouse Inlet

Begin calculating run averages

		0 2 %	CO2 %	CO ppm	NOx ppm	SO2 ppm
8/15/00	8:15:41	20.408	0.409	246.8	2.58	-0.2
8/15/00	8:16:41	20.357	0.384	167.8	2.5	-0.2
8/15/00	8:17:41	20.377	0.296	175	2.96	-0.2
8/15/00	8:18:41	20.664	0.033	13.8	7.1	-0.2
8/15/00	8:19:41	20.748	-0.07	7.2	7.28	-0.3
8/15/00	8:20:41	20.747	-0.031	46.5	6.27	-0.3
8/15/00	8:21:42	20.689	0.004	100.7	5.87	-0.3
8/15/00	8:22:42	20.505	0.196	24.2	13.11	-0.3
8/15/00	8:23:42	20.426	0.266	15.9	5.88	-0.3
8/15/00	8:24:42	20.416	0.32	20.3	6.31	-0.3
8/15/00	8:25:42	20.359	0.372	41.8	7.7	-0.4
8/15/00	8:26:42	20.399	0.308	72.4	6.09	-0.4
8/15/00	8:27:42	20.398	0.319	94.9	4.99	-0.4
8/15/00	8:28:42	20.36	0.328	99	5.09	-0.4
8/15/00	8:29:42	20.337	0.346	160.5	5.26	-0.4
8/15/00	8:30:42	20.354	0.316	244.6	4.81	-0.4
8/15/00	8:31:42	20.386	0.3	290.6	3.98	-0.4
8/15/00	8:32:42	20.413	0.231	215.9	5.27	-0.4
8/15/00	8:33:42	20.431	0.214	213.5	7.27	-0.4
8/15/00	8:34:42	20.472	0.192	158.5	6.25	-0.4
8/15/00	8:35:42	20.473	0.173	129.1	3.54	-0.4
8/15/00	8:36:42	20.482	0.167	95.6	4.98	-0.4
8/15/00	8:37:42	20.465	0.184	76.1	6.9	-0.5
8/15/00	8:38:43	20.48	0.196	45.8	7.56	-0.5
8/15/00	8:39:43	20.49	0.224	24.6	7.74	-0.5
8/15/00	8:40:43	20.477	0.239	23.4	7.17	-0.5
8/15/00	8:41:43	20.579	0.083	5.7	12:51	-0.5
8/15/00	8:42:43	20.619	0.068	1.1	10.05	-0.5
8/15/00	8:43:43	20.562	0.134	7	7.45	-0.5
8/15/00	8:44:41	20.534	0.177	7.5	11.2	-0.5
8/15/00	8:45:42	20.446	0.344	21.5	12.84	-0.5
8/15/00	8:46:42	20.465	0.293	11.4	15.49	-0.5
8/15/00	8:47:42	20.462	0.311	13.1	14.51	-0.6
8/15/00	8:48:42	20.406	0.413	38.3	11.1	-0.6
8/15/00	8:49:42	20.32	0.451	50.7	7.2	-0.6
8/15/00	8:50:42	20.42	0.267	33.3	9.15	-0.7
8/15/00	8:51:42	20.513	0.174	6.5	16.24	-0.7
8/15/00	8:52:42	20.568	0.101	3	18.82	-0.7
8/15/00	8:53:42	20.631	0.03	2.1	21.8	-0.7
8/15/00	8:54:42	20.66	0.008	1.7	22.14	-0.7
8/15/00	8:55:43	20.672	-0.016	1.1	19.82	-0.8
8/15/00	8:56:43	20.703	-0.041	0.8	17.38	-0.7
8/15/00	8:57:43	20.667	-0.003	3.3	10.71	-0.7

Test Run 4 Begin. STRATA Version 1.2.1
Operator: Peter Hilty
Plant Name Newport Steel
Location: EAF Exhaust/Baghouse Inlet

Begin calculating run averages

	O2 %	CO2 %	CO ppm	NOx ppm
8/16/00 13:09:43	20.451	0.51	411.5	1.84
[illegible]	20.445	0.503	304.4	1.32
[illegible]	[illegible]	[illegible]	332.2	2
[illegible]	[illegible]	[illegible]	348.8	2.09
8/16/00 13:13:43	20.514	0.621	484.2	1.95
8/16/00 13:14:42	20.513	0.56	338.9	1.83
8/16/00 13:15:43	20.45	0.694	241.5	0.94
8/16/00 13:16:44	20.248	0.906	217.8	0.98
8/16/00 13:17:43	20.222	0.916	234.5	1.23
8/16/00 13:18:42	20.288	0.784	237.3	2.35
8/16/00 13:19:43	20.181	0.865	262.8	3.18
8/16/00 13:20:43	20.168	0.784	237.6	3.17
8/16/00 13:21:42	20.424	0.498	182	6.45
8/16/00 13:22:43	20.418	0.609	129.1	4.97
8/16/00 13:23:43	20.122	0.978	196.3	1.67
8/16/00 13:24:42	20.167	0.892	261	2.09
8/16/00 13:25:43	20.22	0.831	300.2	1.97
8/16/00 13:26:43	20.145	0.95	257.9	2.11
8/16/00 13:27:42	20.24	0.805	245.8	2.25
8/16/00 13:28:43	20.336	0.769	208.1	2.36
8/16/00 13:29:44	20.332	0.765	175.2	2.34
8/16/00 13:30:42	20.39	0.685	173.8	2.19
8/16/00 13:31:43	20.331	0.788	146.2	3.66
8/16/00 13:32:44	20.573	0.58	106.4	5.74
8/16/00 13:33:42	20.669	0.4	57.6	8.55
8/16/00 13:34:43	20.746	0.283	34.3	17.09
8/16/00 13:35:43	20.798	0.221	21.2	14.02
8/16/00 13:36:42	20.788	0.228	21.6	11.85
8/16/00 13:37:43	20.771	0.206	20.1	11.82
8/16/00 13:38:44	20.802	0.188	31.3	11.89
8/16/00 13:39:42	20.825	0.171	22.9	11.02
8/16/00 13:40:43	20.86	0.143	14.3	9.86
8/16/00 13:41:43	20.883	0.129	10.6	9.45
8/16/00 13:42:44	20.871	0.12	8.9	10.42
8/16/00 13:43:42	20.89	0.098	9.1	9.45
8/16/00 13:44:43	20.904	0.084	10	8.28
8/16/00 13:45:44	20.91	0.087	11.3	9.46
8/16/00 13:46:42	20.91	0.089	13.7	9.84
8/16/00 13:47:43	20.913	0.089	15.1	9.83
8/16/00 13:48:44	20.91	0.089	14.2	9.63

FBT

8/16/00 13:49:42	20.906	0.088	14.1	9.45
8/16/00 13:50:43	20.861	0.167	33.1	9.42
8/16/00 13:51:44	20.396	0.614	108.7	11.82
8/16/00 13:52:42	20.505	0.47	91.2	6.51
8/16/00 13:53:43	20.646	0.324	64.9	4.25
8/16/00 13:54:43	20.527	0.415	95.9	3.92
8/16/00 13:55:42	20.491	0.453	50.1	3.37
8/16/00 13:56:43	20.513	0.429	72.6	3.12
8/16/00 13:57:43	20.501	0.436	141.5	2.87
8/16/00 13:58:42	20.474	0.466	170.7	2.71
8/16/00 13:59:43	20.467	0.477	155.4	2.65
8/16/00 14:00:43	20.428	0.518	137.6	1.83
8/16/00 14:01:42	20.387	0.538	108.9	2.19
8/16/00 14:02:43	20.399	0.534	145.7	2.41
8/16/00 14:03:43	20.414	0.586	168.6	2.08
8/16/00 14:04:42	20.385	0.61	150.3	1.65
8/16/00 14:05:43	20.397	0.585	143.6	1.69
8/16/00 14:06:43	20.412	0.535	124.3	1.58
8/16/00 14:07:42	20.444	0.489	105.2	1.57
8/16/00 14:08:43	20.465	0.464	107.4	1.24
8/16/00 14:09:43	20.468	0.466	116.4	1.01
8/16/00 14:10:42	20.572	0.34	43.3	7.16
8/16/00 14:11:43	20.714	0.218	9.9	7.5
8/16/00 14:12:43	20.762	0.162	7.3	6.79
8/16/00 14:13:42	20.754	0.228	27.5	6.91
8/16/00 14:14:43	20.536	0.449	73.5	4.74
8/16/00 14:15:44	20.522	0.475	59.3	4.24
8/16/00 14:16:43	20.423	0.525	22.1	4.36
8/16/00 14:17:43	20.482	0.465	16.1	4.76
8/16/00 14:18:42	20.491	0.473	45.1	4.6
8/16/00 14:19:43	20.531	0.477	148.4	3.98
8/16/00 14:20:42	20.536	0.478	222.6	3.32
8/16/00 14:21:42	20.483	0.517	281.9	3.26
8/16/00 14:22:44	20.386	0.588	182.7	2.99
8/16/00 14:23:43	20.407	0.523	234.1	2.81
8/16/00 14:24:43	20.448	0.51	299.8	2.42
8/16/00 14:25:43	20.471	0.533	268.3	2.3
8/16/00 14:26:43	20.502	0.469	167.7	3.16
8/16/00 14:27:43	20.535	0.467	158.2	6.76
8/16/00 14:28:43	20.553	0.472	101.7	5.65
8/16/00 14:29:43	20.601	0.409	22.5	9.82
8/16/00 14:30:42	20.612	0.413	15.7	7.26
8/16/00 14:31:42	20.548	0.523	51.2	3.5
8/16/00 14:32:42	20.488	0.546	74.1	2.26
8/16/00 14:33:44	20.569	0.45	24	3.25
8/16/00 14:34:44	20.656	0.314	5.5	6.88
8/16/00 14:35:43	20.64	0.335	8.8	8.07

8/16/00	14:36:43	20.703	0.269	4.3	7.2
8/16/00	14:37:43	20.655	0.319	16.2	6.12
8/16/00	14:38:43	20.574	0.489	42.7	3.53
8/16/00	14:39:43	20.384	0.764	109.3	1.08
8/16/00	14:40:42	20.446	0.603	70.2	2.81
8/16/00	14:41:42	20.463	0.581	46.9	4.31
8/16/00	14:42:42	20.462	0.633	50.4	3.44
8/16/00	14:43:44	20.328	0.808	98.3	2.19
8/16/00	14:44:44	20.532	0.472	42.7	6
8/16/00	14:45:43	20.655	0.365	19	10.22
8/16/00	14:46:43	20.687	0.343	12.5	19.13
8/16/00	14:47:43	20.616	0.426	14	6.03
8/16/00	14:48:43	20.635	0.363	10.3	5.41
8/16/00	14:49:43	20.655	0.39	9.5	5.09
8/16/00	14:50:42	20.52	0.655	62.6	2.02
8/16/00	14:51:42	20.607	0.323	46.7	4.22
8/16/00	14:52:44	20.799	0.169	8	5.41
8/16/00	14:53:44	20.823	0.151	6.9	5.43
8/16/00	14:54:44	20.803	0.175	8.9	5.7
8/16/00	14:55:44	20.788	0.176	10.7	5.97
8/16/00	14:56:43	20.813	0.172	26.3	6.08
8/16/00	14:57:43	20.814	0.157	25.8	6.1
8/16/00	14:58:43	20.851	0.13	9.1	5.22
8/16/00	14:59:43	20.856	0.122	6.9	5.19
8/16/00	15:00:44	20.854	0.105	6.9	4.68
8/16/00	15:01:42	20.86	0.092	7.3	4.56
8/16/00	15:02:43	20.863	0.092	9.5	4.82
8/16/00	15:03:44	20.866	0.092	9.8	4.69
8/16/00	15:04:42	20.869	0.091	10.4	4.36
8/16/00	15:05:43	20.845	0.081	9.8	1.03
8/16/00	15:06:44	20.845	0.077	9.1	0.61
8/16/00	15:07:42	20.847	0.076	8.8	0.65
8/16/00	15:08:43	20.851	0.073	8.7	0.65
8/16/00	15:09:44	20.855	0.072	8.7	0.6
Average *of* Test Run		O2	CO2	CO	NOx
		%	%	ppm	ppm
8/16/00	15:10:36	20.58	0.42	99.79	4.96

Test Run 4 End

FBT

JAMES E. BICKFORD
SECRETARY

PAUL E. PATTON
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION FOR AIR QUALITY
803 SCHENKEL LN
FRANKFORT KY 40601-1403

October 23, 2000

Ms. Jennifer A. McDaniel
Manager, Environmental and
Safety Compliance
Newport Steel
Ninth & Lowell Streets, P.O. Box 1670
Newport, Kentucky 41072

Dear Ms. McDaniel:

On August 15 and 16, 2000, particulate, carbon monoxide, VOC, lead, NO_x, and SO_2 compliance tests were performed on the Electric Arc Furnace Brandt Baghouse at your Newport facility. FBT Testing and Environmental Services, Inc performed the testing. John Allen and John Jayne observed testing for the Division for Air Quality. Proper test methods were followed, and the test report was checked for completeness and accuracy. The results are summarized below.

PARAMETER	TEST RESULTS	PERMIT LIMIT
Particulate	0.00089 gr/dscf	0.0052 gr/dscf
Sulfur Dioxide	0.013 lb/hr	
Nitrogen Oxides (as NO_2)	0.63lb/ton of steel	0.51 lb/ton of steel
Carbon Monoxide	251.3 lb/hr	
Lead	0.021 lb/hr	1.71 lb/hr

Therefore, this test report is accepted as proof of compliance for particulate, and lead. Nitrogen oxide emissions were above the permit level of 0.51 lbslton of steel produced. There is not a separate compliance limit for carbon monoxide and sulfur dioxide from the Brandt Baghouse. A copy of this letter is being sent to the Florence Regional Office for review. If you have any questions, please contact me at (502) 573-3382.

Sincerely,

Gerald H. Slucher

Gerald Slucher, Supervisor
Source Testing Section
Technical Services Branch

NO_x => 14.8 LB/HR AVG
23.4 TON/HR

GHS

cc: Edd Frazier
W. A. Clements
Florence Regional Office
Pat Johnston

EDUCATION PAYS

bcc: File: ID# 21-037-00006

Facility	Newport Steel					
Source Type	Brandt Baghouse					
Performed By	FBT		Req. by	John Allen	Rvwed. By	Slucher
Date Performed	8/15/00	Received	10/13/00	Reviewed	10/19/00	

PARTICULATE

	Run #1	Run #2	Run #3
Cp	0.84	0.84	0.84
Theta,min.	180	180	180
As,ft2	176.7	176.7	176.7
Ts,degF	167	190	197
Ps,in.Hg.	28.92	29.43	29.43
DELPsqrt	1.19	1.118	1.1458
Gamma	1.001	1.001	1.001
Tm,degF	96	81	89
Pbar,in.Hg.	29.2	29.68	29.68
Vlc,ml.	60.3	47.2	63.4
Vm.ft3.	121.805	120.239	120.635
DELH,in.H20	1.4	1.4	1.4
C02%	0.1	0.1	0.1
02%	20.6	20.7	20.6
CO%	0	0	0
N2%	79.3	79.2	79.3
Vwstd,ft3	2.84013	2.22312	2.98614
Vmstd,ft3.	162.524936	153.197422	157.523896
Bws	0.01717491	0.0143039	0.01860407
Md	28.84	28.844	28.84
Ms	28.653824	28.6888885	28.6383319
vs1,ft/sec	74.3335538	70.4435271	72.6469049
Q1std,dscf/hr.	37826992.7	35291569.4	35850580.9

GASEOUS EMISSIONS

	Run #1	Run #2	Run #3
CARBON MONOXIDE			
Mol. Wt.	28.01		
ppm	100.3	89.4	115.1
lb/scf	7.28818E-06	6.4961E-06	8.3636E-06
lb/hr	275.6901151	229.259287	299.840275
NITROGEN OXIDES			
Mol. Wt.	46.01	46.01	46.01
ppm	3.3	2.7	4.2
lb/scf	3.94006E-07	3.2237E-07	5.0146E-07

lb/hr	14.90407448	11.3769014	17.9777255
SULFUR DIOXIDE			
Mol. Wt.	64.06	64.06	64.06
ppm	0.68	0.88	0.8
lb/scf	1.13049E-07	1.463E-07	1.33E-07
lb/hr	4.276297154	5.16310304	4.69373004

Average lb/hr:	
CO	268.2632255
NOx	14.75290044
Sulfur Dioxide	4.71104341

JAMES E. BICKFORD
SECRETARY

PAUL E. PATTON
GOVERNOR

10.2

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION FOR AIR QUALITY
803 SCHENKEL LN
FRANKFORT KY 40601 1403

November 9. 7000

Ms. Jennifer A. McDaniel
Manager. Environmental and
Safety Compliance
Newport Steel
Ninth & Lowell Streets, P.O. Box 1670
Newport, Kentucky 41072

Dear Ms. McDaniel:

On October 3 and 4, 2000, carbon monoxide, NO_x, and SO_2 compliance tests were performed on the Electric Arc Furnace Brandt Baghouse at your Newport facility. Pacific Environmental Services, Inc performed the testing. John Allen and John Jayne observed testing for the Division for Air Quality. Proper test methods were followed, and the test report was checked for completeness and accuracy. The results are summarized below.

PARAMETER	TEST RESULTS	PERMIT LIMIT
Sulfur Dioxide	4.24 lb/hr, 0.07 lb/ton steel	
Nitrogen Oxides (as NO_2)	0.22 lb/ton of steel	0.51 lb/ton of steel
Carbon Monoxide	272.1 lb/hr, 4.0 lb/ton steel	

Therefore, this test report is accepted as proof of compliance for nitrogen oxide emissions. There is not a separate compliance limit for carbon monoxide and sulfur dioxide from the Brandt Baghouse. A copy of this letter is being sent to the Florence Regional Office for review. If you have any questions, please contact me at (502) 573-3382.

Sincerely,

Gerald H. Slucher

Gerald Slucher, Supervisor
Source Testing Section
Technical Services Branch

GHS

cc: Edd Frazier
W. A. Clements
Florence Regional Office
Pat Johnston

bcc: File: ID# 21-037-00006

Newport Steel
Oil Country Tubular Goods
Line Pipe • Piling

November 3,2000

Department for Environmental Protection
Division for Air Quality
803 Schenkel Lane
Frankfort, KY 40601-1403
Attn: Mr. Gerald Slucher

Re: Stack Test Results for EAF Exhaust/Brandt Baghouse
Air Quality Permit (F-98-014)

Dear Mr. Slucher,

Enclosed please find a copy of the, "Air Emissions Test Report – Brandt Positive Pressure Baghouse, Newport Steel Corporation, Newport, Kentucky." The test was conducted October 3 – October 4,2000.

If you have any further questions, please feel free to contact me at 859/292-7236.

Sincerely,
Newport Steel Corporation

Jennifer A. McDaniel
Manager, Environmental and
Safety Compliance

Cc: Thorn Golatzki

NEWPORT STEEL CORPORATION
A Subsidiary of NS Group, Inc.

Ninth & Lowell Streets • P.O. Box 1670
Newport, Kentucky 41072
Phone (606) 292-6000, Fax (606) 292-0110

AIR EMISSION TEST REPORT
BRANDT POSITIVE PRESSURE BAGHOUSE
NEWPORT STEEL
NEWPORT, KENTUCKY

Prepared for

Newport Steel Corporation
P.O. Box 1670
Ninth & Lowell Streets
Newport, KY 41072

PN 050101.0013

Prepared by

Environmental Quality Management, Inc.
1310 Kemper Meadow Drive
Cincinnati, Ohio 45240
(513) 825-7500
Fax: (513) 825-7495

November 2000

TABLE OF CONTENTS

FIGURES

TABLES

SECTION 1

INTRODUCTION

Beginning on October 3,2000 through October 4, 2000, Environmental Quality Management (EQ) and Pacific Environmental Services, Inc. (PES) personnel conducted an air emission evaluation at the Newport Steel Melt Shop in Newport, Kentucky. Sampling was conducted following the procedures of EPA reference methods. Nitrogen oxide, carbon monoxide and sulfur dioxide emissions were measured at the inlet of the Brandt fabric filter baghouse serving the electric arc furnace

EQ utilized EPA Reference Methods 1-4 to determine stack gas velocity and temperature, molecular weight, and moisture. Nitrogen oxide emissions were measured following the procedures of EPA Reference Method 7E. Carbon monoxide emissions were measured following the procedures of EPA Reference Method 10. Sulfur dioxide emissions were measured following the procedures of EPA Reference Method 6. Visible emission observations were conducted at the Brandt Baghouse exhaust and furnace roof monitor. The visible emission observations were conducted according to the procedures in EPA Method 9.

Ms. Jennifer McDaniel of Newport Steel coordinated process operations with the test team. Mr. Fred Hall and Mr. Tom Gerstle of EQ monitored process operations for the purposes of testing. Messrs. Ron Kolde, Gary Gay and Bryan Boggs of PES conducted all field efforts as the PES test team.

SECTION 2

SUMMARY OF TEST RESULTS

Sampling of Brandt Baghouse was conducted beginning on October 3, 2000. Test runs were at least 180 minutes in duration. Results from all three test runs are presented.

Table 2-1 summarizes the stack gas conditions measured at the baghouse inlet location. Moisture content was measured at the inlet and is applied in calculations for actual molecular weight calculations. The baghouse inlet had an average stack gas velocity of 72.0 feet per second at 177°F and 2.3 percent moisture content. Volumetric flow rates averaged 763,477 actual cubic feet per minute (acfm) or 608,262 dry standard cubic feet per minute (dscfm). Composition of the stack gas was essentially ambient in nature (0.1% carbon dioxide and 21.O% oxygen).

Table 2-2 summarizes the NO, and CO emissions measured at the baghouse inlet. The overall average NO, concentration was 3.4 parts per million (ppm), for a corresponding mass emission rate of14.6 pounds per hour (lb/hr). Based on steel production, the NO, emission factor is 0.22 pound per ton of steel (lb/ton steel). The overall average CO concentration was 101.6 ppm, for a corresponding mass emission rate of 272.1 lb/hr, or 4.0 lb/ton steel.

Table 2-3 summarizes the SO, emissions for the three test runs. SO, concentrations averaged 0.79 ppm, for a corresponding mass emission rate of 4.82 lb/hr, or 0.07 lb/ton of steel produced.

Tables 2-4 and 2-5 present the test results comparing the NO, and CO concentrations measured by the EPA Reference Methods (RM) 7E and 10, respectively, and the NO, and CO concentrations concurrently measured by the CEMs.

EPA Reference Method 9, "Visible Determination of the Opacity of Emissions from Stationary Sources," was used to determine opacity from the baghouse exhaust as well as from the shop roof monitor. Observations were conducted simultaneously at each source in conjunction with the particulate sampling runs. The observations were recorded separately for the baghouse exhaust and melt shop roof monitor. The baghouse observation data is provided in Table 2-6. The melt shop observation data are provided

in Table 2-7. Both tables also present the rolling 6-minute averages. The visible emissions averaged 0% for the baghouse and furnace roof monitor.

The data are presented as a comparison in relative concentration. The RM CO and NO, data were collected at the Brandt baghouse inlet duct. The CEM CO and NO, data were collected at the baghouse roof monitor, downstream of the bags.

Field data is presented in Appendix B and CEM data is presented in Appendix C.

TABLE 2-1

SUMMARY OF STACK GAS CONDITIONS
BRANDT BAGHOUSE INLET

Dates: October 3-4,2000 **Plant: Newport Steel, Newport, Kentucky**

Run No./ Date	Time	Stack Gas Velocity, fps[a]	Volumetric Flow Rate		Stack Temp, °F	Moisture, %
			acfm[b]	dscfm[c]		
BI-1 10/3/00	1620 1920	72.6 72.5	769,801 768,488	642,495 602,864	146 185	2.4 2.4
Average		72.6	769,145	622,680	166	2.4
BI-2 10/4/00	0730 1115	70.1 72.6	743,496 770,057	589.107 597.374	183 197	1.9 1.9
Average		71.4	756,777	593,241	190	1.9
BI-3 10/4/00	1115 1510	72.7 71.5	770,918 758,099	594,384 623,348	197 155	2.5 2.5
Average		72.1	764,509	608,866	176	2.5
Overall Average		72.0	763,477	608,262	177	2.3

[a]Feet per second.
[b]Actual cubic feet per minute.
[c]Dry standard cubic feet per minute

TABLE 2-2
SUMMARY OF NO, AND CO EMISSIONS
BRANDT BAGHOUSE INLET

)ates: October 3-4, 2000 — Plant: Newport Steel, Newport, Kentucky

Run No./ Time	Nitrogen Oxides			Carbon Monoxide			Steel Production, tons/hr[d]
	Conc.,[a] ppm dry	Mass Rate lb/hr[b]	Mass Rate lb/ton Steel [c]	Conc., ppm dry[a]	Mass Rate lb/hr[b]	Mass Rate lb/ton Steel [c]	
October 3, 2000							
BI-1							87.5
1007 - 1051	3.6	15.94	0.25	125.2	340.0	5.43	83.6
1629 - 1928	2.9	12.74	0.20	75.3	204.6	3.27	40.5
Average	3.3	13.38[b]	0.23	100.3	272.3[b]	4.35	62.6
October 4, 2000							
BI-2							79.5
0800 - 0959	3.3	14.23	0.19	107.0	277.0	3.69	63.6
1045 - 1159	2.1	8.75	0.12	71.7	185.5	2.47	79.4
							80.1
Average	2.7	12.13[b]	0.15	89.4	231.3[b]	3.08	75.0
BI-3							80.1
1245 - 1405	4.7	20.91	0.30	101.3	275.4	4.01	79.3
1422 - 1622	3.7	16.61	0.24	128.8	350.3	5.11	66.4
							55.0
Average	4.2	18.33[b]	0.27	115.1	312.9[b]	4.56	68.6
Overall Average	3.4	14.61	0.22	101.6	272.1	4.00	68.7

[a]Part per million, dry basis.
[b]Pound per hour: the average mass rate is a time weighted average (calculations are provided in Appendix A).
[c]Pound per ton of steel produced (average steel production used in calculation).
[d]Rate of steel production, tons per hour.

TABLE 2-3
SUMMARY OF SULFUR DIOXIDE EMISSIONS
BRANDT BAGHOUSE INLET

Run No./ Time	Concentration	Mass Rate		Steel Production tons/hr[d]
	ppm dry[a]	lb/hr[b]	lb/ton steel[c]	
BI-2	0.68	4.24	0.07	62.6
BI-3	0.88	5.22	0.07	75.0
BI-4	0.80	5.00	0.07	68.6
Average	0.79	4.82	0.07	68.7

[a] Part per million, dry basis
[b] Pounds per hour
[c] Pounds per ton of steel
[d] Rate of steel production, tons per hour

TABLE 2-4. DATA COMPARISON - CO (ppm)

Run #	Date	Time	Values	
			RM	CEMS
1	10/03/00	1007-1051	100.3	85.4
2	10/04/00	0800-0959	89.4	83.7
3	10/04/00	1245-1405	115.1	98.9
Averaees:			101.6	89.3

RM - Data collected at baghouse inlet using EPA Reference Method 10.
CEMS - Continuous emission monitoring data collected at the baghouse exhaust.

TABLE 2-5. DATA COMPARISON - NO, (ppm)

Run #	Date	Time	Values	
			RM	CEMS
1	10/03/00	1629-1928	3.3	3.7
2	10/04/00	1045-1159	2.7	4.2
3	10/04/00	1422-1622	4.2	5.7
Averages:			3.4	4.5

RM - Data collected at baghouse inlet using EPA Reference Method 7E.
CEMS - Continuous emission monitoring data collected at the baghouse exhaust.

SECTION 3

SAMPLING AND ANALYTICAL PROCEDURES

The sampling and analytical procedures used in this test program conform to EPA Reference Methods 1-4, 6, 7E, 9 and 10, as published in the Federal Register.

LOCATION OF MEASUREMENT SITES

EPA Method 1, "Sample Velocity Traverses for Stationary Sources," was used to select representative measurement sites. Sample locations are shown in Section 4.

STACK GAS VOLUMETRIC FLOW RATE

EPA Method 2, "Determination of Stack Gas Velocity and Volumetric Flow Rates," was used at each location to determine stack gas volumetric flow rates. Standard and Type "S" pitot tubes, meeting the EPA specifications, and an inclined manometer were used to measure velocity pressures. A calibrated Type "K" thermocouple, attached directly to the pitot tube, was used to measure stack gas temperature. The stack gas velocity was calculated from the average square root of the stack gas velocity pressure, average stack gas temperature, stack gas molecular weight, and absolute static pressure. The volumetric flow rate is the product of velocity and stack cross-sectional area.

STACK GAS DRY MOLECULAR WEIGHT

EPA Reference Method 3, "Gas Analysis for the Determination of Dry Molecular Weight," was used to determine stack gas dry molecular weight. Fyrite® gas analyzers were used to measure direct concentrations of stack gas for percent concentrations of carbon dioxide and oxygen, along with integrated Tedlar® bag samples collected during each measurement run which were analyzed with an Orsat® analyzer.

STACK GAS MOISTURE CONTENT

EPA Reference Method 4, "Determination of Moisture Content in Stack Gases," was used to determine stack gas moisture content. This method was conducted during each NO, measurement run. The initial and final contents of all impingers are determined gravimetrically.

VISIBLE EMISSION OBSERVATIONS

EPA Reference Method 9, "Visual Determination of the Opacity of Emissions from Stationary Sources" was used to determine the opacity from the baghouse exhaust as well as from the melt shop roof monitor. Observations were conducted simultaneously with the emission measurement runs.

NITROGEN OXIDES (NO,)

EPA Reference Method 7E, "Determination of Nitrogen Oxide Emissions from , Stationary Sources" (Instrumental Analyzer Procedure) was used to measure NO, emissions at the Brandt baghouse inlet. The sampling system consisted of a Teflon sampling line connected to a stainless steel condenser and stainless steel probe with a three-way valve. Stack gas was routed to a cherniluminescent analyzer through this system. Data was collected on both a Yokogawa strip chart recorder and Strata data logging system. The analyzer was calibrated with a zero gas and two Protocol One nitrogen oxides-in-nitrogen calibration gases. Calibrations were performed at the start of each sample run and at 2.5-hour intervals during each test run. Each sampling run was approximately 3 - 4 hours in length. Figure 3-1 is a schematic of the sampling system.

CARBON MONOXIDE (CO)

EPA Reference Method 10, "Determination of Carbon Monoxide Emissions from Stationary Sources," was used to rescue CO emissions at the Brandt Baghouse inlet. The same sampling system for measuring NO, emissions was used, with the exception of the CO instrument, which uses a non-dispersive infrared detection principle. The instrument was calibrated with a zero gas and three master gas certified calibration gases with concentrations of CO-in-nitrogen (balance). Figure 3-1 is a schematic of the sampling system.

SULFUR DIOXIDE (SO,)

EPA Reference Method 6, "Determination of Sulfur Dioxide Emissions from Stationary Sources," was used to measure SO, emissions at the Brandt Baghouse inlet. A glass lined probe, filter assembly and series of four impingers containing 80% isopropanol (1st), 3% hydrogen peroxide (2nd and 3rd) and silica gel (4th) were used to collect SO, concentrations. The probe and filter assembly were maintained at

250°F, ± 25°F. Recovery of the sample trains consisted of a D.I. water rinse for impingers 2 and 3 after placing the contents in a sample recovery bottle. Impinger weights were recorded initially and at the end of each test run gravimetrically. Analysis of the samples was by barium perchlorate titratin using thorin indicator. Figure 3-2 is a schematic of the SO, sampling train.

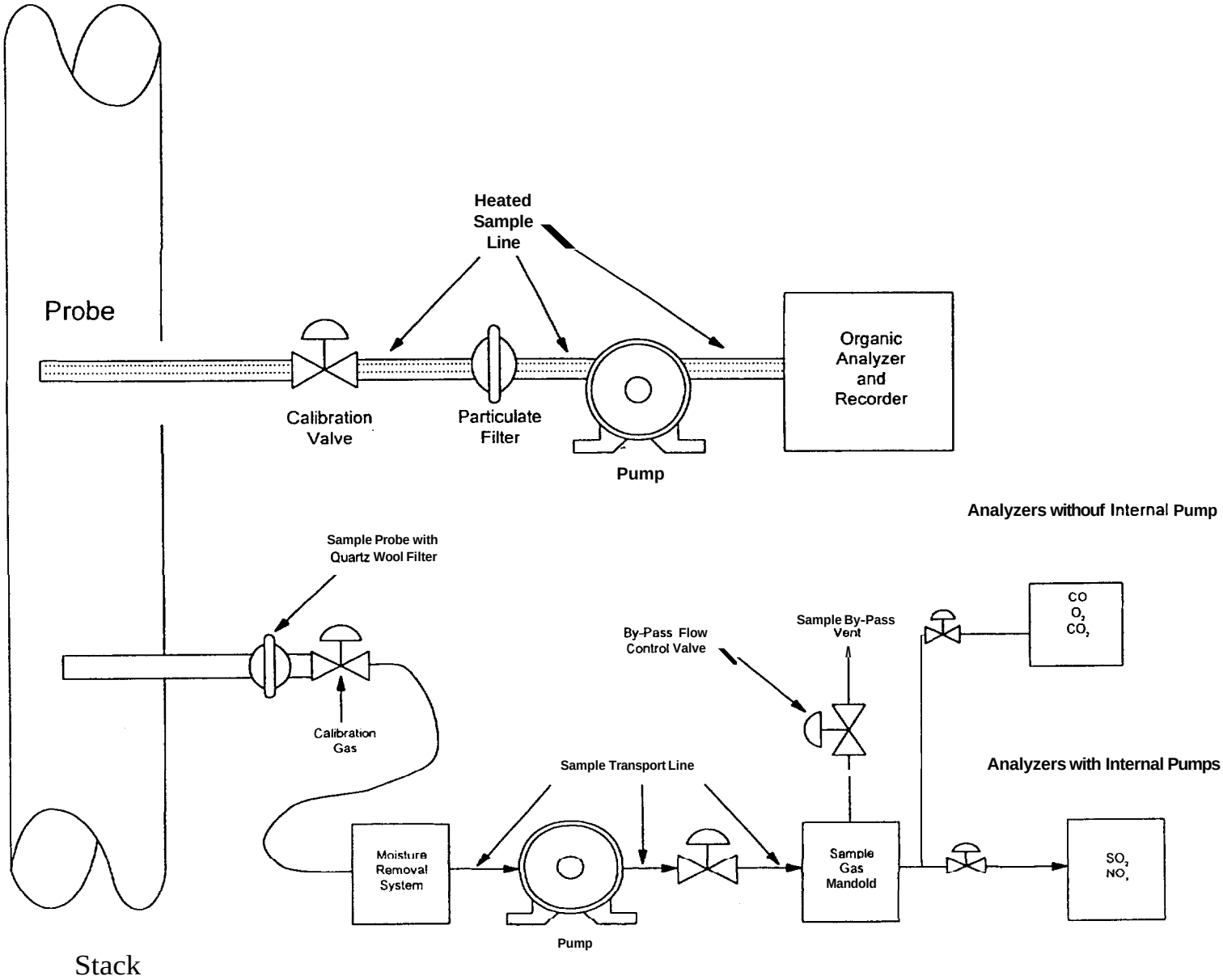


Figure 3-1. CEM Sample Flow and Calibration System Schematic (with THC analyzer)
Note: This study used the NO, and CO analyzer.

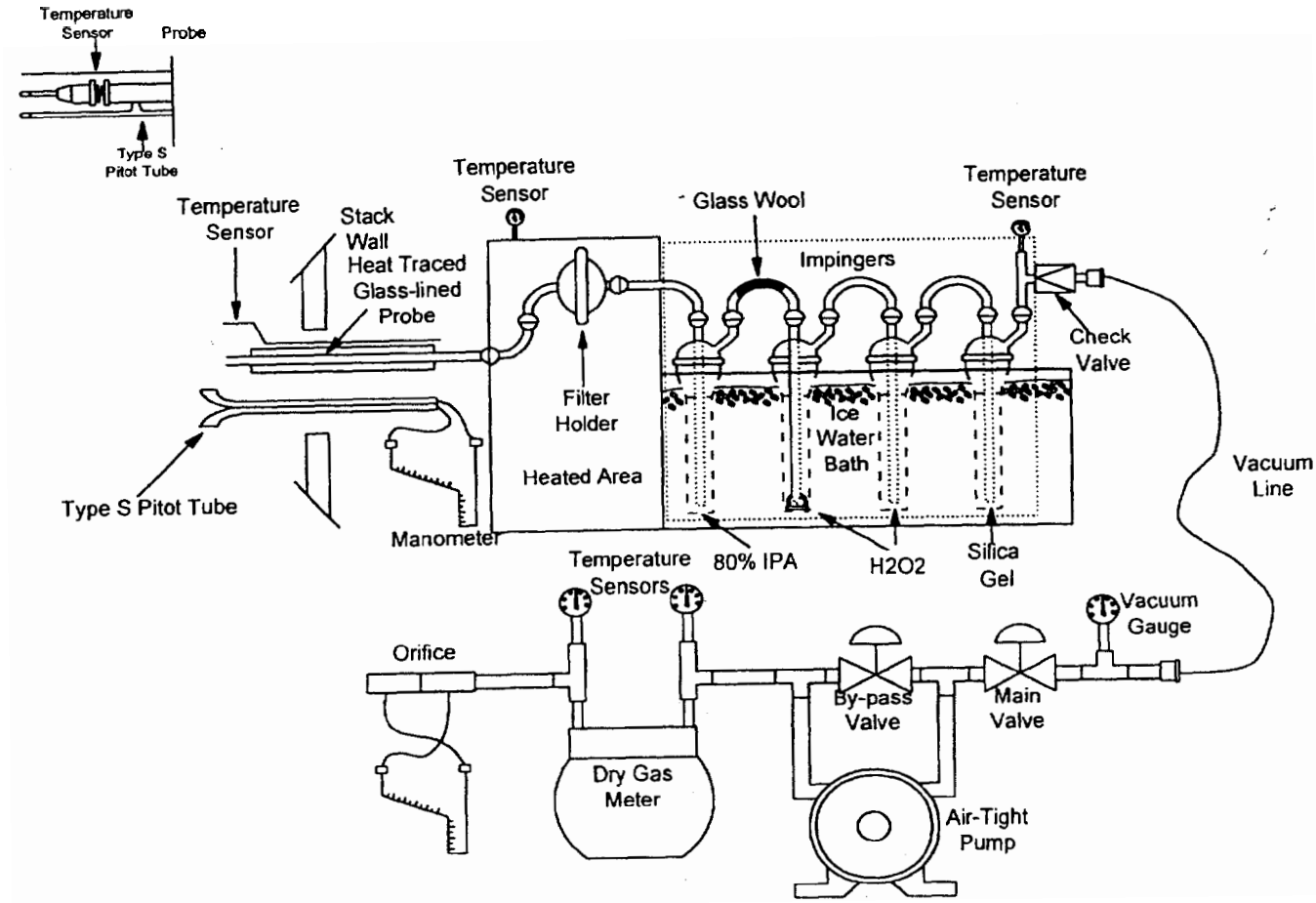


Figure 3-2 Schematic of SO, Sampling System

SECTION 4

PROCESS DESCRIPTIONS/SAMPLING LOCATIONS

The processes operating in the Newport Steel Corporation Melt Shop are the electric arc furnace (EAF), ladle metallurgy furnace (LMF), and continuous slab caster. The structure containing the EAF is referred to as the EAF building, and the structure containing LMF and the Caster is referred to as the Main Melt Shop Building. The Brandt baghouse vents emissions from the EAF and the EAF building.

Figure 4-1 shows the process flow for the Newport electric arc furnace (EAF). , The EAF is a batch process. Each process cycle consists of four distinct phases: charging, melting, slagging, and tapping. After the furnace is charged with scrap and other additives, the meltdown phase comprises the period from charging to the complete meltdown of the solid material. Melting is accomplished by the heat supplied by direct radiation from the arcs formed between the electrodes and the scrap metal, by direct radiation from the furnace lining, and electric resistance of the metal between arc paths. The EAF also has oxy-fuel burners to provide additional heat input to enhance scrap meltdown and oxygen/carbon lances to enhance meltdown, refining, and foamy slag practice.

When the melting phase is complete, chemistry and temperature samples are taken. Based on these samples, the steel composition is adjusted and when the proper steel temperature has been reached, the foamy slag is poured off the furnace. For tapping, the power is shut off, the electrodes are raised to clear the molten steel bath, and the molten steel is tapped into a ladle and transferred to the LMF. After steel tapping is completed, the melting cycle begins again (i.e., the charging phase begins).

The Brandt baghouse exhausts the electric arc furnace (EAF) and the EAF building by an exhaust system consisting of (1) a direct evacuation control (DEC), and (2) a roof canopy hood. The DEC - also called a "fourth hole" system or direct shell evacuation (DSE) - captures emissions generated during scrap meltdown while the EAF roof is in place directly from the furnace vessel. The DEC is comprised of water-cooled ductwork to cool the hot EAF exhaust gases. Prior to the water-cooled section, a gap in the duct allows the entrainment of shop ambient air to assist in the combustion of carbon monoxide (CO) off-gases to carbon dioxide (CO_2). After passing sufficient distance to cool the exhaust, the DEC duct then merges with shop roof ductwork from the roof canopy hood. The overhead roof canopy hood collects fumes and gases that escape the furnace shell. The combined gas stream including EAF exhausts and melt shop ambient air is ducted to the Brandt baghouse.

Process information was collected during the course of the sampling program and included:

A) Charge weights and materials, and tap weights and materials

B) Heat times, including start and stop times, log of process operation including periods of no operation during testing

C) Pressure drop across the baghouse, visual inspection of bagsand control system fan amperes

D) Fan/duct damper positions

E) Fan amperes

Data was recorded at 15-minute intervals during testing. These data are provided-in Appendix D.

EPA Reference Method 1 was used to determine representative measurement sites for stack gas velocity determinations on the baghouse inlet duct. The inlet of the baghouse consisted of a circular horizontal duct, 15 feet in diameter. Two sampling ports were located approximately 150 feet (10 duct diameters) downstream of a 45° elbow and 19 feet (1.3 dd) upstream of the nearest disturbance. Eight points per port for a total of 16 points were used for the velocity traverse. A schematic of the baghouse inlet site is shown in Figure 4-2.

The NO,, CO and SO, sampling system collected data from this location.

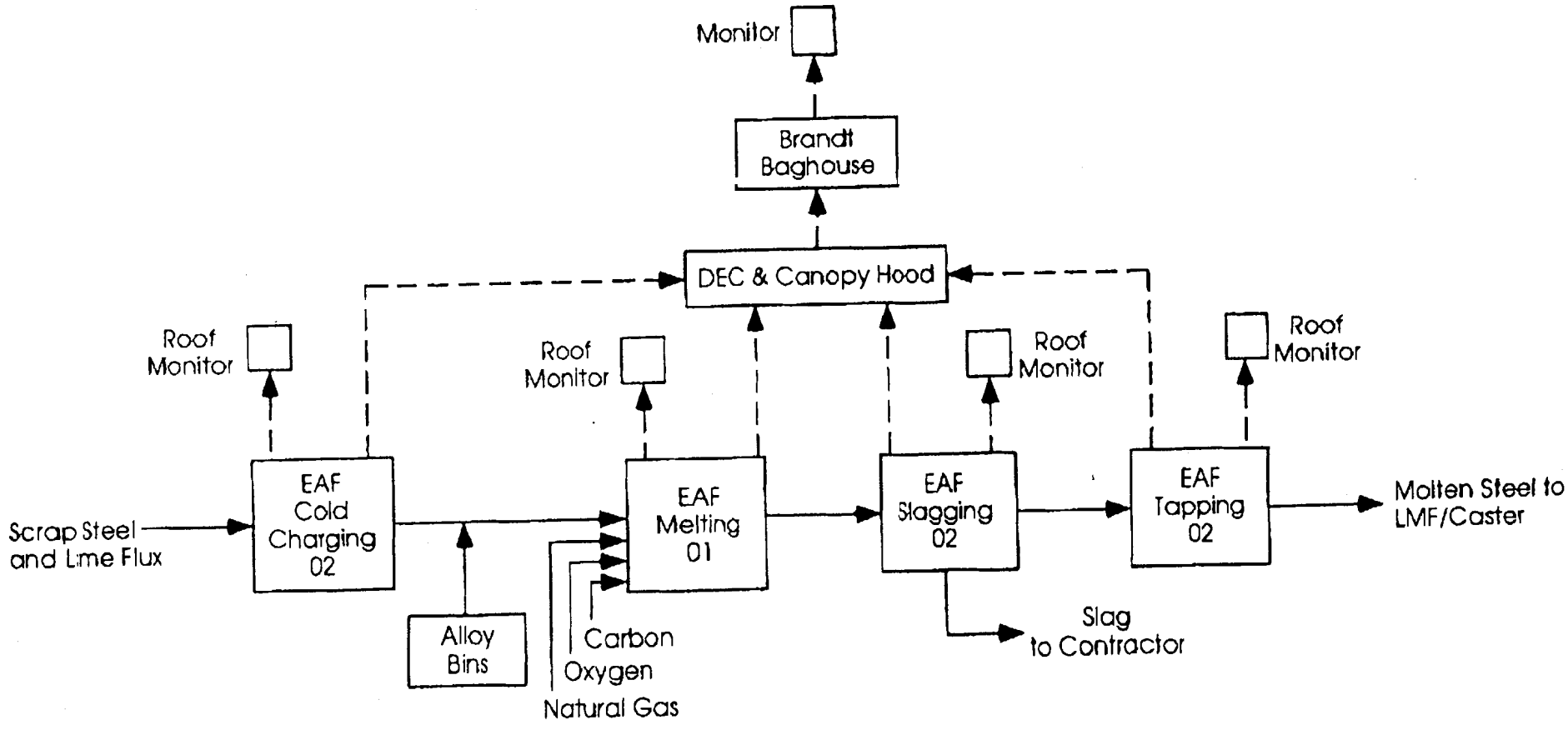


Figure 4-1 Schematic of Process Flow

Melt Shop - Electric Arc Furnace (EAF)

→ Material/Fuel Flow

- - → Emission Stream

Newport Steel, Inc.	EQ
Process Flow Diagram: Melt Shop - Electric Arc Furnace (EAF)	
Drawing No.:	
Scale: Not to Scale	
Drawn by: RJH	Revision: 0
Checked by: FDH	Date: 2/9/98

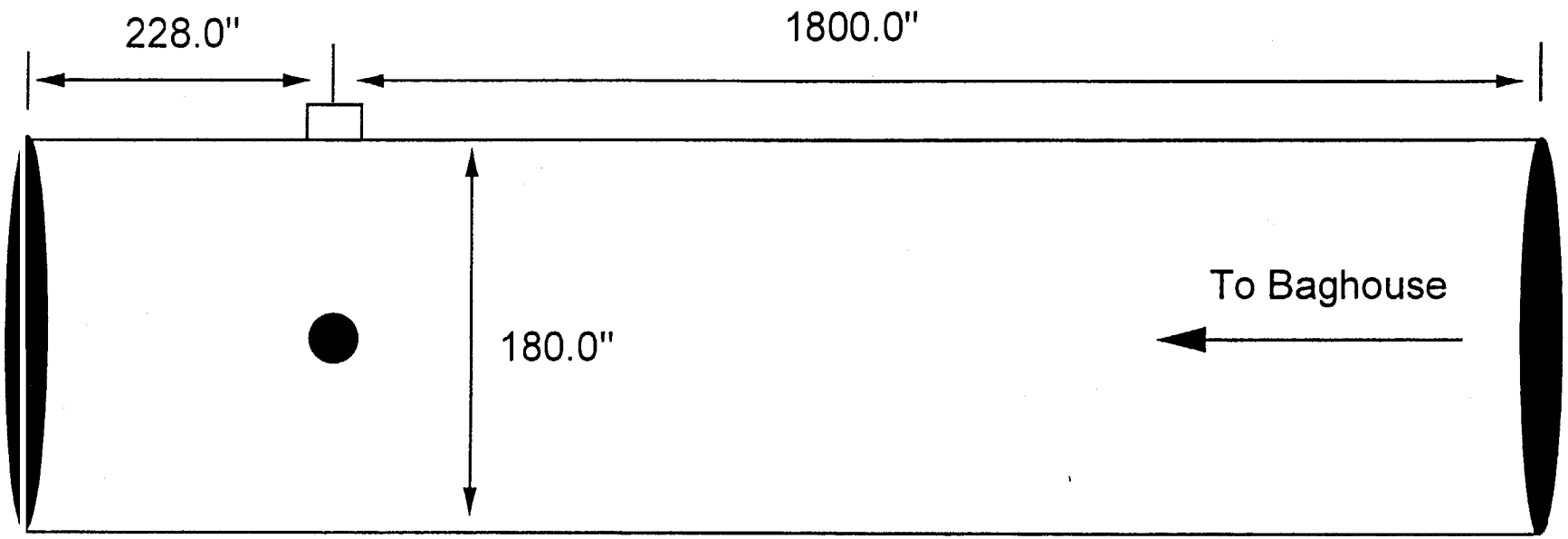


Figure 4-2 Schematic of Brandt Baghouse Inlet Sampling Location

SECTION 5

QUALITY ASSURANCE AND QUALITY CONTROL

The field sampling quality assurance for this project included the use of: calibrated source sampling equipment; reference test methods; and traceability protocols for the recording and calculation of data. The analytical quality assurance includes use of validated analytical procedures; calibration of analytical instruments; and analysis of control samples and blanks. The calibration and quality control procedures used for this test program are described in the following subsection:

CALIBRATION PROCEDURES AND FREQUENCY

All manual stack gas sampling equipment was calibrated before the test program in accordance with the procedures outlined in the *Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III*, EPA-600/4-72-027B. Summarized in Table 5-1 are the stack gas sampling equipment calibrations which were performed in preparation for this project. The meter boxes were re-calibrated after the test.

Listed in Tables 5-2 and 5-3 are the additional calibration checks which were performed on the sampling equipment on-site, just prior to the testing, to ensure that equipment was not damaged during transport. Analyzer checks were conducted directly on the instrument initially and then through the sampling system. Calibration checks were conducted before and after each test run. Protocol One calibration gases were used for calibrating the NO, analyzer and master gas certified calibration gases for the CO analyzer.

TABLE 5-1

FIELD EQUIPMENT CALIBRATION SUMMARY*

Equipment	Calibrated against	Allowable error
Method 5 meter box	Reference test meter	Y k0.02 Y ▲H@ k0.20 ▲H@ post-test Y ±0.05 Y
Orsat®	Certified cylinder gas	±0.5%
Pitot tube	Geometric specifications	See EPA Method 2
Thermocouple	ASTM-3F thermometer	±1.5%
Impinger (or condenser thermometer)	ASTM-3F	±2°F
Dry gas meter thermometer	ASTM-3F	±5°F
Barometer	NBS traceable barometer	±0.1 in.Hg

*As recommended in the ***Quality Assurance Handbook for Air Pollution Measurement Systems: Volume III. Stationary Source-Specific Methods***. EPA-600/4-77-027b, August 1977.

TABLE 5-2

FIELD CHECKS OF SAMPLING EQUIPMENT

Equipment	Checked against	Allowable difference
Pitot tube	Inspection	No visible damage
Thermocouples	ASTM 2F or 3F	±1.5%
Probe nozzles	Caliper	High-low 0.004 in.

TABLE 5-3

FIELD CHECKS OF NO, ANALYZER

	Instrument Check	Acceptable Limit
Initial Calibration	CO & NO, Calibration Error, % Span	± 2%
	Sampling System Bias	< 5% of Span
Daily Calibration	CO & NO, Calibration Error, % Spane	± 2%
	CO & NO, Drift, % Span	< 3% of Span

Appendix A

Example Calculations

Example Calculations for Pollutant Emissions

1. Volume of dry gas sampled corrected to standard conditions, **ft3.**
   Note: Vm must be corrected for leakage if any leakage rates exceed La.

$$Vmstd = 17.647 * Vm * \gamma * \frac{Pbar + \frac{AH}{13.6}}{Tm, \ ^{\circ}R}$$

2. Volume of water vapor at standard conditions, ft^3.

$$Vwstd = 0.04707 * Vlc + 0.04715 * Vsg$$

3. Moisture content in stack gas, dimension less.

$$Bws = \frac{Vwstd}{Vwstd + Vmtd}$$

4. Dry molecular weight of stack gas, **lb/lb** -mole.

$$Md = 0.44 * \%CO_2 + 0.32 * \%O_2 + 0.28 * (\%N_2 + \%CO)$$

5. Molecular weight of stack gas, **lb/lb-mole.**

$$Ms = Md\ (I\text{-}Bws) + 18 * Bws$$

6. Stack velocity at stack conditions, **f/s.**

$$Vs = 85.49 * Cp * ave\sqrt{\Delta P} * \sqrt{\frac{Ts, \ ^{\circ}R}{Ps * Ms}}$$

7. Stack gas volumetric flow rate at stack conditions, cfm.

$$Qs = 60 * Vs * As$$

8. Dry stack gas volumetric flow rate at standard conditions, cfm.

$$Qsstd = 17.647 * Qs * \frac{Ps}{Ts, \ ^{\circ}R} * (1 - Bws)$$

Example Calculations for Pollutant Emissions

1. Volume of dry gas sampled corrected to standard conditions, **ft3.**
   Note: Vm must be corrected for leakage if any leakage rates exceed La.

$$Vmtd = 17.647 * Vm * \gamma * \frac{Pbar + \frac{AH}{13.6}}{Tm, {}^{\circ}R}$$

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7. Stack gas volumetric flow rate at stack conditions, cfm.

$$Qs = 60 * Vs * As$$

8. Dry stack gas volumetric flow rate at standard conditions, cfm.

$$Qsstd = 17.647 * Qs * \frac{Ps}{Ts, {}^{\circ}R} * (1 - Bws)$$

9. Concentration in gr/dscf.

$$Cs = 0.01543 * \frac{Mn}{Vmstd}$$

10. Concentration in lbldscf.

$$Cs,\ lb/dscf = \frac{gr/dscf}{7000}$$

11. Pollutant mass emission rate, lb/hr.

$$Pmr,\ lb/hr = lb/dscf * Qsstd * 60$$

12. Pollutant mass emission rate, lb/MMBtu.

$$pmr,\ lb/MMBtu = \frac{pmr,\ lblhr}{MMBtu/hr}$$

13. F-factor, Fd.

$$Fd = \frac{10^6 * (3.64 * \%H) + (1.53 * \%C) + (0.57 * \%S) + (0.14 * \%N) - (0.46 * \%O_2)}{GCV\ (Btu/lb)}$$

14. F-factor, pollutant mass emission rate, lb/MMBtu.

$$= \frac{lbldscf * Fd * 20.9}{(20.9 - \%O_2)}$$

15. Heat imput, MMBtu/hr fuel.

$$= \frac{GVC\ (Btullb) * Feed\ Rate\ (lblhr)}{10^6}$$

16. Heat input, MMBtu/hr, F-factor.

$$= \frac{Qsstd}{Fd} * ((20.9 - \%O_2) + 20.9) * 60$$

17. Volume of dry gas sampled corrected to standard conditions, m^3.

$$Vmstd\ (m^3) = Vmstd\ (ft^3) * 0.02831$$

18. Concentration in **ug/dscm.**

$$ug/dscm = Target\ Catch,\ micrograms\ /\ Vmstd\ (m^3)$$

19. Concentration corrected to 7% oxygen.

$$ug/dscm\ @\ 7\%\ O_2 = ug/dscm * (20.9-7)\ /\ (20.9-measured\ O_2)$$

20. Concentration, part per million, dry basis.

$$ppm,\ dry = ppm,\ wet\ basis \div \left(1 - \frac{BWS,\ \%}{Fd}\right)$$

21. Pollutant Mass Emission Rate, pound per hour.

$$PMR,\ lblhr = \frac{ppm,\ dry * Compound\ Molecular\ Weight}{(385.3 \times 10^6)} * dscfm * 60$$

Common Molecular Weights (MW)

Total Gaseous Organic Compound (TGOC)	=	**44.09**
Sulfur Dioxide (SO_2)	=	**64.05**
Nitrogen Oxides (NO_x)	=	**46.00**
Carbon Monoxide (CO)	=	**28.01**
Oxygen (O_2)	=	**32.00**
Carbon Dioxide (CO_2)	=	**44.01**

22. Removal Efficiency (RE), percent.

$$RE = (Inlet\ lblhr - Outlet\ Iblhr\ /\ Inlet\ lb/hr) * 100$$

Nomenclature and Dimensions

An	=	Cross-sectional area of sampling nozzle, **ft^2**
As	=	Cross-sectional area of stack, **ft^2**
Bws	=	Proportion by volume of water vapor in the gas stream, dimensionless
Cp	=	**Pitot** tube **coefficient,** dimensionless
Cs	=	Concentration of pollutant matter in stack gas-dry basis, grains per dry standard cubic foot **(gr/dscf)**
%CO	=	Percent of carbon monoxide by volume, dry basis
$\%CO_2$	=	Percent of carbon dioxide by volume, dry basis
AH	=	Average pressure drop across the sampling meter flow **ofifice,** inches of water (in. **H_2O)**
GCV	=	Gross calorific value, **Btu/lb**
I	=	Percent of isokinetic sampling
La	=	Maximum acceptable leakage rate for either a pretest leak check or for a leak check following a component **change/** equal to 0.020 cubic foot per minute or 4% of the average sampling rate, whichever is less
Md	=	Dry molecular weight, **lb/lb-mole**
Mn	=	Total amount of pollutant matter collected, milligrams (mg)
Ms	=	Molecular weight of stack gas (wet basis), **lb/lb-mole**
$\%N_2$	=	Percent of nitrogen by volume, dry basis
$\%O_2$	=	Percent of oxygen by volume, dry basis
ΔP	=	Velocity head of stack gas, inches of water (in. **H_2O)**
Pbar	=	Barometric pressure, inches of mercury (in. Hg)
Ps	=	Absolute stack gas pressure, inches of mercury (in. Hg)
Pstd	=	Gas pressure at standard conditions, inches of mercury (29.92 in. Hg)

pmr = Pollutant matter emission rate, pounds per hour (lb/hr)

Qs = Volumetric flow rate - wet basis at stack conditions, actual cubic feet per minute (acfm)

Qsstd = Volumetric flow rate - dry basis at stack conditions, actual cubic feet per minute (dscfm)

Tm = Average temperature of dry gas meter, °R

Ts = Average temperature of stack gas, °R

Tstd = Temperature at standard conditions, 528°R

Vlc = Total volume of liquid collected in impingers, ml

Vsg = Weight of moisture collected in silica gel, grams

Vm = Volume of dry gas sampled at meter conditions, ft^3

Vmstd = Volume of dry gas sampled at standard conditions, ft^3

Vs = Average stack gas velocity at stack conditions, ft/s

Vwstd = Volume of water vapor at standard conditions, scf

γ = Dry gas meter calibration factor, dimensionless

Θ = Total sampling time, minutes

NOTE: Standard conditions = 68°F and 29.92 in. Hg

Example Calculations for Pollutant Emissions

NIOSH/OSHA and EPA Method 18

1. Sample Volume Standard Liters (Evacuated Tank).

$$Liters_{std} = 17.647 * Total\ Tank\ Volume,\ L * \left(\frac{Pf}{Tf} - \frac{Pin}{Tin}\right)$$

Pf	**=**	**Final tank pressure, in. Hg**
Pin	**=**	**Initial tank pressure, in. Hg**
Tf	**=**	**Final tank temperature, °R**
Tin	**=**	**Initial tank temperature, °R**

2. Sample Volume, Standard Liters (VOST Meter).

$$Volume,\ Liters_{std} = 17.647 * Total\ Volume,\ L * Y * \left(\frac{Barometric,\ in.\ Hg}{Meter\ Temp.,\ Rankin}\right)$$

3. Concentration, micrograms per liter.

$$pgll = Total\ \ pglsample \div Vmstd,\ liters$$

4. Concentration, part per million, wet basis.

$$ppm,\ wet = \left(\frac{\mu/\ell * 24.04\ Qlmole}{Molecular\ Weight\ of\ Analyte}\right)$$

5. **Concentration, part per million, dry basis.**

$$ppm,\ dry = ppm,\ wet \div \left(1 - \frac{H_2O,\ \%}{100} \right)$$

6. **Mass Emission Rate, pound per hour.**

$$MR,\ lb/hr = \left(\frac{ppm,\ dry * MW,\ analyte}{385.3 \times 10^6} \right) * dscfm * 60$$

MW	**=**	**Molecular weight of target analyte**
ppm	**=**	**Part per million**
dscfm	**=**	**Volumetric flow rate, dry standard cubic feet per minute**
MR, lb/hr	**=**	**Mass emission rate, pound per hour**
Molar Volume	**=**	**385.3 ft^3 / lb mole**
ppm by volume	**=**	**ft^3 / 10^6 ft^3, volume ratio**

PACIFIC ENVIRONMENTAL SERVICES, INC.

Project No.	Page of
5620.001	1 1

Client: EQM-Newport-Steel

Location: Newport, Kentucky

Prepared By	Date	Checked By	Date	Sheet Title
R Holde	10/30/00	D Scheffel	10/31	NOx / CO Mass Emission Rates

10/3/00 1007-1051 = 0.75 hrs. Time-weighted averages

Run No. 1 1629-1928 = 3.00 hrs.

$$NOx \text{ Mass Rate, lb/hr} = \frac{(15.94\ lb/hr \times 0.75\ hrs) + (12.74\ lb/hr \times 3.00\ hrs)}{3.75\ hrs.} = 13.38\ lb/hr$$

$$CO \text{ Mass Rate lb/hr} = \frac{(340.0\ lb/hr \times 0.75\ hrs) + (204.64\ lb/hr \times 3.00\ hrs)}{3.75\ hrs.} = 231.7\ lb/hr.$$

10/4/00 0800-0959 = 1.98 hrs

Run No. 2 1045-1159 = 1.23 hrs

$$NOx \text{ Mass Rate, lb/hr} = \frac{(14.23\ lb/hr \times 1.98\ hrs) + (8.75\ lb/hr \times 1.23\ hrs)}{3.21\ hrs.} = 12.13\ lb/hr$$

$$CO \text{ Mass Rate, lb/hr} = \frac{(277.0\ lb/hr \times 1.98\ hrs) + (185.5\ lb/hr \times 1.23\ hrs)}{3.21\ hrs.} = 241.9\ lb/hr.$$

Run No. 3 1245-1405 = 1.33 hrs

1422-1622 = 2.00 hrs

$$NOx \text{ Mass Rate, lb/hr} = \frac{(20.91 \times 1.33\ hrs) + (16.61 \times 2.00\ hrs)}{3.33\ hrs.} = 18.33\ lb/hr$$

$$CO \text{ Mass Rate, lb/hr} = \frac{(275.4\ lb/hr \times 1.33\ hrs) + (350.3\ lb/hr \times 2.00\ hrs)}{3.33\ hrs.} = 320.4\ lb/hr$$

Summary of Stack Gas **Parameters** and Test Results
Project
Plant Name **& Location**
US EPA **Test** Method 2 **-Velocity**
Baghouse Inlet
Page 1 of 1

	RUN NUMBER	Velocity #2		Velocity #3		Velocity #4		***Average***
	RUN DATE	***10/03/2000***		***10/03/2000***		***10/04/2000***		
	RUN TIME	***1620***		***1920***		***730***		
	MEASURED DATA							
P_{static}	Stack Static Pressure, inches H_2O	-3.80		-3.60		-3.40		-3.60
P_{bar}	Barometric Pressure, inches Hg	29.66		29.66		29.68		29.67
CO_2	Carbon Dioxide content, % by **volum**	0.1		0.1		0.1		0.1
O_2	Oxygen content, % by volume	20.6		20.6		20.6		20.6
N_2	Nitrogen content, % by volume	79.4		79.4		79.3		79.3
C_p	**Pitot** Tube Coefficient	0.84		0.84		0.84		0.84
	Circular Stack? **1=Y,0=N:**	1		1		1		1
As	Diameter or Dimensions, inches:	180.00		180.00		180.00		180.00
A	Stack Area, f?	176.7		176.7		176.7		176.71
	Temp. **°F,** WET							0.0
	Temp. **°F,** DRY							0.0
	Vapor Pressure Value, in. Hg. (Chart)							0.0000
B_{ws}	Moisture, **%** by volume	2.40		2.40		1.90		2.23
	Travers Point Number	Delta P	**Temp, °F**	Delta P	Temp. °F	**Delta P**	**Temp, °F**	
		1.20	136.0	1.60	214.0	1.10	166.0	
		1.20	137.0	1.60	203.0	1.00	173.0	
		1.20	136.0	1.50	193.0	1.20	181.0	
		1.20	140.0	1.60	203.0	1.10	183.0	
		1.30	147.0	1.30	199.0	1.20	196.0	
		1.30	150.0	1.30	195.0	1.20	208.0	
		1.40	154.0	1.40	194.0	1.10	212.0	
		1.30	154.0	1.30	185.0	1.00	210.0	
		1.70	153.0	1.20	194.0	1.60	197.0	
		1.90	154.0	1.30	186.0	1.50	206.0	
		1.70	155.0	1.30	176.0	1.50	191.0	
		1.50	154.0	1.20	175.0	1.30	175.0	
		1.50	152.0	1.20	165.0	1.40	165.0	
		1.50	145.0	1.10	167.0	1.40	156.0	
		1.50	137.0	1.10	161.0	1.30	151.0	
		1.40	133.0	1.30	152.0	1.20	154.0	
	Average	1.4250	146.1	1.3313	185.1	1.2563	182.8	
	Square Rool Average	1.1900		1.1517		1.1181		
	CALCULATED DATA							
P_s	Stack Pressure. inches Hg	29.38		29.40		29.43		29.40
M_d	Molecular Weight (d.b.), lb/lb•mole	28.84		28.84		28.84		28.84
M_s	Molecular Weight (w.b.), lb/lb•mole	28.58		28.58		28.63		28.60
V_s	Stack Gas Velocity, ft/s	72.6		72.5		70.1		71.7
Q_a	Stack Gas Volumetric Row, acfm	769,801		768,488		743,496		760,595
Q_s	Stack Gas Volumetric flow, dscfm	642,495		602,864		589,107		611,489
Q_s	Stack Gas Volumetric flow, dscmm	18,193		17,071		16,682		17,315

DS
10/31/00

Summary of Stack Gas **Parameters and** Test **Results**
Project
Plant Name 8 **Location**
US EPA Test Method 2 -Velocity
Baghouse Inlet
Page 1 of 1

	RUN NUMBER	***Velocity #5***		Velocity ***#5B/6A***		Velocity ***#6B***		***Average***
	RUN DATE	***10/04/2000***		***10/04/2000***		***10/04/2000***		
	RUN TIME	***1115***		***1115***		***1510***		
	MEASURED DATA							
P_{static}	Stack Static Pressure, inches H_2O	-3.40		-3.40		-3.70		-3.50
P_{bar}	**Barometric** Pressure. inches Hg	29.68		29.68		29.68		29.68
CO_2	Carbon Dioxide content. % by **volum**	0.1		0.1		0.1		0.1
O_2	Oxygen **content,** % by volume	20.6		20.6		20.6		20.6
N_2	Nitrogen content. % by volume	79.4		79.4		79.3		79.3
C_p	**Pitot** Tube Coeffiaent	0.84		0.84		0.84		0.84
	Circular Stack? I=Y,0=N:	1		1		1		1
As	Diameter or Dimensions, inches:	180.00		180.00		180.00		180.00
A	Stack Area, ft^2	176.7		176.7		176.7		176.71
	Temp. °F, **WET**							0.0
	Temp. °F, DRY							0.0
	Vapor Pressure Value, in. Hg. (Chad)							0.0000
B_{ws}	Moisture. % by volume	1.90		2.50		2.50		2.30
	Travers Point Number	Delta **P**	Temp. °F	Delta **P**	Temp. °F	Delta **P**	Temp. °F	
		1.70	186.0	1.70	186.0	1.40	190.0	
		1.60	205.0	1.60	205.0	1.50	186.0	
		1.60	206.0	1.60	206.0	1.40	182.0	
		1.50	186.0	1.50	186.0	1.60	178.0	
		1.30	178.0	1.30	178.0	1.40	169.0	
		1.30	169.0	1.30	169.0	1.50	164.0	
		1.40	157.0	1.40	157.0	1.40	159.0	
		1.30	154.0	1.30	154.0	1.30	156.0	
		1.20	202.0	1.20	202.0	1.20	141.0	
		1.20	207.0	1.20	207.0	1.30	141.0	
		1.10	220.0	1.10	220.0	1.30	140.0	
		1.20	224.0	1.20	224.0	1.40	139.0	
		1.20	221.0	1.20	221.0	1.30	138.0	
		1.10	213.0	1.10	213.0	1.20	136.0	
		1.20	209.0	1.20	209.0	1.20	132.0	
		1.20	207.0	1.20	207.0	1.30	131.0	
	Average	1.3188	196.5	1.3188	196.5	1.3563	155.1	
	Square Root Average	1.1458		1.1458		1.1636		
	CALCULATED DATA							
P_s	Stack Pressure, inches Hg	29.43		29.43		29.41		29.42
M_d	Molecular Weight (d.b.), lb/lb•mole	28.84		28.84		28.84		28.84
M_s	Molecular Weight (w.b.), lb/lb•mole	28.63		28.57		28.57		28.59
V_s	Stack Gas Velocity, ft/s	72.6		72.7		71.5		72.3
Q_a	Stack Gas **Volumetric** flow. acfm	770,057		770,918		758,099		766,358
Q_s	Stack Gas Volumetric flow. dscfm	597,374		594,384		623,348		605,035
Q_s	Stack Gas Volumetric flow. dscmm	16,916		16,831		17,651		17,133

DS 10/31, 1

Summary of Stack Gas Parameters and Test Results
5620.001
Newport Steel-Kentucky
US EPA Test Method **6** or 8 **Sulfric** Acid and Acid Mists
Brandt Baghouse Inlet

	RUN NUMBER	*BI-2*	*BI-3*	*BI-4*	
	RUN DATE	*10/03/2000*	*10/04/2000*	*10/04/2000*	*Average*
	RUN TIME	*16451945*	*0800-1100*	*1143-1443*	
	MEASURED DATA				
P_{static}	Stack Static Pressure, inches H_2O	-3.80	-3.40	-3.40	-3.53
y	Meter Box Correction Factor	1.001	1.001	1.001	1.001
P_{bar}	Barometric Pressure, inches Hg	29.20	29.68	29.68	29.52
V_m	Sample Volume, ft^3	121.805	120.239	120.635	120.893
$Dp^{1/2}$	Average Square Root Dp, (in. $H_2O)^{1/2}$	1.1900	1.1180	1.1458	1.1513
DH	Avg Meter Orifice Pressure, in. H_2O	1.40	1.40	1.40	1.40
T_m	Average Meter Temperature, °F	96	81	89	89
T_s	Average Stack Temperature. °F	167	190	197	185
V_{lc}	Condensate Collected, ml	60.3	47.2	63.4	57.0
CO_2	Carbon Dioxide content. % by volume	0.1	0.1	0.1	0.1
O_2	Oxygen content, % by volume	20.6	20.7	20.6	20.6
N_2	Nitrogen content. % by volume	79.4	79.2	79.3	79.3
C_p	Pitot Tube Coefficient	0.84	0.84	0.84	0.84
	Circular Stack? 1=Y,0=N:	1	1	1	
As	Diameter or Dimensions, inches:	180.00	180.00	180.00	180.00
Q	Sample Run Duration, minutes	180	180	180	180
D_n	Nozzle Diameter, inches	0.000	0.000	0.000	0.000
	CALCULATED DATA				
A_n	Nozzle Area, ft^2	0.000000	0.000000	0.000000	0.000000
$V_{m(std)}$	Standard Meter Volume, ft^3	113.353	116.882	115.558	115.265
$V_{m(std)}$	Standard Meter Volume, m^3	3.210	3.310	3.272	3.264
Q_m	Average Sampling Rate, dscfm	0.630	0.649	0.642	0.640
P_s	Stack Pressure, inches Hg	28.92	29.43	29.43	29.26
B_{ws}	Moisture, % by volume	2.4	1.9	2.5	2.3
$B_{ws(sat)}$	Moisture (at saturation), % by volume	39.3	64.5	74.8	59.5
V_{wstd}	Standard Water Vapor Volume, ft^3	2.838	2.222	2.984	2.681
$1-B_{ws}$	Dry Mole Fraction	0.976	0.981	0.975	0.977
M_d	Molecular Weight (d.b.), lb/lb•mole	28.84	28.84	28.84	28.84
M_s	Molecular Weight (w.b.), lb/lb•mole	28.57	28.64	28.57	28.59
V_s	Stack Gas Velocity, Ws	72.6	71.4	72.1	72.0
A	Stack Area, ft^2	176.7	176.7	176.7	176.71
Q_a	Stack Gas Volumetric flow, acfm	769,145	756,777	764,509	763,477
Q_s	Stack Gas Volumetric flow, dscfm	622,680	593,241	623,348	613,090
Q_s	Stack Gas Volumetric flow, dscmm	17,632	16,799	17,651	17,361
I	Isokinetic Sampling Ratio, %	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Summary of Stack Gas Parameters and Test Results
5620.001
Newport Steel-Kentucky
US EPA Test Method 6 or 8 Sulfric Acid and Acid Mists
Brandt Baghouse Inlet

	RUN NUMBER	BC2	BC3	BI-4	
	RUN DATE	10/03/2000	10/04/2000	10/04/2000	Average
	RUN TIME	1645-1945	0800-1100	1143-1443	
	EMISSIONS DATA				
	Sulfur Dioxide				
	Titrant Normality, N	0.00973	0.00973	0.00973	0.00973
	Titrant Volume, ml	0.8	1.1	1.0	0.9
ppmdv	Parts Per Million, Dry Basis	6.83E-01	8.83141	8.04141	7.90E-01
E_{SO_2}	Emission Rate, lblhr	4.24E+00	5.22E+00	5.00E+00	4.82E+00

CEM Data Correction Data Sheet

Plant Name:	Newport Steel
Sampling Location:	Baghouse Inlet
Date:	10/3-10/4/00
Project Number:	5620.001
CEM Operator:	G. Gay
Pollutant:	N0x
Molecular Weight:	46.01

Run No.	Start-Stop Time	Raw Data (% or ppm)	Calibration Data Crna	Co	Cm	Source Information Stack Flow (dscfm)	Fd Factor (dscfl MMBtu)	Stack 0 2 Conc. (%)	Calibration Corrected Data (% or ppm)	Mass Emission Rate (lb/hr)	Steel Production, tons per hour	Mass Emission Rate lbslton steel
I	1007-1051	4.1	49.51	0.41	51.4	622,680			3.6	15.94		
2	1629-1928	3.2	49.5	0.2	52.2	622,680			2.9	12.74		
3	0800-0959	3.5	49.5	0.1	50.1	593,241			3.3	14.23		
4	1045-1159	2.2	49.5	0.2	49.2	593,241			2.1	8.75		
5	1245-1405	4.8	49.5	0.2	49.2	623,348			4.7	20.91		
6	1422-1622	3.8	49.5	0.2	48.6	623,348			3.7	16.61		
7												
8												
9												
10												
11												
12												
								Average	3.4	14.86		

Calibration _rror Correction

Cgas=(Cobs-Co)*(Cma/(Cm-Co))

Oxygen Corrected Data

C=Cgas*((20.9-O2 fact)/(20.9-O2 obs))

Mass Emission Rate (lb/hr)

E(lb/hr)=Cgas*MWgas*Qs(dscfm)*60/385300000

Mass Emission Rate (lb/MMBtu)

E(lb/MMBtu)=Cgas*MWgas*Fd*(20.9/(20.9-O2 obs))/385300000

Pollutant	MWgas
CO	28.01
Propane	44.10
NOx	46.01
SO2	64.06

CEM Data Correction Data Sheet

Plant Name:	Newport Steel
Sampling Location:	Baghouse Inlet
Date:	1013-1014100
Project Number:	5620.001
CEM Operator:	G. Gay
Pollutant:	CO
Molecular Weight:	28.01

Run No.	Start-Stop Time	Raw Data (ppm)	Calibration Data Cma	Co	Cm	Source Information (dscfm)	MMBtu)	Stack 02 Conc. (%)	Calibration Corrected Data (% or ppm)	Mass Emission Rate (lb/hr)	Steel Production tons per hour	Mass Emission Rate lbs/ton steel
1	1007-1051	130.7	600.6	4.5	610.0	622,680			125.2	340.01		
1	1629-1928	77.5	600.6	1.0	610.8	622,680			75.3	204.64		
2	0800-0959	109.2	600.6	1.1	607.9	593,241			107.0	276.99		
2	1045-1159	74.1	600.6	1.1	613.0	593,241			71.7	185.52		
3	1245-1405	104.1	600.6	1.1	612.0	623,348			101.3	275.44		
3	1422-1622	132.4	600.6	0.5	615.4	623,348			128.8	350.27		
7												
8												
9												
10												
11												
12												
								Average	101.6	#REFI	272.15	

Calibration Error Correction

Cgas=(Cobs-Co)*(Cma/(Cm-Co))

Oxygen Corrected Data

C=Cgas*((20.9-O2 fact)/(20.9-O2 obs))

Mass Emission Rate (lb/hr)

E(lb/hr)=Cgas*MWgas*Qs(dscfm)*60/385300000

Mass _mission Rate (lb/MMBtu)

E(lb/MMBtu)=Cgas*MWgas*Fd*(20.9/(20.9-O2 obs))/385300000

Pollutant	MWgas
CO	28.01
Propane	44.10
NOx	46.01
SO2	64.06

Appendix B

Field Data

TRAVERSE POINT LOCATION FOR CIRCULAR DUCTS

Plant: Newport Steel

Date: 10, 2 00

Sampling Location: Brandt Baghouse Inlet

Inside of Far Wall to Outside of Nipple:

Inside of Near Wall to Outside of Nipple (Nipple Length): *

Stack I.D.: 15' or 180"

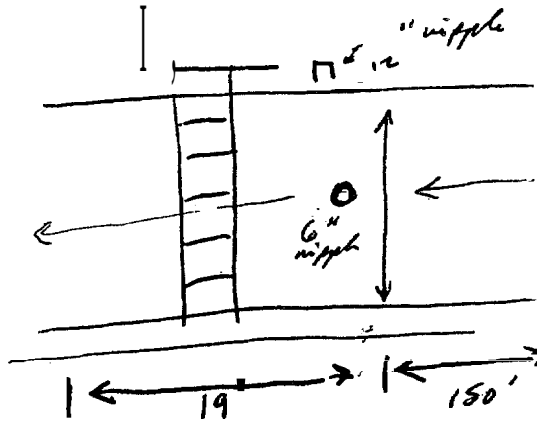
Distance Downstream from Flaw Disturbance (Distance B):

150" inches / Stack I.D. = 10.0 dd

Distance Upstream from Flow Disturbance (Distance A):

19' inches / Stack I.D. = 1.3 dd

Calculated By: [illegible]



Schematic of Sampling Location

* marked for inside of port

Traverse Point Number	Fraction of Length	Length (inches)	Product of Columns 2 & 3 (To nearest 1/8")	Nipple Length (inches)	Traverse Point Location (Sum of Col. 4 & 5)
1	0.032	180"	5.76"	N/A	5.76"
2	0.105		18.9"		18.9"
3	0.194		34.92"		34.92"
	0.323		58.14"		58.14"
5	0.677		121.86"		121.86"
6	0.806		145.08"		145.04
7	0.895		161.11"		61.11"
8	0.968		174.24"		174.24"

GAS VELOCITY AND VOLUMETRIC FLOW RATE

Plant: _____ Date: 10/3/00

Sampling Location: Bandit Boiler Inlet Clock Time: 1620

Run #: Velocity #2 Operators: RC/BBJ TG

Barometric Pressure, in. Hg: 29.66 Static Pressure, in. H_2O: -3.8

Moisture, %: 2.4 Molecular wt., Dry: 28.84 Pitot Tube, Cp: 0.84

Stack Dimension, in. Diameter or Side 1: 180" Side 2: —

Wet Bulb, °F: — Dry Bulb, °F: —

PITOT LEAK CHECK GOOD

	Traverse Point Number	Velocity Head in. H_2O	Stack Temp. °F
SIDE	1	1.2	136
	2	1.2	137
	3	1.2	136
	4	1.2	140
	5	1.3	147
	6	1.3	150
	7	1.4	154
	8	1.3	154
TOP	1	1.7	153
	2	1.9	154
	3	1.7	155
	4	1.5	154
	5	1.5	152
	6	1.5	145
	7	1.5	137
	8	1.4	133
		$\overline{\sqrt{\Delta P}}$ = 1.19	$\overline{Ts}$ = 146

$Md = (0.44 \times \%CO_2) + (0.32 \times \%O_2) + (0.28 \times \%N_2)$ (0.1, 20.7)

$Md = (0.44 \times \quad) + (0.32 \times \quad) + (0.28 \times \quad)$

$Md = 28.84$

$Ms = Md \times (1 - \frac{\%H_2O}{100}) + 18 (\frac{\%H_2O}{100})$

$Ms = (\quad) \times (1 - \frac{\quad}{100}) + 18 (\frac{\quad}{100})$

$Ms =$ ~~28.67~~ 28.58

$\overline{Ts} = 146$ °F = 606 °R (°F + 460)

$Ps = Pb + \frac{S.P.}{13.6} = (29.66) + \frac{-3.8}{13.6}$

$Ps =$ ~~28.92~~ in. Hg 29.38

$\overline{\sqrt{\Delta P}} = 1.19$

$Vs = 85.49 \times Cp \times \overline{\sqrt{\Delta P}} \times \sqrt{\frac{Ts\,(°R)}{Ps \times Ms}}$

$Vs = 85.49 \times (.84) \times (1.19) \times \sqrt{\frac{606}{(28.92)(28.67)}}$ 29.38 28.58

$Vs =$ ~~73.06~~ ft/s ~~72.59~~ 73.865

$As = 176.71$ ft²

$Qs = Vs \times As \times 60$ s/m

$Qs =$ ~~73.06~~ 73.865 $\times$ 176.71 $\times$ 60

$Qs =$ ~~774,696~~ acfm ~~769,683~~ 783,161.05

$Qs_{std} = Qs \times 17.647 \times \frac{Ps}{Ts} \times (1 - \frac{\%H_2O}{100})$

$Qs_{std} =$ ~~774,696~~ 783,161.05 $\times 17.647 \times \frac{28.92}{606}$ 29.38 $\times (1 - \frac{2.4}{100})$

$Qs_{std} =$ ~~639,331~~ dscfm ~~642,718~~ ~~653,959.65~~

642,760 DJ

FIELD DATA SHEET

Plant: Newport Steel
Sampling Location: Brandt Baghouse Inlet
Run Number: BI-2 Date: 10/3/00
Pretest Leak Rate: 0.004 cfm @ 15 in. Hg.
Pretest Leak Check: Pitot: ✓ Orsat: ✓

Sample Type: SO2 Operator: BB
Pbar: 29.20 Ps:
CO2: 0 O2: 20
Probe Length/Type: 7' Glass Pitot #:
Stack Diameter: 180" As:

Nozzle ID: — Thermocouple #:
Assumed Bws: — Filter #: —
Meter Box #: -1 Y: 1.001 ΔH@: 1.995
Post-Test Leak Rate: 0.004 cfm @ 13 in. Hg.
Post-Test Leak Check: Pitot: — Orsat: —

Traverse Point Number	Sampling Time (min)	Clock Time (24-hour clock)	Gas Meter Reading (Vm) ft³	Velocity Head (Δp) in H2O	Orifice Pressure Differential (ΔH) in H2O Desired	Orifice Pressure Differential (ΔH) in H2O Actual	Stack Temp. (Ts)	Temperature °F Probe	Temperature °F Filter	Impinger Temp. °F	Dry Gas Meter Temp. Inlet (Tm in °F)	Dry Gas Meter Temp. Outlet (Tm out °F)	Pump Vacuum (in. Hg)
			137.243										
	0	1645	137.243		1.4	1.4	60	256	256	58	94	93	3½
	10	1655	143.94		1.4	1.4	60	253	257	52	94	93	4
	20	1705	150.71		1.4	1.4		253	258	50	97	93	4
	30	1715	157.49		1.4	1.4		257	258	52	98	94	4
	40	1725	164.26		1.4	1.4		255	259	52	99	94	4
	50	1735	171.035		1.4	1.4		254	259	53	99	94	4
	60	1745	177.83		1.4	1.4		255	259	54	99	94	4
	70	1755	184.6		1.4	1.4		255	257	55	98	94	4.2
	80	1805	191.38		1.4	1.4		254	255	55	98	94	4.2
	90	1815	198.24		1.4	1.4		255	256	57	98	94	4.3
	100	1825	205.1		1.4	1.4		257	260	59	98	94	4.3
	110	1835	211.89		1.4	1.4		255	255	53	98	93	4.5
	120	1845	218.685		1.4	1.4		256	257	53	98	93	5
	130	1855	225.4		1.4	1.4		254	257	53	98	93	5
	140	1905	232.26		1.4	1.4		255	256	53	98	93	6
	150	1915	238.96		1.4	1.4		255	261	54	98	94	6.7
	160	1925	245.6		1.4	1.4		256	255	56	98	94	7.2
	170	1935	252.37		1.4	1.4		256	260	57	97	93	7.5
	180	1945	259.048		1.4	1.4		255	258	59	97	93	8

ΔVm= 121.805 $\sqrt{\Delta p}$= ΔH= 1.4 Ts= PURGE 259.248 269.225 Tm= 96

SAMPLE RECOVERY DATA

PLANT Nucor Steel Run No. BI-2

DATE 10/3/00 Sample Box No. RN2 Job No. 5620.001

SAMPLE LOCATION Brandt Baghouse Inlet Filter No. —

TRAIN PREPARER GG/BB

SAMPLE RECOVERY PERSON [illegible]

COMMENTS SO_2 train

FRONT HALF

Acetone Container No. _____ Liquid Level Marked _____ Sealed _____

Filter Container No. _____ Sealed _____

Description of Filter _____

Samples Stored and Locked _____

BACK HALF/MOISTURE

Container No. _____

Liquid Level Marked _____ Sealed _____

IMP. NO.	CONTENTS	INITIAL VOL (ml)	WEIGHT (grams)		
			INITIAL	FINAL	NET
1	IPA	100	~~630.1~~ 590.5	551.7	-38.8
2	H_2O_2	100	713.2	745.6	32.4
3	H_2O_2	100	682.8	700.1	17.3
4	S/G	8250	~~871.3~~	866.9	49.4
5			817.5		
6					
TOTAL					60.3

Description of Impinger Catch: Clear

GAS VELOCITY AND VOLUMETRIC FLOW RATE

Plant: NEWPORT STEEL Date: 10/3/00

Sampling Location: BEANS BAGHOUSE INLET Clock Time: 1920

Run #: VELOCITY 3 Operators: TG/BB/RK

Barometric Pressure, in. Hg: 29.66 Static Pressure, in. H_2O: -3.6

Moisture, %: 2 Molecular wt., Dry: 28.84 Pitot Tube, Cp: 0.84

Stack Dimension, in. Diameter or Side 1: 180" Side 2: —

Wet Bulb, °F: — Dry Bulb, °F: —

	Traverse Point Number	Velocity Head in. H_2O	Stack Temp. °F
TOP	1	1.6	214
	2	1.6	203
	3	1.5	193
	4	1.6	203
	5	1.3	199
	6	1.3	195
	7	1.4	194
	8	1.3	185
SIDE	1	1.2	194
	2	1.3	186
	3	1.3	176
	4	1.2	175
	5	1.2	165
	6	1.1	167
	7	1.1	161
	8	1.3	152
		$\overline{\sqrt{\Delta P}}$ = 1.152	$\overline{T_s}$ = 185

$M_d = (0.44 \times \%CO_2) + (0.32 \times \%O_2) + (0.28 \times \%N_2)$ (0.1, 20.7)

$M_d = (0.44 \times \quad) + (0.32 \times \quad) + (0.28 \times \quad)$

$M_d = 28.84$

$M_s = M_d \times (1 - \frac{\%H_2O}{100}) + 18 (\frac{\%H_2O}{100})$

$M_s = (\quad) \times (1 - \frac{}{100}) + 18 (\frac{}{100})$

$M_s = 28.58$

$\overline{T_s} = 185$ °F = 645 °R (°F + 460)

$P_s = P_b + \frac{S.P.}{13.6} = (\quad) + \frac{}{13.6}$

$P_s = 29.50$ in. Hg

$\overline{\sqrt{\Delta P}} = 1.152$

$V_s = 85.49 \times C_p \times \overline{\sqrt{\Delta P}} \times \sqrt{\frac{T_s (°R)}{P_s \times M_s}}$

$V_s = 85.49 \times (\quad) \times (\quad) \times \sqrt{\quad}$

$V_s = 72.48$ ft/s

$A_s = 176.71$ ft²

$Q_s = V_s \times A_s \times 60$ s/m

$Q_s = \quad \times \quad \times 60$

$Q_s =$ ~~768,515~~ acfm 768,476.45

$Q_{s_{std}} = Q_s \times 17.647 \times \frac{P_s}{T_s} \times (1 - \frac{\%H_2O}{100})$

$Q_{s_{std}} = \quad \times 17.647 \times \frac{}{} \times (1 - \frac{}{100})$

$Q_{s_{std}} =$ ~~603,241~~ dscfm 603,307.72

GAS VELOCITY AND VOLUMETRIC FLOW RATE

Plant: Newport Steel Date: 10/24/00
Sampling Location: Baghouse Inlet Clock Time: 0730
Run #: B1-B4/4 Operators: AL/BB/TG
Barometric Pressure, in. Hg: 29.68 Static Pressure, in. H_2O: -3.4
Moisture, %: 1.9 Molecular wt., Dry: 28.84 Pitot Tube, Cp: 0.84
Stack Dimension, in. Diameter or Side 1: 180" Side 2:
Wet Bulb, °F: Dry Bulb, °F: PITOT LEAK CHECK O.K.

	Traverse Point Number	Velocity Head in. H_2O	Stack Temp. °F
SIDE	1	1.1	166
	2	1.0	173
	3	1.2	181
	4	1.1	183
	5	1.2	196
	6	1.2	208
	7	1.1	212
	8	1.0	210
TOP	1	1.6	197
	2	1.5	206
	3	1.5	191
	4	1.3	175
	5	1.4	165
	6	1.4	156
	7	1.3	151
	8	1.2	154
		$\overline{\sqrt{\Delta P}}$ = 1.118	$\overline{Ts}$ = 183

$Md = (0.44 \times \%CO_2) + (0.32 \times \%O_2) + (0.28 \times \%N_2)$

$Md = (0.44 \times \quad) + (0.32 \times \quad) + (0.28 \times \quad)$

$Md = 28.84$

$Ms = Md \times (1 - \frac{\%H_2O}{100}) + 18 (\frac{\%H_2O}{100})$

$Ms = (\quad) \times (1 - \frac{\quad}{100}) + 18 (\frac{\quad}{100})$

$Ms = 28.63$

$\overline{Ts} = 183\ °F = 643\ °R\ (°F + 460)$

$Ps = Pb + \frac{S.P.}{13.6} = (\quad) + \frac{\quad}{13.6}$

$Ps = 29.43$ In. Hg

$\overline{\sqrt{\Delta P}} = 1.118$

$Vs = 85.49 \times Cp \times \overline{\sqrt{\Delta P}} \times \sqrt{\frac{Ts\ (°R)}{Ps \times Ms}}$

$Vs = 85.49 \times (\quad) \times (\quad) \times \sqrt{\quad}$

$Vs = 70.135$ ft/s

$As = 176.71$ ft^2

$Qs = Vs \times As \times 60$ s/m

$Qs = \quad \times \quad \times 60$

$Qs = 742553.1$ acfm

$Qs_{std} = Qs \times 17.647 \times \frac{Ps}{Ts} \times (1 - \frac{\%H_2O}{100})$

$Qs_{std} = \quad \times 17.647 \times \frac{\quad}{\quad} \times (1 - \frac{\quad}{100})$

$Qs_{std} = 588,364.8$ dscfm ✓

589,230 DS

FIELD DATA SHEET

Plant: Warport Steel
Sampling Location: Brandt Beaverville
Run Number: BI-3 Date: 10/4/00
Pretest Leak Rate: 0.004 cfm @ 15 in. Hg.
Pretest Leak Check: Pitot: ✓ Orsat: ✓

Sample Type: SO2 Operator: BB
Pbar: 29.68 Ps:
CO2: 0.1 O2: 20.7
Probe Length/Type: 7' Glass Pitot #:
Stack Diameter: 180" As:

Nozzle ID: — Thermocouple #:
Assumed Bws: — Filter #: —
Meter Box #: 1 Y: 1.001 ΔH@: 1.795
Post-Test Leak Rate: TRIPPED OK 0.002 cfm @ 12 in. Hg.* PROBE LINER BROKE DURING REMOVAL.
Post-Test Leak Check: Pitot: — Orsat: —

Traverse Point Number	Sampling Time (min)	Clock Time (24-hour clock)	Gas Meter Reading (Vm) ft³	Velocity Head (Δp) in H2O	Orifice Pressure Differential (ΔH) in H2O Desired	Orifice Pressure Differential (ΔH) in H2O Actual	Stack Temp. (Ts)	Temperature °F Probe	Temperature °F Filter	Impinger Temp. °F	Dry Gas Meter Temp. Inlet (Tm in °F)	Dry Gas Meter Temp. Outlet (Tm out °F)	Pump Vacuum (in. Hg)
	0		269.470										
	0	0800	269.470	1.4	1.40	1.40		255	241	59	65	65	3
	10	0810	276.0		1.40	1.40		255	257	45	67	66	3.2
	20	0820	282.6		1.40	1.40		256	260	48	73	68	3.6
	30	0830	289.115		1.40	1.40		253	257	54	77	70	4
	40	0840	295.82		1.40	1.40		255	257	60	80	72	5
	50	0850	302.44		1.40	1.40		252	259	61	82	74	5.4
	60	0900	309.11		1.40	1.40		257	257	61	83	76	5.5
	70	0910	315.805		1.40	1.40		256	256	60	85	78	5.5
	80	0920	322.49		1.40	1.40		256	258	58	86	79	5.5
	90	0930	329.19		1.40	1.40		253	258	55	87	80	5.5
	100	0940	335.87		1.40	1.40		249	259	56	87	81	6
	110	0950	342.56		1.40	1.40		251	257	56	88	82	6
	120	1000	349.245		1.40	1.40		255	259	57	89	83	6
	130	1010	355.98		1.40	1.40		255	261	57	90	84	6.5
	140	1020	362.81		1.40	1.40		256	256	58	90	84	7
	150	1030	369.46		1.40	1.40		252	262	59	90	85	7
	160	1040	376.21		1.40	1.40		252	257	59	90	85	7
	170	1050	382.96		1.40	1.40		252	256	58	91	86	7.2
	180	1100	389.709		1.40	1.40		249	259	57	91	86	7.2

AVm= 120.239 $\sqrt{\Delta p}$= ΔH= 1.40 Ts= PURGE 390.970 401.314 Tm= 81

PES

SAMPLE RECOVERY DATA

PLANT Newport Steel Run No. BI-3

DATE 10/4/00 Sample Box No. N9 Job No. 5620.001

SAMPLE LOCATION Boiler Baghouse Filter No. —

TRAIN PREPARER GG/BB

SAMPLE RECOVERY PERSON RK

COMMENTS SO2 train

FRONT HALF

Acetone Container No. _____ Liquid Level Marked _____ Sealed _____

Filter Container No. _____ Sealed _____

Description of Filter _____

Samples Stored and Locked _____

BACK HALF/MOISTURE

Container No. _____

Liquid Level Marked _____ Sealed _____

IMP. NO.	CONTENTS	INITIAL VOL (ml)	WEIGHT (grams)		
			INITIAL	FINAL	NET
1	IPA	100	614.6	566.2	-48.4
2	H_2O_2	100	731.2	759.1	27.9
3	H_2O_2	100	611.4	618.0	6.6
4	S/G	250	832.5	893.6	61.1
5					
6					
TOTAL					47.a

Description of Impinger Catch: _____

GAS VELOCITY AND VOLUMETRIC FLOW RATE

Plant: NEWPORT STEEL Date: 10/4/00
Sampling Location: BRANDT BAGHOUSE INLET Clock Time: 1115
Run #: VELOCITY 5 Operators: BB/RK/TG
Barometric Pressure, in. Hg: 29.68 Static Pressure, in. H_2O: -3.4
Moisture, %: 1.9 Molecular wt., Dry: 28.84 Pitot Tube, Cp: 0.84
Stack Dimension, in. Diameter or Side 1: 48" Side 2:
Wet Bulb, °F: Dry Bulb, °F:

	Traverse Point Number	Velocity Head in. H_2O	Stack Temp. °F
CD	1	1.7	186
	2	1.6	205
	3	1.6	206
	4	1.5	186
	5	1.3	178
	6	1.3	169
	7	1.4	157
	8	1.3	154
SIDE	1	1.2	202
	2	1.2	207
	3	1.1	220
	4	1.2	224
	5	1.2	221
	6	1.1	213
	7	1.2	209
	8	1.2	207
		$\overline{\sqrt{\Delta P}}$ = 1.1458	$\overline{T_s}$ = ~~196~~ 197

$M_d = (0.44 \times \%CO_2) + (0.32 \times \%O_2) + (0.28 \times \%N_2)$

$M_d = (0.44 \times \quad) + (0.32 \times \quad) + (0.28 \times \quad)$

$M_d = 28.84$

$M_s = M_d \times (1 - \frac{\%H_2O}{100}) + 18 (\frac{\%H_2O}{100})$

$M_s = (\quad) \times (1 - \frac{}{100}) + 18 (\frac{}{100})$

$M_s =$ ~~28.64~~ 29.63

$\overline{T_s} = 197$ °F = 657 °R (°F + 460)

$P_s = P_b + \frac{S.P.}{13.0} = (\quad) + \frac{}{13.6}$

$P_s = 29.43$ in. Hg

$\overline{\sqrt{\Delta P}} = 1.1458$

$V_s = 85.49 \times C_p \times \overline{\sqrt{\Delta P}} \times \sqrt{\frac{T_s (°R)}{P_s \times M_s}}$

$V_s = 85.49 \times (\quad) \times (\quad) \times \sqrt{\quad}$

$V_s = 72.66$ ft/s

$A_s = 176.71$ ft²

$Q_s = V_s \times A_s \times 60$ s/m

$Q_s = \quad \times \quad \times 60$

$Q_s =$ ~~770,272~~ acfm 770,384.92

$Q_{s_{std}} = Q_s \times 17.647 \times \frac{P_s}{T_s} \times (1 - \frac{\%H_2O}{100})$

$Q_{s_{std}} = \quad \times 17.647 \times \frac{}{} \times (1 - \frac{}{100})$

$Q_{s_{std}} =$ ~~597,538~~ dscfm 597,440.1

DA

FIELD **DATA SHEET**

Plant: Newport Steel
Sampling Location: Brandt Bryhane Inlet
Run Number: BE-4 Date: 10/4/00
Pretest Leak Rate: 0.006 cfm @ 15 in. Hg.
Pretest Leak Check: Pitot: — Orsat: —

Sample Type: SO_2 Operator: BB
Pbar: 29.66 Ps:
CO2: 0 O2: 21
Probe Length/Type: 7' Glass Pitot #:
Stack Diameter: 180" As:

Nozzle ID: — Thermocouple #:
Assumed Bws: — Filter #:
Meter Box #: 1 Y: 1.001 ΔH@: 1.795
Post-Test Leak Rate: .001 cfm @ 10 in. Hg.
Post-Test Leak Check: Pitot: — Orsat: —

Traverse Point Number	Sampling Time (min)	Clock Time (24-hour clock)	Gas Meter Reading (Vm) ft³	Velocity Head (Δp) in H2O	Orifice Pressure Differential (ΔH) in H2O Desired	Orifice Pressure Differential (ΔH) in H2O Actual	Stack Temp. (Ts)	Temperature °F Probe	Temperature °F Filter	Impinger Temp. °F	Dry Gas Meter Temp. Inlet (Tm in °F)	Dry Gas Meter Temp. Outlet (Tm out °F)	Pump Vacuum (in. Hg)
			401.524										
	0	1143	401.524		1.40	1.40		255	247	58	84.	84.	4½
	10	1153	408.2		1.40	1.40		255	259	52	86.	83.	5
	20	1203	414.88		1.40	1.40		254	258	55	88.	83.	5
	30	1213	421.6		1.40	1.40		254	259	55	88.	84.	5½
	40	1223	428.25		1.40	1.40		255	258	55	89.	84.	6
	50	1233	434.93		1.40	1.40		255	256	57	89.	84.	7
	60	1243	441.6		1.40	1.40		255	257	58	89.	84.	7.5
	70	1253	448.32		1.40	1.40		255	260	59	90.	85.	7.8
	80	1303	454.95		1.40	1.40		255	258	50	89.	85.	8
	90	1313	461.7		1.40	1.40		256	259	53	90.	85.	9
	100	1323	468.495		1.40	1.40		255	257	55	90.	85.	9
	110	1333	475.045		1.40	1.40		255	256	57	91.	86.	9.8
*	120	1343	481.666		1.40	1.40		256	259	60	92.	87.	11
	130	1353	488.64		1.40	1.40		255	239	55	93.	88.	4.5
	140	1403	495.382		1.40	1.40		254	252	59	94.	89.	5
-.234	150	1413	502.16		1.40	1.40		256	257	61	96	90.	5.2
	160	1423	508.946		1.40	1.40		255	259	63	98.	91.	5.5
	170	1433	515.6		1.40	1.40		255	256	64	99	92.	6.5
	180	1443	522.393		1.40	1.40		255	260	67	100	94.	7

* ILTEC, KCH ΔVi ~~1.00~~ 20 1.0 c OK √ ΔH= 1.4 Ts= PLUGS FOR 11 MINUTES. Tm= 89

PES

SAMPLE RECOVERY DATA

PLANT Newport Steel Run No. BI-4

DATE 6/4/00 Sample Box No. N-4 Job No. 5620.001

SAMPLE LOCATION Brandt Baghouse Inlet Filter No. —

TRAIN PREPARER [illegible]

SAMPLE RECOVERY PERSON [illegible]

COMMENTS SO_2 Train

FRONT HALF

Acetone Container No. _____ Liquid Level Marked _____ Sealed _____

Filter Container No. _____ Sealed _____

Description of Filter _____

Samples Stored and Locked _____

BACK HALF/MOISTURE

Container No. _____

Liquid Level Marked _____ Sealed _____

IMP. NO.	CONTENTS	INITIAL VOL (ml)	WEIGHT (grams)		
			INITIAL	FINAL	NET
1	IPA	600	637.5	605.9	-31.6
2	H_2O_2	100	627.9	660.1	32.2
3	H_2O_2	200	643.1	663.1	20.0
4	S G	250	790.2	833.0	42.8
5					
6					
TOTAL					63.4

GAS VELOCITY AND VOLUMETRIC FLOW RATE

Plant: NEWPORT STEEL — Date: 10/4/00

Sampling Location: BRANDT BAGHOUSE INLET — Clock Time: 1510

Run #: VELOCITY 6 — Operators: RK/BB/TG

Barometric Pressure, in. Hg: 29.68 — Static Pressure, in. H_2O: -3.7

Moisture, %: 1.9 — Molecular wt., Dry: 28.84 — Pitot Tube, Cp: 0.84

Stack Dimension, in. Diameter or Side 1: _____ Side 2: _____

PITOT LEAK CHECK O.K.

Wet Bulb, °F: _____ Dry Bulb, °F: _____

	Traverse Point Number	Velocity Head in. H_2O	Stack Temp. °F
TOP	1	1.4	190
	2	1.5	186
	3	1.4	182
	4	1.6	178
	5	1.4	169
	6	1.5	164
	7	1.4	159
	8	1.3	156
SIDE	1	1.2	141
	2	1.3	141
	3	1.3	140
	4	1.4	139
	5	1.3	138
	6	1.2	136
	7	1.2	132
	8	1.3	131
		$\overline{\sqrt{\Delta P}}$ = 1.164	$\overline{T_s}$ = 155.1

$Md = (0.44 \times \%CO_2) + (0.32 \times \%O_2) + (0.28 \times \%N_2)$

$Md = (0.44 \times \quad) + (0.32 \times \quad) + (0.28 \times \quad)$

$Md = 28.84$

$Ms = Md \times (1 - \frac{\%H_2O}{100}) + 18 (\frac{\%H_2O}{100})$

$Ms = (\quad) \times (1 - \frac{\quad}{100}) + 18 (\frac{\quad}{100})$

$Ms = 28.63$

$\overline{T_s} = 155$ °F = 615 °R (°F + 460)

$Ps = Pb + \frac{S.P.}{13.8} = (\quad) + \frac{\quad}{13.6}$

$Ps = 29.41$ in. Hg

$\overline{\sqrt{\Delta P}} = 1.164$

$Vs = 85.49 \times Cp \times \overline{\sqrt{\Delta P}} \times \sqrt{\frac{Ts\,(°R)}{Ps \times Ms}}$

$Vs = 85.49 \times (\quad) \times (\quad) \times \sqrt{\quad}$

$Vs = 71.44$ ft/s

$As = 176.71$ ft²

$Qs = Vs \times As \times 60$ s/m

$Qs = \quad \times \quad \times 60$

$Qs = \cancel{757447.7}$ acfm 758,018

$Qs_{std} = Qs \times 17.647 \times \frac{Ps}{Ts} \times (1 - \frac{\%H_2O}{100})$

$Qs_{std} = \quad \times 17.647 \times \frac{\quad}{\quad} \times (1 - \frac{\quad}{100})$

$Qs_{std} = \cancel{627066.5}$ dscfm 623,650 ✓

10/3/00 Newport Steel - Orsat Data

Run No. BI-1 Bag 1 1014-1114

	CO_2	O_2	
1	0.0	20.6 - 0.0 = 20.6	* VOIDED Run
2	0.0	20.8 - 0.0 = 20.8	
	0.0	20.7 - 0.0 = 20.7	

Run No. BI-2 Bag 2 1645-1945

	CO_2	O_2	
1	0.1	20.6	= 20.5
2	0.1	20.7	= 20.6

Run No. BI-3 10/4/00 0800-1100

	CO_2	O_2	
1	0.1	20.7	= 20.6
2	0.1	20.7	= 20.6

Run No. BI-4 1143-1443

	CO_2	O_2	
1	0.1	20.7	= 20.6
2	0.1	20.6	= 20.5

METHOD 6 SULFUR DIOXIDE ANALYTICAL DATA

Plant: Newport Steel Date: 10/24/00
Sample Location: Brandt Baghouse Inlet Analyst: Ron Kolde

STANDARDIZATION OF TITRANT

			Volume of Titrant	Normality of Titrant	
Titrant Used	$BaCl(a_4)_2$ ~~0.0100~~	1	20.6 ml	0.00971 N	
Normality of H_2SO_4 Standard	0.0100	2	20.6 ml	0.00971 N	0.00973 N
Volume of Standard	20 ml	3	20.5 ml	0.00976 N	(Avg., N_2)

CONTROL SAMPLE ANALYSIS

			Volume of Titrant	
Normality of $(NH_4)_2SO_4$	(N_1) _____	1	_____ ml	
Volume of $(NH_4)_2SO_4$	(V_1) _____	2	_____ ml	_____ ml
Meq_1 $(NH_4)_2SO_4$	($N_1 \times V_1$) _____	3	_____ ml	(Avg., V_2)
Meq_2 $(NH_4)_2SO_4$	($N_2 \times V_2$) _____			

$$\frac{Meq_1}{Meq_2} = \_\_\_\_\_ = 0.95 \text{ to } 1.05$$

Run Number	Total Volume of Sample	Sample Aliquot	Volume of Titrant, Vt, ml			
			1st Titration	2nd Titration	3rd Titration	Average
BLANK		20 ml	0.05	0.05		0.05
AUDIT NO.						
B-2	500	20 ml	0.80	0.80		0.80
B-3	500	20 ml	1.0	1.1		1.05
B-4	500	20 ml	1.0	0.9		0.95

$$C_{SO_2}(\text{ppm, dry}) = \frac{(424.5)(V_t - V_{tb})(N)(V_{soln.})}{(V_{m_{std.}})(V_a)}$$

$$E_{SO_2}(\text{lb/hr}) = \frac{(C_{SO_2})(MW_{SO_2})}{(385.3 \times 10^6)}(Q_{s_{std.}})(60)$$

Signature of Analyst: Ron J. Kolde Signature of Reviewer: D Schuffel

Appendix C

Analyzer Data

CEM CALIBRATION DATA

Plant Name	Newport Steel
Sampling Location	Baghouse Inlet
Date	10/03/2000
Run Number	1
Start Time	1007
Stop Time	1051

Plant Rep.	Jennifer Mcdaniels
Team Leader	Ron Kolde
CEM Operator	Gary Gay
Project Number	5620.001

	Analyzer Number	Analyzer Span
CO		1015
CO2		25
O2		25
THC		100
NOx		100
ML THC		5000

	Calibration Gas Specification (% of Span)	CALIBRATION ERROR CHECK				SYSTEM CAL CHECK					Calibration Correction Factors
						PRETEST		POST TEST			
		Calibration Value (% or ppm)	Cylinder Number (1)	Analyzer Calibration Response	Difference (% of Span)	System Response	Syst. Bias (% of Span)	System Response	Syst. Bias (% of Span)	Drift (% of Span)	
CO Zero	0	0		4.6	0.5	4.5	4.5	4.5	0.0	0.0	Co=4.5
CO Low	~30	300.2		322.2	2.2						
CO Mid	~60	600.6		611.7	1.1	611.7	0.0	608.2	-0.3	-0.3	Cm=610.0
CO High	80-100 (2)	896.4		899.2	0.3						
CO2 Zero	0	0		1.8	7.2	1.8	0.0	1.8	0.0	0.0	Co=1.8
CO2 Low	NR										
CO2 Mid	40-60	10.12		11.1	3.9	11.1	0.0	11.1	0.0	0.0	Cm=11.1
CO2 High	80-100	19.97		20	0.1						
O2 Zero	0	0		0	0.0	0.1	0.4	0.1	0.4	0.0	Co=0.1
O2 Low	NR										
O2 Mid	40-60	12.91		12.9	0.0	12.9	0.0	12.8	-0.4	-0.4	Cm=12.9
O2 High	80-100	20.9		20.9	0.0						
THC Zero	0	0		0				0.1		0.1	
THC Low	25-35	29.76		31	4.2						
THC Mid	45-55	49		51.2	4.5			50.3		-0.9	
THC High	80-90	84.55		84.7							
NOx Zero	0	0		0	0.0	0.14	0.1	0.7	0.7	0.6	Co=0.4
NOx Low	20-30 (3)										
NOx Mid	45-55	49.49		50.27	0.8	50.27	0.0	52.5	2.2	2.2	Cm=51.4
NOx High	80-90	90.7		90.79	0.1						
ML THC Zer	0	0		899.2				31		-17.4	
ML THC Lo	25-35	867.9		850	-2.1						
ML THC Mi	45-55	2418		2436	0.7			2390		-0.9	
ML THC Hi	80-90	4467		4475							

CEM CALIBRATION DATA

Plant Name	Newport Steel
Sampling Location	Baghouse Inlet
Date	10/03/00
Run Number	1
Start Time	1629
Stop Time	1928

Plant Rep.	Jennifer Mcdaniels
Team Leader	Ron Kolde
CEM Operator	Gary Gay
Project Number	5620.001

	Analyzer Number	Analyzer Span
CO		1015
CO2		25
O2		25
THC		100
NOx		100
SO2		5000

	Calibration Gas Specification (% of Span)	CALIBRATION ERROR CHECK				SYSTEM CAL CHECK					Calibration Correction Factors
						PRETEST		POST TEST			
		Calibration Value (% or ppm)	Cylinder Number (1)	Analyzer Calibration Response	Difference (% of Span)	System Response	Syst. Bias (% of Span)	System Response	Syst. Bias (% of Span)	Drift (% of Span)	
CO Zero	0	0		4.6	0.5	1	-0.4	1	-0.4	0.0	Co=1.0
CO Low	~30	300.2		322.2	2.2						
CO Mid	~60	600.6		611.7	1.1	611.4	0.0	610.2	-0.1	-0.1	Cm=610.8
CO High	80-100 (2)	896.4		899.2	0.3						
CO2 Zero	0	0		1.8	7.2	1.8	0.0	1.8	0.0	0.0	Co=1.8
CO2 Low	NR										
CO2 Mid	40-60	10.12		11.1	3.9	11.1	0.0	11.1	0.0	0.0	Cm=11.1
CO2 High	80-100	19.97		20	0.1						
O2 Zero	0	0		0	0.0	0.1	0.4	0	0.0	-0.4	Co=0.1
O2 Low	NR										
O2 Mid	40-60	12.91		12.9	0.0	12.8	-0.4	12.8	-0.4	0.0	Cm=12.8
O2 High	80-100	20.9		20.9	0.0						
THC Zero	0	0		0				0.8		0.8	
THC Low	25-35	29.76		31	4.2						
THC Mid	45-55	49		51.2	4.5			49		-2.2	
THC High	80-90	84.55		84.7							
NOx Zero	0	0		0	0.0	0.2	0.2	0.2	0.2	0.0	Co=0.2
NOx Low	20-30 (3)										
NOx Mid	45-55	49.49		50.27	0.8	51.9	1.6	52.5	2.2	0.6	Cm=52.2
NOx High	80-90	90.7		90.79	0.1						
ML THC Zer	0	0		899.2		31		10		-17.8	
ML THC Lo	25-35	867.9		850	-2.1						
ML THC Mi	45-55	2418		2436	0.7	2390		2455		0.4	
ML THC Hi	80-90	4467		4475							

CEM CALIBRATION DATA

Plant Name	Newport Steel	Plant Rep.	Jennifer Mcdaniels
Sampling Location	Baghouse Inlet	Team Leader	Ron Kolde
Date	10/04/00	**CEM** Operator	Gary Gay
Run Number	2	Project Number	5620.001
Start Time	0800		
Stop Time	0959		

	Analyzer Number	Analyzer Span
CO		1015
CO2		25
O2		25
THC		100
NOx		100
SO2		5000

	Calibration Gas Specification (% of Span)	CALIBRATION ERROR CHECK				SYSTEM CAL CHECK					Calibration Correction Factors
						PRETEST		POST TEST			
		Calibration Value (% or ppm)	Cylinder Number (1)	Analyzer Calibration Response	Difference (% of Span)	System Response	Syst. Bias (% of Span)	System Response	Syst. Bias (% of Span)	Drift (% of Span)	
CO Zero	0	0		1.1	0.1	1.1	0.0	1	0.0	0.0	Co=1.1
CO Low	~30	300.2		319.8	1.9						
CO Mid	~60	600.6		601.7	0.1	601.7	0.0	614	1.2	1.2	Cm=607.9
CO High	80-100 (2)	896.4		870.8	-2.5						
CO2 Zero	0	0		1.8	7.2	1.8	0.0	1.8	0.0	0.0	Co=1.8
CO2 Low	NR										
CO2 Mid	40-60	10.12		11.1	3.9	11.1	0.0	11	-0.4	-0.4	Cm=11.1
CO2 High	80-100	19.97		20	0.1						
O2 Zero	0	0		0	0.0	0	0.0	0	0.0	0.0	Co=0.0
O2 Low	NR										
O2 Mid	40-60	12.91		12.9	0.0	12.8	-0.4	12.7	-0.8	-0.4	Cm=12.8
O2 High	80-100	20.9		20.9	0.0						
THC Zero	0	0		0				0.3		0.3	
THC Low	25-35	29.76		31	4.2						
THC Mid	45-55	49		51.2	4.5			49.5		-1.7	
THC High	80-90	84.55		84.7							
NOx Zero	0	0		0.12	0.1	0.12	0.0	0.12	0.0	0.0	Co=0.1
NOx Low	20-30 (3)										
NOx Mid	45-55	49.49		51.1	1.6	51.06	0.0	49.1	-2.0	-2.0	Cm=50.1
NOx High	80-90	90.7		90.96	0.3						
ML THC Zer	0	0		899.2		10		24		-17.5	
ML THC Lo	25-35	867.9		850	-2.1						
ML THC Mi	45-55	2418		2436	0.7	2455		2510		1.5	
ML THC Hi	80-90	4467		4475							

CEM CALIBRATION DATA

Plant Name	Newport Steel
Sampling Location	Baghouse Inlet
Date	10/04/00
Run Number	2B
Start Time	1045
Stop Time	1159

Plant Rep.	Jennifer Mcdaniels
Team Leader	Ron Kolde
CEM Operator	Gary Gay
Project Number	5620.001

	Analyzer Number	Analyzer Span
CO		1015
CO2		25
0 2		25
THC		100
NOx		100
SO2		5000

	Calibration Gas Specification (% of Span)	CALIBRATION ERROR CHECK				SYSTEM CAL CHECK					Calibration Correction Factors
						PRETEST		POST TEST			
		Calibration Value (% or ppm)	Cylinder Number (1)	Analyzer Calibration Response	Difference (% of Span)	System Response	Syst. Bias (% of Span)	System Response	Syst. Bias (% of Span)	Drift (% of Span)	
CO Zero	0	0		1.1	0.1	1	0.0	1.1	0.0	0.0	Co=1.1
CO Low	~30	300.2		319.8	1.9						
CO Mid	~60	600.6		601.7	0.1	614	1.2	612	1.0	-0.2	Cm=613.0
CO High	80-100 (2)	896.4		870.8	-2.5						
CO2 Zero	0	0		1.8	7.2	1.8	0.0	1.8	0.0	0.0	Co=1.8
CO2 Low	NR										
CO2 Mid	40-60	10.12		11.1	3.9	11	-0.4	11	-0.4	0.0	Cm=11.0
CO2 High	80-100	19.97		20	0.1						
O2 Zero	0	0		0	0.0	0	0.0	0	0.0	0.0	Co=0.0
O2 Low	NR										
O2 Mid	40-60	12.91		12.9	0.0	12.7	-0.8	12.8	-0.4	0.4	Cm=12.8
O2 High	80-100	20.9		20.9	0.0						
THC Zero	0	0		0				0		0.0	
THC Low	25-35	29.76		31	4.2						
THC Mid	45-55	49		51.2	4.5			49.2		-2.0	
THC High	80-90	84.55		84.7							
NOx Zero	0	0		0.12	0.1	0.12	0.0	0.2	0.1	0.1	Co=0.2
NOx Low	20-30 (3)										
NOx Mid	45-55	49.49		51.1	1.6	49.1	-2.0	49.3	-1.8	0.2	Cm=49.2
NOx High	80-90	90.7		90.96	0.3						
ML THC Zer	0	0		899.2		24		25		-17.5	
ML THC Lo	25-35	867.9		850	-2.1						
ML THC Mi	45-55	2418		2436	0.7	2510		2550		2.3	
ML THC Hi	80-90	4467		4475							

CEM CALIBRATION DATA

Plant Name	Newport Steel
Sampling Location	Baghouse Inlet
Date	10/04/00
Run Number	3
Start Time	1245
Stop Time	1405

Plant Rep.	Jennifer Mcdaniels
Team Leader	Ron Kolde
CEM Operator	Gary Gay
Project Number	5620.001

	Analyzer Number	Analyzer Span
CO		1015
CO2		25
O2		25
THC		100
NOx		100
SO2		5000

	Calibration Gas Specification (% of Span)	CALIBRATION ERROR CHECK				SYSTEM CAL CHECK					Calibration Correction Factors
						PRETEST		POST TEST			
		Calibration Value (% or ppm)	Cylinder Number (1)	Analyzer Calibration Response	Difference (% of Span)	System Response	Syst. Bias (% of Span)	System Response	Syst. Bias (% of Span)	Drift (% of Span)	
CO Zero	0	0		1.1	0.1	1.1	0.0	1	0.0	0.0	Co=1.1
CO Low	~30	300.2		319.8	1.9						
CO Mid	~60	600.6		601.7	0.1	612	1.0	612	1.0	0.0	Cm=612.0
CO High	80-100 (2)	896.4		870.8	-2.5						
CO2 Zero	0	0		1.8	7.2	1.8	0.0	2	0.8	0.8	Co=1.9
CO2 Low	NR										
CO2 Mid	40-60	10.12		11.1	3.9	11	-0.4	12.4	5.2	5.6	Cm=11.7
CO2 High	80-100	19.97		20	0.1						
O2 Zero	0	0		0	0.0	0	0.0	0	0.0	0.0	Co=0.0
O2 Low	NR										
O2 Mid	40-60	12.91		12.9	0.0	12.8	-0.4	12.9	0.0	0.4	Cm=12.9
O2 High	80-100	20.9		20.9	0.0						
THC Zero	0	0		0				0.3		0.3	
THC Low	25-35	29.76		31	4.2						
THC Mid	45-55	49		51.2	4.5			49.9		-1.3	
THC High	80-90	84.55		84.7							
NOx Zero	0	0		0.12	0.1	0.2	0.1	0.12	0.0	-0.1	Co=0.2
NOx Low	20-30 (3)										
NOx Mid	45-55	49.49		51.1	1.6	49.3	-1.8	49.1	-2.0	-0.2	Cm=49.2
NOx High	80-90	90.7		90.96	0.3						
ML THC Zer	0	0		899.2		25					
ML THC Lo	25-35	867.9		850	-2.1						
ML THC Mi	45-55	2418		2436	0.7	2550					
ML THC Hi	80-90	4467		4475							

CEM CALIBRATION DATA

Plant Name	Newport Steel
Sampling Location	Baghouse Inlet
Date	10/04/00
Run Number	3
Start Time	1422
Stop Time	1621

Plant Rep.	Jennifer Mcdaniels
Team Leader	Ron Kolde
CEM Operator	Gary Gay
Project Number	5620.001

	Analyzer Number	Analyzer Span
CO		1015
CO2		25
O2		25
THC		100
NOx		100
SO2		5000

	Calibration Gas Specification (% of Span)	CALIBRATION ERROR CHECK				SYSTEM CAL CHECK					Calibration Correction Factors
						PRETEST		POST TEST			
		Calibration Value (% or ppm)	Cylinder Number (1)	Analyzer Calibration Response	Difference (% of Span)	System Response	Syst. Bias (% of Span)	System Response	Syst. Bias (% of Span)	Drift (% of Span)	
CO Zero	0	0		1.1	0.1	1	0.0	0.04	-0.1	-0.1	Co=0.5
CO Low	~30	300.2		319.8	1.9						
CO Mid	~60	600.6		601.7	0.1	612	1.0	618.7	1.7	0.7	Cm=615.4
CO High	80-100 (2)	896.4		870.8	-2.5						
CO2 Zero	0	0		1.8	7.2	2	0.8	2	0.8	0.0	Co=2.0
CO2 Low	NR										
CO2 Mid	40-60	10.12		11.1	3.9	12.4	5.2	12.5	5.6	0.4	Cm=12.5
CO2 High	80-100	19.97		20	0.1						
O2 Zero	0	0		0	0.0	0	0.0	0	0.0	0.0	Co=0.0
O2 Low	NR										
O2 Mid	40-60	12.91		12.9	0.0	12.9	0.0	12.9	0.0	0.0	Cm=12.9
O2 High	80-100	20.9		20.9	0.0						
THC Zero	0	0		0				0.5		0.5	
THC Low	25-35	29.76		31	4.2						
THC Mid	45-55	49		51.2	4.5			49.8		-1.4	
THC High	80-90	84.55		84.7							
NOx Zero	0	0		0.12	0.1	0.12	0.0	0.2	0.1	0.1	Co=0.2
NOx Low	20-30 (3)										
NOx Mid	45-55	49.49		51.1	1.6	49.1	-2.0	48.1	-3.0	-1.0	Cm=48.6
NOx High	80-90	90.7		90.96	0.3						
ML THC Zer	0	0		899.2		0					
ML THC Lo	25-35	867.9		850	-2.1						
ML THC Mi	45-55	2418		2436	0.7	0					
ML THC Hi	80-90	4467		4475							

CEM CALIBRATION DATA

Plant Name	Newport Steel	Plant Rep.	Jennifer Mcdaniels
Sampling Location	Baghouse Inlet	Team Leader	Ron Kolde
Date	10/04/00	CEM Operator	Gary Gay
Run Number	4	Project Number	5620.001
Start Time			
Stop Time			

	Analyzer Number	Analyzer Span
CO		1015
C02		25
02		25
THC		100
NOx		100
SO2		5000

	Calibration Gas Specification (% of Span)	CALIBRATION ERROR CHECK Calibration Value (% or ppm)	Cylinder Number (1)	Analyzer Calibration Response	Difference (% of Span)	SYSTEM CAL CHECK PRETEST System Response	PRETEST Syst. Bias (% of Span)	POST TEST System Response	POST TEST Syst. Bias (% of Span)	Drift (% of Span)	Calibration Correction Factors
CO Zero	0	0		1.1	0.1	0.04	-0.1				
CO Low	~30	300.2		319.8	1.9						
CO Mid	~60	600.6		601.7	0.1	618.7	1.7				
CO High	80-100 (2)	896.4		870.8	-2.5						
CO2 Zero	0	0		1.8	7.2	2	0.8				
CO2 Low	NR										
CO2 Mid	40-60	10.12		11.1	3.9	12.5	5.6				
CO2 High	80-100	19.97		20	0.1						
O2 Zero	0	0				0	#VALUE!				
O2 Low	NR										
O2 Mid	40-60	12.91		12.9	0.0	12.9	0.0				
O2 High	80-100	20.9		20.9	0.0						
THC Zero	0	0									
THC Low	25-35	29.76		31	4.2						
THC Mid	45-55	49		51.2	4.5						
THC High	80-90	84.55		84.7							
NOx Zero	0	0		0.12	0.1	0.2	0.1				
NOx Low	20-30 (3)										
NOx Mid	45-55	49.49		51.1	1.6	48.1	-3.0				
NOx High	80-90	90.7		90.96	0.3						
SO2 Zero	0	0		899.2	18.0						
SO2 Low	NR	867.9									
SO2 Mid	40-60	2418		2436	0.4						
SO2 High	80-100	4467		4475	0.2						

10/03/2000	9:33:27	-0.04	0.05	899.33
10/03/2000	9:34:27	-0.05	0.05	898.71
10/03/2000	9:35:27	-0.04	0.05	813.34
10/03/2000	9:36:27	-0.04	0.05	613.76
10/03/2000	9:37:27	-0.05	0.05	612.5
10/03/2000	9:38:27	-0.04	0.05	582.33
10/03/2000	9:39:27	-0.05	0.05	343.65
10/03/2000	9:40:27	-0.04	0.05	321.86
10/03/2000	9:41:27	-0.04	0.05	321.64
10/03/2000	9:42:27	-0.04	0.05	321.79
10/03/2000	9:43:27	-0.05	0.05	321.36
10/03/2000	9:44:27	-0.04	0.05	121.18
10/03/2000	9:45:27	-0.04	0.05	5.06
10/03/2000	9:46:27	-0.04	0.05	12.17
10/03/2000	9:47:27	-0.05	0.05	693.23
10/03/2000	9:48:27	-0.04	0.05	899.6
10/03/2000	9:49:27	-0.04	0.05	903.04
10/03/2000	9:50:27	-0.04	0.05	904.4
10/03/2000	9:51:27	-0.04	0.05	862.69
10/03/2000	9:52:27	-0.04	0.05	626.09
10/03/2000	9:53:27	-0.05	0.04	612.55
10/03/2000	9:54:27	-0.04	0.05	600.36
10/03/2000	9:55:27	-0.04	0.05	363.19
10/03/2000	9:56:27	-0.04	0.05	321.88
10/03/2000	9:57:27	-0.04	0.05	142.13
10/03/2000	9:58:27	-0.04	0.05	5.32
10/03/2000	9:59:27	-0.04	0.05	8.35
10/03/2000	10:00:27	17.08	0.05	33.36
10/03/2000	10:01:27	86.1	0.06	4.5
10/03/2000	10:02:27	93.91	0.06	4.56
10/03/2000	10:03:27	89.12	0.06	4.55
10/03/2000	10:04:27	37.83	0.05	4.45
10/03/2000	10:05:27	0.96	0.05	4.55
10/03/2000	10:06:27	0.44	0.05	63.15
Run 1	Start	NOX		CO
10/03/2000	10:07:27	1.77	0.07	103.57
10/03/2000	10:08:27	3.98	0.05	31.04
10/03/2000	10:09:27	4.52	0.05	50.2
10/03/2000	10:10:27	2.99	0.05	111.01
10/03/2000	10:11:27	2.78	0.05	99.99
10/03/2000	10:12:27	5.28	0.05	84.54
10/03/2000	10:13:27	4.4	0.05	24.29
10/03/2000	10:14:27	3.2	0.05	36.24
10/03/2000	10:15:27	3	0.05	47.51
10/03/2000	10:16:27	2.81	0.05	68.29
10/03/2000	10:17:27	2.66	0.05	118.1
10/03/2000	10:18:27	2.78	0.05	256.99
10/03/2000	10:19:27	2.97	0.05	438.31
10/03/2000	10:20:27	2.95	0.05	359.94

10/03/2000	10:21:27	2.81	0.05	302.08
10/03/2000	10:22:27	2.74	0.05	351.92
10/03/2000	10:23:27	2.91	0.05	262.69
10/03/2000	10:24:27	2.72	0.05	332.79
10/03/2000	10:25:27	2.52	0.05	136.16
10/03/2000	10:26:27	2.08	0.05	164.99
10/03/2000	10:27:27	2.1	0.05	191.94
10/03/2000	10:28:27	2.1	0.05	165.78
10/03/2000	10:29:27	1.86	0.05	100.79
10/03/2000	10:30:27	1.69	0.05	148.07
10/03/2000	10:31:27	1.43	0.05	166.24
10/03/2000	10:32:27	1.32	0.05	131.12
10/03/2000	10:33:27	3.36	0.05	109.7
10/03/2000	10:34:27	8.95	0.05	35.31
10/03/2000	10:35:27	10.94	0.05	110.89
10/03/2000	10:36:27	2.97	0.05	131.22
10/03/2000	10:37:27	1.5	0.05	160.02
10/03/2000	10:38:27	1.71	0.05	211.42
10/03/2000	10:39:27	1.79	0.05	138.74
10/03/2000	10:40:27	1.82	0.05	120.64
10/03/2000	10:41:27	2.12	0.05	113.46
10/03/2000	10:42:27	2.95	0.05	92.22
10/03/2000	10:43:27	15.49	0.05	34.22
10/03/2000	10:44:27	12.87	0.05	70.81
10/03/2000	10:45:27	1.67	0.05	65.95
10/03/2000	10:46:27	3.54	0.05	34.31
10/03/2000	10:47:27	14.04	0.05	40.29
10/03/2000	10:48:27	4.86	0.05	60.84
10/03/2000	10:49:27	2.05	0.05	42.77
10/03/2000	10:50:27	8.6	0.05	13.12
10/03/2000	10:51:27	9.88	0.05	10.63
Avrge	End	4.1		130.7
10/03/2000	10:52:27	7.68	0.04	10.47
10/03/2000	10:53:27	7.26	0.04	15.16
10/03/2000	10:54:27	7.51	0.04	20.93
10/03/2000	10:55:27	7.16	0.04	25.76
10/03/2000	10:56:27	8.53	0.04	92.34
10/03/2000	10:57:27	7	0.04	25.41
10/03/2000	10:58:27	6.4	0.04	14.16
10/03/2000	10:59:27	6.66	0.04	12.45
10/03/2000	11:00:27	6.74	0.04	11.88
10/03/2000	11:01:27	6.56	0.04	11.54
10/03/2000	11:02:27	5.4	0.04	12.28
10/03/2000	11:03:27	4.82	0.04	37.71
10/03/2000	11:04:27	3.23	0.04	66.2
10/03/2000	11:05:27	2.33	0.04	57.98
10/03/2000	11:06:27	2.29	0.04	44.07
10/03/2000	11:07:27	2.43	0.04	43.52
10/03/2000	11:08:27	2.36	0.04	47.06

1010312000	16:10:48	1.4	-0.01	222.73
10/03/2000	16:11:48	1.61	-0.01	218.8
10/03/2000	16:12:48	1.7	-0.01	231.93
1010312000	16:13:48	1.6	-0.01	256.84
1010312000	16:14:48	1.49	-0.01	165.53
10/03/2000	16:15:48	0.39	-0.01	3.57
10/03/2000	16:16:48	0.01	-0.01	38.54
1010312000	16:17:48	0.01	-0.01	776.3
1010312000	16:18:48	0.01	-0.01	873.44
1010312000	16:19:48	0.01	-0.01	865.38
10/03/2000	16:20:48	0.01	-0.01	673.6
10/03/2000	16:21:48	0.01	-0.01	612.88
10/03/2000	16:22:48	0.01	-0.01	607.12
1010312000	16:23:48	0.01	-0.01	397.02
10/03/2000	16:24:48	0	-0.01	328.97
10/03/2000	16:25:48	0.01	-0.01	303.17
10/03/2000	16:26:48	0.01	-0.01	32.38
1010312000	16:27:48	0.01	-0.01	1
10/03/2000	16:28:48	0.26	-0.01	102.68
Run 1		**NOX**		CO
10/03/2000	16:29:48	2.3	-0.01	338.97
10/03/2000	16:30:48	3.3	-0.01	494
10/03/2000	16:31:48	2.93	-0.01	322.24
10/03/2000	16:32:48	2.19	-0.01	246.26
10/03/2000	16:33:48	1.82	-0.01	206.8
10/03/2000	16:34:48	1.61	-0.01	177.02
10/03/2000	16:35:48	1.36	-0.01	185.94
10/03/2000	16:36:48	1.32	-0.01	213.6
10/03/2000	16:37:48	1.99	-0.01	94.82
10/03/2000	16:38:48	7.91	-0.01	19.44
10/03/2000	16:39:48	5.1	-0.01	143.54
10/03/2000	16:40:48	2.05	-0.01	130.02
10/03/2000	16:41:48	1.51	-0.01	99.85
10/03/2000	16:42:48	1.5	-0.01	121.03
10/03/2000	16:43:48	1.58	-0.01	114.37
10/03/2000	16:44:48	1.55	-0.01	82.59
10/03/2000	16:45:48	1.34	-0.01	82.45
10/03/2000	16:46:48	1.34	-0.01	117.87
10/03/2000	16:47:48	1.5	-0.01	93.68
10/03/2000	16:48:48	1.44	-0.01	62.08
10/03/2000	16:49:48	1.63	-0.01	49.35
10/03/2000	16:50:48	1.92	-0.01	37.43
10/03/2000	16:51:48	4.48	-0.01	13.12.
10/03/2000	16:52:48	6.08	-0.01	8.61
10/03/2000	16:53:48	4.52	-0.01	8.2
10/03/2000	16:54:48	4.16	-0.01	8.56
10/03/2000	16:55:48	3.91	-0.01	8.01
10/03/2000	16:56:48	9.66	-0.01	7.94
10/03/2000	16:57:48	26.26	-0.01	44.49

10/03/2000	16:58:48	3.17	-0.01	61.34
10/03/2000	16:59:48	3.61	-0.01	31.65
10/03/2000	17:00:48	7.34	-0.01	8
10/03/2000	17:01:48	5.69	-0.01	5.96
10/03/2000	17:02:48	5.46	-0.01	5.96
10/03/2000	17:03:48	5.32	-0.01	5.97
10/03/2000	17:04:48	4.96	-0.01	5.95
10/03/2000	17:05:48	5.21	-0.01	5.52
10/03/2000	17:06:48	5.09	-0.01	4.97
10/03/2000	17:07:48	4.31	-0.01	4.18
10/03/2000	17:08:48	4.61	-0.01	3.97
10/03/2000	17:09:48	4.77	-0.01	4.76
10/03/2000	17:10:48	4.94	-0.01	8.16
10/03/2000	17:11:48	5.39	-0.01	18.62
10/03/2000	17:12:48	5.92	-0.01	22.06
10/03/2000	17:13:48	8.12	-0.01	48.26
10/03/2000	17:14:48	5.86	-0.01	16.84
10/03/2000	17:15:48	5.22	-0.01	11.67
10/03/2000	17:16:48	5.48	-0.01	9.18
10/03/2000	17:17:48	5.7	-0.01	8.35
10/03/2000	17:18:48	5.53	-0.01	7.18
10/03/2000	17:19:48	5.21	-0.01	7.31
10/03/2000	17:20:48	5.16	-0.01	6.95
10/03/2000	17:21:48	4.31	-0.01	6.36
10/03/2000	17:22:48	1.9	-0.01	5.99
10/03/2000	17:23:48	1.35	-0.01	6.75
10/03/2000	17:24:48	1.22	-0.01	6.97
10/03/2000	17:25:48	1.41	-0.01	6.97
10/03/2000	17:26:48	1.54	-0.01	6.97
10/03/2000	17:27:48	1.59	-0.01	7.1
10/03/2000	17:28:48	1.6	-0.01	7.97
10/03/2000	17:29:48	1.67	-0.01	7.94
10/03/2000	17:30:48	1.69	-0.01	7.96
10/03/2000	17:31:48	1.6	-0.01	7.98
10/03/2000	17:32:48	1.55	-0.01	7.96
10/03/2000	17:33:48	1.54	-0.01	7.98
10/03/2000	17:34:48	1.6	-0.01	7.96
10/03/2000	17:35:48	1.47	-0.01	7.96
10/03/2000	17:36:48	1.57	-0.01	7.96
10/03/2000	17:37:48	1.53	-0.01	7.82
10/03/2000	17:38:48	1.42	-0.01	7.09
10/03/2000	17:39:48	2.48	-0.01	66.78
10/03/2000	17:40:48	3.65	-0.01	164.18
10/03/2000	17:41:48	2.53	-0.01	156.98
10/03/2000	17:42:48	2.28	-0.01	89.61
10/03/2000	17:43:48	1.91	-0.01	55.41
10/03/2000	17:44:48	4.32	-0.01	81.46
10/03/2000	17:45:48	6.76	-0.01	70.37
10/03/2000	17:46:48	2.26	-0.01	28.46

10/03/2000	17:47:48	1.87	-0.01	20.94
10/03/2000	17:48:48	1.76	-0.01	19.53
10/03/2000	17:49:48	1.98	-0.01	17
10/03/2000	17:50:48	2.01	-0.01	16.84
10/03/2000	17:51:48	1.84	-0.01	15.49
10/03/2000	17:52:48	1.76	-0.01	15.29
10/03/2000	17:53:48	1.77	-0.01	13.84
10/03/2000	17:54:48	1.58	-0.01	12.96
10/03/2000	17:55:48	1.43	-0.01	12.16
10/03/2000	17:56:48	1.4	-0.01	11
10/03/2000	17:57:48	1.46	-0.01	11.58
10/03/2000	17:58:48	1.63	-0.01	10.85
10/03/2000	17:59:48	1.37	-0.01	11.43
10/03/2000	18:00:48	1.76	-0.01	11.49
10/03/2000	18:01:48	1.78	-0.01	10.97
10/03/2000	18:02:48	1.67	-0.01	9.96
10/03/2000	18:03:48	1.66	-0.01	10.15
10/03/2000	18:04:48	1.64	-0.01	9.96
10/03/2000	18:05:48	1.45	-0.01	8.82
10/03/2000	18:06:48	1.55	-0.01	9.47
10/03/2000	18:07:48	1.61	-0.01	7.98
10/03/2000	18:08:48	1.53	-0.01	7.97
10/03/2000	18:09:48	1.6	-0.01	7.97
10/03/2000	18:10:48	1.6	-0.01	7.97
10/03/2000	18:11:48	1.52	-0.01	7.95
10/03/2000	18:12:48	1.58	-0.01	8.79
10/03/2000	18:13:48	1.77	-0.01	8.31
10/03/2000	18:14:48	1.7	-0.01	8.46
10/03/2000	18:15:48	1.7	-0.01	7.97
10/03/2000	18:16:48	1.74	-0.01	7.96
10/03/2000	18:17:48	1.54	-0.01	7.31
10/03/2000	18:18:48	1.25	-0.01	6.96
10/03/2000	18:19:48	1.15	-0.01	6.96
10/03/2000	18:20:48	1.06	-0.01	6.98
10/03/2000	18:21:48	1.01	-0.01	6.96
10/03/2000	18:22:48	1.1	-0.01	6.97
10/03/2000	18:23:48	1.01	-0.01	6.95
10/03/2000	18:24:48	1	-0.01	6.96
10/03/2000	18:25:48	1	-0.01	6.63
10/03/2000	18:26:48	0.97	-0.01	7.11
10/03/2000	18:27:48	18.45	-0.01	38.76
10/03/2000	18:28:48	9.56	-0.01	94.75
10/03/2000	18:29:48	2.74	-0.01	139.35
10/03/2000	18:30:48	3.59	-0.01	157.84
10/03/2000	18:31:48	3.72	-0.01	109.04
10/03/2000	18:32:48	4.07	-0.01	163.5
10/03/2000	18:33:48	3.53	-0.01	326.35
10/03/2000	18:34:48	2.34	-0.01	337.33
10/03/2000	18:35:48	1.82	-0.01	211.91

10/03/2000	18:36:48	1.62	-0.01	180.47
10/03/2000	18:37:48	1.35	-0.01	215.78
10/03/2000	18:38:48	1.35	-0.01	207.44
10/03/2000	18:39:48	2.91	-0.01	62.58
10/03/2000	18:40:48	4.56	-0.01	16.5
10/03/2000	18:41:48	3.65	-0.01	65.94
10/03/2000	18:42:48	2.54	-0.01	176.92
10/03/2000	18:43:48	2.23	-0.01	182.34
10/03/2000	18:44:48	2.96	-0.01	208.78
10/03/2000	18:45:48	10.43	-0.01	113.21
10/03/2000	18:46:48	3.92	-0.01	39.47
10/03/2000	18:47:48	3.79	-0.01	50.25
10/03/2000	18:48:48	3.61	-0.01	88.94
10/03/2000	18:49:48	3.55	-0.01	251.85
10/03/2000	18:50:48	3.68	-0.01	274.27
10/03/2000	18:51:48	3.59	-0.01	373.25
10/03/2000	18:52:48	3.42	-0.01	305.05
10/03/2000	18:53:48	3.61	-0.01	317.83
10/03/2000	18:54:48	3.45	-0.01	161.12
10/03/2000	18:55:48	3.12	-0.01	167.28
10/03/2000	18:56:48	2.34	-0.01	303.78
10/03/2000	18:57:48	1.67	-0.01	410.54
10/03/2000	18:58:48	1.62	-0.01	313.53
10/03/2000	18:59:48	2.4	-0.01	159.58
10/03/2000	19:00:48	4.28	-0.01	20.74
10/03/2000	19:01:48	3.99	-0.01	156.42
10/03/2000	19:02:48	1.25	-0.01	161.79
10/03/2000	19:03:48	1.27	-0.01	142.18
10/03/2000	19:04:48	1.53	-0.01	131.17
10/03/2000	19:05:48	1.44	-0.01	81.43
10/03/2000	19:06:48	1.48	-0.01	151.8
10/03/2000	19:07:48	1.6	-0.01	162.47
10/03/2000	19:08:48	1.65	-0.01	173.37
10/03/2000	19:09:48	1.71	-0.01	137.88
10/03/2000	19:10:48	2.08	-0.01	207.78
10/03/2000	19:11:48	1.98	-0.01	103.82
10/03/2000	19:12:48	1.62	-0.01	69.42
10/03/2000	19:13:48	1.55	-0.01	71.48
10/03/2000	19:14:48	2	-0.01	123.46
10/03/2000	19:15:48	2.27	-0.01	77.78
10/03/2000	19:16:48	2.52	-0.01	101.85
10/03/2000	19:17:48	1.95	-0.01	169.84
10/03/2000	19:18:48	2.88	-0.01	62.53
10/03/2000	19:19:48	2.43	-0.01	43.43
10/03/2000	19:20:48	6.88	-0.01	41.37
10/03/2000	19:21:48	2.15	-0.01	27.83
10/03/2000	19:22:48	7.66	-0.01	32.75
10/03/2000	19:23:48	8.99	-0.01	33.92
10/03/2000	19:24:48	10.2	-0.01	31.77

10/03/2000	19:25:48	4.02	-0.01	34.84
10/03/2000	19:26:48	5.54	-0.01	22.24
10/03/2000	19:27:48	9.24	-0.01	19.74
10/03/2000	19:28:48	9.62	-0.01	26.62
Average End		3.2		77.5
10/03/2000	19:29:48	8.72	-0.01	40.26
10/03/2000	19:30:48	2.07	-0.01	2.99
10/03/2000	19:31:48	0.01	-0.01	0.94
10/03/2000	19:32:48	0	-0.01	0.93
10/03/2000	19:33:48	0	-0.01	133.87
10/03/2000	19:34:48	0	-0.01	844.51
10/03/2000	19:35:48	0	-0.01	869.89
10/03/2000	19:36:48	0	-0.01	872.03
10/03/2000	19:37:48	0	-0.01	830.36
10/03/2000	19:38:48	0	-0.01	620.64
10/03/2000	19:39:48	0	-0.01	608.92
10/03/2000	19:40:48	0	-0.01	477.09
10/03/2000	19:41:48	0	-0.01	329.39
10/03/2000	19:42:48	0	-0.01	312.37
10/03/2000	19:43:48	0	-0.01	41.1
10/03/2000	19:44:48	0	-0.01	0.93
10/03/2000	19:45:48	0.75	-0.01	28.14
10/03/2000	19:46:48	16.1	-0.01	162.72
10/03/2000	19:47:48	81.35	0	1.63
10/03/2000	19:48:48	95.23	0	-0.06
10/03/2000	19:49:48	95.09	0	-0.07
10/03/2000	19:50:48	71.6	0	0.92
10/03/2000	19:51:48	52.56	-0.01	0.93
10/03/2000	19:52:48	50.05	-0.01	0.92
10/03/2000	19:53:48	16.19	-0.01	0.94
10/03/2000	19:54:48	0.21	-0.01	0.92
10/03/2000	19:55:48	0.12	-0.01	11.61
10/03/2000	19:56:48	1.62	-0.01	106.57

Run 2	Start	NOX		CO
10/04/2000	8:00:54	2.99	0	71.76
10/04/2000	8:01:54	3.3	0	63.93
10/04/2000	8:02:54	2.91	0	75.6
10/04/2000	8:03:54	2.42	0	81.53
10/04/2000	8:04:54	2.13	0	78.54
10/04/2000	8:05:54	1.77	0	117.42
10/04/2000	8:06:54	1.42	0	90.15
10/04/2000	8:07:54	1.22	0	79.97
10/04/2000	8:08:54	1.01	0	79.35
10/04/2000	8:09:54	0.9	0	56.22
10/04/2000	8:10:54	2.56	0	21.68
10/04/2000	8:11:54	4.47	0	58.17
10/04/2000	8:12:54	2.34	0	128.05
10/04/2000	8:13:54	4.45	0	102.63
10/04/2000	8:14:54	5.27	0	32.49
10/04/2000	8:15:54	3.65	0	25.19
10/04/2000	8:16:54	3.27	0	63.59
10/04/2000	8:17:54	3.01	0	162.33
10/04/2000	8:18:54	2.94	0	288.95
10/04/2000	8:19:54	2.57	0	281.73
10/04/2000	8:20:54	1.39	0	243.78
10/04/2000	8:21:54	1.11	0	152.87
10/04/2000	8:22:54	1	0	96.73
10/04/2000	8:23:54	1.2	0	94.54
10/04/2000	8:24:54	1.36	0	136.06
10/04/2000	8:25:54	1.29	0.01	196.66
10/04/2000	8:26:54	1.21	0.01	222.75
10/04/2000	8:27:54	1.66	0.01	152.26
10/04/2000	8:28:54	4.6	0.01	46.08
10/04/2000	8:29:54	4.8	0.01	179.91
10/04/2000	8:30:54	1	0.01	227.91
10/04/2000	8:31:54	0.72	0.01	264.45
10/04/2000	8:32:54	0.66	0.01	249.98
10/04/2000	8:33:54	0.66	0.01	215.88
10/04/2000	8:34:54	0.73	0.01	190.05
10/04/2000	8:35:54	0.82	0.01	165.1
10/04/2000	8:36:54	0.83	0.01	128.68
10/04/2000	8:37:54	0.94	0.01	177.95
10/04/2000	8:38:54	1.11	0.01	192.53
10/04/2000	8:39:54	1.45	0.01	182.29
10/04/2000	8:40:54	1.77	0.01	160.74
10/04/2000	8:41:54	2.43	0.01	119.9
10/04/2000	8:42:54	10.2	0.01	67.14
10/04/2000	8:43:54	5.83	0.01	125.91
10/04/2000	8:44:54	10.87	0.01	28.13
10/04/2000	8:45:54	17.85	0.01	13.77
10/04/2000	8:46:54	10.89	0.01	53.47
10/04/2000	8:47:54	2.98	0.01	42.74

10/04/2000	8:48:54	11.94	0.01	13.11
10/04/2000	8:49:54	14.34	0.01	12.14
10/04/2000	8:50:54	11.39	0.01	20.72
10/04/2000	8:51:54	11.19	0.01	63.25
10/04/2000	8:52:54	8.48	0.01	12.29
10/04/2000	8:53:54	7.06	0.01	8.3
10/04/2000	8:54:54	7.04	0.01	6.56
10/04/2000	8:55:54	7.62	0.01	5.89
10/04/2000	8:56:54	6.86	0.01	5.88
10/04/2000	8:57:54	6.48	0.01	5.06
10/04/2000	8:58:54	6.24	0.01	5.1
10/04/2000	8:59:54	6.05	0.01	5.17
10/04/2000	9:00:54	6	0.01	5.14
10/04/2000	9:01:54	6.15	0.01	5.81
10/04/2000	9:02:54	5.96	0.01	7.09
10/04/2000	9:03:54	5.4	0.01	11.28
10/04/2000	9:04:54	5.34	0.01	12.81
10/04/2000	9:05:54	5.06	0.01	13.11
10/04/2000	9:06:54	5.36	0.01	13.82
10/04/2000	9:07:54	5.38	0.01	14.85
10/04/2000	9:08:54	5.28	0.01	15.1
10/04/2000	9:09:54	5.29	0.01	15.44
10/04/2000	9:10:54	5.4	0.01	16.54
10/04/2000	9:11:54	5.18	0.01	14.46
10/04/2000	9:12:54	5.11	0.01	14.7
10/04/2000	9:13:54	5.44	0.01	15.09
10/04/2000	9:14:54	5.25	0.01	15.06
10/04/2000	9:15:54	4.19	0.01	35.26
10/04/2000	9:16:54	3.05	0.01	46.94
10/04/2000	9:17:54	3.86	0.01	44.03
10/04/2000	9:18:54	6.81	0.01	78.76
10/04/2000	9:19:54	2.26	0.01	92.32
10/04/2000	9:20:54	1.62	0.01	98.76
10/04/2000	9:21:54	1.5	0.01	105.77
10/04/2000	9:22:54	1.42	0	103.81
10/04/2000	9:23:54	1.22	0.01	84.47
10/04/2000	9:24:54	1.12	0.01	63.85
10/04/2000	9:25:54	1.12	0	77.39
10/04/2000	9:26:54	1.12	0.01	85.09
10/04/2000	9:27:54	1.23	0.01	88.42
10/04/2000	9:28:54	1.22	0	103.34
10/04/2000	9:29:54	1.12	0	68.7
10/04/2000	9:30:54	1.12	0	106.78
10/04/2000	9:31:54	1.15	0	120.22
10/04/2000	9:32:54	1.83	0.01	14.15
10/04/2000	9:33:54	2.25	0.01	36.14
10/04/2000	9:34:54	1.77	0.01	165.54
10/04/2000	9:35:54	1.43	0.01	165.2
10/04/2000	9:36:54	1.42	0.01	156.18

10/04/2000	9:37:54	2.64	0.01	100.22
10/04/2000	9:38:54	3.72	0.01	49.98
10/04/2000	9:39:54	2.5	0.01	23.57
10/04/2000	9:40:54	2.22	0.01	37
10/04/2000	9:41:54	2.05	0.01	57.17
10/04/2000	9:42:54	1.95	0.01	74.1
10/04/2000	9:43:54	1.73	0.01	193.41
10/04/2000	9:44:54	1.85	0.01	238.66
10/04/2000	9:45:54	1.83	0.01	264.87
10/04/2000	9:46:54	2.3	0.01	200.5
10/04/2000	9:47:54	2.54	0.01	303.66
10/04/2000	9:48:54	2.87	0.01	369.16
10/04/2000	9:49:54	3.1	0.01	374.46
10/04/2000	9:50:54	2.74	0.01	323.52
10/04/2000	9:51:54	2.67	0.01	258.54
10/04/2000	9:52:54	1.82	0.01	217.47
10/04/2000	9:53:54	1.38	0.01	170.68
10/04/2000	9:54:54	1.27	0.01	192.72
10/04/2000	9:55:54	1.25	0.01	208.32
10/04/2000	9:56:54	1.05	0.01	321.44
10/04/2000	9:57:54	1.08	0.01	287.23
10/04/2000	9:58:54	1.04	0.01	237.59
10/04/2000	9:59:54	1.5	0.01	220.56
Average End		3.5		109.2
10/04/2000	10:00:54	4.14	0.01	68.86
10/04/2000	10:01:54	6.9	0.01	137.23
10/04/2000	10:02:54	1.59	0.01	25.01
10/04/2000	10:03:54	0.02	0.01	1.33
10/04/2000	10:04:54	0.02	0.01	233.9
10/04/2000	10:05:54	0.02	0.01	865.25
10/04/2000	10:06:54	0.02	0.01	873.58
10/04/2000	10:07:54	0.02	0.01	874.17
10/04/2000	10:08:54	0.02	0.01	811.41
10/04/2000	10:09:54	0.02	0.01	619.66
10/04/2000	10:10:54	0.02	0.01	614.25
10/04/2000	10:11:54	0.02	0.01	614.56
10/04/2000	10:12:54	1.39	0.01	262.14
10/04/2000	10:13:54	2.61	0.01	88
10/04/2000	10:14:54	0.87	0.01	302.7
10/04/2000	10:15:54	0.03	0.01	328.61
10/04/2000	10:16:54	0.02	0.01	87.47
10/04/2000	10:17:54	0.02	0.01	1.26
10/04/2000	10:18:54	0.02	0.01	1.23
10/04/2000	10:19:54	11.97	0.01	0.89
10/04/2000	10:20:54	74.66	0.02	0.14
10/04/2000	10:21:54	84.61	0.02	0.25
10/04/2000	10:22:54	84.94	0.02	0.12
10/04/2000	10:23:54	85.1	0.02	0.18
10/04/2000	10:24:54	85.45	0.02	0.19

10/04/2000	10:25:54	87.92	0.02	0.04
10/04/2000	10:26:54	91.36	0.02	0.17
10/04/2000	10:27:54	88.96	0.02	0.14
10/04/2000	10:28:54	69.85	0.02	0.2
10/04/2000	10:29:54	47.58	0.02	0.14
10/04/2000	10:30:54	47.65	0.02	0.21
10/04/2000	10:31:54	48.72	0.02	0.13
10/04/2000	10:32:54	49.11	0.02	0.17
10/04/2000	10:33:54	35.41	0.02	1.11
10/04/2000	10:34:54	3.35	0.01	1.18
10/04/2000	10:35:54	0.01	0.01	1.22
10/04/2000	10:36:54	2.89	0.01	5.26
10/04/2000	10:37:54	59.22	0.02	1.18
10/04/2000	10:38:54	84.5	0.02	0.19
10/04/2000	10:39:54	89.98	0.02	0.2
10/04/2000	10:40:54	82.47	0.02	0.58
10/04/2000	10:41:54	19.08	0.01	1.23
10/04/2000	10:42:54	0.12	0.01	1.16
10/04/2000	10:44:30	0.3	0	89.42
Run *2*	**Start**	NOX		CO
10/04/2000	10:45:30	1.09	0	156.42
10/04/2000	10:46:30	0.95	0	147.98
10/04/2000	10:47:30	2.53	0	45.06
10/04/2000	10:48:30	4.34	0	58.15
10/04/2000	10:49:30	2.6	0	72.59
10/04/2000	10:50:30	3.56	0	66.05
10/04/2000	10:51:30	2.88	0	33.02
10/04/2000	10:52:30	2.12	0	57.27
10/04/2000	10:53:30	2.01	0	79.68
10/04/2000	10:54:30	1.86	0	108.2
10/04/2000	10:55:30	1.71	0	114.25
10/04/2000	10:56:30	1.71	0	109.75
10/04/2000	10:57:30	1.68	0	154.54
10/04/2000	10:58:30	1.68	0	176.84
10/04/2000	10:59:30	1.8	0	147.77
10/04/2000	11:00:30	1.45	0.01	161
10/04/2000	11:01:30	1.4	0	223.03
10/04/2000	11:02:30	1.48	0.01	223.73
10/04/2000	11:03:30	1.27	0	169.04
10/04/2000	11:04:30	0.9	0	99.98
10/04/2000	11:05:30	0.89	0	62.56
10/04/2000	11:06:30	1.11	0	26.09
10/04/2000	11:07:30	1.24	0	30.96
10/04/2000	11:08:30	2.45	0	28.48
10/04/2000	11:09:30	2.56	0	71.33
10/04/2000	11:10:30	0.93	0	115.27
10/04/2000	11:11:30	0.37	0	125.18
10/04/2000	11:12:30	0.32	0	176.78
10/04/2000	11:13:30	0.32	0	125.08

10/04/2000	11:14:30	0.63	0	102.07
10/04/2000	11:15:30	3.81	0	34.6
10/04/2000	11:16:30	7.85	0	59.2
10/04/2000	11:17:30	1.91	0	77.88
10/04/2000	11:18:30	0.71	0	76.19
10/04/2000	11:19:30	0.47	0	94.56
10/04/2000	11:20:30	0.44	0	98.73
10/04/2000	11:21:30	0.57	0	109.95
10/04/2000	11:22:30	1.3	0	89.42
10/04/2000	11:23:30	6.05	0	18.23
10/04/2000	11:24:30	8.36	0	31.53
10/04/2000	11:25:30	2.86	0	46.48
10/04/2000	11:26:30	3.48	0	23.2
10/04/2000	11:27:30	6.02	0	29.88
10/04/2000	11:28:30	2.12	0	47.38
10/04/2000	11:29:30	3.05	0	27.73
10/04/2000	11:30:30	6.43	0	7.78
10/04/2000	11:31:30	7	0	8.98
10/04/2000	11:32:30	6.4	0	13.79
10/04/2000	11:33:30	5.67	0	16.36
10/04/2000	11:34:30	5.36	0	43.47
10/04/2000	11:35:30	4.38	0	14.44
10/04/2000	11:36:30	4	0	6.54
10/04/2000	11:37:30	3.06	0	6.21
10/04/2000	11:38:30	3.06	0	8.73
10/04/2000	11:39:30	3.64	0	66.97
10/04/2000	11:40:30	2.32	0	75.52
10/04/2000	11:41:30	3.38	0	33.53
10/04/2000	11:42:30	2.88	0	43.72
10/04/2000	11:43:30	1.01	0	69.96
10/04/2000	11:44:30	0.79	0	66.81
10/04/2000	11:45:30	0.52	0	54.64
10/04/2000	11:46:30	0.51	0	69.33
10/04/2000	11:47:30	0.51	0	82.75
10/04/2000	11:48:30	0.59	0	105.83
10/04/2000	11:49:30	0.54	0	105.09
10/04/2000	11:50:30	0.5	0	101.05
10/04/2000	11:51:30	0.44	0	78.25
10/04/2000	11:52:30	0.44	0	80.62
10/04/2000	11:53:30	0.32	0	68.78
10/04/2000	11:54:30	0.32	0	49.61
10/04/2000	11:55:30	0.31	0	33.39
10/04/2000	11:56:30	0.32	0	28.49
10/04/2000	11:57:30	0.87	0	10.37
10/04/2000	11:58:30	2.02	0	17.33
10/04/2000	11:59:30	1.68	0	57.13
Average	End	2.2		74.1
10/04/2000	12:00:30	1.03	0	62.17
10/04/2000	12:01:30	2.4	0	27.57

10/04/2000	12:02:30	1.54	0	10.39
10/04/2000	12:03:30	-0.04	0	0.82
10/04/2000	12:04:30	-0.19	0	492.54
10/04/2000	12:05:30	-0.19	0	891.43
10/04/2000	12:06:30	-0.19	0	870.71
10/04/2000	12:07:30	-0.19	0	864.93
10/04/2000	12:08:30	-0.19	0	248.15
10/04/2000	12:09:30	-0.19	0	1.42
10/04/2000	12:10:30	-0.19	0	1.07
10/04/2000	12:11:30	4.96	0	0.71
10/04/2000	12:12:30	57.78	0.01	-0.08
10/04/2000	12:13:30	75.28	0.01	0.17
10/04/2000	12:14:30	75.83	0.01	0.08
10/04/2000	12:15:30	77.21	0.01	0.04
10/04/2000	12:16:30	77.62	0.01	0.08
10/04/2000	12:17:30	78.43	0.01	0.08
10/04/2000	12:18:30	87.43	0.01	0.08
10/04/2000	12:19:30	99.78	0.01	0.07
10/04/2000	12:20:30	98.7	0.01	0.2
10/04/2000	12:21:30	94.4	0.01	0.03
10/04/2000	12:22:30	93.9	0.01	0.17
10/04/2000	12:23:30	93.74	0.01	0.04
10/04/2000	12:24:30	93.69	0.01	0.03
10/04/2000	12:25:30	93.58	0.01	0.07
10/04/2000	12:26:30	97.56	0.01	0.07
10/04/2000	12:27:30	98.8	0.01	-0.11
10/04/2000	12:28:30	90.79	0.01	0.08
10/04/2000	12:29:30	90.6	0.01	3.82
10/04/2000	12:30:30	49.81	0	570.02
10/04/2000	12:31:30	1.03	0	808.45
10/04/2000	12:32:30	0.05	0	810.71
10/04/2000	12:33:30	-0.05	0	805.59
10/04/2000	12:34:30	-0.09	0	836.62
10/04/2000	12:35:30	-0.09	0	854.57
10/04/2000	12:36:30	-0.09	0	155.94
10/04/2000	12:37:30	-0.09	0	1.74
10/04/2000	12:38:30	-0.09	0	3.43
10/04/2000	12:39:30	-0.09	0	569.02
10/04/2000	12:40:30	-0.17	0	868.41
10/04/2000	12:41:30	0.46	0	683.33
10/04/2000	12:42:30	9.45	0	29.8
10/04/2000	12:43:30	10.32	0	15.28
10/04/2000	12:44:52	8.06	0.01	23.86
Run 3	**Start**	NOX		CO
10/04/2000	12:45:52	8.32	0.01	52.26
10/04/2000	12:46:52	7.33	0.01	18.66
10/04/2000	12:47:52	6.34	0.01	10.3
10/04/2000	12:48:52	7.3	0.01	8.73
10/04/2000	12:49:52	7.02	0.01	7.46

10/04/2000	12:50:52	5.58	0.01	8.05
10/04/2000	12:51:52	5.36	0.01	10.51
10/04/2000	12:52:52	5.29	0.01	11.15
10/04/2000	12:53:52	5.84	0.01	17.75
10/04/2000	12:54:52	5.28	0.01	65.19
10/04/2000	12:55:52	7.81	0.01	33.08
10/04/2000	12:56:52	8.79	0.01	23.83
10/04/2000	12:57:52	11.92	0.01	24.25
10/04/2000	12:58:52	4.1	0.01	27.5
10/04/2000	12:59:52	3.44	0.01	28.77
10/04/2000	13:00:52	3.24	0	78.93
10/04/2000	13:01:52	4.91	0.01	107.31
10/04/2000	13:02:52	3.61	0.01	121.87
10/04/2000	13:03:52	1.85	0	143.19
10/04/2000	13:04:52	3.08	0	100.7
10/04/2000	13:05:52	2.38	0	103.97
10/04/2000	13:06:52	1.19	0	152.99
10/04/2000	13:07:52	0.77	0	273.18
10/04/2000	13:08:52	1.05	0	251.14
10/04/2000	13:09:52	6.47	0.01	50.96
10/04/2000	13:10:52	4.98	0	104.8
10/04/2000	13:11:52	2.13	0	110.73
10/04/2000	13:12:52	2.12	0	74.77
10/04/2000	13:13:52	2.21	0	60.27
10/04/2000	13:14:52	7.85	0.01	33.7
10/04/2000	13:15:52	5.6	0	30.25
10/04/2000	13:16:52	2.83	0	42.68
10/04/2000	13:17:52	2.39	0	43.5
10/04/2000	13:18:52	2.34	0.01	65.53
10/04/2000	13:19:52	2.23	0	104.86
10/04/2000	13:20:52	2.3	0	150.95
10/04/2000	13:21:52	2.38	0	110.44
10/04/2000	13:22:52	2.42	0.01	66.62
10/04/2000	13:23:52	2.11	0	234.46
10/04/2000	13:24:52	1.79	0	116.69
10/04/2000	13:25:52	2.48	0	200.68
10/04/2000	13:26:52	1.69	0	210.86
10/04/2000	13:27:52	0.86	0	273.48
10/04/2000	13:28:52	0.74	0	282.42
10/04/2000	13:29:52	0.87	0	212.32
10/04/2000	13:30:52	2.22	0	109.07
10/04/2000	13:31:52	7.04	0	14.9
10/04/2000	13:32:52	6.73	0	8.4
10/04/2000	13:33:52	8.21	0	59.28
10/04/2000	13:34:52	2.37	0	86.05
10/04/2000	13:35:52	1.28	0	156.73
10/04/2000	13:36:52	1.52	0	233.71
10/04/2000	13:37:52	1.41	0	246.61
10/04/2000	13:38:52	1.33	0	315.66

10/04/2000	13:39:52	1.55	0	372.27
10/04/2000	13:40:52	1.6	0	317.74
10/04/2000	13:41:52	1.67	0	267.81
10/04/2000	13:42:52	2.04	0	278.83
10/04/2000	13:43:52	2.22	0	347.09
10/04/2000	13:44:52	2.45	0	200.47
10/04/2000	13:45:52	7.85	0	56.9
10/04/2000	13:46:52	13.65	0	52.06
10/04/2000	13:47:52	3.64	0	171.55
10/04/2000	13:48:52	1.27	0	244.64
10/04/2000	13:49:52	2.23	0	188.82
10/04/2000	13:50:52	10.83	0	43.76
10/04/2000	13:51:52	17.13	0	21.6
10/04/2000	13:52:52	11.07	0	15.26
10/04/2000	13:53:52	11.76	0	17
10/04/2000	13:54:52	11.62	0	14.15
10/04/2000	13:55:52	12.99	0	46.97
10/04/2000	13:56:52	8.6	0	23.14
10/04/2000	13:57:52	7.87	0	14.61
10/04/2000	13:58:52	6.36	0	12.32
10/04/2000	13:59:52	5.26	0	11.11
10/04/2000	14:00:52	5.34	0	9.74
10/04/2000	14:01:52	6.44	0	9.45
10/04/2000	14:02:52	6.11	0	9.06
10/04/2000	14:03:52	4.41	0	11.35
10/04/2000	14:04:52	4.58	0	61.67
10/04/2000	14:05:52	1.75	0	118.64
Average	End	4.8		104.1
10/04/2000	14:06:52	0	0	1.72
10/04/2000	14:07:52	-0.13	0	1.02
10/04/2000	14:08:52	-0.19	0	356.43
10/04/2000	14:09:52	-0.19	0	869.25
10/04/2000	14:10:52	-0.19	0	869.39
10/04/2000	14:11:52	0.92	0	740.8
10/04/2000	14:12:52	55.92	0.01	34.32
10/04/2000	14:13:52	88.69	0.01	0.93
10/04/2000	14:14:52	90.11	0.01	0.83
10/04/2000	14:15:52	91.26	0.01	0.08
10/04/2000	14:16:52	80.62	0.01	0.61
10/04/2000	14:17:52	12.98	0	1.08
10/04/2000	14:19:40	0.33	0	57.31
10/04/2000	14:20:40	2.26	0	142.75
10/04/2000	14:21:40	3.5	0	42.1
Run 3		**NOX**		CO
10/04/2000	14:22:40	**4.02**	0	102.36
10/04/2000	14:23:40	**2.68**	0	129.08
10/04/2000	14:24:40	**2.66**	0	86.21
10/04/2000	14:25:40	**5.13**	0	47.83
1010412000	14:26:40	**3.95**	0	46.53

10/04/2000	14:27:40	3.6	0	38.14
10/04/2000	14:28:40	2.66	0	108.78
10/04/2000	14:29:40	2.01	0	206.05
10/04/2000	14:30:40	2.25	0	249.71
10/04/2000	14:31:40	2.41	0	184.63
10/04/2000	14:32:40	2.36	0	159.7
10/04/2000	14:33:40	2.09	0	262.44
10/04/2000	14:34:40	2.39	0	394.78
10/04/2000	14:35:40	1.62	0	449.89
10/04/2000	14:36:40	1.47	0	396.37
10/04/2000	14:37:40	0.91	0	289.74
10/04/2000	14:38:40	0.78	0	265.58
10/04/2000	14:39:40	0.62	0	279.13
10/04/2000	14:40:40	0.77	0	241.59
10/04/2000	14:41:40	0.81	0	292.94
10/04/2000	14:42:40	1.44	0	275.78
10/04/2000	14:43:40	5.58	0	97.55
10/04/2000	14:44:40	6.54	0	26.38
10/04/2000	14:45:40	7.74	0	14.28
10/04/2000	14:46:40	16.22	0	11.48
10/04/2000	14:47:40	5.54	0	8.67
10/04/2000	14:48:40	5.14	0	6.64
10/04/2000	14:49:40	6.39	0	6.39
10/04/2000	14:50:40	6.14	0	5.81
10/04/2000	14:51:40	5.08	0	5.01
10/04/2000	14:52:40	5.69	0	4.77
10/04/2000	14:53:40	5.39	0	4.4
10/04/2000	14:54:40	5.91	0	4.58
10/04/2000	14:55:40	6.98	0	5.16
10/04/2000	14:56:40	6.65	0	4.17
10/04/2000	14:57:40	5.26	0	3.63
10/04/2000	14:58:40	4.75	0	4.01
10/04/2000	14:59:40	5.87	0	3.92
10/04/2000	15:00:40	6.54	0	4.1
10/04/2000	15:01:40	9.34	0	6.31
10/04/2000	15:02:40	16.07	0	70.22
10/04/2000	15:03:40	1.48	0	79.81
10/04/2000	15:04:40	1.31	0	104.25
10/04/2000	15:05:40	1.36	0	147.98
10/04/2000	15:06:40	1.01	0	222.77
10/04/2000	15:07:40	0.81	0	173.86
10/04/2000	15:08:40	0.83	0	338.39
10/04/2000	15:09:40	1.17	0	224.19
10/04/2000	15:10:40	1.59	0	142.41
10/04/2000	15:11:40	1.6	0	153.41
10/04/2000	15:12:40	1.75	0	199.95
10/04/2000	15:13:40	4.29	0	76.72
10/04/2000	15:14:40	8.09	0	19.51
10/04/2000	15:15:40	13.73	0	10.42

10/04/2000	15:16:40	14.33	0	8.95
10/04/2000	15:17:40	12.71	0	9.18
10/04/2000	15:18:40	10.66	0	17.59
10/04/2000	15:19:40	9.41	0	29.55
10/04/2000	15:20:40	10.34	0	66.21
10/04/2000	15:21:40	6.62	0	22.37
10/04/2000	15:22:40	4.5	0	10.72
10/04/2000	15:23:40	4.44	0	7.48
10/04/2000	15:24:40	4.66	0	6.01
10/04/2000	15:25:40	4.38	0	5.52
10/04/2000	15:26:40	4.09	0	5.76
10/04/2000	15:27:40	5.09	0	9.15
10/04/2000	15:28:40	8.55	0	73.67
10/04/2000	15:29:40	6.73	0	111.02
10/04/2000	15:30:40	5.65	0	95.18
10/04/2000	15:31:40	6.61	0	65.19
10/04/2000	15:32:40	7.42	0	32.5
10/04/2000	15:33:40	2.79	0	77.58
10/04/2000	15:34:40	3.21	0	93.55
10/04/2000	15:35:40	3.05	0	109.49
10/04/2000	15:36:40	3.23	0	226.64
10/04/2000	15:37:40	3.57	0	292.95
10/04/2000	15:38:40	3.48	0	278.17
10/04/2000	15:39:40	2.81	0	220.99
10/04/2000	15:40:40	2.24	0	206.4
10/04/2000	15:41:40	2.29	0	231.99
10/04/2000	15:42:40	1.8	0	263.3
10/04/2000	15:43:40	1.13	0	263.46
10/04/2000	15:44:40	0.9	0	219.23
10/04/2000	15:45:40	2.96	0	24.24
10/04/2000	15:46:40	5.56	0	102.53
10/04/2000	15:47:40	2.54	0	198.53
10/04/2000	15:48:40	1.6	0	166.99
10/04/2000	15:49:40	1.41	0	144.6
10/04/2000	15:50:40	1.31	0	162.25
10/04/2000	15:51:40	1.35	0	196.34
10/04/2000	15:52:40	1.53	0	201.7
10/04/2000	15:53:40	4.01	0	69.85
10/04/2000	15:54:40	4.59	0	32.15
10/04/2000	15:55:40	2.22	0	34.05
10/04/2000	15:56:40	2.28	0	66.59
10/04/2000	15:57:40	2.15	0	125.86
10/04/2000	15:58:40	2.1	0	192.06
10/04/2000	15:59:40	1.8	0	276
10/04/2000	16:00:40	1.51	0	281.12
10/04/2000	16:01:40	1.54	0	312.21
10/04/2000	16:02:40	1.52	0	371.12
10/04/2000	16:03:40	1.75	0	382.28
10/04/2000	16:04:40	1.76	0	295.58

10/04/2000	16:05:40	0.83	0	204.22
10/04/2000	16:06:40	0.65	0	193.42
10/04/2000	16:07:40	0.55	0	264.4
10/04/2000	16:08:40	0.57	0	259.75
10/04/2000	16:09:40	0.81	0	227.64
10/04/2000	16:10:40	2.8	0	100.98
10/04/2000	16:11:40	3.79	0	10.84
10/04/2000	16:12:40	3.4	0	6.22
10/04/2000	16:13:40	5.01	0	6.54
10/04/2000	16:14:40	7.66	0	85.94
10/04/2000	16:15:40	0.91	0	118.32
10/04/2000	16:16:40	0.59	0	137.55
10/04/2000	16:17:40	0.61	0	183.17
10/04/2000	16:18:40	0.76	0	174.54
10/04/2000	16:19:40	0.77	0	204.67
10/04/2000	16:20:40	0.65	0	152.61
10/04/2000	16:21:40	0.74	0	165.48
Average	End	3.8		132.4

INITIAL CEM CALIBRATION AND PERFORMANCE EVALUATION

Plant: New Port Steel
Location: Bar House Fuel
Date: 10-3-0
Operator: Gen
Project #: 5620.001

Parameter: SO_2, CO_2, O_2, (NO_x) THC
Monitor: ppm or %
Span Value: 100
Chart Scale: 99.
Pbar, in. Hg.: 29.6

Cylinder #	Cal. Gas Conc., ppm or %	Chart Divisions: Direct Injection to Monitor	Chart Divisions: Injection Through System	Concentration Predicted by Equation,* Direct System		Calibration Error,** % of Span	Sampling System Bias,*** % of Span
	0	0	0	-.16	-.16	—	—
	49.49	50.2	50.20	49.8	49.8	-1.4	—
	90.7	91	91	90.5	90.5	-.33	-.5

* Perform linear regression of pretest cal. gas concentration vs. chart divisions to determine the following equation:

$y = mx + b$ $\quad$ x = ppm $\quad$ y = chart divisions

For Data Reduction:

$$\text{Pollutant, ppm/\%} = \frac{(\text{Chart Division} - b)}{m} = \frac{(CD - 16501)}{(1.008)}$$

Correlation Coefficient = .9999

Calculation concentration predicted by equatio using actual chart response obtained from each calibration gas response.

$$** \text{ Analyzer cal. error, \% cal. gas value} = \frac{(\text{Cal. gas conc., ppm} - \text{conc. predicted. ppm}) \times 100}{\text{Cal. gas value, ppm}}$$

Acceptable limit = ≤ 2% of calibration gas value (≤ 5% for THC)

$$*** \text{ Sampling system bias} = \frac{(\text{Direct inject. gas conc.} - \text{System inject. gas conc.}) \times 100}{\text{Span value}}$$

Acceptable limit ≤ 5% of span

Minimum detectable limit = 2% of span or _____ ppm or % (circle one)

Rise time to 95% of response for high cal. gas injected through the system (return to zero after each injection): _____ s, _____ s, _____ s Average = _____ s

Precision, % scale = difference in chart division response for two repeated injections of the gas concentrations = _____ - _____ = _____ %

(Clock time =)

DAILY CEM CALIBRATION AND PERFORMANCE EVALUATION

Plant: NEW PORT STEEL
Location: BAG HOUSE INLET
Date: 10-3-00
Operator: GG
Project #: 5620.001
Time, Pretest: _____ Post-test: _____
Run #: _____

Parameter: SO_2, CO_2, O_2, NO_x, THC
Monitor: ppm or %
Span Value: 100
Chart *Scale:* 49.4
Pbar, in. Hg.: 29.66
Ambient Temp., F: _____

Cyl. #	Cal. Gas Conc., ppm or %	Calibrations (Chart Divisions) 1235 1999				Concentration Predicted By Equation*				Analyzer Calibration Error,** % of Span	Drift,*** % of Span
	0	0	0	0	0	-.16	-.16	-.16	-.16	—	—
	49.49	50.2	52.5	52	53.0	49.85	52.1	51.6	52.6		
	90.7	91	95	91	95.5	90.5	94	90.5	99.9		

- Perform linear tegtession of pretest cal. gas concentration vs. chart divisions to determine the following equation:

$y = mx + b$ x = ppm y = chart divisions

For Data Reduction:

$$\text{Pollutant, ppm/\%} = \frac{(\text{Chart Oivision} - b)}{m} = \frac{(CD - .16501)}{(1.0056)}$$

Correlation Coefficient = .9997

** Analyzer cal. error, % cal. gas value = $\frac{(\text{Cal. gas conc.} - \text{conc. predicted}) \times 100}{\text{Cal. gas value, ppm}}$

Acceptable limit = ≤ 2% of calibration gas value (≤ 5% for THC)

*** Drift, % Span = $\frac{(\text{Post-test cal. response} - \text{initial cal. response}) \times 100}{\text{Span value}}$

Acceptable limit ≤ 3% of span

Minimum detectable limit = 2% of span or _____ ppm or % (circle one)

Maximum zero drift = _____ % of span or _____ ppm or % (circle one)

Maximum calibration drift = _____ % of span or _____ ppm or % (circle one)

COMMENTS: Pretest or post-test (circle one) calibration used to quantitate sample data. Post-test is used if drift exceeds limits and if post-test

15

CEM DATA REDUCTION - BAG ANALYSIS OR STEADY READINGS

Plant: New Port Steel
Location: Bag House Fuel
Date: 10-3-00

Parameter: SO_2, CO_2, O_2, NO_X*, THC
Operator: G Gay
Project #:

$$\text{Pollutant, ppm/\%} = \frac{(\text{Chart Division} - b)}{m} = \frac{(CD - 1.6501)}{(1.00367)}$$

Run #	Time** (24-Hr)	Average Chart Division	Concentration	Comments
1	1012 1022	3	2.8	
	1022 1032	2	1.8	
	1032 1042	2	1.8	
	1042 1052	8	7.8	
	1052 1102	8	7.8	
	1102 1112	2	1.8	
	1112 1122	2	1.8	
	1122 1132	3	2.82	
	1132 1142	4	3.82	
	1142 1152	4	3.82	3.60
	1152 1202			Press Down 45
	1202 1212			

* For NO_X Indicate whether NO, NO + NO_2, or NO_2 for specific interval.

** Indicate whether time interval is from beginning of first time to beginning of second time or to end of second time (circle one. of describe alternate).

Calculated By: G Gay Date: 10-3-00

CEM DATA REDUCTION - BAG ANALYSIS OR STEADY READINGS

Plant: New Port Steel
Location: Bag House Inlet
Date: 10-3-00

Parameter: SO_2, CO_2, O_2, (NO_X*), THC, CO
Operator: G Gay
Project #: 5620.001

$$\text{Pollutant, ppm/\%} = \frac{(\text{Chart Division} - b)}{m} = \frac{(CD - 1650)}{(1.00)}$$

Run #	Time** (24-Hr)		Average Chart Division	Concentration	comments
2	1629	1639	2	1.8	
	1639	1649	2	1.8	
	1649	1659	4	3.8	
	1659	1709	5	4.8	
	1709	1719	3	2.8	
	1719	1729	2	1.8	
	1729	1739	4	3.8	
	1739	1749	2	1.8	
	1749	1759	2	1.8	
	1759	1809	2	1.8	
	1809	1819	8	7.8	
	1819	1829	3	2.8	
	1829	1839	3	2.8	
	1839	1849	4	3.8	
	1849	1859	4	3.8	
	1859	1909	4	3.8	
	1909	1919	2	1.8	
	1919	1929	5	4.8	3.38 Avg

* For NO_X Indicate whether NO, NO + NO_2, or NO_2 for specific interval.

** Indicate whether time interval is from beginning of first time to beginning of second time or to end of second time (circle one, or describe alternate).

Calculated By: G Gay Date: 10-3-00

DAILY CEM CALIBRATION AND PERFORMANCE EVALUATION

Plant: Newport Steel
Location: Bag House Fuel
Date: 10-4-00
Operator: GGM
Project #: 5620.001
Time, Pretest: _____ Post-test: _____
Run #: _____

Parameter: SO_2, CO_2, O_2, (NO_X), THC
Monitor: ppm or %
Span Value: 100
Chart Scale: 99.1
Pbar, in. Hg.: 29.68
Ambient Temp., F: _____

Cyl. #	Cal. Gas Conc., ppm or %	Calibrations (Chart Divisions) 725 10 12 1405 1640	Concentration Predicted By Equation[e]	Analyzer Calibration Error,** % of Span	Drift,*** % of Span
	0	0 0 0	-.40		
	49.49	51 485	50.3		
	90.7	91 88 90 90 91 88	90.2		

- **Perform** linear regression of pretest cal. **gas** concentration vs. **chart** divisions **to** determine the following equation:

$y = mx + b$ **x = ppm** y = chart divisions

For **Data** Reduction:

$$\text{Pollutant, ppm/\%} = \frac{(\text{Chart Division} - b)}{m} = \frac{(CD - .4066)}{(1.004)}$$

Correlation Coeffidem = .9999

$$\text{** Analyzer cal. error, \% cal. gas value} = \frac{(\text{Cal. gas conc.} - \text{conc. predicted}) \times 100}{\text{Cal. gas value, ppm}}$$

Acceptable limit = ≤ 2% of **calibration gas** value (≤ 5% for THC)

$$\text{*** Drift, \% Span} = \frac{(\text{Post-test cal. response} - \text{initial cal. response}) \times 100}{\text{Span value}}$$

Acceptable limit ≤ 3% **of** span

Minimum detectable limit = 2% **of** span or _____ ppm or % (circle **one)**

Maximum zero drift = _____ % of **span** or _____ ppm or % **(circle** one)

Maximum calibration drift = _____ % of span or _____ ppm or % **(circle one)**

COMMENTS: **Pretest or post-test (circle one) calibration used to quantitate sample data. Post-test is used if drift exceeds limits and if post-test yields higher concentrations.**

CEM DATA REDUCTION - BAG ANALYSIS OR STEADY READINGS

Plant: Newport Steel
Location: Bag House Inlet
Date: 10-9-00

Parameter: SO_2, CO_2, O_2, NO_X*, THC, CO
Operator: GGn
Project #: 5620.001

$$\text{Pollutant, ppm/\%} = \frac{(\text{Chart Division} - b)}{m} = \frac{(CD - .1066)}{(1.004)}$$

Run #	Time** (24-Hr)	Average Chart Division	Concentration	Comments
1	1245 1255	6	5.65	
	1255 1305	3	2.5	
	1305 1315	4	3.57	
	1315 1325	3	2.5	
	1325 1335	4	3.57	
	1335 1345	2	1.58	
	1345 1355	11	10.5	
	1355 1405	6	5.56	4.0
STOP TO CAL	1422 1432	3	2.5	
	1432 1442	2	1.58	
	1442 1452	6	5.56	
	1452 1502	5	4.5	
	1502 1512	2	1.58	
	1512 1522	7	6.56	
	1522 1532	7	6.56	
	1532 1542	4	3.57	
	1542 1552	2	1.58	
	1552 1602	2	1.58	

* For NO_X indicate whether NO, NO + NO_2, or NO_2 for specific interval.

** Indicate whether time interval is from beginning of first time to beginning of second time or to end of second time (circle one. or describe alternate).

Calculated By: GGn Date: 10-4-00

CEM DATA REDUCTION - BAG ANALYSIS OR STEADY READINGS

Plant: New Port Steel
Location: Bag House Inlet
Date: 10-4-00

Parameter: SO_2, CO_2, O_2, NO_X*, THC, CO
Operator: G Gay
Project #: 5620.001

$$\text{Pollutant, ppm/\%} = \frac{(\text{Chart Division} - b)}{m} = \frac{(CD - .4066)}{(1.004)}$$

Run #	Time** (24-Hr)	Average Chart Division	Concentration	Comments
	1602 1612	5	4.57	
	1612 1622	1	1	3.78
	1632			

* For NO_X Indicate whether NO, NO + NO_2, or NO_2 for specific interval.

** Indicate whether time interval is from beginning of first time to beginning of second time or to end of second time (circle one, or describe alternate).

Calculated By: [illegible] Date: 10-4-00

CEM DATA REDUCTION - 8AG ANALYSIS OR STEADY READINGS

Plant: Newport Steel
Location: Bag House F-6
Date: 10-4-00

Parameter: SO_2, CO_2, O_2, NO_X*, THC, CO
Operator: G Gay
Project #:

$$\text{Pollutant, ppm/\%} = \frac{(\text{Chart Division} - b)}{m} = \frac{(\text{CD} - 140667)}{(1.004)}$$

Run #	Time** (24-Hr)	Average Chart Division	Concentration	Comments
3	800 810	2	1.5	
	810 820	3	2.5	
	820 830	3	2.5	
	830 840	3	2.5	
	840 850	8	7.5	
	850 900	6	5.5	
	900 910	6	5.5	
	910 920	3	2.5	
	920 930	2	1.5	
	930 940	2	1.5	
	940 950	2	1.5	
	950 1000	2	1.5	1.65 Avg 3.52
	1000 1010			

* For NO_X Indicate whether NO, NO + NO_2, or NO_2 for specific interval.

** Indicate whether time interval is from beginning of first time to beginning of second time or to end of second time (circle one, or describe alternate).

Calculated By: [illegible] Date: 10-4-00

CEM DATA REDUCTION - BAG ANALYSIS OR STEADY READINGS

Plant: Newport Steel
Location: Bag House I Inlet
Date: 10-4-00

Parameter: SO_2, CO_2, O_2, NO_X*, THC, CO
Operator: G Gay
Project #: 5620.001

$$\text{Pollutant, ppm/\%} = \frac{(\text{Chart Oivision} - b)}{m} - \frac{(CD - .40667)}{(1.004)}$$

Run #	Time** (24-Hr)		Average Chart Division	Concentration	comments
3	1045	1055	2.5	2.08	
	1055	1105	1.5	1.08	
	1105	1115	1.5	1.08	
	1115	1125	2.5	2.08	
	1125	1135	4	3.5	
	1135	1145	4	3.5	
	1145	1155	1.5	1.08	2.1
	1155	1200	1.5	1.08	

• For NO_X Indicate whether NO, NO + NO_2, or NO_2 for specific interval.

** Indicate whether time interval is from beginning of first time to beginning of second time or to end of second time (circle one. or describe alternate).

Calculated By: [illegible] Date: [illegible]

INITIAL **GEM** CALIBRATION AND **PERFORMANCE** EVALUATION

Plant: New Post Steel
Location: Bag House Fuel
Date: 10-3-00
Operator: GGM
Project #: 5620.00;

Parameter: SO_2, CO, O_2, NO_x, THC
Monitor: ppm or %
Span Value: 100
Chart Scale: 999.7
Pbar, in. Hg.: 29.66

Cylinder #	Cal. Gas ppm or	Chart Divisions: Direct Injection to Monitor	Chart Divisions: Injection Through	Concentration Predicted by Equation,* Direct System		Calibration Error,** % of Span	Sampling System % of Span
	0	0	0	-6.6	-6.6		
	300.2	31.5	31.5	309.8	307.8		
	600.6	60.5	60.5	601.2	601.2		
	896.4	89.5	89.5	892.8	892.7		

* Perform linear regression of pretest cal. gas concentration vs. chart divisions to determine the following equation:

$y = mx + b$ $\quad x = \text{ppm}$ $\quad y = \text{chart divisions}$

For Data Reduction:

$$\text{Pollutant, ppm/\%} = \frac{(\text{Chart Division} - b)}{m} = \frac{(CD - 6.6385)}{(.099515)}$$

Correlation Coefficient = .9499

Calculation concentrauon predicted by equatio using actual chart response obtained from each calibration gas response.

$$** \text{ Analyzer cal. error. \% cal. gas value} = \frac{(\text{Cal. gas conc., ppm} - \text{conc. predicted. ppm}) \times 100}{\text{Cal. gas value, ppm}}$$

Acceptable limit = ≤ 2% of calibration gas value (≤ 5% for THC)

$$*** \text{ Sampling system bias} = \frac{(\text{Direct inject. gas conc.} - \text{System inject. gas conc.}) \times 100}{\text{Span value}}$$

Acceptable limit ≤ 5% of span

Minimum detectable limit = 2% of span or _____ ppm or % (circle one)

Rise time to 95% of response for high cal. gas injected through the system (return to zero after each injection): _____ s, _____ s, _____ s Average = _____ s

Precision, % scale = difference in chart division response for two repeated injections of the gas concentrations = _____ - _____ = _____ %

(Clock time =)

DAILY CEM CALIBRATION AND PERFORMANCE EVALUATION

Plant: New Port Steel
Location: BAC House Fuel
Date: 10-3-00
Operator: AA
Project #: 5620.001
Time, Pretest: _____ Post-test: _____
Run #: _____

Parameter: SO_2, CO_2, O_2, NO_X, THC
Monitor: ppm or %
Span Value: 100
Chart Scale: _____
Pbar, in. Hg.: 29.62
Ambient Temp., F: _____

Cyl. #	Cal. Gas Conc., ppm or %	Calibrations (Chart Divisions)				Concentration Predicted By Equation*	Analyzer Calibration Error,** % of Span	Drift,*** % of Span
				1619	1932			
	0	0	0	0	0	-6.6		
	300.7	31.5	31.5	32.5	32.5	309.9		
	600.6	60.5	60.0	60.5	60.5	601.2		
	896.4	89.5	88	86.5	86.5	892.7		

* Perform linear regression of pretest cal. gas concentration vs. chart divisions to determine the following equation:

$y = mx + b$ x = ppm y = chart divisions

For Data Reduction:

$$\text{Pollutant, ppm/\%} = \frac{(\text{Chart Division} - b)}{m} = \frac{(CD - \quad)}{(\quad)}$$

Correlation Coefficient = _____

** Analyzer cal. error, % cal. gas value = $\frac{(\text{Cal. gas conc.} - \text{conc. predicted}) \times 100}{\text{Cal. gas value, ppm}}$

Acceptable limit = ≤ 2% of calibration gas value (≤ 5% for THC)

*** Drift % Span = $\frac{(\text{Post-test cal. response} - \text{initial cal. response}) \times 100}{\text{Span value}}$

Acceptable limit ≤ 3% of span

Minimum detectable limit = 2% of span or _____ ppm or % (circle one)

Maximum zero drift = _____ % of span or _____ ppm or % (circle one)

Maximum calibration drift = _____ % of span or _____ ppm or % (circle one)

COMMENTS: Pretest or post-test (circle one) calibration used to quantitate sample data. Post-test is used if drift exceeds limits and if post-test

CEM DATA REDUCTION - BAG ANALYSIS OR STEADY READINGS

Plant: New Port Steel
Location: Bag House Fuel 1
Date: 10-3-00

Parameter: SO_2, CO_2, O_2, (NO_X*), THC, CO
Operator: G Gay
Project #:

$$\text{Pollutant, ppm/\%} = \frac{(\text{Chart Division} - b)}{m} = \frac{(CD - [illegible])}{(\ \ )} = \frac{.66285}{.099515}$$

Run #	Time** (24-Hr)		Average Chart Division	Concentration	Comments
1	1012	1022	28	275	
	1022	1032	15	142	
	1032	1042	12	113	
	1042	1052	9	83	
	1052	1102	2	13.4	
	1102	1112	4	33.5	
	1112	1122	4	33.5	
	1122	1132	3	23.4	
	1132	1142	2	13.4	
	1142	1152	2	13.4	74.56
	1152	1202			Process Down 45
	1202	1212			

* For NO_X Indicate whether NO, NO + NO_2, or NO_2 for specific interval.

** Indicate whether time interval is from beginning of first time to beginning of second time or to end of second time (circle one, or describe alternate).

Calculated By: G Gay Date: 10-3-00

CEM DATA REDUCTION - BAG ANALYSIS OR STEADY READINGS

Plant: New. Steel
Location: Bag House Fuels
Date: 10. 3-00

Parameter: SO_2, CO_2, O_2, NO_X*, THC, CO
Operator: G Gray
Project #: 5620.001

$$\text{Pollutant, ppm/\%} = \frac{\text{(Chart Oivision - b)}}{m} = \frac{\text{(CD -)}}{\text{( )}}$$

Run #	Time** (24-Hr)		Average Chart Division	Concentration	Comments
2	1629	1639	11	97	
	1639	1649	11	97	
	1649	1659	6	45.1	
	1659	1709	2.0	3.5	
	1709	1719	2.0	3.5	
	1719	1729	1.0	1.0	
	1729	1739	1.5	1.5	
	1739	1749	5.8	43.0	
	1749	1759	1.0	1.0	
	1759	1809	1.5	1.5	
	1809	1819	1.2	1.2	
	1819	1829	8	65.9	
	1829	1839	22	211	
	1839	1849	10	86.7	
	1849	1859	18	169.8	
	1859	1909	13	117	
	1909	1919	10	86.6	
	1919	1929	3	23.4	58.6 Avg

• For NO_X indicate whether NO, NO + NO_2, or NO_2 for specific interval.

** Indicate whether time interval is from beginning of first time to beginning of second time or to end of second time (circle one. or describe alternate).

Calculated By: G Gray Date: 10-3-00

DAILY CEM CALIBRATION AND PERFORMANCE EVALUATION

Plant: New Port Steel
Location: Bag House Inlet
Date: 10-4-00
Operator: GGM
Project #: 5620-001
Time, Pretest: _____ Post-test: _____
Run #: _____

Parameter: SO_2, CO, O_2, NO_X, THC
Monitor: ppm or %
Span Value: 100
Chart Scale: 1015
Pbar, in. Hg.: 29.68
Ambient Temp., F: _____

Cyl. #	Cal. Gas Conc., ppm or %	Calibrations (Chart Divisions) 700 10:40 @ 12:00 1845 1623				Concentration Predicted By Equation*	Analyzer Calibration Error,** % of Span	Drift,*** % of Span
	0	0	0	0	0	-12.0		
	300.2	32	33		33.5	316		
	600.6	60	61		61.5	604		
	896.4	87.6	87.5	86.5	86.5 87	888		

* Perform linear regression of pretest cal. gas concentration vs. chart divisions to determine the following equation:

$y = mx + b$ x = ppm y = chart divisions

For Data Reduction:

$$\text{Pollutant, ppm/\%} = \frac{(\text{Chart Division} - b)}{m} = \frac{(CD - 1.1929)}{(.09727)}$$

Correlation Coefficient = .9999

$$\text{** Analyzer cal. error, \% cal. gas value} = \frac{(\text{Cal. gas conc.} - \text{conc. predicted}) \times 100}{\text{Cal. gas value, ppm}}$$

Acceptable limit = ≤ 2% of calibration gas value (≤ 5% for THC)

$$\text{*** Drift, \% Span} = \frac{(\text{Post-test cal. response} - \text{initial cal. response}) \times 100}{\text{Span value}}$$

Acceptable limit ≤ 3% of span
Minimum detectable limit = 2% of span or _____ ppm or % (circle one)
Maximum zero drift = _____ % of span or _____ ppm or % (circle one)
Maximum calibration drift = ____ % of span or _____ ppm or % (circle one)

COMMENTS: Pretest or post-test (circle one) calibration used to quantitate sample data. Post-test is used if drift exceeds limits and if post-test yields higher concentrations.

CEM DATA REDUCTION - BAG ANALYSIS OR STEADY READINGS

Plant: New Boat Steel
Location: Bag House Fugeet
Date: 10-4-00

Parameter: SO_2, CO_2, O_2, NO_X*, THC, CO
Operator: G Gay
Project #: 5620.001

$$\text{Pollutant, ppm/\%} = \frac{(\text{Chart Division} - b)}{m} = \frac{(CD - 1.1929)}{(.09727)}$$

Run #	Time** (24-Hr)	Average Chart Division	Concentration	comments
3	800 810	8.5	75	
	810 820	15	141	
	820 830	15	141	
	830 840	17	162	
	840 850	9	80	
	850 900	1	1.9	
	900 910	1.5	3.1	
	910 920	4	28.8	
	920 930	8	69.9	
	930 940	8	69.9	
	940 950	20	193	
	950 1000	25	244	100
	1000 1010			

109

• For NO_X indicate whether NO, NO + NO_2, or NO_2 for specific interval.

** Indicate whether time interval is from beginning of first time to beginning of second time or to end of second time (circle one, or describe alternate).

Calculated By: [illegible] Date: 10-4-00

CEM DATA REDUCTION - BAG ANALYSIS OR STEADY READINGS

Plant: Newport Steel
Location: Bag House Inlet
Date: 10-4-00

Parameter: SO_2, CO_2, O_2, NO_X*, THC, CO
Operator: Gray
Project #: 56 20.001

$$\text{Pollutant, ppm/\%} = \frac{(\text{Chart Division} - b)}{m} = \frac{(CD - 1.1925)}{(.09727)}$$

Run #	Time** (24-Hr)		Average Chart Division	Concentration	Comments
3	1045	1055	10	90	
	1055	1105	15	142	
	1105	1115	9	80	
	1115	1125	9	80	
	1125	1135	3	18.5	
	1135	1145	5	39	
	1145	1155	7	59.6	71.7
	1155	1200	4	28	

• For NO_X indicate whether NO, NO + NO_2, or NO_2 for specific interval.

** Indicate whether time interval is from beginning of first time to beginning of second time or to end of second time (circle one, or describe alternate).

Calculated By: [illegible] Date: 10-4-00

CEM DATA REDUCTION - BAG ANALYSIS OR STEADY READINGS

Plant: New Post Steel
Location: Bag House Inlet
Date: 10-4-00

Parameter: SO_2, CO_2, O_2, NO_X*, THC, CO
Operator: G Gar
Project #: 5620.001

$$\text{Pollutant, ppm/\%} = \frac{(\text{Chart Division} - b)}{m} = \frac{(CD - 1.1915)}{(109727)}$$

Run #	Time** (24-Hr)	Average Chart Division	Concentration	comments
4	1245 1255	1.5	3.15	
	1255 1305	8	70	
	1305 1315	15	141	
	1315 1325	10	90	
	1325 1335	13	121	
	1335 1345	25	244	
	1345 1355	12	111	103
STOP TO CAL	1355 1405	2	8.2	
	1422 1432	15	141	
	1432 1442	32	316	
	1442 1452	2.0	8.2	
	1452 1502	1.5	1.5	
	1502 1512	20	193	
	1512 1522	2.0	8.2	
	1522 1532	4.5	33	
	1533 1542	15	141	
	1542 1552	15	141	
	1552 1602	15	141	

* For NO_X indicate whether NO, NO + NO_2, or NO_2 for specific interval.

** Indicate whether time interval is from beginning of first time to beginning of second time or to end of second time (circle one, or describe alternate).

Calculated By: G Gar Date: 10-4-00

CEM DATA REDUCTION - BAG ANALYSIS OR STEADY READINGS

Plant: New Boyt Steel
Location: Bag House Exhaust
Date: 10-9-00

Parameter: SO_2, CO_2, O_2, NO_X*, THC, (CO)
Operator: G Gay
Project #: 5620.001

$$\text{Pollutant, ppm/\%} = \frac{(\text{Chart Division - b})}{m} - \frac{(\text{CD - 1.1926})}{(.09727)}$$

Run #	Time** (24-Hr)	Average Chart Division	Concentration	Comments
	1602 1612	15	141	
	1612 1622	10	90.5	131

* For NO_X Indicate whether NO, NO + NO_2, or NO, for specific interval.

** Indicate whether time interval is from beginning of first time to beginning of second time or to end of second time (circle one, or describe alternate).

Calculated By: G Gay Date: 10-9-00

23

CEM Calibration Data Sheet

PES, Inc.
5209 E. Kemper Rd.
Cincinnati, OH **45249**
513.489.6611
www.pes.com

Company: NewPort Steel
Location: Bag House Inlet
Project No.: 5620.001

CEM Operator: G Gay
Date: 10-4-00

	Cal Gas Conc.	Direct Calibration Response ppm / %	Direct Calibration % Error	System Calibration: Pretest Run 1 Response ppm / %	Pretest Run 1 % Bias	Post Test Run 1 Response ppm / %	Post Test Run 1 % Drift	Post Test Run 2 Response ppm / %	Post Test Run 2 % Drift	Post Test Run 3 Response ppm / %	Post Test Run 3 % Drift	Comments
		Time:		Time:		Time:		Time:		Time:		
THC Zero		700		10:00		12:00		1405		1625		
THC Low												
THC Mid												
THC High												
NOx Zero	0		0.12	.02	.62			.12		0.19		
NOx Low												
NOx Mid	49.47		51.06	49.1						48.14		48.14
NOx High	90.7		90.90	88.60	90.46	90.83		90.28		87.32		
CO Zero	0		1.12	1.03		1.07		1.03		.04		
CO Low	300.2		319.75	332.17						334.68		
CO Mid	600.6		601.67	614.14						618.66		
CO High	896.4		870.81	873.94		870.16		870.52		870.3		
CO_2 Zero												
CO_2 Mid												
CO_2 High												
O_2 Zero												
O_2 Mid												
O_2 High												
SO_2 Zero												
SO_2 Mid												
SO_2 High												

CEM Calibration Data Sheet

PES, Inc.
5209 E. Kemper Rd.
Cincinnati, OH 45249
513.489.6611
www.pes.com

Company: New Port Steel
Location: Bag House Inlet
Proiect No.: 56 20.001

CEM Operator: G Gan
Date: 10-3-00

	Cal Gas Conc	Direct Calibration Response ppm / %	Direct Calibration % Error	System Calibration: Pretest Run 1 Response ppm / %	Pretest Run 1 % Bias	Post Test Run 1 Response ppm / %	Post Test Run 1 % Drift	Post Test Run 2 Response ppm / %	Post Test Run 2 % Drift	Post Test Run 3 Response ppm / %	Post Test Run 3 % Drift	Comments
		Time:		Time:		Time:		Time:		Time:		
THC Zero				1211		319		1932				
THC Low												
THC Mid												
THC High												
NOx Zero	0	0	.14		0.7	.20			.20			
NOx Low	—											
NOx Mid	49.49	50.2	50.27		52.51	51.9			52.50			
NOx High	90.7	90.79	90.79		95.03	90.12			95.10			
CO Zero		4.69	4.54		4.47	4.15 .99		1932	.95			
CO Low	300.2	322.19	322.19		317.12	378.72			329.66			
CO Mid	600.6	612.80	611.71		608.2	6[illegible].41			610.23			
CO High	896.4	898.4	899.2		891.71	868.36			873.92			
CO_2 Zero												
CO_2 Mid												
CO_2 High												
O_2 Zero												
O_2 Mid												
O_2 High												
SO_2 Zero												
SO_2 Mid												
SO_2 High												

RATA CLASS

Scott Specialty Gases

Dual-Analyzed Calibration Standard

1290 COMBERMERE STREET, TROY, MI 48083

Phone: 248-589-2950 Fax: 248-589-2134

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

SCOTT SPECIALTY GASES
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: 103-00-224
Project No.: 05-63123-001

Customer

PACIFIC ENVIRONMENTAL SERVICES, INC
DOUG ALLEN
7209 E. KEMPER RD
CINCINNATI OH 45249-1030

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure #G1; September. 1997.

Cylinder Number: ALM058040 Certification Date: 6/23/00 Exp. Date: 6/23/2002

Cylinder Pressure : 1900 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY++	TRACEABILITY
NITRIC OXIDE	49.49	PPM	+/- 1%	Direct NIST and NMi
NITROGEN - OXYGEN FREE		BALANCE		
TOTAL OXIDES OF NITROGEN	52.081	PPM		Reference Value Only

*** Do not use when cylinder pressure is below 150 psig.

** Analytical accuracy is based on the requirements of EPA Protocal procedure G1, September 1997.
Product certified as +/- 1% analytical accuracy is directly traceable to NIST or NMI standards.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
SRM 1683B	11/01/01	CAL013527	47.99 PPM	NITRIC OXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
HORIBA/OPE235/563956034	06/23/00	CHEMILUMENECENCE

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

NITRIC OXIDE

First Triad Analysis

Date:06/16/00	Response Unit:MV	
Z1=0.00000	R1=100.0000	T1=48.50000
R2=100.0000	Z2=0.00000	T2=48.80000
Z3=0.00000	T3=48.60000	R3=IW.OOOO
Avfl. Concentration:	49.32	PPM

Second Triad Analysis

Date: 06/23/00	Response Unit: MV	
Z1=0.00000	R1=100.0000	T1=48.90000
R2=100.0000	Z2=0.00000	T2=48.90000
Z3=0.00000	T3–49.10000	R3=100.0000
Avg. Concentration:	49.66	PPM

Calibration Curve

Concentration=A+Bx+Cx2+Dx3+Ex4	
r=.999997	1683B
Constants:	A=-0.04993
B=1.031701	C=-0.00034
D=0	E=0

APPROVED BY: _____

PRAXAIR

Praxair Distribution, Inc.
145 Shimersville Road
Bethlehem. PA 18015
Tel. (610) 691-2474
Fax (610) 758-8384

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER PRAXAIR CINCINNATI

P.O NUMBER 936353-00

REFERENCE STANDARD

COMPONENT	NIST SRM NO.	CYLINDER NO.	CONCENTRATION
NITRIC OXIDE 99 8 PPM VS	1684B	CAL-013252	97.8 PPM

ANALYZER READINGS

R = REFERENCE STANDARD Z = ZERO GAS C = GAS CANDIDATE

1. COMPONENT NITRIC OXIDE 99.8 PPM VS. ANALYZER MAKE-MODEL-S/N TECO MODEL 42C 42CH-S7352-312

ANALYTICAL PRINCIPLE Chemiluminescence LAST CALIBRATION DATE 09/03/99

FIRST ANALYSIS DATE 09/01/99 SECOND ANALYSIS DATE 09/08/99

Z 0	R 99.9	C 90.9	CONC. 90.6	Z 0	R 100.0	C 90.9	CONC. 90.7
R 100.4	Z 0	C 91.0	CONC. 90.7	R loo.1	Z 0	C 91.0	CONC. 90.8
Z 0	C 90.9	R 100.2	CONC. 90.6	Z 0	C 91.0	R 100.0	CONC. 90.8
U/M PPM		MEAN TEST ASSAY	90.6	UIM PPM		MEAN TEST ASSAY	90.8

VALUES NOT VALID BELOW 150 PSIG

UNCERTAINTY OF NITRIC OXIDE: ± 0.6 PPM

THIS CYLINDER NO. CC76285
HAS BEEN CERTIFIED ACCORDING TO SECTION 2 2
OF TRACEABILITY PROTOCOL NO. EPA-600/R97/121
PROCEDURE G1
CERTIFIED ACCURACY ± 1 % NIST TRACEABLE
CYLINDER PRESSURE 2000 PSIG
CERTIFICATION DATE 09/08/99
EXPIRATION DATE 09/08/01 TERM

CERTIFIED CONCENTRATION

NITRIC OXIDE	90 7 PPM
NITROGEN	BALANCE
NOx (FOR REFERENCE ONLY)	90 7 PPM

ANALYZED BY JOHN PRIBISH

CERTIFIED BY JASON BEARY

PRAXAIR

Praxair Distribution, Inc.
145 Shimersville Road
Bethlehem, PA 18015
Tel. (610) 691-2474
Fax (610) 758-8384

CERTIFICATE OF ANALYSIS .

PRODUCT NUMBER: NI COXP-AS CUSTOMER: PRAXAIR CINCINNATI

PRODUCT DESCRIFTION: 300 PPM CARBON MONOXIDE, BALANCE NITROGEN-SIZE AS

CUSTOMER ORDER NUMBER: 987890-00 * PRIMARY STANDARD *

CYLINDER SERIAL NUMBER: CC103091

FILL DATE: JANUARY 23, 1999

COMPONENTS	REQUESTED CONCENTRATION	PREPARATION TOLERANCE	CERTIFIED CONCENTRATION
CARBON MONOXIDE	300 PPM	±5%	300.2 PPM
NITROGEN	BALANCE	-	BALANCE

ANALYTICAL ACCURACY: ±1%

CYLINDER VOLUME: 135 CUBIC FEET

CYLINDER PRESSURE: 2000 PSIG

CGA VALVE NUMBER: 350

METHOD OF ANALYSIS: SPECIFIC CARBON MONOXIDE ANALYZER

Certified concentrations were **determined** by **individual analysis.**

DATE: JANURAY 28, **1999** **ANALYZED BY: DARLENE SANTIAGO**

CERTIFIED MASTER CLASS

Scott Specialty Gases
1290 COMBERMERE STREET, TROY, MI 48083
Phone: 248-589-2950 Fax: 248-589-2134

Single-Certified Calibration Standard

CERTIFICATE OF ACCURACY: Certified Master Class Calibration Standard

Product information
Project No.: 05-63123-004
Item No.:
P.O. No.: 103-00-224

Cylinder Number: AAL9143
Cylinder Size: AL
Certification Date: 6/15/2000
Expiration Date: 6/15/2003

Customer

PACIFIC ENVIRONMENTAL SER
DON ALLEN
560 HERNDON PARKWAY
SUITE 200
HERNDON, VA 20170-5240

CERTIFIED CONCENTRATION

Component Name	Concentration (Moles)		Accuracy (+/-%)
CARBON MONOXIDE	450.	PPM	2
NITROGEN		BALANCE	

TRACEABILITY

Traceable To

NIST

APPROVED BY: _____ DATE: 6-16-00

PRAXAIR

Praxair Distribution, Inc.
145 Shimersville Road
Bethlehem, PA 18015
Tel. (610) 691-2474
Fax (610) 758-8384

CERTIFICATE OF ANALYSIS

PRODUCT NUMBER: NI COXP-AS CUSTOMER: PRAXAIR CINCINNATI

PRODUCT DESCRIPTION: 600 PPM CARFON MONOXIDE, BALANCE NITROGEN-SIZE AS

CUSTOMER ORDER NUMBER: 987890-00 * PRIMARY STANDARD *

CYLINDER SERIAL NUMBER: CC102910

FILL DATE: JANUARY 23, 1999

COMPONENTS	REQUESTED CONCENTRATION	PREPARATION TOLERANCE	CERTIFIED CONCENTRATION
CARBON MONOXIDE	600 PPM	±5%	600.6 PPM
NITROGEN	BALANCE		BALANCE

ANALYTICAL ACCURACY: ±1%

CYLINDER VOLUME: 135 CUBIC FEET

CYLINDER PRESSURE: 2000 PSIG

CGA VALVE NUMBER: 350

METHOD OF ANALYSIS: SPECIFIC CARBON MONOXIDE ANALYZER

Certified concentrations were determined by individual analysis.

DATE: JANURAY 28, 1999 ANALYZED BY: DARLENE SANTIAGO

PRAXAIR

Praxair Distribution, Inc.
145 Shimersville Road
Bethlehem. PA 18015
Tel (610) 691-2474
Fax (610) 758-8384

CERTIFICATE OF ANALYSIS

PRODUCT NUMBER: NI COXP-AS

CUSTOMER: PRAXAIR WHSE CINCINNATI

PRODUCT DESCRIPTION: 896 PPM CARBON MONOXIDE BALANCE NITROGEN – SIZE AS

CUSTOMER ORDER NUMBER: 212761-00

CYLINDER NUMBER: SA2558

• PRIMARY STANDARD*

FILL DATE: JUNE 07,1999

COMPONENTS	SPECIFICATIONS	PREPARATION TOLERANCE	CERTIFIED CONCENTRATION
CARBON MONOXIDE	896 PPM	+/-5%	896.4 PPM
NITROGEN	BALANCE		BALANCE

Certified concentration was determined by individual analysis.

ANALYTICAL ACCURACY: +/-1%

CYLINDER VOLUME: 135 Cubic Feet

CGA VALVE NUMBER: 350

CYLINDER PRESSURE: 2000 psig

METHOD OF ANALYSIS: SPECIFIC CARBON MONOXIDE ANALYZER

CERTIFICATION DATE: JUNE 09,1999

ANALYZED BY: DARLENE SANTIAGO

It is recommended that cylinders not be depleted below 50 psig unless otherwise indicated.

14m80cm
0 1 2 3 4 5 6 7 8 9 10
CHART NO. 893YAA/NN
5 4 3 2 1 0 1 2 3 4 5
15m

10
9
8
7
6
5
4
3
2
1
0
14m60cm
0
1
2
3
4
5
6
7
8
9
10
CHART NO. 89529AA/NN

10:07
10:18 P.1
10:07 on line
7:00
7:00
6:00.6
8:46.4
14×60cm
CHART No. JAA/No.

1132
1128
1112
1108
1052
1047
1037
1032
1027
1022
1 HR
CHART NO. B952BAA/NH
(17787)

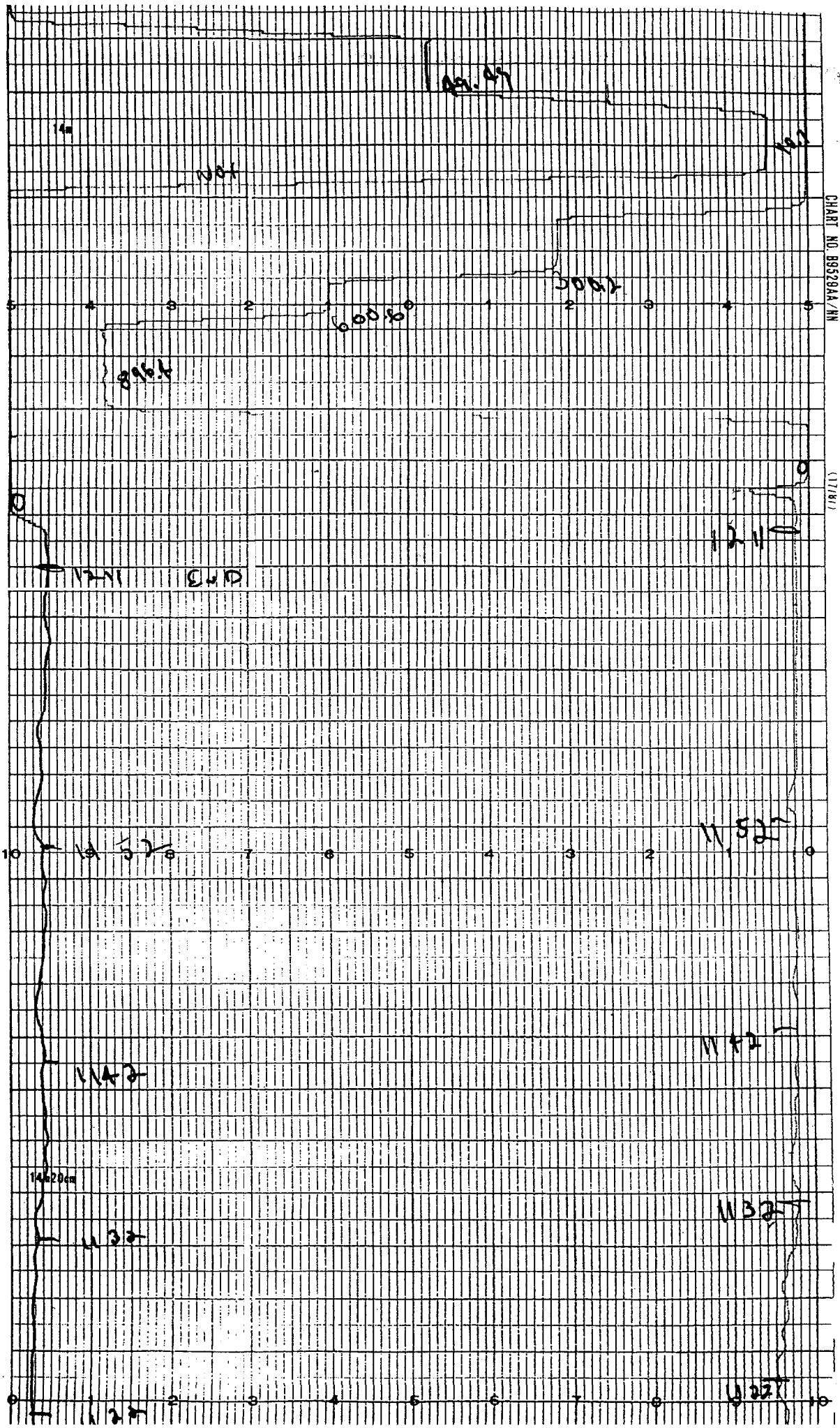


CHART NO. B9329AA/NN
(17/8)
14m
14m20cm
END

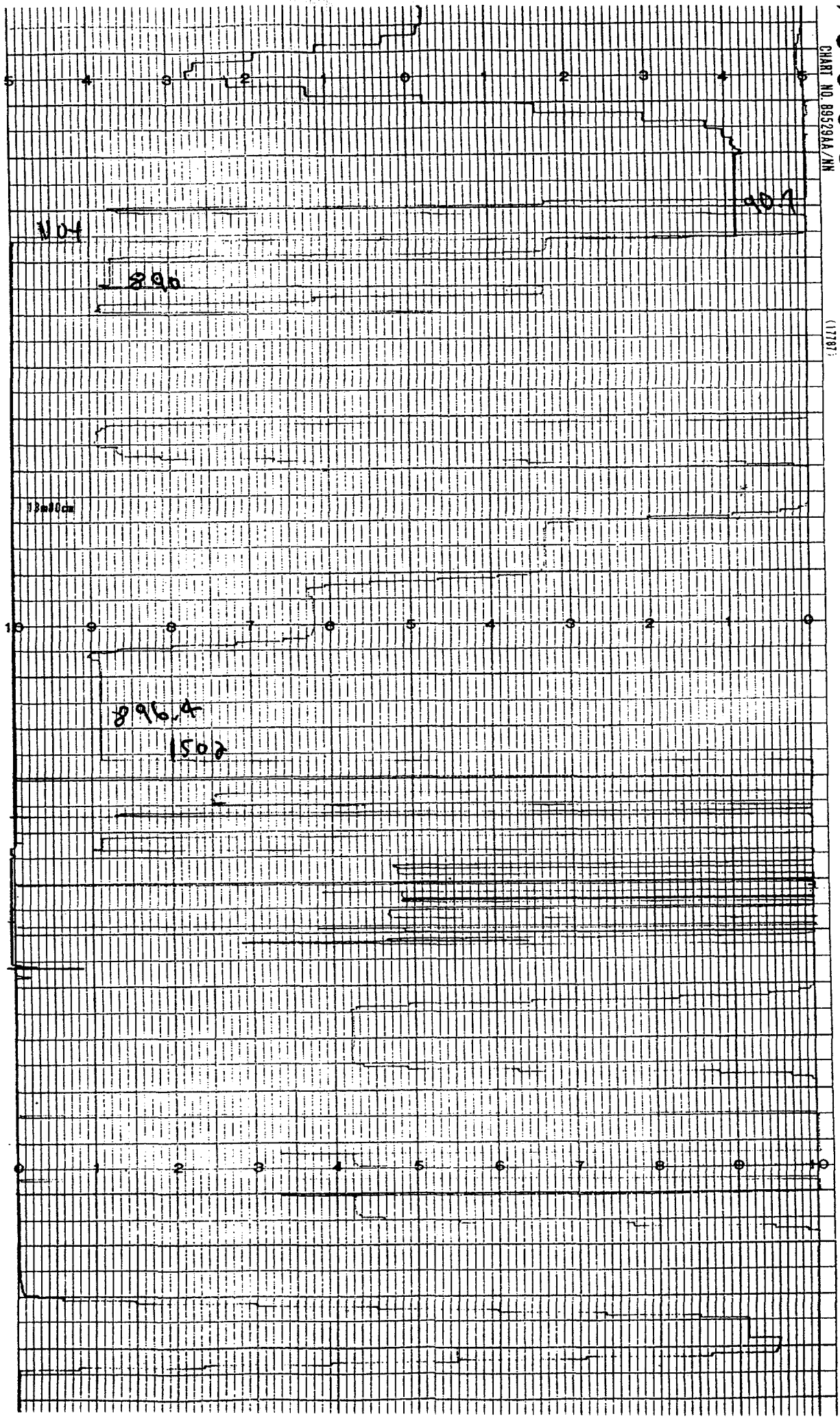
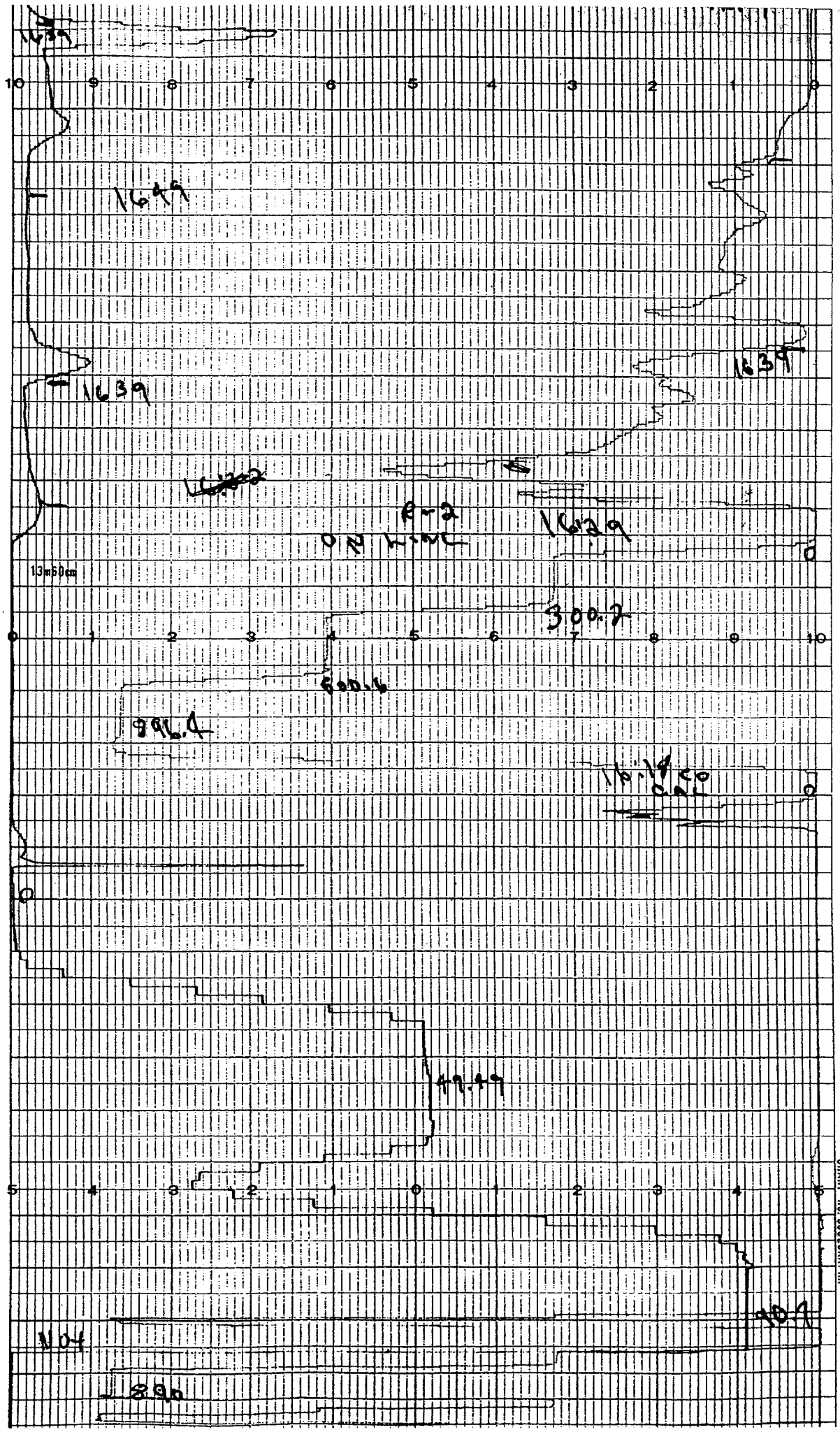
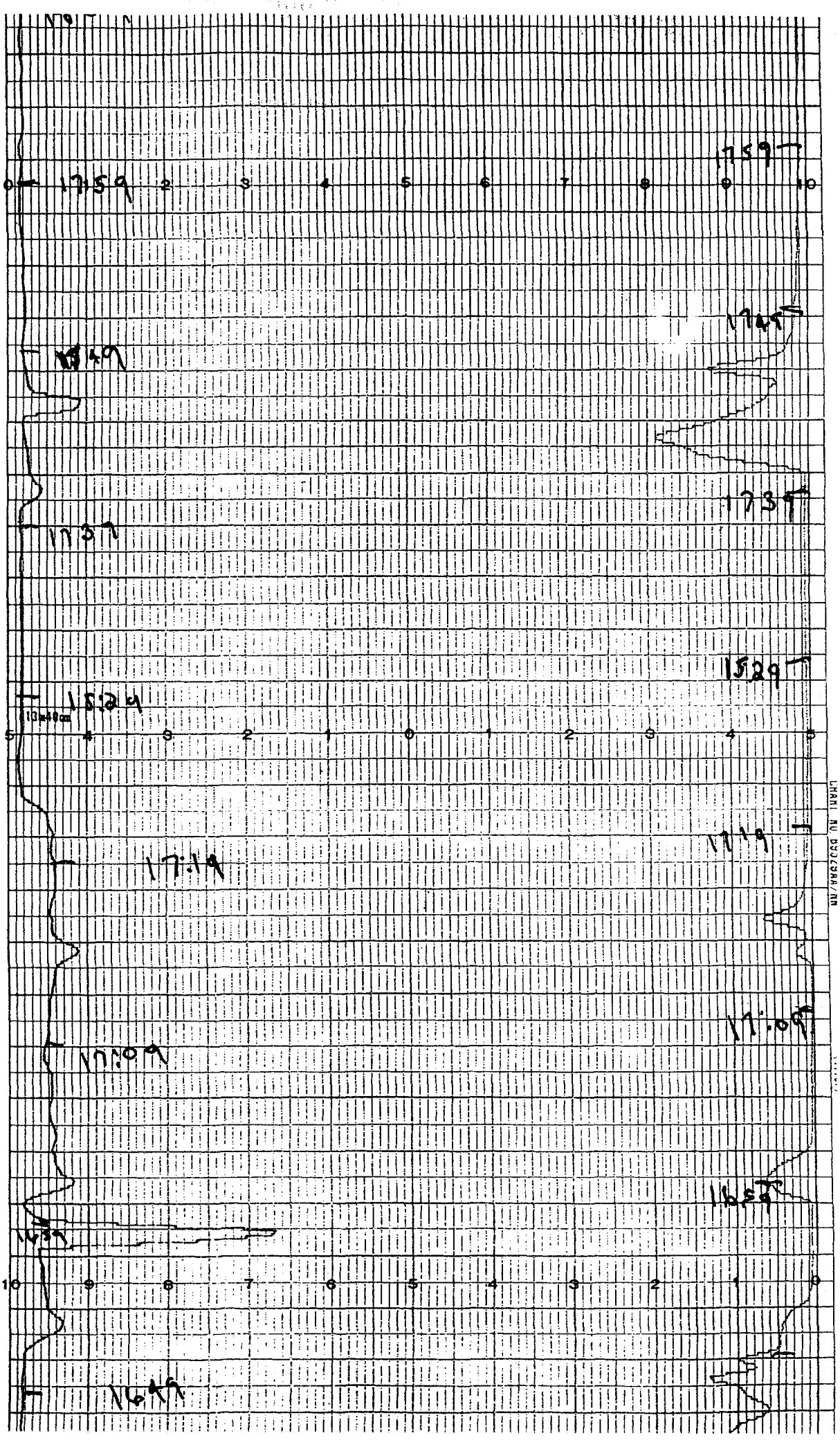
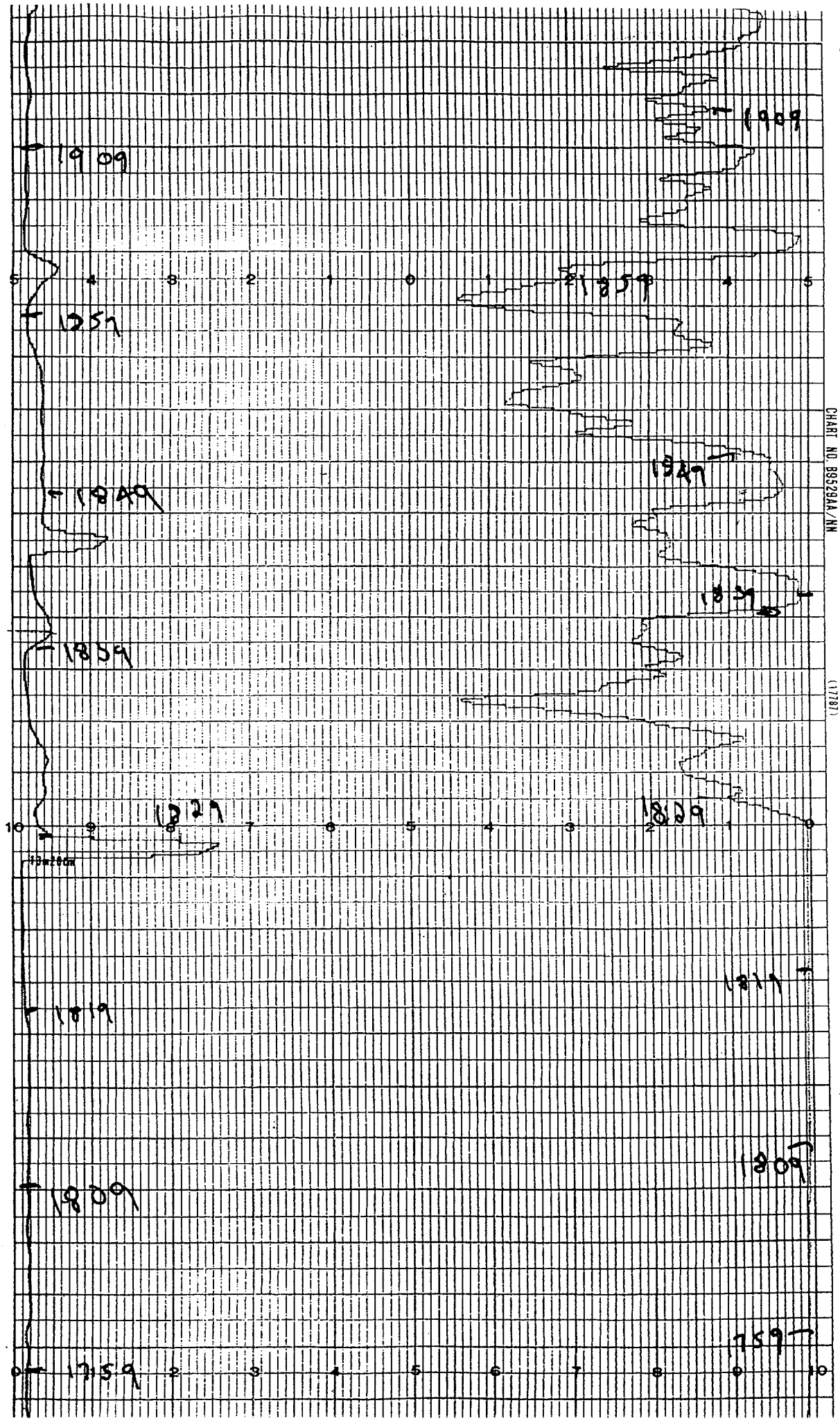


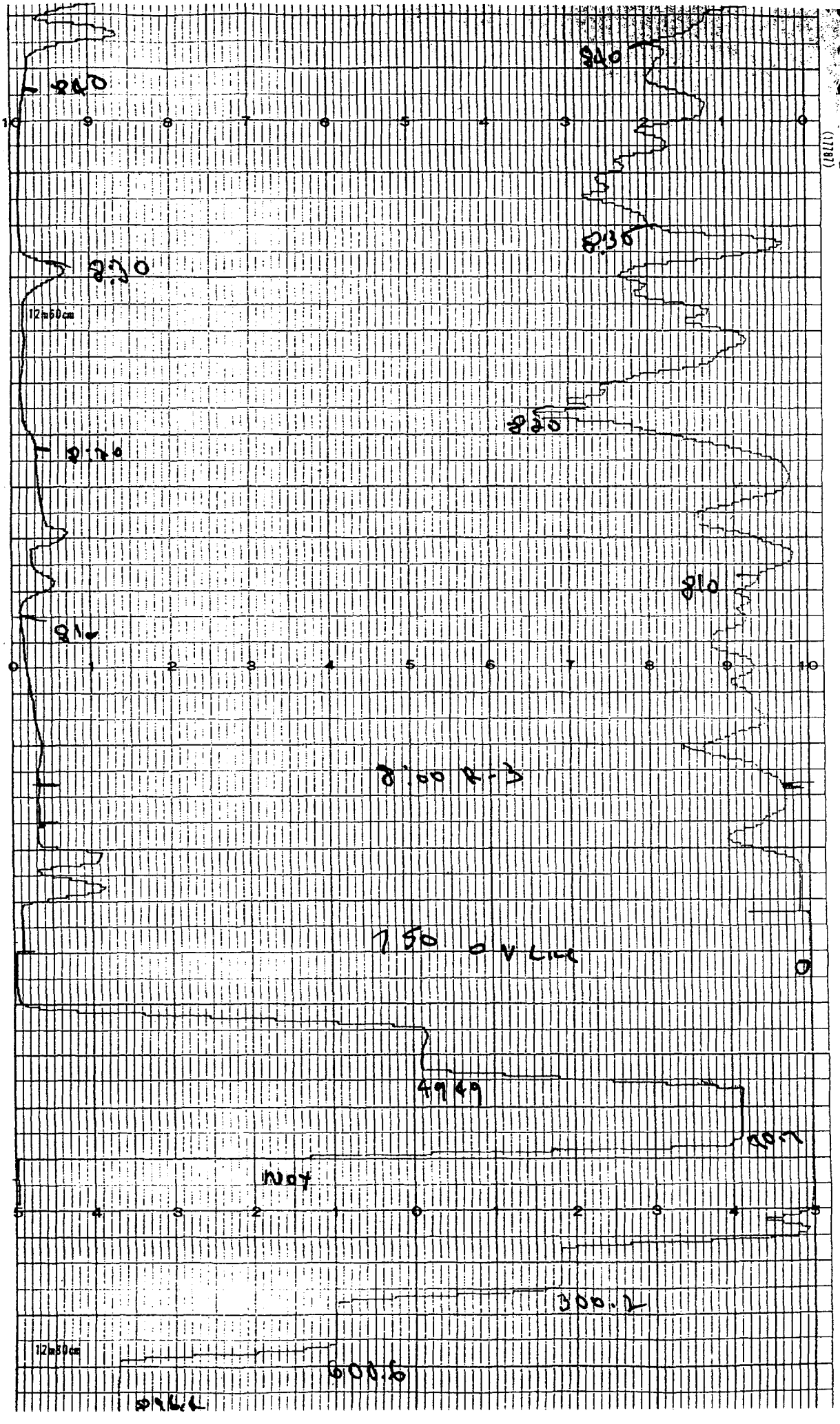
CHART NO. 89529AA/MN
(17787)
5 4 3 2 1 0 1 2 3 4 5
907
N04
896
13mm/0cm
10 9 8 7 6 5 4 3 2 1 0
896.4
1502
0 1 2 3 4 5 6 7 8 9 10


1639
1639
1639
1639
1639
ON LINE
300.2
800.6
992.4
49.99
90.4
800
13m60cm
CHART NO. 8B3/2DNN/NM

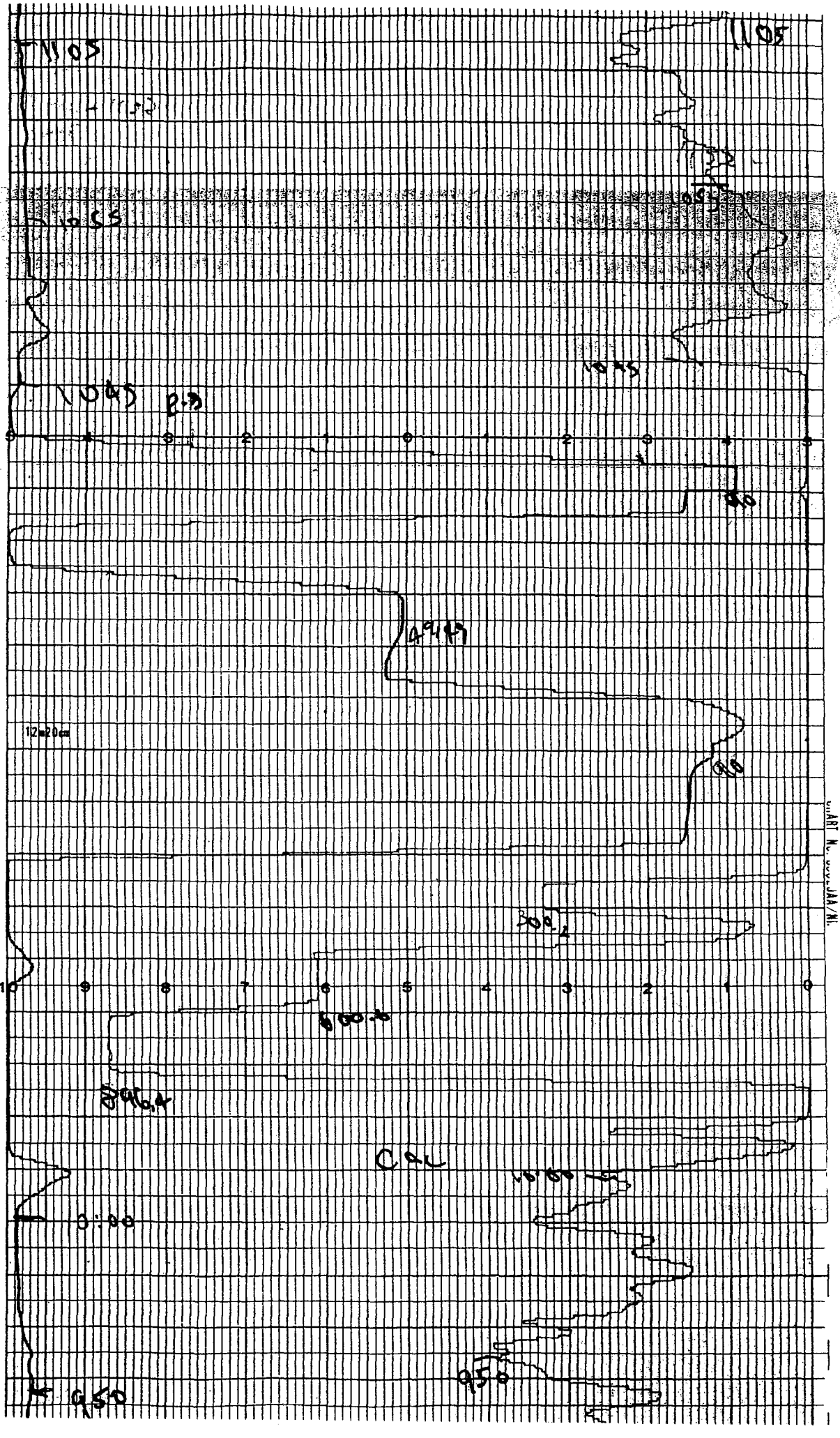

1759
1749
1739
1529
1719
1709
1659
1649
1759
1749
1739
1529
1719
1709
1659
1649
0 1 2 3 4 5 6 7 8 9 10
5 4 3 2 1 0 1 2 3 4 5
10 9 8 7 6 5 4 3 2 1 0

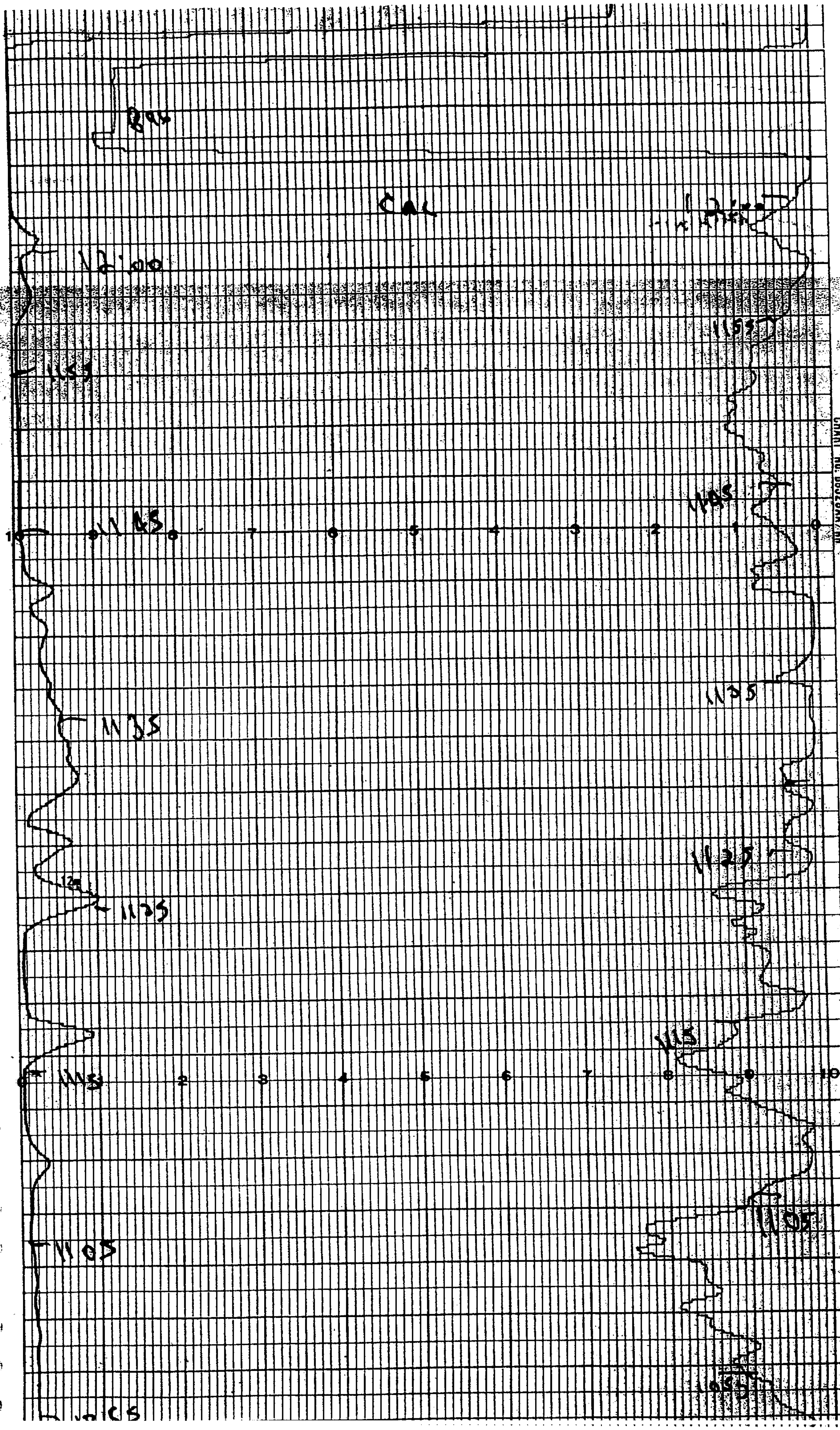

1909
1859
1809
1759
1909
1859
1829
1829
1809
1809
1759
1829
1829
1811
1809
1809
1759
1809
1859
1909
1829
1829
1811
1809
1809
1759
CHART NO. B8529AA/NN
(17781)

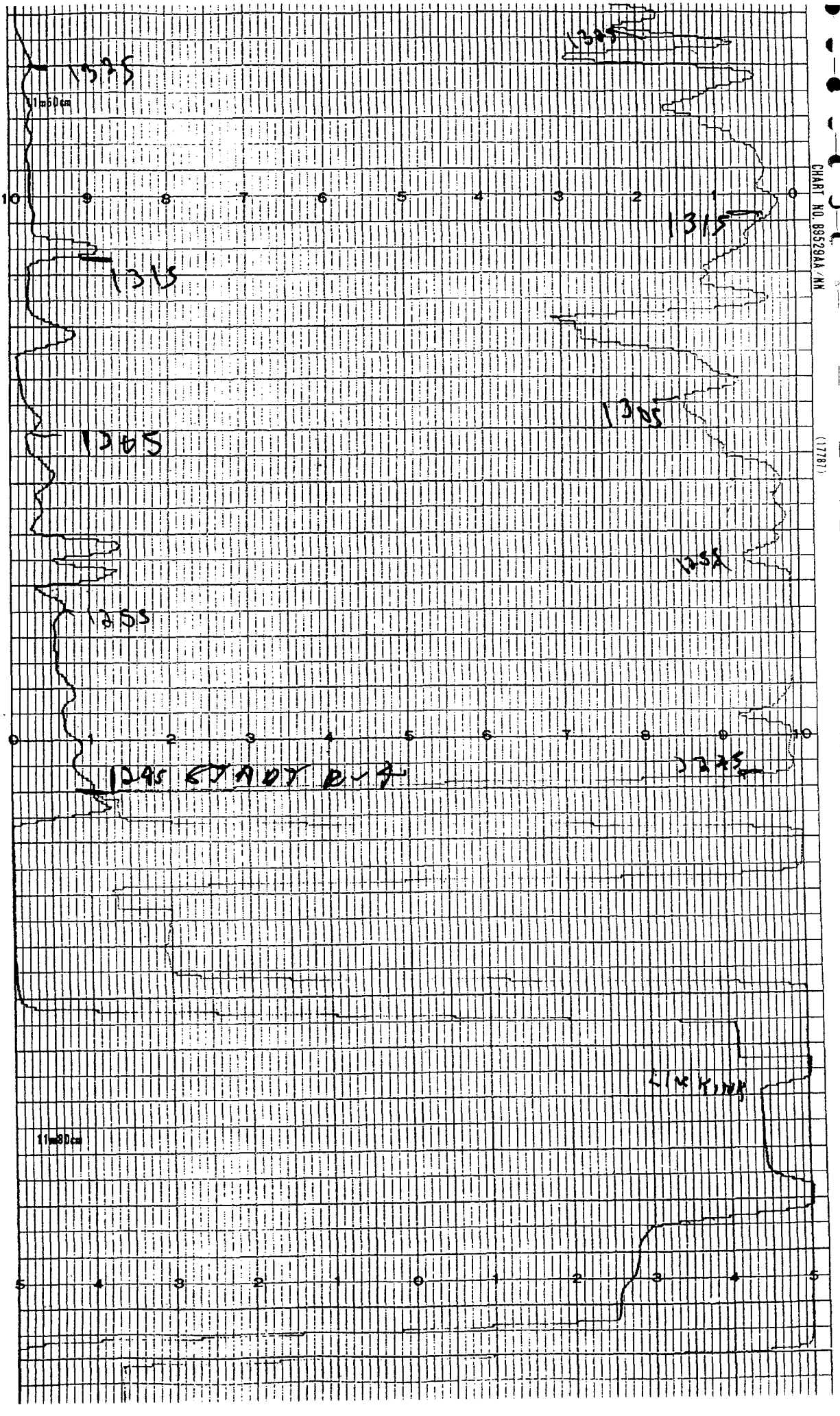
12×30cm
600.6
300.2
1929 Eco
1919
CHART NO. 8952

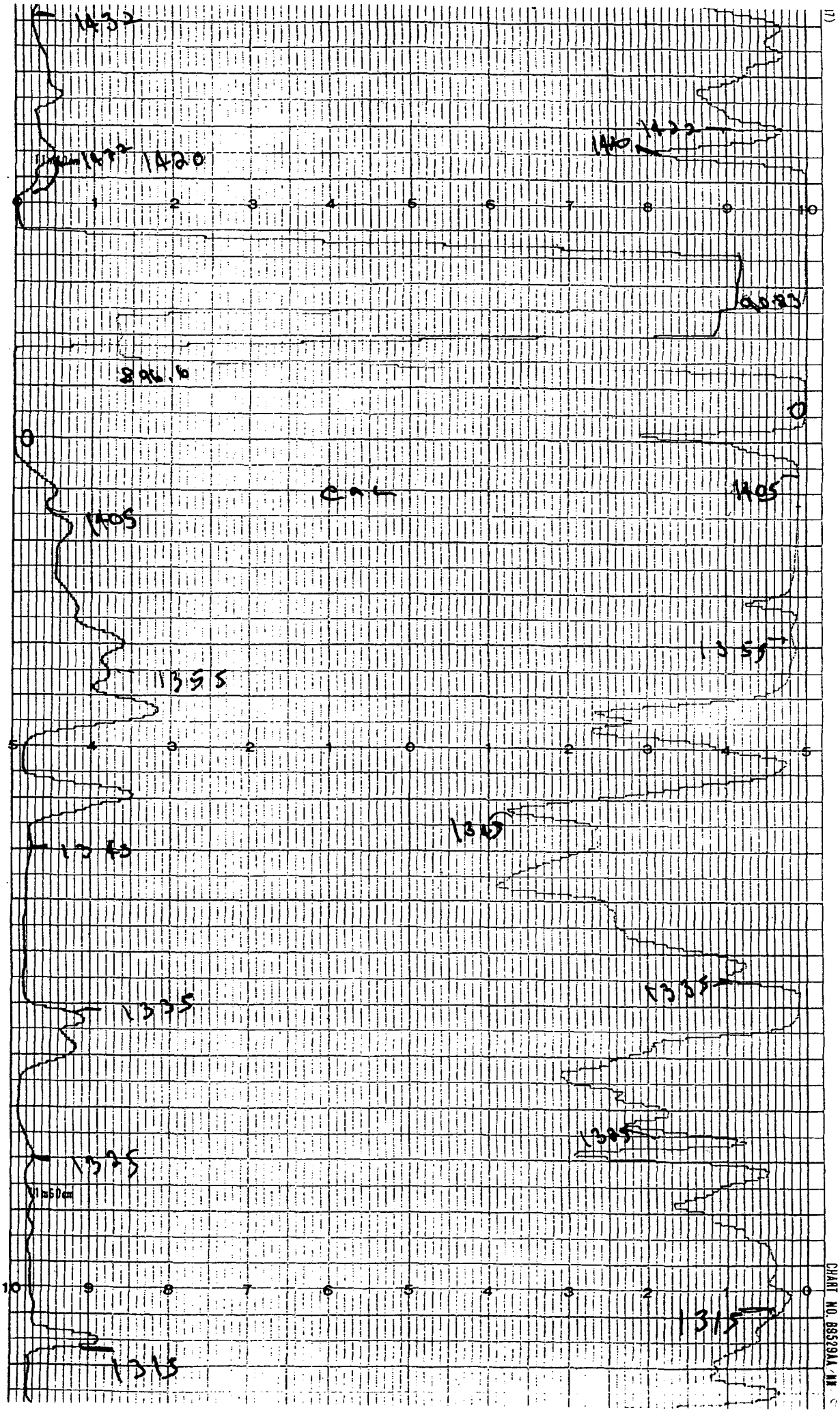

12m60cm
12m60cm
750 0 V LIGHT
4949
300.2
600.6

950
940
930
920
910
900
890
880
0 1 2 3 4 5 6 7 8 9 10
12m40cm
CHART NO. 8952BAA/NN
(1778T)


1105
1055
1045
8.0
9.0
12=20cm
300.4
800.4
896.4
C.a.L
1000
950
950


CAL
12:00
1155
1145
1135
1125
1115
1105
1055
12:00
1155
1145
1135
1125
1115
1105
1055
10 9 8 7 6 5 4 3 2 1 0
0 1 2 3 4 5 6 7 8 9 10
CHART NO. B0528AA/NN
(1787)


1325
11m50cm
10 9 8 7 6 5 4 3 2 1 0
1315
1315
1305
1305
1295
1285
1285
0 1 2 3 4 5 6 7 8 9 10
1295 START
1275
11m30cm
5 4 3 2 1 0 1 2 3 4 5
CHART NO. 83529AA/MN
(1778)


1432
1420
1420
1423
1423
1405
1405
1355
1355
1345
1345
1335
1335
1325
1325
1315
1315
CHART NO. 88528A MR

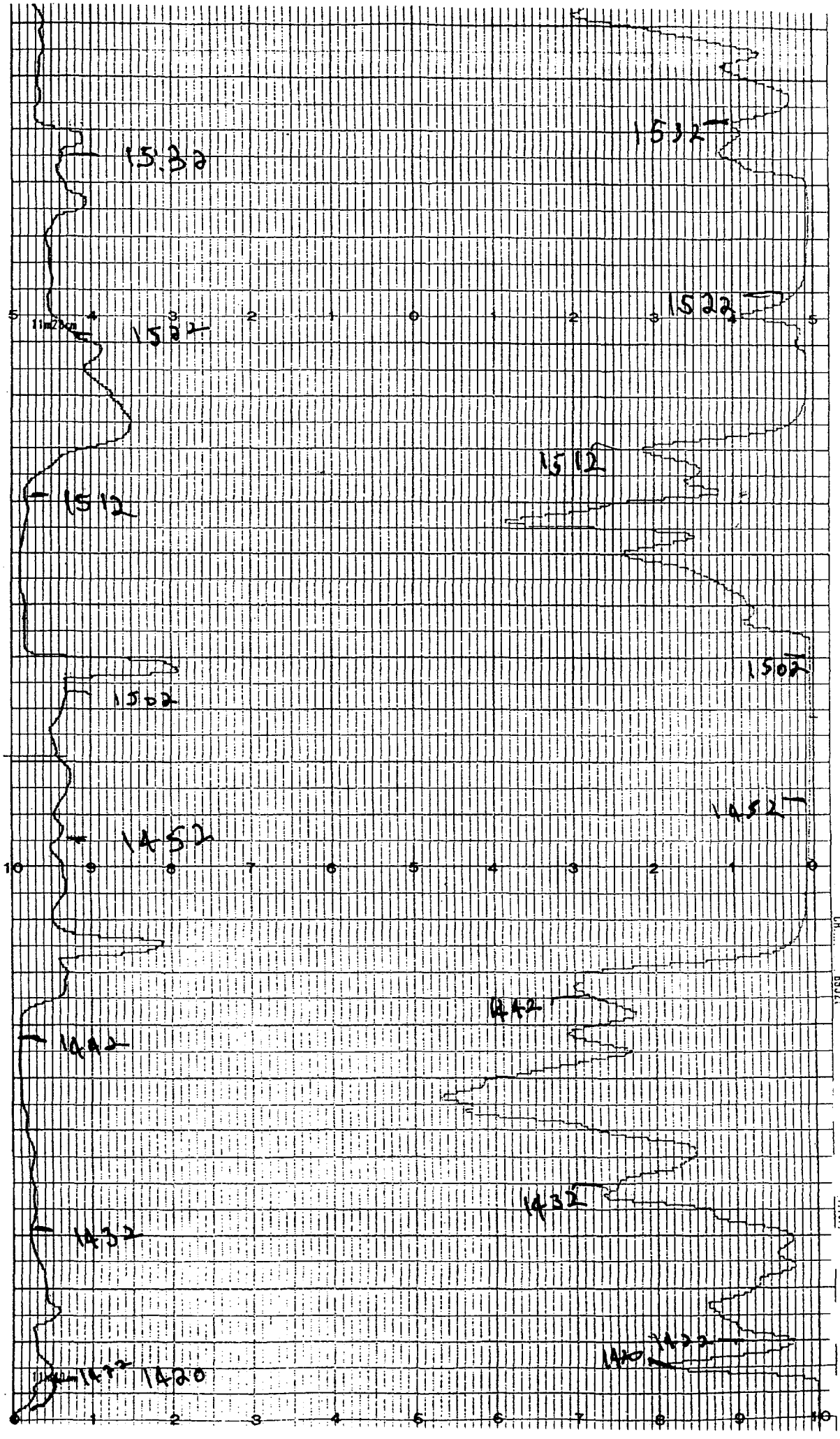

1532
1522
1512
1502
1452
1442
1432
1420
1532
1522
1512
1502
1452
1442
1432
1420
5 4 3 2 1 0 1 2 3 4 5
10 9 8 7 6 5 4 3 2 1 0
1 2 3 4 5 6 7 8 9 10

CHART NO. B9529AA/NN (17787)

Appendix D

Process Data

PRODUCTION WORKSHEET

Heats During Tests

Date	Heat No.	Tons	Tap-Tap Time, min	Operating Time, hr	Tons/Hr
TEST 1					
3-Oct	6535	94.8	65	1.1	87.5
	6536	93.4	67	1.1	83.6
	6537	92.4	137	2.3	40.5
	Totals	**280.6**	**269**	**4.5**	**62.6 tons/hr**
TEST 2					
4-Oct	6548	92.8	70	1.2	79.5
	6549	94.4	89	1.5	63.6
	6550	95.3	72	1.2	79.4
	6551	94.8	71	1.2	80.1
	Totals	**377.3**	**302**	**5.0**	**75.0 tons/hr**
TEST 3	6551	94.80	71	1.2	80.1
4-Oct	6552	95.20	72	1.2	79.3
	6553	93.00	84	1.4	66.4
	6554	95.40	104	1.7	55.0
	Totals	**378.4**	**331**	**5.5**	**68.6 tons/hr**

10-4-00 , Daily Heat Report

1491
470

Ht #	Grade	Melter	Tap Time	Tap-Tap	Power on	KWH	Oxy.	Gas	Carb.	Tap "T"	Tap C	Tap S	Ladle #	Scp chg	Tap wt	Heat wt.	Adds tap se	Elect+	Al.	Carb	Sil.	Mn	Lime	Delay	
6540	US95	LN3 8+	11:32P	1:27	46.3	42.9	37.3	14.0	4140	3079	4.5	—	8	218	95.5	8+	130	B&C	250	175	374	2472	2018	Auto	92
6541	"	"	12:41	1:09	47.4	44.8	49.8	11.8	4220	3150	5.5	—	6	218.2	91.2	8+	125	—	250	150	374	2473	2022	Auto	91
6542	UN80	"	1:59A	1:18	45.7	42.9	28.6	10.5	4260	3128	5.7	—	8	218.2	91.6	8+	125	—	250	75	382	2573	2019	"	91
6543	"	"	3:03A	1:04	46.7	45.0	32.3	11.5	4220	3063	10.9	—	4	216.2	95.5	8+	125	—	250	0	375	2573	2021	"	92
6544	"	"	4:05A	1:02	46.1	43.9	31.4	11.1	4150	3090	08.1	—	2	218.1	92.2	10T	125	—	250	75	378	2575	2017	"	"
6545	"	"	5:25A	1:20	46.9	44.9	32.8	12.1	4160	3139	10.3	—	6	217.9	95.4	10T	125	—	250	0	350	2576	2000	"	"
6546	"	"	6:32A	1:07	43.7	42.4	23.6	8.8	4140	3030	10.0	—	8	217.2	94.1	10T	12.5	32.8 13.2	250	25	345	2580	2003	"	"
6547	"	RR	7:45A	1:09	45.6	43.2	29.2	9.7	4320	3097	10.8	—	4	225.7	93.2	3T	120	—	250	0	356	2577	2009	"	92
6548	"	"	8:54A	1:10	44.0	44.9	40.1	15.2	4200	3091	10.2	—	6	225.2	92.8	3T	120	—	250	0	379	2572	2021	"	91
6549	"	"	10:12	1:29	49.1	45.9	29.8	9.7	4300	3105	09.1	—	3	218.0	94.4	5T	115	—	250	50	380	2371	2019	"	91
6550	355	"	11:31P	1:12	48.4	46.2	35.1	11.9	4260	3173	10.2	—	4	220.0	95.3	5T	115	—	250	0	0	1822	2016	"	92
6551	355	"	12:45A	1:11	46.9	44.8	26.6	10.1	4200	3083	9.8	—	8	218	94.8	5T	115	—	250	75	0	1832	2017	"	92
6552	355	"	1:55	1:12	43.9	40.1	24.2	14.7	4200	3066	11.3	—	6	218	95.2	5T	11.5	—	250	50	0	1815	2013	"	92
6553	11+	RR	3:20	1:24	43.4	39.9	72740	13008	4200	3065	.10	—	3	218	93.0	4T	11	—	300	125	0	1816	2014		
6554	"	"	5:04	1:45	47.0	43.1	70850	20643	4520	3020	.07	—	4	214	95.4	6T	—	—	300	175	0	1943	2015		
6555	"	"	6:33	1:29	44.8	42.0	62340	16923	4300	3081	.09	—	6	217	92.4	9T	111	—	300	175	6	1939	2016		
6556	"	"	7:54	1:21	43.7	41.0	64300	16161	4220	3040	.10	—	2	218	94.8	7T	111	—	300	200	0	1965	2013		
6557	"	"	9:10	1:15	42.1	39.5	63020	15740	4480	3049	.09	—	4	217	95.5	7T	111	—	300	200	0	1941	2011		
6558	"	"	10:22	1:12	44.9	42.6	67160	14842	4300	3076	.10	—	8	218	95.4	6T	111	—	300	175	0	1967	2014		

light shift info.
Elect. adds etc..
Stat. Pres. -2.99 11:30P
Damp pos.
Amps 1 2 3
204 196 197 6:00 AM

Day shift info.
Elect. adds etc...
Stat. Pres. -2.82 8:15A
Damp pos.
Amps 1 2 3
204 199 197

Aft. Shift info.
Elect. adds etc...
Stat. Pres. -3.22 -2.11
Damp pos.
Amps 1 2 3
213 206 206 -17:30

Delay
1 Scrap
2 Crane
3 Ladle
4 Gun
5 Hyd.
6 Water
7 Elect.
8 Other

10-3-00 . Daily Heat Report

.597 10 49/p

Adds B9 C

Ht #	Grade	Melter	Tap Time	Tap-Tap	Power on	KWH	Oxy.	Gas	Carb.	Tap "T"	Tap C	Tap S	Ladle #	Scp chg	Tap wt	Heat wt.	tap se	Elect+	Al.	Carb	Sil.	Mn	Lime	Delay	
6529	J55	LNS OT	12.23/p	1:34	46.7	455	24.0	91.4	4100	3099	11.3	—	2	217.7	95.2	10+	140	—	250	75	O	1863	2004	AUTO	9
6530	"	"	1:28/A	1:05	45.9	45.0	30.9	108	4300	3025	9.3	—	4	217.7	94.6	10+	140	—	250	25	O	1868	2.007	"	
6531	"	"	4:12/A	2.38	47.1	45.8	215	8.11	4100	3042	12.1	—	6	216.3	94.2	10+	140	SLIP B+C	250	O	O	1828	2002	"	1
6532	"	"	5:12/A	1:02	48.4	499	288	892	4120	3060	10.0	—	2	218.7	95.6	10+	140	—	250	50	O	1865	2000	"	"
6533	"	"	6:30/A	1:28	45.8	448	258	10.4	4004	3140	04.8	—	8	217.8	94.8	10T	140	—	300	175	O	1867	2004	"	"
6534	"	RW	7:47/A	1:17	48.0	46.1	39.2	14.8	4100	3188	04	—	6	217.5	93.4	7T	140	—	300	150	O	2018	2001	"	"
6535	"	"	10.53/A	3:07	50.2	45.6	216	8081	4040	3150	7.1	—	4	215.6	94.8	4T	—	—	300	75	O	2023	2020	"	"
6536	"	RR	5:13		44.3	41.8	38730	21189	4100	3072	.06	—	8	219.8	93.4	7T	—	—	200	175	O	2020	1993		
6537	"	"	7:27	2:15	48.9	46.7	58720	8567	4100	3023	.06	—	2	220	92.4	8T	—	—	400	175	O	2167	2019		
6538	US-95	"	8:38	1:10	45.0	42.2	55390	13183	4460	3026	.05	—	4	219	94.8	8T	135	—	300	125	3.21	2466	2019	MAN	
6539	"	"	10:05	1:27	43.7	40.3	53.26	18274	4360	3053	.05	—	2	219	93.6	8T	13T	—	200	125	3.71	2466	2019	"	

Night shift info.

Elect. adds etc.. ADD 3 to A SLIP B C
Stat. Pres. -3.41 3:30 AM
Damp pos.
Amps 1 2 3
216 212 209
3:40 AM

Day shift info.

Elect. adds etc...
Stat. Pres. -1.38 8:18 A
Damp pos.
Amps 1 2 3
23? 225 222

Aft. Shift info.

Elect. adds etc... B&C
Stat. Pres. -3.40 18:30
Damp pos.
Amps 1 2 3
216 196 199 -14:04

Delay
1 Scrap
2 Crane
3 Ladle
4 Gun
5 Hyd.
6 Water
7 Elect.
8 Other

Oct 30 00 02:34p

HEAT LOG

SEQ. No. M8034

DATE 10-3-00 GRADE J55 CODE 84 HEAT No. D6535

ANALYSIS	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Va	Cb	AL.	FEO	L.S.
ORDERED	26/28	95/105	015	008	08/15	30	15	12	03			020/040		
MADE									25	60				
Prelim.														
Prelim.														
Prelim.	071													
Prelim.														
Prelim.														
Lollypop														
Ladle Analysis														

CARBON ANALYZER TESTS	TIME OF TEST	
TIME MELT.	TO LAB.	REC'D

POWER

ON	OFF
r	
ore	
al Min.	
. On	

THERMOCOUPLE READING FURNACE		TIME
EST		
TEST		
TEST		
TEST		
CK	3150	
LE #1		
LE #2		

stone

e

gen After

r Before

Used

ER AFTER

ER BEFORE

ER AT MELT

H. USED TO MELT

o.

COMMENTS

ACTUAL TIME

TAPPED PREVIOUS HEAT	BEGAN CHARGE	POWER ON	FINISH CHARGE	SLAG OFF START	SLAG OFF FINISH	TAPPED	TIME OF HEAT
7:47/A		9:50/A				10:55/A	1:05

ELAPSED TIME

ACTUAL CHARGE TIME	CHARGE TO TAP	MAKE BOTTOMS	CHARGE TO CHARGE	DELAYS	FURNACE PATCH	K.W.H.	TAP TO TAP
							3:10

METALS CHARGED	WEIGHT
NO. 1 STEEL	—
NO. 1 BUNDLESFACTORY	—
NO. 1 BUNDLES-DEALER	20040
NO. 2 STEEL	31140
BUSHLINGS	52240
BROKEN MOULDS	—
PREPARED PIT SCRAP	8760
COMPANY SCRAP-CARBON	30840
COMPANY SCRAP-INGOTS & BUTTS	—
SHREDD	59600
NO. 2 BUNDLES	—
BORING & TURNINGS	—
TIN PLATE	—
TOTAL	202620

FURNACE AND LADLE ADDITIONS	WEIGHT
MILL SCALE	
NICKEL	
COPPER	
H. C. MANGANESE	2023
FERRO PHOSPHORUS	—
75% FE. SILICON	—
ALUMINUM 39/300	339
MOLYBDENUM	
FE COLUMBIUM (CONT. WGT.)	
LC. MANGANESE	
FE. VANADIUM	
CHROME	
COKE	375
CALCIUM	17
Ar Cart	300
TOTAL	3054

PRODUCTION 29490 WEIGHT

PRODUCT	NO. OF SLABS	MOLD SIZE	MOLD CODE	WEIGHT
SLABS	6	8 46½-282		176940
SLABS				
INGOTS				
FRONT ENDCROPS				
TAIL ENDCROPS				
SKULL				
TONS IN TUNDISH				
PIT				
TOTAL INGOT WEIGHT				

TONNAGE	WEIGHT	
TOTAL CHARGED	102837	86.0
TOTAL PRODUCED	88470	YIELD %

STRIPPING

p

ip

me

WEIGHMASTER

FURNACE DELAYS AND REMARKS	TIME	ELAPSED TIME	TYPE
WATER LEAK ON PANEL 2A	8:45/A-9:45/A	:60	
METECH GUN STUCK INSIDE OF FCE	7:50/A-8:45/A	:55	
CLOCK TIME OF RECARB OR DECARB			

DATE 10-3-

CHARGE	WEIGHT	TYPE	HOW LOADED	TIME
				9:50/A

CARBON ANALYZER TESTS		TIME OF TEST	
C.	TIME MELT.	TO LAB.	REC'D

ANALYSIS	C	M
ORDERED	26/28	95/
MADE		
Prelim.		
Prelim.		
Prelim.	071	
Prelim.		
Prelim.		
Lollypop		
Ladle Analysis		

POWER	
ON	OFF
After	
Before	
Total Min.	
% P. On	

THERMOCOUPLE READING FURNACE		TIME
1st TEST		
2nd TEST		
3rd TEST		
4th TEST		
BLOCK	3150	
TAP		
LADLE #1		
LADLE #2		

TAPPED PREVIOUS HEAT
7:47/A

ACTUAL CHARGE TIME

ORDERED	FURNACE AND LADLE ALLOWANCE			
	ALLOYS	%	WEIGHT	TIME
	FE. MN. FURNACE			
	FE. MN. FURNACE			
	FE. MN. FURNACE			
	FE. MN. LADLE	80%	2023	
	FE. MN. LADLE			
	FE. SI. FURNACE			
	FE. SI.	75%	0	
	FE. SI.			
	MISCH ALLOY			
	FE. VANADIUM			
	MOLYBDENUM			
	AL. LADLE	Briq.	300	
	AL. MOULDS			
	COKE		75	
	A.K. FLUX			
	RIM. ACCEL. MOULDS			
	FE. COLUMBIUM			
	DESULFURIZER TAP	W-16.	2020	
	DESULFURIZER LADLE			
	CALCIUM NO. OF FT.			
	POUNDS OF HOT TOP			
	ELAPSED TIME OF TAP	Secs	140	
	ARGON TIME			
	ARGON GAUGE READING			
		5002	500	
		S.L.	300	
		Mol.	50	

Limestone	
Lime	
Lime	
Coke	
Spar	
Scale	
Oxygen After	
Meter Before	
O_2 Used	

ELECTRODE DATA				
PHASE	NO. ADDED	TIME	BY WHOM	SUPPLIER
No. 1				
No. 2				
No. 3				SGL

METER AFTER	
METER BEFORE	
METER AT MELT	
K.W.H. USED TO MELT	

METALS CH
NO. 1 STEEL
NO. 1 BUNDLES-FACT
NO. 1 BUNDLES-DEAL
NO. 2 STEEL
BUSHLINGS
BROKEN MOULDS
PREPARED PIT SCRAP
COMPANY SCRAP-CA
COMPANY SCRAP-IN(
SHREDD
NO. 2 BUNDLES
BORING & TURNINGS
TIN PLATE

PRODUC		
PRO-DUCT	NO. OF SLABS	MO
SLABS	6	84
SLABS		
INGOTS		
FRONT ENDCROPS		
TAIL ENDCROPS		
SKULL		
TONS IN TUNDISH		
PIT		
TOTAL		

HEATS ON LINING: ROOF ROOF No.

WALLS	Used: GUN MIX	SYNDOLAG	COMMENTS
TAP HOLE			
BANKS			
BOTTOM			

LADLE NO. NO. HEATS NOZ. SIZE

STOPPER: MOLD CONDITION:

BLEEDERS:

POURED BY: PIT FOREMAN

TESTS: LAB. JOMINY GR. SIZE

STRIPPING	
Start Strip	
Finish Strip	
Lapsed Time	
Delays	
Delivered	

WATER LEA
METECH

MELTER	1st HELPER	WEIGHMASTER
	12 - 8	12 - 8
RW	8 - 4 GB	8 - 4
	4 - 12	4 - 12

CLOCK TIME OF RECA

HEAT LOG

SEQ. No. M3035

DATE 10-3-00 GRADE 505 CODE 84 HEAT No. D16536

ARBON ALYZER ESTS	TIME OF TEST	
TIME MELT.	TO LAB.	REC'D

POWER	
ON	OFF
re	
Min.	
On	

HERMOCOUPLE ADING FURNACE		TIME
EST	3072	
EST		
EST		
EST		
K		
E #1		
E #2		
tone		
en After		
r Before		
Used		

ER AFTER	
ER BEFORE	
ER AT MELT	
H. USED TO MELT	
o.	

COMMENTS

STRIPPING
ip
me
WEIGHMASTER

ANALYSIS	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Va	Cb	AL.	FEO	L.S.
ORDERED	26/28	95/105	015	008	08/15	30	15	12	03			020/040		
MADE									Mo1	60				
Prelim.	.06													
Prelim.														
Prelim.	.19			.020										
Prelim.														
Prelim.														
Lollypop														
Ladle Analysis														

ACTUAL TIME

TAPPED PREVIOUS HEAT	BEGAN CHARGE	POWER ON	FINISH CHARGE	SLAG OFF START	SLAG OFF FINISH	TAPPED	TIME OF HEAT
10:55/A	11:05/A	405	421			512	6:10

ELAPSED TIME

ACTUAL CHARGE TIME	CHARGE TO TAP	MAKE BOTTOMS	CHARGE TO CHARGE	DELAYS	FURNACE PATCH	K.W.H.	TAP TO TAP
							6:15

METALS CHARGED	WEIGHT
NO. 1 STEEL	—
NO. 1 BUNDLES-FACTORY	—
NO. 1 BUNDLES-DEALER	19120
NO. 2 STEEL	30160
BUSHLINGS	54400
BROKEN MOULDS	—
PREPARED PIT SCRAP	9660
COMPANY SCRAP-CARBON	33340
COMPANY SCRAP-INGOTS & BUTTS	—
SHREDD	58820
NO. 2 BUNDLES	—
BORING & TURNINGS	—
TIN PLATE	—
TOTAL	205500

FURNACE AND LADLE ADDITIONS	WEIGHT
MILL SCALE	
NICKEL	
COPPER	
H. C. MANGANESE	2520
FERRO PHOSPHORUS	—
75% FE. SILICON	180
ALUMINUM 110/300	410
MOLYBDENUM	
FE. COLUMBIUM (CONT. WGT.)	
LC. MANGANESE	
FE. VANADIUM	
CHROME	
COKE	175
CALCIUM	31
In Carb	400
TOTAL	3716

PRODUCTION 29490 WEIGHT

PRODUCT	NO. OF SLABS	MOLD SIZE	MOLD CODE	
SLABS	7	8-46½-282		206430
SLABS				
INGOTS				
FRONT ENDCROPS				
TAIL ENDCROPS				
SKULL				
TONS IN TUNDISH				
PIT				
TOTAL INGOT WEIGHT				

TONNAGE	WEIGHT	
TOTAL CHARGED	104608	98.7
TOTAL PRODUCED	103215	YIELD %

FURNACE DELAYS AND REMARKS	TIME	ELAPSED TIME	TYPE
Shut-off for waiting for caster to start	11:05/A - 445	5:00	/
F.D wont open	455 500	.05	/
wait for Hecker to push ladle car		:10	/
CLOCK TIME OF RECARB OR DECARB			

NSC-0109

DATE 10-2

CHARGE	WEIGHT	TYPE	HOW LOADED	TIME

CARBON ANALYZER TESTS		TIME OF TEST	
C.	TIME MELT.	TO-LAB.	REC'D

ANALYSIS	C	
ORDERED	2.6/2.8	9
MADE		
Prelim.	.06	
Prelim.		
Prelim.	.19	
Prelim.		
Prelim.		
Lollypop		
Ladle Analysis		

POWER	
ON	OFF
After	
Before	
Total Min.	
% P. On	

THERMOCOUPLE READING FURNACE		TIME
1st TEST	3072	
2nd TEST		
3rd TEST		
4th TEST		
BLOCK		
TAP		
LADLE #1		
LADLE #2		

TAPPED PREVIOUS HEAT
10:55/p

ACTUAL CHARGE TIME

ORDERED	FURNACE AND LADLE ALLOWANCE			
	ALLOYS	%	WEIGHT	TIME
	FE. MN. FURNACE			
	FE. MN. FURNACE			
	FE. MN. FURNACE			
	FE. MN. LADLE	80%	2020	
	FE. MN. LADLE			
	FE. SI. FURNACE			
	FE. SI.	75%	0	
	FE. SI.			
	MISCH ALLOY			
	FE. VANADIUM			
	MOLYBDENUM			
	AL. LADLE	Brq	300	
	AL. MOULDS			
	COKE	100		
	A.K. FLUX			
	RIM. ACCEL. MOULDS			
	FE. COLUMBIUM			
	DESULFURIZER TAP	20-16	1993	
	DESULFURIZER LADLE			
	CALCIUM NO. OF FT.			
	POUNDS OF HOT TOP			
	ELAPSED TIME OF TAP	sec		
	ARGON TIME			
	ARGON GAUGE READING			
		5000	350	
		Sil	400	
		Oxl.	100	

Limestone	
Lime	
Lime	
Coke	
Spar	
Scale	
Oxygen After	
Meter Before	
O_2 Used	

METALS C
NO. 1 STEEL
NO. 1 BUNDLES-FA
NO. 1 BUNDLES-DE
NO. 2 STEEL
BUSHLINGS
BROKEN MOULDS
PREPARED PIT SCR
COMPANY SCRAP-
COMPANY SCRAP-
SHREDD
NO. 2 BUNDLES
BORING & TURNIN
TIN PLATE

ELECTRODE DATA				
PHASE	NO. ADDED	TIME	BY WHOM	SUPPLIER
No. 1				
No. 2				Slel
No. 3				

METER AFTER	
METER BEFORE	
METER AT MELT	
K.W.H. USED TO MELT	

PROD	
PRO-DUCT	NO. OF SLABS
SLABS	7 8
SLABS	
INGOTS	
FRONT ENDCROPS	
TAIL ENDCROPS	
SKULL	
TONS IN TUNDISH	
PIT	
TOT	

HEATS ON LINING: ROOF ROOF No.

WALLS	Used: GUN MIX	SYNDOLAG	COMMENTS
TAP HOLE			
BANKS			
BOTTOM			

LADLE NO. NO. HEATS NOZ. SIZE

STOPPER: MOLD CONDITION:

BLEEDERS:

POURED BY: PIT FOREMAN

TESTS: LAB. JOMINY GR. SIZE

STRIPPING	
Start Strip	
Finish Strip	
Lapsed Time	
Delays	
Delivered	

Shut-of

F.D WON+

WAIT FO

CLOCK TIME OF R

MELTER	1st HELPER	WEIGHMASTER
12 - 8	12 - 8	12 - 8
8 - 4	8 - 4	8 - 4
4 - 12 Bal	4 - 12 Terry	4 - 12

HEAT LOG

SEQ. No. M3036

DATE 10-3-00 GRADE J-55 CODE 84 HEAT No. 06537

CARBON ANALYZER TESTS		TIME OF TEST	
C.	TIME MELT.	TO LAB.	REC'D

ANALYSIS	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Va	Cb	AL.	FEO	L.S.
ORDERED	26/28	95/105	015	008	08/15	35	15	12	03			020/040		
MADE									Ro5 60					
Prelim														
Prelim.														
Prelim.														
Prelim														
Prelim.														
Lollypop														
Ladle Analysis														

POWER	ON	OFF
fter		
efore		
otal Min.		
P. On		

THERMOCOUPLE READING FURNACE		
t TEST		
d TEST		
d TEST		
h TEST		
OCK		
P		
DLE #1		
DLE #2		

ACTUAL TIME							
TAPPED PREVIOUS HEAT	BEGAN CHARGE	POWER ON	FINISH CHARGE	SLAG OFF START	SLAG OFF RMSH	TAPPED	TIME OF HEAT
512		545	646			729	1:45

ELAPSED TIME							
ACTUAL CHARGE TIME	CHARGE TO TAP	MAKE BOTTOMS	CHARGE TO CHARGE	DELAYS	FURNACE PATCH	K.W.H.	TAP TO TAP
							2:20

METALS CHARGED	WEIGHT
NO. 1 STEEL	—
NO. 1 BUNDLESFACTORY	—
NO. 1 BUNDLES-DEALER	87200
NO. 2 STEEL	36820
BUSHLINGS	—
BROKEN MOULDS	—
PREPARED PIT SCRAP	62600
COMPANY SCRAP-CARBON	114120
COMPANY SCRAP-INGOTS & BUTTS	—
SHREDD	28140
NO. 2 BUNDLES	11460
BORING & TURNINGS	—
TIN PLATE	—
TOTAL	805520

FURNACE AND LADLE ADDITIONS		WEIGHT
MILL SCALE		
NICKEL		
COPPER		
H. C. MANGANESE		229
FERRO PHOSPHORUS		—
75% FE. SILICON		—
ALUMINUM	19/400	41
MOLYBDENUM		
FE. COLUMBIUM	(CONT. WGT.)	
LC. MANGANESE		
FE. VANADIUM		
CHROME		
COKE		27
CALCIUM		17
Fe Carb		40
TOTAL		3405

PRODUCTION 29490				WEIGHT
PRODUCT	NO. OF SLABS	MOLD SIZE	MOLD CODE	
SLABS	3	84½-282		88470
SLABS	2	46½-231		48300
INGOTS				
FRONT ENDCROPS				
TAIL ENDCROPS	16			1265
SKULL				
TONS IN TUNDISH	25	4.9		9800
PIT				
TOTAL INGOT WEIGHT				136770

TONNAGE	WEIGHT	
TOTAL CHARGED	104462	65.5
TOTAL PRODUCED	68385	YIELD %

FURNACE DELAYS AND REMARKS	TIME	ELAPSED TIME	TYPE
Run FB, SL Around Fce	520/540	:20	/
Level 1st Charge	540/545	:05	/
Level roof / up and down limits	548/628	:20	/
Cave in / test temp		615	

CLOCK TIME OF RECARB OR DECARB

COMMENTS

STRIPPING
trip
Strip
l Time
red

WEIGHMASTER
- 8
- 4
- 12

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lar	
ale	
ygen After	
eter Before	
Used	
EIER AFTER	
ETER BEFORE	
ETER AT MELT	
W.H. USED TO MELT	
No.	

NSC-0109

DATE 10-3-0

CHARGE	WEIGHT	TYPE	HOW LOADED	TIME

CARBON ANALYZER TESTS		TIME OF TEST	
C.	TIME MELT.	TO LAB.	REC'D

ANALYSIS	C	Mn
ORDERED	26/28	95/1
MADE		
Prelim.		
Prelim.		
Prelim.		
Prelim.		
Prelim.		
Lollypop		
Ladle Analysis		

POWER	
ON	OFF
After	
Before	
Total Min.	
% P. On	

THERMOCOUPLE READING FURNACE		TIME
1st TEST		
2nd TEST		
3rd TEST		
4th TEST		
BLOCK		
TAP		
LADLE #1		
LADLE #2		
Limestone		
Lime		
Lime		
Coke		
Spar		
Scale		
Oxygen After		
Meter Before		
O_2 Used		

TAPPED PREVIOUS HEAT	8 CI
512	

ACTUAL CHARGE TIME	CH TO

METALS CHA	
NO. 1 STEEL	
NO. 1 BUNDLES-FACTOR	
NO. 1 BUNDLESDEALER	
NO. 2 STEEL	
BUSHLINGS	
BROKEN MOULDS	
PREPARED PIT SCRAP	
COMPANY SCRAP-CARB	
COMPANY SCRAP-INGO	
SHREDD	
NO. 2 BUNDLES	
BORING & TURNINGS	
TIN PLATE	

ORDERED	FURNACE AND LADLE ALLOWANCE			
	ALLOYS	%	WEIGHT	TIME
	FE. MN. FURNACE			
	FE. MN. FURNACE			
	FE. MN. FURNACE			
	FE. MN. LADLE	60%	3167	
	FE. MN. LADLE			
	FE. SI. FURNACE			
	FE. SI.	25%	0	
	FE. SI.			
	MISCH ALLOY			
	FE. VANADIUM			
	MOLYBDENUM			
	AL. LADLE	Brig	400	
	AL. MOULDS			
	COKE	100	175	
	A.K. FLUX			
	RIM. ACCEL. MOULDS			
	FE. COLUMBIUM			
	DESULFURIZER TAP	N-16	2019	
	DESULFURIZER LADLE			
	CALCIUM NO. OF FT.			
	POUNDS OF HOT TOP			
	ELAPSED TIME OF TAP	Sand	—	
	ARGON TIME			
	ARGON GAUGE READING			
		50/50	350	
		Si/L	400	
		W/C	100	

ELECTRODE DATA				
PHASE	NO. ADDED	TIME	BY WHOM	SUPPLIER
No. 1				
No. 2				5 Gal
No. 3				

METER AFTER	
METER BEFORE	
METER AT MELT	
K.W.H. USED TO MELT	

PRODUCTI		
PRO-DUCT	NO. OF SLABS	MOLD
SLABS	3	8 4/6
SLABS	2	4/6
INGOTS		
FRONT ENDCROPS		
TAIL ENDCROPS	1	4/6
SKULL		
TONS IN TUNDISH	2.5	4.
PIT		

TOTAL IN

HEATS ON LINING: ROOF ROOF No.

WALLS	Used: GUN MIX	SYNDOLAG	COMMENTS
TAP HOLE			
BANKS			
BOTTOM			

LADLE NO. NO. HEATS NOZ. SIZE

STOPPER: MOLD CONDITION:

BLEEDERS:

POURED BY: PIT FOREMAN

TESTS: LAB. JOMINY GR. SIZE

STRIPPING	
Start Strip	Gun FB, SL
Finish Strip	Level 1st
Lapsed Time	Level roof
Delays	Cast IP
Delivered	

MELTER	1st HELPER	WEIGHMASTER
12 - 8	12 - 8	12 - 8
8 - 4	8 - 4	8 - 4
4 - 12 Ron	4 - 12 Kenny	4 - 12

CLOCK TIME OF RECARB

HEAT LOG

SEQ. No. M 3029

DATE 10-4-00 GRADE UN80 CODE 85 HEAT No. D6548

ANALYSIS	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Va	Cb	AL.	FEO	L.S.
ORDERED	23/25	120/130	015	005	15/25	35	15	12	03			020/045		
MADE									[illegible]					
Prelim.														
Prelim.														
Prelim.	10.2													
Prelim.														
Prelim.														
Lollypop														
Ladle Analysis														

CARBON ANALYZER TESTS		TIME OF TEST	
C.	TIME MELT.	TO LAB.	REC'D

POWER

ON	OFF
ter	
fore	
tal Min.	
P. On	

THERMOCOUPLE EADING FURNACE		TIME
TEST		
TEST		
TEST		
TEST		
CK	3051	
LE #1		
LE #2		

estone
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gen After
er Before
Used

TER AFTER
TER BEFORE
TER AT MELT
.H. USED TO MELT
No.

COMMENTS

STRIPPING

p
rip
ime

WEIGHMASTER

ACTUAL TIME

TAPPED PREVIOUS HEAT	BEGAN CHARGE	POWER ON	FINISH CHARGE	SLAG OFF START	SLAG OFF FINISH	TAPPED	TIME OF HEAT
7:40/A		7:55/A	8 15/A			8:50/A	55

ELAPSED TIME

ACTUAL CHARGE TIME	CHARGE TO TAP	MAKE BOTTOMS	CHARGE TO CHARGE	DELAYS	NRNACE PATCH	K.W.H.	TAP TO TAP
							1:10

METALS CHARGED	WEIGHT	FURNACE AND LADLE ADDITIONS		WEIGHT
NO 1 STEEL	—	MILL SCALE		
NO. 1 BUNDLES-FACTORY	—	NICKEL		
NO. 1 BUNDLES-DEALER	19420	COPPER		
NO. 2 STEEL	32120	H. C. MANGANESE		2797
BUSHLINGS	50400	FERRO PHOSPHORUS		—
BROKEN MOULDS	—	75% FE. SILICON		379
PREPARED PIT SCRAP	9340	ALUMINUM	49/250	299
COMPANY SCRAP-CARBON	30420	MOLYBDENUM		
COMPANY SCRAP-INGOTS & BUTTS	—	FE. COLUMBIUM	(CONT. WGT.)	
SHREDD	60040	LC. MANGANESE		
NO. 2 BUNDLES	—	FE. VANADIUM		
BORING & TURNINGS	—	CHROME		
TIN PLATE	—	COKE		75
TOTAL	201740	CALCIUM		38
			Fe Carb	200

PRODUCTION 29380 WEIGHT

PRO-DUCT	NO. OF SLABS	MOLD SIZE	MOLD CODE	WEIGHT
SLABS	6	8X46½X281		176280
SLABS				
INGOTS				
FRONT ENDCROPS	1	8X46½X12"		1265
TAIL ENDCROPS				
SKULL				
TONS IN TUNDISH				
PIT				
TOTAL INGOT WEIGHT				

TOTAL 3788

TONNAGE	WEIGHT	
TOTAL CHARGED	102764	85.8
TOTAL PRODUCED	88140	YIELD %

FURNACE DELAYS AND REMARKS	TIME	ELAPSED TIME	TYPE
CLOCK TIME OF RECARB OR DECARB			

NSC-0109

DATE 10-4-

CHARGE	WEIGHT	TYPE	HOW LOADED	TIME

CARBON ANALYZER TESTS		TIME OF TEST	
C.	TIME MELT.	TO LAB.	REC'D

ANALYSIS	C	Mn
ORDERED	23/25	12%
MADE		
Prelim.		
Prelim.		
Prelim.	10.2	
Prelim.		
Prelim.		
Lollypop		
Ladle Analysis		

POWER		
	ON	OFF
After		
Before		
Total Min.		
% P. On		

THERMOCOUPLE READING FURNACE		TIME
1st TEST		
2nd TEST		
3rd TEST		
4th TEST		
BLOCK	3051	
TAP		
LADLE #1		
LADLE #2		
Limestone		
Lime		
Lime		
Coke		
Spar		
Scale		
Oxygen After		
Meter Before		
O_2 Used		

TAPPED PREVIOUS HEAT	F C
7:40A	

ACTUAL CHARGE TIME	C T

METALS CHA
NO. 1 STEEL
NO. 1 BUNDLES-FACTO
NO. 1 BUNDLES-DEALER
NO. 2 STEEL
BUSHLINGS
BROKEN MOULDS
PREPARED PIT SCRAP
COMPANY SCRAP-CARE
COMPANY SCRAP-INGC
SHREDD
NO. 2 BUNDLES
BORING & TURNINGS
TIN PLATE

ORDERED	FURNACE AND LADLE ALLOWANCE			
	ALLOYS	%	WEIGHT	TIME
	FE. MN. FURNACE			
	FE. MN. FURNACE			
	FE. MN. FURNACE			
	FE. MN. LADLE	80%	2572	
	FE. MN. LADLE			
	FE. SI. FURNACE			
	FE. SI.	75%	379	
	FE. SI.			
	MISCH ALLOY			
	FE. VANADIUM			
	MOLYBDENUM			
	AL. LADLE	Brig.	250	
	AL. MOULDS			
	COKE			
	A.K. FLUX			
	RIM. ACCEL. MOULDS			
	FE. COLUMBIUM			
	DESULFURIZER TAP	D-16	2021	
	DESULFURIZER LADLE			
	CALCIUM NO. OF FT.			
	POUNDS OF HOT TOP			
	ELAPSED TIME OF TAP			
	ARGON TIME			
	ARGON GAUGE READING			
		50/50	300	
		Si/Ca	200	
		CaSi/C	50	

ELECTRODE DATA				
PHASE	NO. ADDED	TIME	BY WHOM	SUPPLIER
No. 1				Sela
No. 2				
No. 3				

METER AFTER	
METER BEFORE	
METER AT MELT	
K.W.H. USED TO MELT	

PRODUCT		
PRO-DUCT	NO. OF SLABS	MOLD
SLABS	6	8x16
SLABS		
INGOTS		
FRONT ENDCROPS	1	8x16
TAIL ENDCROPS		
SKULL		
TONS IN TUNDISH		
PIT		
TOTAL I		

HEATS ON LINING: ROOF ROOF No.

WALLS	Used: GUN MIX	SYNDOLAG	COMMENTS
TAP HOLE			
BANKS			
BOTTOM			

LADLE NO. NO. HEATS NOZ. SIZE

STOPPER: MOLD CONDITION:

BLEEDERS:

POURED BY: PIT FOREMAN

TESTS: LAB. JOMINY GR. SIZE

STRIPPING	
Start Strip	
Finish Strip	
Lapsed Time	
Delays	
Delivered	

MELTER	1st HELPER	WEIGHMASTER
12 - 8	12 - 8	12 - 8
8 - 4 RW	8 - 4 GB	8 - 4
4 - 12	4 - 12	4 - 12

CLOCK TIME OF RECAR

HEAT LOG

SEQ. No. M3030

DATE 10-21-00 GRADE DN80 CODE 25 HEAT No. D6549

ANALYSIS	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Va	Cb	AL.	FEO	L.S.
ORDERED	23/25	120/130	015	005	15/25	35	15	12	03			025/045		
MADE								12	60					
Prelim.														
Prelim.														
Prelim.	091													
Prelim.														
Prelim.														
Lollypop														
Ladle Analysis														

CARBON ANALYZER TESTS		TIME OF TEST	
C.	TIME MELT.	TO LAB.	REC'D

POWER	
ON	OFF
fter	
efore	
otal Min.	
P. On	

THERMOCOUPLE READING FURNACE		TIME
TEST		
d TEST		
1 TEST		
1 TEST		
OCK	3165	
P		
DLE #1		
DLE #2		
nestone		
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eter Before		
Used		

ETER AFTER	
ETER BEFORE	
ETER AT MELT	
W.H. USED TO MELT	
No.	

G	COMMENTS

STRIPPING
rip
Strip
Time
ed

WEIGHMASTER
1
1
2

ACTUAL TIME

TAPPED PREVIOUS HEAT	BEGAN CHARGE	POWER ON	FINISH CHARGE	SLAG OFF START	SLAG OFF FINISH	TAPPED	TIME OF HEAT
8:50/A		9:19/A				10:19/A	1:00

ELAPSED TIME

ACTUAL CHARGE TIME	CHARGE TO TAP	MAKE BOTTOMS	CHARGE TO CHARGE	DELAYS	FURNACE PATCH	K.W.H.	TAP TO TAP
							1:30

METALS CHARGED	WEIGHT
NO. 1 STEEL	
NO. 1 BUNDLES-FACTORY	
NO. 1 BUNDLES-DEALER	19840
NO. 2 STEEL	32540
BUSHLINGS	52920
BROKEN MOULDS	
PREPARED PIT SCRAP	8680
COMPANY SCRAP-CARBON	30140
COMPANY SCRAP-INGOTS & BUTTS	
SHREDD	60620
NO. 2 BUNDLES	
BORING & TURNINGS	
TIN PLATE	
TOTAL	204740

FURNACE AND LADLE ADDITIONS	WEIGHT
MILL SCALE	
NICKEL	
COPPER	
H. C. MANGANESE	274
FERRO PHOSPHORUS	
75% FE. SILICON	38
ALUMINUM 45/250	29
MOLYBDENUM	
FE. COLUMBIUM (CONT. WGT.)	
LC. MANGANESE	
FE. VANADIUM	
CHROME	
COKE	15
CALCIUM	17
Fe Carb	20
TOTAL	378

PRODUCTION 2938				WEIGHT
PRODUCT	NO. OF SLABS	MOLD SIZE	MOLD CODE	
SLABS	7	8x46½x28½		205660
SLABS				
INGOTS		Apple Slabs	6	7 to 55 7"
FRONT ENDCROPS				
TAIL ENDCROPS				
SKULL				
TONS IN TUNDISH				
PIT				
TOTAL INGOT WEIGHT				

TONNAGE	WEIGHT
TOTAL CHARGED	104264
TOTAL PRODUCED	102830

YIELD 98.6 %

FURNACE DELAYS AND REMARKS	TIME	ELAPSED TIME	TYPE
ADDED ONE ELECTRODE (A phase)	9:00/A - 9:19/A	:19	

CLOCK TIME OF RECARB OR DECARB

NSC-0109

DATE 10-

CHARGE	WEIGHT	TYPE	HOW LOADED	TIME	CARBON ANALYZER TESTS		TIME OF TEST	
					C.	TIME MELT.	TO LAB.	REC'D

ANALYSIS	C
ORDERED	23/25
MADE	
Prelim.	
Prelim.	
Prelim.	091
Prelim.	
Prelim.	
Lollypop	
Ladle Analysis	

TAPPED PREVIOUS HEAT
8:50/A

ACTUAL CHARGE TIME

ORDERED	FURNACE AND LADLE ALLOWANCE			
	ALLOYS	%	WEIGHT	TIME
	FE. MN. FURNACE			
	FE. MN. FURNACE			
	FE. MN. FURNACE			
	FE. MN. LADLE	80%	2371	
	FE. MN. LADLE			
	FE. SI. FURNACE			
	FE. SI.	75%	380	
	FE. SI.			
	MISCH ALLOY			
	FE. VANADIUM			
	MOLYBDENUM			
	AL. LADLE	Ping	250	
	AL. MOULDS			
	COKE		50	
	A.K. FLUX			
	RIM. ACCEL. MOULDS			
	FE. COLUMBIUM			
	DESULFURIZER TAP	N-76	2019	
	DESULFURIZER LADLE			
	CALCIUM NO. OF FT.			
	POUNDS OF HOT TOP			
	ELAPSED TIME OF TAP	Secs.	115	
	ARGON TIME			
	ARGON GAUGE READING			
		Soda	300	
		Silic	200	
		Calc		

POWER	ON	OFF
After		
Before		
Total Min.		
% P. On		

THERMOCOUPLE READING FURNACE		TIME
1st TEST		
2nd TEST		
3rd TEST		
4th TEST		
BLOCK	3165	
TAP		
LADLE #1		
LADLE #2		

Limestone	
Lime	
Lime	
Coke	
Spar	
Scale	
Oxygen Aher	
Meter Before	
O_2 Used	

METALS
NO. 1 STEEL
NO. 1 BUNDLES-FA
NO. 1 BUNDLES-DE
NO. 2 STEEL
BUSHLINGS
BROKEN MOULDS
PREPARED PIT SCR
COMPANY SCRAP-
COMPANY SCRAP-
SHREDD
NO. 2 BUNDLES
BORING & TURNIN
TIN PLATE

ELECTRODE DATA

PHASE	NO. ADDED	TIME	BY WHOM	SUPPLIER .
No. 1	1 stick A			
No. 2				Stel
No. 3				

METER AFTER	
METER BEFORE	
METER AT MELT	
K.W.H. USED TO MELT	

PROD

PRO-DUCT	NO. OF SLABS
SLABS	7
SLABS	
INGOTS	
FRONT ENDCROPS	
TAIL ENDCROPS	
SKULL	
TONS IN TUNDISH	
PIT	

TOT

ADDED O

HEATS ON LINING: ROOF ROOF No.

WALLS Used: GUN MIX	SYNDOLAG	COMMENTS
TAP HOLE		
BANKS		
BOTTOM		

LADLE NO. NO. HEATS NOZ. SIZE

STOPPER: MOLD CONDITION:

BLEEDERS:

POURED BY: PIT FOREMAN

TESTS: LAB. JOMINY GR. SIZE

STRIPPING	
Start Strip	
Finish Strip	
Lapsed Time	
Delays	
Delivered	

MELTER		1st HELPER		WEIGHMASTER	
12 - 8		12 - 8		12 - 8	
8 - 4	BW	8 - 4	GB	8 - 4	
4 - 12		4 - 12		4 - 12	

CLOCK TIME OF RE

HEAT LOG

SEQ. No. 6550

DATE 10-400 GRADE J55 CODE 84 HEAT No. D6550

ANALYSIS	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Va	Cb	AL.	FEO	L.S.
ORDERED	26/28	95/105	015	008	08/15	35	15	12	03			020/040		
MADE								[illegible] 60				/		
Prelim.														
Prelim.		/												
Prelim.	10.2													
Prelim														
Prelim.														
Lollypop														
Ladle Analysis														

ACTUAL TIME

TAPPED PREVIOUS HEAT	BEGAN CHARGE	POWER ON	FINISH CHARGE	SLAG OFF START	SLAG OFF FINISH	TAPPED	TIME OF HEAT
10:19/A		10:32	10:50/			11:31/A	1:00

ELAPSED TIME

ACTUAL CHARGE TIME	CHARGE TO TAP	MAKE BOTTOMS	CHARGE TO CHARGE	DELAYS	FURNACE PATCH	K.W.H.	TAP TO TAP
							1:15

METALS CHARGED	WEIGHT
NO. 1 STEEL	—
NO. 1 BUNDLES-FACTORY	—
NO. 1 BUNDLES-DEALER	21760
NO. 2 STEEL	34360
BUSHLINGS	51680
BROKEN MOULDS	—
PREPARED PIT SCRAP	9500
COMPANY SCRAP-CARBON	30780
COMPANY SCRAP-INGOTS & BUTTS	—
SHREDD	58440
NO. 2 BUNDLES	—
BORING & TURNINGS	—
TIN PLATE	—
TOTAL	206520

FURNACE AND LADLE ADDITIONS		WEIGHT
MILL SCALE		
NICKEL		
COPPER		
H. C. MANGANESE		2982
FERRO PHOSPHORUS		—
75% FE. SILICON		—
ALUMINUM	39/250	289
MOLYBDENUM		
FE. COLUMBIUM	(CONT. WGT.)	
LC. MANGANESE		
FE. VANADIUM		
CHROME		
COKE		250
CALCIUM		17
	An Carb	300
TOTAL		2938

PRODUCTION 29490 WEIGHT

PRODUCT	NO. OF SLABS	MOLD SIZE	MOLD CODE	WEIGHT
SLABS	6	8X46/60X282		176940
SLABS				
INGOTS				
FRONT ENDCROPS				
TAIL ENDCROPS				
SKULL				
TONS IN TUNDISH				
PIT				
TOTAL INGOT WEIGHT				

TONNAGE	WEIGHT	
TOTAL CHARGED	104729	84.5
TOTAL PRODUCED	88470	YIELD %

FURNACE DELAYS AND REMARKS	TIME	ELAPSED TIME	TYPE
Clean Bezel	10:24 10:32	10	/
CLOCK TIME OF RECARB OR DECARB			

ARBON NALYZER TESTS		TIME OF TEST	
	TIME MELT.	TO LAB.	REC'D

POWER	
ON	OFF
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al Min.	
'. On	

HERMOCOUPLE EADING FURNACE		TIME
EST		
TEST		
TEST		
TEST		
CK	3,73	/
LE #1		
LE #2		

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Used

ER AFTER

ER BEFORE

ER AT MELT

H. USED TO MELT

o.

COMMENTS

STRIPPING

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ime

WEIGHMASTER

NSC-0109

DATE 10-40

CHARGE	WEIGHT	TYPE	HOW LOADED	TIME
				10:50/A

CARBON ANALYZER TESTS		TIME OF TEST	
C.	TIME MELT.	TO LAB.	REC'D

ANALYSIS	C
ORDERED	2.6/2.8
MADE	
Prelim.	
Prelim.	
Prelim.	10.2
Prelim.	
Prelim.	
Lollypop	
Ladle Analysis	

ORDERED	FURNACE AND LADLE ALLOWANCE			
	ALLOYS	%	WEIGHT	TIME
	FE. MN. FURNACE			
	FE. MN. FURNACE			
	FE. MN. FURNACE			
	FE. MN. LADLE	80%	1822	
	FE. MN. LADLE			
	FE. SI. FURNACE			
	FE. SI.	75%	0	
	FE. SI.			
	MISCH ALLOY			
	FE. VANADIUM			
	MOLYBDENUM			
	AL. LADLE	Big	250	
	AL. MOULDS			
	COKE		50	
	A.K. FLUX			
	RIM. ACCEL. MOULDS			
	FE. COLUMBIUM			
	DESULFURIZER TAP			
	DESULFURIZER LADLE			
	CALCIUM NO. OF FT.			
	POUNDS OF HOT TOP			
	ELAPSED TIME OF TAP			
	ARGON TIME			
	ARGON GAUGE READING			
	Lime		2016	
	50/50		300	
	Sil Carbide		300	
	CA Carbide		50	

POWER	
ON	OFF
After	
Before	
Total Min.	
% P. On	

THERMOCOUPLE READING FURNACE		TIME
1st TEST		
2nd TEST		
3rd TEST		
4th TEST		
BLOCK	3173	
TAP		
LADLE #1		
LADLE #2		

Limestone	
Lime	
Lime	
Coke	
Spar	
Scale	
Oxygen After	
Meter Before	
O_2 Used	

TAPPED PREVIOUS HEAT
10:19/A

ACTUAL CHARGE TIME

METALS C

NO. 1 STEEL
NO. 1 BUNDLES-FAC
NO. 1 BUNDLES-DEA
NO. 2 STEEL
BUSHLINGS
BROKEN MOULDS
PREPARED PIT SCRA
COMPANY SCRAP-C
COMPANY SCRAP-IN
SHREDD
NO. 2 BUNDLES
BORING & TURNING
TIN PLATE

ELECTRODE DATA

PHASE	NO. ADDED	TIME	BY WHOM	SUPPLIER
No. 1				
No. 2				
No. 3				

METER AFTER	
METER BEFORE	
METER AT MELT	
K.W.H. USED TO MELT	

PRODU

PRO-DUCT	NO. OF SLABS	M
SLABS	6	8946
SLABS		
INGOTS		
FRONT END CROPS		
TAIL END CROPS		
SKULL		
TONS N TUNDISH		
PIT		

TOTE

HEATS ON LINING: ROOF ROOF No.

WALLS	Used: GUN MIX	SYNDOLAG	COMMENTS
TAP HOLE			
BANKS			
BOTTOM			

LADDLE NO. NO. HEATS NOZ. SIZE

STOPPER: MOLD CONDITION:

BLEEDERS:

POURED BY: PIT FOREMAN

TESTS: LAB. JOMINY GR. SIZE

STRIPPING	
Start Strip	
Finish Strip	
Lapsed Time	
Delays	
Delivered	

MELTER	1st HELPER	WEIGHMASTER
12 - 8	12 - 8	12 - 8
8 - 4 RW	8 - 4 GB	8 - 4
4 - 12	4 - 12	4 - 12

CLOCK TIME OF RE

G

HEAT LOG

SEQ. No. 6551

DATE 10-4-0 GRADE J55 CODE 84 HEAT No. D6551

CARBON ANALYZER TESTS		TIME OF TEST	
C.	TIME MELT.	TO LAB.	REC'D

POWER	
ON	OW
After	
Before	
Total Min	
% P. On	

THERMOCOUPLE READING FURNACE	TIME
st TEST	
nd TEST	
rd TEST	
h TEST	
LOCK	
AP	
ADLE #1	
ADLE #2	
nestone	
ne	
ne	
ke	
ar	
ale	
ygen After	
ter Before	
Used	
ETER AFTER	
ETER BEFORE	
ETER AT MELT	
VH USED TO MELT	
No.	

G	COMMENTS

STRIPPING
ip
rip
ime
d

WEIGHMASTER

ANALYSIS	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Va	Cb	AL.	FEO	L.S
ORDERED	.26/.28	.95/1.05	.015	.008	.08/.15	.35	.15	.12	.03			.020/.040		
MADE										Rem-Lo				
Prelim.														
Prelim														
Prelim														
Prelim.														
Prelim														
Lollypop														
Ladle Analysis														

ACTUAL TIME

TAPPED PREVIOUS HEAT	BEGAN CHARGE	POWER ON	FINISH CHARGE	SLAG OFF START	SLAG OFF FINISH	TAPPED	TIME OF HEAT
11:31/p		11:41/p	12:00/p			12:43/p	1:00

ELAPSED TIME

ACTUAL CHARGE TIME	CHARGE TO TAP	MAKE BOTTOMS	CHARGE TO CHARGE	DELAYS	FURNACE PATCH	K.W.H.	TAP TO TAP
							1:15

METALS CHARGED	WEIGHT
NO. 1 STEEL	
NO. 1 BUNDLESFACTORY	
NO. 1 BUNDLESDEALER	11840
NO. 2 STEEL	36420
BUSHUNGS	
BROKEN MOULDS	
PREPARED PIT SCRAP	6700
COMPANY SCRAP-CARBON	106740
COMPANY SCRAP-INGOTS & BUTTS	
SHREDD	32680
NO. 2 BUNDLES	9140
BORING & TURNINGS	
TIN PLATE	
TOTAL	203600

FURNACE AND LADLE ADDITIONS	WEIGHT
MILL SCALE	
NICKEL	
COPPER	
H. C. MANGANESE	199.1
FERRO PHOSPHORUS	
75% FE. SILICON	
ALUMINUM 26/250	d.76
MOLYBDENUM	
FE COLUMBIUM (CONT WGT.)	
LC MANGANESE	
FE VANADIUM	
CHROME	
COKE	100
CALCIUM	1
Air Carb	300
TOTAL	2690

PRODUCTION 29490 WEIGHT

PRODUCT	NO. OF SLABS	MOLD SIZE	MOLD CODE	
SLABS	7	8.46/2.282		206430
SLABS				
INGOTS				
FRONT ENDCROPS				
TAIL ENDCROPS				
SKULL				
TONS IN TUNDISH				
PIT				
TOTAL INGOT WEIGHT				

TONNAGE	WEIGHT
TOTAL CHARGED	103145
TOTAL PRODUCED	103215

100.1 YIELD %

FURNACE DELAYS AND REMARKS	TIME	ELAPSED TIME	TYPE
CLOCK TIME OF RECARB OR DECARB			

NSC-0109

DATE 10-4-

CHARGE	WEIGHT	TYPE	HOW LOADED	TIME
				12:00p

CARBON ANALYZER TESTS		TIME OF TEST	
C.	TIME MELT.	TO LAB.	REC'D

ANALYSIS	C	
ORDERED	26/28	9
MADE		
Prelim.		
Prelim.		
Prelim.		
Prelim.		
Prelim.		
Lollypop		
Ladle Analysis		

POWER	
ON	OFF
After	
Before	
Total Min.	
% P. On	

THERMOCOUPLE READING FURNACE		TIME
1st TEST		
2nd TEST		
3rd TEST		
4th TEST		
BLOCK		
TAP		
LADLE #1		
LADLE #2		

TAPPED PREVIOUS HEAT
11:31p

ACTUAL CHARGE TIME

ORDERED	FURNACE AND LADLE ALLOWANCE			
	ALLOYS	%	WEIGHT	TIME
	FE. MN. FURNACE			
	FE. MN. FURNACE			
	FE. MN. FURNACE			
	FE. MN. LADLE	80%	1922	
	FE. MN. LADLE			
	FE. SI. FURNACE			
	FE. SI.	75%	0	
	FE. SI.			
	MISCH ALLOY			
	FE. VANADIUM			
	MOLYBDENUM			
	AL. LADLE Briq		250	
	AL. MOULDS			
	COKE		75	
	A.K. FLUX			
	RIM. ACCEL. MOULDS			
	FE. COLUMBIUM			
	DESULFURIZER TAP			
	DESULFURIZER LADLE			
	CALCIUM NO. OF FT.			
	POUNDS OF HOT TOP			
	ELAPSED TIME OF TAP			
	ARGON TIME			
	ARGON GAUGE READING			
	Lime		2014	
	50/50		300	
	Si/Carbide		300	
	Cu Carbide		50	

Limestone	
Lime	
Lime	
Coke	
Spar	
Scale	
Oxygen After	
Meter Before	
O_2 Used	

METALS CH	
NO. 1 STEEL	
NO. 1 BUNDLES-FACT	
NO. 1 BUNDLES-DEAL	
NO. 2 STEEL	
BUSHLINGS	
BROKEN MOULDS	
PREPARED PIT SCRAP	
COMPANY SCRAP-CA	
COMPANY SCRAP-INC	
SHREDD	
NO. 2 BUNDLES	
BORING & TURNINGS	
TIN PLATE	

ELECTRODE DATA

PHASE	NO. ADDED	TIME	BY WHOM	SUPPLIER
No. 1				
No. 2				
No. 3				

METER AFTER
~~METER BEFORE~~
METER AT MELT
K.W.H. USED TO MELT

PRODUC		
PRODUCT	NO. OF SLABS	MO
SLABS	1	5.96
SLABS		
INGOTS		
FRONT END CROPS		
TAIL END CROPS		
SKULL		
TONS IN TUNDISH		
PIT		
TOTAL		

HEATS ON LINING. ROOF ROOF No.

WALLS	Used: GUN MIX	SYNDOLAG	COMMENTS
TAP HOLE			
BANKS			
BOTTOM			

LADLE NO. NO. HEATS NOZ. SIZE

STOPPER: MOLD CONDITION:

BLEEDERS:

POURED BY: PIT FOREMAN

TESTS: LAB. JOMINY GR. SIZE

STRIPPING
Start Strip
Finish Strip
Lapsed Time
Delays
Delivered

MELTER	1st HELPER	WEIGHMASTER
12 - 8	12 - 8	12 - 8
8 - 4 RW	8 - 4 GB	8 - 4
4 - 12	4 - 12	4 - 12

CLOCK TIME OF REC

10

HEAT LOG

SEQ. No. 6552

DATE 10-4-00 GRADE J55 CODE 84 HEAT No. D6552

ANALYSIS	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Va	Cb	AL.	FEO	L.S.
ORDERED	26/28	95/105	015	008	08/15	35	15	12	03			020/040		
MADE										Qn	60			
Prelim.														
Prelim.														
Prelim.														
Prelim.														
Prelim.														
Lollypop														
Ladle Analysis														

CARBON ANALYZER TESTS		TIME OF TEST	
C.	TIME MELT.	TO LAB.	REC'D

POWER	
ON	OFF
fter	
efore	
otal Min.	
P. On	

THERMOCOUPLE READING FURNACE	TIME
TEST	
d TEST	
TEST	
TEST	
OCK	
P	
DLE #1	
DLE #2	
estone	
e	
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le	
ygen After	
ter Before	
Used	

ACTUAL TIME							
TAPPED PREVIOUS HEAT	BEGAN CHARGE	POWER ON	FINISH CHARGE	SLAG OFF START	SLAG OFF FINISH	TAPPED	TIME OF HEAT
12:43/p		12:55/p	1:14/p			1:55/p	1:00

ELAPSED TIME							
ACTUAL CHARGE TIME	CHARGE TO TAP	MAKE BOTTOMS	CHARGE TO CHARGE	DELAYS	FURNACE PATCH	K.W.H.	TAP TO TAP
							1:15

METALS CHARGED	WEIGHT
NO. 1 STEEL	
NO. 1 BUNDLES-FACTORY	
NO. 1 BUNDLES-DEALER	8400
NO. 2 STEEL	36060
BUSHLINGS	
BROKEN MOULDS	
PREPARED PIT SCRAP	5980
COMPANY SCRAP-CARBON	11228
COMPANY SCRAP-INGOTS & BUTTS	
SHREDD	32440
NO. 2 BUNDLES	9220
BORING & TURNINGS	
TIN PLATE	
TOTAL	204380

FURNACE AND LADLE ADDITIONS	WEIGHT
MILL SCALE	
NICKEL	
COPPER	
H. C. MANGANESE	2015
FERRO PHOSPHORUS	
75% FE. SILICON	
ALUMINUM	
MOLYBDENUM	
FE. COLUMBIUM (CONT. WGT.)	
LC. MANGANESE	
FE. VANADIUM	
CHROME	
COKE	125
CALCIUM	17
See Cert	300
TOTAL	2457

PRODUCTION 29490 WEIGHT

PRODUCT	NO. OF SLABS	MOLD SIZE	MOLD CODE	WEIGHT
SLABS	3	8.46½-282		88470
SLABS	3	46½-211		66180
INGOTS				
FRONT ENDCROPS				
TAIL ENDCROPS		46½-12		1265
SKULL				9800
TONS IN TUNDISH	2	4.9		5000
PIT				
TOTAL INGOT WEIGHT				154650

TONNAGE	WEIGHT
TOTAL CHARGED	103419
TOTAL PRODUCED	77325

YIELD 74.8 %

COMMENTS

STRIPPING
ip
trip
Time
d

WEIGHMASTER
2

FURNACE DELAYS AND REMARKS	TIME	ELAPSED TIME	TYPE
CLEAN OFF TBEZ	1:10/p - 1:14/p	:04	

CLOCK TIME OF RECARB OR DECARB

NSC-0109

DATE 10-4-(

CHARGE	WEIGHT	TYPE	HOW LOADED	TIME

CARBON ANALYZER TESTS		TIME OF TEST	
C.	TIME MELT.	TO LAB.	REC'D

POWER	
ON	OFF
After	
Before	
Total Min.	
% P. On	

THERMOCOUPLE READING FURNACE		TIME
1st TEST		
2nd TEST		
3rd TEST		
4th TEST		
BLOCK		
TAP		
LADLE #1		
LADLE #2		

ORDERED	FURNACE AND LADLE ALLOWANCE			
	ALLOYS	%	WEIGHT	TIME
	FE. MN. FURNACE			
	FE. MN. FURNACE			
	FE. MN. FURNACE			
	FE. MN. LADLE			
	FE. MN. LADLE	80%	1015	
	FE. SI. FURNACE			
	FE. SI.	75%	0	
	FE. SI.			
	MISCH ALLOY			
	FE. VANADIUM			
	MOLYBDENUM			
	AL. LADLE Brig			
	AL. MOULDS			
	COKE			
	A.K. FLUX			
	RIM. ACCEL. MOULDS			
	FE. COLUMBIUM			
	DESULFURIZER TAP			
	DESULFURIZER LADLE			
	CALCIUM NO. OF FT.			
	POUNDS OF HOT TOP			
	ELAPSED TIME OF TAP			
	ARGON TIME			
	ARGON GAUGE READING			
	Lime		2013	
	50/50		300	
	Si Carbid		300	
	Ca Carbid		50	

Limestone	
Lime	
Lime	
Coke	
Spar	
Scale	
Oxygen After	
Meter Before	
O_2 Used	
METER AFTER	
METER BEFORE	
METER AT MELT	
K.W.H. USED TO MELT	

ANALYSIS	C	M
ORDERED	2.6/2.8	.15/
MADE		
Prelim.		
Prelim.		
Prelim.		
Prelim.		
Prelim.		
Lollypop		
Ladle Analysis		

TAPPED PREVIOUS HEAT	
12:43/p	

ACTUAL CHARGE TIME	

METALS CH	
NO. 1 STEEL	
NO. 1 BUNDLES-FACTO	
NO. 1 BUNDLES-DEALE	
NO. 2 STEEL	
BUSHLINGS	
BROKEN MOULDS	
PREPARED PIT SCRAP	
COMPANY SCRAP-CAR	
COMPANY SCRAP-INGO	
SHREDD	
NO. 2 BUNDLES	
BORING & TURNINGS	
TIN PLATE	

ELECTRODE DATA				
PHASE	NO. ADDED	TIME	BY WHOM	SUPPLIER
No. 1				
No. 2				
No. 3				

HEATS ON LINING: ROOF ROOF No.

WALLS	Used: GUN MIX	SYNDOLAG	COMMENTS
TAP HOLE			
BANKS			
BOTTOM			

PRODUCT		
PRO-DUCT	NO. OF SLABS	MOL
SLABS	3	8.46
SLABS	3	46%
INGOTS		
FRONT ENDCROPS		
TAIL ENDCROPS		46%
SKULL		
TONS IN TUNDISH	2	4.
PIT		
TOTAL		

UDDLE NO. NO. HEATS NOZ. SIZE

STOPPER: MOLD CONDITION:

BLEEDERS:

POURED BY: PIT FOREMAN

TESTS: LAB. JOMINY GR. SIZE

STRIPPING
Start Strip
Finish Strip
Lapsed Time
Delays
Delivered

CLEAN OFF

MELTER		1st HELPER		WEIGHMASTER
12 - 8		12 - 8		12 - 8
8 - 4	RW	8 - 4	G B	8 - 4
4 - 12		4 - 12		4 - 12

CLOCK TIME OF RECAL

HEAT LOG

SEQ. No. 3037

DATE 10-4-00 **GRADE** J55 **CODE** 84 **HEAT No.** D6553

CARBON ANALYZER TESTS		TIME OF TEST	
C.	TIME MELT.	TO LAB.	REC'D

ANALYSIS	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Va	Cb	AL.	FEO	L.S.
ORDERED	28/30	100/110	015	010	08/15	35	15	12	03			020/040		
MADE											Ren 60			
Prelim.	10													
Prelim.														
Prelim.	26			.008										
Prelim.														
Prelim.														
Lollypop														
Ladle Analysis														

POWER

	ON	OFF
fter		
efore		
otal Min.		
P. On		

THERMOCOUPLE READING FURNACE		TIME
st TEST	3065	
nd TEST		
d TEST		
h TEST		
LOCK		
AP		
ADLE #1		
ADLE #2		

ACTUAL TIME

TAPPED PREVIOUS HEAT	BEGAN CHARGE	POWER ON	FINISH CHARGE	SLAG OFF START	SLAG OFF FINISH	TAPPED	TIME OF HEAT
1:55/p		2^{05}p				320	1:15

ELAPSED TIME

ACTUAL CHARGE TIME	CHARGE TO TAP	MAKE BOTTOMS	CHARGE TO CHARGE	DELAYS	FURNACE PATCH	K.W.H.	TAP TO TAP
							1:25

METALS CHARGED	WEIGHT
NO. 1 STEEL	—
NO. 1 BUNDLES-FACTORY	—
NO. 1 BUNDLES-DEALER	9140
NO. 2 STEEL	35300
BUSHLINGS	—
BROKEN MOULDS	—
PREPARED PIT SCRAP	7080
COMPANY SCRAP-CARBON	111420
COMPANY SCRAP-INGOTS & BUTTS	—
SHREDD	31920
NO. 2 BUNDLES	10280
BORING & TURNINGS	—
TIN PLATE	—
TOTAL	205140

FURNACE AND LADLE ADDITIONS	WEIGHT
MILL SCALE	
NICKEL	
COPPER	
H. C. MANGANESE	186
FERRO PHOSPHORUS	—
75% FE. SILICON	—
ALUMINUM	30
MOLYBDENUM	
FE. COLUMBIUM (CONT. WGT.)	
LC. MANGANESE	
FE. VANADIUM	
CHROME	
COKE	12
CALCIUM	17
In Carb	40
TOTAL	270

PRODUCTION 28080 **WEIGHT**

PRODUCT	NO. OF SLABS	MOLD SIZE	MOLD CODE	WEIGHT
SLABS	6	8-34 5/8-360		168480
SLABS				
INGOTS				
FRONT ENDCROPS				
TAIL ENDCROPS				
SKULL				
TONS IN TUNDISH				
PIT				
TOTAL INGOT WEIGHT				

TONNAGE	WEIGHT	
TOTAL CHARGED	103924	81.1
TOTAL PRODUCED	84240	YIELD %

estone	
me	
me	
oke	
par	
cale	

xygen After
eter Before
2 Used

IETER AFTER
IETER BEFORE
IETER AT MELT
W.H. USED TO MELT
No.

AG	COMMENTS

FURNACE DELAYS AND REMARKS	TIME	ELAPSED TIME	TYPE
BROKEN CHAIN ON FRONT DOOR	2:45/p 3^{05}	:18	1

STRIPPING

rip
trip
Time

d

WEIGHMASTER

CLOCK TIME OF RECARB OR DECARB

NSC-0109

DATE 10-4-00

CHARGE	WEIGHT	TYPE	HOW LOADED	TIME	CARBON ANALYSER		TIME OF TEST	
					C.	TIME MELT	TO LAB.	REC'D

ANALYSIS	C	Mn
ORDERED	28/30	100/
MADE		
Relim.	10	
Prelim		
Prelim.	26	
Prelim.		
Prelim.		
Lollypop		
Ladle Analysis		

TAPPED PREVIOUS HEAT	B CH
1:55 p	
ACTUAL CHARGE TIME	CH TC

ORDERED	FURNACE AND LADLE ALLOWANCE			
	ALLOYS	%	WEIGHT	TIME
	FE. MN. FURNACE			
	FE. MN. FURNACE			
	FE. MN. FURNACE			
	FE. MN. LADLE	80%	1816	
	FE. MN. LADLE			
	FE. SI. FURNACE			
	FE. SI.	75%	0	
	FE. SI.			
	MISCH ALLOY			
	FE. VANADIUM			
	MOLYBDENUM			
	AL. LADLE Briq		300	
	AL. MOULDS			
	COKE	100	125	
	A.K. FLUX			
	RIM. ACCEL. MOULDS			
	FE. COLUMBIUM			
	DESULFURIZER TAP			
	DESULFURIZER LADLE			
	CALCIUM NO. OF FT.			
	POUNDS OF HOT TOP			
	ELAPSED TIME OF TAP			
	ARGON TIME			
	ARGON GAUGE READING			
	Lime		2014	
	50/50		250	
	Sil Carbide		400	
	CA Carbide		100	

POWER		
	ON	OFF
After		
Before		
Total Min.		
% P. On		

THERMOCOUPLE READING FURNACE		TIME
1st TEST	3065	
2nd TEST		
3rd TEST		
4th TEST		
BLOCK		
TAP		
LADLE #1		
LADLE #2		

Limestone	
Lime	
Lime	
Coke	
Spar	
Scale	
Oxygen After	
Meter Before	
O_2 Used	

METALS CHAR	
NO. 1 STEEL	
NO. 1 BUNDLES-FACTORY	
NO. 1 BUNDLES-DEALER	
NO. 2 STEEL	
BUSHLINGS	
BROKEN MOULDS	
PREPARED PIT SCRAP	
COMPANY SCRAP-CARBO	
COMPANY SCRAP-INGOT	
SHREDD	
NO. 2 BUNDLES	
BORING & TURNINGS	
TIN PLATE	

ELECTRODE DATA

PHASE	NO. ADDED	TIME	BY WHOM	SUPPLIER
No. 1				
No. 2				
No. 3				

METER AFTER	
METER BEFORE	
METER AT MELT	
K.W.H. USED TO MELT	

PRODUCTI		
PRO-DUCT	NO. OF SLABS	MOLD
SLABS	6	8-34
SLABS		
INGOTS		
FRONT ENDCROPS		
TAIL ENDCROPS		
SKULL		
TONS IN TUNDISH		
PIT		

HEATS ON LINING: ROOF ROOF No.

WALLS Used:	GUN MIX	SYNDOLAG	COMMENTS
TAP HOLE			
BANKS			
BOTTOM			

TOTAL IN

BROKEN CHA

LADDLE NO. NO. HEATS NOZ. SIZE

STOPPER: MOLD CONDITION:

BLEEDERS:

POURED BY: PIT FOREMAN

TESTS: LAB. JOMINY GR. SIZE

STRIPPING	
Start Strip	
Finish Strip	
Lapsed Time	
Delays	
Delivered	

MELTER		1st HELPER		WEIGHMASTER	
12 - 8		12 - 8		12 - 8	
8 - 4	RW	8 - 4	GB	8 - 4	
4 - 12	Ray	4 - 12	Kerry	4 - 12	

CLOCK TIME OF RECARB

1 12

[redacted]

HEAT LOG

SEQ. No. M 3038

DATE 10/4/00 GRADE J-55 CODE 84 HEAT No. D6554

CARBON ANALYZER TESTS		TIME OF TEST	
C.	TIME MELT.	TO LAB.	REC'D

ANALYSIS	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Va	Cb	AL.	FEO	L.S.
ORDERED	.28/.30	100/110	.015	.010	.04/.15	.35	.15	.12	.03			.020/.046		
MADE										Cu 60				
Prelim.	.07													
Prelim														
Prelim.	.2	.90		.028										
Prelim.														
Prelim.														
Lollypop														
ladle Analysis														

POWER	ON	OFF
After		
Before		
Total Min.		
% P. On		

THERMOCOUPLE READING	FURNACE	TIME
st TEST	3070	
nd TEST		
rd TEST		
th TEST		
LOCK		
AP		
ADLE #1		
XDLE #2		

ACTUAL TIME							
TAPPED PREVIOUS HEAT	BEGAN CHARGE	POWER ON	FINISH CHARGE	SLAG OFF START	SLAG OFF FINISH	TAPPED	TIME OF HEAT
320		333	355			504	1:30
ELAPSED TIME							
ACTUAL CHARGE TIME	CHARGE TO TAP	MAKE BOTTOMS	CHARGE TO CHARGE	DELAYS	FURNACE PATCH	K.W.H.	TAP TO TAP
							1:45

METALS CHARGED	WEIGHT
NO. 1 STEEL	
NO. 1 BUNDLESFACTORY	
NO. 1 BUNDLES-DEALER	10820
NO. 2 STEEL	35120
BUSHLINGS	
BROKEN MOULDS	
PREPARED PIT SCRAP	9240
COMPANY SCRAP-CARBON	11270
COMPANY SCRAP-INGOTS & BUTTS	
SHREDD	2766a
NO. 2 BUNDLES	9780
BORING & TURNINGS	
TIN PLATE	
TOTAL	205320

FURNACE AND LADLE ADDITIONS	WEIGHT
MILL SCALE	
NICKEL	
COPPER	
H. C. MANGANESE	194
FERRO PHOSPHORUS	
75% FE SILICON	
ALUMINUM 45/300	34
MOLYBDENUM	
FE COLUMBIUM (CONT WGT.)	
LC MANGANESE	
FE VANADIUM	
CHROME	
COKE	225
CALCIUM	23
Fe Carb	40
TOTAL	2936

PRODUCTION 28080				WEIGHT
PRODUCT	NO. OF SLABS	MOLD SUE	MOLD CODE	
SLABS	7	8.34/5/8-360		196560
SLABS				
INGOTS				
FRONT ENDCROPS	1	34/5/8-12		941
TAIL ENDCROPS				
SKULL				
TONS IN TUNDISH				
PIT				
TOTAL INGOT WEIGHT				

TONNAGE	WEIGHT	
TOTAL CHARGED	104128	94.4
TOTAL PRODUCED	98280	YIELD %

FURNACE DELAYS AND REMARKS	TIME	ELAPSED TIME	TYPE
Level 2nd charge		:05	✓
L+N Temp Box, replace, cord, pole	440 504	:24	

CLOCK TIME OF RECARB OR DECARB

ETER AFTER	
ETER BEFORE	
ETER AT MELT	
W.H. USED TO MELT	
No.	

G	COMMENTS

STRIPPING
rip
Strip
Time
ed

WEIGHMASTER
2

NSC-0100

DATE 10/4/00

CHARGE	WEIGHT	TYPE	HOW LOADED	TIME

CARBON ANALYZER TESTS		TIME OF TEST	
C.	TIME MELT.	TO LAB.	REC'D

ANALYSIS	C	Mn
ORDERED	28/30	100/1
MADE		
Prelim.	.07	
Prelim.		
Prelim.	25	90
Prelim		
Prelim.		
Lollypop		
Ladle Analysis		

ORDERED

FURNACE AND LADLE ALLOWANCE			
ALLOYS	%	WEIGHT	TIME
FE MN FURNACE			
FE. MN. FURNACE			
FE MN. FURNACE			
FE. MN. LADLE	78	1943	
FE MN. LADLE			
FE SI. FURNACE			
FE. SI.	75	0	
FE. SI.			
MISCH ALLOY			
FE. VANADIUM			
MOLYBDENUM			
AL LADLE	Bn 1	308	
AL MOULDS			
COKE	100	125	
A.K. FLUX			
RIM. ACCEL. MOUWS			
FE COLUMBIUM			
DESULFURIZER TAP	N-11	2015	
DESULFURIZER LADLE			
CALCIUM NO. OF FT.			
POUNDS OF HOT TOP			
ELAPSED TIME OF TAP	SEL		
ARGON TIME			
ARGON GAUGE READING			
	50/50	350	
	SiC	400	
	CaC	100	

POWER		
	ON	OFF
After		
Before		
Total Min.		
% P. On		

THERMOCOUPLE READING FURNACE		TIME
1st TEST	3020	
2nd TEST		
3rd TEST		
4th TEST		
BLOCK		
TAP		
LADLE #1		
LADLE #2		

TAPPED PREVIOUS HEAT	B CH
320	

ACTUAL CHARGE TIME	CH TO
-	

METALS CHAR	
NO. 1 STEEL	
NO. 1 BUNDLES-FACTORY	
NO. 1 BUNDLES-DEALER	
NO. 2 STEEL	
BUSHLINGS	
BROKEN MOULDS	
PREPARED PIT SCRAP	
COMPANY SCRAP-CARBO	
COMPANY SCRAP-INGOT	
SHREDD	
NO. 2 BUNDLES	
BORING & TURNINGS	
TIN PLATE	

Limestone	
Lime	
Lime	
Coke	
Spar	
Scale	
Oxygen After	
Meter Before	
O_2 Used	

ELECTRODE DATA

PHASE	NO. ADDED	TIME	BY WHOM	SUPPLIER
No. 1				SGL
No. 2				SGL
No. 3				SGL

METER AFTER	
METER BEFORE	
METER AT MELT	
K.W.H. USED TO MELT	

PRODUCTIO

PRO-DUCT	NO. OF SLABS	MOLD!
SLABS	7	8.34/5/8
SLABS		
INGOTS		
FRONT END CROPS	1	34/5/8
TAIL END CROPS		
SKULL		
TONS IN TUNDISH		
PIT		
TOTAL IN		

HEATS ON LINING: HOOF ROOF No.

WALLS	Used: GUN MIX	SYNDOLAG	COMMENTS
TAP HOLE			
BANKS			
BOTTOM			

LADLE NO. NO. HEATS NOZ. SIZE

STOPPER: MOLD CONDITION:

BLEEDERS:

POURED BY: PIT FOREMAN

T S : LAB. JOMINY GR. SIZE

STRIPPING	
Start Strip	1st 2ND
Finish Strip	Lat N Temp
Lapsed Time	
Delays	
Delivered	

MELTER	1st HELPER	WEIGHMASTER
12 - 8	12 - 8	12 - 8
8 - 4	8 - 4	8 - 4
4 - 12	4 - 12	4 - 12

CLOCK TIME OF RECARB

0 13

6969

NEWPORT STEEL CORPORATION
BRANDT BAGHOUSE TEST PROCESS MONITORING FORM

Date 10/3/00 **Run Number** 1

Tapping 6534 @07:48

Time	Baghouse Fan Amperage 1	2	3	Baghouse Pressure Drop, in. WG	CEM Readings ppm / Damper Positions (Describe)	Notes (Heat No. and time; Other)
10:00	219	206	215	6.03	9:57 CO = 67.3 NO_x = 3.78	Heat 6535 Melting
10:13	217	207	214	6.21	CEM clock 8:54	
10:30	206	195	200	6.04	CO = 48.3 9:12 NO_x = 3.59	Test start 10:12
11:00	225	210	217	5.91	10:28 CO 50.3	CEM Clock 1 hr Behind
11:30	224	214	221	5.94	NO_x 2.88	Tapped 10:55
12:00	226	217	223	5.72		Heat 6536
12:30	RUN	TERMINATED -			CASTER DOWN	
13:00						
13:30						
14:00						

x6969

NEWPORT STEEL CORPORATION
BRANDT BAGHOUSE TEST PROCESS MONITORING FORM

Date 10/3/00 **Run Number** 1 Test Start 16:29

Time	Baghouse Fan Amperage 1	2	3	Baghouse Pressure Drop, in. WG	CEM Readings Damper Positions (Describe)	Notes (Heat No. and time; Other)
16:30	212	201	207	5.99	(15:40) CO 92 ppm CST NO_x = 1.6	Heat 6536
17:00	218	206	212	5.78	(16:27) CST	2nd Charge 16:18
17:30	223	215	223	5.76	CO 29.29	Tapped ~~17:25~~ 17:15
18:00	226	217	225	5.72	NO_x 1.7	~~Heat~~ Heat 6537 5 AF
18:30	223	212	217	5.34	(17:31) CST	Roof problem-down ~ ~~5 min~~ 17:45 - 18:30
19:00	210	200	204	5.96	CO 94.	Tap 6:28
19:30	206	196	206	6.21	NO_x 4.5	Heat 6538
19:45	217	206	211	5.88		

Test End 7:44 p
19:44

NEWPORT STEEL CORPORATION
BRANDT BAGHOUSE TEST PROCESS MONITORING FORM

Date 10/4/00 **Run Number** 2 & 3

x6969

	Time	Baghouse Fan Amperage 1	2	3	Baghouse Pressure Drop, in. WG	CEM Data ~~Damper Positions~~ (Describe)	Notes (Heat No. and time; Other)
	0800	220	212	218	6.22	NOx 3.5 ppm CO 101.2 ppm	1) 6548 CHARGE @ 0755 - 2nd CHARGE ON— FOLLOWED TAPPING #6547 @ 0745 TAP 6548 @ 0900 0850
	0830	204	191	195	6.79	NOx 0.88 CO 97.2	
	0900	221	211	217	6.01	CO 34 ppm NOx 6 ppm	
	0930	213	204	209	6.13	CO 49.3 NOx 2.9	2) 6549 START 0855 LAST CHARGE 0935 TAP @ ~~1000~~ 1020
IW2	1000	203	193	198	6.47	CO 90.2 NOx 1.9	3) 6550 2nd CHARGE @ 1048 1131 START TAP
	1030	210	198	206	6.92		
	1100	216	206	211	6.26	CO 51.4 NOx 2.7	4) 6551 START 1141 TAP @ 1243
	1130	215	203	212	6.24	CO ~~29~~ 29.3 NOx 8.3	
—	1200	214	202	208	6.15	CO 239 NOx 2.6	5) 6552 1255 START 2nd CHARGE 1320 TAP @ 1355
	1230	219	210	215	6.28	CO 42 ppm NOx 8.2 ppm	
	1300	218	209	213	6.06		6) 6553 START 1402 TAP @ 1510
	1330	217	205	207	6.23	CO 53 NOx 4.2	7) 6554 START 1533 TAP @ ~~1640~~ 1630
IW3	1400	213	201	211	6.72	CO 78.2 NOx 2.8	
	1430	211	198	211	6.31	CO 104 NOx 1.9	
	1500	205	200	211	6.15	CO 87 NOx 0.98	
	1530	209	199	205	6.02		
	1600	208	198	202	5.91	CO 103 NOx 2.1	
IN PLETE	1622	204	192	196	6.69		

NEWPORT STEEL CORPORATION
BRANDT BAGHOUSE TEST PROCESS MONITORING FORM

Date _____ **Run Number** _____

Time	Baghouse Fan Amperage			Baghouse Pressure Drop, in. WG	Damper Positions (Describe)	Notes (Heat No. and time; Other)
	1	2	3			

Appendix E

Calibration Data

PACIFIC ENVIRONMENTAL SERVICES, INC.

CALIBRATION PROCEDURES AND RESULTS

All of the equipment used is calibrated in accordance with the procedures outlined in the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III.* The following pages describe these procedures and include the data sheets.

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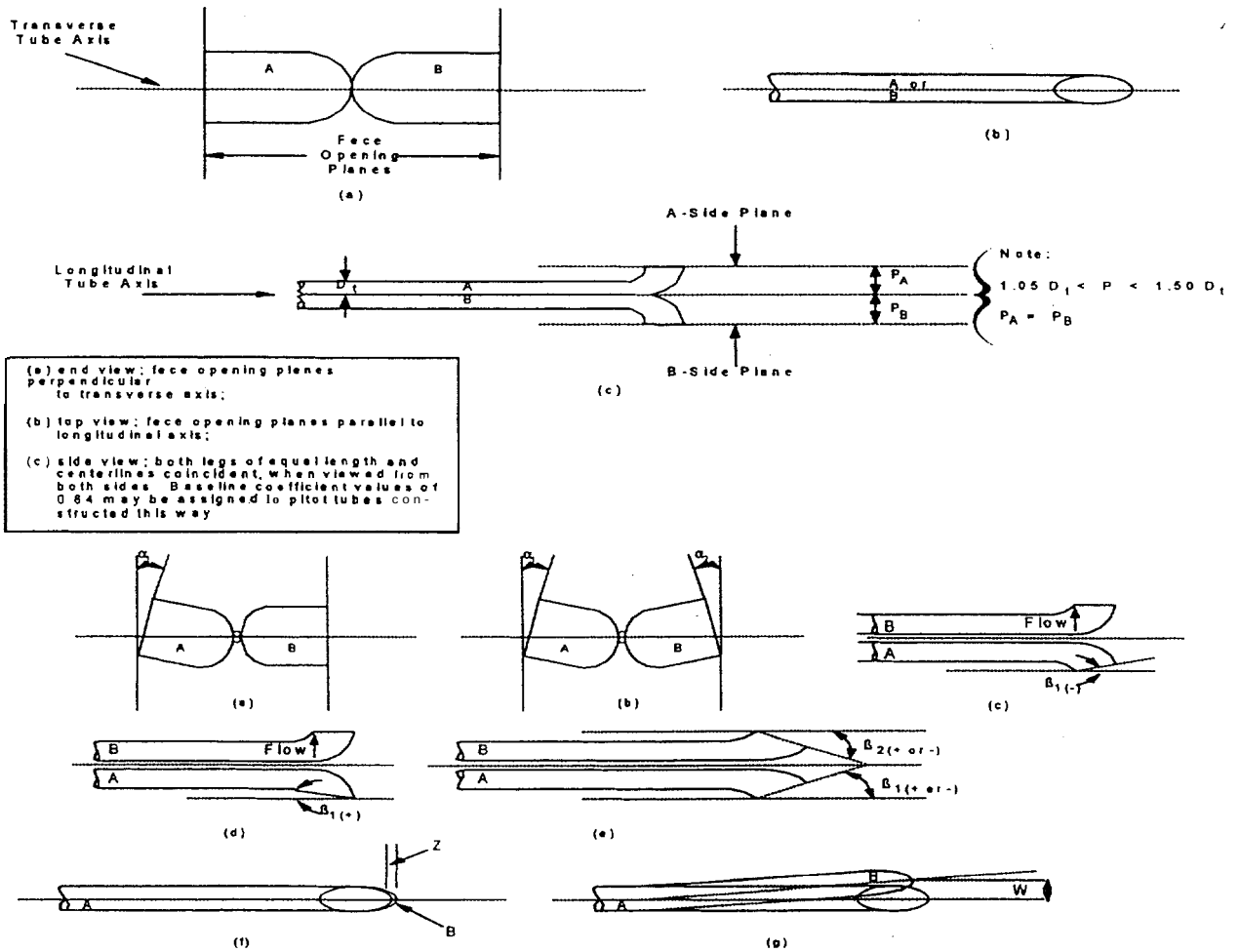
*EPA 600/4-77-027b

Pitot Tube Calibration

Each **pitot** tube used in sampling meets all requirements of EPA Method **2,** Section 4.1.** Therefore, a baseline coefficient of 0.84 is assigned to each **pitot** tube. The following pages show the alignment requirements of Method 2 and the **Pitot** Tube Inspection Data **Sheet(s)** for each **pitot** tube used during the test program.



The types of **face-opening misalignment shown** above will not affect **the** baseline value of **Cp(s)** so **long** as α_1 and α_2 is less than or equal to **10°**, β_1 and 0, **is less** than or **equal** to 5°, z is less than or **equal to** 0.32 cm (118 in.). and w is **less** than or equal to 0.08 **cm (1/32 in.)** (referance 11.0 **in Section 16.0).**

40 CFR *60,* Appendix A, July 1995

PACIFIC ENVIRONMENTAL SERVICES

7209 East Kemper Rd.
Cincinnati, OH 45248
513.489.6611
513.489.6619 Fax
www.pes.com

PITOT TUBE CALIBRATIONS

Pitot ID	Date Calibrated	α_1	B_1	α_2	B_2	Y	θ	A	z	w	P_α	P_β	D_t	A/2/D_t	Accept/Reject
I	0111312000	1.8	0.1	1.4	0.1	0.1	0.6	0.948	0.002	0.010	0.474	0.474	0.375	1.264	ACCEPT
2-M-2	01/13/2000	0.6	1.4	2.8	0.7	1.1	1.7	0.955	0.018	0.028	0.477	0.478	0.375	1.273	ACCEPT
3-1	10/29/1999	1.3	1.6	3.8	3.7	2.1	0.3	1.077	0.039	0.006	0.538	0.539	0.364	1.479	ACCEPT
3-M-1	10/29/1999	1.1	1.8	0.9	0.1	1.4	1.7	0.948	0.023	0.028	0.474	0.474	0.375	1.264	ACCEPT
3-M-2	10/28/1999	1.6	0.8	0.8	0.6	0.7	0.8	0.954	0.012	0.013	0.477	0.477	0.375	1.272	ACCEPT
3-M-3	01/13/2000	0.7	0.2	1.6	0.2	2.6	1.6	0.945	0.043	0.026	0.473	0.472	0.375	1.260	ACCEPT
3-X-2	10/28/1999	0.4	0.4	0.7	0.7	0.7	0.9	0.945	0.012	0.015	0.472	0.473	0.375	1.260	ACCEPT
3-X-1	10/29/1999	0.4	0.6	0.8	0.6	0.1	0.2	0.945	0.002	0.003	0.473	0.472	0.375	1.260	ACCEPT
3-P-1	05/30/2000	1.0	1.0	1.0	1.0	1.0	0.1	0.748	0.013	0.001	0.374	0.374	0.250	1.496	ACCEPT
4-M-1	10/28/1999	0.3	0.6	0.5	0.4	0.6	0.4	0.949	0.010	0.007	0.474	0.475	0.375	1.265	ACCEPT
4-M-2	10/29/1999	0.7	0.4	0.2	1.4	1.1	0.4	0.958	0.018	0.007	0.479	0.479	0.375	1.277	ACCEPT
4-X-1	10/29/1999	4.7	1.2	4.4	0.4	2.7	0.4	0.945	0.045	0.007	0.472	0.473	0.375	1.260	ACCEPT
4-X-2	10/28/1999	0.2	0.9	1.6	1.3	0.1	0.1	0.949	0.002	0.002	0.474	0.475	0.375	1.265	ACCEPT
4-X-3	10/28/1999	0.2	0.6	0.2	0.5	0.2	0.4	0.956	0.003	0.007	0.478	0.478	0.375	1.275	ACCEPT
5' TIP	10/29/1999	1.9	3.5	1.0	1.4	1.8	1.6	0.937	0.029	0.026	0.468	0.469	0.375	1.249	ACCEPT
5-I-1	10/28/1999	1.6	0.8	1.0	0.8	0.1	0.7	0.968	0.002	0.012	0.484	0.484	0.375	1.291	ACCEPT
5-M-1	10/28/1999	0.2	0.3	0.2	0.2	1.0	0.6	0.896	0.016	0.009	0.448	0.448	0.375	1.195	ACCEPT
5-M-2	01/13/2000	0.9	0.1	3.9	3.9	1.3	1.2	0.921	0.021	0.019	0.461	0.460	0.375	1.228	ACCEPT
5-X-1	10/29/1999	0.3	0.0	0.3	0.5	1.6	0.3	0.950	0.027	0.005	0.475	0.475	0.373	1.273	ACCEPT
5-X-2	10/28/1999	1.6	1.4	1.2	0.7	0.7	0.7	0.947	0.012	0.012	0.474	0.473	0.372	1.273	ACCEPT
5-X-3	10/29/1999	0.4	0.4	0.1	0.3	1.0	0.9	0.948	0.017	0.015	0.474	0.474	0.375	1.264	ACCEPT
5-1	10/27/1999	1.4	1.3	1.0	1.4	0.7	0.8	1.042	0.013	0.015	0.521	0.521	0.375	1.389	ACCEPT
5-2	10/29/1999	0.4	1.8	3.7	2.9	1.4	0.9	0.971	0.024	0.015	0.485	0.486	0.375	1.295	ACCEPT
5-3	10/28/1999	0.8	0.2	0.9	1.0	0.2	0.3	1.009	0.004	0.005	0.504	0.505	0.375	1.345	ACCEPT
5-4	10/29/1999	2.3	1.2	0.5	0.7	2.7	1.0	0.625	0.029	0.011	0.312	0.313	0.250	1.250	ACCEPT
5-5	10/29/1999	1.0	0.8	0.8	0.5	0.5	0.6	1.022	0.009	0.011	0.511	0.511	0.375	1.363	ACCEPT
5-6	01/13/2000	1.3	0.1	1.2	1.4	2.5	0.7	0.938	0.041	0.011	0.469	0.469	0.375	1.251	ACCEPT
6-1	10/27/1999	1.6	1.5	1.7	1.3	0.2	0.2	0.956	0.003	0.003	0.478	0.478	0.375	1.275	ACCEPT
6-2	10/28/1999	0.1	0.2	0.7	1.7	0.4	0.3	1.097	0.008	0.006	0.548	0.549	0.375	1.463	ACCEPT
6-3	01/13/2000	1.9	2.1	2.6	1.7	1.5	0.1	1.041	0.027	0.002	0.520	0.521	0.375	1.388	ACCEPT
6-I-1	10/27/1999	1.4	2.7	1.3	0.6	2.2	0.4	0.986	0.038	0.007	0.493	0.493	0.375	1.315	ACCEPT
6-I-2	10/28/1999	0.8	0.8	1.3	1.8	0.6	0.3	0.968	0.010	0.005	0.484	0.484	0.375	1.291	ACCEPT
7-1	01/13/2000	0.7	1.5	1.3	1.0	0.6	0.9	0.975	0.010	0.015	0.487	0.488	0.375	1.300	ACCEPT
7-I-1	10/29/1999	0.1	1.9	0.6	1.0	0.9	0.3	0.948	0.015	0.005	0.474	0.474	0.375	1.264	ACCEPT
7-I-2	06/08/2000	0.4	0.4	0.8	0.3	0.5	0.4	0.920	0.008	0.006	0.474	0.474	0.375	1.227	ACCEPT
7-M-1	10/28/1999	1.1	1.1	0.2	0.2	1.1	0.9	0.957	0.018	0.015	0.478	0.479	0.375	1.276	ACCEPT
7-M-2	10/28/1999	0.4	1.2	1.9	1.8	0.7	0.8	0.923	0.011	0.013	0.462	0.461	0.375	1.231	ACCEPT
7-M-3	10/29/1999	1.6	1.8	0.5	0.4	0.7	0.1	0.923	0.011	0.002	0.461	0.462	0.375	1.231	ACCEPT
8-1	10/28/1999	0.6	0.8	1.9	1.6	0.3	0.1	0.934	0.005	0.002	0.467	0.467	0.375	1.245	ACCEPT
8-2	10/29/1999	0.9	0.8	0.4	0.5	2.1	1.6	0.941	0.034	0.026	0.470	0.471	0.375	1.255	ACCEPT
8-3	11/04/1999	1.1	0.6	0.3	1.4	0.1	0.4	0.918	0.002	0.006	0.459	0.459	0.374	1.227	ACCEPT
8-M-2	10/29/1999	0.2	2.4	0.3	1.2	0.5	0.7	0.938	0.008	0.011	0.469	0.469	0.375	1.251	ACCEPT
9-M-1	10/29/1999	0.1	1.7	0.2	0.8	1	1	0.982	0.017	0.017	0.491	0.491	0.375	1.309	ACCEPT
10-M-1	10/29/1999	2.2	2.8	0.3	0.5	0.2	0.4	0.949	0.003	0.007	0.475	0.474	0.374	1.269	ACCEPT
11-1	10/29/1999	0.8	1.9	2.5	1.8	1.3	1.5	0.970	0.022	0.025	0.485	0.485	0.351	1.382	ACCEPT
12-X-1	10/29/1999	0.4	1.5	0.9	1.9	2.9	1.4	0.921	0.047	0.023	0.461	0.46	0.372	1.238	ACCEPT
12-1	10/29/1999	0.3	0.4	1.1	0.6	1.2	1.2	1.125	0.024	0.024	0.563	0.562	0.375	1.500	ACCEPT

- I = Pitot Alone # - M -1 = Pitot/Thermo. Combination # - X - 1 = Full Probe Assembly # - I - 1 = Inkonel # - T - 1 = Thermo. Alone

PACIFIC ENVIRONMENTAL SERVICES, INC.

Stack Thermocouples

Each thermocouple is calibrated by comparing it with an ASTM-3F thermometer at approximately 32°F, ambient temperature, 212°F, and 500°F. The thermocouple reads within 1.5 percent (%) of the reference thermometer throughout the entire range when expressed in degrees Rankine. The thermocouples may be checked at ambient temperature at the test site to verify the calibration. Calibration data are included in the following Thermocouple Calibration Data Sheet(s).

PACIFIC ENVIRONMENTAL SERVICES

STACK THERMOCOUPLES

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www.pes.com

Thermo. ID	Therm.	Date Calibrated	Ambient Air	Diff., %	Cold Bath	Diff., %	Hot Bath	Diff., %	Hot Oil	Diff., %	Accept/Reject
1-T-1	Reference	0111312000	76	0.00	46	0.00	212	0.00	451	0.00	ACCEPT
	Pitot		76		46		212		451		
2-M-1	Reference	01/27/2000	75	0.00	42	0.00	210	0.00	410	0.00	ACCEPT
	Pitot		75		42		210		410		
2-M-2	Reference	01/27/2000	75	0.00	42	0.00	165	0.00	418	0.00	ACCEPT
	Pitot		75		42		165		418		
3-M-I	Reference	11/03/1999	65	1.14	35	0.00	201	0.00	423	0.00	ACCEPT
	Pitot		71		35		201		423		
3-M-2	Reference	1110211999	74	0.00	42	0.00	208	0.00	456	0.00	ACCEPT
	Pitot		74		42		208		456		
3-M-3	Reference	01/13/2000	75	0.00	36	0.00	192	0.00	410	0.00	ACCEPT
	Pitot		75		36		192		410		
3-M-4	Reference	01/27/2000	75	0.00	42	0.00	212	0.00	415	0.00	ACCEPT
	Pitot		75		42		212		[illegible]		
3-T-1	Reference	1012911999	77	0.19	42	0.00	214	0.00	393	0.23	ACCEPT
	Pitot		78		42		214		395		
3-T-2	Reference	1012911999	77	0.00	43	0.00	212	0.00	452	0.00	ACCEPT
	Pitot		77		43		212		452		
3-T-3	Reference	01/13/2000	75	0.00	46	0 00	207	0 00	423	0 00	ACCEPT
	Pitot		75		46		207		423		
3-T-4	Reference	01/13/2000	76	0 00	38	0.00	210	0.00	455	0.00	ACCEPT
	Pitot		76		38		210		455		
3-X-I	Reference	10/29/1999	77	0.00	42	0.20	211	0.00	500	0.10	ACCEPT
	Pitot		77		43		211		501		
3-X-2	Reference	1110311999	64	0.19	43	0.00	208	0.00	438	1.45	ACCEPT
	Pitot		65		43		208		425		
3-P-I	Reference	06/08/2000	73	0.00	38	0.00	118	0.17	429	0.45	ACCEPT
	Pitot		73		38		117		425		
4-M-1	Reference	1110211999	74	0.00	38	0.60	199	0.00	373	0.00	ACCEPT
	Pitot		74		41		199		373		
4-M-2	Reference	1110311999	74	0.00	58	0.00	192	0.31	411	0.00	ACCEPT
	Pitot		74		58		190		411		

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Thermo. ID	Therm.	Date Calibrated	Ambient Air	Diff., %	Cold Bath	Diff., %	Hot Bath	Diff., %	Hot Oil	Diff., %	Accept/Reject
4-T-1	Reference	11/02/1999	74	0.00	42	0.00	199	0.00	402	0.58	ACCEPT
	Pitot		74		42		199		407		
4-T-2	Reference	11/02/1999	74	0.00	40	0.00	210	0.00	468	0.75	ACCEPT
	Pitot		74		40		210		475		
4-T-3	Reference	11/02/1999	74	0.00	41	0.00	204	0.00	410	0.00	ACCEPT
	Pitot		74		41		204		410		
4-X-1	Reference	11/03/1999	62	0.00	42	0.40	198	0.00	430	0.45	ACCEPT
	Pitot		62		44		198		426		
	Reference	01/27/2000	75	0.00	45	0.00	189	0.00	410	0.00	ACCEPT
	Pitot		75		45		189		410		
4-X-3	Reference	01/27/2000	75	0.00	44	0.00	206	0.00	418	0.00	ACCEPT
	Pitot		75		44		206		418		
5-M-1	Reference	11/02/1999	73	0.19	56	0.00	190	0.00	400	5.93	REJECT
	Pitot		74		56		190		349		
5-M-2	Reference	01/13/2000	75	0.00	44	0.00	210	0.00	438	0.00	ACCEPT
	Pitot		75		44		210		438		
5-T-1	Reference	10/29/1999	75	0.00	42	0.00	214	0.00	489	0.21	ACCEPT
	Pitot		75		42		214		491		
5-T-2	Reference	11/02/1999	74	0.00	40	0.00	210	0.15	410	0.00	ACCEPT
	Pitot		74		40		211		410		
5-X-1	Reference	10/29/1999	78	0.00	40	0.00	209	0.15	496	0.00	ACCEPT
	Pitot		78		40		208		496		
5-X-2	Reference	11/04/1999	66	0.38	39	0.00	206	0.30	438	0.78	ACCEPT
	Pitot		68		39		204		431		
5-X-3	Reference	10/29/1999	77	0.00	38	0.00	208	0.30	506	0.00	ACCEPT
	Pitot		77		38		210		506		
6-I-1	Reference	11/04/1999	66	0.00	43	0.00	210	0.00	449	0.00	ACCEPT
	Pitot		66		43		210		449		
6-I-2	Reference	11/02/1999	73	0.00	41	0.00	170	0.00	460	0.00	ACCEPT
	Pitot		73		41		170		460		
6-T-1	Reference	11/04/1999	66	0.38	43	0.00	212	0.00	459	0.00	ACCEPT
	Pitot		64		43		212		459		
6-T-2	Reference	11/04/1999	66	0.00	42	0.00	212	0.00	461	0.00	ACCEPT
	Pitot		66		42		212		461		

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ID	Therm.	Date Calibrated	Ambient Air	Diff., %	Cold Bath	Diff., %	Hot Bath	Diff., %	Hot Oil	Diff., %	Accept/Reject
6-T-3	Reference	10/29/1999	77	0.00	40	0.00	210	0.15	510	0.41	ACCEPT
	Pitot		77		40		211		514		
6-T-4	Reference	01/13/2000	75	0.00	44	0.00	210	0.00	438	0.00	ACCEPT
	Pitot		75		44		210		438		
7-M-1	Reference	11/03/1999	73	0.00	36	0.00	205	0.00	421	0.00	ACCEPT
	Pitot		73		36		205		421		
7-M-2	Reference	11/03/1999	72	0.00	37	0.00	209	0.00	454	0.00	ACCEPT
	Pitot		72		37		209		454		
7-M-3	Reference	11/03/1999	62	0.00	40	0.00	208	0.00	458	0.00	ACCEPT
	Pitot		62		40		208		458		
7-T-I-1	Reference	01/13/2000	75	0.00	48	0.00	209	0.00	435	0.00	ACCEPT
	Pitot		75		48		209		435		
7-T-I-2	Reference	01/13/2000	75	0.00	48	0.00	210	0.00	440	0.00	ACCEPT
	Pitot		75		48		210		440		
7-T-I-3	Reference	06/08/2000	73	0.00	40	0.00	120	0.00	420	0.00	ACCEPT
	Pitot		73		40		120		420		
8-M-2	Reference	11/03/1999	65	0.00	36	0.00	187	0.00	378	0.00	ACCEPT
	Pitot		65		36		187		378		
8-T-I	Reference	11/04/1999	67	0.38	42	0.00	212	0.00	459	0.00	ACCEPT
	Pitot		67		42		212		459		
8-T-2	Reference	11/02/1999	74	0.00	40	0.00	195	0.61	396	0.70	ACCEPT
	Pitot		74		41		199		396		
8-T-3	Reference	11/02/1999	74	0.00	41	0.00	195	0.00	396	0.00	ACCEPT
	Pitot		74		41		195		396		
8-T-4	Reference	11/04/1999	66	0.38	42	0.40	209	0.30	446	0.22	ACCEPT
	Pitot		68		44		207		446		
8-T-5	Reference	11/04/1999	66	0.00	39	0.80	206	0.15	446	0.00	ACCEPT
	Pitot		66		43		205		446		
10-M-1	Reference	11/04/1999	67	0.38	44	0.20	211	0.00	444	0.00	ACCEPT
	Pitot		69		45		211		444		
10-T-1	Reference	01/27/2000	75	0.00	42	0.00	185	0.00	417	0.00	ACCEPT
	Pitot		75		42		185		417		
12-X-1	Reference	11/04/1999	63	0.00	39	0.00	191	0.00	384	0.00	ACCEPT
	Pitot		63		39		191		384		

Dry Gas Meter and Orifice Meter

Dry gas meters and orifices are calibrated in accordance with Section 3.3.2 of the QA Handbook. This procedure involves direct comparison of the dry gas meter to a reference dry test meter. The reference dry test meter is routinely calibrated using a liquid displacement technique. Before its initial use in the field, the metering system is calibrated over the entire range of operation. After each field use, the metering system is calibrated at a single intermediate setting based on the previous field test. Acceptable tolerances for the initial and final dry gas meter factors and orifice calibration factors are ± 0.02 and ± 0.20 from average, respectively.

Digital Indicators for Thermocouple Readout

A digital indicator is calibrated by feeding a series of millivolt signals to the input and comparing the indicator reading with the reading the signal should have generated. Errors did not exceed 0.5 percent (%) when the temperatures were expressed in degrees Rankine. Calibration data are included in the following Thermocouple Digital Indicator Calibration Data Sheet(s).

Dry Gas Thermocouples

The dry gas thermocouples are calibrated by comparing them with an ASTM-3 thermometer at approximately 32°F, ambient temperature, and a higher temperature between approximately 100°F and 200°F. The thermocouples agreed within 5°F of the reference thermometer.

11/19/1999

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www.pm.com

Meter Box No.: 1

Dry Gas Orifice Meter

Pb, in. Hg	29.36	RUN 1	RUN 2	RUN3	RUN4	RUN5	RUN6
DH	Delta H	0.50	0.75	1.00	1.50	2.00	4.00
in Hg	Vacuum	10	10	10	10	10	10
Vw_1	Initial RTM	873.531	888.480	899.509	910.499	921.676	933.875
Vw_2	Final RTM	888.088	899.083	910.341	921.430	933.245	947.460
Vd_1	Initial DGM	809.724	824.702	835.775	846.827	858.032	870.262
Vd_2	Final DGM	824.310	835.345	846.652	857.784	869.631	883.834
Tw	Ave. Temp RTM °	72	73	74	75	75	75
Td	Ave. Temp DGM °	77	82	84	87	88	89
t	Time (min.)	36.1	21.4	19.0	15.9	15.0	12.4
$Vw_2 - Vw_1$	Net Volume RTM	14557	10.603	10 832	10.931	11.569	13.585
$Vd_2 - Vd_1$	Net Volume DGM	14586	10643	10.877	10.957	11.599	13.572
	Y	1 006	1.011	1012	1016	1.017	1017
	dH@	1 747	1 724	1 732	1 793	1.896	1 876

AVERAGE Y **1.001** (Reference meter correction factor of 0.988)

Average Y Range = 0.981 TO 1.021 **ACCEPT**

AVERAGE dH **1.795**

Average dH@ Range = 1.595 TO 1.995 **ACCEPT**

Calculations

Y = (Vw * Pb * (Td + 460)) / (Vd * (Pb + (dHd / 13.6)) * (Tw +460))

dH@ = 0.0317 * dHd / (Pb (Td + 460)) * ((Tw +460) * t)/ Vw)^2

Digital Indicator for Thermocouple Readout

TEST POINT NO.	MILLIVOLT SIGINAL	EQUIVALENT TEMP. °F	DIGITAL INDICATOR TEMP READING, °F	DIFFERENCE. %
1	-0.692	0	-1	0.2
2	1.520	100	100	0.0
3	3.819	200	201	0.2
4	6.092	300	299	0.1
5	8.314	400	399	0.1
6	10.560	500	501	0.1
7	22.251	1000	1001	0.1
8	29.315	1300	1300	0.0
9	36.166	1600	1601	0.0
10	42.732	1900	1899	0.0

Percent d i i must be less than a equal to 0.5 %

% difference: (Equivalent Temp,.°R - Digital Indicator Temp., °R) * (100%) / (Equivalent Temp., °R)

Where °R = °F + 460

ACCEPT

Dry Gas Thermocouples

Reference point number	Source[a] (Specify)	Reference Thermometer Temperature,°F	Thermocouple Potentiometer Temperature,°F	Temperature Difference,[b] °F
Inlet				
1	Ambient Air	73	74	1
2	Cold Bath	41	40	1
3	Hot Bath	138	137	1
Outlet				
1	Ambient Air	73	73	0
2	Cold Bath	42	42	0
3	Hot Bath	136	135	1

[a] Type of calibration used

[b] Allowable tolerance ±5°F

ACCEPT

Calibrated By : da

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Fax: 513.489.6619
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Box No.:	MB-1	Bar. Press.(Pb):	29.12	in. Hg
Date:	1015100	Pretest Gamma:	1.001	
Calibrated By :	G Gay	Pretest dH@:	1.795	
Plant:	Newport Steel			

		RUN 1	RUN 2	RUN 3
DH	Delta H	1.80	1.80	1.80
in Hg	Vacuum	8.00	8.00	8.00
Vw_1	Initial RTM	422.019	433.168	444.365
Vw_2	Final RTM	433.168	444.365	456.724
Vd_1	Initial DGM	532.859	544.132	555.480
Vd_2	Final DGM	544.132	555.480	568.020
Tw	Ave. Temp RTM °F	69.0	70.0	71.0
Td	Ave. Temp DGM °F	72.0	73.0	74.0
t	Time (min.)	15.0	15.0	16.3
Vw_2 - Vw_1	Net Volume RTM	11.149	11.197	12.359
Vd_2 - Vd_1	Net Volume DGM	11.273	11.348	12.540
	Y	0.990	0.988	0.987
	dH@	1.866	1.853	1.800

AVERAGE Y = **0.980**

% Difference from Yearly Y = -2.144 ACCEPT

AVERAGE dH@ = **1.840**

Calculations

Y = (Vw * Pb * (Td + 460)) / (Vd * (Pb + (dHd / 13.6)) * (Tw +460))

dH@ = 0.0317 * dHd I (Pb (Td + 460)) • (((Tw +460) ı time) I Vw)^2

Posttest Dry Gas Meter Calibration Form (English Units)

PACIFIC ENVIRONMENTAL SERVICES, INC.

Impinger Thermocouples

The impinger thermscouples are checked in a similar manner at approximately 32°F and ambient temperature, and they agreed within 2°F. The thermocouples may be checked at ambient temperature prior to the test series to verify calibration. Calibration data are included in the following Impinger Thermocouple Calibration Data Sheet(s).

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Phone: 513.489.6611
Fax: 513.489.6619

TEMPERATURE SENSOR CALIBRATION DATA FORM FOR SAMPLEHEADS

DATE: 13-Jan-00

Reference point number	Source[a] (Specify)	Reference Thermometer Temperature, °F	Thermocouple Potentiometer Temperature, °F	Temperature Difference,[b] °F	
Sample Head No. 1					
1	Ambient Air	75	75	0	ACCEPT
2	Cold Bath	36	36	0	
Sample Head No. 2					
1	Ambient Air	76	76	0	ACCEPT-
2	Cold Bath	36	36	0	
Sample Head No. 3					
1	Ambient Air	76	76	0	ACCEPT
2	Cold Bath	38	38	0	
Sample Head No. 4					
1	Ambient Air	76	76	0	ACCEPT
2	Cold Bath	36	36	0	
Sample Head No. 5					
1	Ambient Air	76	78	2	ACCEPT
2	Cold Bath	36	36	0	
Sample Head No. 6					
1	Ambient Air	73	73	0	ACCEPT
2	Cold Bath	35	35	0	
Sample Head No. 7					
1	Ambient Air	74	74	0	ACCEPT
2	Cold Bath	35	35	0	
Sample Head No. 8					
1	Ambient Air	74	74	0	ACCEPT
2	Cold Bath	38	38	0	
Sample Head No. 9					
1	Ambient Air	75	75	0	ACCEPT
2	Cold Bath	40	40	0	

[a]Type of calibration used.

Calibrated By: ah

[b]Allowable tolerance ±2°F

Appendix G

Continuous Emission Monitoring Data

Run 1

Date	Hour	CO	NOX	COPPH	NOXPPH
1013100 0:00	9:14	68.9	3.33	176.64	14.05
1013100 0:00	9:15	83.5	3.14	214.15	13.24
1013100 0:00	9:16	122.2	2.99	313.40	12.60
1013100 0:00	9:17	250.0	3.10	641.33	13.06
1013100 0:00	9:18	421.8	3.19	1081.97	13.43
1013100 0:00	9:19	417.8	3.08	1071.72	12.98
1013100 0:00	9:20	331.6	3.00	850.58	12.66
1013100 0:00	9:21	374.3	2.74	960.03	11.55
1013100 0:00	9:22	268.1	2.96	687.80	12.47
1013100 0:00	9:23	380.4	2.96	975.68	12.48
1013100 0:00	9:24	174.1	2.57	446.50	10.84
1013100 0:00	9:25	145.1	1.97	372.17	8.32
10/3/00 0:00	9:26	170.9	1.92	438.37	8.09
1013100 0:00	9:27	159.5	1.88	409.23	7.91
1013100 0:00	9:28	112.3	1.71	288.19	7.21
1013100 0:00	9:29	121.0	1.55	310.39	6.52
1013100 0:00	9:30	155.9	1.34	399.86	5.66
1013100 0:00	9:31	129.2	1.30	331.50	5.47
1013100 0:00	9:32	116.3	3.92	298.43	16.49
1013100 0:00	9:33	59.8	10.71	153.43	45.11
1013100 0:00	9:34	102.0	12.95	261.68	54.54
1013100 0:00	9:35	124.0	3.00	318.16	12.65
10/3/00 0:00	9:36	137.0	1.44	351.50	6.08
1013100 0:00	9:37	184.6	1.70	473.50	7.16
1013100 0:00	9:38	141.8	1.71	363.75	7.21
10/3/00 0:00	9:39	118.0	1.81	302.69	7.63
1013100 0:00	9:40	117.5	2.21	301.52	9.33
1013100 0:00	9:41	104.3	3.17	267.49	13.36
1013100 0:00	9:42	60.2	15.50	154.31	65.28
1013100 0:00	9:43	79.2	12.49	203.28	52.63
1013100 0:00	9:44	80.3	2.09	205.98	8.80
1013100 0:00	9:45	58.3	3.87	149.48	16.31
1013100 0:00	9:46	50.6	12.10	129.74	50.96
1013100 0:00	9:47	70.8	4.00	181.67	16.86
1013100 0:00	9:48	60.8	1.99	155.95	8.39
1013100 0:00	9:49	41.0	7.73	105.14	32.56
1013100 0:00	9:50	36.7	8.37	94.24	35.27
1013100 0:00	9:51	36.3	7.16	93.09	30.17
1013100 0:00	9:52	38.0	6.64	97.54	27.95
1013100 0:00	9:53	43.6	6.77	111.96	28.52
1013100 0:00	9:54	44.1	6.63	113.19	27.93
1013100 0:00	9:55	98.9	7.72	253.79	32.52
1013100 0:00	9:56	55.7	6.69	142.75	28.19
1013100 0:00	9:57	39.9	6.07	102.42	25.57
10/3/00 0:00	9:58	37.5	5.89	96.08	24.80
1013100 0:00	9:59	37.4	5.91	95.83	24.91
1013100 0:00	10:00	36.3	6.01	93.08	25.32
1013100 0:00	10:01	37.1	4.96	95.14	20.88
1013100 0:00	10:02	52.3	4.70	134.04	19.82
1013100 0:00	10:03	74.9	3.03	192.13	12.76
1013100 0:00	10:04	75.1	2.41	192.66	10.13

10/3/00 0:00	10:05	62.6	2.40	160.69	10.10
10/3/00 0:00	10:06	59.0	2.37	151.33	9.99
10/3/00 0:00	10:07	59.0	2.19	151.22	9.24
10/3/00 0:00	10:08	59.5	2.21	152.60	9.30
10/3/00 0:00	10:09	61.3	2.34	157.21	9.87
10/3/00 0:00	10:10	61.6	2.34	157.97	9.85
10/3/00 0:00	10:11	63.9	2.22	163.79	9.37
10/3/00 0:00	10:12	63.8	2.24	163.69	9.46
10/3/00 0:00	10:13	61.9	2.10	158.66	8.86
10/3/00 0:00	10:14	64.1	1.91	164.31	8.05
10/3/00 0:00	10:15	60.8	1.88	156.07	7.94
10/3/00 0:00	10:16	59.0	1.93	151.30	8.14
10/3/00 0:00	10:17	58.9	2.22	150.97	9.36
10/3/00 0:00	10:18	57.5	2.46	147.54	10.36
10/3/00 0:00	10:19	60.4	2.48	154.90	10.43
10/3/00 0:00	10:20	62.2	2.32	159.52	9.77
10/3/00 0:00	10:21	61.9	2.11	158.76	8.89
10/3/00 0:00	10:22	59.3	2.14	152.07	9.03
10/3/00 0:00	10:23	62.5	2.31	160.20	9.73
10/3/00 0:00	10:24	59.3	2.56	152.06	10.78
10/3/00 0:00	10:25	63.0	2.56	161.71	10.78
10/3/00 0:00	10:26	61.9	2.49	158.70	10.47
10/3/00 0:00	10:27	56.0	2.58	143.74	10.86
10/3/00 0:00	10:28	50.6	2.86	129.87	12.05
10/3/00 0:00	10:29	48.8	2.69	125.15	11.31
10/3/00 0:00	10:30	46.5	3.09	119.40	13.00
10/3/00 0:00	10:31	48.7	2.94	124.94	12.36
10/3/00 0:00	10:32	51.2	3.18	131.37	13.38
10/3/00 0:00	10:33	50.4	3.37	129.21	14.19
10/3/00 0:00	10:34	47.6	3.60	121.98	15.17
10/3/00 0:00	10:35	48.1	3.72	123.45	15.66
10/3/00 0:00	10:36	48.2	4.02	123.68	16.95
10/3/00 0:00	10:37	46.2	3.83	118.53	16.14
10/3/00 0:00	10:38	46.5	3.53	119.19	14.88
10/3/00 0:00	10:39	45.8	3.58	117.48	15.07
10/3/00 0:00	10:40	46.3	3.67	118.75	15.47
10/3/00 0:00	10:41	46.3	3.94	118.75	16.59
10/3/00 0:00	10:42	47.0	3.65	120.67	15.40
10/3/00 0:00	10:43	47.5	2.84	121.91	11.94
10/3/00 0:00	10:44	44.7	2.84	114.56	11.97
10/3/00 0:00	10:45	43.3	3.35	111.07	14.12
10/3/00 0:00	10:46	43.3	3.74	111.06	15.75
10/3/00 0:00	10:47	44.1	3.75	113.03	15.80
10/3/00 0:00	10:48	44.3	3.95	113.62	16.63
10/3/00 0:00	10:49	44.6	3.85	114.32	16.23
10/3/00 0:00	10:50	44.7	3.67	114.64	15.47
10/3/00 0:00	10:51	44.1	3.74	113.21	15.76
10/3/00 0:00	10:52	43.4	3.70	111.22	15.59
10/3/00 0:00	10:53	47.5	3.17	121.74	13.34
10/3/00 0:00	10:54	45.7	2.60	117.30	10.96
10/3/00 0:00	10:55	43.1	3.01	110.54	12.66
10/3/00 0:00	10:56	42.3	3.42	108.50	14.43

10/3/00 0:00	10:57	42.3	3.33	108.49	14.02
10/3/00 0:00	10:58	42.2	3.26	108.23	13.72
10/3/00 0:00	10:59	42.1	3.05	107.88	12.85
10/3/00 0:00	11:00	41.8	3.58	107.21	15.09
10/3/00 0:00	11:01	42.0	3.82	107.79	16.10
10/3/00 0:00	11:02	41.3	3.73	105.93	15.73
10/3/00 0:00	11:03	40.7	3.88	104.38	16.35
10/3/00 0:00	11:04	41.2	4.13	105.76	17.40
10/3/00 0:00	11:05	41.1	4.13	105.49	17.41
10/3/00 0:00	11:06	41.3	3.89	105.92	16.39
10/3/00 0:00	11:07	41.3	3.96	105.93	16.70
10/3/00 0:00	11:08	42.1	4.14	107.94	17.42
10/3/00 0:00	11:09	41.5	4.32	106.46	18.19
10/3/00 0:00	11:10	41.9	4.21	107.50	17.72
10/3/00 0:00	11:11	42.6	4.09	109.24	17.23
10/3/00 0:00	11:12	42.8	4.00	109.90	16.83
10/3/00 0:00	11:13	41.5	3.69	106.49	15.54
10/3/00 0:00	11:14	41.3	3.61	105.92	15.19
		81.2	3.8		

Date	Hour	CO	NOX	COPPH	NOXPPH
10/3/00 0:00	15:29	328.2	3.67	841.76	15.44
10/3/00 0:00	15:30	340.5	3.35	873.40	14.10
10/3/00 0:00	15:31	238.0	2.76	610.42	11.61
10/3/00 0:00	15:32	197.6	2.20	506.96	9.26
10/3/00 0:00	15:33	174.4	1.92	447.34	8.10
10/3/00 0:00	15:34	147.6	1.64	378.65	6.89
10/3/00 0:00	15:35	166.1	1.44	426.14	6.08
10/3/00 0:00	15:36	154.3	1.46	395.91	6.13
10/3/00 0:00	15:37	61.0	6.31	156.45	26.57
10/3/00 0:00	15:38	54.0	8.12	138.41	34.21
10/3/00 0:00	15:39	132.1	3.14	338.73	13.22
10/3/00 0:00	15:40	102.1	1.78	262.02	7.51
10/3/00 0:00	15:41	89.6	1.58	229.84	6.65
10/3/00 0:00	15:42	93.7	1.62	240.41	6.81
10/3/00 0:00	15:43	86.8	1.67	222.70	7.05
10/3/00 0:00	15:44	69.6	1.47	178.48	6.19
10/3/00 0:00	15:45	81.2	1.38	208.34	5.83
10/3/00 0:00	15:46	88.6	1.53	227.16	6.46
10/3/00 0:00	15:47	76.1	1.49	195.10	6.28
10/3/00 0:00	15:48	56.1	1.59	143.86	6.69
10/3/00 0:00	15:49	51.4	1.80	131.91	7.58
10/3/00 0:00	15:50	41.8	3.74	107.11	15.75
10/3/00 0:00	15:51	30.8	7.13	78.93	30.03
10/3/00 0:00	15:52	30.3	5.62	77.64	23.66
10/3/00 0:00	15:53	29.3	4.74	75.07	19.98
10/3/00 0:00	15:54	29.8	4.50	76.34	18.95
10/3/00 0:00	15:55	29.3	5.16	75.07	21.74
10/3/00 0:00	15:56	36.6	26.91	93.86	113.36
10/3/00 0:00	15:57	63.7	10.39	163.50	43.79
10/3/00 0:00	15:58	58.6	2.71	150.26	11.40
10/3/00 0:00	15:59	35.9	7.61	92.17	32.05
10/3/00 0:00	16:00	28.6	7.23	73.36	30.44
10/3/00 0:00	16:01	28.3	6.81	72.52	28.68
10/3/00 0:00	16:02	28.3	6.64	72.50	27.99
10/3/00 0:00	16:03	28.3	6.42	72.52	27.03
10/3/00 0:00	16:04	28.3	6.20	72.51	26.12
10/3/00 0:00	16:05	27.9	5.84	71.67	24.59
10/3/00 0:00	16:06	27.3	5.39	69.96	22.71
10/3/00 0:00	16:07	27.3	5.12	69.95	21.57
10/3/00 0:00	16:08	27.3	5.18	69.95	21.82
10/3/00 0:00	16:09	27.5	5.32	70.42	22.41
10/3/00 0:00	16:10	32.9	5.42	84.39	22.85
10/3/00 0:00	16:11	32.7	5.61	83.88	23.65
10/3/00 0:00	16:12	47.6	7.02	122.12	29.59
10/3/00 0:00	16:13	41.9	7.23	107.60	30.46
10/3/00 0:00	16:14	32.9	6.10	84.35	25.69
10/3/00 0:00	16:15	30.8	6.10	78.89	25.68
10/3/00 0:00	16:16	29.7	6.16	76.30	25.93
10/3/00 0:00	16:17	29.3	6.03	75.08	25.41
10/3/00 0:00	16:18	29.3	5.88	75.08	24.77
10/3/00 0:00	16:19	28.9	5.77	74.19	24.32

10/3/00 0:00	16:20	28.3	5.12	72.52	21.57
10/3/00 0:00	16:21	28.3	2.84	72.51	11.95
10/3/00 0:00	16:22	28.3	1.56	72.51	6.58
10/3/00 0:00	16:23	28.3	1.30	72.52	5.49
10/3/00 0:00	16:24	28.3	1.44	72.51	6.05
10/3/00 0:00	16:25	28.3	1.67	72.52	7.04
10/3/00 0:00	16:26	28.8	1.68	73.84	7.07
10/3/00 0:00	16:27	29.3	1.68	75.08	7.07
10/3/00 0:00	16:28	29.3	1.70	75.07	7.18
10/3/00 0:00	16:29	29.3	1.78	75.08	7.49
10/3/00 0:00	16:30	29.3	1.74	75.07	7.32
10/3/00 0:00	16:31	29.3	1.67	75.08	7.03
10/3/00 0:00	16:32	29.3	1.61	75.08	6.77
10/3/00 0:00	16:33	29.3	1.68	75.07	7.07
10/3/00 0:00	16:34	29.3	1.64	75.09	6.89
10/3/00 0:00	16:35	29.3	1.62	75.07	6.84
10/3/00 0:00	16:36	29.3	1.72	75.08	7.24
10/3/00 0:00	16:37	29.3	1.52	75.05	6.40
10/3/00 0:00	16:38	34.4	1.89	88.32	7.95
10/3/00 0:00	16:39	85.3	3.78	218.79	15.94
10/3/00 0:00	16:40	117.3	2.84	300.82	11.95
10/3/00 0:00	16:41	90.3	2.38	231.52	10.01
10/3/00 0:00	16:42	63.4	2.04	162.67	8.59
10/3/00 0:00	16:43	51.6	2.43	132.34	10.22
10/3/00 0:00	16:44	72.8	7.13	186.68	30.04
10/3/00 0:00	16:45	47.4	2.96	121.56	12.46
10/3/00 0:00	16:46	37.0	2.06	94.81	8.66
10/3/00 0:00	16:47	34.7	1.77	89.07	7.45
10/3/00 0:00	16:48	33.7	1.92	86.50	8.07
10/3/00 0:00	16:49	33.3	2.01	85.31	8.46
10/3/00 0:00	16:50	33.3	1.97	85.30	8.31
10/3/00 0:00	16:51	32.7	1.80	83.92	7.56
10/3/00 0:00	16:52	32.3	1.85	82.76	7.80
10/3/00 0:00	16:53	32.2	1.64	82.66	6.91
10/3/00 0:00	16:54	31.3	1.49	80.21	6.28
10/3/00 0:00	16:55	31.2	1.38	80.10	5.81
10/3/00 0:00	16:56	30.5	1.42	78.18	6.00
10/3/00 0:00	16:57	31.1	1.64	79.66	6.89
10/3/00 0:00	16:58	30.5	1.48	78.18	6.22
10/3/00 0:00	16:59	31.3	1.60	80.22	6.76
10/3/00 0:00	17:00	30.4	1.85	77.93	7.79
10/3/00 0:00	17:01	30.3	1.70	77.63	7.16
10/3/00 0:00	17:02	30.3	1.69	77.65	7.12
10/3/00 0:00	17:03	30.3	1.75	77.65	7.38
10/3/00 0:00	17:04	30.1	1.54	77.09	6.49
10/3/00 0:00	17:05	29.8	1.51	76.48	6.35
10/3/00 0:00	17:06	29.4	1.67	75.39	7.05
10/3/00 0:00	17:07	29.3	1.58	75.07	6.67
10/3/00 0:00	17:08	29.3	1.63	75.08	6.85
10/3/00 0:00	17:09	29.3	1.73	75.07	7.27
10/3/00 0:00	17:10	29.3	1.64	75.08	6.89
10/3/00 0:00	17:11	29.3	1.54	75.07	6.50

10/3/00 0:00	17:12	29.3	1.81	75.08	7.61
10/3/00 0:00	17:13	29.3	1.75	75.08	7.38
10/3/00 0:00	17:14	29.3	1.68	75.08	7.07
10/3/00 0:00	17:15	29.3	1.76	75.08	7.41
10/3/00 0:00	17:16	29.3	1.69	75.07	7.10
10/3/00 0:00	17:17	28.4	1.36	72.78	5.71
10/3/00 0:00	17:18	28.3	1.22	72.51	5.12
10/3/00 0:00	17:19	28.3	1.12	72.52	4.70
10/3/00 0:00	17:20	28.3	1.08	72.52	4.55
10/3/00 0:00	17:21	28.3	1.08	72.53	4.55
10/3/00 0:00	17:22	28.3	1.08	72.51	4.55
10/3/00 0:00	17:23	28.3	1.08	72.53	4.55
10/3/00 0:00	17:24	28.3	1.02	72.51	4.28
10/3/00 0:00	17:25	28.3	0.98	72.53	4.12
10/3/00 0:00	17:26	31.9	12.17	81.91	51.26
10/3/00 0:00	17:27	62.3	17.87	159.69	75.27
10/3/00 0:00	17:28	82.7	3.59	212.13	15.13
10/3/00 0:00	17:29	108.7	3.33	278.78	14.03
10/3/00 0:00	17:30	113.1	4.28	290.13	18.01
10/3/00 0:00	17:31	96.4	4.51	247.24	18.98
10/3/00 0:00	17:32	152.3	4.24	390.60	17.87
10/3/00 0:00	17:33	258.9	3.31	663.98	13.94
10/3/00 0:00	17:34	197.1	2.66	505.71	11.21
10/3/00 0:00	17:35	151.3	1.94	387.99	8.15
10/3/00 0:00	17:36	135.2	1.63	346.79	6.88
10/3/00 0:00	17:37	145.8	1.46	374.11	6.16
10/3/00 0:00	17:38	119.2	2.26	305.78	9.53
10/3/00 0:00	17:39	40.8	4.53	104.55	19.07
10/3/00 0:00	17:40	39.4	4.25	101.15	17.89
10/3/00 0:00	17:41	89.7	2.87	230.15	12.08
10/3/00 0:00	17:42	120.7	2.28	309.62	9.62
10/3/00 0:00	17:43	131.8	2.10	338.03	8.83
10/3/00 0:00	17:44	140.8	8.65	361.08	36.43
10/3/00 0:00	17:45	64.0	6.05	164.15	25.47
10/3/00 0:00	17:46	51.6	4.33	132.33	18.24
10/3/00 0:00	17:47	59.4	4.21	152.42	17.75
10/3/00 0:00	17:48	122.3	4.10	313.67	17.25
10/3/00 0:00	17:49	192.2	4.23	493.10	17.82
10/3/00 0:00	17:50	240.3	4.23	616.35	17.82
10/3/00 0:00	17:51	262.6	4.10	673.63	17.26
10/3/00 0:00	17:52	217.7	4.13	558.45	17.40
10/3/00 0:00	17:53	184.7	4.13	473.89	17.40
10/3/00 0:00	17:54	112.8	3.90	289.26	16.42
10/3/00 0:00	17:55	137.9	3.01	353.78	12.69
10/3/00 0:00	17:56	294.5	2.16	755.47	9.11
10/3/00 0:00	17:57	261.0	1.86	669.44	7.85
10/3/00 0:00	17:58	192.5	2.26	493.73	9.53
10/3/00 0:00	17:59	65.1	3.45	167.11	14.52
10/3/00 0:00	18:00	65.8	7.51	168.90	31.62
10/3/00 0:00	18:01	140.9	2.60	361.55	10.97
10/3/00 0:00	18:02	108.5	1.33	278.19	5.60
10/3/00 0:00	18:03	107.7	1.48	276.19	6.25

10/3/00 0:00	18:04	78.2	1.53	200.52	6.44
10/3/00 0:00	18:05	85.9	1.51	220.32	6.38
10/3/00 0:00	18:06	112.6	1.61	288.76	6.80
10/3/00 0:00	18:07	108.9	1.70	279.37	7.15
10/3/00 0:00	18:08	117.8	1.85	302.10	7.78
10/3/00 0:00	18:09	114.6	1.99	294.06	8.36
10/3/00 0:00	18:10	120.0	2.28	307.92	9.59
10/3/00 0:00	18:11	73.8	1.89	189.31	7.97
10/3/00 0:00	18:12	59.8	1.69	153.36	7.14
10/3/00 0:00	18:13	75.9	2.02	194.69	8.53
10/3/00 0:00	18:14	84.9	2.30	217.76	9.69
10/3/00 0:00	18:15	60.1	3.20	154.25	13.48
10/3/00 0:00	18:16	101.3	2.22	259.87	9.35
10/3/00 0:00	18:17	100.6	2.86	258.14	12.05
10/3/00 0:00	18:18	52.5	2.56	134.55	10.78
10/3/00 0:00	18:19	50.6	6.31	129.69	26.59
10/3/00 0:00	18:20	45.6	5.25	116.94	22.10
10/3/00 0:00	18:21	41.0	3.65	105.27	15.37
10/3/00 0:00	18:22	44.3	13.61	113.57	57.33
10/3/00 0:00	18:23	41.7	9.89	106.92	41.68
10/3/00 0:00	18:24	46.3	10.57	118.74	44.52
10/3/00 0:00	18:25	42.4	4.18	108.88	17.61
10/3/00 0:00	18:26	36.0	11.13	92.24	46.89
10/3/00 0:00	18:27	37.5	11.22	96.21	47.29
10/3/00 0:00	18:28	40.9	10.27	104.95	43.28
10/3/00 0:00	18:29	46.6	9.86	119.42	41.55
		71.9	3.6		

Run 2

Date	Hour	CO	NOX	COPPH	NOXPPH
1014100 0:00	7:00	60.8	3.64	155.90	15.33
1014100 0:00	7:01	63.4	3.56	162.75	15.01
1014100 0:00	7:02	73.9	3.08	189.50	12.99
1014100 0:00	7:03	67.1	2.73	172.14	11.50
1014100 0:00	7:04	78.0	2.31	200.08	9.74
1014100 0:00	7:05	88.7	1.85	227.60	7.81
1014100 0:00	7:06	72.4	1.49	185.63	6.27
1014100 0:00	7:07	68.9	1.31	176.75	5.53
1014100 0:00	7:08	67.3	1.03	172.75	4.33
1014100 0:00	7:09	51.2	1.62	131.22	6.83
10/4/00 0:00	7:10	41.4	4.51	106.23	19.01
1014100 0:00	7:11	70.8	3.18	181.50	13.40
1014100 0:00	7:12	89.4	2.62	229.36	11.04
1014100 0:00	7:13	62.2	4.86	159.59	20.49
1014100 0:00	7:14	40.0	4.09	102.64	17.22
10/4/00 0:00	7:15	45.3	3.90	116.09	16.45
10/4/00 0:00	7:16	81.7	3.70	209.61	15.61
10/4/00 0:00	7:17	133.1	3.28	341.36	13.81
10/4/00 0:00	7:18	192.2	2.94	492.90	12.38
1014100 0:00	7:19	174.9	1.95	448.67	8.23
1014100 0:00	7:20	149.6	1.26	383.76	5.31
1014100 0:00	7:21	100.4	1.10	257.41	4.64
1014100 0:00	7:22	74.8	1.18	191.92	4.95
10/4/00 0:00	7:23	90.0	1.47	230.76	6.18
1014100 0:00	7:24	103.8	1.55	266.28	6.54
1014100 0:00	7:25	138.5	1.37	355.25	5.77
1014100 0:00	7:26	147.1	1.48	377.24	6.23
1014100 0:00	7:27	85.7	3.57	219.87	15.04
1014100 0:00	7:28	80.7	8.06	206.91	33.96
1014100 0:00	7:29	139.1	3.46	356.71	14.56
1014100 0:00	7:30	164.2	0.97	421.11	4.07
1014100 0:00	7:31	170.4	0.78	436.97	3.27
1014100 0:00	7:32	159.4	0.69	408.97	2.90
1014100 0:00	7:33	134.6	0.78	345.24	3.28
1014100 0:00	7:34	134.1	0.86	343.87	3.60
1014100 0:00	7:35	106.1	0.88	272.10	3.70
1014100 0:00	7:36	102.5	0.95	262.87	4.00
1014100 0:00	7:37	124.8	1.11	320.21	4.66
1014100 0:00	7:38	124.2	1.36	318.61	5.74
1014100 0:00	7:39	122.1	1.71	313.19	7.20
1014100 0:00	7:40	102.8	2.13	263.64	8.99
1014100 0:00	7:41	78.8	8.39	202.04	35.36
1014100 0:00	7:42	79.6	10.91	204.27	45.97
1014100 0:00	7:43	80.1	9.19	205.39	38.72
10/4/00 0:00	7:44	37.3	20.89	95.58	88.02
1014100 0:00	7:45	37.2	19.62	95.41	82.66
1014100 0:00	7:46	60.5	4.91	155.24	20.69
1014100 0:00	7:47	41.6	9.03	106.61	38.05
10/4/00 0:00	7:48	33.4	15.65	85.58	65.92
1014100 0:00	7:49	31.9	13.10	81.76	55.20
10/4/00 0:00	7:50	56.5	12.52	144.98	52.73

10/4/00 0:00	7:51	46.0	11.10	117.90	46.77
10/4/00 0:00	7:52	32.2	9.22	82.67	38.86
10/4/00 0:00	7:53	30.4	8.45	77.90	35.60
10/4/00 0:00	7:54	29.5	8.37	75.70	35.25
10/4/00 0:00	7:55	29.3	8.13	75.09	34.24
10/4/00 0:00	7:56	29.3	7.85	75.07	33.08
10/4/00 0:00	7:57	28.9	7.94	74.01	33.46
10/4/00 0:00	7:58	28.3	8.04	72.50	33.89
10/4/00 0:00	7:59	28.3	8.05	72.53	33.91
10/4/00 0:00	8:00	28.7	7.98	73.58	33.62
10/4/00 0:00	8:01	29.3	7.49	75.08	31.56
10/4/00 0:00	8:02	30.5	6.27	78.29	26.43
10/4/00 0:00	8:03	32.4	6.21	82.99	26.15
10/4/00 0:00	8:04	33.3	5.83	85.32	24.55
10/4/00 0:00	8:05	33.3	5.82	85.32	24.51
10/4/00 0:00	8:06	33.7	6.15	86.40	25.90
10/4/00 0:00	8:07	33.9	6.02	87.00	25.35
10/4/00 0:00	8:08	34.3	6.04	87.89	25.46
10/4/00 0:00	8:09	34.5	6.11	88.51	25.74
10/4/00 0:00	8:10	34.4	6.04	88.32	25.46
10/4/00 0:00	8:11	33.3	5.65	85.32	23.79
10/4/00 0:00	8:12	34.0	6.10	87.25	25.70
10/4/00 0:00	8:13	34.2	6.04	87.66	25.44
10/4/00 0:00	8:14	36.5	5.45	93.58	22.96
10/4/00 0:00	8:15	47.0	3.44	120.54	14.48
10/4/00 0:00	8:16	47.6	3.33	122.18	14.01
10/4/00 0:00	8:17	60.8	7.48	156.01	31.49
10/4/00 0:00	8:18	81.1	5.59	208.12	23.56
10/4/00 0:00	8:19	88.7	2.33	227.52	9.81
10/4/00 0:00	8:20	90.7	1.95	232.70	8.22
10/4/00 0:00	8:21	95.8	1.83	245.81	7.70
10/4/00 0:00	8:22	87.4	1.69	224.12	7.11
10/4/00 0:00	8:23	70.1	1.35	179.87	5.69
10/4/00 0:00	8:24	69.4	1.28	177.95	5.38
10/4/00 0:00	8:25	69.3	1.31	177.69	5.52
10/4/00 0:00	8:26	72.9	1.39	186.93	5.87
10/4/00 0:00	8:27	78.2	1.46	200.60	6.17
10/4/00 0:00	8:28	76.3	1.30	195.66	5.47
10/4/00 0:00	8:29	60.5	1.28	155.23	5.39
10/4/00 0:00	8:30	102.7	1.26	263.55	5.32
10/4/00 0:00	8:31	64.7	1.70	165.91	7.18
10/4/00 0:00	8:32	33.2	2.43	85.24	10.23
10/4/00 0:00	8:33	72.7	2.18	186.56	9.18
10/4/00 0:00	8:34	117.8	1.55	302.11	6.51
10/4/00 0:00	8:35	111.8	1.38	286.89	5.81
10/4/00 0:00	8:36	108.3	1.68	277.81	7.07
10/4/00 0:00	8:37	70.7	5.46	181.24	23.01
10/4/00 0:00	8:38	49.7	3.21	127.51	13.53
10/4/00 0:00	8:39	42.6	3.08	109.34	12.97
10/4/00 0:00	8:40	56.1	2.85	143.83	11.99
10/4/00 0:00	8:41	64.3	2.68	164.97	11.29
10/4/00 0:00	8:42	94.2	2.35	241.73	9.88

10/4/00 0:00	8:43	167.3	2.35	429.15	9.88
10/4/00 0:00	8:44	186.0	2.38	477.20	10.02
10/4/00 0:00	8:45	188.8	2.71	484.30	11.43
10/4/00 0:00	8:46	169.2	3.26	434.09	13.74
10/4/00 0:00	8:47	253.4	3.55	649.96	14.94
10/4/00 0:00	8:48	287.8	3.86	738.12	16.27
10/4/00 0:00	8:49	254.7	3.41	653.45	14.38
10/4/00 0:00	8:50	237.1	3.54	608.16	14.91
10/4/00 0:00	8:51	172.3	2.62	441.85	11.02
10/4/00 0:00	8:52	156.7	1.98	401.93	8.36
10/4/00 0:00	8:53	116.5	1.49	298.94	6.30
10/4/00 0:00	8:54	142.0	1.51	364.20	6.37
10/4/00 0:00	8:55	158.0	1.28	405.39	5.37
10/4/00 0:00	8:56	208.6	1.18	535.17	4.97
10/4/00 0:00	8:57	176.2	1.21	452.06	5.11
10/4/00 0:00	8:58	158.5	1.26	406.62	5.30
10/4/00 0:00	8:59	124.2	3.36	318.50	14.14
10/4/00 0:00	9:00	58.5	7.67	150.04	32.31
10/4/00 0:00	9:01	115.5	5.47	296.28	23.06
10/4/00 0:00	9:02	94.2	1.34	241.53	5.65
10/4/00 0:00	9:03	125.3	1.33	321.47	5.60
10/4/00 0:00	9:04	136.3	1.40	349.61	5.88
10/4/00 0:00	9:05	105.6	1.38	270.82	5.81
10/4/00 0:00	9:06	77.2	1.46	197.96	6.17
10/4/00 0:00	9:07	84.6	1.70	216.91	7.14
10/4/00 0:00	9:08	76.3	2.21	195.72	9.31
10/4/00 0:00	9:09	64.3	2.47	165.06	10.39
10/4/00 0:00	9:10	50.4	7.80	129.26	32.86
10/4/00 0:00	9:11	39.4	16.27	100.98	68.55
10/4/00 0:00	9:12	64.2	8.30	164.62	34.97
10/4/00 0:00	9:13	60.1	3.14	154.29	13.23
10/4/00 0:00	9:14	52.4	4.41	134.39	18.59
10/4/00 0:00	9:15	41.0	16.25	105.08	68.47
10/4/00 0:00	9:16	53.0	6.22	135.84	26.19
10/4/00 0:00	9:17	34.2	9.43	87.81	39.72
10/4/00 0:00	9:18	32.1	15.18	82.41	63.95
10/4/00 0:00	9:19	32.6	14.24	83.51	59.99
10/4/00 0:00	9:20	57.0	14.21	146.08	59.88
10/4/00 0:00	9:21	54.4	11.89	139.64	50.10
10/4/00 0:00	9:22	33.5	9.43	86.05	39.72
10/4/00 0:00	9:23	30.5	8.94	78.13	37.67
10/4/00 0:00	9:24	29.6	8.49	75.97	35.78
10/4/00 0:00	9:25	29.3	8.07	75.07	34.00
10/4/00 0:00	9:26	28.4	6.89	72.95	29.02
10/4/00 0:00	9:27	29.9	6.14	76.75	25.88
10/4/00 0:00	9:28	30.3	6.05	77.63	25.48
10/4/00 0:00	9:29	31.4	6.54	80.56	27.56
10/4/00 0:00	9:30	37.6	10.78	96.37	45.41
10/4/00 0:00	9:31	57.7	10.59	147.89	44.60
10/4/00 0:00	9:32	55.9	5.75	143.45	24.23
10/4/00 0:00	9:33	50.9	5.05	130.62	21.28
10/4/00 0:00	9:34	51.8	4.30	132.90	18.13

10/4/00 0:00	9:35	77.5	4.00	198.92	16.87
10/4/00 0:00	9:36	80.0	3.03	205.27	12.76
10/4/00 0:00	9:37	99.3	2.09	254.77	8.81
10/4/00 0:00	9:38	109.8	1.15	281.56	4.86
10/4/00 0:00	9:39	100.1	0.96	256.71	4.03
10/4/00 0:00	9:40	100.7	0.96	258.33	4.02
10/4/00 0:00	9:41	112.0	1.24	287.39	5.22
10/4/00 0:00	9:42	123.4	1.27	316.44	5.36
10/4/00 0:00	9:43	114.7	1.16	294.26	4.87
10/4/00 0:00	9:44	107.5	1.02	275.87	4.31
10/4/00 0:00	9:45	112.2	1.05	287.84	4.42
10/4/00 0:00	9:46	72.6	2.62	186.16	11.05
10/4/00 0:00	9:47	49.1	4.93	125.93	20.78
10/4/00 0:00	9:48	62.6	3.14	160.52	13.24
10/4/00 0:00	9:49	67.7	4.44	173.76	18.72
10/4/00 0:00	9:50	52.4	3.72	134.47	15.67
10/4/00 0:00	9:51	55.4	2.88	142.15	12.15
10/4/00 0:00	9:52	77.2	2.70	198.15	11.37
10/4/00 0:00	9:53	92.6	2.48	237.41	10.46
10/4/00 0:00	9:54	108.2	2.34	277.58	9.85
10/4/00 0:00	9:55	93.4	2.28	239.56	9.60
10/4/00 0:00	9:56	120.7	2.26	309.63	9.53
10/4/00 0:00	9:57	149.2	2.37	382.66	9.97
10/4/00 0:00	9:58	124.9	2.38	320.31	10.02
10/4/00 0:00	9:59	132.7	2.02	340.38	8.52
10/4/00 0:00	10:00	171.7	2.06	440.34	8.68
10/4/00 0:00	10:01	181.8	2.05	466.41	8.62
10/4/00 0:00	10:02	161.8	1.75	415.11	7.39
10/4/00 0:00	10:03	106.1	1.47	272.10	6.20
10/4/00 0:00	10:04	84.6	1.49	216.97	6.27
10/4/00 0:00	10:05	48.8	2.02	125.28	8.51
10/4/00 0:00	10:06	45.2	2.86	115.86	12.06
10/4/00 0:00	10:07	43.9	5.60	112.60	23.61
10/4/00 0:00	10:08	72.0	5.05	184.74	21.26
10/4/00 0:00	10:09	98.8	1.74	253.39	7.32
10/4/00 0:00	10:10	96.4	0.95	247.24	3.98
10/4/00 0:00	10:11	124.3	0.84	318.77	3.53
10/4/00 0:00	10:12	98.5	0.82	252.75	3.46
10/4/00 0:00	10:13	85.3	2.16	218.76	9.11
10/4/00 0:00	10:14	48.9	9.36	125.41	39.45
10/4/00 0:00	10:15	60.8	11.62	155.84	48.93
10/4/00 0:00	10:16	75.6	2.80	193.85	11.78
10/4/00 0:00	10:17	71.2	1.60	182.65	6.76
10/4/00 0:00	10:18	78.8	1.10	202.04	4.64
10/4/00 0:00	10:19	81.1	1.01	207.96	4.24
10/4/00 0:00	10:20	83.9	1.29	215.19	5.42
10/4/00 0:00	10:21	82.2	3.33	210.76	14.01
10/4/00 0:00	10:22	38.4	13.71	98.48	57.75
10/4/00 0:00	10:23	41.8	17.95	107.11	75.63
10/4/00 0:00	10:24	53.5	4.99	137.28	21.02
10/4/00 0:00	10:25	41.5	9.52	106.34	40.09
10/4/00 0:00	10:26	42.8	17.18	109.69	72.36

10/4/00 0:00	10:27	55.9	4.19	143.37	17.64
10/4/00 0:00	10:28	44.6	7.95	114.49	33.48
10/4/00 0:00	10:29	30.9	12.17	79.18	51.25
10/4/00 0:00	10:30	30.7	11.49	78.76	48.41
10/4/00 0:00	10:31	33.3	10.72	85.31	45.15
10/4/00 0:00	10:32	33.5	9.54	86.01	40.19
10/4/00 0:00	10:33	49.9	9.61	128.07	40.49
10/4/00 0:00	10:34	35.4	8.64	90.79	36.42
10/4/00 0:00	10:35	29.6	8.30	75.86	34.98
10/4/00 0:00	10:36	29.3	7.40	75.07	31.19
10/4/00 0:00	10:37	30.0	5.76	76.88	24.25
10/4/00 0:00	10:38	59.0	6.00	151.37	25.29
10/4/00 0:00	10:39	69.5	3.74	178.20	15.76
10/4/00 0:00	10:40	51.2	9.75	131.30	41.06
10/4/00 0:00	10:41	60.8	6.77	155.85	28.53
10/4/00 0:00	10:42	86.4	2.91	221.69	12.24
10/4/00 0:00	10:43	86.4	2.13	221.63	8.98
10/4/00 0:00	10:44	71.9	1.49	184.44	6.28
10/4/00 0:00	10:45	84.3	1.36	216.27	5.73
10/4/00 0:00	10:46	93.1	1.34	238.74	5.65
10/4/00 0:00	10:47	112.6	1.39	288.73	5.86
10/4/00 0:00	10:48	109.2	1.36	280.00	5.71
10/4/00 0:00	10:49	109.4	1.23	280.75	5.20
10/4/00 0:00	10:50	81.2	1.18	208.31	4.96
10/4/00 0:00	10:51	85.2	1.06	218.45	4.45
10/4/00 0:00	10:52	82.5	0.95	211.51	3.98
10/4/00 0:00	10:53	64.9	0.88	166.48	3.72
10/4/00 0:00	10:54	53.3	0.85	136.76	3.58
10/4/00 0:00	10:55	44.0	1.01	112.89	4.24
10/4/00 0:00	10:56	33.1	2.76	84.92	11.61
10/4/00 0:00	10:57	34.1	4.01	87.34	16.89
10/4/00 0:00	10:58	55.6	2.80	142.71	11.78
10/4/00 0:00	10:59	67.8	2.55	173.89	10.75
10/4/00 0:00	11:00	49.7	6.93	127.38	29.20
		80.5	4.5		

Run 3

Date	Hour	CO	NOX	COPPH	NOXPPI	zero	avg
10/4/00 0:00	11:00	49.7	6.93	127.38	29.20	26.3	0
10/4/00 0:00	11:01	34.6	4.05	88.63	17.04	26.3	0
10/4/00 0:00	11:02	38.0	3.43	97.38	14.43	26.3	0
10/4/00 0:00	11:03	83.6	2.77	214.38	11.65	26.3	0
10/4/00 0:00	11:04	129.4	2.67	331.87	11.26	26.3	0
10/4/00 0:00	11:05	128.2	2.75	328.88	11.58	26.3	0
10/4/00 0:00	11:06	229.2	2.76	588.02	11.61	26.3	0
10/4/00 0:00	11:07	224.4	2.93	575.63	12.34	26.3	0
10/4/00 0:00	11:08	240.7	2.63	617.55	11.07	26.3	0
10/4/00 0:00	11:09	290.4	2.02	744.88	8.49	26.3	0
10/4/00 0:00	11:10	293.9	1.73	753.93	7.28	26.3	0
10/4/00 0:00	11:11	227.9	1.84	584.49	7.75	26.3	0
10/4/00 0:00	11:12	188.3	2.28	483.12	9.62	26.3	0
10/4/00 0:00	11:13	71.7	5.72	184.03	24.11	26.3	0
10/4/00 0:00	11:14	45.0	11.56	115.49	48.72	26.3	0
10/4/00 0:00	11:15	76.8	13.63	197.02	57.41	26.3	0
10/4/00 0:00	11:16	59.8	18.77	153.27	79.06	26.3	0
10/4/00 0:00	11:17	43.3	17.00	111.14	71.59	26.3	0
10/4/00 0:00	11:18	43.7	12.88	112.10	54.25	26.3	0
10/4/00 0:00	11:19	46.9	10.92	120.38	45.99	26.3	0
10/4/00 0:00	11:20	45.1	9.40	115.71	39.58	26.3	0
10/4/00 0:00	11:21	66.1	5.21	169.58	21.94	26.3	0
10/4/00 0:00	11:22	98.6	1.33	252.80	5.60	26.3	0
10/4/00 0:00	11:23	92.4	1.18	236.89	4.97	26.3	0
10/4/00 0:00	11:24	94.1	2.75	241.27	11.58	26.3	0
10/4/00 0:00	11:25	45.2	7.62	115.82	32.08	26.3	0
10/4/00 0:00	11:26	34.6	10.86	88.65	45.74	26.3	0
10/4/00 0:00	11:27	32.5	13.03	83.44	54.90	26.3	0
10/4/00 0:00	11:28	36.7	13.93	94.14	58.67	26.3	0
10/4/00 0:00	11:29	93.6	8.27	239.98	34.84	26.3	0
10/4/00 0:00	11:30	182.7	1.71	468.76	7.21	26.3	0
10/4/00 0:00	11:31	217.5	1.01	557.79	4.26	26.3	0
10/4/00 0:00	11:32	136.0	0.99	348.92	4.19	26.3	0
10/4/00 0:00	11:33	117.0	1.15	300.21	4.83	26.3	0
10/4/00 0:00	11:34	106.4	2.20	272.86	9.25	26.3	0
10/4/00 0:00	11:35	51.5	10.01	132.12	42.19	26.3	0
10/4/00 0:00	11:36	34.2	12.82	87.65	53.99	26.3	0
10/4/00 0:00	11:37	32.5	12.93	83.41	54.48	26.3	0
10/4/00 0:00	11:38	33.2	13.40	85.07	56.44	26.3	0
10/4/00 0:00	11:39	34.4	13.03	88.31	54.90	26.3	0
10/4/00 0:00	11:40	48.0	5.61	123.14	23.65	26.3	0
10/4/00 0:00	11:41	33.9	9.51	87.04	40.08	26.3	0
10/4/00 0:00	11:42	31.5	11.50	80.84	48.44	26.3	0
10/4/00 0:00	11:43	32.5	9.41	83.42	39.66	26.3	0
10/4/00 0:00	11:44	46.3	8.71	118.86	36.71	26.3	0
10/4/00 0:00	11:45	46.3	8.70	118.66	36.64	26.3	0
10/4/00 0:00	11:46	33.6	8.41	86.16	35.44	26.3	0
10/4/00 0:00	11:47	30.5	8.01	78.28	33.74	26.3	0
10/4/00 0:00	11:48	29.5	7.76	75.72	32.71	26.3	0
10/4/00 0:00	11:49	29.3	7.48	75.08	31.50	26.3	0
10/4/00 0:00	11:50	29.9	6.14	76.62	25.85	26.3	0

10/4/00 0:00	11:51	30.8	6.00	78.91	25.27	26.3	0
10/4/00 0:00	11:52	31.0	5.93	79.62	24.98	26.3	0
10/4/00 0:00	11:53	40.1	6.27	102.84	26.43	26.3	0
10/4/00 0:00	11:54	59.3	5.45	152.00	22.96	26.3	0
10/4/00 0:00	11:55	46.1	15.29	118.30	64.41	26.3	0
10/4/00 0:00	11:56	39.9	11.72	102.34	49.36	26.3	0
10/4/00 0:00	11:57	43.6	13.72	111.90	57.78	26.3	0
10/4/00 0:00	11:58	44.7	6.14	114.57	25.87	26.3	0
10/4/00 0:00	11:59	51.0	7.24	130.71	30.51	26.3	0
10/4/00 0:00	12:00	82.8	6.12	212.45	25.78	26.3	0
10/4/00 0:00	12:01	94.2	6.32	241.69	26.62	26.3	0
10/4/00 0:00	12:02	104.7	3.56	268.51	14.99	26.3	0
10/4/00 0:00	12:03	106.7	2.91	273.65	12.25	26.3	0
10/4/00 0:00	12:04	77.4	4.11	198.63	17.30	26.3	0
10/4/00 0:00	12:05	86.0	2.19	220.67	9.23	26.3	0
10/4/00 0:00	12:06	124.3	1.32	318.84	5.54	26.3	0
10/4/00 0:00	12:07	180.2	0.96	462.23	4.02	26.3	0
10/4/00 0:00	12:08	131.1	4.76	336.26	20.05	26.3	0
10/4/00 0:00	12:09	57.0	7.88	146.10	33.20	26.3	0
10/4/00 0:00	12:10	85.8	3.43	219.98	14.46	26.3	0
10/4/00 0:00	12:11	81.3	2.29	208.55	9.66	26.3	0
10/4/00 0:00	12:12	61.8	2.35	158.47	9.88	26.3	0
10/4/00 0:00	12:13	58.1	5.19	149.09	21.88	26.3	0
10/4/00 0:00	12:14	44.8	17.39	115.01	73.27	26.3	0
10/4/00 0:00	12:15	48.1	5.27	123.27	22.19	26.3	0
10/4/00 0:00	12:16	51.5	3.70	132.03	15.60	26.3	0
10/4/00 0:00	12:17	57.3	3.21	146.88	13.53	26.3	0
10/4/00 0:00	12:18	79.4	3.34	203.62	14.08	26.3	0
10/4/00 0:00	12:19	109.0	3.14	279.65	13.22	26.3	0
10/4/00 0:00	12:20	118.6	3.96	304.16	16.68	26.3	0
10/4/00 0:00	12:21	82.3	3.30	211.00	13.91	26.3	0
10/4/00 0:00	12:22	93.6	3.05	240.02	12.85	26.3	0
10/4/00 0:00	12:23	184.4	2.58	472.93	10.89	26.3	0
10/4/00 0:00	12:24	142.3	3.90	365.06	16.42	26.3	0
10/4/00 0:00	12:25	163.9	3.92	420.51	16.52	26.3	0
10/4/00 0:00	12:26	192.7	2.16	494.25	9.08	26.3	0
10/4/00 0:00	12:27	202.4	1.09	519.20	4.57	26.3	0
10/4/00 0:00	12:28	192.4	1.19	493.56	5.01	26.3	0
10/4/00 0:00	12:29	148.0	1.74	379.57	7.31	26.3	0
10/4/00 0:00	12:30	68.0	6.99	174.45	29.44	26.3	0
10/4/00 0:00	12:31	33.7	11.83	86.35	49.82	26.3	0
10/4/00 0:00	12:32	32.0	11.08	82.03	46.69	26.3	0
10/4/00 0:00	12:33	71.2	10.27	182.54	43.26	26.3	0
10/4/00 0:00	12:34	79.6	2.22	204.09	9.33	26.3	0
10/4/00 0:00	12:35	125.0	1.74	320.63	7.32	26.3	0
10/4/00 0:00	12:36	159.6	1.89	409.30	7.96	26.3	0
10/4/00 0:00	12:37	168.7	1.81	432.65	7.63	26.3	0
10/4/00 0:00	12:38	220.3	1.91	565.17	8.05	26.3	0
10/4/00 0:00	12:39	233.2	2.17	598.16	9.13	26.3	0
10/4/00 0:00	12:40	197.0	2.27	505.27	9.58	26.3	0
10/4/00 0:00	12:41	173.6	2.52	445.39	10.63	26.3	0
10/4/00 0:00	12:42	187.3	2.83	480.40	11.92	26.3	0

10/4/00 0:00	12:43	204.2	2.68	523.89	11.27	26.3	0
10/4/00 0:00	12:44	115.1	6.18	295.35	26.02	26.3	0
10/4/00 0:00	12:45	48.8	13.23	125.06	55.71	26.3	0
10/4/00 0:00	12:46	64.4	11.12	165.24	46.84	26.3	0
10/4/00 0:00	12:47	134.6	2.21	345.31	9.32	26.3	0
10/4/00 0:00	12:48	157.7	1.95	404.47	8.23	26.3	0
10/4/00 0:00	12:49	105.8	5.80	271.50	24.42	26.3	0
10/4/00 0:00	12:50	45.9	17.56	117.72	73.97	26.3	0
10/4/00 0:00	12:51	37.8	17.10	97.02	72.02	26.3	0
10/4/00 0:00	12:52	33.0	14.98	84.73	63.12	26.3	0
10/4/00 0:00	12:53	34.6	13.51	88.63	56.91	26.3	0
10/4/00 0:00	12:54	33.1	14.17	84.80	59.69	26.3	0
10/4/00 0:00	12:55	52.2	12.75	133.87	53.71	26.3	0
10/4/00 0:00	12:56	36.1	9.70	92.49	40.85	26.3	0
10/4/00 0:00	12:57	32.8	8.55	84.12	36.03	26.3	0
10/4/00 0:00	12:58	31.6	8.23	81.10	34.68	26.3	0
10/4/00 0:00	12:59	31.1	8.21	79.83	34.60	26.3	0
10/4/00 0:00	13:00	30.3	7.95	77.63	33.48	26.3	0
10/4/00 0:00	13:01	30.3	7.57	77.65	31.90	26.3	0
10/4/00 0:00	13:02	30.3	6.54	77.63	27.54	26.3	0
10/4/00 0:00	13:03	32.2	5.74	82.56	24.17	26.3	0
10/4/00 0:00	13:04	58.0	4.37	148.68	18.41	26.3	0
10/4/00 0:00	13:05	63.1	7.59	161.89	31.97	26.3	0
10/4/00 0:00	13:06	63.2	7.44	162.08	31.34	26.3	0
10/4/00 0:00	13:07	69.9	3.86	179.27	16.27	26.3	0
10/4/00 0:00	13:08	78.7	3.60	201.77	15.15	26.3	0
10/4/00 0:00	13:09	77.3	3.13	198.39	13.18	26.3	0
10/4/00 0:00	13:10	68.3	3.85	175.11	16.24	26.3	0
10/4/00 0:00	13:11	77.8	4.12	199.58	17.36	26.3	0
10/4/00 0:00	13:12	75.3	3.36	193.18	14.16	26.3	0
10/4/00 0:00	13:13	90.3	3.32	231.59	13.99	26.3	0
10/4/00 0:00	13:14	98.0	2.66	251.47	11.22	26.3	0
10/4/00 0:00	13:15	97.4	2.57	249.96	10.83	26.3	0
10/4/00 0:00	13:16	103.0	2.21	264.10	9.32	26.3	0
10/4/00 0:00	13:17	99.0	1.99	254.06	8.36	26.3	0
10/4/00 0:00	13:18	95.2	2.34	244.25	9.85	26.3	0
10/4/00 0:00	13:19	115.9	2.87	297.20	12.07	26.3	0
10/4/00 0:00	13:20	75.1	3.06	192.57	12.89	26.3	0
10/4/00 0:00	13:21	60.2	4.61	154.55	19.43	26.3	0
10/4/00 0:00	13:22	85.7	3.25	219.91	13.70	26.3	0
10/4/00 0:00	13:23	99.0	2.98	254.07	12.54	26.3	0
10/4/00 0:00	13:24	83.1	5.56	213.06	23.42	26.3	0
10/4/00 0:00	13:25	50.3	6.33	128.91	26.65	26.3	0
10/4/00 0:00	13:26	50.1	5.88	128.50	24.76	26.3	0
10/4/00 0:00	13:27	68.6	5.00	175.91	21.05	26.3	0
10/4/00 0:00	13:28	132.4	3.59	339.52	15.12	26.3	0
10/4/00 0:00	13:29	221.8	3.45	568.94	14.52	26.3	0
10/4/00 0:00	13:30	181.7	3.88	465.96	16.34	26.3	0
10/4/00 0:00	13:31	129.4	3.51	331.84	14.80	26.3	0
10/4/00 0:00	13:32	154.3	3.02	395.89	12.73	26.3	0
10/4/00 0:00	13:33	198.6	2.85	509.55	12.02	26.3	0
10/4/00 0:00	13:34	297.3	2.46	762.48	10.38	26.3	0

10/4/00 0:00	13:35	291.4	1.97	747.52	8.31	26.3	0
10/4/00 0:00	13:36	245.3	1.49	629.16	6.29	26.3	0
10/4/00 0:00	13:37	179.3	1.22	459.94	5.15	26.3	0
10/4/00 0:00	13:38	189.0	1.02	484.80	4.28	26.3	0
10/4/00 0:00	13:39	163.2	1.07	418.59	4.50	26.3	0
10/4/00 0:00	13:40	168.0	1.18	430.90	4.96	26.3	0
10/4/00 0:00	13:41	185.8	1.40	476.69	5.90	26.3	0
10/4/00 0:00	13:42	146.6	5.19	375.99	21.87	26.3	0
10/4/00 0:00	13:43	57.1	8.74	146.47	36.81	26.3	0
10/4/00 0:00	13:44	36.8	8.86	94.47	37.33	26.3	0
10/4/00 0:00	13:45	32.4	30.29	83.10	127.58	26.3	0
10/4/00 0:00	13:46	31.4	15.75	80.57	66.33	26.3	0
10/4/00 0:00	13:47	30.2	7.91	77.58	33.32	26.3	0
10/4/00 0:00	13:48	29.3	7.63	75.07	32.14	26.3	0
10/4/00 0:00	13:49	29.2	7.92	75.02	33.37	26.3	0
10/4/00 0:00	13:50	28.3	8.30	72.51	34.95	26.3	0
10/4/00 0:00	13:51	28.3	7.65	72.52	32.23	26.3	0
10/4/00 0:00	13:52	28.3	7.47	72.53	31.49	26.3	0
10/4/00 0:00	13:53	28.3	7.72	72.51	32.53	26.3	0
10/4/00 0:00	13:54	28.3	7.91	72.52	33.34	26.3	0
10/4/00 0:00	13:55	28.3	8.23	72.51	34.67	26.3	0
10/4/00 0:00	13:56	27.6	8.15	70.77	34.32	26.3	0
10/4/00 0:00	13:57	27.3	7.52	69.97	31.68	26.3	0
10/4/00 0:00	13:58	27.3	7.11	69.94	29.97	26.3	0
10/4/00 0:00	13:59	27.3	7.29	69.97	30.71	26.3	0
10/4/00 0:00	14:00	27.3	7.97	69.94	33.56	26.3	0
10/4/00 0:00	14:01	45.1	20.78	115.66	87.53	26.3	0
10/4/00 0:00	14:02	73.8	7.54	189.39	31.77	26.3	0
10/4/00 0:00	14:03	77.8	2.31	199.49	9.73	26.3	0
10/4/00 0:00	14:04	98.1	2.30	251.58	9.68	26.3	0
10/4/00 0:00	14:05	122.8	1.80	315.09	7.59	26.3	0
10/4/00 0:00	14:06	143.7	1.30	368.55	5.49	26.3	0
10/4/00 0:00	14:07	143.7	1.23	368.64	5.18	26.3	0
10/4/00 0:00	14:08	192.8	1.37	494.59	5.78	26.3	0
10/4/00 0:00	14:09	123.2	1.85	315.92	7.78	26.3	0
10/4/00 0:00	14:10	111.0	2.33	284.67	9.81	26.3	0
10/4/00 0:00	14:11	130.5	2.03	334.81	8.54	26.3	0
10/4/00 0:00	14:12	110.6	3.82	283.65	16.11	26.3	0
10/4/00 0:00	14:13	48.1	8.52	123.44	35.91	26.3	0
10/4/00 0:00	14:14	33.3	13.91	85.34	58.60	26.3	0
10/4/00 0:00	14:15	30.4	17.10	77.97	72.04	26.3	0
10/4/00 0:00	14:16	30.3	14.39	77.64	60.64	26.3	0
10/4/00 0:00	14:17	31.3	11.71	80.28	49.34	26.3	0
10/4/00 0:00	14:18	35.1	9.76	90.02	41.13	26.3	0
10/4/00 0:00	14:19	57.2	11.12	146.85	46.82	26.3	0
10/4/00 0:00	14:20	48.4	9.17	124.17	38.64	26.3	0
10/4/00 0:00	14:21	33.6	8.22	86.26	34.63	26.3	0
10/4/00 0:00	14:22	30.3	7.77	77.82	32.74	26.3	0
10/4/00 0:00	14:23	29.3	7.53	75.07	31.73	26.3	0
10/4/00 0:00	14:24	28.4	7.30	72.81	30.76	26.3	0
10/4/00 0:00	14:25	28.3	6.64	72.52	27.96	26.3	0
10/4/00 0:00	14:26	28.8	5.70	73.92	24.00	26.3	0

10/4/00 0:00	14:27	41.2	8.70	105.60	36.67	26.3	0
10/4/00 0:00	14:28	75.0	8.66	192.33	36.50	26.3	0
10/4/00 0:00	14:29	77.5	6.55	198.84	27.58	26.3	0
10/4/00 0:00	14:30	72.1	6.93	185.07	29.19	26.3	0
10/4/00 0:00	14:31	54.4	11.87	139.59	49.98	26.3	0
10/4/00 0:00	14:32	55.3	6.63	141.93	27.93	26.3	0
10/4/00 0:00	14:33	80.0	4.00	205.19	16.83	26.3	0
10/4/00 0:00	14:34	80.2	4.36	205.80	18.38	26.3	0
10/4/00 0:00	14:35	128.9	4.56	330.59	19.22	26.3	0
10/4/00 0:00	14:36	187.9	4.55	482.06	19.15	26.3	0
10/4/00 0:00	14:37	213.2	4.85	546.97	20.41	26.3	0
10/4/00 0:00	14:38	172.2	4.33	441.66	18.24	26.3	0
10/4/00 0:00	14:39	149.0	3.08	382.25	12.97	26.3	0
10/4/00 0:00	14:40	143.2	2.93	367.37	12.34	26.3	0
10/4/00 0:00	14:41	171.8	2.86	440.78	12.06	26.3	0
10/4/00 0:00	14:42	168.7	2.05	432.74	8.62	26.3	0
10/4/00 0:00	14:43	194.0	1.31	497.65	5.53	26.3	0
10/4/00 0:00	14:44	95.6	2.46	245.12	10.37	26.3	0
10/4/00 0:00	14:45	42.8	6.42	109.83	27.05	26.3	0
10/4/00 0:00	14:46	109.9	4.43	281.93	18.67	26.3	0
10/4/00 0:00	14:47	126.8	2.18	325.24	9.20	26.3	0
10/4/00 0:00	14:48	109.0	1.83	279.70	7.70	26.3	0
10/4/00 0:00	14:49	102.9	1.73	263.89	7.27	26.3	0
10/4/00 0:00	14:50	119.0	1.68	305.35	7.07	26.3	0
10/4/00 0:00	14:51	132.3	1.77	339.33	7.44	26.3	0
10/4/00 0:00	14:52	120.5	4.10	309.01	17.28	26.3	0
10/4/00 0:00	14:53	53.3	11.46	136.70	48.29	26.3	0
10/4/00 0:00	14:54	47.6	4.41	122.08	18.58	26.3	0
10/4/00 0:00	14:55	54.2	3.88	138.99	16.34	26.3	0
10/4/00 0:00	14:56	93.6	3.71	240.14	15.63	26.3	0
10/4/00 0:00	14:57	133.1	3.70	341.31	15.57	26.3	0
10/4/00 0:00	14:58	226.3	3.49	580.38	14.69	26.3	0
10/4/00 0:00	14:59	267.1	2.88	685.07	12.12	26.3	0
10/4/00 0:00	15:00	254.1	2.89	651.91	12.19	26.3	0
10/4/00 0:00	15:01	269.6	2.65	691.65	11.15		
10/4/00 0:00	15:02	352.8	2.92	904.98	12.30		
10/4/00 0:00	15:03	280.8	3.11	720.35	13.10		
10/4/00 0:00	15:04	182.5	1.66	468.09	6.97		
10/4/00 0:00	15:05	161.5	1.25	414.26	5.25		
10/4/00 0:00	15:06	166.4	1.22	426.87	5.15		
10/4/00 0:00	15:07	186.8	1.08	479.20	4.54		
10/4/00 0:00	15:08	169.2	1.24	434.14	5.20		
10/4/00 0:00	15:09	143.6	3.33	368.34	14.01		
10/4/00 0:00	15:10	51.0	6.51	130.83	27.41		
10/4/00 0:00	15:11	31.0	6.13	79.56	25.84		
10/4/00 0:00	15:12	29.3	5.88	75.08	24.77		
10/4/00 0:00	15:13	40.8	13.80	104.75	58.12		
10/4/00 0:00	15:14	90.0	5.71	230.76	24.07		
10/4/00 0:00	15:15	88.9	1.06	228.03	4.47		
10/4/00 0:00	15:16	111.5	0.98	286.10	4.12		
10/4/00 0:00	15:17	122.1	1.12	313.25	4.71		
10/4/00 0:00	15:18	124.8	1.18	320.08	4.96		

10/4/00 0:00	15:19	120.9	1.07	310.25	4.52
10/4/00 0:00	15:20	114.3	1.02	293.15	4.31
10/4/00 0:00	15:21	107.7	1.44	276.29	6.06
10/4/00 0:00	15:22	110.0	1.77	282.04	7.44
10/4/00 0:00	15:23	89.6	1.56	229.95	6.59
10/4/00 0:00	15:24	94.6	1.48	242.76	6.23
10/4/00 0:00	15:25	113.6	1.45	291.47	6.10
10/4/00 0:00	15:26	99.5	6.95	255.18	29.30
10/4/00 0:00	15:27	47.3	16.09	121.30	67.78
10/4/00 0:00	15:28	43.6	21.99	111.89	92.64
10/4/00 0:00	15:29	87.6	9.40	224.60	39.60
10/4/00 0:00	15:30	55.2	3.89	141.48	16.39
10/4/00 0:00	15:31	39.8	11.57	101.98	48.73
10/4/00 0:00	15:32	30.7	16.94	78.83	71.38
10/4/00 0:00	15:33	29.3	17.28	75.24	72.78
10/4/00 0:00	15:34	29.3	16.30	75.07	68.66
10/4/00 0:00	15:35	29.3	15.85	75.06	66.75
10/4/00 0:00	15:36	29.3	15.50	75.08	65.30
10/4/00 0:00	15:37	29.3	12.50	75.07	52.66
10/4/00 0:00	15:38	29.3	10.34	75.07	43.58
10/4/00 0:00	15:39	29.3	8.79	75.08	37.03
10/4/00 0:00	15:40	29.3	7.93	75.08	33.42
10/4/00 0:00	15:41	29.3	7.39	75.07	31.12
10/4/00 0:00	15:42	29.3	6.91	75.08	29.12
10/4/00 0:00	15:43	29.3	6.68	75.07	28.14
10/4/00 0:00	15:44	29.3	6.96	75.08	29.34
10/4/00 0:00	15:45	30.8	7.08	78.95	29.81
		93.4	6.1		